STATE OF CALIFORNIA Edmund G. Brown Jr., *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

March 16, 2015

Advice Letter 4759-G

Rasha Prince, Director
Regulatory Affairs
Southern California Gas
555 W. Fifth Street, GT14D6
Los Angeles, CA 90013-1011

SUBJECT: PG&E, SDG&E, SCE, and SoCal Gas' Zero Net Energy Pilot for Local Educational Agencies and Community Colleges Pursuant to OP 7 of Energy Efficiency D.14-10-046

Dear Ms. Prince:

Advice Letter 4759-G is effective as of March 15, 2015.

Sincerely,

Edward Randolph

Edward Randolph
Director, Energy Division

Meredith Allen
Senior Director
Regulatory Relations

Pacific Gas and Electric Company
77 Beale St., Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

Fax: 415-973-7226

February 13, 2015

Advice 3563-G/4587-E
(Pacific Gas and Electric Company ID U 39 M)

Advice 2704-E/2360-G
(San Diego Gas and Electric Company U 902 M)

Advice 3176-E
(Southern California Edison Company – U 338 E)

Advice 4759
(Southern California Gas Company – U 904 G)

Public Utilities Commission of the State of California Energy Division

Subject: **Pacific Gas and Electric Company, San Diego Gas and Electric Company, Southern California Edison Company, and Southern California Gas Company's Zero Net Energy Pilot for Local Educational Agencies and Community Colleges Pursuant to OP 7 of Energy Efficiency Decision 14-10-046**

Purpose

Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric Company (SDG&E), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas) (together the "Investor-Owned Utilities", or "IOUs") request approval of a proposed 2015 Proposition 39 Zero Net Energy Schools Pilot Program, pursuant to Decision (D.) 14-10-046 Ordering Paragraph (OP) 7.

Background

Proposition 39, the California Clean Energy Jobs Act of 2012 (Prop 39), provides up to $500 million (M) per year to improve energy efficiency and increase the use of clean energy in public schools and community colleges. Local Educational Agencies (LEAs) may apply for the five-year program by submitting an energy expenditure plan application to the California Energy Commission (CEC); community colleges submit their applications to the California Community College Chancellor's Office.

On October 24, 2014, the California Public Utilities Commission (Commission or CPUC) issued D.14-10-046 (with an effective date of October 16, 2014) which identifies Prop 39 as an opportunity to expand California's progress on deep retrofits and Zero Net Energy (ZNE) retrofits. Specifically, OP 7 of D.14-10-046 states, "Pacific Gas and Electric Company, San Diego Gas and Electric Company, Southern California Edison Company and Southern California Gas Company (IOUs) shall develop a deep ZNE focused Pilot for Eligible Local Educational Agencies and community colleges. IOUs shall file Tier 2 Advice Letters (ALs) within 120 days of the date of this decision describing the Proposition 39 ZNE effort. The IOUs shall work with Commission Staff and the Department of General Service (overseeing the state building ZNE effort) to coordinate a Proposition 39 effort. Each AL shall describe a program scalable for the full term of Proposition 39."[1,2]

Pilot Summary

The Prop 39 ZNE Schools Pilot (Pilot) will assist schools in retrofitting existing facilities to ZNE by leveraging Prop 39 funding. The Pilot will establish "proof of concept" that ZNE retrofits of schools is feasible across California. The IOUs are targeting approximately 13-18 projects in 13-18 school districts or community colleges for the Pilot. Additionally, to serve the schools community more broadly, the IOUs will disseminate learnings, processes and materials germane to ZNE to the many stakeholders in the California schools community. These efforts would involve training classes and webinars, publications, design guides and recognition events as dissemination vehicles. Finally, the IOUs would learn from the Pilot to explore the feasibility of a larger-scale program for future years. The Pilot is intended to address ZNE needs in schools on a comprehensive and sustainable basis through the period that Prop 39 funding is available and beyond. The scope of the Pilot aligns with Prop 39 by encompassing K-12 public institutions and community colleges.

The budget for the Pilot is approximately $8.8M from 2015 to 2019, $825,000 of which is anticipated to be needed in 2015. More detail is contained in Attachment 3.

The Pilot contains the following five elements, which are described in more detail in Attachment 1:

Element 1.0: IOU ZNE Demonstration School Retrofits
Element 2.0: Training, Outreach and Recognition
Element 3.0: Institutional Training

[1] D.14-10-046, p. 162.
[2] *Id.,* p. 72 ("We do not authorize additional funding but expect, at least through 2015, that the IOUs have sufficient funds to support this effort in light both of historic patterns of underspending in prior budget cycles, and the current trajectory.")

Element 4.0: Codes and Standards
Element 5.0: Production Program Development

The IOUs will initiate 13-18 demonstration school retrofits in Element 1.0. Five to eight demonstrations will be initiated in 2015 and eight to thirteen will be initiated in 2016 to "ramp up" Pilot implementation. Projects will be selected through an open and transparent selection process, which will be developed and released within 30 days following approval of this Advice Letter.

In the event there are more candidate sites interested in Element 1.0 than can be accommodated, the IOUs will use the following Demonstration Project Selection Criteria:

- Funding
- ZNE Viability
- Diversity
- Project Impact

The Pilot will extend beyond the calendar year 2015. Providing assistance for the demonstration schools under Element 1.0 and establishing proof of concept will extend into 2019, at minimum, due to the length of Prop 39 and the typical construction timeline for a ZNE retrofit in addition to project design, monitoring, and evaluation.

Element 2.0 items (Training, Outreach and Recognition) could be designed and documented within one year, but training and dissemination needs will be ongoing as the ZNE work moves forward. Similarly, there will be ongoing needs for Element 3.0 (Institutional Training) activities beyond calendar year 2015. Element 4.0 (Codes and Standards) work will need to target the 2019 code cycle (which will require work to be completed in 2017). Finally, Element 5.0 may be scheduled within calendar years 2016 and 2017.

The IOUs propose that PG&E serve as the lead utility for the Pilot. To facilitate statewide consistency, coordination and communications, the IOUs also propose to work with a single contractor to assist with components of Elements 2.0-5.0 such as trainings, outreach, and recognition activities. PG&E will hire the contractor with IOU co-funding arrangements made with partner IOUs. Each IOU has determined the best structure for its internal administration of demonstration school retrofits (Element 1.0).

Attachments

This Advice Letter contains the following attachments detailing the terms and conditions of the Pilot.

- Attachment 1: Pilot Scope of Work

- Attachment 2: Demonstration Project Selection
- Attachment 3: Pilot Budgets
- Attachment 4: Ten Pilot Elements

The filing would not increase any current rate or charge, cause the withdrawal of service, or conflict with any rate schedule or rule.

Protests

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, facsimile or E-mail, no later than March 5, 2015, which is 20 days after the date of this filing. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

For PG&E:

Meredith Allen
Senior Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-7226
E-mail: PGETariffs@pge.com

For SDG&E:

Megan Caulson
Regulatory Tariff Manager
8330 Century Park Court, Room 32C
San Diego, CA 92123-1548
Facsimile: (858) 654-1879
E-mail: MCaulson@semprautilities.com

For SCE:

Russell G. Worden
Director, State Regulatory Operations
Southern California Edison Company
8631 Rush Street
Rosemead, CA 91770
E-mail: AdviceTariffManager@sce.com

Michael R. Hoover
Director, State Regulatory Affairs
c/o Karyn Gansecki
Southern California Edison Company
601 Van Ness Avenue, Suite 2030
San Francisco, CA 94102
E-mail: Karyn.Gansecki@sce.com

For SoCalGas:

Attn: Sid Newsom
Tariff Manager - GT14D6
555 West Fifth Street
Los Angeles, CA 90013-1011
E-mail: snewsom@SempraUtilities.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

Effective Date

The IOUs requests that this Tier 2 advice filing become effective on regular notice, March 15, 2015 which is 30 calendar days after the date of filing.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service list for R.13-11-005. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Send all electronic approvals to PGETariffs@pge.com. Advice letter filings can also be accessed electronically at: http://www.pge.com/tariffs/.

/S/
Meredith Allen
Senior Director, Regulatory Relations

Attachments

cc: Cathleen Fogel, CPUC, Energy Division
Daniel Buch, CPUC, Energy Division
Service List R.13-11-005

CALIFORNIA PUBLIC UTILITIES COMMISSION

ADVICE LETTER FILING SUMMARY
ENERGY UTILITY

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

Company name/CPUC Utility No. **Pacific Gas and Electric Company (ID U39 M)**

Utility type:	Contact Person: Kingsley Cheng
☑ ELC ☑ GAS	Phone #: (415) 973-5265
☐ PLC ☐ HEAT ☐ WATER	E-mail: k2c0@pge.com and PGETariffs@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas
PLC = Pipeline HEAT = Heat WATER = Water

(Date Filed/ Received Stamp by CPUC)

Advice Letter (AL) #: **3563-G/4587-E, et al.** **Tier: 2**

Subject of AL: **Pacific Gas and Electric Company, San Diego Gas and Electric Company, Southern California Edison Company, and Southern California Gas Company's Zero Net Energy Pilot for Local Educational Agencies and Community Colleges Pursuant to OP 7 of Energy Efficiency Decision 14-10-046**

Keywords (choose from CPUC listing): Compliance

AL filing type: ☐ Monthly ☐ Quarterly ☐ Annual ☑ One-Time ☐ Other _____

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: N/A

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: _____

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for: No

Confidential information will be made available to those who have executed a nondisclosure agreement: N/A

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: _____

Resolution Required? ☐Yes ☑No

Requested effective date: **March 15, 2015** No. of tariff sheets: N/A

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: N/A

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

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

California Public Utilities Commission
Energy Division
EDTariffUnit
505 Van Ness Ave., 4th Flr.
San Francisco, CA 94102
E-mail: EDTariffUnit@cpuc.ca.gov

Pacific Gas and Electric Company
Attn: Meredith Allen
Senior Director, Regulatory Relations
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177
E-mail: PGETariffs@pge.com

Attachment 1: Pilot Scope of Work

PROPOSED PILOT PROGRAM

The Proposition (Prop) 39 ZNE Schools Pilot (Pilot) will assist schools and community colleges in retrofitting existing facilities to zero net energy (ZNE) by leveraging Prop 39 funding. The goal of this activity will be to establish "proof of concept" that ZNE retrofits of schools is feasible across California. The investor-owned utilities (IOUs) are targeting approximately 13-18 projects in 13-18 school districts or community colleges with this effort. Additionally, to serve the schools community more broadly, the IOUs will disseminate learnings, processes and materials germane to ZNE amongst the many stakeholders in the California schools community. These efforts would involve training classes and webinars, publications, design guides and recognition events as dissemination vehicles. Finally, the IOUs will learn from the Pilot to explore the feasibility of a larger-scale program for future years. Taken together, the Pilot efforts are intended to address ZNE needs in schools and community colleges on a comprehensive and sustainable basis though the duration of Prop 39 and beyond. The scope of the Pilot aligns with Prop 39 by encompassing both K-12 public institutions and community colleges.

The Pilot contains five elements as outlined below:

Element 1.0: IOU ZNE Demonstration School Retrofits
Element 2.0: Training, Outreach and Recognition
Element 3.0: Institutional Training
Element 4.0: Codes and Standards and Emerging Technologies
Element 5.0: Production Program Development

The Pilot is anticipated to be 3-4 years in duration due to the length of Prop 39 and the typical construction timeline for a ZNE retrofit in addition to design, monitoring, and evaluation.

The IOUs propose to have Pacific Gas & Electric (PG&E) serve as the lead utility for the Pilot. To facilitate statewide consistency, coordination and communications, the utilities also propose to work with a single contractor to assist with components of Elements 2.0-5.0 such as trainings, outreach, and recognition activities. The contractor will be hired by the lead utility with co-funding arrangements and specific tasks to be developed. Each IOU has determined the best structure for its internal administration of demonstration school retrofits (Element 1.0).

DEFINING ZERO NET ENERGY:

The 2013 Integrated Energy Policy Report (IEPR) describes the goals and policy framework for ZNE building in California:

> "California has a policy goal of achieving ZNE building standards by 2020 for low-rise residential buildings and by 2030 for commercial buildings. In addition, Governor Brown's Executive Order B-18-12 establishes goals for ZNE construction in new and existing state buildings between now and 2025. As a step toward achieving these goals, the CEC has worked closely with the CPUC and stakeholders (including the IOUs) to develop the following definition:

> *A Zero-Net-Energy Code Building is one where the net amount of energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building, at the level of a single "project" seeking development entitlements and building code permits, measured using the CEC's Time Dependent Valuation metric. A zero-net-energy code building meets an energy use intensity value designated in the Building Energy Efficiency Standards by building type and climate zone that reflect best practices for highly efficient buildings*." [1]

The IOUs wish to emphasize that this definition *requires* "best practice" levels of efficiency. That is, zeroing out the energy footprint of a building with average or low levels of efficiency by way of a large amount of renewable generation would *not* meet California's definition of "ZNE."

The IEPR also describes additional requirements in order to make the ZNE definition functional.

> "Making the ZNE definition operational will require ongoing efforts through the 2016 and 2019 code development cycles and beyond. To ensure that all buildings have a pathway to compliance, the CEC anticipates establishing reasonable exceptions to account for building and building site limitations. Several other issues also require further discussion and should be addressed through broad working group participation.
>
> Recommendations to ensure success in meeting the ZNE goals as they are currently outlined include:
> - adopting triennial building standards updates that increase the efficiency of new buildings by 20 to 30 percent in each update;
> - developing industry-specific training and financial incentives to help achieve reach standards;
> - tracking market progress on ZNE construction and performance;
> - coordinating with the California Public Utilities Commission (CPUC) on future investor-owned utility new construction-related programs;
> - collaborating with the CPUC and stakeholders to create workforce development programs that provide the skills needed to meet ZNE goals; and,
> - including a voluntary energy tier for ZNE in the California Green Building Standards Code."[2]

The IOUs have incorporated these recommendations into this Pilot design.

SCOPE OF WORK

Element 1.0: IOU ZNE Demonstration School Retrofits

With so few ZNE retrofit buildings in California and in the school market, the goal of Element 1.0 is to establish proof-of-concept demonstration projects that will spur market transformation. The purpose is to demonstrate multiple times and in multiple regions that ZNE can be achieved in school buildings. Once built, these facilities can be used as learning tools in many different districts.

[1] 2013 Integrated Energy Policy Report (IEPR), Chapter 1: Energy Efficiency, Page 5
[2] Ibid, Page 6

The IOUs will select 5-8 projects in 2015 and an additional 8-13 projects in 2016. In total, the IOUs would like to initiate 13-18 projects, preferably at 13-18 different Local Educational Agencies (LEAs) and community colleges, throughout the Pilot period (Table 1). Each project is anticipated to take approximately three years.

Table 1 – Target Number of Demonstration Projects per IOU

	PG&E	SoCalGas & SCE	SDG&E	Total
Round 1 (2015-2018)	2-3	2-3	1-2	5-8
Round 2 (2016-2019)	3-4	3-4	2	8-10
Total	5-7	5-7	3-4	13-18

The IOUs will target a break-down of demonstration projects that roughly mirrors the state's Prop 39 allocations; the majority of applicants selected will be K-12 (approximately 80%) and the remaining applicants will be California Community Colleges. This direction reflects that fact that there are many more K-12 schools in California than community colleges, and proportionally more investment is necessary in the K-12 market to spur market transformation.

Utilities have observed that ZNE buildings can be achieved only by way of an integrated, multi-disciplinary design process that includes:

- Target-setting for the whole building energy footprint
- Designing to the target footprint
- Building to the design
- Monitoring, diagnosis and correction

The ZNE demonstrations will be independently administered by each IOU with Southern California (SCE) and Southern California Gas (SoCalGas) working in close coordination in overlapping areas of their territories.[3] The process for selecting demonstration projects is outlined in Attachment 2.

While each utility has determined the best structure for internal administration of the demonstration projects, the following sub-elements are common across all IOUs:

1.1 Design Consultation: Utilities will provide detailed, high-quality design consultation to the participant client. The assistance will be focused on achieving whole building ZNE and will include detailed analysis on specific key systems that require "more and better" analysis than is typically available to school clients under conventional procurement methods used in the school environment. Such analysis could include detailed consideration of:

[3] The IOUs commit to the total number of demonstration projects shown in Table 1, but the project delivery per IOU may deviate from above depending on the location of participating schools and the level of potential participation by publicly-owned utilities. For instance, SoCalGas shares territory with PG&E, LADWP, and SCE and could potentially deliver demonstration projects in partnership with any of these other utilities, not just SCE as shown above. Projects with any IOU involvement will account towards the total number of projects.

- daylighting systems (including building shell and fenestration issues, lighting equipment selection and control system selection),
- natural ventilation systems and
- radiant heating and cooling systems
- rooftop solar photovoltaic (PV) systems
- emerging technologies as appropriate

As required, other advanced building systems will be considered as well. The utilities anticipate providing this assistance by way of proven, nationally recognized technical consulting.

The consultation element will be structured to produce a design with a very low energy footprint, in the range of 16-22 kBtu/sf/yr at the site; low enough to ensure that the smallest (and therefore least costly) renewable system can be used to achieve ZNE.

1.2 Construction Inspection and Commissioning Support: During the construction and initial occupancy of the project, the utilities shall structure support efforts to ensure that key building system features are correctly installed and are operating correctly.

1.3 Incremental Cost Buy-down: In the demonstration program, the utilities will develop a process for "buying down" the full incremental cost of achieving the energy utilization footprint required for ZNE. For the purposes of this demonstration element, program limits on incentive levels will not necessarily apply to the Pilot incremental cost buy-down. This Pilot element is expected to provide important information for Pilot element 5.0, development of a production program for schools retrofit.

1.4 Monitoring, Diagnosis, Correction and Validation: It is commonly the case in construction efforts that, despite all best efforts, various issues result in unexpected performance problems of some type. Because achieving ZNE involves very tight performance parameters, it is especially important to monitor major building systems to check for operating problems and/or anomalies for these demonstration buildings. As such, Pilot element 1.4 provides for third-party system monitoring to allow diagnosis, correction and ultimate validation of ZNE performance. Although the monitoring cannot begin until building completion, design provisions for the monitoring system will be incorporated in conjunction with Element 1.1. Element 1.0 is also expected to provide lessons learned for future buildings, and for the Codes and Standards Element 4.0. The third party for Element 1.4 will be independent from the third-party design consultation provider described in Element 1.1.

1.5 Coordination with Proposition 39: The IOUs will work with the LEA or Community College and California Energy Commission (CEC) or Chancellor's Office to develop a Prop39 energy expenditure plan for the Prop 39-funded portion of the project. The IOUs will engage the CEC and Chancellor's Office early in this process. This energy expenditure plan will be completed and submitted after the design consultations outlined in Element 1.1 above. The expenditure plans will document the way in which Prop 39 funds are used in the construction of a ZNE retrofit to allow the findings to be used by a broader customer base.

The following points are intended to clarify the role of renewable energy generation in the ZNE demonstration projects:

- In Element 1.1, the IOUs will make on-site renewable generation a priority in the design consultation.
- In Element 1.4, the IOUs will evaluate the performance of the on-site renewable installations.
- In Element 1.3, the IOUs will buy down equipment to achieve the target level of building energy efficiency. With California Solar Initiative (CSI) incentives nearly fully subscribed, the IOUs will not make a direct financial contribution to the purchase or installation of solar PV systems. The IOUs are able to advise on potential financing options for on-site renewables and Prop 39 funds may also be put towards this purpose.

Element 2.0: Training, Outreach and Recognition

Although the number of documented ZNE buildings is growing at a high rate[4], ZNE buildings represent just a tiny fraction of the current building stock of approximately five million total commercial buildings nationally.[5] For this reason, information transfer based on the known examples of ZNE buildings is vital. As such, the Pilot will include a robust effort to produce materials and publications, including training based on those materials, and demonstrating key successes in documented, proven ZNE and high performance buildings. As the projects in Element 1.0 produce results, the learnings from those projects will be included in this element.

- **2.1 Outreach Plan:** As an initial step, the IOUs will create an outreach plan in coordination with the CPUC to address technical and institutional trainings as outlined in Element 2.0 and 3.0 herein. The plan will outline the purpose, timeline, intended audience, and location or format of ZNE training for LEA staff. The Outreach Plan will be separate and independent from outreach to recruit potential demonstration project participants (See Attachment 2). The Plan will be complete before the initiation of Element 1.0.

- **2.2 Case Studies and Training:** As part of the Pilot, the utilities shall develop relevant case study materials covering whole buildings and major systems such as lighting/daylighting systems, radiant heating and air conditioning, natural ventilation, monitoring and feedback systems. Case Studies chosen shall be from schools or for buildings and design conditions sufficiently similar to schools so as to provide relevant examples. Case study examples will not necessarily be limited to California as long as the learnings are relevant to California school buildings. Additional requirements for case studies and related training include:

    - The case studies shall focus on data-driven performance targets and achievement at the whole building level as well as at the major system level
    - Based on the case studies, the utilities shall develop and deliver training sessions targeted to inform school officials and the network of service providers involved in school design, construction, commissioning and operations.
    - Dissemination methods shall include “live” training, web-based training, publications and web-based materials

- **2.3 Recognition of Outstanding ZNE Achievement in Schools:** Working with stakeholders in the schools community, and including the CEC, the CPUC, the

[4] http://newbuildings.org/2014-zne-update
[5] http://www.energystar.gov/buildings/about-us/facts-and-stats

Governor's office and other state agencies as warranted, the IOUs will develop a recognition program highlighting outstanding energy efficiency and ZNE performance in the K-12 and community college arena. It is anticipated that the program will provide recognition awards for a variety of outstanding projects in the state covering diverse geographical regions, a range of small to large projects and a range of K-12 and community college buildings.

Element 3.0: Institutional Training

The utilities shall develop and deliver training sessions focused on ZNE and high performance building delivery. These sessions will focus on stakeholder engagement across multiple segments (students, parents, administration, and operations). It will emphasize the benefits of high performance buildings (energy and non-energy) and develop/disseminate key success factors from example projects. The primary audience for the institutional trainings will be the participating schools in Element 1.0, although these trainings will be available for other interested districts as well.

Element 4.0: Codes and Standards and Emerging Technologies

4.1. Codes and Standards. In this Pilot element, the utilities will work with existing Codes and Standards (C&S) advocacy efforts and with the CEC to investigate the potential for school-related Title 24 measures that create specific opportunities to improve the energy footprints of schools. The scope of such work could include improved rule sets for energy simulation work together with investigation on specific hardware measures. This element would include outreach, training and education on measures identified. As appropriate, these C&S efforts will be incorporated into Elements 1.0 and 2.0.

4.2. Coordination with Emerging Technologies. IOUs will coordinate with their Emerging Technologies (ET) teams to determine if the demonstration schools are appropriate hosts for ET projects such as advanced lighting controls, daylighting modeling, phase change insulation, energy storage, ultra capacitors, and air to air ground source heat pumps. Projects and technologies that have high repeatability and reliability will be prioritized, given the inherent retrofit limitations of California schools. Energy efficiency upgrades and energy management systems also could be platforms for future incorporation of ancillary technologies that target health and wellness or learning enhancing methods, such as light color temperature alteration. Schools also have generally predicable usage schedules, which may create further opportunities for automated energy management, load shifting, energy storage, and peak reduction. It is unlikely that every demonstration project will be suitable for an ET project.This item will be funded through individual, existing ET budgets per IOU.

Element 5.0: Production Program Development

In this Pilot element, the IOUs will create a "non-Pilot" ZNE school and community college program that is scalable to more districts. The utilities will work jointly on a statewide effort to create incentive and/or market transformation program(s) designed to have impact "at scale" in the schools market. This activity will begin as early as late 2016 with the goal of launching a more cost-effective and scalable program in 2017.

Since the demonstration projects will be in the design and construction phase at this time, the foundation for the program design will be learnings and results from the demonstration projects

to date as well as the market/process study outlined below in the EM&V section. The program design will be designed to align with long-term, energy-based California goals for this sector and would align with longer term plans to provide the financing and resources available to achieve the goals. This Pilot element will be designed to serve as a possible model for future energy efficiency programs for deep retrofits and new construction programs in California. When results from the demonstration projects in Element 1.0 become available, they will be considered and guide possible program improvements and modifications. As a result, the program structure will be revisited in 2018/2019 upon completion and successful monitoring of the demonstration projects.

EVALUATION, MEASUREMENT AND VERIFICATION (EM&V): EVALUATION OBJECTIVES AND RESEARCHABLE QUESTIONS

The primary research goals for EM&V regarding ZNE in the K-12 plus Community College (K-14) market and the Prop 39 Pilot are to: (1) collect data on the technical feasibility and market potential for assisting school facilities in retrofits to achieve ZNE; and (2) provide actionable information on how to best move forward with ZNE school objectives "at scale." The Pilot will yield significant findings and lessons learned as California moves forward with ZNE efforts in the K-14 market. The IOUs are convinced that the Pilot focus, one of demonstrating "proof of concept" for ZNE school retrofits, is a crucial first step in achieving broader marketplace acceptance. However, it necessarily involves a relatively small number of participants.

To fully and comprehensively address the EM&V objectives, the IOUs believe a market characterization of the K-14 schools market overall from the perspective of achieving ZNE represents the best vehicle. Prior ZNE research and pilot program results and learnings will figure prominently in this characterization. For example, the study would leverage the results and tool from the IOU-funded "Technical Feasibility of Zero Net Energy Buildings in California" (Arup, North America Ltd., 2012)[6] project, as well as other research results and tools, to assess the technical feasibility and estimated costs of ZNE school retrofits across California's different climate zones, as well as key market actors and how to best engage them and leverage change. However, the EM&V efforts will not focus on Pilot results narrowly, but rather on the broader needs of the entire market by obtaining feedback from a broad range of market players, similar to the ongoing "Residential ZNE Market Characterization."

Accordingly, the IOUs will conduct a market characterization of the K-14 market vis-à-vis ZNE during calendar year 2016. Initial scoping of the effort will begin in 2015. The IOUs estimate expenditures of approximately $300,000 as outlined in Attachment 3, although funding sources for this study are still to be determined. Future EM&V needs for this Pilot will be assessed in subsequent EM&V planning cycles.

SCHEDULE

[6] http://www.energydataweb.com/cpucfiles/pdadocs/904/california_zne_technical_feasibility_report_final.pdf

The efforts of the program as described above will extend well beyond calendar year 2015. Providing the assistance for the demonstration schools under Element 1.0 and establishing proof of concept of ZNE with the Element 1.0 participants will extend into 2019 at minimum allowing for project design, construction and post-occupancy monitoring.

Under the model proposed, the general sequence of events in Element 1.0 is as follows:

1. projects selected (See Attachment 2 for Selection Process),
2. solutions designed,
3. buildings constructed,
4. buildings occupied, and
5. monitoring, correction and validation completed.

The process above will require at least three years. Element 2.0 items (Training, Outreach and Recognition) will be designed and implemented within one year, however, these training and dissemination needs will be ongoing as the ZNE work moves forward. Similarly, there will be ongoing needs for Element 3.0 (Institutional Training) activities beyond calendar year 2015. Element 4.0 (Codes and Standards) activities will need to target the 2019 code cycle (which will require work to be completed in 2017). Finally, although a new program design could be designated within calendar year 2017, the utilities anticipate that ongoing work beyond 2015 will be required to fully integrate the program with future code requirements.

Element/Sub-Element	2015	2016	2017	2018	2019
Element 1.0: Round 1 2015 Projects					
School Selection*					
Designer Selection*					
1.1. Design Consultation					
1.2. Construction Inspection and Commissioning					
1.3. Incremental Cost Buy-Down					
1.4. Monitoring, Diagnosis, Correction, Validation					
1.5. Prop 39 Coordination					
Element 1.0: Round 2 2016 Projects					
School Selection*					
1.1. Design Consultation					
1.2. Construction Inspection and Commissioning					
1.3. Incremental Cost Buy-Down					
1.4. Monitoring, Diagnosis, Correction, Validation					
1.5. Prop 39 Coordination					
Element 2.0: Training, Outreach and Recognition					
Develop Technical Training Materials					
Deliver Technical Trainings					
Case Studies					
Webpage Development and Upkeep					
Recognition					
Element 3.0: Institutional Training					
Training and Outreach to LEAs					
Element 4.0: Codes and Standards and ET					
Codes and Standards Advocacy					
Emerging Technologies					
Element 5.0: Production Program Development					
Market/Process Study					
Non-Pilot Program Development Process*					
Anticipated Initiation of Non-Pilot Program Offering*					

Foundational, non-budgetary IOU activities marked by asterisk (*)

Attachment 2: Demonstration Project Selection

ELIGIBLE APPLICANTS

Eligible applicants include K-12 schools and California Community Colleges eligible for a Proposition (Prop) 39 allocation as listed on the California Department of Education website: http://www.cde.ca.gov/fg/aa/ca/prop39cceja.asp.

Applicants must be served by at least one of California's Investor-Owned Utilities (IOUs) and, if applicable, disclose which entity provides their other energy-related services (i.e., Publicly-Owned Utilities (POUs), direct access providers, Community Choice Aggregators, etc.).

The breakdown of selected applicants is planned to roughly mirror the state's funding breakdown for Prop 39. The Pilot intent is that the majority of applicants selected will be K-12 (approximately 80%), and the remaining applicants will be a California Community College.

Eligible applicants will not have installed a Prop 39-funded project at the building in question that may disrupt or hinder the building's ability to achieve Zero Net Energy (ZNE) status. The applicant district is willing to develop or re-develop an energy expenditure plan (EEP) for the site in partnership with the Pilot implementer(s) after initial retrofit design.

SELECTION PROCESS

The selection process for potential projects will be conducted by utilizing a transparent selection process. IOUs will jointly develop this process to maintain statewide consistency and will release the timeline for selecting projects no later than 30 days after the Advice Letter for the pilot is approved by the California Public Utilities Commission (CPUC). Each IOU will then manage the process for their respective regions of the state; Southern California Edison (SCE) and Southern California Gas (SCG) will jointly select projects. Interested parties should be prepared to submit information related to the selection criteria listed below. IOUs will conduct local outreach with the public leveraging different resources such as various mailing lists, informal outreach meetings with school affiliated organizations (such as California Department of Education, California Community College Chancellor's Office, School Energy Coalition, etc.), and account representative direct outreach with interested LEAs

SELECTION CRITERIA

These criteria may be used in the event there are more candidate sites interested in the pilot than can be accommodated. In the event this situation occurs, the following criteria will be used to select project sites. Each criterion is weighted with a percentage factor (totaling 100%); factors with a larger percentage are given more weight in the selection process.

1. **Funding** (35%) – The following will be considered:
    a. Prop 39 funding – Prop 39 fund allocation, the amount of Local Education Agency (LEA) allocation that has been spent on planning/design or implementation work to date, and the amount of LEA allocation the LEA is able to spend on the ZNE site.
    b. Other funding – Non-Prop 39 funding available to the applicant district for a ZNE project.

2. **ZNE Viability** (25%) – This factor will be determined by obtaining the most recent 12 months of utility bills, both gas and electric, and performing a calculation to determine viability to ZNE. Priority will be given to projects that have the higher likelihood for meeting the ZNE performance goals. To assess this, the IOUs will conduct an energy benchmark to determine a candidate's current kBtu/ft2/year and compare it to the ZNE target, 16-22 kBtu/ft2/year. The purpose of this exercise is to determine if ZNE is feasible at the site, not to give preference to school sites that are closest to the ZNE target level of efficiency under current conditions. The IOU will also evaluate the potential for on-site renewable energy by considering factors such as solar orientation, roof size and condition, and climate. The presence of existing solar photovoltaic (PV) or other renewable systems on or around the project site will not preclude participation. Priority will be given to demonstration project sites between 5,000 and 20,000 square feet in size, but applications for larger and smaller buildings will also be accepted. If the proposed funding does not appear to allow for a feasible ZNE building retrofit given the customer's building conditions, then the IOU will work with the school to either modify the extent of the Project (i.e. if proposed project is 50,000 square feet, it may need to change to 20,000 square feet instead) or explore financing options. The project will not be selected if a solution cannot be identified to make ZNE feasible.

3. **Project Diversity** (20%) – This factor will aim to enlist a diversity of campuses across climate zones, income levels (as determined by California Department of Education public record of free and reduced meal plans at the school site for K-12 schools), building type, and building vintage. This is important to show viability of the Program's success throughout each IOU's service territory. This criterion in no way disqualifies good candidates in similar climate zones, with similar income levels or building vintage, however there will be a 50% cap for campuses which are similar in any of the three dimensions of diversity in this criterion (e.g., if four projects came from a single climate zone, only two will be chosen by that IOU to preserve some climate zone diversity; in the case where all potential projects were from the same climate zone, then all would be accepted in order to meet Pilot goals for an IOU).

    a. Climate Zone diversity details, IOU-specific:
        i. SCE's Preferred Resources Pilot (PRP) is a regional pilot to measure the impact on the grid of preferred resources- alternatives to building new power plants. From this study, SCE hopes to develop an approach that will demonstrate that preferred resources can help meet reliability needs across SCE's service territory. This multi-year pilot, to be conducted in central Orange County, will study the reliability of distributed generation, energy efficiency and conservation programs, and energy storage. The ZNE concept aligns well with the stated purpose of the PRP, thus SCE will leverage this Prop 39 ZNE pilot and select a school campus (K-12 or Community College) in the PRP region. This would accomplish goals for the Prop 39 ZNE pilot, as well as those for PRP. In addition to PRP projects, which are considered climate zone 6 and 8, SCE will also target projects in a different climate zone, such as climate zone 14 and 15. This aligns with project selection criteria for location by showing climate zone diversity[1].

[1] For more information on PRP, please see SCE's website, www.on.sce.com/preferredresources.

ii. Pacific Gas & Electric Company (PG&E) initiated a Targeted Demand Side Management Pilot in 2014 as a proof-of-concept to reduce load on capacity-constrained substations through targeted deployment of energy efficiency programs. The higher societal value of these savings justifies higher incentive rates. As such, it would be of benefit to both the Targeted Demand Side Management Pilot and the Prop 39 ZNE Schools Pilot if one or more demonstration projects are located in the constrained substation areas.

4. **Project Impact** (20%) – An objective of the Pilot is to have the largest impact possible within the selected campuses. Considerations will include the building use (e.g., classrooms, library, offices, laboratories, culinary arts facilities, and gymnasiums) and the size of the project in relation to the campus. Impact will be considered by total percentage of load reduction in relation to the candidate's total energy load.

Attachment 3: Budgets

The following tables represent the approximate budget per IOU per year for the life of the Pilot.

Table 1: Budget Summary per IOU per Year

	2015	2016	2017	2018	2019	Total
Element 1.0 Budget						
PG&E	$ 160,000	$ 420,000	$ 510,000	$ 1,080,000	$ 920,000	$ 3,090,000
SCE/SCG (Jointly Delivered)	$ 160,000	$ 420,000	$ 510,000	$ 1,080,000	$ 920,000	$ 3,090,000
SDG&E	$ 80,000	$ 210,000	$ 255,000	$ 540,000	$ 460,000	$ 1,545,000
Subtotal Element 1.0.	**$ 400,000**	**$ 1,050,000**	**$ 1,275,000**	**$ 2,700,000**	**$ 2,300,000**	**$ 7,725,000**
Element 2.0-5.0 Budget (Co-Funded)						
PG&E (43%)	$ 182,750.00	$ 88,150.00	$ 83,850.00	$ 60,200.00	$ 60,200.00	$ 475,150.00
SCE (36%)	$ 153,000.00	$ 73,800.00	$ 70,200.00	$ 50,400.00	$ 50,400.00	$ 397,800.00
SCG (9%)	$ 38,250.00	$ 18,450.00	$ 17,550.00	$ 12,600.00	$ 12,600.00	$ 99,450.00
SDG&E (12%)	$ 51,000.00	$ 24,600.00	$ 23,400.00	$ 16,800.00	$ 16,800.00	$ 132,600.00
Subtotal Elements 2.0-5.0 (Co-Funded)	**$ 425,000.00**	**$ 205,000.00**	**$ 195,000.00**	**$ 140,000.00**	**$ 140,000.00**	**$ 1,105,000.00**
Total Pilot Budget	**$ 825,000.00**	**$ 1,255,000.00**	**$ 1,470,000.00**	**$ 2,840,000.00**	**$ 2,440,000.00**	**$ 8,830,000.00**
Subtotal PG&E	$ 342,750.00	$ 508,150.00	$ 593,850.00	$ 1,140,200.00	$ 980,200.00	$ 3,565,150.00
Subtotal SCE and SCG	$ 351,250.00	$ 512,250.00	$ 597,750.00	$ 1,143,000.00	$ 983,000.00	$ 3,587,250.00
Subtotal SDG&E	$ 131,000.00	$ 234,600.00	$ 278,400.00	$ 556,800.00	$ 476,800.00	$ 1,677,600.00

Table 2: Elements 2.0-5.0 Co-Funded Budget per Year

Co-Funded Elements / Sub Elements	2015	2016	2017	2018	2019	TOTAL
Element 2.0: Case Studies, Technical Training, Outreach and Recognition						
Develop Technical Training Materials	$ 40,000.00	$ 10,000.00	$ -	$ -	$ -	$ 50,000.00
Deliver Technical Trainings	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ -	$ -	$ 90,000.00
Case Studies	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ -	$ -	$ 60,000.00
Webpage Development and Upkeep	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ -	$ -	$ 15,000.00
Recognition	$ -	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 120,000.00
Subtotal Element 2	**$ 95,000.00**	**$ 95,000.00**	**$ 85,000.00**	**$ 30,000.00**	**$ 30,000.00**	**$ 335,000.00**
Element 3.0: Institutional Training						
Training and Outreach to LEAs	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 150,000.00
Element 4.0: Codes and Standards and ET						
Codes and Standards Advocacy	$ -	$ 80,000.00	$ 80,000.00	$ 80,000.00	$ 80,000.00	$ 320,000.00
Emerging Technologies*	n/a	n/a	n/a	n/a	n/a	n/a
Element 5.0: Production Program Development				$ -	$ -	$ -
Market/Process Study**	$ 300,000.00	$ -	$ -	$ -	$ -	$ 300,000.00
Co-Funded Total	**$ 425,000.00**	**$ 205,000.00**	**$ 195,000.00**	**$ 140,000.00**	**$ 140,000.00**	**$ 1,105,000**

* Funded by each IOU's existing ET budget

** This study would be funded from the 2015 EM&V budget. Future EM&V needs for this Pilot will be assessed and met in subsequent EM&V planning cycles

Table 3: PG&E Element 1.0 Budget per Year

Element 1.0: School Demonstration Projects	2015	2016	2017	2018	2019	Total	Number of Schools*		Budget Range Per School*	
Round 1 2015 Projects							Min	Max	Low	High
1.1. Design Consultation	$ 140,000	$ 50,000	$ -	$ -	$ -	$190,000	2	3	$ 63,333	$ 95,000
1.2. Construction Inspection and Commissioning	$ -	$ 50,000	$ 50,000	$ -	$ -	$100,000	2	3	$ 33,333	$ 50,000
1.3. Incremental Cost Buy-Down	$ -	$ -	$ 200,000	$ 400,000	$ -	$600,000	2	3	$ 200,000	$ 300,000
1.4. Monitoring, Diagnosis, Correction, Validation	$ 20,000	$ -	$ 60,000	$ 60,000	$ -	$140,000	2	3	$ 46,667	$ 70,000
1.5. Prop 39 Coordination	$ -	$ -	$ -	$ -	$ -	$0	2	3	$ -	$ -
Subtotal Round 1	**$ 160,000**	**$ 100,000**	**$ 310,000**	**$ 460,000**	**$ -**	**$1,030,000**	**2**	**3**	**$ 343,333**	**$ 515,000**
Round 2 2016 Projects										
1.1. Design Consultation	$ -	$ 280,000	$ 100,000	$ -	$ -	$380,000	4	6	$ 63,333	$ 95,000
1.2. Construction Inspection and Commissioning	$ -	$ -	$ 100,000	$ 100,000	$ -	$200,000	4	6	$ 33,333	$ 50,000
1.3. Incremental Cost Buy-Down	$ -	$ -	$ -	$ 400,000	$ 800,000	$1,200,000	4	6	$ 200,000	$ 300,000
1.4. Monitoring, Diagnosis, Correction, Validation	$ -	$ 40,000	$ -	$ 120,000	$ 120,000	$280,000	4	6	$ 46,667	$ 70,000
1.5. Prop 39 Coordination	$ -	$ -	$ -	$ -	$ -	$0	4	6	$ -	$ -
Subtotal Round 2	**$ -**	**$ 320,000**	**$ 200,000**	**$ 620,000**	**$ 920,000**	**$2,060,000**	**4**	**6**	**$ 343,333**	**$ 515,000**
Total Element 1.0.	**$ 160,000**	**$ 420,000**	**$ 510,000**	**$ 1,080,000**	**$ 920,000**	**$ 3,090,000**	**6**	**9**		

** The number of schools and corresponding budget per school depends on several factors, namely applicant interest and the square footage of the buildings.*

Table 4: SCE and SCG Element 1.0 Budget per Year

Note: Demonstration projects will be jointly delivered by SCE and SoCalGas. Figures below reflect an 85:15 split between SCE and SCG.

Element 1.0: School Demonstration Projects	2015	2016	2017	2018	2019	Total	Schools*		Budget Range Per School*	
Round 1 2015 Projects							Min	Max	Low	High
1.1. Design Consultation	$ 140,000	$ 50,000	$ -	$ -	$ -	$190,000	2	3	$ 63,333	$ 95,000
1.2. Construction Inspection and Commissioning	$ -	$ 50,000	$ 50,000	$ -	$ -	$100,000	2	3	$ 33,333	$ 50,000
1.3. Incremental Cost Buy-Down	$ -	$ -	$ 200,000	$ 400,000	$ -	$600,000	2	3	$ 200,000	$ 300,000
1.4. Monitoring, Diagnosis, Correction, Validation	$ 20,000	$ -	$ 60,000	$ 60,000	$ -	$140,000	2	3	$ 46,667	$ 70,000
1.5. Prop 39 Coordination	$ -	$ -	$ -	$ -	$ -	$0	2	3	$ -	$ -
Subtotal Round 1	**$ 160,000**	**$ 100,000**	**$ 310,000**	**$ 460,000**	**$ -**	**$1,030,000**	**2**	**3**	**$ 343,333**	**$ 515,000**
Round 2 2016 Projects										
1.1. Design Consultation	$ -	$ 280,000	$ 100,000	$ -	$ -	$380,000	4	6	$ 63,333	$ 95,000
1.2. Construction Inspection and Commissioning	$ -	$ -	$ 100,000	$ 100,000	$ -	$200,000	4	6	$ 33,333	$ 50,000
1.3. Incremental Cost Buy-Down	$ -	$ -	$ -	$ 400,000	$ 800,000	$1,200,000	4	6	$ 200,000	$ 300,000
1.4. Monitoring, Diagnosis, Correction, Validation	$ -	$ 40,000	$ -	$ 120,000	$ 120,000	$280,000	4	6	$ 46,667	$ 70,000
1.5. Prop 39 Coordination	$ -	$ -	$ -	$ -	$ -	$0	4	6	$ -	$ -
Subtotal Round 2	**$ -**	**$ 320,000**	**$ 200,000**	**$ 620,000**	**$ 920,000**	**$2,060,000**	**4**	**6**	**$ 343,333**	**$ 515,000**
Total Element 1.0.	**$ 160,000**	**$ 420,000**	**$ 510,000**	**$ 1,080,000**	**$ 920,000**	**$ 3,090,000**	**6**	**9**		

** The number of schools and corresponding budget per school depends on several factors, namely applicant interest and the square footage of the buildings.*

Table 5: SDG&E Element 1.0 Budget per Year

Element 1.0: School Demonstration Projects	2015	2016	2017	2018	2019	Total	Number of Schools*		Budget Range Per School*	
							Min	Max	Low	High
Round 1 2015 Projects										
1.1. Design Consultation	$ 70,000	$ 25,000	$ -	$ -	$ -	$95,000	1	2	$ 47,500	$ 95,000
1.2. Construction Inspection and Commissioning	$ -	$ 25,000	$ 25,000	$ -	$ -	$50,000	1	2	$ 25,000	$ 50,000
1.3. Incremental Cost Buy-Down	$ -	$ -	$ 100,000	$ 200,000	$ -	$300,000	1	2	$ 150,000	$ 300,000
1.4. Monitoring, Diagnosis, Correction, Validation	$ 10,000	$ -	$ 30,000	$ 30,000	$ -	$70,000	1	2	$ 35,000	$ 70,000
1.5. Prop 39 Coordination	$ -	$ -	$ -	$ -	$ -	$0	1	2	$ -	$ -
Subtotal Round 1	**$ 80,000**	**$ 50,000**	**$ 155,000**	**$ 230,000**	**$ -**	**$515,000**	**1**	**2**	**$ 257,500**	**$ 515,000**
Round 2 2016 Projects										
1.1. Design Consultation	$ -	$ 140,000	$ 50,000	$ -	$ -	$190,000	2	2	$ 95,000	$ 95,000
1.2. Construction Inspection and Commissioning	$ -	$ -	$ 50,000	$ 50,000	$ -	$100,000	2	2	$ 50,000	$ 50,000
1.3. Incremental Cost Buy-Down	$ -	$ -	$ -	$ 200,000	$ 400,000	$600,000	2	2	$ 300,000	$ 300,000
1.4. Monitoring, Diagnosis, Correction, Validation	$ -	$ 20,000	$ -	$ 60,000	$ 60,000	$140,000	2	2	$ 70,000	$ 70,000
1.5. Prop 39 Coordination	$ -	$ -	$ -	$ -	$ -	$0	2	2	$ -	$ -
Subtotal Round 2	**$ -**	**$ 160,000**	**$ 100,000**	**$ 310,000**	**$ 460,000**	**$1,030,000**	**2**	**2**	**$ 515,000**	**$ 515,000**
Total Element 1.0.	**$ 80,000**	**$ 210,000**	**$ 255,000**	**$ 540,000**	**$ 460,000**	**$ 1,545,000**	**3**	**4**		

** The number of schools and corresponding budget per school depends on several factors, namely applicant interest and the square footage of the buildings.*

Attachment 4: Ten Pilot Elements

Below are responses to the required ten Pilot Elements outlined in Decision (D) 09-09-047.

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;

As described in Element 1.0, there are few examples of Zero Net Energy (ZNE) school and community college retrofits. Additional proof-of-concept schools are needed to show that ZNE is achievable in multiple climate zones and regions, and provide a prototype for replicable projects. The other elements of the Pilot will address specific needs around training—technical, institutional and code-related. The Pilot will address whether utility funding can help achieve cost-effective ZNE school and community college retrofits when working in concert with Proposition (Prop) 39 resources.

b. Whether and how the pilot will address a Strategic Plan goal or strategy and market transformation;

The program directly addresses the ZNE goals from the Strategic Plan and takes a Market Transformation approach by expanding progress toward California's policy goal of achieving ZNE building standards by 2030 for commercial buildings.[1] In addition, Governor Brown's Executive Order B-18-12 establishes goals for ZNE construction in new and existing state buildings between now and 2025.[2] There is a unique opportunity to leverage Prop 39 funds along with utility assistance and the school's own capital expenditure fund to pursue these ZNE projects to better inform the Investor-Owned Utilities (IOUs) and other market participants of what is needed in this sector to achieve the strategic plan going forward.

c. Specific goals, objectives and end points for the project;

Goal:
Demonstrate multiple times and in multiple regions that ZNE can be achieved in existing public school and community college buildings with the hope that demonstration projects will serve as learning tools and examples for other districts to follow. These activities will also inform utilities as to the cost-effectiveness of program designs for ZNE retrofits.

Objectives and End-Points:

1. Assist with approximately 13-18 ZNE retrofit demonstration projects within Pilot duration
    a. End Points:
        i. Pacific Gas & Electric (PG&E): Five to seven (5-7) projects

[1] http://www.cpuc.ca.gov/NR/rdonlyres/A54B59C2-D571-440D-9477-3363726F573A/0/CAEnergyEfficiencyStrategicPlan_Jan2011.pdf
[2] http://gov.ca.gov/news.php?id=17508

ii. Southern California Edison (SCE)/Southern California Gas (SoCalGas): Five to seven (5-7) projects
iii. San Diego Gas and Electric (SDG&E): Three to four (3-4) projects

2. Develop relevant case studies based on data-driven performance targets, whole building and major system level projects
    a. End Points:
        i. Disseminate case study information via live and web-based training, publications, and web-based materials
        ii. Develop or augment an existing recognition program which highlights outstanding ZNE performance within the school community
3. Facilitate training sessions that focus on ZNE and high performance building delivery
    a. End Points:
        i. Develop a "road show" of material to be made available to all schools and community colleges beginning in early 2016 and beyond
4. Use learnings from the Pilot to develop scalable program design to be implemented in late 2016 or early 2017. The timing of the pilot is intended to capitalize on Prop 39 funding availability, the momentum built by the demonstration projects and associated outreach, and drive ZNE aspirational goals.
    a. End Points:
        i. Develop program design scalable to more schools and community colleges
        ii. Create incentive and/or market transformation program

d. New and innovative design, partnerships, concepts or measure mixes that have not yet been tested or employed;

Through partnering with the IOUs' Emerging Technology programs, this Pilot will explore the viability of new and emerging technology for their use in ZNE/retrofit projects. Also, the IOUs will work with the school's or college's project design team to explore the opportunities to leverage innovative design techniques to promote passive cooling/heating and daylighting. The Prop 39 ZNE Pilot takes a unique approach to ZNE by combining the whole building retrofit concept and leveraging the California Energy Commission (CEC) Prop 39 activity. In doing so, it focuses the implementation of ZNE retrofits at existing schools and community colleges as opposed to the new construction residential focus of ZNE to date.

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;

Per the direction provided in D.14-10-046, funding for the Pilot will be obtained from the existing IOU budgets. All applicable fund shift guidelines will be followed.

See Attachment 3 – Budgets.

f. Information on relevant baselines metrics or a plan to develop baseline information against which the project outcomes can be measured;

The demonstrations would target ZNE based on the current CEC Integrated Energy Performance Report (IEPR) definition.[3] All projects would use Title 24 or existing conditions, whichever is more efficient, as the baseline in determining savings using an integrated whole building approach in performing the extensive energy modeling required for each project. Using approved energy modeling software (i.e., DOE2 or Energy Pro) will create a baseline building to compare the proposed energy efficiency measures and energy savings, being incorporated into the schools overall design strategy. The pilot will incorporate any future baseline guidance from the CPUC's energy efficiency rule making (R. 13-11-005) or it successor, issued during the period of the pilot (2015-19).

g. Program performance metrics (see Section 4.6.3);

Performance metrics include the following:

- Budget expenditures by category/year (actual vs. planned);
- Identification of and progress on the targeted 13-18 demonstration projects, by year and by IOU;
- Progress on and completion of program elements and sub-elements as indicated in the Pilot timeline; and
- Projected versus actual energy consumption and generation to achieve the stated ZNE goals, starting with completed projects, likely in 2017-19.

In addition, progress on the Pilot will be summarized in IOUs' Annual energy efficiency reports as assessed against the metrics above.

h. Methodologies to test the cost-effectiveness of the project;

The IOUs will attempt to demonstrate that "at scale" ZNE in a school or community college environment does not require incremental cost compared to the prevailing cost in the same geographic area of like buildings. This will be accomplished through the third-party monitoring and verification activities outlined in Element 1.1 of the scope of work (see Attachment 1 for descriptions of the Pilot Elements). As part of Element 5.0, Production Program Development, the IOUs will work to design a non-Pilot program that takes into account traditional cost effectiveness metrics like total resource cost (TRC).

i. A proposed EM&V plan; and

Please see EM&V section in Attachment 1, Pilot Scope of Work. In addition to short-term market research outlined in Attachment 1, the IOUs will perform an impact evaluation

[3] 2013 Integrated Energy Policy Report (IEPR)

starting in 2018 in coordination with the CPUC and ongoing Project Coordination Groups (PCGs).

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.

The fifth Pilot element calls for the design of a “production program” for ZNE retrofits in schools and community colleges. The educational elements of the program are targeted to disseminate the practices and learnings associated with constructing ZNE retrofits in schools and community colleges.

PG&E Gas and Electric
Advice Filing List
General Order 96-B, Section IV

AT&T
Albion Power Company
Alcantar & Kahl LLP
Anderson & Poole
BART
Barkovich & Yap, Inc.
Bartle Wells Associates
Braun Blaising McLaughlin, P.C.
California Cotton Ginners & Growers Assn
California Energy Commission
California Public Utilities Commission
California State Association of Counties
Calpine
Casner, Steve
Cenergy Power
Center for Biological Diversity
City of Palo Alto
City of San Jose
Clean Power
Coast Economic Consulting
Commercial Energy
Cool Earth Solar, Inc.
County of Tehama - Department of Public Works
Crossborder Energy
Davis Wright Tremaine LLP
Day Carter Murphy
Defense Energy Support Center
Dept of General Services
Division of Ratepayer Advocates
Douglass & Liddell
Downey & Brand
Ellison Schneider & Harris LLP
G. A. Krause & Assoc.
GenOn Energy Inc.
GenOn Energy, Inc.
Goodin, MacBride, Squeri, Schlotz & Ritchie
Green Power Institute
Hanna & Morton
In House Energy
International Power Technology
Intestate Gas Services, Inc.
K&L Gates LLP
Kelly Group
Linde
Los Angeles County Integrated Waste Management Task Force
Los Angeles Dept of Water & Power
MRW & Associates
Manatt Phelps Phillips
Marin Energy Authority
McKenna Long & Aldridge LLP
McKenzie & Associates
Modesto Irrigation District
Morgan Stanley
NLine Energy, Inc.
NRG Solar
Nexant, Inc.
Occidental Energy Marketing, Inc.
OnGrid Solar
Pacific Gas and Electric Company
Praxair
Regulatory & Cogeneration Service, Inc.
SCD Energy Solutions
SCE
SDG&E and SoCalGas
SPURR
Seattle City Light
Sempra Utilities
SoCalGas
Southern California Edison Company
Spark Energy
Sun Light & Power
Sunshine Design
Tecogen, Inc.
Tiger Natural Gas, Inc.
TransCanada
Utility Cost Management
Utility Power Solutions
Utility Specialists
Verizon
Water and Energy Consulting
Wellhead Electric Company
Western Manufactured Housing Communities Association (WMA)
YEP Energy