September 29, 2014

Ms. Verena Radulovic
ENERGY STAR Program – Product Labeling
U.S. Environmental Protection Agency
Ariel Rios Building 6202J
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Subject: Draft 2 Version 7 ENERGY STAR Television Specification

Dear Ms. Radulovic:

This letter comprises the comments of the Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SCGC), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) in response to the U.S. Environmental Protection Agency's (EPA) Draft 2 Version 7 ENERGY STAR Television Specification.

The signatories of this letter, collectively referred to herein as the California Investor Owned Utilities (CA IOUs), represent some of the largest utility companies in the Western United States, serving over 35 million customers. As energy companies, we understand the potential of appliance efficiency programs to cut costs and reduce consumption while maintaining or increasing consumer utility of the products. We have a responsibility to our customers to advocate for requirements that accurately reflect the climate and conditions of our respective service areas, so as to maximize these positive effects.

The EPA and stakeholders have made significant strides towards the development of a meaningful specification and test procedure for this rapidly evolving product class. We generally support EPA's and Department of Energy's (DOE) efforts to establish new ENERGY STAR performance requirements and potentially develop new test methods for televisions (TVs) and ask EPA and DOE to consider carefully the following recommendations.

1. **We support EPA's on mode power requirements presented in Draft 2. Additionally, EPA should closely track the market penetration to ensure that the Version 7 requirements represent the most efficient models on the market.**

We support EPA's proposed on mode power requirements presented in the Draft 2 specification given the available product data. EPA's proposal is appropriate given the rapid uptake of efficient technologies for this product and the range of currently available models from several different manufacturers that are able to meet the proposed requirements. Figure 1 displays the proposed Draft 2 on mode requirements with high definition (HD) models registered on California Energy Commission's (CEC) Appliance Database as of September 22, 2014. As shown in Figure 1, currently available models are able

to meet the Draft 2 requirements across a wide range of popular screen sizes. Several different manufacturers are represented by these qualifying models.

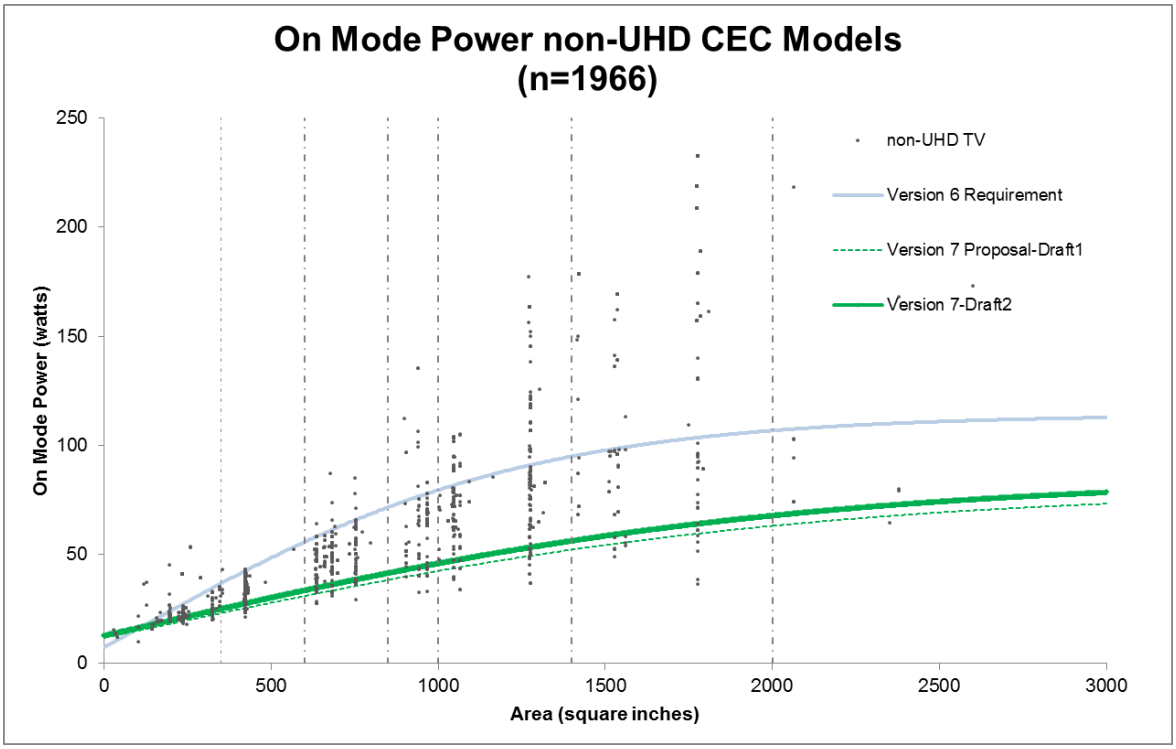


Figure 1. High Definition TVs: On Mode Power

Source: CEC Dataset

We further request ENERGY STAR closely monitor the market penetration to ensure that updates to the specification are scheduled in advance to account for the rapid uptake of the ENERGY STAR specification once the requirements are finalized. The Unit Shipment Data process EPA has historically relied on to monitor market penetration for all covered products may not be adequate for this rapidly evolving product category.

The dataset used to develop the proposed on mode power requirements in the Draft 2 specification seems appropriate and represents a large percentage of currently available models on the market. To supplement the dataset, ENERGY STAR should ensure that models registered on the CEC Appliance Database are included. The models registered on this database were recently updated to only include those models added after the DOE Test Procedure Final Rule took effect (compliance date of November 25, 2013) with modification to how on mode power is reported for TV shipped with Automatic Brightness Control enabled by default. When we downloaded models from this database recently, 2,026 total models were listed. These TVs encompass the entire market of TVs, both non-ENERGY STAR and ENERGY STAR, available for sale in California.

2. **We support EPA's proposal for the additional power allowance for ultra high definition (UHD) TVs in order to incentivize energy efficiency for UHD TVs that are growing in market share.**

We support ENERGY STAR's proposal for a 55% on mode power allowance for UHD TVs to help incentivize the development of more energy efficient UHD TVs. As stated in previous comments, various market research firms and technology websites/publications have shown that UHD TVs have been gaining in market share in recent years, especially in the larger screen sizes. Most major manufacturers are promoting UHD TVs prominently on their websites and at trade shows and other promotional events.[1,2,3] As UHD TVs become more prevalent, the premium prices for these TVs will also decline. In general UHD TVs consume significantly larger amounts of power than similar sized regular HD (1080p) TVs, and within similar sized UHD TVs there is wide variability in on mode power consumption. Therefore it is critical that ENERGY STAR provide an incentive to drive implementation of efficient UHD TVs.

We analyzed on mode data of UHD TVs from CEC's Appliance Database (60 models) and from ENERGY STAR's Qualified Products List (QPL; 11 models) and displayed the models in Figure 2 below. Across a wide range of screen sizes there are models that currently meet the Draft 2 proposal with the extra UHD power allowance. During the June 30 and September 16 ENERGY STAR webinars, some stakeholders commented that they were not able to find the UHD with lower reported on mode power consumption for sale in the U.S. In looking at the dataset from the QPL and CEC databases, there are models from major manufacturers with significant market share (4 models from Samsung and a 79-inch UHD TV from LG Electronics) that would meet the Draft 2 proposal. The LG model is the largest TV in the UHD dataset and would meet the proposed Draft 2 requirement by almost 20% (reported: 96.6 watts; requirement with adder: 117.67 watts). Additionally, the 5 UHD models that meet the Draft 2 proposal from the ENERGY STAR QPL all state in their listing that they are available for sale in U.S. markets.

[1] http://www.lg.com/us/ultrahdtv
[2] http://www.samsung.com/us/topic/4k-ultra-hd-tv
[3] http://www.marketwatch.com/story/lg-electronics-launches-broad-2014-ultra-hd-4k-led-tv-line-up-2014-06-24

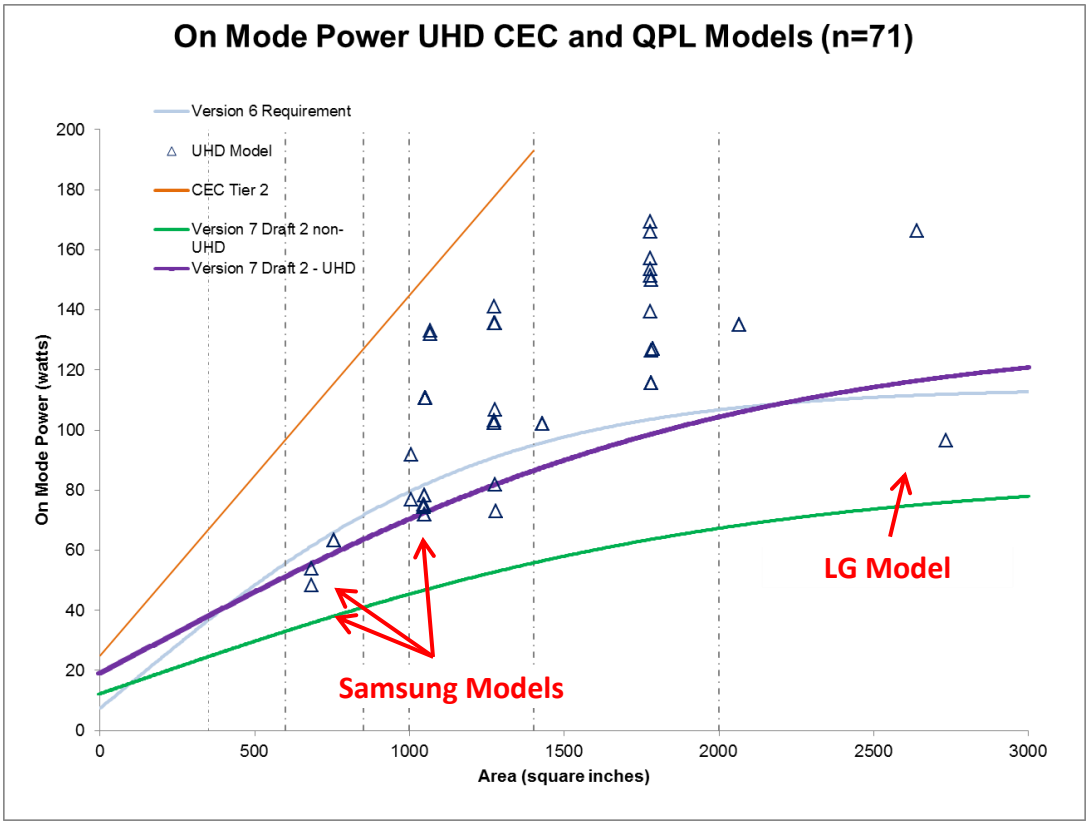


Figure 2. Ultra High Definition TVs: On Mode Power

Source: CEC and ENERGY STAR QPL Dataset

Based on currently available TVs from several manufacturers, some of which represent a significant share of the market, being able to meet the Draft 2 UHD proposal across a wide range of screen sizes, we support the 55% power allowance for UHD TVs as a way to incentivize efficient UHD TVs. We also support the proposed expiration of this allowance when there is greater market uptake with efficient technology options for UHD TVs. In the Draft 2 proposal, the UHD adder would expire after May 1 2017. Given the size of the adder and the rapid rate of product improvement that is anticipated, we request EPA add language to its specification that would reassess the size of the adder by May 2016. EPA could consider reducing the size of this adder to take effect on January 1, 2017 (when new models are introduced) if more than 50% of the UHD models introduced in the first half of 2016 are meeting the Version 7.0 specification with the 55% extra allowance. EPA can track the total number of UHD models available through the CEC database.

There was discussion during the September 16 ENERGY STAR webinar that EPA should consider a maximum native vertical resolution to effectively exclude super UHD, or 8K TVs, from the specification since super UHD TVs will require a greater power allowance. As EPA has done many times in the past (including with HD and UHD TVs), we support ENERGY STAR not including a maximum resolution and allowing the market to innovate to meet the current requirements. Once product data on super UHD TVs becomes available, ENERGY STAR can consider additional or modified requirements to incentivize efficient super UHD TVs.

Regarding the definition, ENERGY STAR stated that it was not proposing a definition at this time and instead proposes to apply a criteria based on a minimum native vertical resolution. In the absence of an industry accepted definition, we support EPA's proposal provided that the minimum native vertical resolution is unambiguous in differentiating UHD from non-UHD models. Under no circumstances should HD TVs be eligible for the extra allowance intended for UHD models.

3. **We assume the TV is in standby mode for a vast majority of the day, therefore, ENERGY STAR should better understand the power draws in the various standby modes in order to set appropriate requirements that incentivize energy savings.**

    a. Standby Passive

Based on our analysis of the updated CEC database, as shown in Figure 3, **96%** (1954 of 2026) of TV models have a reported standby passive mode of 0.5 watts or less and would meet the requirement that EPA initially proposed in Drafts 1 and 2. As we stated in previously submitted comments, we support a proposed requirement of 0.3 watts for standby passive mode as another way to differentiate the most efficient models that are available on the market. A 0.3 watt requirement, as proposed by EPA during the September webinar, would still represent over 65% of models.

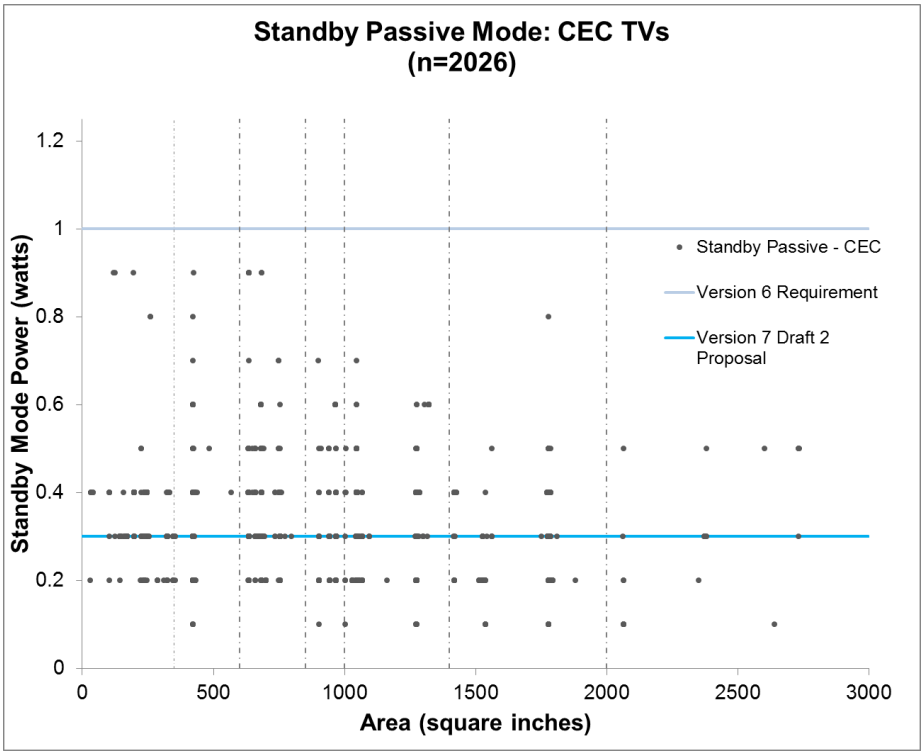


Figure 3. CEC TVs: Standby Passive Mode

Source: CEC Dataset

b. Standby Active Low

As we have stated in previous comments, many TVs are no longer simply "off" (i.e., standby passive mode) when the TV is not displaying an image, but connected in varying degrees to a network and consuming significantly more power than in standby passive mode. It is important for ENERGY STAR to understand the power consumed and the typical time spent in these other, higher power consuming standby active modes.

Based on the current ENERGY STAR QPL, as displayed in Figure 4 on a logarithmic scale, there still remains a wide variation of reported power for those models with standby active low mode (the CEC database does not collect standby active low mode data from products). Of the 241 models with reported standby active low mode values, 41 models (Sharp and Toshiba) have reported values of 10 watts or above. The remaining 200 models had reported values 1 watt or below (including Smart TVs from Sharp[4] and Toshiba[5]).

[4] https://www.sharpusa.com/ForHome/HomeEntertainment/LCDTV/~/link.aspx?_id=A37FB110075A47CA8DB866E95C122657&_z=z

[5] http://www.amazon.com/Toshiba-39L4300U-39-Inch-1080p-Built/dp/B00BQHEWH8#

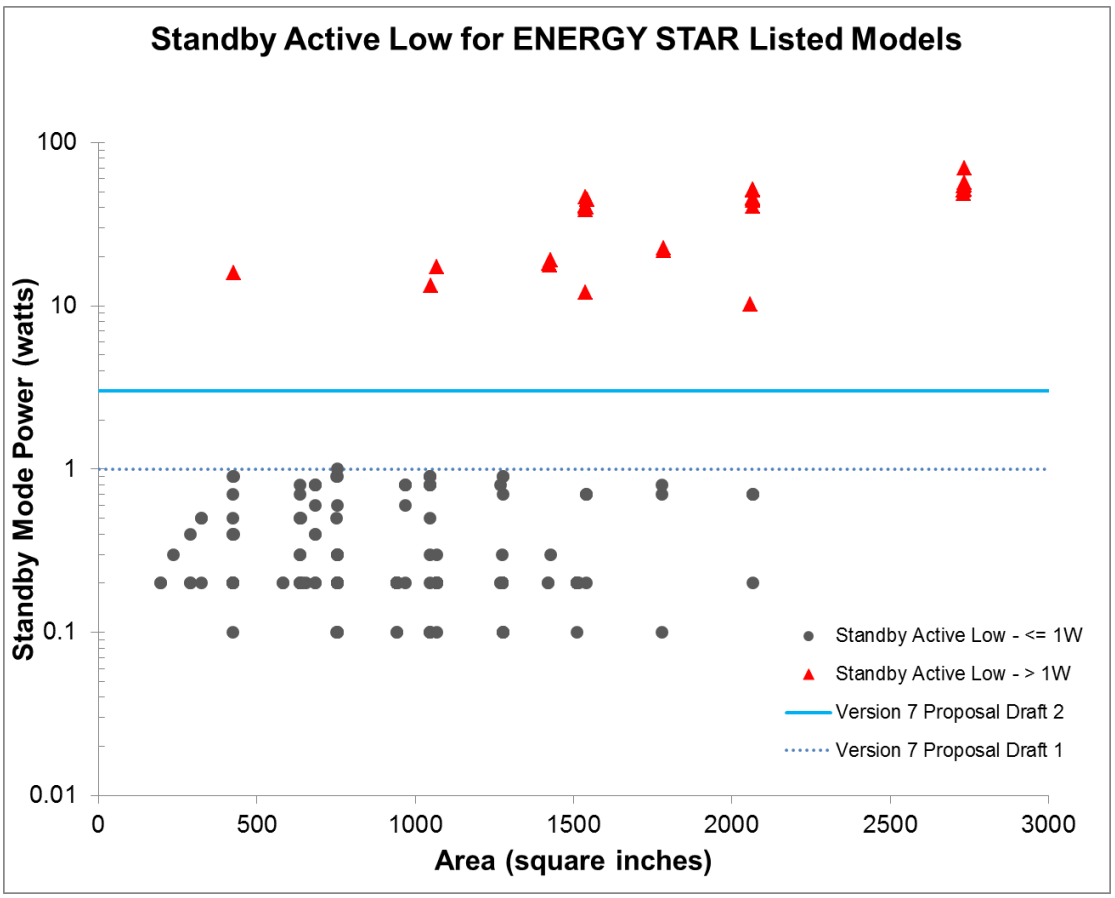


Figure 4. Standby Active Low Mode: Logarithmic Scale

Source: ENERGY STAR Qualified Products List

This wide variation in the reported values for this mode suggests testing discrepancies and/or various power consuming activities occurring in the background for those models with reported values greater than 10 watts. From the discussion during both ENERGY STAR stakeholder webinars it appears there are some testing discrepancies among manufacturers when testing standby active low mode centered on the presence of "full network connectivity." We encourage DOE (through test procedure guidance)and EPA (through re-reporting as necessary) to ensure any testing discrepancies are corrected as soon as possible to ensure the data used in developing standby active low mode is not corrupted, as suggested by some stakeholders.

If there is additional uncorrupted data justifying a 3 watt requirement, as proposed by EPA in Draft 2, we encourage EPA to publish the data for stakeholder review in the Final Draft specification or sooner. ENERGY STAR should ask manufacturers to confirm that any representation of efficiency in modes specified by the test procedure have been tested in accordance to the DOE test procedure: Appendix H to Subpart B of 10 CFR Part 430 - Uniform Test Method for Measuring the Energy Consumption of Television Sets. Based on an updated dataset, EPA can then establish levels appropriately. Assuming all of the standby active low data with reported values less than 1 watt is corrupted based on ambiguities in the test procedure, a 3 watt requirement is a reasonable requirement given existing information on similar networked equipment and other market drivers, notably the European Union's 3 watt network

standby requirement effective in 2017. However, we still ask EPA to make available any data showing that a 3 watt requirement is warranted over a 1 watt requirement.

For this issue, we again request EPA to better understand how often a TV with full network connectivity is in this mode. The current assumption by DOE is that TVs are in standby mode (either active low or passive) for 19 hours a day. If a network enabled TV is consuming almost 70 watts of power for 19 hours a day and 104 watts (reported on mode for this TV) for the remaining 5 hours, it could be drawing over double the amount of energy in standby than in active mode over the course of a day. In addition, since standby active *high* mode (i.e., network connected, actively transferring data) is currently not measured by the test procedure but presumably consumes more than standby active low, a network connected TV could be consuming even more energy in standby.

In order for ENERGY STAR to better understand how the power consumed by a TV in standby modes and to safeguard excessive energy consumption in these modes when the consumer assumes the TV is "off," we request that EPA require reporting of power, duration, and frequency of any feature that may be enabled (either by default, user prompted, *or* user selected) and consume additional power in standby active low mode in order to qualify under the Version 7 specification.

c. Standby Active High

We ask EPA to require the reporting (for qualification to the Version 7 specification) of the following information regarding standby active high to get a better understanding of the frequency and duration of a TV in this mode:

- What features or functions require the TV to enter standby active high mode?
- For each function, please indicate how frequently the TV goes into a standby active high event (choose one): daily, weekly, monthly, annually?
- For each function, how long is a *typical* event when the TV is in standby active high (choose one): 0-1 hours; 1-2 hours; 2-6 hours; 6-12; >12 hours per event?
- What it the *maximum* time the TV could be in standby active high mode per event?

Before the prevalence of Smart TVs, it was understood that TVs are in standby active high mode infrequently for channel guide, firmware updates, or other infrequent maintenance operation. With the wide number of Smart TVs currently on the market with various apps and functions that require a constant transfer of data to and from the TV, the current assumptions regarding standby active high mode may be outdated. Therefore ENERGY STAR should begin collecting data to better understand this mode to inform future revisions to the ENERGY STAR specification and potentially DOE's test procedure. Additionally, we support EPA's proposal of the 15 minute maximum time for a TV to go into a lower power state after completion of the standby active high mode event.

In summary, as Smart TVs increase their market presence, more TVs will be network connected. It is important to understand what is going on with these TVs when there is no picture displayed and the consumer believes the TV is "off."

4. **In order to better understand the energy consumed by TVs available in the market, EPA and DOE should consider updating the test procedure to ensure it covers features and modes not currently captured or not captured accurately.**

As stated previously, EPA and DOE should consider updating the test procedure to include power measurements of the following modes and features:

- UHD: Testing UHD TVs should include testing native UHD video content and testing 1080p video content with an upscaling player.
- Standby Active Low: Provide necessary guidance to the standby active low mode test procedure should be made to avoid the inconsistencies that are present with the current test procedure. Manufacturers should resubmit standby active low data if initially tested incorrectly.
- Standby Active High: Test provisions should be included to measure power consumed in this mode.
- Annual Energy Consumption: Updates to the Annual Energy Consumption (AEC) metric in the test procedure should be considered to accurately reflect the time spent in the different standby modes for newer, network connected TVs.

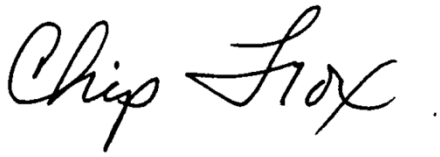
In conclusion, we would like to reiterate our support to EPA's efforts for establishing new performance requirements for televisions in this ENERGY STAR specification update. We look forward to working with EPA and DOE throughout this process and encourage careful consideration of our recommendations.

Sincerely,

Patrick Eilert
Principal, Codes and Standards
Pacific Gas and Electric Company

Martha Garcia
Codes & Standards and Engineering Services Manager
Southern California Gas Company

Steve Galanter
Principal Manager, DSM Engineering
Southern California Edison



Chip Fox
Residential Programs and Codes & Standards Manager
San Diego Gas and Electric Company