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Additional submitted attachment is included below.

STATE OF CALIFORNIA
BEFORE THE CALIFORNIA ENERGY COMMISSION

In the Matter of:	**Docket No. 17-IEPR-06**
2017 Integrated Energy Policy Report	**RE:** Methodology on 2030 Energy Efficiency Targets

Comments of the Sacramento Municipal Utility District On Methodology on 2030 Energy Efficiency Targets

The Sacramento Municipal Utility District ("SMUD") appreciates the opportunity to provide these comments to the California Energy Commission ("Commission") on the Methodology on 2030 Energy Efficiency Targets, pursuant to the June 19 2017 workshop on this topic.

SMUD recognizes the "doubling" policy direction of the state's energy efficiency efforts, as prescribed in Senate Bill 350 ("SB 350"). SMUD has long been a leader on energy efficiency efforts, with a longstanding ten-year energy efficiency goal of saving 1.5 percent of annual retail sales. SMUD continues to develop and roll out new energy efficiency programs as new opportunities arise. SMUD has also established a Distributed Energy Resources (DER) planning unit to coordinate consideration and development of DERs, including energy efficiency programs.

In the June 19th workshop, CEC staff acknowledged that the doubling goal established by SB 350 is a statewide aspirational goal, with a variety of individual contributing "buckets", such as savings from POU energy efficiency programs, that individually will not necessarily be "doubled". These individual buckets will be analyzed collaboratively with an eye towards feasibility and cost-effectiveness. SMUD supports this bifurcated approach, as it is clear the feasibility and cost-effectiveness of individual buckets will vary. In particular, savings from utility programs are increasingly challenged by tighter efficiency requirements established over time in state and federal building and appliance efficiency standards.

Getting savings from utility efficiency programs on top of increasingly tight building and appliance standards will be more and more difficult over time. In addition, many easy and early savings opportunities, such as those from more efficient lighting, are largely accomplished – some of these markets have been transformed. This leads to the need to explore new program opportunities and efforts, likely less cost-effective, and some of which will turn out to not be viable given that our customers must voluntarily agree to participate.

SMUD's comments here address some of the presented concepts about how savings are counted and the role of POU efficiency programs. SMUD's comments also provide examples of planned and piloted efficiency efforts from our programs helping to move toward the doubling goal. We also call attention to the need for urgency in focusing on a fuel substitution regulatory framework and complementary policies that can enable this category of savings to make a significant contribution toward the statewide SB 350 aspirational target. SMUD supports the comments from the Joint POUs on this topic.

A. Attributing Savings To POU Efficiency Programs

SMUD notes that our current adopted efficiency goals effectively aim to achieve the market potential amounts identified in the latest comprehensive potential study finished this year. As a utility, we are primarily looking at the impact of efficiency programs on retail sales or load; hence we look at gross savings – the impact on load -- and not net savings, an artificial attribution concept from the perspective of resource planning and carbon reduction objectives. In keeping with this practice of understanding the impact on load, we assume that the efficiency baseline of customers participating in our programs is the equipment and building structures they start with --as found -- and not the equipment and building structures they would have in place if they had the day before complied with current codes and standards. This again is a resource planning approach, and we find that there is more savings potential with early retirements of older equipment.

SMUD understands that for purposes of coordinating and monitoring overall progress towards the statewide "doubling" goal some consistency is necessary. However, in the case where a utility program bucket uses "net" savings, the gross savings from current conditions must be accounted for somewhere – in standards or third-party programs or market effects. If these savings are not accounted for in other "buckets", the total savings will be under reported or under counted. The goal should not necessarily be forcing artificial consistency for all buckets, for example for each to be counted using "net" savings, but rather to understand over all buckets that all savings are accounted for once and only once.

SMUD believes that the Commission should be considering market transformation strategies as a central component for meeting the doubling goal. Ten years ago, LED's were not even a blip in our energy efficiency portfolio, but today we've largely transformed that market, and see future lighting savings as limited. Accomplishing this scale of transformation in emerging HVAC and water-heating approaches could have long-term implications, but without a coordinated approach, barriers will continue to limit our success here.

One primary tool for market transformation is working to change the default choices available for energy-using equipment (and in buildings) with new, enhanced building and appliance standards. While properly counting savings to avoid duplication, the Commission should continue to provide incentives for utilities to invest in codes and standards research and development so that these resources can be brought to bear in this effort. Removing any attribution of codes and standards savings to utility program efforts does not provide these incentives, and the Commission should find another path to avoiding duplicative counting.

B. Fuel Substitution Opportunity

SMUD feels strongly that there needs to be additional attention dedicated to the framework for counting of savings from fuel substitution in the near-term. Building electrification could represent one of the largest untapped sources of energy efficiency, carbon reduction, and renewable integration for the state. When we look at classic energy efficiency measures in new construction for example, we see so little savings possible above Title 24 that it is almost impossible to get the attention and participation of builders in our programs. However, with opportunities like electrification including all-electric homes, we can access tremendous savings opportunities that will engage builders, at the same time reducing the carbon footprint of these homes. Electrified heating and cooling appliances and equipment can in time provide a built-in renewable integration solution, significantly reducing the need for additional battery storage or other integration solutions. For example, a heat pump water heater can be equivalent to a 500 Watt, 2 kWh efficient thermal “battery” that actually saves energy rather than losing it in losses. If installed in all new homes, the integration solution over time acquires scale that leads to much more cost-effective renewable integration.

SMUD is piloting several electrification programs, including in residential new construction, water heating, and commercial applications. We see urgency based on stock turnover cycles and missed opportunities for avoided gas infrastructure savings for the Commission to move quickly to address this key opportunity to begin to address our long-term carbon reduction challenges. We strongly encourage the Commission to create focus on the role electrification could play in the SB 350 target as its own bucket, and the appropriate framework for crediting so that SMUD and others can move beyond the pilot scale with confidence in the regulatory framework.

Internally, SMUD is looking at how the use of a carbon metric could better help align our expenditures between classic energy efficiency, electrification, renewable investment, and transportation electrification.

We see this kind of tradeoff happening to a limited extent with the Commission considering tradeoffs between EE and PV, and feel expanding this kind of approach could be helpful in thinking about overall cost-effectiveness of carbon reducing measures. It is essential that carbon reduction be a significant part of the savings and cost-effectiveness calculation, at the very least.

In order to be able to achieve market transformation for building electrification, we see a number of aspects of Title 24 that will need to change, including TDV, rate assumptions, flexible load considerations, and compliance tools. The Commission is uniquely positioned as a market transformation actor in this regard as it can actually address many of the market barriers to expanded electrification in-house, and unlock a significant opportunity that will be crucial to meeting the goals of SB 350. The Joint POU comments do a good job of laying out crucial issues here.

C. Community Implementation Value

SMUD has decades of experience with implementing programs in our community that strengthen our relationship with our customers. It is important for us to keep this strong relationship with our customers. Hence, we are not in favor of the use of statewide programs run by IOUs, which may use POU money to focus on non-POU areas due to the higher rates in non-POU areas.

Developing community-appropriate solutions that are tailored to the needs of a specific climate and grid region will only help with the objectives of carbon reduction. As we look to leveraging our grid infrastructure to help decarbonize transportation and buildings, energy efficiency will play a key role in creating the capacity on that grid to enable these other transitions. Shifting to a centralized scheme for implementation will risk creating further barriers to meeting local capacity needs just as other DERs are being focused in the opposite direction, toward a more localized planning approach. This creates a situation where energy efficiency will not be thought of first for capacity deferral and targeted solutions, but will rather continue to diminish in relative value as compared to higher cost alternatives that are being implemented through localized deployments.

Over our many decades of experience, we've also demonstrated the value of innovation at the local level which can lead to improved delivery of all utility programs. Maintaining this innovation ecosystem will be key to ensuring we meet our SB 350 and even longer-term carbon reduction goals. We strongly urge the Commission to come out in favor of local community-based efficiency solutions that maximize value and support innovation.

D. New SMUD Efficiency Programs

We believe the true future of energy efficiency is found not in single measures that are identified in potential studies, but by defining innovative new programs and programs that bundle a variety of measures during implementation, including cost-effective measures with individually non-cost effective measures, non-energy efficiency measures (other DERs), financing options and rates. We are attempting to bundle as many of the DER components together as we can. Our first attempt at this bundling has been in residential new construction, including energy efficiency, demand response, distributed generation, and electric vehicle components in our SmartHome program.

Our innovative programs focus on significant fuel-substitution opportunities, underserved segments such as smaller commercial customers, and programs that focus on GHG reductions as well as energy savings. For example:

- **Heat-Pump Water Heater Pilot Program:** In 2017 SMUD expanded its offering for heat pump water heaters, which had been targeted at electric-only customers, to a fuel substitution program where we are specifically recruiting customers who heat their water with natural gas and offering rebates to switch to efficient heat pump water heaters. Based on our analysis, customers are saving money, overall energy and carbon by making the switch. Our goals are to reach roughly 100 units in the first year of the program.

- **All-Electric Home Pilot Program:** Also launching in 2017 is a pilot all-electric homes program. We were aiming for 1-2 builders to participate and receive incentives for energy efficiency associated with fuel-substitution, as well as support in code modeling. However, we are experiencing greater demand for such a program than we were expecting, and may add additional builders.

- **Small-Medium Commercial Energy Management System Pilot Program:** SMUD's Energy Management Solutions (EMS) pilot program provides small and mid-sized customers with automated management of energy consumption and visibility into facility and equipment health through convenient, cloud-based tools and a mobile application. This technology enables improved control of heating, ventilation and air conditioning (HVAC), lighting schedules and the ability to remotely troubleshoot equipment issues. Customers will also have access to historical energy and operational data via the cloud, making it easy to understand energy usage patterns and make operational changes that maximize savings.

- **Natural Refrigerant Pilot Program:** SMUD has also launched a pilot Natural Refrigerant incentive program, based on kWh savings AND (for the first time) GHG reductions. We will pay up to $250,000 per installation depending on the size of the system and the emissions reduction. The program is intended to support installation and development of new very low global warming potential refrigerant systems so that we can better understand their performance in our climate zone. In the long run, we hope to help support the development of the market for natural refrigerants and the local ecosystem of engineers, installers and service technicians who understand and support them.

SMUD has significantly increased the amount of data available from our smart meter rollout, and is examining the potential for targeted energy efficiency programs, which can eventually be developed from this data. Finally, we also are looking at commercial and residential energy efficiency financing options that could assist with savings on top of traditional rebate programs.

E. TOD rates

SMUD's Governing Board has just adopted a new "Time-of-Day" (TOD) residential rate structure. This new residential rate will be phased in as the default rate for all residential customers in 2019, with the option to "opt-out" to a flat rate. Our residential customers will now have the ability to control their energy bill by selecting the time of day they use energy – by shifting to a lower priced time of day, they can save money. The TOD rate is fairly simple, with just two time periods – Peak and off-peak – in winter and spring months. Peak hours are in effect from Monday through Friday from 5 pm to 8 pm. In the four summer months (June-September), the peak hours are the same and there is in addition a mid-peak period during other weekday afternoon and evening hours.

While the new TOD rate structure is not focused on saving energy, SMUD does expect that there will be some peak shifting that will save higher cost and higher GHG peak hour energy. SMUD is dedicated to provide our customers with the most helpful information and will assist customers by offering targeted education and energy efficiency programs to help save energy, and further reduce their energy bills. SMUD will be monitoring the impacts of the new TOD rate as it is rolled out, including determining the peak and energy savings that may result.

F. Low Income/Disadvantaged

A list of SMUD's low income and disadvantaged community programs and planned efforts relevant to energy efficiency programs is provided below:

Projects Funded with Cap and Trade Revenue: Separately from the State's Greenhouse Gas Reduction Fund (GGRF) funding for programs in disadvantaged communities, SMUD funds a variety of programs to benefit disadvantaged communities

and customers using Cap and Trade revenue, and is developing additional programs. SMUD has a small surplus of allowances from the Cap and Trade allocation in several years, and has sold those allowances in quarterly auctions, yielding about $3.5 million a year in revenue. This revenue has been used to fund several GHG reducing projects in SMUD's service area, including the following projects which directly benefit disadvantaged communities and customers.

- Three annual programs that delivered deep energy efficiency retrofits to low-income customers. In 2013, the program served about 67 customers with more extensive investments, yielding about 40% energy savings for $14,000 per home. In 2014, the program served 1,000 customers with $2,000 spent on energy efficiency upgrades per customer, yielding an average 10% savings. The 2015 program was designed to be midway between these alternatives.
- A program to train high school students in underserved communities in energy audit techniques, leading to energy efficiency retrofits at the students' seven schools and potential career paths for the students. This program was expanded and included in SMUD's regular energy efficiency program structure after the initial AB 32 funded effort.
- A program to fund and demonstrate deep energy efficiency retrofits at local non-profits and small businesses. This program assisted the Child Abuse Prevention Center and the Sacramento Food Bank, helping them to reduce their energy costs and allowing more money for services to disadvantaged communities.

SMUD's Energy Assistance Program Rate (EAPR): SMUD provides a discounted electricity pricing structure for lower income customers, called Energy Assistance Program Rate (EAPR). Highlights of this program include:

- SMUD's version of the IOU CARE programs provides a discount of 48 percent on all electricity usage with a maximum discount cap of $42 per month. The discount includes an $11.50 discount on the $20 monthly system infrastructure fixed charge. For customers with wells, the cap is increased to $54 per month.
- The 2017 CEO & General Manager's Report and Recommendations proposes a restructuring of the EAPR rate to provide greater assistance to those customers with the highest electric bill burden in order to help break the cycle of poverty.
- Through a combination of rate design, energy efficiency investments, pilot programs and education, the proposed EAPR changes aim to further reduce electricity bills for low-income customers.
- SMUD plans to roll out a data analytics-driven program to identify EAPR customers with the largest electricity usage and target efficiency efforts to those customers.

SMUD's Energy Assistance Program: SMUD also has energy efficiency programs aimed at lowering energy use and hence energy bills of our lower income customers. Our low income weatherization program includes:

- Energy audits, direct one-on-one education and information interactions with customers, and installation of free energy saving measures, such as insulation and efficient light bulbs, to low-income homes (single-family and apartments) to help reduce electricity bills and to increase safety and comfort. Eligible participants may also receive an Energy Star refrigerator to replace an old, inefficient unit.
- Energy education services to groups and individuals, and partnerships with contractors and community organizations to serve eligible customers for services such as minor home repair, window replacement, and HVAC system repair or enhancement.
- SMUD also partners with the Sacramento Tree Foundation to provide free shade trees at no cost to the participating customer, enabling disadvantaged customers to participate in the program and reduce their energy costs.

SMUD is also considering additional programs and examining how well they will work in pilot demonstrations. For example:

- Deep energy retrofits (with Grid Alternatives) to provide weatherization measures and support the installation of solar.
- Energy retrofits (small bundle) in which we install programmable communicating thermostats or refrigerators, LEDs and power strips.

Thanks again for the opportunity to comment.

/s/

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