



June 11, 2021

Mr. Alope Gupta, Demand-Side Management Analyst  
Mr. Andrew Magie, Public Utilities Regulatory Analyst  
Energy Division  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

**Re: Comments of Sacramento Municipal Utility District on May 25, 2021  
Advanced Distributed Energy Resources and Demand Flexibility Management  
Workshop**

Dear Mr. Gupta and Mr. Magie:

Pursuant to the Energy Division's request for stakeholder informal written comments, the Sacramento Municipal Utility District ("SMUD") submits these comments on the May 25, 2021 Advanced Distributed Energy Resources (DER) and Demand Flexibility Management Workshop. In accordance with direction provided by the Energy Division, SMUD is emailing these comments to the public service list associated with Rulemaking (R.) 12-06-013, which is a closed proceeding but is being used for commenting purposes.

**I. INTRODUCTION**

SMUD appreciates Energy Division staff's thoughtful approach to discussing ideas for advanced DER and flexible demand/load management, leveraging new system-wide retail rate reforms, and load modifying demand response proposals. SMUD looks forward to reviewing the forthcoming white paper on the staff proposal previewed at the May 25, 2021 workshop.

SMUD has served most of Sacramento County and portions of Placer and Yolo County residents for over 70 years. With a service area of 900 square miles, SMUD provides safe, reliable, and environmentally sustainable electricity at affordable rates to a population of over 1.5 million. SMUD is the nation's sixth-largest community-owned electric utility and is recognized nationally and internationally for its innovative energy efficiency programs and renewable power technologies. SMUD is committed to reducing greenhouse gas (GHG) emissions in the Sacramento region and currently receives 50 percent of its energy from zero and low carbon resources.

In April 2021, SMUD's Board of Directors, its governing and rate-setting body, adopted our 2030 Zero Carbon Plan ("Plan"). The 2030 Zero Carbon Plan establishes a path for achieving the goal of reaching zero carbon emissions in our power supply by 2030 while maintaining reliability levels and affordable rates, doing it all with an eye toward equity for underserved communities.

Implementing proven clean technologies and reimagining our natural gas power plants will reduce our carbon emissions about 90% by 2030. Emerging technologies, including flexible demand/load management, play a critical role in our Plan, specifically to eliminate the remaining 10% of carbon emissions. We hope to scale our flexible demand/load programs as a lower cost alternative to large solutions such as utility-scale battery storage. Customers will have options to participate in programs that leverage the advanced and automation capabilities of their own devices, such as thermostats and electric vehicles, for deeper bill and carbon savings. We expect to develop about 165 MW of flexible demand/load programs by 2030, and possibly more as our programs continue to evolve and leverage advancing technology.

## **II. SMUD'S COMMENTS ON THE CALIFORNIA ENERGY COMMISSION LOAD MANAGEMENT RULEMAKING**

SMUD is strongly committed to continue exploring advanced time-varying rates and incentive structures coupled with appropriate demand flexibility/load management and automation that could benefit our customers. SMUD began implementing Time-of-Day (TOD) rates for residential customers in 2018 and completed the transition in 2019.

SMUD is an active participant in the ongoing Load Management Rulemaking at the California Energy Commission. Attached are the comments filed with the CEC on this matter that SMUD believes can inform the Energy Division Staff's development of their white paper.

## **III. CONCLUSION**

SMUD appreciates the opportunity to provide its comments and looks forward to continuing to work with the CPUC and other stakeholders on this important issue.

/s/ \_\_\_\_\_  
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cc: Corporate Files (LEG 2021-0075)

**STATE OF CALIFORNIA  
BEFORE THE CALIFORNIA ENERGY COMMISSION**

<b>In the matter of:</b>	)	Docket No. 19-OIR-01
	)	
<b>Load Management Rulemaking</b>	)	SMUD Comments Re:
	)	Load Management Rulemaking
	)	
	)	April 27, 2021
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	)	
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**Comments of SACRAMENTO MUNICIPAL UTILITIES DISTRICT on  
Load Management Rulemaking**

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments to the California Energy Commission (CEC) on the *Draft Staff Report: Analysis of Potential Amendments to the Load Management Rulemaking Standards* (“Draft Staff Report”) published on March 25, 2021.

SMUD strongly supports the state’s decarbonizing efforts to reduce greenhouse gas (GHG) emissions by promoting transportation and building electrification and increasing the development of renewable resources. We take a holistic approach to climate change, and we do everything we can to cost-effectively reduce GHG emissions in the region.

SMUD began implementing Time-of-Use (TOU) rates for commercial and industrial customers in 1993. By 2012, all commercial customers were transitioned from tiered rates to TOU rates. Throughout 2012-2013, SMUD implemented a Smart Pricing Options Pilot Program which provided the basis for California’s transition to time-of-use rates as the default for utility customers. SMUD began implementing Time-of-Day (TOD) rates for residential customers in 2018 and completed the transition in 2019. After the first full summer, 98% of our eligible customers had remained on the TOD rate, with only 2% opting out for a flat rate.

In July 2020, our Board of Directors declared a climate emergency and adopted a resolution calling for SMUD to take significant and consequential actions to become carbon neutral (net zero carbon) by 2030. In April 2021, SMUD’s Board will vote to adopt our 2030 Zero Carbon Plan. Our goal is to reach zero carbon emissions in our power supply by 2030 while maintaining reliability and affordable rates, doing it all with an eye toward equity for underserved communities.

Proven clean technologies and reimagining our natural gas power plants will reduce our carbon emissions by about 90% by 2030. Emerging technologies, including load flexibility, play a critical role in our Plan, specifically to eliminate the remaining 10% of carbon emissions. We hope to scale our flexible demand programs as a lower cost alternative to large solutions

such as utility-scale battery storage. Customers will have options to participate in programs that leverage the advanced and automation capabilities of their own devices, such as thermostats and electric vehicles, for deeper bill and carbon savings. We expect to develop about 165 MW of flexible load programs by 2030, and possibly more as our programs continue to evolve to leverage advancing technology.

SMUD is strongly committed to continue exploring advanced time-varying rates and incentive structures coupled with appropriate load flexibility and automation that could benefit our customers. While SMUD agrees that load management is an important and crucial objective, we respectfully submit the following comments on the proposals set forth in the Draft Staff Report.

**1. The CEC's regulations must recognize the limits of the CEC's authority to mandate specific rates or rate structures.**

The California Municipal Utility Association (CMUA) submitted comments on March 16, 2020, and again on April 23, 2021, regarding the limits of the CEC's authority over the ratemaking processes of publicly owned electric utilities (POUs) such as SMUD. These comments were filed to this docket.<sup>1</sup> As CMUA explained in its comments, while the CEC has authority and legislative directive to make recommendations on standard rate structures, the CEC does *not* have the authority to dictate specific rates or rate structures. SMUD agrees with CMUA and other commenters that, notwithstanding Staff's recognition that the POU governing boards may elect not to approve the required rates, the Load Management Standard amendments as currently proposed go beyond the intent of the authorizing statute and would significantly infringe on the rate-making authority of the POU governing boards.

**2. The Load Management Standards and time variant rate mandates must allow POUs flexibility to design and adopt rates that implement policies adopted by the POU governing board in a cost-effective way adapted to the individual POU's customer base.**

**a. Pilots and programs are a compelling alternative to mandating a definitive tariff for the near-term.**

SMUD strongly urges the CEC to implement Load Management Standards that allow utilities to design programs and rate structures for all their various customers based on customer class experience, tested processes and information systems, and proven load shift effectiveness. Utilities must have the time and flexibility to understand customer response to dynamic rate designs and to ensure that new rate structures will result in incremental load reduction beyond current rate structures, including TOD. Pilot programs and tariffs are a critical first step before

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<sup>1</sup> CMUA Comments dated March 16, 2020 ([TN232433\\_20200316T162250\\_California Municipal Utilities Association Comments - on Draft Tariff Stand.pdf](#))

[CMUA Comments dated April 23, 2021 \(TN237543\\_20210423T164310\\_California Municipal Utilities Association Comments - on Draft Staff Report \(1\).pdf\)](#)

full implementation of a new rate, allowing the utility a cost-effective path to understand and adjust to the impact of actual customer response to the rate design.

Pilot programs and pilot tariffs are better alternatives to test concepts versus mandating the implementation of a definitive untested tariff. SMUD's success in implementing new rates such as TOD, was possible because SMUD took the time to research, plan, study, test, educate staff and customers, set up systems, and conduct an educational campaign. The entire process took nearly seven years from the concept until the actual rates were rolled out. A similar multi-year effort was done by the California Investor-Owned Utilities (IOUs) when they embarked on the Statewide Pricing Pilot which eventually led to the IOUs adopting mandatory TOU rates for their residential customers.

SMUD recommends that utilities be allowed the option of applying for *either* a rate or a program by March 31, 2023. This flexibility will allow the utilities to move forward with dynamic pricing options immediately in a measured and cost-effective manner designed to achieve the highest levels of customer adoption and success. It will also allow utilities to build on existing policies and processes. For example, the SMUD rate cycle does not align with the tariff application requirement to apply for approval of at least one hourly or sub-hourly rate for each customer class by March 31, 2023, however processes for pilots and programs can be more agile.

Additionally, carefully designed and tested programs could deliver load flexibility benefits without resulting in complex tariffs. SMUD is actively piloting program designs that decouple the economic load management signals from the customer incentive structure. Simple incentive programs may capture most of the benefit of a marginal cost signal while increasing customer value and adoption. The automation technology can respond to a dynamic signal, while the customer savings are provided through simple, understandable messages and fixed compensation mechanisms like subscription or bundled credits.

Any recommendation from the CEC should allow for utilities to pursue pilot programs and tariffs based upon their own needs, strategic plans, and rate roadmaps.

- b. The implementation schedule for new rate structures must recognize that utility information systems are complex and integration of hourly or sub-hourly rate structures across multiple customer classes is a resource and time intensive process.**

In adopting any statewide standard, the CEC should contemplate an implementation schedule that considers the extent of necessary upgrades to utility information systems. Utility billing processes, procedure functions, and associated information systems are core enterprise platforms. These platforms are not easily reconfigured to manage new tariff structures. Any implementation of a new standard for price communications must be scaled and must consider the time and resources required to develop and implement system upgrades to accurately manage sustainable, real-time price operations. Sufficient time must be allotted in any implementation of a new tariff structure or standard to thoroughly vet these upgrade costs and requirements.

SMUD has committed significant resources to implement recent Board approved rate increases, test new commercial rates, continue to test results of the TOD rollout, and work on a Net Energy Metering (NEM) successor tariff. All of these activities stress internal resources and customer tolerance for change. Rate structures unsupported by tested information systems is unlikely to foster successful customer adoption. Further, the Draft Staff Report underplays the complexity and cost of transitioning systems and processes necessary to implement new rate structures across multiple customer classes. A Load Management Standard that builds in the flexibility to test new structures through pilots and programs is critical to ensure a positive customer experience and reasonable implementation costs.

**c. Experience shows that customer adoption is enhanced by careful preparation and simple rate structures.**

A successful statewide demand response effort depends on customer adoption, and a positive customer experience is critical to achieving these goals. Dynamic pricing and automated response are substantial changes from how customers currently interact with their energy usage. Customer education, utility experience, tools, automation, billing, and program design are critical features of any price communication standard. There remains much to learn as “opt-in” pilots and programs scale up. Dynamic rates are not yet a viable option for broad-scale customer deployment.

SMUD adopted a rate roadmap, and in October 2018 began transitioning our customers to TOD rates. This effort is successfully encouraging reductions in energy use during peak hours (e.g., between 5-8 p.m.). Our consumers are still adjusting to this shift to TOD rates. Through the TOD vetting process, we learned that our customers tend to prefer more simple rate structures that allow customers to budget their energy costs. The complexities of an hourly pricing structure (e.g., varying rates at different hours of every day) presents added uncertainty and risk - especially for low-income consumers who are already struggling to make ends meet. Utilities need sufficient time to conduct internal pilots, demonstrations, and educate customers before broadly deploying hourly rates, much less sub-hourly rates.

**d. Developing hourly prices for all customer classes is a concern.**

In the CEC cost effectiveness analysis, residential thermostats were the only devices that were included, because thermostats meet the minimum statutory requirement. Utilities also have rates for other customers classes such as agriculture, street lighting, and various levels of commercial classes. Utilities should have full discretion to determine which customer classes would benefit from a dynamic pricing tariff, and utilities should take into consideration the enabling technologies appropriate for that customer class and be able to opt-out of creating hourly/sub-hourly prices for customer classes when such rate structures would not be feasible and cost-effective.

**3. The cost estimates provided in the Draft Staff Report do not reflect true costs of implementing the new rate structures.**

Table 3: Estimated Cost, in the Draft Staff Report, includes a cost of \$5.13 million for development and implementation of billing systems for all five utilities impacted by the proposed regulation. SMUD believes that the cost estimate is severely understated. Implementation costs will include not only billing system modifications but also design and testing, reporting, and marketing, education and outreach. The cost of development and implementation of SMUD's TOD rates alone far exceeded staff's cost estimate. Given our recent experience in rate development and implementation, the \$5.13 million estimated in Table 3 is insufficient and should be reassessed.

**4. Care must be taken to ensure that the implementation of new rate structures with dynamic pricing doesn't impact electric service reliability.**

Utility reliability depends upon accurate forecasts of required capacity. Current utility planning and resource procurement practices are dictated by peak forecasted usage. SMUD agrees that load flexibility plays an important role in meeting capacity, however, load flexibility should not be an option or opt-out product if it is to be counted on in capacity planning and operations. Aggregate load responses need to be better understood in order to be depended upon to displace traditional utility investments. Additionally, to be counted as "capacity," programs with reliable and consistent responses will need to be developed.

Forecasts are also critical to reliability. Building more reliable forecasts is a constant work-in-progress. Models and assumptions regarding transportation and building electrification and energy efficiency are significant factors in a utility's cost decisions. The financial consequences of unforeseen events are substantial, and our forecasts are only as good as historical data. In a world where climate conditions are rapidly changing, accurate forecasting is a perpetual challenge. Utilities need to build more reliable forecasts to respond to the rapidly evolving grid demands. Developing confidence in price-response of various customer types and technologies will be important to ensuring that forecasting can be done accurately with scaled dynamic pricing programs.

**5. Any Statewide central price database must be designed to protect against cybersecurity threats.**

In recommending a structure for ensuring visibility to individual utility dynamic rates, the CEC must ensure that the data remains secure and accessible only to legitimate users. Centralizing access to such data from a single database hosted by the CEC or another entity raises substantial cybersecurity concerns that must be addressed. As currently indicated in the Draft Staff Report's proposed regulation language, prior to the fifth business day of each month retail electricity providers would be required to submit to the CEC, for aggregation and publication, a current database of prices and calculations for all approved rates. If a customer is exposed to a different (inaccurate) price through cyber malice then the customer may be exposed to conditions where, for example, a battery can be discharged or charged at the wrong time causing issues with the interconnected distribution grid.

## 6. Electricity rates must be aligned with state environmental goals.

SMUD urges the CEC to thoroughly investigate all the implications of real-time pricing during this rulemaking proceeding. Introducing a standard that dictates a real-time pricing structure must be carefully balanced with the state's accelerated renewable goals (e.g., SB 100, etc.), electrification priorities, and energy rates. It is imperative that Load Management Standards do not jeopardize or endanger California's broader environmental goals.

Premature expansion of real-time pricing could result in unanticipated rate impacts that may disincentivize the accelerated electrification of other sectors like transportation. Transportation emissions are far greater than a utility's carbon footprint. To encourage consumers to choose cleaner vehicles, electric water heaters, heat pumps, etc., electricity rates must remain affordable, consistent, and predictable.

### Conclusion

As California moves toward a zero-carbon future, coordination between utilities and regulators becomes ever more important, and innovation will be vital to ensuring we reach the state's goals at the lowest levelized cost to consumers. Load Management is a complex issue and will necessitate a delicate balance between the CEC's recommendations on rate design and recognition of the autonomy of publicly owned utilities to administer independent rate-structuring decisions within their service territories. Pilots are critical to successful rollout of new rates. Likewise, real-time pricing structures must be carefully vetted and sensibly implemented to avoid impacts to reliability and to support the state's broader environmental goals.

SMUD appreciates the opportunity to provide these comments and looks forward to continuing to work with staff in this proceeding.

/s/

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/s/

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