

SACRAMENTO MUNICIPAL UTILITY DISTRICT

STAFF REPORT AND FINDINGS ON THE DEMAND-RESPONSE PRACTICES STANDARD OF PUBLIC UTILITY REGULATORY POLICIES ACT OF 1978 AS AMENDED BY THE INFRASTRUCTURE INVESTMENT AND JOBS ACT OF 2021

A. Background

The Infrastructure Investment and Jobs Act of 2021 (IIJA) amended the Public Utility Regulatory Policies Act of 1978 (PURPA) by adding two new standards that electric utilities, including SMUD (we are considered a “non-regulated utility” under PURPA), must consider and determine the appropriateness of implementing. The stated purpose of PURPA standards is to encourage conservation of energy supplied by electric utilities, efficiency of electric utility facilities and resources, and equitable rates for electric consumers.

On October 20, 2022, through Board Resolution No. 22-10-15, the SMUD Board of Directors commenced consideration of the Demand-Response Practices Standard. Under PURPA, the Board is not required to adopt the standard, but is required to consider and make findings on or before November 15, 2023.

On October 18, 2023, the Staff Report and Findings on the Demand-Response Practices Standard (Staff Report) will be presented and discussed at a public hearing during the Energy Resources and Customer Services Committee meeting. The Staff Report was made available to the public on SMUD’s web site (www.smud.org) prior to the hearing. Feedback is requested from the public as to the need and desire for SMUD to adopt the Demand-Response Practices Standard. Members of the public are welcome to attend the public hearing and provide comments. The Board will consider whether it is appropriate to adopt the Demand-Response Practices Standard.

B. Demand-Response Practices Standard

The new Demand-Response Practices Standard under Section 111(d)(20) of PURPA provides:

(A) In general

Each electric utility shall promote the use of demand-response and demand flexibility practices by commercial, residential, and industrial consumers to reduce electricity consumption during periods of unusually high demand.

(B) Rate recovery

...

(ii) Nonregulated electric utilities

A nonregulated electric utility may establish rate mechanisms for the timely recovery of the costs of promoting demand-response and demand flexibility practices in accordance with subparagraph (A).

Simply stated, PURPA requires the Board to consider whether it is appropriate to adopt the new Demand-Response Practices Standard which encourages utilities to promote the use of demand-response practices by customers to reduce electricity consumption during periods of high demand.

C. SMUD's Demand-Response Programs

For more than 40 years, SMUD has implemented various demand-response programs, including rates, to encourage customers to reduce electricity usage during periods of high demand. SMUD's Board, through Board Resolution No. 21-02-04, adopted Competitive Rates Strategic Direction No. 2 (SD-2) which, among other things, requires rates be designed with a goal to reflect the cost of energy when it is used, reduce consumption during periods of high system demand, encourage energy efficiency and conservation, and provide customers flexibility and choices. SMUD's Board, through Board Resolution No. 21-04-04, has adopted Environmental Leadership Strategic Direction No. 7 (SD-7) which makes environmental leadership a core value of SMUD by, among other things, promoting the efficient use of energy by our customers. SMUD's Board, through Board Resolution No. 21-04-04, has adopted Resource Planning Strategic-Direction Policy No. 9 (SD-9) which prioritizes carbon emissions reduction by, among other things, pursuing energy efficiency and new technologies which serve to provide flexible demand response capability.

Currently, SMUD has been running a commercial auto-demand-response program called PowerDirect for nearly 10 years which focuses on building energy management systems to reduce HVAC or lighting primarily in response to an automatic signal. Customers are compensated for equipment costs with an upfront incentive as well as ongoing performance incentives based on what is delivered in response to the signal. In addition, SMUD has had a residential air conditioning switch program called air conditioning load management (ACLM) that we have had in place since 1979. The ACLM program currently has approximately 60,000 participating residential customers and is intended to be used for grid emergency purposes only.

SMUD's 2030 Zero Carbon Plan (ZCP) contemplates 360 – 1,320 MW of Virtual Power Plants (VVPs) contributing to our supply, made up of residential and commercial loads, as well as managed electric vehicle charging and vehicle-to-grid (V2G) dispatch. As part of our 2030 ZCP, we address how demand side technologies could contribute to reduced electricity usage, especially during high demand periods, and are committed to growing this resource from the 80 MW scale today to hundreds of MWs (and potentially more than a thousand MWs) over the next 8 years. SMUD launched a new residential VPP demand-response program in 2022 focused on thermostats and another one in 2023 focused on load control switches that will replace our existing ACLM program with an operational program rather than emergency program. These

residential programs provide customers with upfront incentives as well as ongoing seasonal payments and include a critical peak pricing (CPP) signal as a compensation mechanism to entice additional behavioral response. We anticipate incorporating battery storage and potentially V2G into the existing thermostat aggregation to create a much larger VPP.

Looking to the future, by 2030, we anticipate as many as 1 in 3 kWhs SMUD delivers to serve electric vehicles. This will put a tremendous focus on managing how the charging of electric vehicles occurs so as to minimize grid impacts and best integrate renewables. To capitalize on the relative flexibility of electric vehicle charging and the distributed energy resource potential of their batteries, SMUD is actively engaged in V2G pilot programs – the most notable with the Twin Rivers School District – and is exploring ways to ensure customers are charging their vehicles at optimum times for the grid. SMUD has partnered with four electric vehicle manufacturers to offer over 4,500 residential customers access to a managed charging program that provides a monetary incentive for optimized electric vehicle charging. For commercial customers, SMUD is developing program offerings that incentivize the adoption of Automated Load Management Systems which has been shown in certain cases to reduce peak demand by over 50 percent. It accomplishes this by shifting charging load to low demand periods or by throttling chargers to provide constant minimized power over an extended period, while still meeting the customer’s charging needs.

SMUD’s costs for demand-response programs are designed to be offset by savings on our commodity budget to account for the variance in costs of purchasing and generating electricity (in other words, lower electricity consumption, especially during high demand periods, reduces SMUD’s need to purchase and/or generate electricity to supply customers). In that sense, the demand-response programs do not require specific rate recovery but are rather intended to pay for themselves by offering Time-of-Day rates that encourage customers reduce consumption during peak periods and shift usage to other times.

SMUD has had commercial/industrial customers on Time-of-Day rates since 1993 which charges significantly more for electricity during the peak between 4-9 p.m. And since 2019, residential customers have had a default Time-of-Day rate which charges significantly more for electricity during the peak period of 5-8 p.m., and during summer months only, a mid-peak period between 12-5 p.m. and 8 p.m.-midnight. Moreover, in 2022, SMUD launched a residential CPP rate which incentivizes customer participation and helps enhance the impact of our thermostat and battery demand-response programs by charging a premium during 50 critical peak event hours per summer and providing a rate discount during non-peak hours over that summer.

D. Proposed Findings

1. SMUD has adopted Competitive Rates Strategic Direction No. 2 (SD-2) which, among other things, requires rates be designed with a goal to reflect the cost of energy when it is used, reduce consumption during periods of high system demand, encourage energy efficiency and conservation, provide customers flexibility and choices.

2. SMUD has adopted Environmental Leadership Strategic Direction No. 7 (SD-7) which, among other things, requires SMUD to conduct its business affairs and operations in a sustainable manner by minimizing environmental impacts and conserving resources, and promotes the efficient use of energy by our customers.
3. SMUD has adopted Resource Planning Strategic-Direction Policy No. 9 (SD-9) which prioritizes carbon emissions reduction by, among other things, pursuing energy efficiency and new technologies which serve to provide flexible demand response capability.
4. SMUD has for decades provided demand-response programs to promote the more efficient use of electricity and reduce usage during periods of high demand, including the PowerDirect program for commercial/industrial customers and an air conditioning load management program for residential customers.
5. SMUD's 2030 Zero Carbon Plan contemplates 360 – 1,320 MW of Virtual Power Plants (VPPs) contributing to our demand-response supply, made up of residential and commercial loads, as well as managed electric vehicle charging and vehicle-to-grid (V2G) dispatch. SMUD launched a new residential VPP demand-response program in 2022 focused on thermostats and another one in 2023 focused on load control switches, and anticipates incorporating battery storage and potentially V2G into our VPP programs.
6. SMUD is actively engaged in V2G pilot programs and is exploring ways to ensure customers are charging their vehicles at optimum times for the grid, and anticipates by 2030 as many as 1 in 3 kWhs SMUD delivers will be used to serve electric vehicles.
7. SMUD has partnered with electric vehicle manufacturers to offer residential customers access to a managed charging program and has program offerings that incentivize the adoption of Automated Load Management Systems which shifts charging load to low demand periods.
8. SMUD's demand-response programs are designed to account for the variance in costs of purchasing and generating electricity, and therefore do not require separate rate recovery mechanisms because the program costs are offset by the savings on our commodity budget.
9. SMUD has adopted Time-of-Day pricing for its commercial/industrial customers which promotes demand-response during the peak period of 4-9 p.m. and for residential customers during the peak period of 5-8 p.m., and also in the summer months during mid-peak periods of 12-5 p.m. and 8 p.m.-midnight.
10. SMUD has a Critical Peak Pricing rate which further incentivizes residential customer participation in demand-response programs that utilize thermostats and batteries to reduce electricity consumption during high demand periods.
11. As reflected in the Strategic Direction, and through its various programs, initiatives, and rates, SMUD's demand-response practices meet the new federal standard.

E. Recommendation

Staff recommends that the Board adopt the proposed findings and find that the new federal Demand-Response Practices Standard is appropriate for use by SMUD.

