



**SMUD**

SACRAMENTO MUNICIPAL UTILITY DISTRICT  
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August 22, 2007

California Energy Commission  
Dockets Office  
Re: Docket No. 07-SB-1  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512

**SUBJECT: Comments on Senate Bill 1 Eligibility Requirements Staff Report**

The Sacramento Municipal Utility District is pleased to submit the attached comments on Senate Bill 1 Eligibility Requirements Staff Report (CEC-400-2007-14), dated August 2007.

The Sacramento Municipal Utility District (SMUD) is the nation's sixth-largest community-owned electric utility, led by a seven-member elected Board of Directors. SMUD generates, transmits and distributes electricity to almost 600,000 customers in a 900-square-mile service area that includes Sacramento County and a small portion of Placer County. As a community-owned utility, SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our regions.

SMUD commends the CEC staff for their efforts in crafting the subject staff report, and we look forward to the participating in the eligibility requirements definition process underway.

Submitted By,

Jon Bertolino  
Superintendent  
Renewable Generation Assets

## **SMUD Comments on Senate Bill 1 Eligibility Requirements Staff Report**

The Sacramento Municipal Utility District is pleased to submit the following comments on Senate Bill 1 Eligibility Requirements Staff Report (CEC-400-2007-14), dated August 2007.

The Sacramento Municipal Utility District (SMUD) is the nation's sixth-largest community-owned electric utility, led by a seven-member elected Board of Directors. SMUD generates, transmits and distributes electricity to almost 600,000 customers in a 900-square-mile service area that includes Sacramento County and a small portion of Placer County. As a community-owned utility, SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our regions.

SMUD has a developed and implemented innovative energy programs that are known throughout the state, nation, and world, and has continually set aggressive targets in the areas of energy efficiency, renewable energy, and mitigation of greenhouse gases. These targets directly support the state policy initiatives referenced in the Staff Report, including the Governor's Million Solar Roofs Initiative, the Integrated Energy Policy Reports (IEPR), the Green Building Initiative, and the Climate Action Initiative.

For example, SMUD recently adopted a policy in its resource planning that sets the very ambitious goal of achieving on average 1.5% load reduction each year over the next 10 years through investments in energy efficiency. SMUD also was the first California utility to have its emissions certified by the Climate Action Registry. SMUD has also been highly successful in combining energy efficiency with solar energy in the residential new construction market through our SolarSmart program.

A key factor in SMUD's success in these endeavors is the ability to develop program structures, product offerings, and incentive packages that meet the needs of our unique customer base, market segments, and economic environment. Significant benefits have been achieved from the ability to monitor programs in other states or utilities and incorporate lessons learned to make our programs even better. The ability to innovate and/or make program changes at the local level to better satisfy the needs of our customer base has been instrumental in keeping SMUD at the forefront in these efforts.

SMUD commends the CEC staff for their efforts in crafting the Senate Bill 1 Eligibility Requirements Staff Report. SMUD views many of the proposed criteria as positive steps in both furthering the development of solar in California and supporting relevant state policy. It is suggested, however, that greater flexibility in some areas that may produce long-term benefits due to the still emerging nature of solar technologies, their supply chains, and overall market acceptance.

A unifying sentiment lies behind our comments. SMUD feels it would be lamentable if public policy were to pit energy efficiency and solar electricity against each other just at a time when we are entering a new and expansive phase in the furtherance of these mutually beneficial avenues to our energy future.

We have relied upon customer choice to expand the market penetration of both PV and energy efficiency. SMUD believes that having adopted this strategy, we must now leverage, not attempt to control, the power of consumer decision. We know that some customers invest in PV not only to manage their immediate energy costs but also to support solar energy and to acquire a greater measure of energy independence at the household level. We also know that some customers invest in PV thinking that it is a panacea for high energy bills without fully understanding how their homes use energy or what PV truly costs. Consumer investments are prompted by multitudinous values, and SMUD seeks to give its customers the necessary information, and then allow them the latitude to make their own choices.

SMUD is basing the design of its future programs on the principle that renewables and energy efficiency do not have to be seen as trade-offs but as huge opportunities to develop new integrated products in which the lower costs of “negawatts” will help offset the higher costs of PV generation. In other words, we are interested in demonstrating that energy efficiency can make PV a *more* attractive investment, not an either/or. It will take further interaction with, and understanding of, our customers to design these packages, but we believe that many different utilities, working pluralistically in this direction, will succeed in creating exciting new approaches for marrying public goals and customer choice.

The following sections address individual chapters in the Staff Report:

#### Chapter 3 – Solar Energy System Component Standards:

- SMUD supports the recommended requirements for PV modules. We believe the addition of detailed performance data reporting as certified by relevant sections of IEC 61215 or 61645 and testing by an accredited independent laboratory represent beneficial enhancements to the PV module standards currently in place under the California Solar Initiative (CSI).
- The Staff Report recognizes that the addition of this requirement reduces the number of modules that are currently eligible. If a substantial number of modules will not be in compliance by January 1, 2009, due to the unavailability of adequate testing resources, SMUD recommends that a delay in implementation of the requirement beyond that date be considered.

#### Chapter 4 – Solar Energy System Installation Standards:

- SMUD supports the move to Performance-Based Incentives (PBI) for larger systems or when it can be justified on a cost-benefit basis. We believe this sends a strong signal to the system owner and provides an economic incentive to ensure the systems are operating at their greatest potential. However we believe each program administrator should have greater flexibility in defining size levels and terms for PBIs. For example, the 5-year term not match the payment needs of the project developer or building owner. Longer terms may also be desirable as a way to ensure the systems retain the highest levels of performance (and are consistent with system warranty requirements).
- The CSI metering subcommittee is an important forum for identifying and discussing issues associated with performance monitoring and reporting. This forum has produced (and is expected to continue to produce) relevant recommendations. SMUD believes that cost-benefit issues related to metering, the mechanisms (and costs) of providing reports to program administrators, and the impact on market acceptance are not fully understood.

As such, SMUD believes that metering and performance monitoring and reporting system (PMRS) requirements should be defined by each program administrator to meet their needs. Each administrator should monitor the CSI metering subcommittee for continuing guidance in developing these requirements (and modifying them as needed over time).

- The CSI shading subcommittee is an important forum for identifying and discussing the techniques for measuring shading impacts on system performance and conducting field verification. This forum has produced (and is expected to continue to produce) relevant recommendations. Detailed studies of the NSHP protocol and its accuracy in both predicting and verifying shading impacts should be considered by the subcommittee. In particular, if field verification is not conducted on the plane (or planes) of the installed array significant errors may occur. It is recognized this may require some time to generate adequate data samples. Therefore SMUD believes that shading measurement and field verification protocol requirements should be defined by each program administrator to meet their needs. Each administrator should monitor the CSI shading subcommittee for continuing guidance in developing these requirements (and modifying them as needed over time).
- SMUD agrees that installer training and field verification is an important mix to ensure high-performance systems. SMUD does not believe that a competent third party infrastructure exists to mandate HERS rater verification. SMUD currently performs a minimum of two inspections per project; the first is a pre-installation check to verify tilt, orientation, and shade. A second is made after installation to verify system components and program requirements. During this second inspection, SMUD also verifies that interconnection with our grid meets our requirements and safety measures. SMUD understands that a one-in-seven approach through a HERS rater may be good for large utility territories. It is our position that systems currently installed within SMUD territory should be verified under our guidance and direction. In time, HERS raters may gain the experience necessary to do solar inspections. SMUD will be investing in education and training programs to support this.

#### Chapter 5 – Energy Efficiency:

SMUD supports the CEC's intent to ensure that program participants first take advantage of cost-effective energy efficiency opportunities prior to installing PV. The customer, the utility, and society will all realize greater benefits if energy efficiency and PV opportunities are bundled and given equal economic weighting in the purchase decision.

However, it is SMUD's experience that some customers invest in PV not only to manage their energy demand but also to support renewable energy and to acquire self-generation capability that reduces their dependence on the grid. While it is recognized that the state loading order requires utilities to invest in energy efficiency before solar, these same requirements do not apply to building owners. Some customers want only PV, even when presented with the comparative value proposition of energy efficiency. Other customers may be willing to undergo an assessment and install simple measures, but every building and building owner is different and a hard requirement will inevitably reduce the participants in SB 1 programs. This may not be a problem a few years from now when the solar market has gained sufficient momentum, but we are currently far from that point. Imposing such requirements too soon at this crucial phase could hinder California's ability to reach the SB 1 goals.

For many of California's utilities with low rate structures, generating adequate volumes of solar installations has been difficult. This has been the case even in instances where the incentives offered far exceed the level required by SB 1 or currently offered through the CSI. The economics of financial payback are certainly a consideration in these areas, but it is also increasingly difficult to get installation contractor interest in marketing in these areas for the same reason. This "double-whammy" presents significant challenges to meeting the SB 1 goal of installing 3,000 MW of solar generating capacity statewide. Adding efficiency requirements on top of that, particularly for existing buildings (both commercial and residential), compounds the challenge.

California's program administrators have communicated openly through several different forums, and are continuously looking for ways to improve the value and success of their solar programs. The ability to "pilot" new products or program offerings in individual service areas helps evaluate a broader range of concepts. Lessons learned can then be incorporated by each administrator as needed to respond to their customer base. Given the emerging nature of solar technology and the limited data on market response, retaining greater flexibility in eligibility guidelines may be the better near-term course for California. The state would likely benefit from multiple approaches and program structures, learning over time which strategies best meet overall needs.

We therefore urge the Commission to consider a phased approach for introducing energy efficiency eligibility requirements. In general, this would start with an emphasis on increasing awareness of energy efficiency opportunities, making tools for understanding these opportunities easily available, and marketing energy efficiency services with PV in an integrated fashion—but respecting the customer's right to choose. This would provide the program administrators the leeway to work with each customer to set their own priorities with regard to the tradeoffs between a dollar spent on energy efficiency versus a dollar spent on renewables. As market momentum builds, eligibility requirements for energy efficiency assessments and achieving minimum efficiency levels could be introduced. Ideally, the trigger for introduction of such requirements would be based on reaching certain market development milestones as opposed to a fixed timetable, as exemplified with the block incentive structure.

### Newly Constructed Buildings

#### *Residential*

- SMUD's SolarSmart program represents an evolution of our very successful Advantage Home program, and benefits from SMUD's early experiences with the Building America Zero Energy Home program. As a result, all SolarSmart homes meet the Tier I energy efficiency requirements recommended in the Staff Report, and many meet the Tier II level. It should be recognized, however, that some builders have been primarily interested in the solar element, and have been reluctant to incorporate all of the efficiency provisions recommended, particularly those needed to meet Tier II requirements. SMUD supports the Commission's recommended guidelines for utilities to provide energy efficiency incentives tailored to each of the two tiers, and we believe Tier I is an achievable minimum efficiency level.

### *Commercial*

- There has been limited solar activity in the commercial new construction sector. Therefore, it is difficult to determine how compliance with the Staff Report recommendations will impact solar deployment. The Savings by Design (SBD) minimum participation requirement is 10% better than Title 24 under the systems approach. The lion's share of our SBD projects are not reaching the 15% whole building approach levels. SMUD has worked with many architects and developers throughout the years with SBD and previous EE programs. Most private sector projects are being permitted under shell-only requirements. Lighting becomes the responsibility of the tenant in their tenant improvement (TI) package. Our experience is no project meets the 15% level without lighting. The result is that no PV will be included in the shell permit. Tenants will also not include PV into their TI due to the fact that they must assume the energy efficiency of the shell. The tenant also does not own the roof making PV deployment even more difficult. The suggested 15% standard will surely restrict PV deployment largely to State buildings, which are already required to meet this standard. Because of such challenges, the statewide SBD team is considering lowering the minimum to 7.5% due to the difficulty in reaching the 10% threshold for some buildings under the current Title 24 standards. SMUD recommends pegging any requirement for new commercial buildings to the Savings by Design minimum efficiency levels in place in any given program year.

### Existing Buildings

#### *Commercial*

- SMUD believes that the requirements for existing commercial buildings recommended in the Staff Report would create the most significant barrier to meeting the SB 1 goals of any market, if instituted as early as 2009. SMUD expects to rely the most on this sector to contribute installed megawatts to the ambitious 10-year program goals. Given the broad range of building configurations and purposes (as well as age), requiring an Energy Star rating of 75 or above may eliminate many potential sites. In addition, the requirements and procedures for retro-commissioning may not be fully understood by building owners. This will likely reduce the demand for solar, which seems to conflict with the SB 1 goal of creating a self-sufficient industry in which solar energy systems are a viable option for both homes and businesses in 10 years. SMUD has offered commissioning incentives for existing buildings for more than a decade. We have found that commissioning and retro-commissioning is still a very tough sell. We recognize that commissioning is a very positive element to assure energy efficiency in new building stock. SMUD supports these efforts, but during our history with commissioning fewer than two dozen buildings have been commissioned in our District. More than half of those have been State buildings in response to their own requirement.
- SMUD's recent experience indicates that commercial building owners are often interested in solar as a way to demonstrate, in a highly visible way, their "green" commitment. In some cases, building (or facility) managers have been directed by their executive management to pursue a solar installation. In other cases, building owners have constrained budgets to work with which may limit their ability to invest in both energy efficiency upgrades and solar. If building owners elect not to pursue solar because of the added cost of efficiency upgrades, the opportunity will be lost. As an

alternative, utilities should be encouraged to offer energy efficiency options to customers along with solar as a suite of products and services. The customer is then free to choose which of these best meets their needs. Given recent state energy policy decisions and legislation, utilities are compelled to do this anyway. If the CEC intends to require retro-commissioning, benchmarking, and energy efficiency investment as eligibility requirements for receiving a PV incentive, SMUD recommends a phased approach that begins with customer education requirements only and moves toward compulsory adherence to the State loading order when awarding incentives in the future. SMUD believes it will be possible for retro-commissioning requirements to be positioned as an added incentive for investing in solar, but designing these synergistic programs and gaining adequate market acceptance will require more time. We believe it would be more prudent to phase in the kind of requirements outlined in the Staff Report several years down the road.

#### *Residential*

- As with existing commercial buildings, SMUD believes it is too early to impose energy efficiency requirements in the residential retrofit market. At this early stage it may do more to chill demand for solar in this segment than it would increase savings from energy efficiency. Therefore SMUD supports the recommendations in the Staff Report to limit energy efficiency requirements to an online audit and the conceptual idea of developing a residential benchmarking process where the results would be used to target different assessment approaches. Any implementation of this concept should be voluntary until the tools are well-refined and proven, and the residential PV retrofit market has developed momentum that is sustainable.
- SMUD staff are currently working to integrate our energy efficiency and PV programs for the residential retrofit market but have found this to be a challenging task. Therefore we recommend that the CEC create guidelines for use by SB 1 program administrators that outline best practices for designing, marketing and implementing energy efficiency and PV program offerings in an integrated fashion.

#### Chapter 6 – Other Eligibility Requirements Established in Statute:

- SMUD has received inquiries for projects at large commercial sites that have multiple buildings and adjacent open space in which large ground mount arrays are contemplated. In these instances, the array may generate more energy than the needs of any individual building but less than the total site. The threshold sizing guidelines proposed in the Staff Report may restrict “campus” projects of this type from solar program eligibility. A similar situation may exist for multifamily projects which plan to allocate generation from a large array to individual accounts.
- While the Staff Report notes that the sizing requirements are established in statute, SMUD suggests that a broader interpretation may enable these project types to comply. At the very least, the collaborative process underway to define eligibility criteria and conditions can be used to inform future legislation in this regard.

#### Chapter 7 – Guideline Development and Implementation Schedule:

- The staff report recommends formation of a working group to further develop concepts discussed in the report for existing residential energy efficiency requirements. SMUD supports this recommendation and offers to assist as well as participate.