

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking Pursuant to
Assembly Bill 2514 to Consider the
Adoption of Procurement Targets for Viable
and Cost-Effective Energy Storage Systems.

Rulemaking 10-12-007
(Filed December 16, 2010)

**COMMENTS OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E) ON
ENERGY STORAGE FRAMEWORK STAFF PROPOSAL**

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I. INTRODUCTION

Pursuant to the Rules of Practice and Procedure of the California Public Utilities Commission (the “Commission” or “CPUC”), the December 14, 2011, *Assigned Commissioner’s Ruling* of Amy C. Yip-Kikugawa (the “Ruling”)^{1/} issued in the above-entitled Order Instituting Rulemaking (OIR),^{2/} and per the schedule set forth at page 2 of that Ruling, San Diego Gas & Electric Company (SDG&E) provides its initial comments concerning Attachment A of the Ruling entitled “Energy Storage Framework Staff Proposal” (the “Initial Staff Proposal”).^{3/}

SDG&E applauds the effort of the CPUC staff in their effort to address the need and implementation of energy storage in California. SDG&E agrees that energy storage should be able to provide valuable services and will likely be an important part of ensuring electric

^{1/} A copy of the Ruling is available on the Commission’s website at:
<http://docs.cpuc.ca.gov/efile/RULINGS/124014.pdf>

^{2/} OIR available at <http://publicserver.cpuc.ca.gov/PUBLISHED/proceedings/R1012007.htm> .

^{3/} Pursuant to the Assigned Commissioner and ALJ Scoping Memo and Ruling (Scoping Memo) issued on May 31, 2011, CPUC Staff served its initial proposal to address energy storage policy considerations on December 12, 2011. The schedule adopted in the Scoping Memo had anticipated an Initial Staff Proposal to be distributed for comment and review on October 11, 2011. However, due to the complexity of issues presented and limitations on staff availability, staff requested and was granted additional time to present its proposal.

reliability going forward as higher levels of variable intermittent renewable resources are introduced and become a larger segment of resource energy and capacity supply. Taking this into consideration, SDG&E is proposing to install substantial amounts of energy storage within SDG&E's service area as identified in its Smart Grid Deployment Plan (SGDP) and General Rate Case (GRC) filings.

II. COMMENTS

1. Regulatory Framework:

The following proceedings and/or efforts may have an impact on the immediate Energy Storage OIR:

a) CPUC

- Alternative Fuel Vehicle OIR: R.09-08-009
- SDG&E's GRC: A.11-10-002
- Distribution System Interconnection OIR: R.11-09-011
- Resource Adequacy Program: R.09-10-032

b) FERC

- Integration of Variable Energy
Docket No. RM10-11-000
Issued January 21, 2010

Notice of Inquiry in which FERC is seeking comment on the extent to which barriers may exist that impede the reliable and efficient integration of variable energy resources (VERs) into the electric grid, and whether reforms are needed to eliminate those barriers.

- Third Provision of Ancillary Services and Financial Reporting for new Electric Storage Technologies
Docket Nos. RM11-24-000 and AD10-13-000
June 16, 2011

Notice of Inquiry (NOI), the Commission seeks comment on two sets of separate, but related issues. First, FERC seeks comment on ways to facilitate the development of robust competitive markets for the provision of ancillary services from all resource types. Second, FERC is interested in issues unique to storage

devices in light of the role they can play in providing multiple services, including ancillary services.

c) CAISO

- Integration of Energy Storage Facilities
CAISO is taking significant steps to integrate large amounts of renewable resources into the electric grid. Among the key areas being evaluated is the need for energy storage technologies and processes to use services from storage facilities to assist with integration of renewable resources.
- Renewable Integration: Market and Product Review Phase 1
The purpose of this initiative is to identify short-term solutions for integrating renewable resources onto the grid. The scope of Phase 1 was originally comprised of two market design changes: (1) re-evaluate the Participating Intermittent Resource Program (PIRP) and (2) lower the energy bid floor to provide additional incentives for market participants, including variable energy resources (VER), to submit decremental (DEC) bids enabling the ISO to manage over-generation and congestion more efficiently and transparently
- Renewable Integration: Market and Product Review Phase 2
This phase of CAISO's renewable integration initiative focuses on market enhancements that will help California meet its renewable energy goals, 33% by 2020, while maintaining reliable grid operations and a stable, efficient wholesale electricity market.
- Pay for Performance
CAISO's stakeholder proceeding to address compliance issues related to the issuance of FERC's final rule regarding frequency regulation compensation.

d) CEC

- The CEC IPER process has been addressing Distributed Generation (DG) and energy storage to mitigate impacts

e) Federal Legislation

- The Investment Tax Credit (ITC) is going through Congress. Changes may provide a 20% tax credit for energy storage.

2. Cost Effectiveness:

The CPUC proposes to use the "End Use" framework (see figure 2 of the CPUC staff proposal) to assess cost effectiveness. This approach is a satisfactory first step in evaluating the

many different energy storage technologies with different performance characteristics. For some elements market data can be used to value the “end use,” while for most the best approach will be to identify the cost of the technology, other than energy storage, that would be required to provide the “end use.” The avoided costs of energy storage in many cases will be difficult to measure since the avoided technology itself may provide multiple “end uses” and an energy storage systems’ ability to capture “end use” benefits is unique to the electrical location within the system and the type of energy storage technology.

In addition, SDG&E would recommend focusing on the total resource cost (TRC) test with benefits as described above using the “end use” approach discounted to present value over the expected life of the energy storage technology and costs being the costs of the energy storage system net of out-of-state subsidies (federal grants and tax incentives). The TRC test is the primary evaluation tool used for cost effectiveness in EE, DR, and DG cost effectiveness. Time should be spent trying to get the benefits accurately calculated rather than diverting focus with other tests. Further, for the energy storage technologies that have only recently been commercialized, the analysis should include a qualitative assessment of the potential for market transformation – that expanded use of the energy storage technology could significantly lower its price long term.

3. Roadmap:

a) Integrating Renewables

SDG&E provided a cost forecast for two types of energy storage systems to assist in addressing intermittency issues created by the variable output of renewable energy resources. One solution will place distributed energy storage systems on circuits with high penetration of customer photovoltaic systems. Additionally, energy storage systems will be strategically

located in substations to mitigate the impact of multiple circuits with PV as the second budget item.

Energy storage systems will be used to demonstrate the ability to enhance the value of energy from renewable distributed generation in at least two fundamental ways: minimize the intermittency problem of renewables by installing storage and if appropriate and possible, use storage so that electric energy generated during times of lowest system need can be “time-shifted” and used during time of greatest need to the electric system.

As the penetration of distributed energy resources, DER, continues to increase, the need for distributed storage will also increase in order to mitigate intermittency problems at the local 12 kV feeder level. This project will install energy storage in two forms: 1) distributed storage in the form of community energy storage, CES, devices in those circuits where the penetration of PV is 20% or more of the circuit load at times of high photovoltaic system output and low circuit loads and 2) substation energy storage of utility scale, size anticipated to be 1 MW or greater, which will be installed to mitigate the effects of utility scale (up to 2 MW) PV projects that will be installed in various locations.

Energy Storage, installed in conjunction with the appropriate sensors, control and communication systems should provide a solution for the mitigation of intermittency via the management and discharge of stored energy in a controlled and coordinated way.

b) LTPP

The CPUC’s 2010 LTPP process began the process of looking at the possible needs for additional resources to integrate renewable power. Although substantial analysis was completed during the proceeding, almost all parties agreed that not enough was known to determine any specific needs. Work has continued under the direction of the CAISO. The Commission has yet

to issue a decision in the 2010 LTPP on this topic thus it is unclear how the Commission will want to proceed. A decision is expected in the next month or so.

4. Procurement Objectives:

SDG&E believes that there should not be any procurement targets for energy storage. The need for energy storage is highly dependent on location of renewable energy resources, and the electrical topology of the network. With this in mind, SDG&E recommend energy storage systems should be evaluated on a case by case basis.

III. CONCLUSION

For the reasons discussed herein, SDG&E respectfully requests that the Commission consider the issues discussed in this response when forming Energy Storage policy.

Respectfully submitted,

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