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**PUBLIC UTILITIES COMMISSION**

505 VAN NESS AVENUE

SAN FRANCISCO, CA 94102-3298

July 13, 2010

Agenda ID #9642

**TO PARTIES TO SOUTHERN CALIFORNIA EDISON COMPANY ADVICE  
LETTER 2482-E**

This draft resolution approves Southern California Edison Company's (SCE) request to recover up to \$25,978,264 for SCE's cost share in the Tehachapi Wind Energy Storage Project. This cost share will be matched by \$24,978,264 in federal stimulus funding awarded by the United States Department of Energy under the Smart Grid provisions of the American Recovery and Reinvestment Act of 2009. This draft resolution will be on the agenda at the August 12, 2010 Commission meeting. The Commission may then vote on this draft resolution, or it may postpone a vote.

When the Commission acts on the draft resolution, it may adopt all or part of it as written, amend or modify it, or set it aside and prepare its own order. Only when the Commission acts does the resolution become binding on the parties.

You may serve comments on the draft resolution. Opening comments shall be served no later than August 2, 2010, and reply comments shall be served no later than August 9, 2010. Service is required on all persons on the attached service list. Comments shall be served consistent with the requirements of Pub. Util. Code § 311(g) and Rule 14.5 of the Rules of Practice and Procedure.

An original and two copies of the comments, with a certificate of service, should be submitted to:

Maria Salina  
Energy Division  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

Honesto Gatchalian  
Energy Division  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

A copy of the comments should be submitted to:

Rebecca Lee  
Energy Division  
[WTR@cpuc.ca.gov](mailto:WTR@cpuc.ca.gov)

Those submitting comments must serve a copy of their comments on 1) the entire service list that are Parties to the draft resolution, 2) all Commissioners, and 3) Energy Division Director, 4) the Chief Administrative Law Judge, and 5) the General Counsel, on the same date that the comments are submitted to the Energy Division.

Comments may be submitted electronically. Comments shall be limited to five pages in length plus a subject index listing the recommended changes to the draft resolution and an appendix setting forth the proposed findings and ordering paragraphs.

Comments shall focus on factual, legal or technical errors in the draft resolution. Comments that merely reargue positions taken in the advice letter or protests will be accorded no weight and are not to be submitted.

Late submitted comments will not be considered.

/s/ ROBERT L. STRAUSS  
Robert L. Strauss  
Project and Program Supervisor

RLS:oma

Attachment

**DRAFT**

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

**ENERGY DIVISION**

**I.D.#9622  
RESOLUTION E-4355  
August 12, 2010**

**R E S O L U T I O N**

Resolution E-4355. Southern California Edison Company (SCE) requests approval to recover up to \$25,978,264 for SCE's cost share in the Tehachapi Wind Energy Storage Project (TSP). This cost share will be matched by \$24,978,264 in federal stimulus funding awarded by the United States Department of Energy (US DOE) under the American Recovery and Reinvestment Act of 2009 (ARRA).

**PROPOSED OUTCOME:** This Resolution approves SCE's request for cost share recovery. The TSP will design, build, operate, and evaluate utility-scale lithium-ion battery technology for purposes of improving grid performance and integrating intermittent renewable resources.

**ESTIMATED COST:** The maximum cost to SCE ratepayers is \$25,978,264, which is approximately 45 percent of \$57,218,155, the total project cost.

By Advice Letter (AL) 2482-E filed on June 10, 2010.

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**SUMMARY**

This resolution approves SCE's request to recover up to \$25,978,264 for its cost share in the TSP. SCE's cost share will be matched by \$24,978,264 in federal stimulus funding awarded by the US DOE under the Smart Grid Demonstration Program<sup>1</sup> as part of the ARRA.<sup>2</sup> This cost share will also be matched by \$1,000,000 in co-funding awarded by the California Energy Commission (CEC),

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<sup>1</sup> U.S. Department of Energy, *Financial Assistance Funding Opportunity Announcement: Smart Grid Demonstration Program (SGDP)* (DE-FOA-0000036), June 25, 2009.

<sup>2</sup> American Recovery and Reinvestment Act of 2009, Pub. L. 111-5 (H.R. 1).

and \$5,261,627 in third-party vendor contribution. The total project cost is \$57,218,155.

This resolution directs SCE to investigate the feasibility of continued operation and maintenance of the TSP facility beyond the projected five-year demonstration life. This investigation should ascertain the cost and benefit of continued operational and maintenance activities versus the cost and benefit of facility decommissioning.

## **BACKGROUND**

On December 18, 2008, the Commission issued Order Instituting Rulemaking (R.)08-12-009 (Rulemaking) pursuant to federal legislation<sup>3</sup> as well as its own motion to guide policy in California's development of a Smart Grid system. Following the issuance of the Rulemaking, the federal government appropriated \$4.5 billion to modernize the electric grid pursuant to the terms of ARRA. Pursuant to this appropriation, US DOE issued two Funding Opportunity Announcements, establishing a Smart Grid Investment Grant Program (DE-FOA-0000058) and a Smart Grid Demonstration Program (DE-FOA-0000036).

Consequently, the May 29, 2009 Assigned Commissioner's Ruling amended the scope of the Rulemaking to address procedures for IOUs seeking ARRA funding through either of the Funding Opportunity Announcements.

Following extensive commentary by parties, the Commission adopted D.09-09-029 establishing Commission processes for review of projects and investments by IOUs seeking ARRA funding. These processes are "intended to align the timeline of the Commission's review of investor-owned utility Smart Grid projects with the [US DOE's] rapid timeline for reviewing and granting awards for projects."<sup>4</sup> Additionally, IOUs are directed to provide the same quarterly project reports they submit to the US DOE to the Commission, and serve these reports to the R.08-12-009 service list. Non-confidential portion of these reports will be posted on the Commission's website.

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<sup>3</sup> The Energy Independence and Security Act of 2007 (H.R. 6).

<sup>4</sup> D.09-09-029 at 3.

Pursuant to Ordering Paragraph 3 of D.09-09-029, an IOU Smart Grid project that has been reviewed and approved for US DOE funding and does not require a California Environmental Quality Act (CEQA) review, a Certificate of Public Convenience and Necessity, a Permit to Construct, and does not require ratepayer funding that exceeds \$30 million and 50 percent of total project costs, would qualify for the Tier 3 advice letter process. The Commission's Energy Division shall review the advice letter consistent with Tier 3 advice letter procedures to determine whether:

1. The US DOE has selected the project to receive an award;
2. The project furthers one or more of the benefits to utility ratepayers identified in Section 5.2 of D.09-09-029;
3. The requested incremental ratepayer funding for the project does not exceed \$30 million;
4. The utility attests that ratepayer funding does not exceed 50 percent of the total project costs;
5. The utility attests or otherwise demonstrates that it has sought third-party funding, in addition to US DOE funding, and indicates what third party co-funding it has received;
6. The utility has provided a detailed itemized budget for the project and included a reasonable explanation of how the budget was developed; and
7. The utility attests or otherwise demonstrates that the costs are necessary for the project.

If the conditions above are met, the Energy Division shall prepare a resolution approving the project for consideration by the Commission. A party protesting the Advice Letter should demonstrate that the Advice Letter does not meet the conditions set forth above.

On August 26, 2009, SCE submitted an application to US DOE under the Smart Grid Demonstration Program to receive ARRA funding for TSP. On November 24, 2009, DOE announced that it had preliminarily awarded SCE \$24,978,264 for the project.

On October 9, 2009, SCE served a notice to the R.08-12-009 service list regarding its TSP proposal submission to US DOE. The TSP is a five-year demonstration project to design, build, operate and evaluate 8 MW – 4 hour, or 32 MWh, utility-scale lithium-ion battery system for purposes of improving grid performance and integrating renewable generation resources into the electric grid.<sup>5</sup> The battery facility will be constructed at SCE’s existing Monolith substation on the Antelope-Bailey 66 kV sub-transmission system near the Tehachapi Wind Resource Area. SCE, along with its project partners,<sup>6</sup> will collect data and quantify the potential transmission, distribution, generation, and greenhouse gas benefits of the grid-scale storage technology.

On January 29, 2010, Energy Division Director approved SCE AL 2389-E to establish the Smart Grid American Recovery and Reinvestment Act Memorandum Account (SGARRAMA) to record incremental Smart Grid project costs and funding amounts relating to projects proposed by SCE under the smart grid provisions of ARRA. Upon Commission review through a Tier 3 advice letter filing or separate application, SCE may transfer amounts recorded in SGARRAMA to the Distribution sub-account of the Base Revenue Requirement Balancing Account, consistent with Ordering Paragraphs 3, 4, and 5 of D.09-09-029. Costs associated with the TSP are currently being booked to SGARRAMA.

On June 10, 2010, SCE submitted AL 2482-E for approval to recover up to \$25,978,267 for the TSP, which includes estimated project costs of \$23,616,604 and a 10 percent contingency budget for unforeseen events. SCE states that it will use the contingency budget only if they are needed to successfully complete the project and only in compliance with the requirements of D.09-09-029. SCE also states that it received third-party funding including \$1,000,000 from CEC and \$5,261,627 from A123 Systems, Inc, SCE’s battery technology vendor.

In AL 2482-E, SCE provided its justification for meeting the specified criteria in D.09-09-029 that govern Energy Division’s review of the project. Additionally,

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<sup>5</sup> AL 2482-E Appendix B, *Tehachapi Wind Energy Storage Project Narrative to DOE*, at 9.

<sup>6</sup> *Id.* at 28. These project partners include SCE’s battery technology vendor, A123 Systems, Inc., Quanta Technology, California State Polytechnic University at Pomona, and the California Independent System Operator (CAISO).

SCE provide, as appendices to AL 2482-E, its Project Narrative to US DOE, Project Management Plan, and Project Budget Spreadsheets, and Letters of Award by the US DOE and CEC.

### **NOTICE**

Notice of AL 2482-E was made by publication in the Commission's Daily Calendar. SCE states that a copy of the Advice Letter was mailed and distributed in accordance with Section 3.14 of General Order 96-B. The advice letter was served to the R.08-12-009 service list.

### **PROTESTS**

SCE's Advice Letter AL 2482-E was timely protested on July 30, 2010 by the Division of Ratepayer Advocates (DRA). DRA agrees with SCE that the proposed TSP meets the criteria set forth in D.09-09-029. DRA states that the TSP should benefit one or more of the following areas identified in D.09-029-029:

- Reliability of the electric power system;
- Electric power system costs and peak demand;
- Consumer electricity costs, bills, and environmental impacts;
- Clean energy development and GHG emissions; and
- Economic opportunities for business and new jobs for workers.

DRA, however, expresses concerns that the cost of this project is relatively high especially considering its short operating life. DRA proposes that (1) SCE ratepayers should receive all future revenues in proportion to their contribution to the project; and (2) SCE should investigate the feasibility of continued operation of the TSP facility to mitigate its high cost as long as it does not result in any added cost to the ratepayers.

SCE timely filed a reply to DRA's protest on July 8, 2010. In response to DRA's recommendations, SCE states that the (1) TSP is not designed to provide any revenue-generating service to the grid, and (2) extending the duration of the project would cause SCE to incur additional and unauthorized operational expenses. SCE also does not expect to generate any intellectual property revenue associated with the TSP. If SCE were to realize any intellectual property revenues, they would flow through via the established Gross Revenue Sharing Mechanism approved by the Commission.

SCE claims that DRA's recommended requirements are not pertinent to Energy Division's review of AL 2484-E, and requests the Commission reject DRA's protest.

## **DISCUSSION**

Energy Division reviewed SCE's AL 2482-E and concludes that the TSP meets the requirement specified by Ordering Paragraph 3 of D.09-09-029.

### **The TSP does not require a CEQA review, Certificate of Public Convenience and Necessity, or Permit To Construct**

The TSP is proposed to be built within SCE's existing Monolith Substation. It does not involve an activity that will increase the substation voltage rating, and does not involve expanding the fence line of the substation. Accordingly, the TSP constitutes a "substation modification" and not a "substation upgrade" under Section III.B of GO 131-D. Pursuant to D.94-06-014, as modified by D.95-08-038, and GO 131-D, no CPUC or local discretionary permits or approvals are required for SCE to construct the TSP facility within its Monolith Substation.

### **The incremental ratepayer contribution does not exceed the thresholds of the \$30 Million and 50 percent of total project cost pursuant to Order Paragraph 3 of D.09-09-029**

The incremental amount of ratepayer funding SCE requests for TSP, of up to \$25,978,264, does not exceed the threshold limit of \$30 million and constitutes under 50 percent of the \$57,218,155 total project cost.

### **AL 2482-E satisfies the specified criteria of D.09-09-029 that govern Energy Division's review**

#### ***1. The DOE has selected the project to receive an award.***

As Appendix A to AL 2482-E, SCE provided a copy of the letter from US DOE's National Energy Technology Laboratory notifying SCE of an award for the TSP under the Smart Grid Demonstration Program.

**2. *The Project Furthers One or More of the Benefits to IOU ratepayers identified in Section 5.2 of D.09-09-029.***

The TSP will further Commission and industry understanding of grid-scale energy storage technology's capability to provide the following benefits: (1) optimal allocation and matching of resources to meet demand; (2) increased reliability of the grid; and (3) reduced system demands and costs. The result of this demonstration and will provide measurable and quantifiable economic, reliability, power quality, and environmental benefits to inform future grid-scale storage projects.

SCE identified grid operation benefit categories to be evaluated and quantified as part of the TSP. These benefit categories include: (1) voltage support and grid stabilization; (2) decreased transmission losses; (3) diminished congestion and reduced wind generation curtailment; (4) increased system reliability by reducing the number of load shedding events; (5) deferred transmission investment; (6) optimization of size and cost of renewable energy-related transmission; (7) deferred transmission investment; (8) provision of system capacity and resource adequacy; (9) renewable energy integration and smoothing of generation output; and (10) wind generation output shifting from off peak to on peak periods.

SCE also identified four CAISO Market benefit categories to test as part of the TSP. These market benefit categories include: (1) frequency regulation; (2) spinning and non-spinning replacement reserves; (3) ability to provide ramping capability and follow ISO market signals; and (4) energy price arbitrage.

**3. *The Incremental Ratepayer funding for the project does not exceed \$30 million.***

SCE requests to recover up to \$25,978,264 for TSP, which is under the \$30 million threshold established by D.09-09-029.

**4. *The utility attests that ratepayer funding does not exceed 50 percent of the total project costs.***

SCE requests to recover up to \$25,978,264 for TSP, which is approximately 45 percent of the total project costs and under the 50 percent threshold.

5. *The utility attests or otherwise demonstrates that it has sought third-party funding, in addition to DOE funding, and indicates what third-party co-funding it has received.*

As Appendix C to AL 2482-E, SCE provided a copy the CEC Notice of Proposed Awards to grant SCE \$1,000,000 in co-funding under CEC's Public Interest Energy Research Program. SCE also provided its quotation from the battery technology vender, A123 Systems, Inc., to contribute \$5,261,627 toward the TSP.

6. *The utility has provided a detailed itemized budget for the project and included a reasonable explanation of how the budget was developed.*

As Appendix D to AL 2482-E, SCE provided a detailed itemized budget for the TSP and included a reasonable explanation of how the budget was developed in Appendix E to AL 2482-E.

7. *The utility attests or otherwise demonstrates that costs are necessary for the project.*

As Appendix E to AL 2482-E, SCE provided its TSP Project Management Plan which attests that the project budget, as laid out in Appendix D, is necessary to complete the project.

### **The TSP is a demonstration project to generate data and not revenue**

DRA raised the issue of the TSP's expected future revenue in its protest. Specifically, DRA recommends that SCE's ratepayers receive all future revenues in proportion to their contribution to the project.

As SCE states in its reply, the TSP is not expected to provide any revenue-generating service to the grid. SCE has already provided this explanation as part of the advice letter filing: "The energy service provided will be for testing and demonstration only, no actual financial transactions will move through the CAISO's market clearing house."<sup>7</sup> We agree with SCE that this issue

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<sup>7</sup> AL 2482-E Appendix B, *Tehachapi Wind Energy Storage Project Narrative to DOE*, at 35.

is already addressed by SCE's filing. The purpose of TSP is to generate measured and quantitative data to inform future Commission policy and actions regarding grid-scale storage options, and not to generate energy service revenue. However, in the case that the TSP generates any energy service or other revenues, such revenues shall be credited to the Distribution sub-account of the Base Revenue Requirement Balancing Account.

SCE further explains that it does not expect to generate any intellectual property revenue associated with the TSP. We agree with SCE that a key objective of the project is to make information widely available via publicly available reports to the DOE and the Commission. However, if SCE were to generate any intellectual property revenues, such revenues shall be credited to the Distribution sub-account of the Base Revenue Requirement Balancing Account, and not flow through via the Gross Revenue Sharing Mechanism as SCE proposes.

**SCE should provide information regarding the feasibility of continued operation of TSP beyond its forecast demonstration life prior to decommissioning the TSP facility**

SCE plans to decommission the TSP facility in the fifth and final year of the demonstration project in 2014. SCE estimates the cost to disassemble the energy storage system, recycle batteries, and refurbish the substation to be \$541,000. One potential reason for SCE's plan to sunset the demonstration project appears to be the project's currently presumed negative net present value (NPV). SCE states:

The project is to test the potential range of uses and quantify the benefits of system performance to develop a robust set of benefit streams that can be subsequently used in cost-benefit analysis... As such this project itself is not expected to be NPV positive... The energy service provided will be for testing and demonstration only, no actual financial transactions will move through the CAISO's market clearing house.<sup>8</sup>

However, as noted by DRA in its protest, extending the operation of the storage facility for as long as possible may provide useful information regarding the

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<sup>8</sup> *Id.* at 35.

capability of the lithium-ion battery technology. If the data collected by the TSP team show that the facility's quantitative benefit stream can offset the continued operational expenses for the TSP facility, it may be reasonable to defer project decommissioning until a date beyond the five-year demonstration period.

The Commission, however, does not have sufficient information at this time to determine whether and at what cost SCE should operate the TSP facility beyond 2014. Therefore, we direct SCE to investigate the feasibility of continued operation of the TSP facility beyond the projected five-year demonstration life. This investigation should ascertain the costs and benefits of continued operational activities versus the costs and benefits of facility decommissioning. SCE is hereby required to report to the Commission with the result of this investigation and a final recommendation on facility decommissioning via a Tier 3 Advice Letter filing 6 months prior to commencing project decommissioning.

### **COMMENTS**

Public Utilities Code section 311(g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g)(2) provides that this 30-day period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day comment period for the draft of this resolution was neither waived or reduced. Accordingly, this draft resolution was mailed to parties for comments, and will be placed on the Commission's agenda no earlier than 30 days from today.

### **FINDINGS AND CONCLUSIONS**

1. D.09-09-029 directed SCE to file a Tier 3 Advice Letter to recover SCE's cost share for a Smart Grid project that has received DOE funding under the Smart Grid provisions of ARRA.
2. The TSP does not require a California Environmental Quality Act review, Certificate of Public Convenience and Necessity, or Permit to Construct.
3. The TSP satisfies the criteria that govern Energy Division's review of AL-2482-E as set forth in D.09-09-029.

4. It is reasonable to authorize SCE to recover up to \$25,978,267 for its cost share in the TSP.
5. SCE's cost share will be matched by \$24,978,264 in federal stimulus funding awarded by US DOE under the Smart Grid Demonstration Program as part of ARRA.
6. SCE demonstrates that it has successfully sought third-party contribution of \$1,000,000 from the California Energy Commission, and \$5,261,627 in technology vendor contribution.
7. The total project cost for the TSP is \$57,218,155.
8. The purpose of TSP is to generate measured and quantitative data to inform future Commission policy and actions regarding grid-scale storage options, and not to generate energy service revenue.
9. The TSP is not expected to generate any energy service, intellectual property, or other revenues associated with the TSP. However, if SCE were to generate any revenues associated with the TSP, it is reasonable to credit these revenues to the Distribution sub-account of the Base Revenue Requirement Balancing Account,
10. Although SCE plans to decommission the TSP facility in 2014, it is reasonable to direct SCE to investigate the feasibility of continued TSP facility operation beyond TSP's projected five-year demonstration life.

**THEREFORE IT IS ORDERED THAT:**

1. SCE's request to recover up to \$25,978,267 for the TSP as requested in Advice Letter 2482-E is approved.
2. If SCE were to generate any energy service, intellectual property, or other revenues associated with the TSP, such revenues shall be credited to the Distribution sub-account of the Base Revenue Requirement Balancing Account.
3. SCE shall investigate the feasibility of continued operation of the TSP facility beyond the projected five-year demonstration life. SCE's investigation shall contain a comparison of the cost and benefit of continued operational activities versus the cost and benefit of facility decommissioning.

4. SCE shall provide the Commission with a report of this investigation and a final recommendation on facility decommissioning via a Tier 3 Advice Letter filing 6 month prior to commencing decommissioning.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on August 12, 2010; the following Commissioners voting favorably thereon:

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Paul Clanon  
Executive Director