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)

REPLY COMMENTS OF SOLARRESERVE, LLC ON ASSIGNED COMMISSIONER'S RULING PROPOSING STORAGE PROCUREMENT TARGETS AND MECHANISMS

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Pursuant to Assigned Commissioner Carla Peterman's ruling of June 10, 2013 ("Ruling") in the above-captioned proceeding ("Energy Storage OIR"), SolarReserve, LLC ("SolarReserve") hereby submits these reply comments in accordance with the California Public Utilities Commission's ("Commission's" or "CPUC's") Rules of Practice and Procedure.

I. INTRODUCTION

SolarReserve appreciates the opportunity to respond to comments filed by other parties. As with SolarReserve's prior comments, we hope to highlight issues of particular importance to Concentrating Solar Power (CSP) with integrated molten salt energy storage. This unique technology is highly valuable but requires the proper regulatory framework in order for the value to be appreciated. As the Commission may be aware, the governments of Saudi Arabia, Chile, and South Africa have all set in place procurement programs specifically for CSP with storage, in recognition of the benefits that storage provides. We encourage the Commission to work diligently towards ensuring that this technology has a place in California as well.

Below, we make the following three reply comments:

- The Commission should reject proposals which would create a "timeline bias," and should instead promote opportunities for technologies with long construction times.

- The Commission should reject the statement that "storage does not create energy," and should instead recognize the subtle connection between storage and generation.
- The Commission should acknowledge participants' acceptance of the Rice Solar Energy Project and, by extension, CSP with integrated molten salt storage.

II. THE COMMISSION SHOULD REJECT PROPOSALS WHICH WOULD CREATE A "TIMELINE BIAS," AND SHOULD INSTEAD PROMOTE OPPORTUNITIES FOR TECHNOLOGIES WITH LONG CONSTRUCTION TIMES.

The phrase "timeline bias" refers to how a procurement compliance structure can incentivize utilities to prefer one technology over another. For example, if compliance is measured by complete installations every two years and solicitations are held every two years, then it may be against the utility's interests to select a project with a three-year construction timeline. The utility would either reject the three-year project due to the timeline bias, or select the project but be forced to re-procure (and potentially over-procure) the same amount in the second biannual solicitation despite the construction in progress. Despite this fact, certain parties[1] have commented that storage procurement target fulfillment should be measured based on completed installments.

It is widely acknowledged that certain storage technologies are expected to become more cost-effective in the future as a result of further development and successful deployment. This is logical (batteries will probably not get *more* expensive over time) and coincides with the objectives of this proceeding. If costs are expected to go down, then utilities will be incentivized to prefer technologies which can be purchased as late as possible on the compliance timeline. In fact, PG&E even proposes to shift targets to later years in recognition of this expectation.[2]

[1] For example, CESA, p. 3; Beacon Power, p. 6; TAS Energy, p. 4.
[2] PG&E, p. 1.

As evidenced through experience in the RPS proceeding, CSP cannot feasibly reach commercial operations within two years of a solicitation. The time required for completion of the solicitation, full execution and Commission approval of a PPA, financing, and construction can be four years or more.

Measuring compliance based on successful two-year installations will harm CSP and similar technologies with economies of scale.[3] If compliance is measured with installations, then a utility would need to select CSP in a 2014 solicitation in order to hit a compliance target in 2018 or 2020. This would force CSP to compete with its *actual* costs against the *projected* cost of battery storage. It may be very difficult to compete against optimistic or speculative projections.

Thus, compliance based purely on installations would erect a new and unfair barrier against CSP with integrated molten salt storage and other large-scale technologies with longer construction timeframes, which is contrary to the intent of this proceeding. The Commission should instead base compliance around successful contracting, as recommended by IEP, or should require diversity in construction timelines, as we recommended in our initial comments.

III. THE COMMISSION SHOULD REJECT THE STATEMENT THAT "STORAGE DOES NOT CREATE ENERGY," AND SHOULD INSTEAD RECOGNIZE THE SUBTLE CONNECTION BETWEEN STORAGE AND GENERATION.

A number of parties comment on the difference between storage and generation, making blanket statements that storage does not create energy, and therefore that storage and generation decisions should be made separately.[4] This argument is not true in all cases. As detailed in our prior Comments, integrated molten salt storage does allow a CSP system to increase its output by enabling energy from weak sunlight, which would not be sufficient to run a steam turbine

[3] Gravity Power, p. 3.
[4] Independent Energy Producers Association, p. 10; Shell Energy North America, p. 4; CEERT, p. 3; Green Power Institute, p. 1.

directly at that moment in time, to be captured and stored in the molten salt for later use. Furthermore, integrated molten salt storage simply cannot be procured separately from its CSP generation.

Many forms of storage, such as batteries and pumped hydro, actually consume energy in the round-trip process. Round-trip losses must be made up with additional generation, and since RPS percentages are measured against load and not against generation, this may increase the GHG intensity of California's energy portfolio. We therefore agree with the sentiment behind CalWEA's comment (p. 10) that adding certain types of storage could result in increased greenhouse gas (GHG) emissions. CSP with integrated storage, however, has a different interaction with GHG levels, because it does not incur round-trip electricity losses and it produces renewable energy. A more detailed analysis of GHG impacts of specific projects would likely be justified at the appropriate time. In any case, energy storage does have a direct impact on energy supply and on GHG content, which are generation issues.

For the above reasons, the Commission should recognize that there is not a clean separation between storage and generation, particularly for certain technologies, and particularly in the context of GHG impacts. The Commission should reject any comment which uses the purported difference between generation and storage as a reason to separate the energy procurement from the storage procurement, particularly when removing regulatory barriers is one of the driving motivations behind this storage proceeding.

IV. THE COMMISSION SHOULD ACKNOWLEDGE PARTICIPANTS' ACCEPTANCE OF THE RICE SOLAR ENERGY PROJECT AND, BY EXTENSION, CSP WITH INTEGRATED STORAGE.

Many other parties indicate in their comments that they would support counting the Rice Solar Energy Project towards PG&E's storage procurement targets, if such targets are

established.[5] We encourage the Commission to recognize that CSP with integrated molten salt storage is an acceptable and valuable asset to California's generation portfolio, and that storage procurement programs should be designed to allow the continued participation by this new technology.

Of all the commenting parties, only one specifically claimed that the 150 MW Rice Solar Energy Project should not count towards procurement targets. MegaWatt Storage Farms states:

> Storage that is an integral part of a generator or a load should either not count in the targets or should be in its own category because these are fundamentally different from storage that has both electricity in and electricity out… Specifically, the Rice Solar project and thermal storage at loads (e.g. ice systems or hot water heaters), should have their own categories and targets, or simply be excluded from the Proposed Ruling... If the CPUC insists on treating them as storage, they should lose all incentives and benefits related to being generators or demand response.

(MegaWatt, p. 4.) This claim relies upon a distinction between energy storage and round-trip electricity storage that is not found in the statute, and proposes arbitrary and punitive measures against specific technologies. The claim is without merit and should be disregarded.

V. CONCLUSION

SolarReserve encourages the Commission to establish a storage procurement framework which allows CSP with integrated molten salt storage to compete on an even playing field against other solutions to California's energy needs. CSP with storage can provide reliable, non-intermittent, fully renewable energy, but requires the regulatory support provided through this proceeding for further successful deployment in California.

We thank the Commission for the opportunity to provide reply comments and welcome any further opportunity to provide input.

[5] For example, BrightSource Energy, p. 6; Calpine, p. 6; CESA, p. 13; Clean Coalition, p. 8; DRA, p. 5; Electricity Storage Association, p. 3; Marin Energy Authority, p. 6; PG&E, p. 16; SCE, p. 12; Sierra Club, p. 26.

Respectfully submitted,

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