

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Pursuant to Assembly
Bill AB2514 to Consider the Adoption of
Procurement Targets for Viable and Cost-Effective
Energy Storage Systems

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

**COMMENTS OF MEGAWATT STORAGE FARMS, INC.
ON THE JUNE 10, 2013
ASSIGNED COMMISSIONER'S RULING PROPOSING
STORAGE PROCUREMENT TARGETS AND MECHANISMS
AND NOTICING ALL-PARTY MEETING**

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July 3, 2013

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Thank you for the opportunity to provide comments on this Proposed Ruling.

Background

Megawatt Storage Farms, Inc. ("MegaWatt") is a company focused on developing large grid-scale storage facilities and providing advisory services regarding storage on the grid.

MegaWatt is storage technology and application agnostic and works with many storage technology manufacturers and storage services customers.

David MacMillan, President and Co-founder of MegaWatt, is also a Charter Member of Energy Storage Advisory Committee and an elected Member of the Climate Prosperity Council, both part of Joint Venture Silicon Valley.

Dr. Ed Cazalet, VP and Co-founder of MegaWatt, is a former Board Member of the CAISO, appointed to a three year term by Governor Schwarzenegger in 2004. Dr. Cazalet is also President and Founder of TeMix, a company providing a software platform for dynamic grid pricing and transactions for end users and distributed resources.

Question a. - Please comment on this proposal overall, with emphasis on the proposed procurement targets and design.

1) At Page 7, Section b), second paragraph. The text states "the number of MW of storage capacity that each utility would solicit." We recommend making it clearer that the utility is procuring storage services, perhaps by replacing the word "capacity" with "services". "Capacity" is also an inappropriate wording because there are no counting rules established yet for storage.

2) More clarity is needed on the Transmission, Distribution and Customer use cases and how to tell where a particular storage project falls. For example, how would one count a 10 MW storage facility at a substation that has transmission and distribution voltages present? The voltage is a poor guideline since the voltage needs to be stepped down to low values before being connected to the storage. Also see our response to Question e. below.

3) The adjustments to procurement targets should be removed, except for the 2012 LTPP. There is no point in setting targets and then removing a substantial portion of the near term targets by saying they are already allocated, especially when it is ambiguous whether the list provided is complete, or whether other items would pop up afterwards, such as PG&E's 6 MW of NAS. Furthermore, it is unclear how many MW certain of the listed items would result in, such as the \$32 million permanent load shifting, or the Air Force vehicle to grid. Including all these items takes the specific targets and makes them fuzzy and smaller. The CPUC needs to be specific about what it is doing, including providing crystal clear targets.

If the CPUC decides to not follow the recommendation of the previous paragraph, the

44.6 MW of Sempra GRC storage should not count against the storage that would be procured from third parties for distribution. The Sempra GRC storage should be applied to 50% of the target line item in Table 1, for each year, until depleted. (See first paragraph in Section (iii) on page 15 of Proposed Ruling.)

4) 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. They are different in benefits, flexibility, control mechanisms, interactions on market pricing and many other dimensions. 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. They are better viewed as dispatchable generation and demand response respectively. If the CPUC insists on treating them as storage, they should lose all incentives and benefits related to being generators or demand response.

5) Staff earlier asserted, and the Proposed Ruling seems consistent with, the idea that needs will be defined in the LTPP and other proceedings, not in AB2514. (For one statement to this effect, see the last paragraph and especially the last sentence on page 14 of the Proposed Ruling.) While we disagree with this decision (see comments in Question g. below), given that is the current plan of record, it is not clear how the RAM mechanism interacts with LTPP and other procurements. For example, if the needs are defined in the LTPP, and a procurement is made through the LTPP, then what is the role of the AB2514 RAM procurements?

6) On Page 16, Section iv, the first sentence says "To procure third-party owned energy storage ...". The wording would be clearer if it said "To procure storage services from third-party owned ...". This change would also bring the wording here in line with the

wording on Page 20 at the end of Section v. ("... approval of a storage power / services purchase agreement".)

7) On page 16, in Section iv, there is wording that projects "bid their costs" and are "paid their costs". We believe the correct wording is that projects "bid their prices" and are "paid their prices". The existing following sentence is currently consistent with these suggested changes "In addition, future winning bid prices...".

8) Page 17, Section 2 - It is not entirely clear that planned, unbuilt storage projects can compete in the RAM. The wording that is confusing is the first sentence since it appears to be referring to existing projects "All third party owned energy storage resources ... would be eligible ...". Specifically, an unbuilt project is not yet an owned energy storage resource. We assume unbuilt projects are intended to be eligible for the RAM and clarification of this with an explicit statement to that effect would be helpful.

9) Page 18, fourth filled bullet, first open bullet regarding the use case framework. The use case framework was not intended to be used for this purpose, so the open bullet should be deleted. See also our answer to Question i. below.

10) Page 19, Section 5, first paragraph. This paragraph is very confusing. The "example" seems to be expressing an upper limit on cutbacks, not an example of a cutback. It is also unclear whether a cutback in 20i4 has an automatic ripple effect to later years. (Is that what the example was showing - that a cutback in 2014 also ripples ahead to future years?) We suggest rewriting the paragraph using different wording.

11) Page 19, Section 5, second paragraph. The utilities can do this, but it may result in results that are not valid, since this was not a stated goal for the two models. See also 9) above and the answer to Question i. below.

12) To reduce costs to customers and to make best use of available utility land, IOUs should be required to make storage sites available to developers. Such sites may be at substations, under transmission and distribution lines, at generator sites or other sites and right-of-ways. This will assure that any comparisons of the cost of utility owned and third party storage are more accurate. Moreover, storage facilities, such as batteries are highly modular, so utility land that is not very useful for other purposes can be ideal for storage. There is precedent for this in earlier placement of a reciprocating generator on utility property in the San Diego area.

13) The CPUC needs to establish, prior to each procurement (or generically for the Ruling), precisely how storage of different types will be compared. This includes differences in durations, lifetimes, and round trip efficiencies. The modeling cases developed by EPRI and KEMA do not do this and were not intended to do this.

134) The CPUC should define the number of hours of available storage (MWh per MW) required to get full Resource Adequacy credit. And the CPUC should also define the reductions from full credit for storage with less than the required hours and any increases in credit for storage with more than the required hours. Storage MWh should be based on maximum state-of-charge less minimum state-of charge for the technology = actual available MWh.

145) The Targets should not preclude a utility or other procurement proceeding (e.g. LTPP) from procuring storage in excess of the Targeted amounts.

16) Page 21, Section f. The Loading Order does matter, even if Targets are set, because the Loading Order states which resources are preferred in a contest between alternate procurement types. In the 2012 LTPP for SCE, 50 MW of storage is required, but up to 600 MW more may be procured. Thus the loading order is directly relevant to 12 times the storage of the Target.

As the Proceeding that is setting the storage policies for CA, it is essential that the AB2514 Proceeding address the issue of where storage falls in the Loading Order. The Legislature expects no less.

Question b. - Comment on whether any of the projects proposed to count toward the procurement targets be excluded, or any additional projects included, and on what basis.

* All should be excluded, except for the 50 MW from the 2012 LTPP in SCE territory.

Question c. - Comment on how actual operational deployment should be defined for PIER- and EPIC-funded projects potentially eligible to count toward a utility's procurement target.

They should be excluded.

Question d. Comment on how any utility's procurement that exceeds a target in one year should be addressed and considered for future procurement targets.

It should count towards the target. Thus, if SCE procures most or all of the 650 MW of storage permitted under the 2012 LTPP, it could satisfy all years targets of the proposed ruling for the applicable buckets for the procured storage (transmission, distribution and customer-sited).

Question e. - Comment on whether and to what extent utilities should be permitted flexibility in procuring among the use-case "buckets" (transmission, distribution, and customer-sited) of energy storage within one auction, and whether a minimum amount in each "bucket" must be targeted.

They should not. It is administratively confusing. See earlier comment in Question a. about the need for greater clarity of what falls under each bucket. But given that the clarifications are made, it makes no sense to create buckets and then allow them to leak from one to the other.

Our preference is as follows:

- Best alternative - No buckets
- Second best alternative - Well defined buckets
- Worst alternative - Leaky buckets

Question f. - Comment on the appropriate "off ramps" for relief from procuring up to each target and what metrics should be used to evaluate the appropriateness of the off ramps.

There are two types of "off ramps."

1) Letting utilities off the hook for a target that was in place when the procurement was issued, due to the responses not meeting some criteria.

Comment: This is undesirable because it is highly wasteful of bidder's time. Specify in the procurement what the requirements are (including a maximum cost, if that is felt necessary), and then assuming sufficient MW are offered, there should not be an off-ramp and more than there is an off-ramp for fossil procurements.

2) Revising the targets prior to the next solicitation.

Comment: The Proposed Ruling and the CPUC's authority under AB2514 adequately covers this in its current form.

Question g. - Comment on how this proposal may be coordinated with Renewable Portfolio Standard procurement plans, as set out in Public Utilities Code section 2837.

We have argued in prior filings that AB2514 should look forward at the 2020's grid and determine what changes storage would enable, using those insights to coordinate with the RPS goals.

The AB2514 Proceeding to date has not done this. The AB2514 Proceeding has also declined to do a needs analysis for storage, and instead has looked to other proceedings such as the LTPP for the needs analysis.

As a result, any coordination with the RPS is not much more than coincidental, and is specifically not by carefully guided analysis of needs or future grid vision.

Given how the Proposed Ruling is currently drafted, we believe that the LTPP and other Procurement Proceedings are where the coordination with the RPS will occur.

We have contended, based on our own analysis, that a coordinated effort between the RPS goals and AB2514 would result in a target of 4 GW, consisting of about 1 GW in the SF Bay area, 2 GW in the LA area and 1 GW in the San Diego area by 2020. We originally estimated this in 2008, and none of the studies we have seen since then cause us to change this assessment. While we applaud the 1.3 GW goal of the Proposed Ruling for being a step in the right direction, it is a step that we view as being roughly 1/3 of what is needed. We also applaud the Proposed Ruling for leaving open the possibility of boosting the target at re-evaluation points as outlined therein.

Question h. - Comment on the options presented for ESPs and CCAs to either a) be required to procure an equivalent amount of storage projects commensurate with

the load they serve or b) have their customers assessed the costs of the IOU procurement of energy storage projects through a cost allocation mechanism.

If ESPs and CCAs choose to not procure an equivalent amount of storage services commensurate with the load they serve, then they should have their customers assessed the costs of the IOU procurement of energy storage services through a cost allocation mechanism.

Furthermore, if the cost allocation option is invoked, the storage targets for the IOUs should be increased according to the amount of storage that would have been procured by the ESPs and CCAs, had they elected to procure storage services.

Question i. Comment on how the preliminary results of the cost-effectiveness models should be applied to the question of setting procurement targets.

They should not be used this way. The cost analysis was to show storage could be cost effective compared to other assets. That is all it was intended for. To achieve this objective, the work simply needed to show storage provides a superior benefit to other assets. If the storage net value is larger than other assets, the mission is accomplished. It is not necessary that all benefits of storage be accurately counted to achieve this, only that enough storage benefits be identified to show that storage wins.

The cost analysis and frameworks were not intended to develop a framework or to provide a cost model for first deployments. Accurately predicting the benefits of storage in actual deployments is way beyond the scope of the modeling exercises undertaken. An accurate prediction would require adding all the benefits of storage. No effort was made

to do this, and in fact stakeholders were told not to worry about making such efforts because the cost analysis and frameworks would not be used for this purpose. Similarly, the cost analyses and frameworks were not intended to be used to set procurement targets.

Had stakeholders been told otherwise, the interactions leading to the cost effectiveness models would have been materially different.

As recently as 6/23/2013, Staff email states: "As another reminder to the Parties, we note that the CPUC has not endorsed any particular storage cost-effectiveness methodology or modeling tool, nor has the CPUC passed upon the accuracy of the information in the cost-effectiveness report."

Question j. - Based on the preliminary results, should the utilities set a cost cap for offers to be submitted in the 2014 auction? If yes, what should the cap be and how should the auction be structured to incorporate the cap?

No. The deployment of storage in CA is needed to cope with urgent grid needs. The experience CA will gain is far more valuable than the cost of the storage. The need for caps can be re-evaluated for 2016.

Furthermore, there is no testimony, evidence or analysis that can be used to set a cap. The CPUC stated that the cost analysis would not be used this way, and it was not designed for this purpose.

Respectfully submitted,

_____/s/_____

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