

From: Kersten, Colette  
Sent: 11/8/2011 8:11:09 AM  
To: [Redacted] Franz, Damon  
A. (damon.franz@cpuc.ca.gov)  
Cc: Allen, Meredith (/O=PG&E/OU=Corporate/cn=Recipients/cn=MEAe)  
Bcc:  
Subject: RE: CONFIDENTIAL -- Abengoa Follow-ups

Thanks David for the helpful information. I did not see a table that you referred to below in the fourth paragraph. Did you intend to attach?

Colette

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**From:** [Redacted]  
**Sent:** Tuesday, November 08, 2011 7:46 AM  
**To:** Franz, Damon A.; Kersten, Colette  
**Cc:** Allen, Meredith  
**Subject:** CONFIDENTIAL -- Abengoa Follow-ups

Colette and Damon:

It was nice speaking with you on Friday; we hope our discussion was useful in answering some of your outstanding questions about the project. As for the additional items you wanted follow-up on, see below.

1) Technologies used by PG&E's CSP PPAs

**Abengoa (250 MW) & NextEra Genesis (250 MW) -- Parabolic Trough:** This is an established technology used by the SEGS generating units that were built in the 80's in southern California. In this technology, a parabolic trough mirror concentrates sunlight on a receiver tube, which contains a heat transfer fluid, which is used to create steam (using a heat exchanger) to drive a steam turbine.

**Brightsource (7 Projects, 1,248 MW) & Solar Reserve Rice (150 MW) -- Power Tower:** This is a newer technology, which has not yet been commercially deployed for electricity generation in the US. In this technology, a field of mirrors (heliostats) concentrate sunlight on a boiler that sits on top of a tower. The concentrated sunlight heats a working fluid, which is used to drive a steam turbine. The working fluid used by BrightSource is water (thus, the steam produced is run directly through a steam

turbine), whereas Solar Reserve uses molten salt, which can be stored, as its working fluid prior to creating steam (using a heat exchanger).

PG&E has a total of 86 active RPS PPAs with a total capacity of 7,898 MW (see table below). Assuming that all of these PPAs reached commercial operation, CSP would represent approximately 24% of the capacity of the current RPS PPA portfolio (with the majority being represented by the BrightSource projects). Parabolic Trough represents approximately 6% of the total capacity of the overall portfolio.

\*Please note that small hydro was less than 1% of the overall portfolio, but was rounded up so the entire portfolio equaled 100%.

2) On the DOE loan issue, Abengoa has told us that the only way the loan review could get re-opened at this point is if the PPA is amended. Accordingly, Option C (approval without modification) would not result in a additional loan review now nor a additional loan review in the future.

Thanks again,  
-David

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