Comments in the matter of:

Preparation of the 2009 Integrated Energy Policy Report Docket No. 09-IEP-1G

And

Energy Storage Technologies and Policies Needed to Support California RPS Goals of 2020

To Whom It May Concern:

I would like to thank Suzanne Korosec, Assistant Director of Policy Development, for the invitation to comment on the Staff Workshop on Energy Storage technologies held on April 2, 2009 at CEC.

I was not in attendance, nor am I qualified to answer any of the questions that were asked of the participants. However I would ask that those who would develop policies that may be formulated from the information and discussion that occurred, consider the following observations:

It is assumed that the integration of renewable, intermittent resources will require additional energy storage devices or systems to allow for greater penetration of wind and solar, and maintain system reliability. As there now exists, some "bulk storage" resources providing operational benefits:

Has it been determined that a need exists to increase the required capacity of this resource for system and economic benefits?

Near the beginning of the workshop, Mike Gravely said " When you look at the uncertainty of renewables, there's a belief that 10 to 15 to 20 % of the renewable resources should be backed up with some type of storage to manage the grid effectively. Now that's not a--, that's just a planning number; it's an education number, a research number. But it does seem to be fairly valid. And if that's true, in 2020 were looking at somewhere between 2000 and 4000 megawatts or more of storage that we need. And we don't have anywhere near that amount."

Other participants speculated on the capacity needed through out the day about the 4-megawatt amount.

According to EIA/DOE data, California has 5665 Megawatts of nameplate capacity of Pumped Storage alone. I believe that there are currently several gigawatts of addition PSP now in different stages of planning. It would be helpful if there could be a clearer picture of the net short capacity of energy storage.

It is noteworthy that although there are a number of studies, working groups, and stakeholder processes that are looking at energy storage to meet RPS goals, these have

yet to provide any quantification of storage shortfalls. The CAISO has produced capacity figures regarding expected RE generation and ancillary services requirements for system reliability. While there has been assumptions as to capacity to provide ancillary services (regulation and operating reserve), there is certainly much less speculation that reflects on figures for capacity needed to shift from off-peak to peak loads.
Moreover uncertainty exists regarding the daily duration of peak and off peak periods, as the abilities of future solar generation may synchronize somewhat with the peak load. Moreover, scenarios exist that storage may be significant on the ratepayer's side of the meter.

Location of ESS;

The April 2nd workshop included discussion by staff and various participants about the role of location plays regarding energy storage systems. While there seemed to be some consensus that locating energy storage systems anywhere on the grid may have beneficial impacts, there are strategic benefits to targeting different locations. Emphasis was placed creating value for ESS in both the bulk storage and regulation service areas. While it was interesting that presenters and staff suggested that distributed forms of energy storage could have utility scale impacts, this subject needs further clarification as tariff and operation characteristics may impede the opportunities needed to develop a distributed energy storage market. The large megawatt class bulk storage devices such as PSP currently require scheduling that commits resources for utilization. Does this become a barrier for smaller devices to not only enter the market, but also have access to the cheaper off peak energy that PSP utilizes. Certainly there should be opportunity for commercial and residential customers to utilize off-peak resources as well. These uses may be integral to the smart grid solutions being investigated. Furthermore how transmission planning occurs, may affect value streams when transmission is built in a manner that serves utilization of large bulk storage first and load centers second. Policy should reflect a "technology neutral" approach as both existing bulk energy storage and smaller devices have characteristics that may have merit and least cost benefits in the integration of renewables.

The participants discussed locating ESS at RE generation sites as the benefit of smoothing out generation prior to transmission is obvious. Additionally there was conjecture that intra day shifting and shaping could occur by locating at renewable sites. It would be helpful if there would be clarification as to how WECC standards apply to RE generation placed on the transmission system that might need conditioning, Additionally it is being proposed that this could occur at remotely located PSP hundreds of miles away. How are reliability standards and accessibility affected with these types of proposals? Comparison to the Japanese energy market was brought up, as they require wind generators to smooth output before placing the energy onto the grid.
I believe that the presenter was suggesting that California was different in several regards; Japan has a long transmission system that is better served by this approach. The California market has undefined opportunities for ESS to enter the market at generation sites.

I think it would be fair to say that California is geographically very similar to Japan, as the statewide transmission system has long north to south paths, with significant barriers on both the west and east side of the state. As the RETI has identified, the vast majority of CREZs are located in the southeastern corner of the state. Therefore, would it prove worthwhile to investigate revising requirements for conditioning at RE generating sites? This approach may prove to be beneficial as the RPS ratchets up to the goals. And is the A-S market better defined by this requirement? Could reliance on spinning reserve for A-S and therefore GHG emissions be reduced?

Summary:

It is clear that at this point that the April 2nd meeting was still only conceptualizing how ESS fits into the system. Opening the market and the best application of various technologies are still yet to be defined. Noteworthy is the suggestion that smaller ESS can have Utility Scale application. The Transmission owners have touted the use of PSP as proven and reliable, yet info about historic performance is cloaked by commercial sensitivity rules. The public documents show great annual variability in the performance of the state's PSP fleet on an annual basis, and PSP has had significant failure costs borne by ratepayers.
While it may sound good to store vast amounts of RE in bulk storage, Is there any guarantee that full utilization of these facilities will not rely on GHG producing forms of spin. And how does annual and seasonal variation of the operating fluid affect their reliability?

Clearly these issues and how the market for distributed ESS evolves and is encouraged should be reflected in the IEPR drafts.

Thank you for your consideration, Ron Dickerson