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Bison Peak Pumped Storage Comments

Additional submitted attachment is included below.

CALIFORNIA ENERGY COMMISSION

2015 Bulk Storage Workshop with the California Energy Commission and the California Public Utilities Commission	Docket No. 15-MISC-05 WORKSHOP RE: Bulk Energy Storage

COMMENTS OF BISON PEAK PUMPED STORAGE ON 2015 BULK STORAGE WORKSHOP

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COMMENTS OF BISON PEAK PUMPED STORAGE, LLC.
2015 BULK STORAGE WORKSHOP

I. OVERVIEW

Bison Peak Pumped Storage is a 1,000 MW pumped hydro storage project being developed in the heart of the Tehachapi renewable energy zone in Kern County, near the LA Basin load center, and adjacent to the high voltage transmission Path 26. We would like to commend the substantial effort that has taken place in the former storage proceeding, and positive signals for bulk energy storage procurement consideration, specifically for pumped hydro, that was ordered in the former LTPP. The passage of SB 350 has set a positive direction for emissions reduction in California, and an ambitious target for renewable energy; and with that put forth an important framework for the need to gain a more thorough understanding of the benefits and procurement options for bulk energy storage.

In the recent bulk energy storage workshop, there were a number of very good presentations regarding the value of bulk energy storage, and its specific value of long-duration time shifting capabilities. There are several studies that document the important need for renewable integration solutions in a 50% renewables penetrations scenario[1][2][3], but more study is needed that specifically focuses on bulk energy storage. It is also clear that there are a number of solutions, in addition to bulk energy storage, that may be effective for addressing this evolving issue, such as increased regional coordination and aggregation of highest value renewables. However, the need for flexible capacity and fast ramping capability to accommodate large amounts of variable generation is becoming increasingly clear.

The goal should not be how to install the largest quantity of renewables, and definitely should not be to overbuild renewables in order to reach the RPS target. The goal should be how to most cost-effectively reach the 2030 emissions reductions goal of SB 350 and steadily plan toward the 2050 goal, maximize the value of the renewables, decrease system production cost, and continue to maintain the highest level of reliability on the system.

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[1] http://lowcarbongrid2030.org/wp-content/uploads/2014/10/LCGS_PhaseI_NRELslides.pdf

[2] https://ethree.com/documents/E3_Final_RPS_Report_2014_01_06_with_appendices.pdf

[3] http://www.ucsusa.org/sites/default/files/attach/2015/08/Achieving-50-Percent-Renewable-Electricity-In-California.pdf

II. FOCUS: ACHIEVE SB 350 AT LOWEST COST & HIGHEST RELIABILITY.

In order to avoid setting arbitrary bulk energy procurement targets, and/or creating technology silos, we should first answer the following key questions as options are evaluated:

1. What is the need, what solution can bulk energy storage provide and how do we fully quantify its value?
2. What does modeling-based quantification of bulk storage benefits and value on the system show, in the context of the recently established 2030 targets?
3. What is the emission reduction effectiveness of bulk energy storage?
4. How can California achieve SB 350 at lowest cost and highest reliability, and what resources can be procured to enable that?

III. PROCUREMENT BASED ON DEMONSTRATION OF SYSTEM BENEFITS

If our goal is to reliably achieve SB 350 and the associated 2030 targets at the lowest cost, then California should procure resources that help to achieve that goal. If data-driven analysis shows that certain resources and projects have a significant net benefit and lower the cost of reducing electric sector emissions, then there should be a clear path for procuring those resources and allocating their cost appropriately.

If the goal is to reliably achieve the SB 350 goals at least cost and provide the needed system flexibility, then procurement should focus on those resources that do just that. In certain cases, it may be that gas has an effective role. However, after consideration of data-driven production cost modeling focused on the California market, it becomes clear that bulk energy storage resources, such as pumped hydro, decreases system-wide production cost, decrease emissions, and can provide very fast ramping flexible capacity attributes.[4] System and local value is very geographically specific. Projects should compete based on which projects: have the highest net value on the system, contribute to the most reduction in production costs, have the greatest emissions reduction value, and provide the highest transmission deferral value.

Transmission deferral is a very valuable and unique characteristic of bulk energy storage, such as pumped hydro. When bulk storage is strategically and effectively located at key locations on the grid, it can lead to the deferral of transmission expansion that may otherwise be needed to bring additional variable renewables into California load centers. Bulk energy storage projects that are located on major transmission corridors, like Path 26, may alleviate significant transmission congestion. Projects that are close to load, and close to high concentrations of renewables such as the large renewable energy zone near Tehachapi are able to provide a valuable renewables integration service, as well as reduce transmission expansion and congestion cost. Production cost modelling and transmission modelling should take into account the transmission value of bulk energy storage projects.

[4] See references on page 1

IV. QUANTIFICATION OF SYSTEM BENEFITS SHOULD INCLUDE:

- Avoided system production cost.
- Avoided emissions, and quantification of value of that emissions reduction[5].
- Ancillary service value.
- Flexible ramping value.
- Avoided expansion of gas capacity that may lead to stranded carbon assets.
- Transmission expansion deferral value.
- Avoided transmission congestion cost value.
- Renewable energy integration and prevention from overbuild value.
- Long-duration over-generation solution to utilize the lowest variable cost zero-carbon renewables to displace carbon generation.
- Value of utilizing zero-variable-cost renewables and converting it to firm capacity as a powerful hedge against future gas and fuel price volatility.
- Bulk energy storage capability to function as dynamic transmission asset to increase the capabilities of regional coordination and interstate flows of lowest-cost clean energy.

V. SPUR DEVELOPMENT & INVESTMENT IN BULK ENERGY STORAGE

As many parties have noted, pumped hydro storage has long planning, permitting, and development timeframes that are very capital intensive. If left to market mechanisms alone, development of these projects may not be financeable, thus eliminating them as viable alternatives to choose. If there are no clear procurement signals, or outlined path, then these potentially valuable resources will not be developed in the timeframe needed in order to provide their highest value. If it is clearly demonstrated in system economic production cost modeling and transmission study that certain projects provide a high system net value, and enable the state to achieve the 2030 targets at lowest cost, then the following items need to take place in order to spur development and investment in bulk energy storage resources:

1. Have a cost-allocation mechanism and procurement process in place so that utilities are pre-authorized to multilaterally or bilaterally procure portions of capacity from single or multiple bulk energy storage projects.
2. Establish a technology-neutral procurement framework suitable for bulk energy storage that specifies what level of capacity of high system net value, emissions-reducing, SB 350 enabling resources may be procured.

[5] Even if bulk storage charges utilizing 100% gas on the margin it can still amount to significant emissions reduction, due to its ability to displace inefficient high heat rate peaker plants. If it charges with a greater mix of renewables, the the emissions reduction is even better. Proper production cost modelling should take this into account.

VI. CONCLUSION.

We appreciate the consideration of these comments. We look forward to collaborating further to help facilitate a timely and meaningful framework for the successful creation of a cost-effective long-term opportunity for bulk energy storage with increased penetration of zero carbon resources into the California energy mix.

Respectfully submitted,

/s/

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