
From: Patrino Beth
Sent: Tuesday, March 17, 2015 9:33 AM
To: Mickelson Anastasia
Subject: FW: House Bill 2193 Comments
Attachments: PNW Pumped Storage Renewable Integration.pdf

From: Nathan Sandvig [mailto:Nathan.A.Sandvig@mwhglobal.com]
Sent: Monday, March 16, 2015 8:11 PM
To: Patrino Beth
Subject: House Bill 2193 Comments

Hello Beth,

I was just made aware of this public hearing in consideration of “qualifying,” “cost-effective” energy storage systems. While I am unable to make this hearing on such short notice being announced Friday, I would like to offer the attached white paper and references below on past recent hydroelectric pumped storage efforts to the committee members.

Bottom line, pumped storage is the only cost-effective, proven utility scale storage solution. As the engineering firm that designed the last pumped storage project built almost two decades ago, pumped storage is prolific in the US. There are 39 pumped storage plants in operation with a total installed capacity of about 22,000 MW in the US. Worldwide, there is nearly 131,000 MW of pumped storage capacity currently in operation.

Under this proposed legislation, recommend the committee consider broad enough language to include the proposed pumped storage projects in active development in the Pacific Northwest that have substantial benefits to Oregon and the region as viable energy storage system procurement options for electric companies.

References:

- Northwest Power & Conservation Council Generating Resources Advisory Committee (GRAC) Meeting January 27, 2015 – Pumped Storage
https://www.nwcouncil.org/energy/grac/meetings/2015_01/
- GRAC *Regional Hydropower Potential Scoping Study*, November 2014
<https://www.nwcouncil.org/energy/grac/hydro/>
- Department of Energy Argonne National Laboratory *Pumped Storage Hydropower: Benefits for Grid Reliability and Integration of Variable Renewable Energy*, August 2014
<http://www.ipd.anl.gov/anlpubs/2014/12/106380.pdf>
- *Hydroelectric Pumped Storage for Enabling Variable Energy Resources within the Federal Columbia River Power System*, September 30, 2010 (<http://bit.ly/1yE7dXA>)
- *Technical Analysis of Pumped Storage and Integration with Wind Power in the Pacific Northwest*, August 2009 (<http://bit.ly/1wo7l9o>)

Regards,

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Oregon Considers Energy Storage Legislation

By [Bill Holmes](#) on March 13, 2015 Posted in [Electricity](#), [Energy](#), [Energy Storage](#), [Governmental Affairs](#), [Oregon](#), [Utilities](#)

The Oregon legislature is considering a bill that would require the state's large electric utilities to procure one or more "qualifying energy storage systems" by January 1, 2020. H.B. 2193 would apply to any entity that is engaged in the business of distributing electricity to retail electricity consumers in Oregon (not including a consumer-owned utility) if the entity makes sales of electricity to retail customers in an amount that equals 3 percent or more of all electricity sold to retail electricity customers in Oregon. An energy storage system is deemed to be "qualifying" if it is "cost-effective," and the legislation contemplates that each electric company would procure one or more such systems having the capacity to store not less than 5 megawatts of electricity but not more than an amount of electricity that is equal to one percent of the company's peak load for 2014. H.B. 2193 would allow an electric company to recover in its rates all costs prudently incurred in procuring one or more cost-effective energy storage systems, "including any above-market costs associated with procurement."

The Oregon Public Utility Commission (Commission) would be required to adopt guidelines by January 1, 2017 that would govern each electric company's proposal for developing an energy storage project, including a methodology for analyzing whether the application of a given system is cost-effective. In developing the guidelines, the Commission would also be required to consider the potential benefits of energy storage systems, including deferring investment in generation, transmission or distribution; reducing peak demand; improving integration of renewable resources; reducing greenhouse gas emissions; and improving reliability. It would also be obliged to consider ways in which to encourage electric companies to invest in different types of system, as well as any other factor reasonably related to procurement of one or more qualifying systems.

Once the Commission approves the guidelines, each electric company would submit a "development" proposal that would include an evaluation of the potential to store energy in the electric company's electric system, as well as a description of each energy storage project that the company is proposing. The proposals would be filed with the Commission no later than January 1, 2018. The Commission would evaluate each proposal to determine whether it is consistent with the Commission's guidelines, whether it reasonably balances the benefits of cost-effective energy storage systems to ratepayers and the development of energy storage systems and associated technology, and whether the proposal is in the public interest. If the Commission approves the proposal, the electric company would "develop" the energy storage project in accordance with competitive bidding guidelines prescribed by the Commission.

The legislation is plainly inspired by California's AB 2514, which also required energy storage systems to be "cost-effective" and "commercially available" and left the development of procurement guidelines to the regulator. The proposed legislation will doubtless undergo revision if it moves ahead. For example, although it may not have been intended by the bill's author, the reference to a minimum 5 MW size (as opposed to, say 40MWh, which would be a 5 MW system of 4 hours duration), implies that the bill may be focused on short-

duration batteries like Li-ion rather than long-duration systems such as flow batteries. H.B. 2193 also somewhat confusingly refers to “development” of storage projects by electric companies, but it seems to contemplate that development could take the form of “procurement.” Procurement, in turn, is defined as acquiring ownership of a system or acquiring by contract the right to use the capacity or energy associated with a system. Acquisition could be accomplished by turnkey EPC contract or build-transfer agreement, while power purchase agreements would probably take the form of electricity tolling arrangements. The bill is a bit unclear about whether it intends to require procurement of one or more integrated 5 MW systems, or whether dispersed systems could be aggregated to form a single 5 MW project.

Of course, legislatures hold public hearings to consider questions like these, and this bill is no exception: H.B. 2193 is scheduled for a public hearing this coming **Tuesday, March 17th, at 3 pm Pacific** in the House Committee on Energy and Environment (Salem, Oregon).

