flink ENERGY
3519 NE 15th Ave. #227 Portland, OR 97212

March 16, 2015

Representative Jessica Vega Pederson,
Chair, House Committee on Energy and Environment

Subject: HB 2193 Energy Storage Bill

Dear Chair Vega Pederson:

I am writing in support of legislation designed to encourage utilities to increase investment in energy storage. Flink Energy Consulting provides consulting services on power system issues, especially focusing on issues relating to transforming the power grid to non carbon-emitting resources. Although Flink only began last October, my background in Northwest power grid issues spans more than three decades, beginning with a 15 year career as a Bonneville Power Administration resource planner.

Energy storage is beginning to emerge as a vital area of importance as society increasingly depends on less carbon intensive variable resources such as wind and solar. Early policies to promote renewable energy resources such as feed-in tariffs and renewable energy standards were successful in driving down the cost of renewable resources to the point where they are now cost competitive with more traditional sources. Similar policies are now needed to promote the development of markets, supply chains, and technology improvements for energy storage to pave the way for the power system of the future. Legislation such as the proposed HB 2193 moves the state in the right direction.

The bill as currently written is a good starting point, but I would urge consideration of a few opportunities for improving on it:

1) The bill promotes cost effective energy storage up to 5 megawatts to be developed by utilities. For the two largest Oregon investor owned utilities, this is a very small percentage of their peak demand, or indeed of their installed wind generation. The effect of such a small amount of storage would be very limited. It seems reasonable for utilities to acquire all cost effective storage, or else a minimum required amount (perhaps 5 MW) of storage irrespective of an economic test. One possibility would be for the Energy Trust of Oregon to be tasked by the state to cover the above market costs of energy storage, just as it now does for certain renewable resources.

2) The concept of "cost effectiveness" should be explored in somewhat more detail—either in the legislation, or in the Utility Commission rulemaking to follow. Most studies show that from a system-wide perspective energy storage may be cost effective, but still not cost effective from a utility perspective, or that of the renewable resource providers, or of storage facility developers individually. Although each of these entities receives a benefit, and the total benefit may exceed the cost, none of them individually receives enough benefit to make the investment pay for itself. California undertook a system perspective analysis, found a societal benefit to energy storage, and then set targets for utility acquisition. The utilities themselves might not have reached the cost effective threshold on their own.

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3) Energy storage has two main characteristics—the rate at which energy is stored or discharged (nominated in megawatts), and the total quantity of energy stored (nominated in megawatt-hours or MWh). An example of the relationship between the two is that a 5 MW storage battery capable of storing 50 MWh, could supply 5 MW to the grid for up to 10 hours (5 MW X 10 hours = 50 MWh). If a minimum or maximum amount of storage is to be identified, it should be specified in terms of both energy (MWh) and power (MW). Whether 5 MW can be sustained for a second, a minute, an hour, or a day makes a very large difference and the legislation should not be silent on that aspect.

4) The most cost effective opportunities for energy storage are likely on the demand side and development of those opportunities are badly lagging. Utilities seem to have a natural preference for investments in "dedicated" energy storage technologies such as batteries, pumped hydro, etc. However, more cost effective sources of energy storage typically exist on the demand side. Some simple examples of demand side energy storage are municipal water pumping with reservoirs, and electric water heaters. Being able to control the timing of the delivery of the service to the end user is a form of energy storage with very similar characteristics and values as dedicated storage. The Bonneville Power Administration is finding demand side resources competing well with other sources to provide balancing services for wind resources on its system in its competitive bidding process, Their experience is not unique. I would urge the legislature to include demand side storage resources in any legislation designed to promote energy storage.

I hope these points are clear and helpful. I would be more than happy to provide any needed clarifications or reference materials to support these thoughts.

Sincerely,

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