

Support SB 1582

To the committee, I urge your support for SB 1582. This may be one of the most consequential energy bills this session, yet it's not getting the attention it deserves. It can be a wonky and complex bill, but the concept of Distributed Power Plants, also known as Virtual Power Plants (VPPs), is ultimately extremely powerful. Done right, it can meet demand growth for years to come, avoiding peak winter blackouts, and making much better utilization of our existing grid infrastructure. VPPs provide grid flexibility and cheaper electricity.

If you have a dozen oxen standing in a field, not much happens. But yoke those oxen in a team and you can harness significant energy pulling in the same direction.

In yesterday's grid, demand rose and fell throughout the day and the only tool a grid operator had to balance this was dispatching more or less power on the generation side. There was simply no way to account for the variable demand of millions of separate service points.

Eventually, we had early forms of "demand response" programs, where utilities would offer an incentive for customers to set their AC a few degrees warmer on a hot day. In aggregate, this moved some small amount of demand away from the summertime peaks, but still relied on individual action. Later, networked smart thermostats increased the efficacy of these programs by making it easier for individuals to participate automatically. It also expanded to other smart appliances, like dishwashers which could be programmed to operate at non-peak times. These forms of demand response still focused on "peak shaving," or marginally reducing demand.

Today we're at a fascinating technological turning point in the energy system. Batteries are becoming cheap and commonplace. People are buying them for resilience and peace of mind. Increasingly, they also come integrated with appliances like air conditioners or alongside refrigerators. EVs contain giant batteries that can easily cover a home's entire daily energy usage, and emerging technologies like Vehicle to Home (V2H) and Vehicle to Grid (V2G) promise to bring them into the mix, once the standards are worked out.

Batteries are a big deal. They don't necessarily reduce load - they shift it around in time. Just like roads experience rush hour traffic twice a day, so does today's electric grid. Adding lanes to cover peak traffic costs a tremendous amount of money, especially considering the road is half empty most of the rest of the day - and the same is true of the electric grid. Batteries let you charge when the grid is less congested (off peak, when prices are lower) and then use that energy during peak times - meaning you need to place less demand on the grid. Customers using time of use rates can enjoy this benefit individually.

Still, as the E3 Resource Adequacy Study report shows, there are a few hours of the year potentially when the grid is facing the greatest strain. VPPs let customers make money by essentially selling the utility the option to harness their batteries, like oxen, so the utility can deploy thousands of batteries all at once, potentially adding up to many MW. This adds up to real grid resources, dispatchable in real-time like a traditional power plant. Even better than a

traditional power plant, these batteries are located within the distribution grid where the power is needed, which can avoid transmission bottlenecks.

This bill also allows for third-party aggregators. They're a crucial part of making VPPs operate at their full potential. They're like a property management company - for a small fee, they handle all of the administrative work that it takes to deal with many tenants. In the case of VPPs, the scale could be hundreds of thousands.

There's multiple possible business models this bill supports - and we shouldn't pick favorites. One possible model is that device manufacturers themselves could serve as VPPs, making it easy for customers to opt-in and participate, potentially lowering device costs for end users or providing a passive income stream. Most importantly, it incentivizes manufacturers to build in the networking and control functionality required to make them act in concert at the level required to provide real grid resources. Most consumers don't want to buy an air conditioner, a refrigerator, or a car from their utility, but the manufacturer of that device could act as an aggregator on the customer's behalf, mutually benefiting all parties involved.

While VPPs have been proven in states like Arizona, Oregon's near-future resource adequacy concerns place special urgency on us to look at all solutions, especially ones that can deploy and scale quickly.

New electric generation, regardless of source, takes years to build. New transmission takes decades to build. VPPs are a key part of the grid flexibility that will keep the lights on in Oregon at rates we can afford to pay.

Respectfully, I urge your support for SB 1582.

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