

Representative Adam Wool
Alaska State Legislature
Juneau, AK

Dear Representative Wool and Energy Committee members,

We are writing on behalf the Alaska Climate Action Network (AK CAN!), a statewide coalition of community-based groups, individuals, climate scientists, Indigenous leaders and renewable energy experts and advocates across Alaska.

We request that HB 382 be amended to include management of integrated grid-scale energy storage systems with the Railbelt energy generation and transmission facilities already included.

We define "grid scale energy storage" as "an energy storage facility capable of acting as a whole grid peaker and load balancing plant, with sufficient energy storage to power the entire grid for eight or more hours a day." These energy storage facilities would replace the utilities' very expensive load balancing and spinning reserve peakers and allow the integration of unlimited variable renewable energy generation, including wind, solar, tidal, wave, and micro-hydro, among others.

It appears that the 2009 REGA study suggested the original model for this bill, and Anchorage area utilities more recent uncoordinated build-out provided the impetus. In 2009, grid scale energy storage for Alaska was not yet on anyone's radar. When HB 382 was originally crafted as HB 172, grid scale energy storage was still not widely foreseen as a possible option for Alaska. Quite recently that has changed. Two technologies, one new and one older technology we're repackaging for Alaska are emerging.

New battery technologies are currently driving rapid penetration of electric transport and industrial trucks and equipment. Everyone probably remembers that Moore's Law predicted that transistor density would double every two years. That law held for 50 years. Fewer are familiar with Swanson's Law, which observes that solar installation doubles every two years, and prices drop by 20% with every doubling. That rule has held for thirty years and has only recently changed. That change is that the doubling rate has increased from two years to a year and a half.

In 2009 during the REGA study, there were no mass produced Plug-in Electric Vehicles (PEVs). PEV sales currently comprise 2% of global sales, and those sales are doubling every year and a half, same as solar. At that rate, within ten years all new vehicles sold will be PEVs. Also less acknowledged but no less real, all types of transportation will likely be converting at the same rate. Battery manufacturing seems able to keep up, and very few bottlenecks appear likely.

That penetration is increasing the likelihood of massive grid demand overloads when whole fleets of electric cars and trucks are plugged in each evening to recharge, if not well managed. On the other hand, if well managed at grid scale, vehicle-to-grid (V2G) battery management could altogether eliminate the need for spinning reserves and also allow nearly cost-free integration of low cost variable renewable energy sources. That in turn would encourage the rapid expansion of independent power providers, eliminating the need for the utilities to add more gas-fired generation units, and reducing the consumption of natural gas.

The older technology is Pumped Hydro Energy Storage. The specific site being looked at now and a basic specs are described in two articles that can be found at:

<http://www.alaskansknowclimatechange.com/100-renewable-alaska.html> and
<https://craigmedred.news/2018/03/09/the-eklutna-battery/>

Pumped hydro would be suitable for seasonal storage, able to load balance Alaska's extreme seasonality. That's a function no other technology can yet accomplish, and the combination of pumped hydro and wind or solar could provide very cheap and clean energy, and enough of it to attract very large users, such as the giant server farms and industrial customers that Iceland runs their economy on.

We support HB 382 whether or not our requested amendments are included and ask that it be expedited and not held in committee any further.

Alaska has the most diverse world-class renewable energy resources in the Nation. We strongly believe that an aggressive and immediate transition to a renewable energy-based economy is vital to the state's economic recovery and future.

Thank you,

Kerry Williams & Ceal Smith

Alaska Climate Action Network (AK CLEAN!)

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Global Plug-in Vehicle Population

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