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We are making progress in two more key areas, although California, for now, is not in the lead. Thanks to new developments and a key PUC proceeding, California will once again push the country forward on electrical storage. We are also moving forward on the broader category of demand response, but we have plenty to learn on that topic, including from states on the east coast.

I blogged about storage four years ago and the promise that it holds. We have made some progress since then, and we are poised, I think, to make a couple of significant leaps forward that will begin to change electricity as a commodity as well as impacting various forms of transportation. In 2010, then-Attorney General Jerry Brown sponsored AB 2514, legislation authored by Assembly member Nancy Skinner promoting electrical storage as a utility procurement category separate from transmission and generation.

Last month, PUC Commissioner Carla Peterman issued a ruling for proposed storage procurement targets under AB 2514, at 1325 megawatts, or about 2 percent of California's peak load. As Commissioner Peterman states in her order:

"Energy storage has the potential to transform how the California electric system is conceived, designed, and operated. In so doing, energy storage has the potential to offer services needed as California seeks to maximize the value of its generation and transmission investments: optimizing the grid to avoid or defer investments in new fossil fuel-powered plants, integrating renewable power, and minimizing greenhouse gas emissions."

The proceeding is in progress, and the targets must be adopted by the Commission before they drive procurement, but this is a huge moment for the storage sector, and well worth tracking. My belief is that storage is far more ready for prime time and far more cost competitive than the conventional wisdom recognizes. Tesla and Solar City have joined together to provide combined solar and battery storage systems from hopes, and Tesla has entered the commercial battery storage market for businesses. The work on car batteries by all of the major automakers is paying dividends on cost and durability. Lithium-Air batteries, anyone?

Storage is part of a larger category of goods and services called demand response

that can help reduce peak energy loads and smooth the intermittency of some renewables. Right now, PJM, a regional transmission organization for electric power in 13 states on the east coast, is probably the most sophisticated provider of demand response resources, which it describes as "end-use customers reducing their use of electricity in response to power grid needs, economic signals from a competitive wholesale market or special retail rates." This can take many forms, including an aggregation of residential users who agree to curtail use of air conditioners for a short period during times of peak demand. Used well, demand response can reduce load requirements, shave peaks, and increase the value of renewables.

California's demand response programs, so far, are limited and do not include aggregation or sophisticated market mechanisms. CalISO, the PUC, and the utilities are taking a close look at PJM's efforts and other approaches, and, hopefully, we will see much more activity on this front in the near future.