

June 2016

DRAC Issue Paper Comments

From: Joel Swisher

Representing: Self

Questions for reviewers

1. Is the scope of the proposed demand response advisory committee sufficient?

a. Do you agree with the focus of the advisory committee in both the near- and long-term?

I think the scope is sufficient, but I'm not sure I get the emphasis on studying barriers, which seem rather obvious, namely

- Low rates, low price elasticity of demand, and little prospect of making time-varying rates send a strong enough signal to reliably shift demand
- Little experience among PNW utilities with DR and some historic failures (e.g., PSE time-of-use rate program)
- Inconsistent application of technology such as smart smart grid and AMR, across the region

It might be more productive to study available and emerging DR assets, resources and opportunities:

- Successful history in the region of utility energy-efficiency and resulting positive customer engagement
- Building automation technology becoming more widespread and much cheaper, including in small buildings, along with multiple pathways for communication with end-use devices
- Nationwide history of many successful (and some failed) DR programs using a range of methods from direct load control to real time pricing
- Proven success of automated DR, including in the residential sector, such as CA program with automated DR under critical-peak-pricing and Nevada utility automated DR programs with no pricing regime, only annual incentives
- Potential for plug-in vehicles (PEVs) to offer highly controllable load with communication and control technology already built in
- Potential for Grid-interactive water heaters
- Availability of thermal mass in buildings to "coast" ~1 degree/hour under DR control

Considering the above, I'd recommend not assuming that DR must be price-driven, given the many options for automated control of loads with minimum customer disruption and without disturbing the existing rate and revenue structure. Also, M&V of DR will be more complex than with efficiency programs, with the need to measure dynamic impact, and not just successful installation and/or operation.

2. Is it appropriate to convene a separate forum to discuss smart grid, storage, and other enabling technologies?
- a. Do you agree that a forum is the appropriate venue for these topics (versus an advisory committee)?

As newcomer to the region, I'm not sure I appreciate the distinctions between the roles of committee and forum. But I heartily endorse forming an entity to address the need in the region to come to terms with capacity planning and the emerging need to integrate increasing output from variable renewables. This entity might absorb the work of the existing wind integration forum, as the future integration challenge will include wind and many other resources as well. The work will also need to interface with that of the advisory committees on energy efficiency, forecasting, generation planning, resource adequacy, system analysis, etc.

Energy storage will be one component, and in fact passive energy storage in the thermal mass of buildings, hot water, etc., is the basis of the potential DR resource. However, there will be many alternatives to dedicated electricity storage, which inherently adds costs and loses energy.

Some of the key options to consider in the integration equation will be:

- Defining the best use of hydro under changing hydrology and demand in the southwest under climate change
- Potential for better, faster, cheaper integration of existing resources to balance variable renewables, through the Energy Imbalance Market and other measures to involve all the PNW utilities and balancing areas
- The full range of DR resources as suggested above
- The potential for PEVs as a highly controllable load, and for DR incentives to improve the value proposition for adopting PEVs, which are a key resource for the region to meet its climate goals (since the CO2 savings from PEVs increases as the grid gets cleaner even as the marginal CO2 savings from efficiency and renewable generation decreases as the grid gets cleaner!)
- Options to address the limits of existing ancillary services in integrating renewables – DR and other demand-side resources may be able to provide regulation services, but the total need is rather limited. A much larger need as renewables grow will be ramping and balancing, which doesn't fit well with existing ancillary service products, as the ramps will tend to be larger, slower, longer, more frequent and (importantly) more predictable than those met by existing contingency reserve resources.

Thanks and good luck!

Joel Swisher