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California Energy Commission Staff Workshop
Energy Storage Technologies & Policies to Support
California's RPS Goals of 2020

Prepared Comments
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Something Old...Something New...Same Challenges

- Question: What can Stakeholders do to increase storage applications?
 - Seems each day, greater understanding of capabilities of storage
 - That is leading to more ideas on how to apply storage
- First, would like to start with what stakeholders can't do as a lead into areas where help can be provided
 - We can't change physics – hence need to realize that one technology can't be applied to all possible applications
 - We can't predict innovation in order to select which technologies will make the greatest advancements or expand its current capabilities
 - There are lessons to be gained from emerging DG and CHP technologies where applications and technologies were sometimes applied inappropriately
- Knowing this, there are some very concrete steps that can be taken to encourage applications

Areas and Actions of Focus

- What we do know is that we can focus on concrete areas that will help pave the road for increased implementation of storage technologies
- These focus areas are:
 - Education
 - Standards
 - Testing
 - Grants
- Has been done many times, but we seem to be witnessing storage outpace these areas because of market forces and belief that storage will solve future grid issues

Steps to Increase Education and Awareness

- “Storage” encompasses a number of different technologies that vary in capacity (small to very large) and duration (15 minutes to hours)
- There are tendencies to find the “best” technology or device
 - The saying that “One size does not fit all” is brought to mind when thinking about how to think of storage
 - Even in today’s choices, some technologies perform better than others
 - Ancillary Services → 15 minutes, fast response
 - Diurnal cycles for wind → Large capacity
 - Congestion and constraints with renewables → long duration
- Creating a database that starts aligning technologies and applications, as well as development status of technology options will help planners understand what is really available and where each technology best fits

Creating Standards for Developers

- Manufacturers and developers are more than willing to get devices implemented into the field
 - For emerging technologies that have started small, experience is with “behind the meter” back-up applications
 - As applications increase to utility-scale, interconnecting at the transmission level requires a new set of standards for interconnection and safety
- For end-users, how do we classify the products?
 - Standards for labeling capacity? Duration? Energy?
 - Standards for performance testing so end-users know the unit they are receiving is meeting its performance standards?
- On the horizon, what to classify the device as also has implications
 - This issue will take time and effort to sort out in a manner that pleases all stakeholders

Increased Testing is Required

- Rapidly increasing interest in storage has the potential for devices to outpace testing
 - This may occur with life-cycle testing, safety, and performance
 - Additional issues may occur with technologies being applied to different applications
 - Applications may be able to perform in roles not envisioned by stakeholders or may be pushing “envelop” of their capabilities
 - Transparent testing of devices is required when an industry like storage is at an early stage
 - Data needs to be shared by all states
 - Hawaii? New York? Massachusetts all have projects in addition to California
- This issue is taking on more importance as storage devices – including many emerging technologies – are being considered as solutions to problems the grid will be facing as well as a necessary component to Smart Grids
- Efforts need to be initiated to create testing protocols for specific applications as well as increased efforts to test the technologies

Directed Grants and Incentives Need to Occur Regionally & Nationally

- Topic is prefaced by market question – if solution is better and profitable, markets will find a way to implement
- Also, less of an issue now that the Federal Stimulus package has been launched – storage language has been inserted as a component into a number of grants
- However without a roadmap on how storage can be fully utilized, there is a risk that grants will be applied to areas that do not maximize storage's full capabilities or potential
- Actions should be taken by state & federal agencies to create a roadmap of storage as a “concept” rather than a component to a larger system

Questions

Thank you for your time

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