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Panel 3: Utilities' Perspective of Energy Storage

SCE's Perspective on Energy Storage

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2011 Integrated Energy Policy Report Committee
Workshop on
Energy Storage for Renewable Integration
April 28, 2011
Sacramento, California

Understanding Energy Storage – Key Concepts

Energy storage is a complex term which refers to varied and disparate technologies and potential uses across the electric grid.

Storage may provide the means to solve particular challenges but is not an end in itself.

Identifying where and how storage may used on the electric system (applications) is a logical and ideal starting point for discussions about storage. Storage as a unified concept is impractical and misleading.

Cost-effectiveness evaluations for energy storage are best and most accurately assessed at the application level.

An "application-based" approach is technology neutral and provides a clear and practical structure to identify and assess roles for energy storage.

Panel Questions:

1) How does the role of energy storage differ from the utility or market perspective?

2) Who should own grid connected storage?

Energy storage is defined by its applications, and not by perspective or ownership:

- In some applications it may be appropriate for an independent developer to own and operate a storage device *(e.g., a device balancing energy output as an integrated part of a solar photovoltaic installation)*
- In others applications, utility ownership / operation will be necessary *(e.g., a device sited in the distribution system deferring upgrades)*

Each application of energy storage determines which business models and ownership regimes are the most appropriate

SCE's Current Primary Storage R&D Efforts

A

Tehachapi Storage Project (Pilot)

Large-Scale Energy Storage (8MW/32MWh)

- Evaluate a utility scale lithium-ion battery's ability to improve grid performance & integrate variable energy resources

B C D

Irvine Smart Grid Demonstration (Pilot Project)

Large Transportable Energy Storage (Two 2MW/500kWh units)

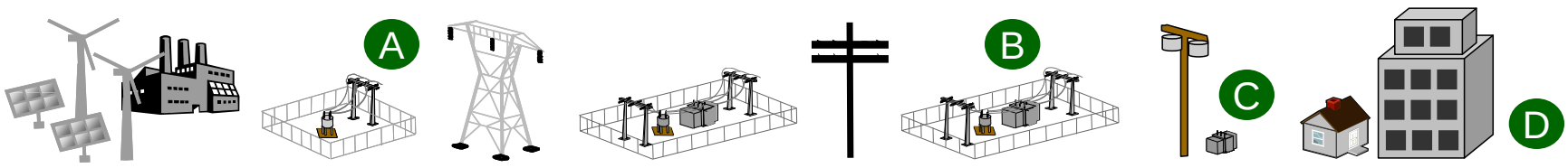
- Evaluate transportable, containerized Li-ion battery systems in field and laboratory trials

Community Energy Storage (25 to 50kW & 50 to 100kWh units)

- Enhance circuit efficiency, resilience, and reliability

Residential Home Energy Storage Unit (4kW/10kWh)

- Evaluate home storage integration with customer HAN, EE, smart appliances, solar PV, PEV, etc.



Driving the Discussion Forward –
Key Actions on Storage

We can drive the storage discussion forward by focusing on "problem definition" and the details of storage applications

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Addressing broad "goals for storage" does not recognize the wide diversity of storage uses and technologies

- Focus further on "problem definition" so that discrete roles for storage become clearer.
- Assess policy changes/needs for energy storage at the application level – the idea of broad "storage policy" is impractical.
- Anticipate key regulatory and market efforts at the CPUC, CAISO, FERC. These efforts are clarifying key policy issues and highlighting roles for storage.
- Be realistic about the complexity, costs and timelines for grid-scale storage deployments. Grid-scale decisions are complex and results from demonstrations should be factored in.

SCE's Energy Storage Strategic Planning Materials

White Paper


Moving Energy Storage from Concept to Reality:

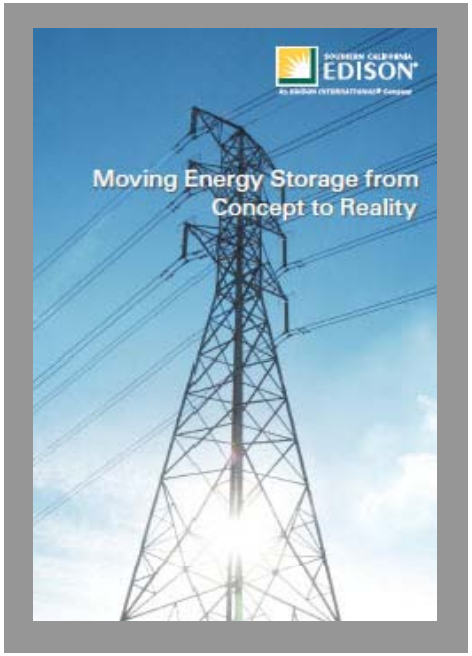
Southern California Edison's Approach to Evaluating Energy Storage

Abstract:

The electric industry has pursued cost-effective energy storage for many decades. In a business traditionally constrained by the need to instantaneously match demand with supply, the potential to store generated electricity for use during more valuable periods has been long recognized. More recently a series of factors, including technological progress, legislative and regulatory tailwinds, and new grid challenges associated with variable renewable generation, have propelled energy storage to the forefront of industry consciousness. This excitement, however, does not by itself resolve the various complexities facing energy storage. Even the definition of "storage" can be confusing, as the term refers to multiple different technologies and potential uses across the electrical grid. Additionally, while these options continue to develop and emerge, there is little consensus on how their worth should be evaluated. Recognizing these challenges, this white paper offers a methodology for contextualizing the broad and heterogeneous space of energy storage, and it ultimately identifies applications currently viewed as having the greatest potential value from Southern California Edison's (SCE) perspective. It is SCE's goal to advance the storage discussion towards the vision of a more reliable grid, with reduced environmental impacts, at overall lower costs to electric consumers.

- Academic-style paper which details methodology, research, calculations, and results of SCE's 2010 strategic planning effort

Communications Pamphlet



- 8 page fold-out pamphlet; available in hard-copy
- Higher-level communication piece

Visit http://www.edison.com/pressroom/hot_topics.asp under Smart Grid *or* e-mail energystorage@sce.com.

Thank you!