

Storage Forum – Energy Markets for the Future

October 28, 2021

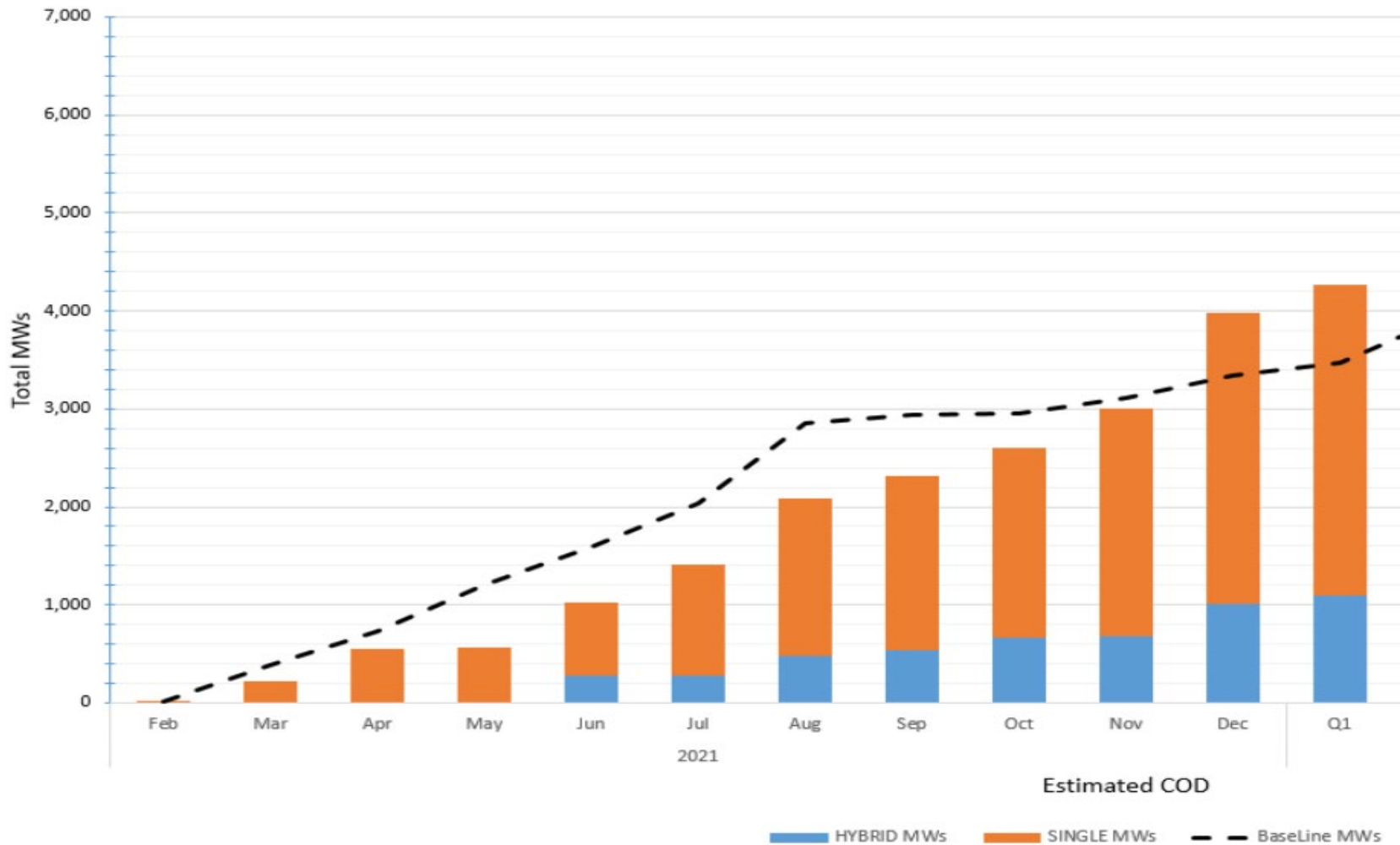


Welcome and opening remarks



Overview of storage participation in organized markets today

Storage in California is growing rapidly today and is expected to continue for many years



Today most organized markets have or are proposing models to accommodate storage

- Most ISOs have models with charging and discharging capability available for use by storage resources
 - Compared to discontinuous pumped hydro models
- Most models allow for participation in the energy, ancillary services and capacity markets
 - Not all markets manage state of charge through market software
 - ‘State of charge management’ has different meanings across markets
- All models allow storage to set prices and do not subject storage to transmission charges, when charging to provide a service to the ISO
- Most markets require four sustained hours for capacity accreditation
 - PJM requires 8/6 hours, NYISO requires 6 hours and New England requires 2 hours

***Summary data used from surveys and documentation compiled by EPRI*

Brief introduction to the topics we will discuss today

1. Do ISO and RTO markets include products to ensure reliable operations with deep penetrations of renewables and storage?
 - Is storage paid appropriately for services provided to the system?
 - Are additional market enhancements necessary to foster storage participation?
 - Are market power issues inherent in new or existing market designs?
2. Are models today missing critical aspects to operate or procure storage resources?
 - Are small changes needed or are fundamental redesigns desirable?
3. Do current market constructs favor one technology (i.e. lithium-ion) more than others?
 - Are different constructs necessary for medium and long duration storage?

The panelists

Dr. Ross Baldick, Professor Emeritus, Department of Electrical & Computer Engineering, University of Texas

Dr. Luke Lavin, Researcher III, Grid Systems Group, National Renewable Energy Laboratory

Dr. Nikita Singhal, Technical Leader, Grid Operations & Planning Group, Electric Power Research Institute

Dr. Ramteen Sioshansi, Professor, Departments of Integrated Systems Engineering and Electrical & Computer Engineering, Ohio State University

Moderator: Dr. Benjamin Hobbs, Schad Professor of Environmental Management, The Johns Hopkins University, and Chair, CAISO Market Surveillance Committee

The background of the slide features a landscape with several high-voltage power line towers and their associated cables stretching across the scene. The towers are made of metal lattice. The ground is covered with trees, many of which have turned vibrant shades of orange, yellow, and red, indicating an autumn setting. The sky is a clear, pale blue. A semi-transparent brown horizontal band is overlaid across the middle of the image, serving as a backdrop for the title text.

Panel discussion and Q&A



Closing remarks