Energy Storage

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TESA: a member-driven organization

Full Members









Associate Members













Where Are We Today?

- Both battery and CAES developments are well underway—first battery project online October 2012
- Now working to integrate these resources into our market for the benefit of the grid
- Processes under way to address
 - •PUC- settlement rule, potential pilot, others?
 - •ERCOT- establish EMS values for generic offer caps and mitigated caps and floors, HSL Test, Regulation deployment, registration, look-ahead SCED

Goal of Energy Storage Workshop

Provide a Forum for Information and Answer Questions Regarding Energy Storage in ERCOT

Benefits of Energy Storage in ERCOT

Help Address Immediate Issues of Concern

Issues that may continue for the foreseeable future

Resource Adequacy-

- Store energy to be dispatched later when needed
- Provide peak shaving to address need for peaking generation
- Provide emergency services

Benefits of Energy Storage in ERCOT

Managing Output Variability on the Grid
Controllable Regulation Service – Immediate
response becomes even more important as
percentage of wind and solar increases

Environmental Rules (Cross State Pollution)

Storage resources can be located in nonattainment areas and dispatched without environmental constraint

Battery Storage

Variety of technologies with similar characteristics – different that conventional generation resources

- Duration directly related to configuration and power level
- Near-instantaneous response time to ramping needs
- Can behave like generation
- Can provide T&D benefits

Compressed Air Energy Storage

Uses gas turbine to facilitate charging and discharging

Longer duration

Provides generator-like services

Current Barriers to Entry for Storage

HSL Test

Designed for existing ERCOT resources

Storage RARF Not Fully Developed

Current dual registration requirement has potential Modeling and Settlement implications

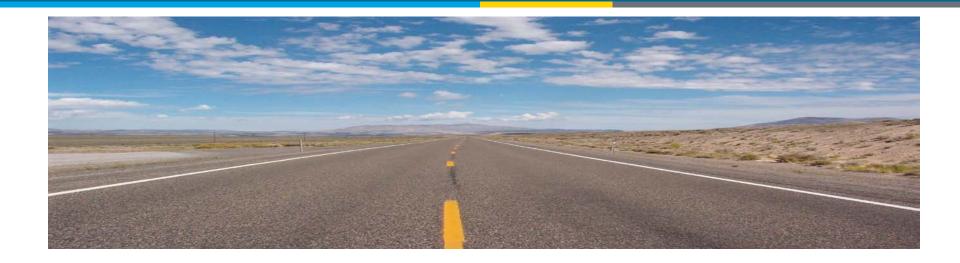
Regulation Deployment

Prolonged deployment of a Regulation signal results in drift

Pilot Opportunity

- Difficult to adopt protocols in timely manner for advanced emerging technologies ready to be deployed
- ERCOT proposed rule language to PUC to give ERCOT the authority to implement pilots for advanced emerging technologies.
- Provide operational experience to form basis for welldeveloped protocols
- Provide information and reports to ERCOT Board as pilot progresses

The Path Forward



- PUC Storage Rule on Settlement- December 8 Open Meeting
- PUC Project to address a possible pilot process
- Protocol Changes that can be achieved in the near-term

For more information, please visit:



www.texasenergystorage.org

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