

# 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 non-attainment areas and dispatched without environmental constraint

Variety of technologies with similar characteristics – different than 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 well-developed 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](http://www.texasenergystorage.org)

or

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ASSOCIATES

[www.goodcompanyassociates.com](http://www.goodcompanyassociates.com)