

CAREBS

Coalition to Advance Renewable
Energy through Bulk Storage

www.carebs.org

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The Mission

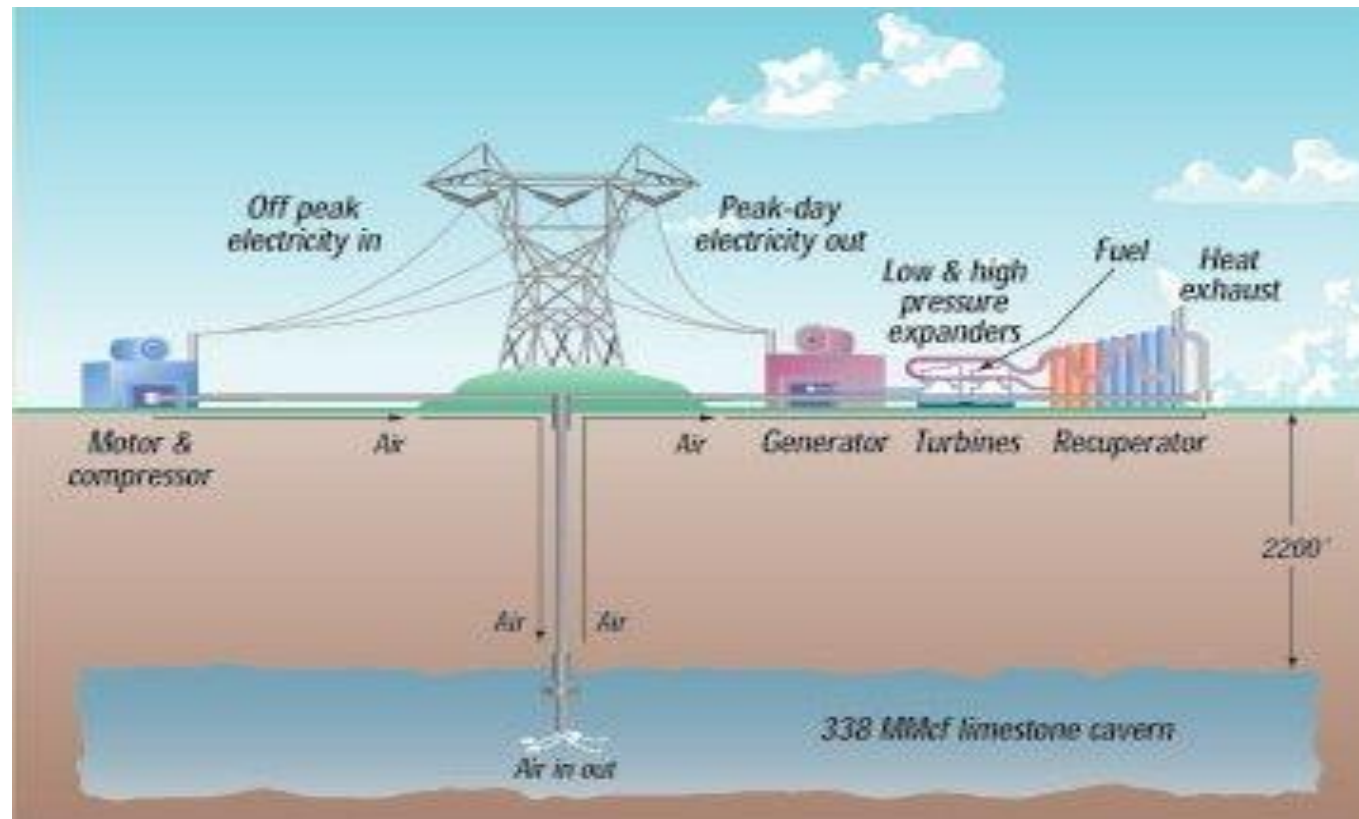
- Promote the benefits of bulk energy storage to enhance electricity grid operations, including integration of renewable energy, improved reliability and security, advanced market development, and cost efficiencies throughout the production and delivery value chain
- Shape and support federal policies affecting bulk energy storage and work with key state-level and storage organizations to advance energy storage generally
- Distinguish bulk energy storage from other storage options

The Members

- **Founding members**
 - Haddington Ventures LLC
 - Dresser Rand Corp
 - Magnum Energy
- **Associate members**
 - Texas CAES
 - Iowa Stored Energy Park
 - HDR-DTA Engineering
- **DC representatives**
 - King and Spalding
- **Operations**
 - Pearl Street Inc

Representative Technologies #1

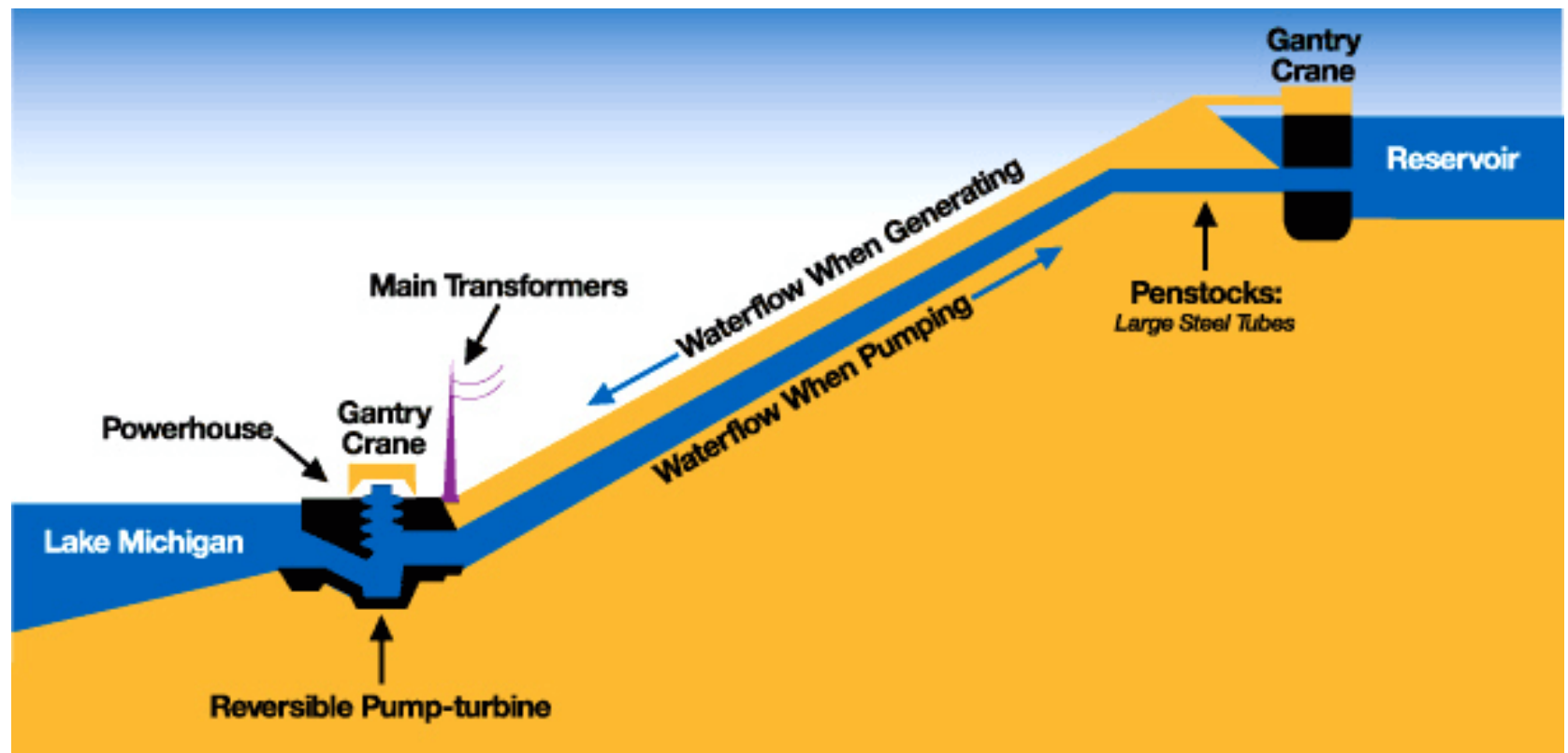
- Compressed Air Energy Storage (CAES)



Norton Energy Storage in Ohio

Representative Technologies #2

- Pumped hydroelectric storage (PHS)



<http://www.consumersenergy.com/welcome.htm?/content/hiermenugrid.aspx?id=31>

Representative Technologies #3

- Large-scale batteries and flywheels



<http://www.csmonitor.com/Innovation/Responsible-Tech/2009/0322/how-enormous-batteries-could-safeguard-the-power-grid>

Strategic Objectives

1. Support passage of Investment Tax Credit (ITC) in both House and Senate
2. Pursue transmission treatment of bulk storage in FERC rate design
3. Support pro-active participation in Congressional, FERC, DOE, etc hearings affecting electricity infrastructure

Strategic Objectives (cont.)

4. Build relationships with ISO/RTO organizations
 - PJM
 - Western Electricity Coordinating Council
 - Midwest ISO
 - ERCOT
 - CAISO

Strategic Objectives (cont.)

5. Create more constructive dialogue with AWEA regarding storage
6. CAREBS white papers and issues “briefs”
 - Value of ITC over the potential storage market
 - Value of transmission rate treatment over potential storage market
 - Economic benefits of widespread adoption of bulk energy storage
 - Critical comparison of gas-wind integration vs storage-wind integration
 - Modeling energy storage integration in grid operations

Strategic Objectives (cont.)

7. Initiate public relations and energy industry media campaign
8. Build website with robust content supporting mission and policy goals
9. Build relationships with like-minded advocacy groups
 - Electricity Storage Association
 - California Energy Storage Alliance
 - Texas Energy Storage Alliance
 - National Hydro Association
 - National Resources Defense Council (NRDC)
 - Others

Key Message #1

Increases Renewable Energy

- A network of strategically located bulk storage facilities is the most economical and efficient means of bringing more renewable energy to more people more of the time.



Key Message #2

Economical, Secure & Reliable

- Bulk energy storage enables the increased deployment of renewable energy without sacrificing other performance areas, such as reliability, security, and electricity market development.

Key Message #3

Investment & Domestic Job Creation

- A 20+% Investment Tax Credit is absolutely essential to support commercial-scale storage projects and kick-start the growth of a US-based manufacturing and supply chain.

Key Message #4

Grid Optimization

- Federal and state regulatory policy must be revised to properly accommodate bulk storage facilities on the grid.
 - Storage is neither “generation” or “transmission” but helps to optimize both.

Key Message #5

Markets for Ancillary Services

- FERC and the RTO/ISOs must adopt rules that lead to structured markets for ancillary services.
 - While some have made good starts in this regard (PJM, CAISO, MISO, and ERCOT), ancillary markets must be mature and stable enough to support development of large-scale bulk storage facilities.

Key Message #6

Flexibility for Ancillary Services

- Bulk storage offers grid operators flexible support for ancillary services, including frequency regulation, black start, spinning reserve, VAR support, and load following.

Key Message #7

Full Commercial Proposition

- Bulk storage options CAES and PHS are the only technologies available from the marketplace today *as a fully commercial proposition* –
 - that is, financeable, equipment supplier warranties and life cycle support, reasonable capital costs, field proven reliability, and integrated grid operations

Key Message #8

Proven Technologies

- In the US alone, 24,000 MW of commercial PHS has been operating for decades.
 - A 110-MW CAES facility has been operating in Alabama for almost two decades.

Key Message #9

Hundreds of Megawatts/Day

- Both CAES and PHS provide hundreds of megawatts for many hours each day.
 - Large scale facilities based on distributed storage devices are generally below 50 MW, provide capacity on sub-hourly time scales, represent “one-off” demonstration projects, and/or present significant technology and commercial risk.

To learn more, visit:
www.carebs.org

Or contact:
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