



**Department of Water and Power
City of Los Angeles**

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Panel 3: Utility Perspective of Energy Storage

**2011 Integrated Energy Policy Report
Committee Workshop on
Energy Storage for Renewable Integration**

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April 28, 2011



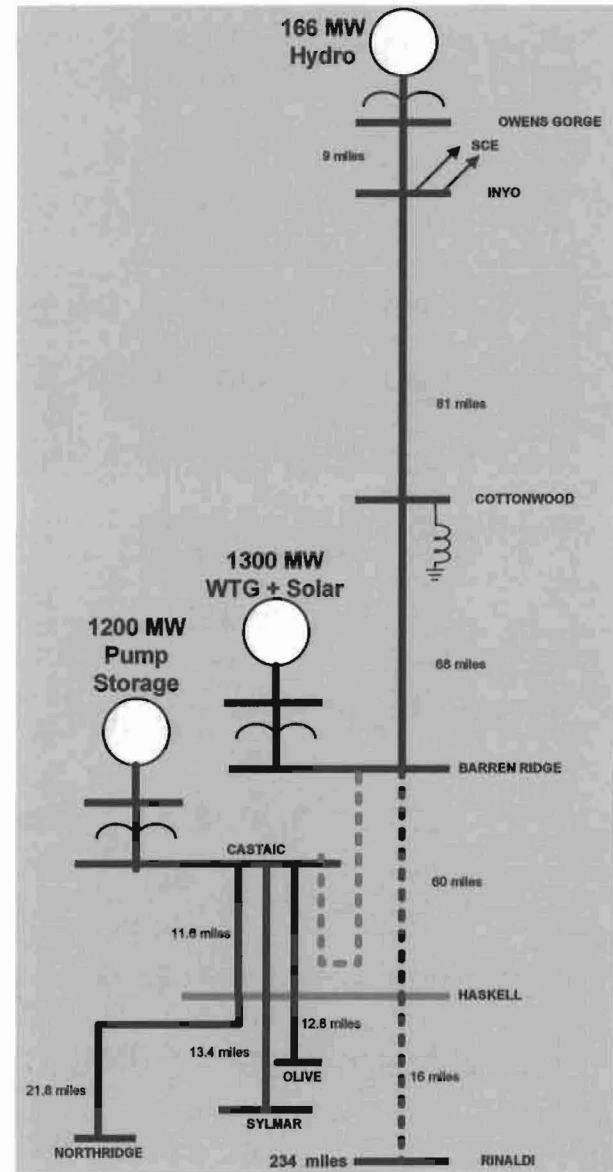
Panel Questions

- How does the role of energy storage differ from the utility or market perspective?
- Who should own grid connected energy storage?
- How will the utilities implement the Energy Storage development, demonstration and deployment plan for meeting the AB 2514 requirements?



Role of Energy Storage in Renewable Integration at LADWP

- Castaic Pump-Storage Hydro
 - California State Aqueduct water supply
 - 170,000 acre-ft capacity Pyramid Lake (upper forebay)
 - 324,000 acre-ft capacity Elderberry Lake (pumping forebay)
- Integrates Pine Tree wind (135MW) connected via upgraded Owens Valley Transmission Line
- Large amount of wind and solar under development for direct integration into Castaic through Owens Valley Transmission system upgrade



Other Renewable Integration Considerations at LADWP

- Pacific NW wind (428MW)
 - Contracted with transmission service providers for firming and shaping production on the short-term
 - Use PDCI to bring firming and shaped energy home on the short-term
 - Consideration for dynamic scheduling of wind on PDCI for integration in the LA Basin
- Utah/Wyoming wind (369MW)
 - Some firming and shaping services in Utah and Wyoming
 - Wind energy from Utah integrated with 1640MW capacity Intermountain Power Plant (IPP) and LADWP in-basin system through dynamic scheduling of the 2400MW capacity IPPDC



Energy Storage Ownership

- **Vertical integration of energy storage**
 - Uphold policy to own generation, transmission, and distribution assets
- **Lease-to-own is an option**
 - Manage cash flow
 - Ensure long-term control of resource
 - Benefit from tax incentives when available



Muni Implementation of AB2514

- 1 March 2012 - City Council initiates investigation of energy storage targets
- 1 October 2014 - City Council adopts energy storage targets
- 31 December 2016 - Target Date/Progress Check
- 31 December 2021 - Target Date/Progress Check

