

DOCKETED

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Powerpoint Describing LEAPS and barriers to development of new bulk storage

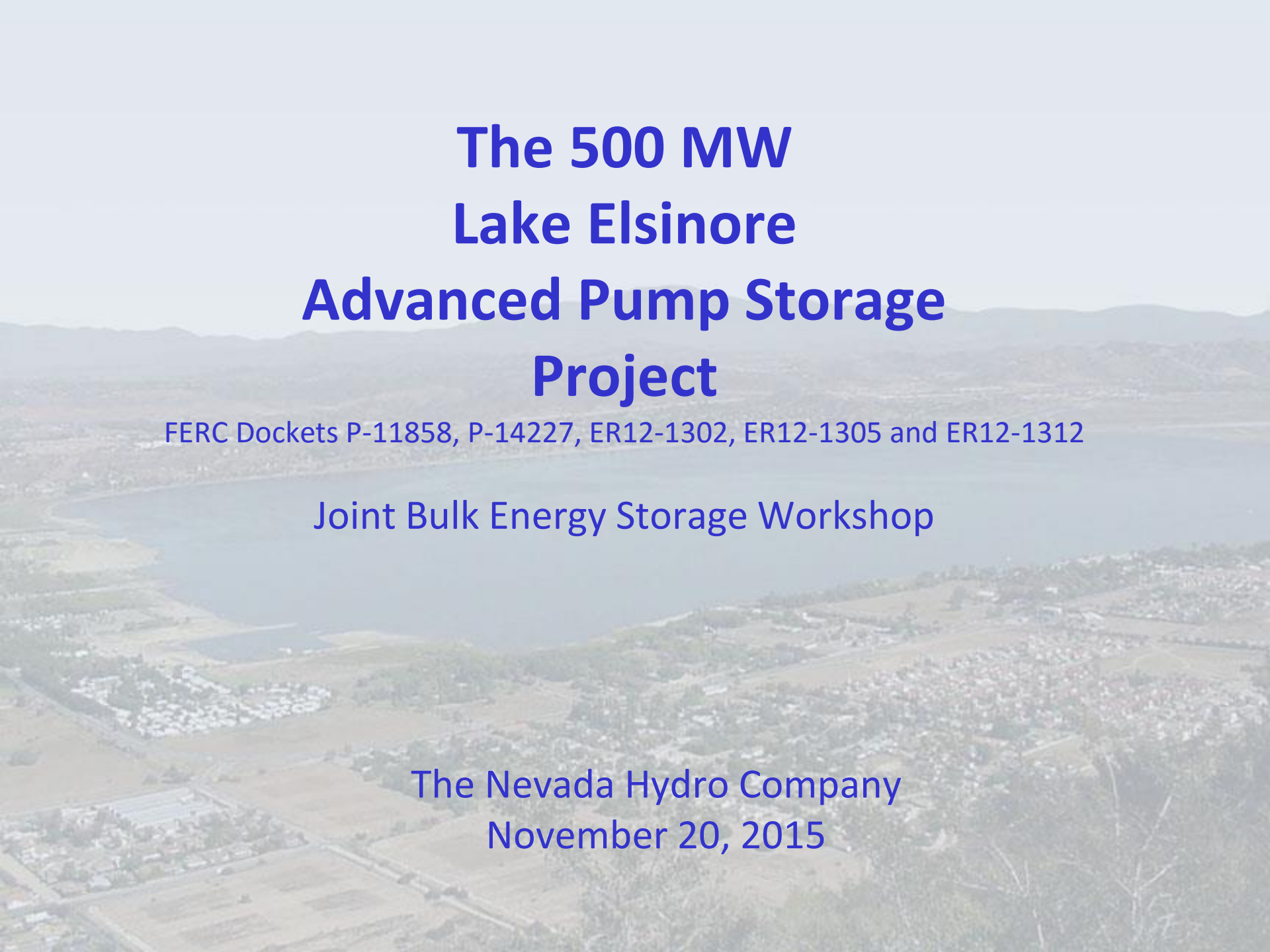
I have taken the liberty of preparing a PowerPoint that describes the LEAPS pumped storage project and also addresses barriers to the success of new bulk storage projects. I would suggest using this if you would like me on the panel.

I look forward to helping make this workshop a success!

Thanks,

David Kates

Additional submitted attachment is included below.

An aerial photograph of Lake Elsinore, a large body of water in the center of the frame. The lake is surrounded by a mix of developed areas, including residential neighborhoods with houses and commercial buildings, and undeveloped land with sparse vegetation. In the background, there are rolling hills and mountains under a clear sky. The text is overlaid on the upper portion of the image.

The 500 MW Lake Elsinore Advanced Pump Storage Project

FERC Dockets P-11858, P-14227, ER12-1302, ER12-1305 and ER12-1312

Joint Bulk Energy Storage Workshop

The Nevada Hydro Company
November 20, 2015

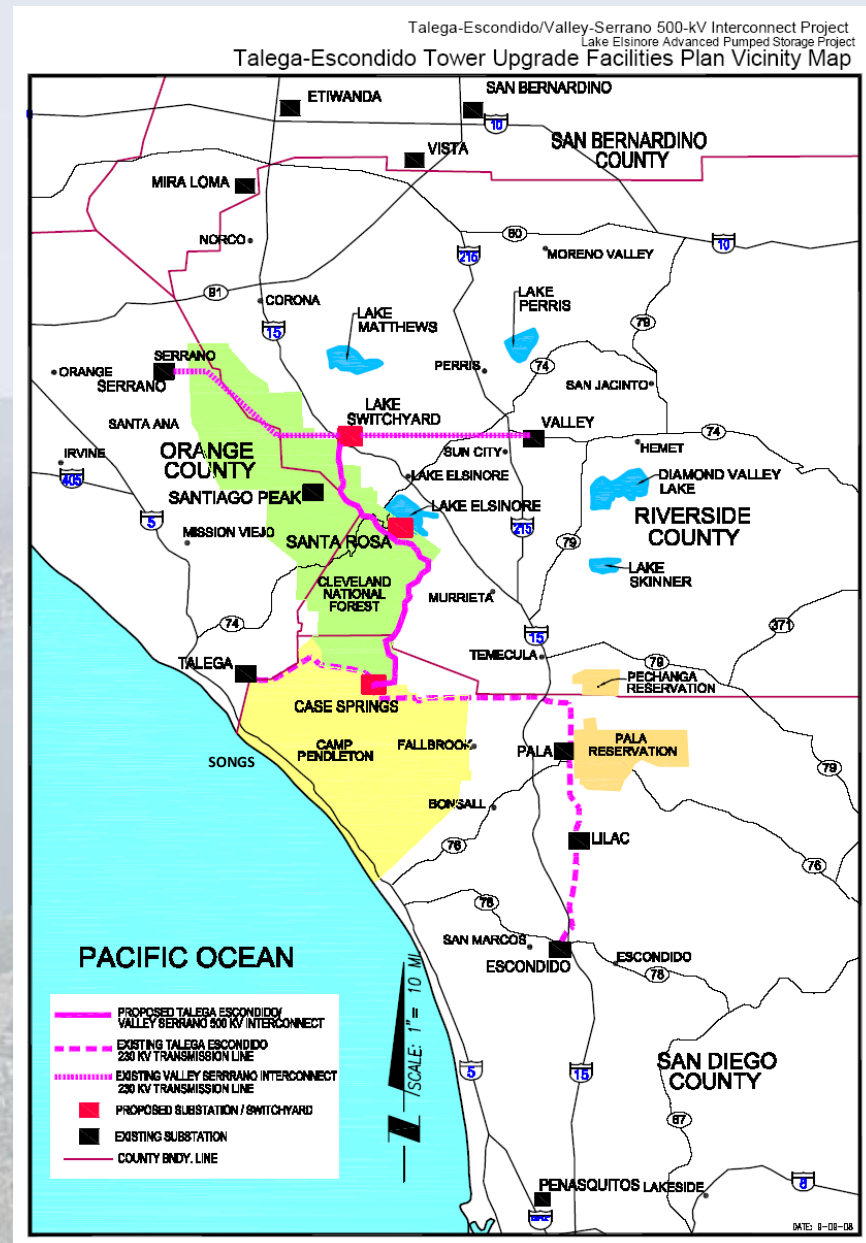
Introduction & Background

- The achievement of California's clean energy goals will require reliance on a large amount of intermittent renewable resources that make the grid more difficult to manage.
- Advanced pumped storage (APS)
 - Has none of the limitations of other buffering technologies like gas turbines and demand response.
 - Can help mitigate over-generation and facilitate load shifting while providing the full range of ancillary services needed to keep the grid humming.
 - Can facilitate the orderly shutdown of coastal once-through cooling plants and substitute for the SONGS outage.
 - GHG free operation and supports RPS goal.

The Project

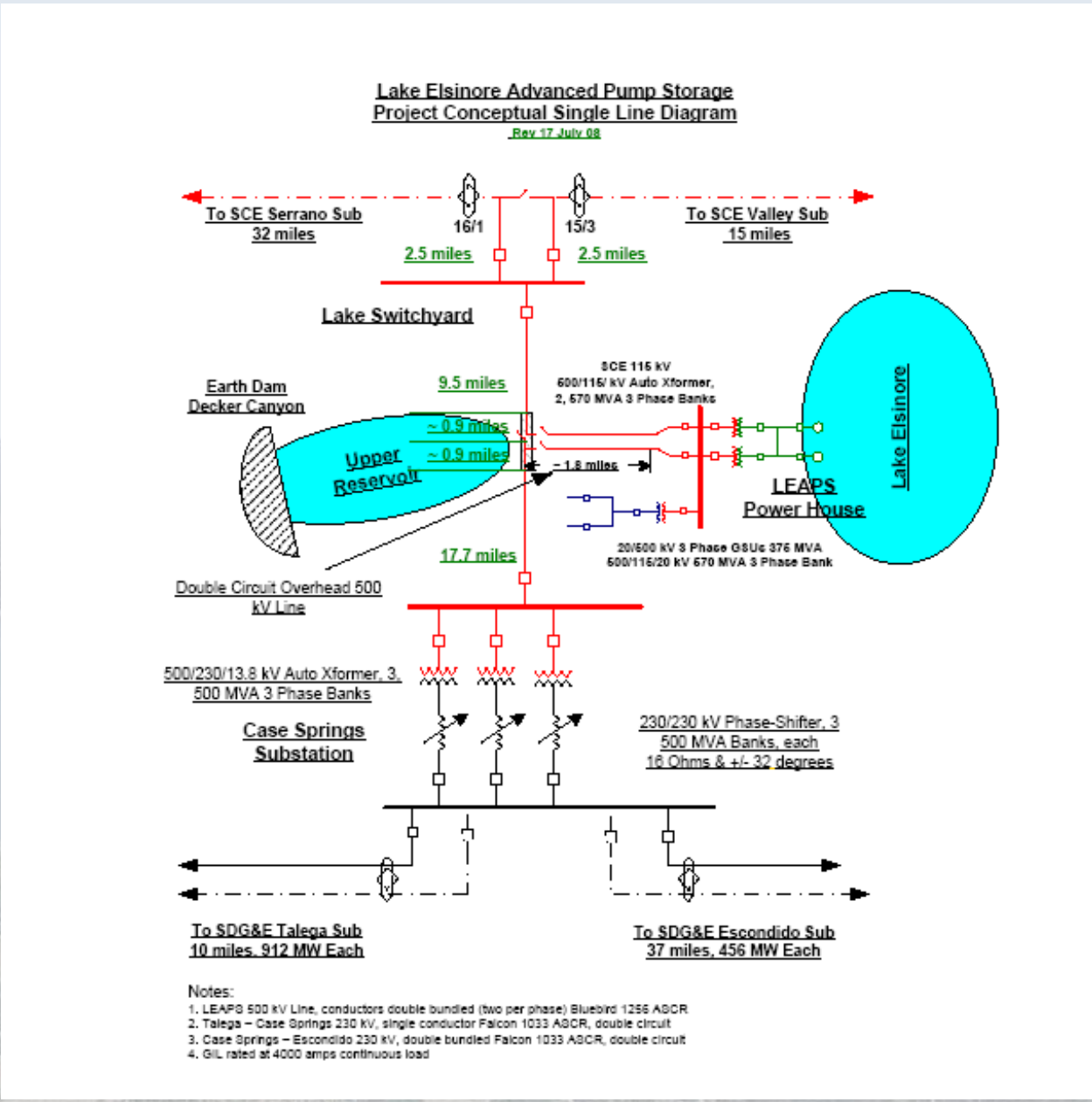
- Lake Elsinore Advanced Pump Storage (**LEAPS**) (FERC Project 14227) is a proposed 500 MW advanced pumped storage project located roughly 20 miles from the now-shuttered SONGS facility.
- The Project would connect to the main California grid less than 10 miles from SONGS across two fully entitled primary transmission lines.

Location



An aerial photograph of a large body of water, likely a reservoir or lake, surrounded by a mix of developed and undeveloped land. In the foreground, there are some buildings and parking lots. The background shows rolling hills under a clear sky. The text "One-Line Diagram" is overlaid in the upper center of the image in a large, blue, sans-serif font.

One-Line Diagram



Overview

- 500 MW generation/600 MW load advanced pumped storage facility.
- Located midway between Los Angeles and San Diego, Lake Elsinore has been deemed an optimal site for pumped storage.
- LEAPS will be one of the top five most efficient storage facilities in the world.
- Estimated total cost: US\$900 million.

Project History and Milestones

- Original License Application Submitted 2004 in Docket P-11858 with Muni co-applicant.
- Final EIS issued February 2007.
- Application dismissed by delegated order July 2011 due to co-applicant dispute.
- New Permit Application submitted without partner July 2011 and Preliminary Permit issued October 2012.
- Large Generator Interconnection Agreements approved by FERC 2014.
- 2 year permit extension granted September 2015.

Benefits of LEAPS

- Provides 500 MW of rapid responding storage and the full range of ancillaries from within the load pocket.
- The state is facing a severe reliability shortfall of up to 8,000 MW around 2020-2021 and LEAPS is the only facility that can mitigate the reliability problem in Southern California without contributing to GHG production.
- Will limit the need for new gas generation in the LA Basin due to:
 - Loss of SONGS.
 - Loss of coastal generation.
 - Increased use of renewable energy sources (sun and wind).
- The only proposed hydro project in California with signed interconnect agreements.

Potential Barriers to Deployment

- Long lead time required to receive FERC License: 2-10+ years.
 - Because so much work has already been completed, License for LEAPS expected in 1+ years.
- Difficulty and cost involved in CAISO interconnect process.
 - LEAPS has 2 signed interconnected agreements.
- Long construction schedule – significant civil engineering project.
- How to pay for bulk storage needs to be determined.

Potential Barriers - Revenue

- Market based revenues will not support construction.
- Discussion topics:
 - PUC Regulated Revenue Stream. Is bulk storage considered generation?
 - Order to procure through LTPP, RA or SB 350 proceeding?
 - Concession structure?
 - Contracts with local utilities.
 - Hybrid rate-base & PPA structure?
 - FERC regulated revenue as transmission asset. Is bulk storage a transmission asset?
 - CAISO does not support.
 - Loading Order: Add Advanced Storage to DR, EE in Loading Order.

Conclusion

- The CAISO is facing up to 14,000 MW of overgeneration capacity while trying to reliably manage the State's greener grid and only large pumped storage can dent the problem.
- Because LEAPS can store off-peak power, including wind, solar and geothermal energy, it will be vital to the state's effort to expand alternative energy infrastructure without additional fossil fuel burning generation and meet RPS standards.
- Securing a financeable revenue stream is key.

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