California Leaders Credit Cellphone Alert for Sudden Conservation

The jarring message warned millions of residents that blackouts could occur without immediate action.

CASE STUDY 1: CALIFORNIA’S ENERGY Grid Crisis
CASE STUDY 2: PJM & THE POLAR VORTEX

- PJM – Dec 24th: Polar Vortex
- PJM lost 46,000 MWs of generation
- Hydro asked to keep generating past midnight
- Moreover, PSH asked not to pump water to reduce load
- To my knowledge, little or none of 45 GW were hydro
STATE OF THE U.S. HYDROPOWER INDUSTRY IS STRONG

- Over 6% of all electricity generated
- 31% of U.S. renewable energy
- 94% of current U.S. electricity storage capacity
- 80 GW of hydropower capacity
- 22 GW of pumped storage hydropower capacity
HYDROPOWER IS POISED FOR GROWTH

US Pumped Storage Development Pipeline 2022

- 3 Pumped Storage Hydropower projects fully licensed for construction
- At the end of 2021, 130 new hydropower projects with a combined capacity of 1,500 MW were in the development pipeline; non-powered dam retrofits accounted for 96%

Stage of PSH Development

- Pending Preliminary Permit*
- Issued Preliminary Permit*
- Pending License**
- Issued License**
- Under Construction
WHY HYDROPOWER?

- NEED FOR FLEXIBILITY, FAST RAMPING, CAPACITY
- NEED FOR LONG DURATION ENERGY STORAGE
- INTERGRATING VARIABLE RENEWABLE RESOURCES
Even during drought, hydro is still there when we need it the most.

The overall western hydropower fleet sustains about four-fifths of the average power generation during severe droughts.
Environmental And Energy Industry Groups Commit To Working Together On (Some) Hydro Projects

The New York Times

Environmentalists and Dam Operators, at War for Years, Start Making Peace

Facing a climate crisis, environmental groups and industry agree to work together to bolster hydropower while reducing harm from dams.

Los Angeles Times

Can hydropower help solve the climate crisis? This $63-billion plan is banking on it
CLEAN ENERGY GRID AT RISK DUE TO POTENTIAL WAVE OF RETIREMENTS

- Licenses for 459 hydropower facilities, representing 17 GWs, are set to expire by 2035.
- Relicensing takes, on average, 7.6 years to complete.
- Projects of greater than 10 MW reporting licensing costs exceeding $1M, and projects more than 100 MW reporting cost around $10M or more.
- Survey: 36.4% of hydropower industry asset owners said that they were "actively considering" decommissioning a facility.
CURRENT CHALLENGES

Lack of Support for Existing Hydropower
Antiquated Licensing Process
Market Design Failures
QUESTIONS?