PG&E Hydro Generation

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PG&E ranked Hydro System Safety as one of PG&E's top five Electric Operations enterprise risks with a risk score of 349.

PG&E forecast 2017 expenses of $33.1 million for Dams and Waterways projects (MWC AX).

PG&E forecast capital costs of $69.8 million for 2017-2019 for Hydro Safety and Regulatory MWC 2L).

Workpaper Table 2-2
Pacific Gas and Electric Company
Electric Operations Risk Register Details

Line No.	EO Designation	Risk Name	Risk Description	Scoring Scenario	Exhibit No.	Chapter No.	Score
1	ENT1	Wildfire	PG&E assets may initiate a wildland fire that is not easily contained and that endangers the public, private property, sensitive lands, and/or leads to long-duration service outages.	A utility-related fire near a national park resulting in fire of greater than 10,000 acres, property damage, multiple loss of life and significant fines, claims, and law suits as well as extended regulations.	4	2, 7	626
2	EP7	Changing GHG Regulations	Incompatible and/or stringent state and federal GHG regulations may result in increase in costs to customers.	(1) California sets aggressive 2030 GHG target and significantly reduces allowance allocation to the electric and/ or natural gas sectors, resulting in significantly higher customer costs; and (2) EPA under Section 111(d) of the Clean Air Act establishes stringent state emission targets regarding CO2 from existing fossil power plants, thereby forcing plant retirements and impacting reliability in the WECC.	NA	NA	417
3	EDOH1	Distribution Overhead Conductor Primary	Failure of or contact with, energized electric distribution primary conductor results in public or employee safety issues, significant environmental damage, prolonged outages, or significant property damage.	A fatality due to unintentional contact with in place conductor such as by a third-party tree worker, partnered with an investigation that finds a compliance violation such as lack of signage, or insufficient clearance. Energized wire down events are also considered as part of this.	4	9	408
4	ENT3	Failure of Substation (Catastrophic)	Complete loss of substation may result in significant wide-scale/prolonged outages, public or employee safety issues, significant environmental damage, or significant property damage	Failure of a collocated gas transmission pipeline that damages major components of a transmission substation resulting in employee injury and loss of service to at least 10,000 customers for multiple days	4	2	401
5	ENT4	Hydro System Safety - Dams	The failure of a PG&E dam that may result in significant damage to third parties, the environment and PG&E.	A dam develops a major breach causing significant uncontrolled water spillage resulting in multiple lives lost, and major facility, road, and environmental damage with outages lasting more than six months. Typical dam locations: Lake Almanor, Butt Valley, Crane Valley, Halsey, Rock Creek, Salt Springs.	5	2 ,4	349
6	CSEC3	Insider Threat	An employee or contractor uses their PG&E access and company knowledge to gain unauthorized access to steal critical PG&E information. Such unauthorized access or theft may be used to inflict damage, make facilities or systems inoperable, or provide proprietary or valuable company information to other unauthorized parties.	PG&E employee uses company access to enter network or system an intentionally uses their access to cause catastrophic harm to a gas or electric facility.	NA	NA	326
7	EP6	Above-Market Stranded Costs	Regulatory or political resistance to passing along costs to customers associated with previous investments and contractual obligations leads to financial stress on shareholders.	The market value of certain assets in the bundled electric portfolio sink significantly below book value. This leads to current CPUC disavowing past PG&E procurement decisions approved by past CPUC.	NA	NA	311

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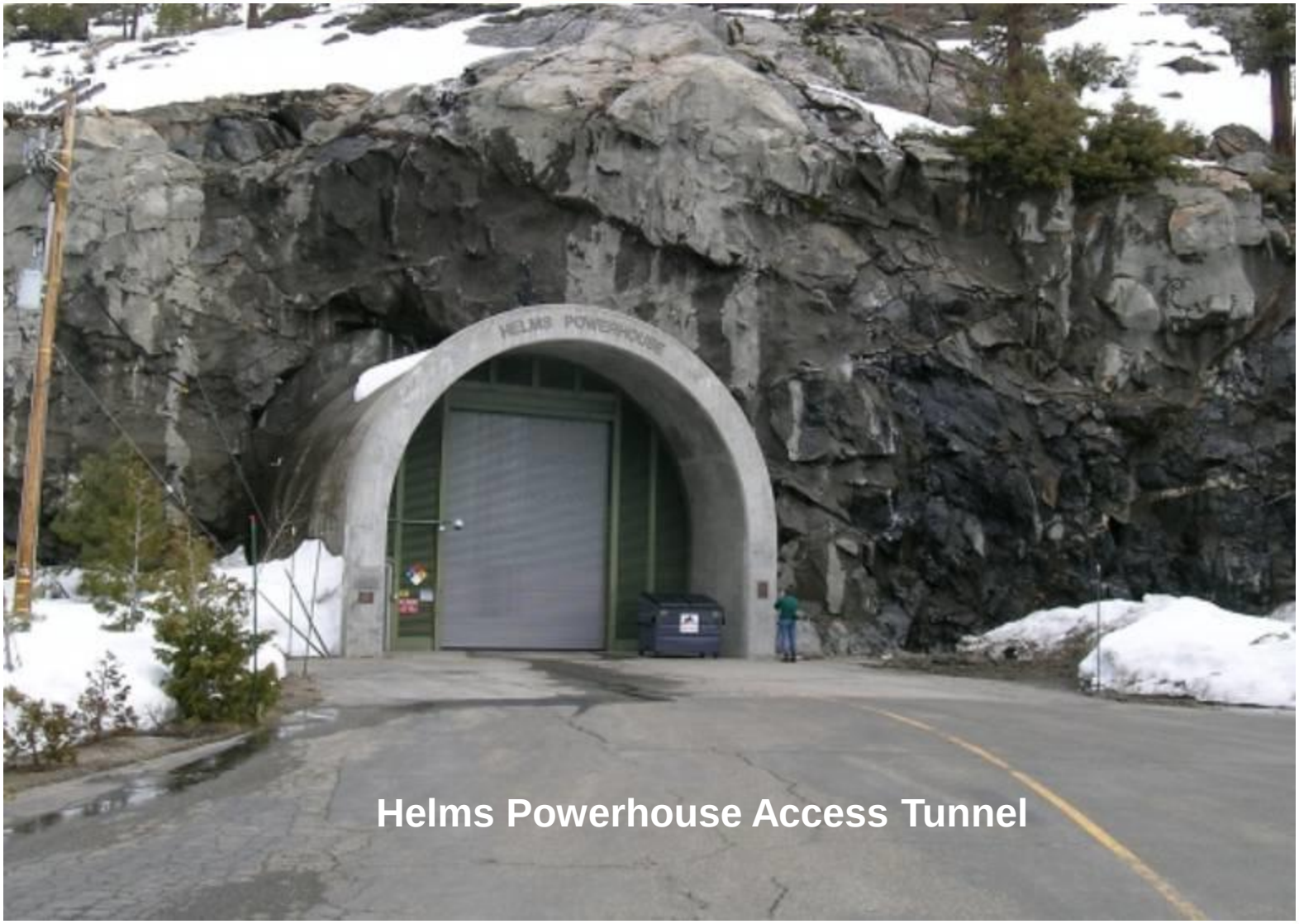
Two GRC Project Examples:

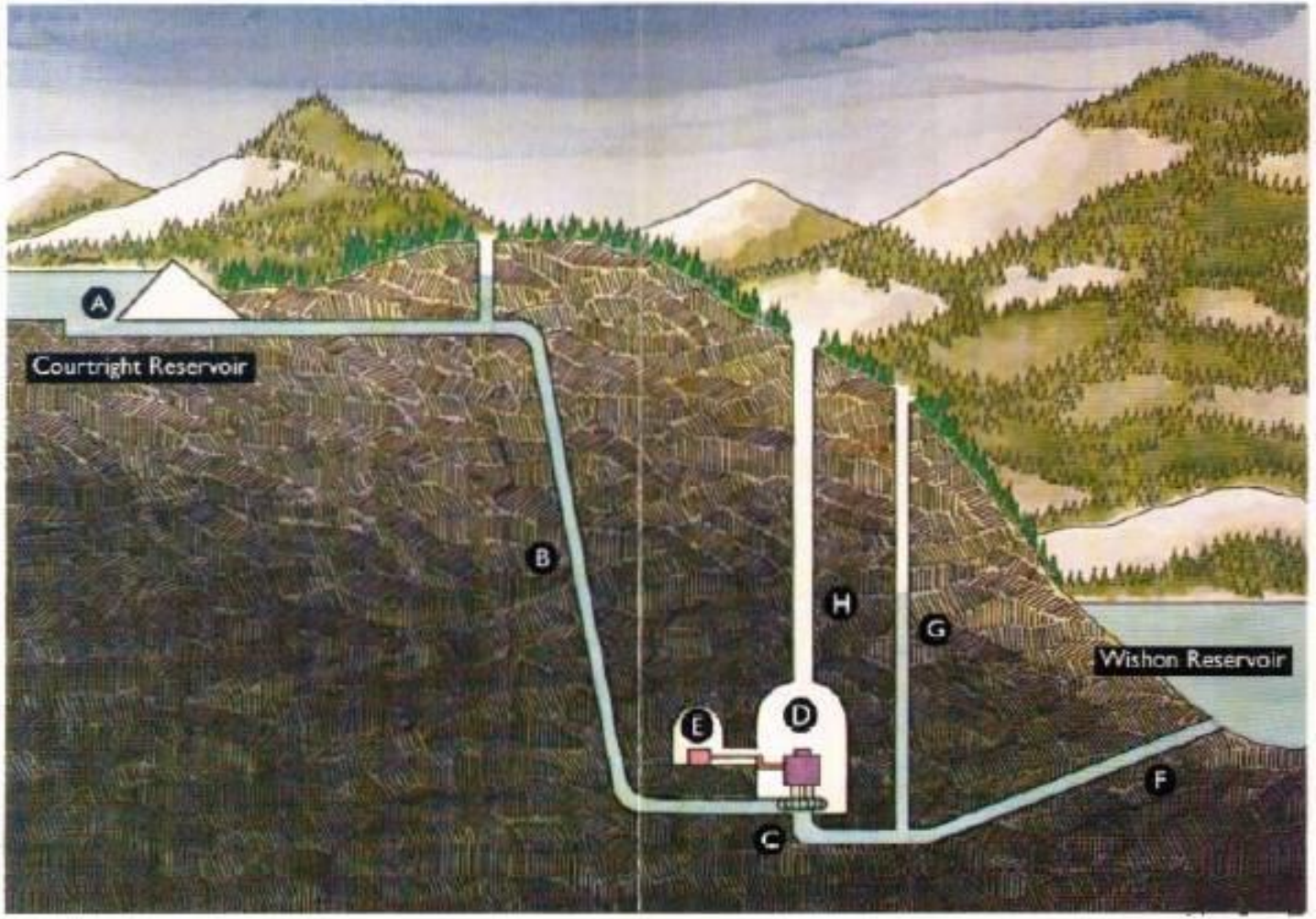
1. **Helms Powerhouse Access Tunnel**

2. **Lake Fordyce Dam**



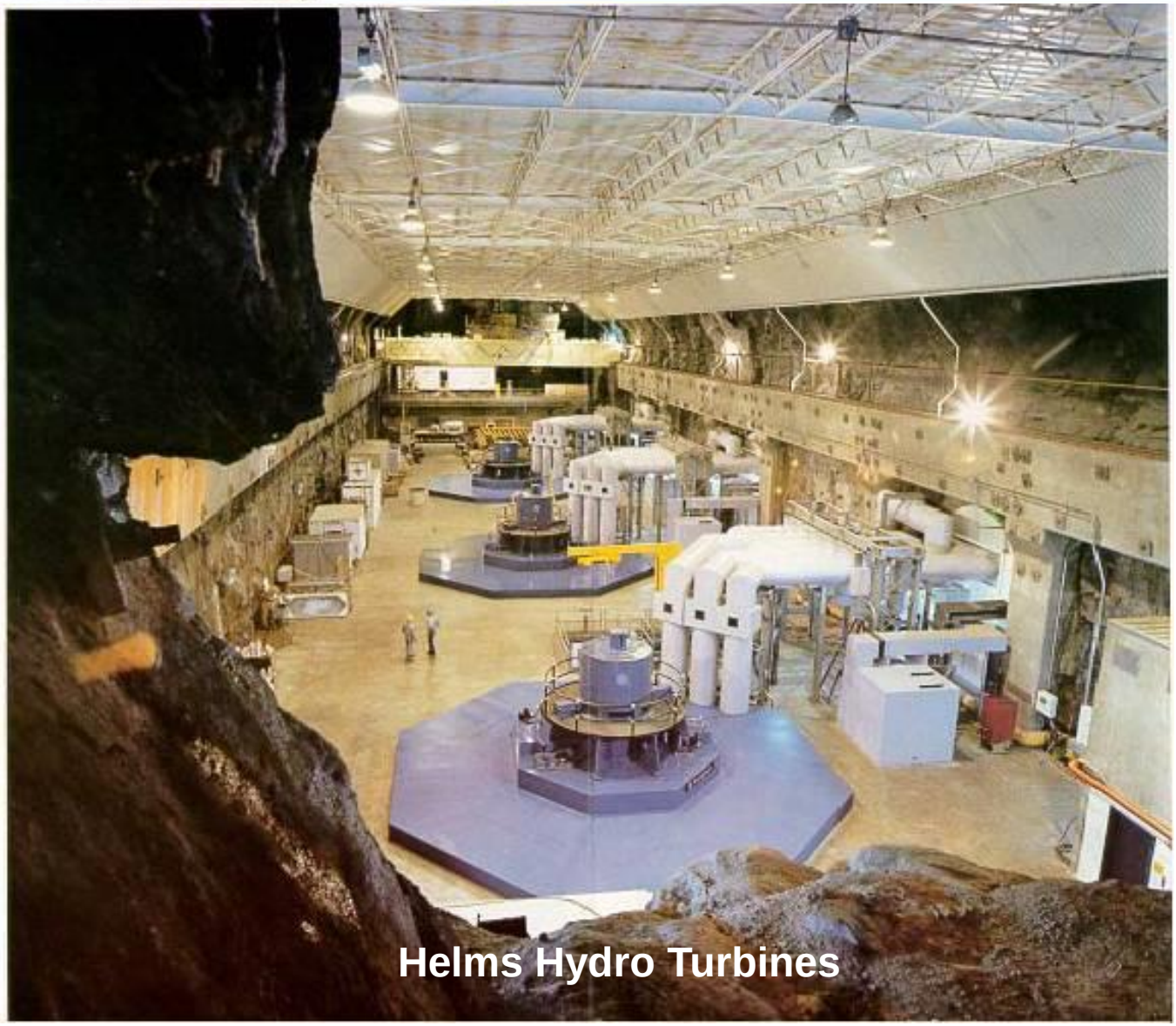
Helms Powerhouse Access Tunnel

PG&E Hydro Generation

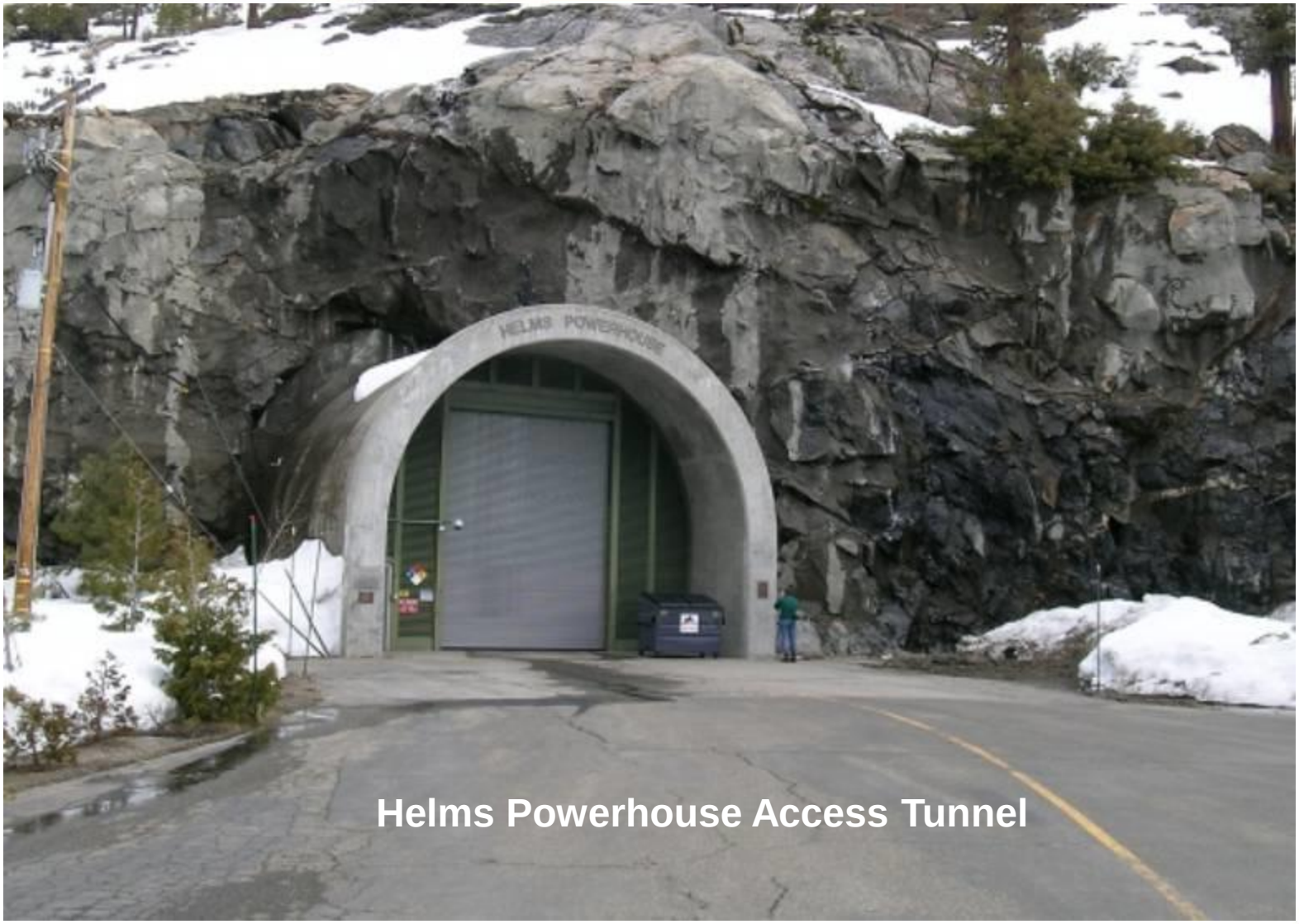


A-Courtright, B-Supply Tunnel, C-Turbine, D-Generator, E-Transformer, F-Wishon, G-Surge Chamber, H-Elevator

PG&E Hydro Generation



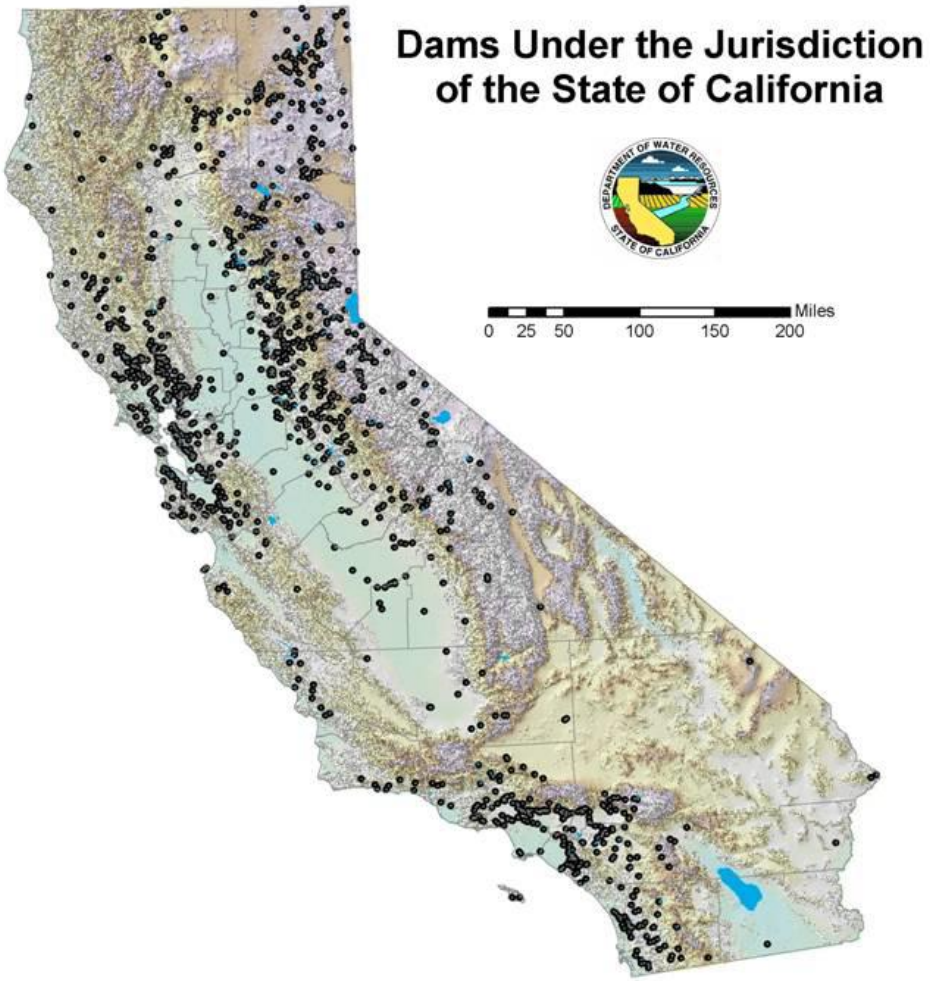
PG&E Hydro Generation



Helms Powerhouse Access Tunnel

PG&E Hydro Generation

PG&E Hydro Generation



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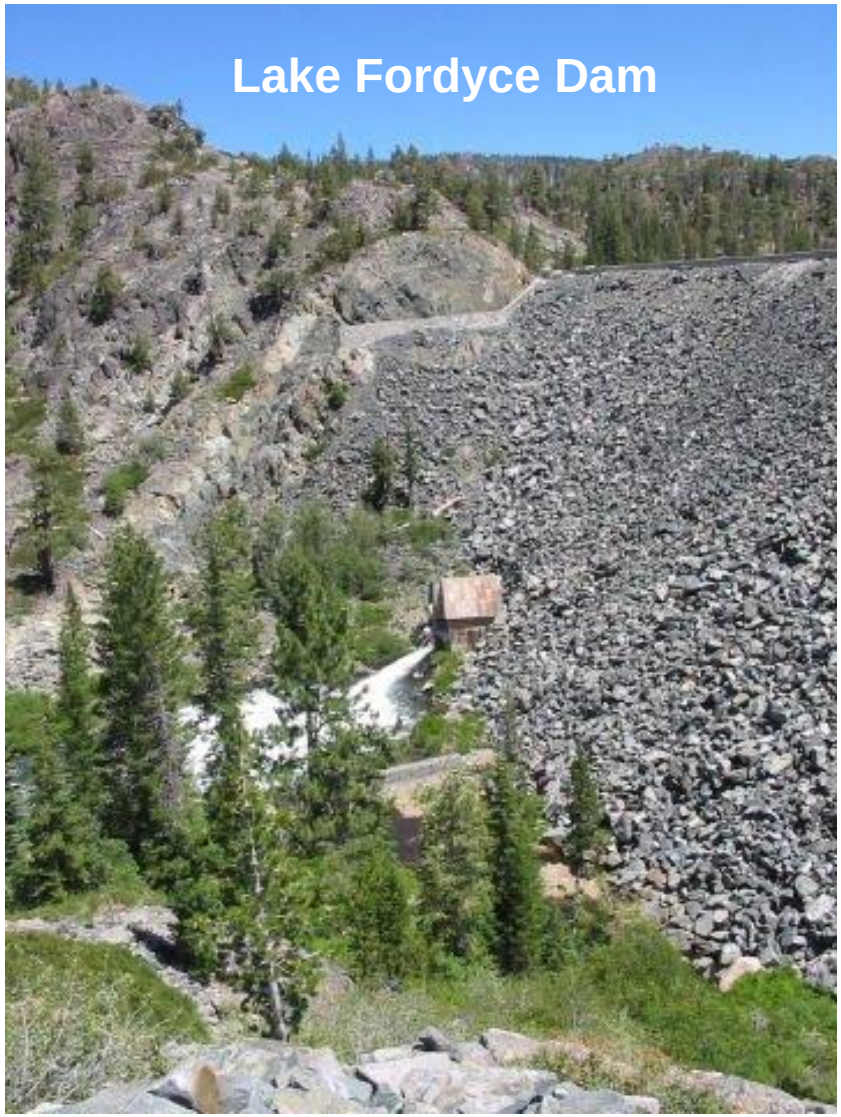

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