WASHINGTON STATE UNIVERSITY
Energy Program

Pumped Storage Hydropower Siting Information Study

PSH Basics and Tribal Cultural Resources

WSU Energy Program

September 11, 2024

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Welcome and a few reminders…

- This meeting is being recorded and will be available on the study website—along with the slides and a meeting summary
- Please remain muted unless you are speaking
- As needed, please rename yourself with your affiliation or workplace in Zoom
- Attendees will be able to chat everyone in the meeting
  - If you are experiencing technical issues, please chat directly to "hosts and panelists" (or email to hsherrow@rossstrategic.com).
- To ask questions or join discussion, please use the "raise your hand" button to indicate you would like to speak; chat can also be used for Q&A
  - For some sessions, we will use PollEverywhere for questions and insights
- Please be respectful of this process. Allow everyone the chance to speak and listen actively to understand others' views

WSU Energy Program

- Self-supporting department within Washington State University based in Olympia
- Other programs: green transportation education and outreach, community solar, Washington state energy codes (residential) support, community energy efficiency, emerging technologies, and more

WSU Energy Program website: https://www.energy.wsu.edu

WSU PSH Siting Study Team

- Karen Janowitz

WASHINGTON STATE UNIVERSITY
Energy Program

- Terri Parr

WASHINGTON STATE UNIVERSITY

- Tom Beierle
- Susan Hayman
- Hogan Sherrow

ROSS STRATEGIC

- Jeff Boyce

Meridian Environmental, Inc.

Today's Meeting Objectives

- Understand pumped storage hydropower (PSH) basics and differences between closed-loop and open-loop PSH
- Listen to participants' general issues and questions about PSH requirements and potential benefits and environmental impacts (to inform future meetings)
- Hear about and understand Tribal cultural resources and sovereignty
- Provide overview of topics for upcoming PSH study meetings

Agenda Overview

10:00 – 10:20 AM	**Welcome and Impromptu Networking**
10:20 – 10:30 AM	**Study Overview and Update**
10:30 – 11:35 AM	**PSH Basics, closed loop vs. open-loop PSH**
11:35 – 11:45 AM	***Break***
11:45 AM – 12:25 PM	**Tribal Cultural Resources**
12:25 – 12:30 PM	**Next Steps, Wrap up, and Adjourn**

Impromptu Networking

- This is chance to meet some people who are here with you
- In a few moments Zoom will prompt you to join a breakout group with about three other randomly-chosen participants. Please share three things:
    1. Your name
    2. Your affiliation (as appropriate)
    3. What's interesting to you about PSH?
- The rooms will close automatically after four minutes, so you'll have to be efficient!
- We're planning to do two rounds total so you'll meet about six different people

Study Overview and Update

Karen Janowitz, WSU Energy Program

PSH Siting Study Goal

Identify and understand issues and interests of various stakeholders and federally recognized Indian tribes related to **areas where pumped storage might be sited**.

No specific PSH projects are being promoted or sited in this study.

Section 306 of House Bill 1216 (2023) on Clean Energy Project Siting:
https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/House/1216-S2.SL.pdf?q=20240327114612

Why a PSH Siting Study?

- **Clean Energy Transformation Act (CETA) (SB 5116, 2019)**
  - Washington state's electricity supply:
    - After 2025 – no coal in utility resource mix
    - By 2030 – greenhouse gas neutral electricity supply
    - By 2045 – 100% renewable or non-emitting sources
- **PSH is proven and can provide grid reliability when using renewables**
- **Understand issues concerning PSH siting to work towards avoiding impacts and disputes**

Pumped Storage Hydro Siting Study Process

- PSH research
- Outreach, Engagement, Meetings, Webinars
  - Provide information on PSH
  - **Provide opportunities to hear from you**
- Mapping
  - Baseline map of theoretical PSH locations from National Renewable Energy Laboratory (NREL)
  - Revised map based on input (tentative)
- Final report

Future Statewide Online Public Meetings

All meetings 10:00 AM to 12:30 PM Pacific Time

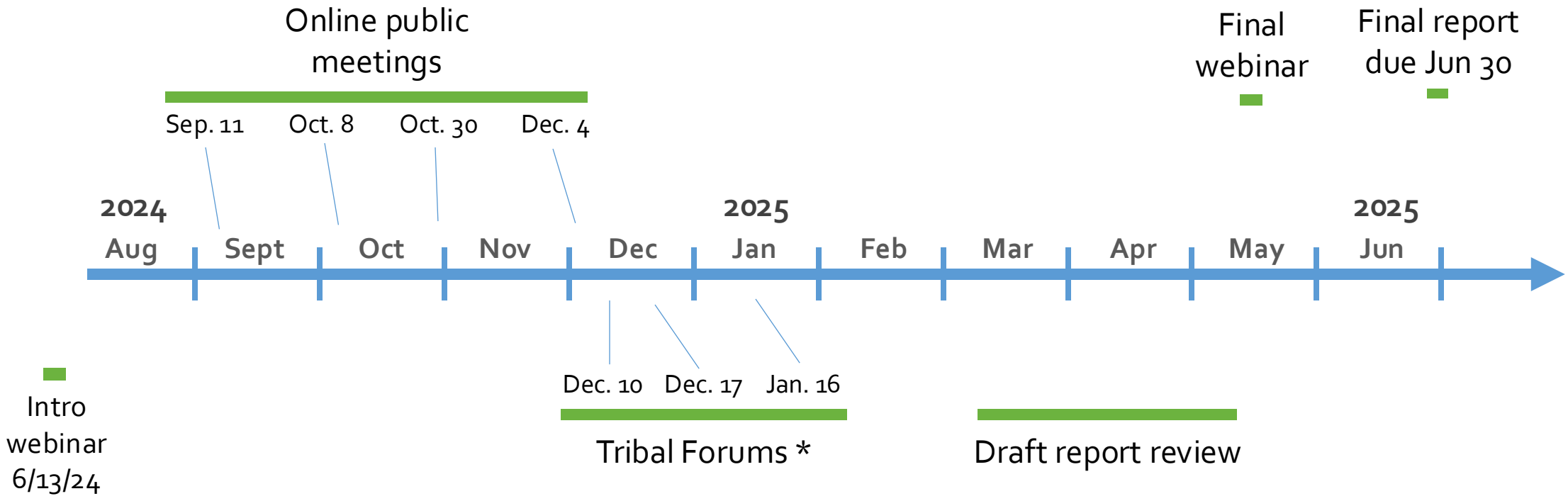
- October 8
  - Aquatic ecology
  - Water quality
  - Water quantity
- October 30
  - Terrestrial ecology
  - Geology and soils
  - Air quality, greenhouse gas emissions
  - Land use and aesthetics
- December 4
  - Permitting and licensing
  - Other pumped storage and mechanical/gravity-based technologies

Specific topics and times subject to change

Tribal Engagement

- Two to three Forums for Tribal leaders, members, staff, and Tribal associations
  - Tentative dates:
    - December 10, 2024
    - December 17, 2024
    - January 16, 2025
- Attendance and discussion at Tribal conventions & conferences
- Further outreach and meetings

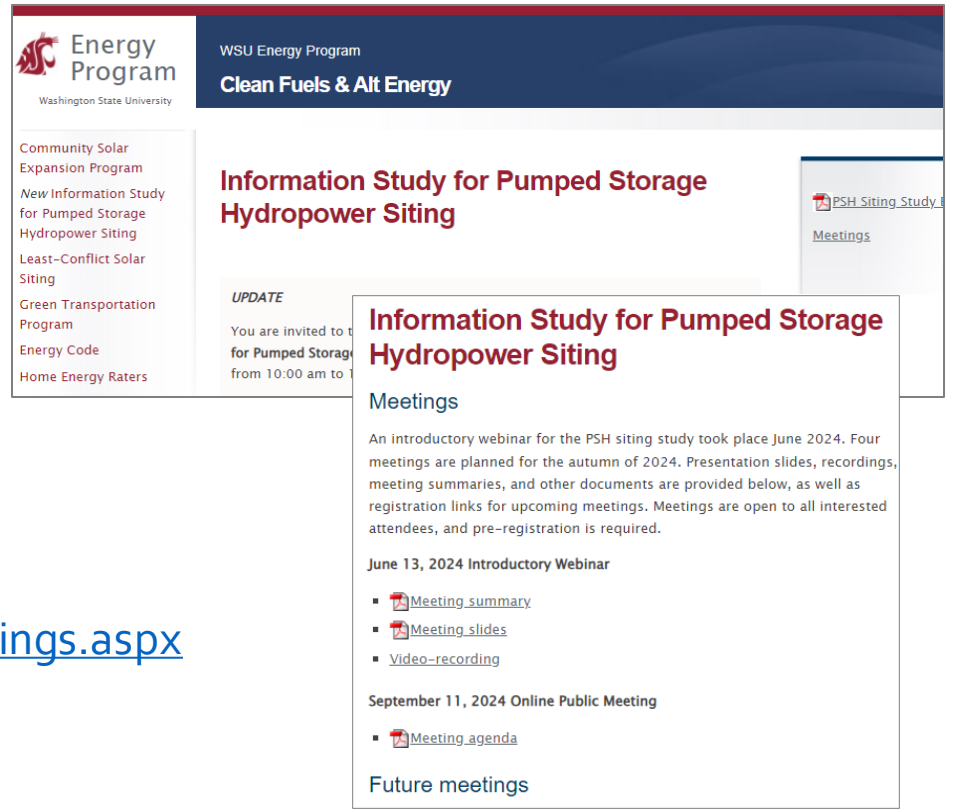
Timeline *(subject to change)*



**** Dates yet to be finalized***

WSU PSH Website and Email List

WSU Energy Program PSH Siting Study Webpages:
https://www.energy.wsu.edu/CleanFuelsAltEnergy/PSHSiting.aspx



PSH Siting Study Meeting Webpage:

- Meeting summary
- Meeting video-recording
- Meeting slides

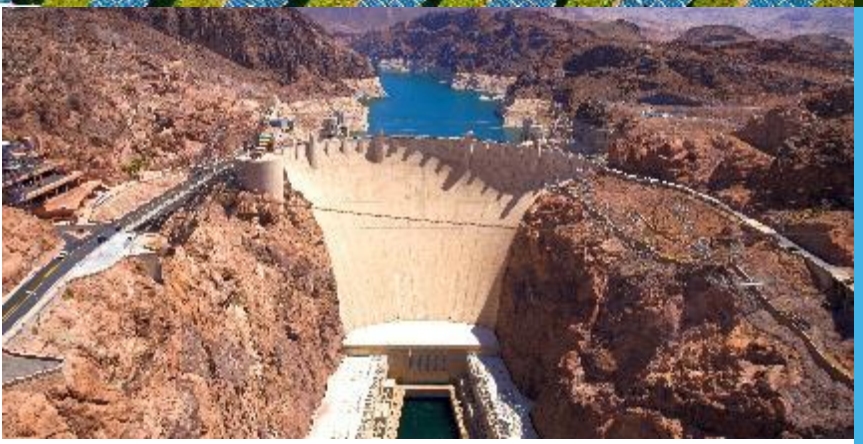
https://www.energy.wsu.edu/CleanFuelsAltEnergy/PSHSiting/Meetings.aspx

Sign up for the email distribution list:
https://www.energy.wsu.edu/CleanFuelsAltEnergy/PSHSiting/PHSSitingEmailRegistration.aspx

Questions?







Bo Saulsbury

September 11, 2024

Pumped Storage Hydropower Basics

Washington State University
Pumped Storage Hydropower Siting Study
Public Meeting

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WATER POWER TECHNOLOGIES OFFICE

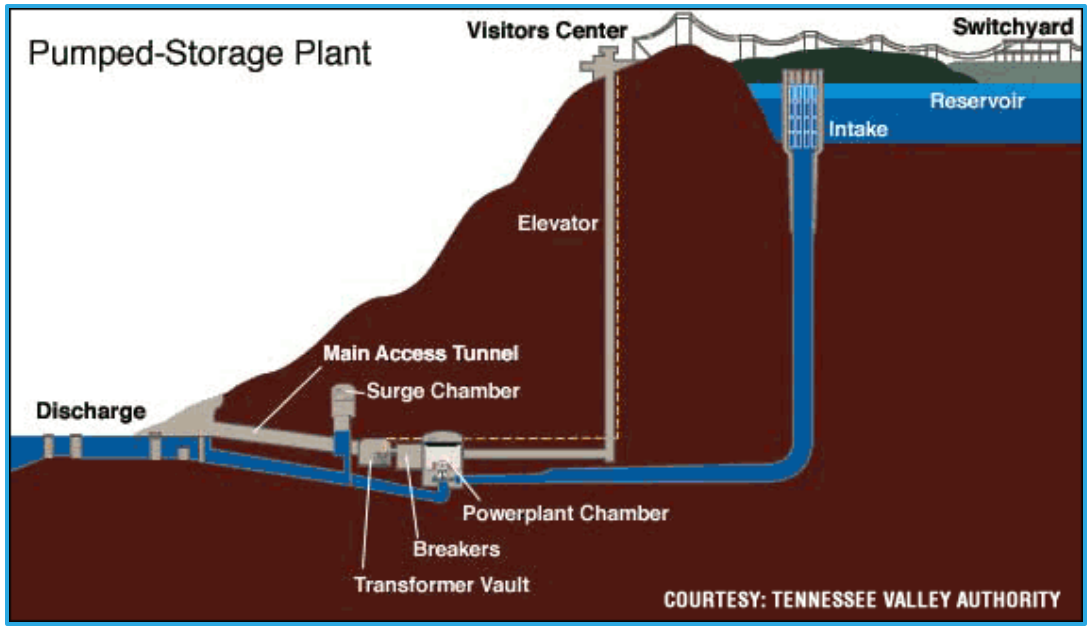
Battelle Energy Alliance manages INL for the
U.S. Department of Energy's Office of Nuclear Energy

Idaho National Laboratory

INL/MIS-24-80058

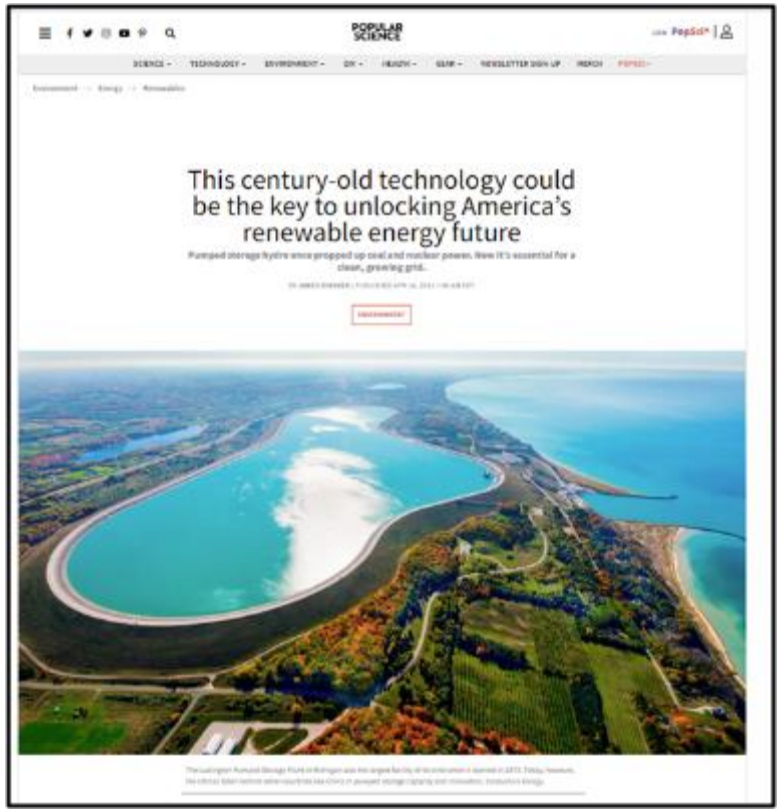
Pumped Storage Hydropower: A Water Battery

- **Pumped storage hydropower (PSH) is a type of energy storage (think "water battery") that pumps and releases water between two reservoirs at different elevations to store water and generate electricity.**
- **When demand (and cost) for electricity is low, PSH uses electricity from the grid to pump water from a lower reservoir to an upper reservoir for storage ("charging the battery").**
- **When demand (and cost) for electricity is high, PSH releases water from an upper reservoir through a powerhouse to generate electricity for the grid ("draining the battery"), and then to a lower reservoir to repeat the cycle.**



PSH Benefits

- **Traditionally, PSH pumped water at night and released it during the day to generate electricity, with modest daily or seasonal variations. Most PSH projects in the United States were developed in the 1970s and 1980s to store energy from nuclear power plants.**
- **Today, PSH operations are changing to enable a variety of functions, including the integration of variable renewable generating resources like wind and solar.**
- **PSH provides over 90% of utility-scale energy storage in the United States, but also provides other power and nonpower benefits:**
  - **large-scale electrical system reserve capacity**
  - **grid reliability support**
  - **electricity supply-demand balancing**
  - **operational flexibility, including fast ramping capability, minimum run times, and multiple quick starts**
  - **transmission services including congestion relief, thermal management, and voltage support.**



PSH Storage Capacity and Development Timeline

Energy Storage Capacity

- **Depends on the size of the reservoirs. A facility with two reservoirs the size of two Olympic swimming pools and a 1,640-foot elevation difference could provide capacity of 3 megawatts (MW) and store up to 3.5 megawatt hours (MWh) of electricity (International Hydropower Association 2024).**

Development Timeline

- **Site-specific and varies based on project's infrastructure, design, and scale, but typical development time in the United States for a conventional open-loop, midsized (~500 MW) PSH project is 6 to 10 years and can be closer to 13 years (DOE 2020).**

The 3003-MW Bath County Project in Virginia is the largest PSH project (generating capacity) in the United States and one of the largest in the world. It powers about 750,000 homes.

PSH vs. Other Storage Options

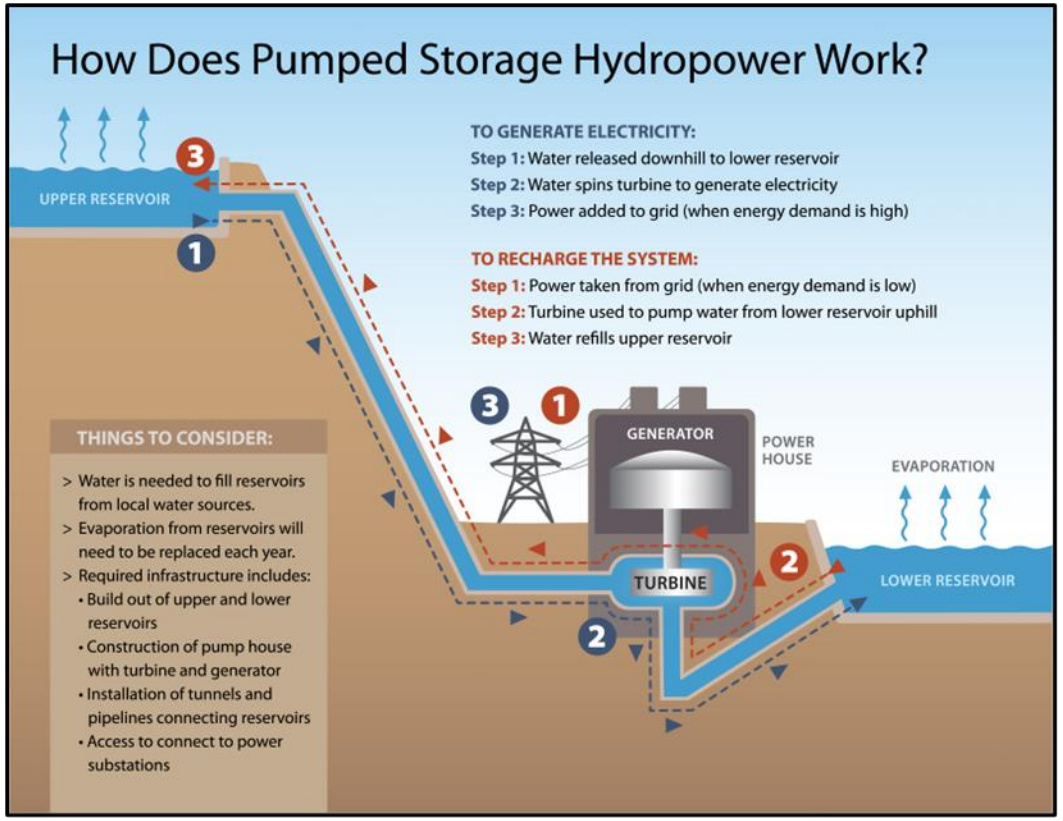
- **PSH represents ~95% of total 160 gigawatt (GW) installed energy storage worldwide and offers the best option for large-scale, long duration energy storage. PSH systems can store larger amounts of energy for longer periods (days) than existing batteries (hours).**
- **Other storage technologies have lower cost to install, but PSH can provide greater value long-term due to larger capacity and longer service life. PSH power-to-energy ratio ($86/kWh) compares favorably to both recent Lithium-ion battery cost estimates ($300/kWh) and projected 2030 costs ($165/kWh).**
- **Most PSH plants in the United States operate between 4 and 20 hours/day depending on demand. PSH equipment is designed for a 50-year life with up to 10 starts/stops per day. Modern battery systems are typically designed for a 10-year life with about 1 start/stop per day.**
- **Continued use of a battery system degrades its ability to charge and discharge over time; PSH shows no degradation (performance) with continued usage over a five-decade lifespan.**

Source: 2021 Pumped Storage Report. **National Hydropower Association.**
https://www.hydro.org/wp-content/uploads/2021/09/2021-Pumped-Storage-Report-NHA.pdf

- **A complete PSH cycle has a round-trip efficiency of about 80%, so about 20% of the electricity is lost in a complete pumping/generation cycle (Blakers 2021).**

PSH Standard Components

- **Upper and lower reservoirs**—provide water storage and elevation differential (“head”) for hydropower generation; connected via water conveyances that transport water to a turbine.
- **Water conveyances**—structures that convey water from upper reservoir to lower reservoir; either underground tunnels or above ground penstocks.
- **Powerhouse**—structure used to house powertrain and ancillary equipment needed to support hydropower operations
- **Transmission interconnection**—electrical equipment and infrastructure used to deliver the project’s electrical output to the grid.



***Source*: Joan Carstensen, Grand Canyon Trust**
https://www.grandcanyontrust.org/pumped-storage-hydropower-101

***Source*: Pumped Storage Hydropower FAST Commissioning Technical Analysis Summary (ORNL/SPR-2019/1299).**
https://www.energy.gov/sites/prod/files/2020/07/f76/PSH_FAST_Commissioning_Technical_Report_ORNL.pdf

PSH Resource Requirements

Land

- Land area needed for upper and lower reservoirs per 100 MWh of energy storage is ~3 acres for a closed-loop PSH project with an elevation difference (head) of 1,312 feet and average water depth of 66 feet.

- Does not include land areas for all the other above ground facilities, especially access roads and transmission lines.

Water

- Water needed per 100 MWh of energy storage is ~26.4 million gallons for a closed-loop PSH project with an elevation difference (head) of 1,312 feet.

- After initial fill, water in closed-loop reservoirs must be replenished to replace evaporative and seepage losses. The water volume needed for replenishment depends on site-specific factors such as reservoir size, evaporation rates, and seepage rates.

Source: Blakers, Andrew, et al. 2021. "A Review of Pumped Hydro Energy Storage." In *Progress in Energy*, 3 022003. https://iopscience.iop.org/article/10.1088/2516-1083/abeb5b/pdf

Discussion Time

What questions or issues do you have about PSH requirements?

Online polling

- We will be using PollEverywhere today to elicit questions and insights from participants
- When prompted, please use a phone or browser screen to access the polls using the QR code or website address: PollEv.com/lavishnature521
- You will be initially asked to share your name, but this can be skipped

- Now, lets try it out…

Join by Web

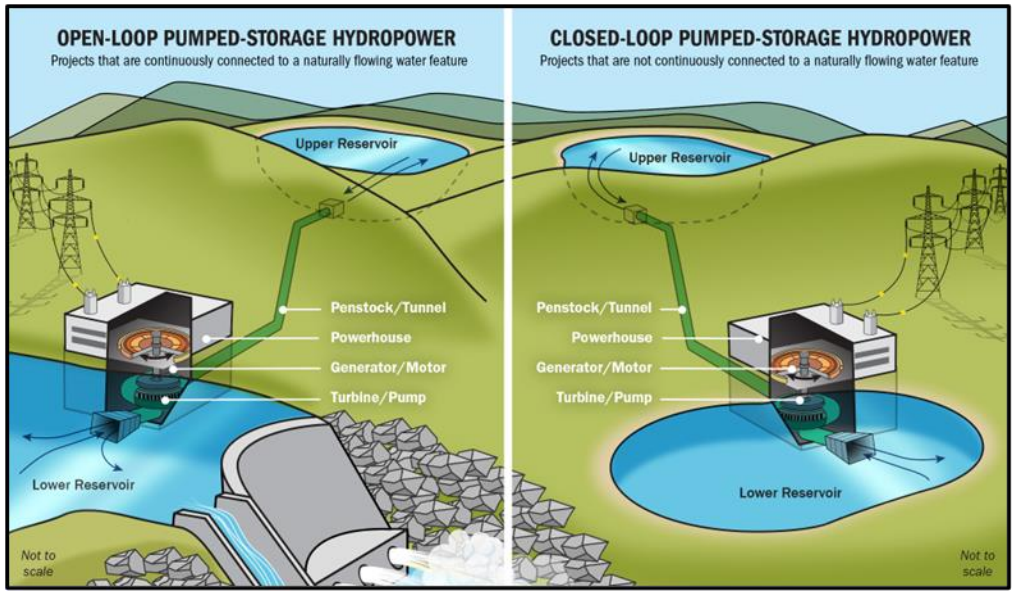
PollEv.com /lavishnature521

Join by QR Code

Open-Loop vs. Closed-Loop PSH

PSH is generally characterized as either:

- **Open-loop: continuously connected to a naturally flowing water feature; or**
- **Closed-loop: <u>not</u> continuously connected to a naturally flowing water feature.**



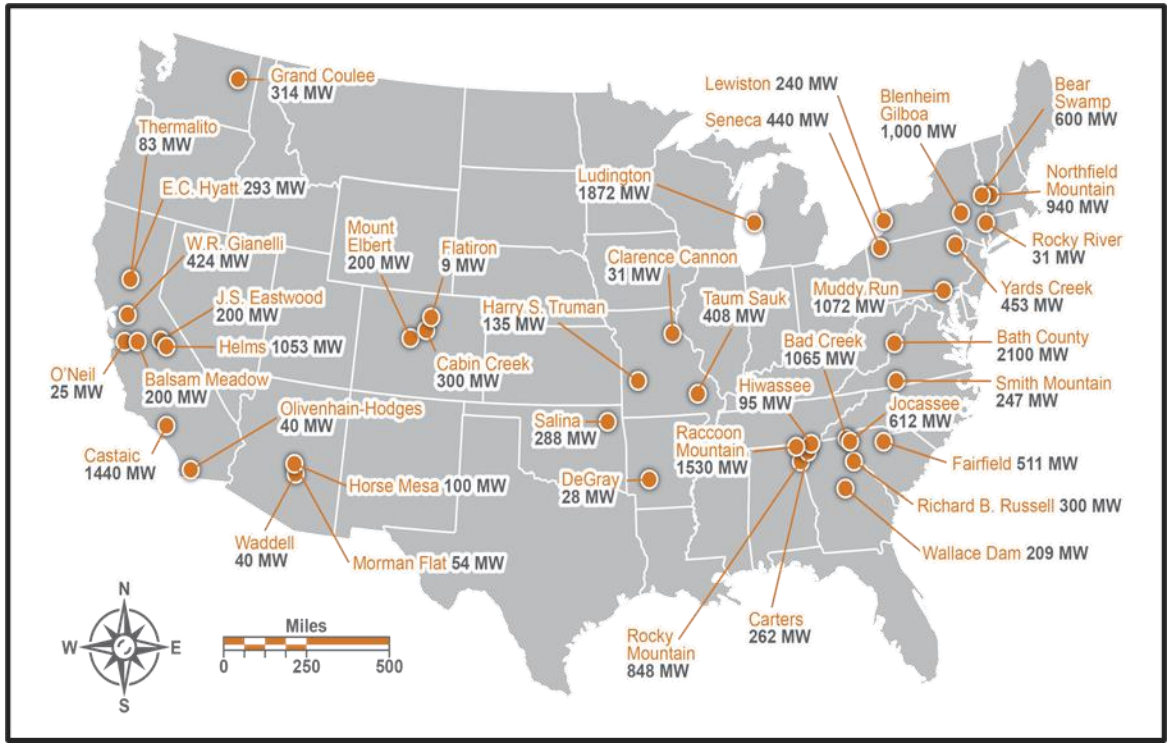
A word about this figure—where does the "closed-loop" water come from?

DOE 2019

- ***Continuously* is key: some PSH projects are closed-loop even though they withdraw water from a natural water feature *initially* to fill reservoirs and *periodically* to replace evaporative/seepage losses.**
- **In contrast, open-loop projects typically dam a natural water feature to create a lower reservoir and have a *continuous* connection based on the pumping/generating cycle.**

Existing PSH in the USA

- **All 43 PSH projects (21.6 GW capacity) in the United States are open-loop.**
- **Almost all were constructed more than 30-40 years ago.**
- **The environmental effects of closed-loop are not documented in the U.S.**



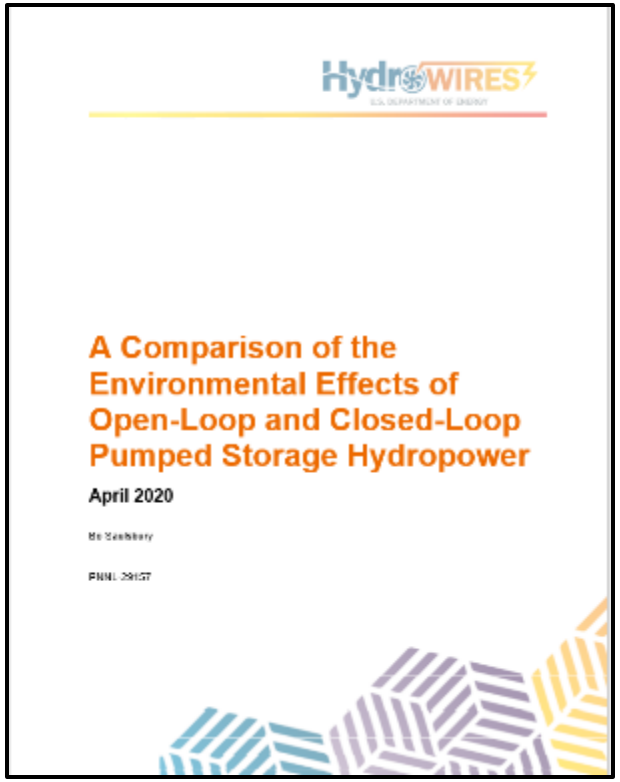
Existing PSH projects in the United States
(*Source*: Modified from MWH 2009)

The Bath County Project in Virginia is now 3003 MW, the largest PSH project (generating capacity) in the United States and one of the largest in the world.

The 40-MW Olivenhain-Hodges Project in California is sometimes considered closed-loop, but its lower reservoir is continuously connected to the San Dieguito River.

Open- and Closed-Loop Comparison Report

- With increased interest in closed-loop PSH, it is important that all stakeholders understand the environmental effects of closed-loop compared to open-loop.
- Conventional wisdom says “closed-loop better than open-loop” on environmental factors.
- To address this knowledge gap, we:
  - compare the potential environmental effects of open-loop with those of closed-loop; and
  - describe how these effects are being avoided, minimized, or mitigated at existing projects in other countries and proposed projects in the U.S.



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*We’re currently doing a follow-on WPTO report with PNNL focused solely on closed-loop PSH impacts and mitigation.

Methodology

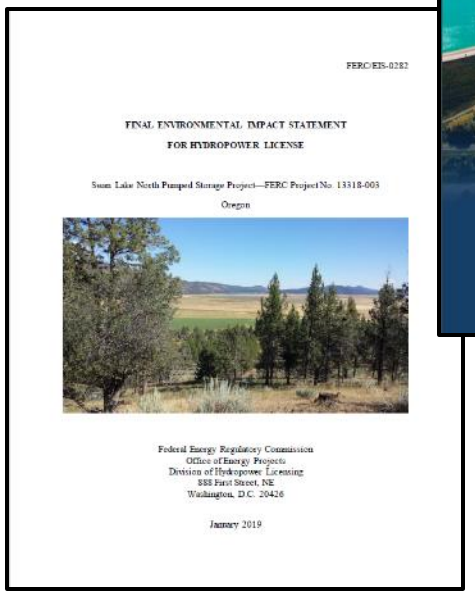
Comparison of environmental effects based on two reviews:

- **Literature review of journal articles, technical reports, and presentations from the U.S. and from countries where closed-loop PSH has been constructed.**

- **Review of FERC* licensing record [e.g., National Environmental Policy Act (NEPA) documents and license orders] for:**
  - **environmental effects anticipated and mitigation measures proposed for six <u>closed-loop</u> projects licensed or permitted.**
  - **environmental effects and mitigation measures for four <u>open-loop</u> projects proposed or currently operating.**


Journal of Hydrology

Hydrochemical changes induced by underground pumped storage hydropower and their associated impacts


FERC/EIS-0282

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE

Swan Lake North Pumped Storage Project—FERC Project No. 13318-003
Oregon

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
888 First Street, NE
Washington, D.C. 20426

January 2019

*The Federal Energy Regulatory Commission (FERC) is the federal agency responsible for licensing *non-federal* hydropower projects. Federal hydropower projects include those owned and operated by Reclamation, USACE, and TVA.

Resources Affected

Focus on impacts of both <u>construction</u> and <u>operations</u> on the environmental resources most often discussed in the literature and FERC documents.

<u>Aquatic Resources</u>:

- **Surface water quality and quantity.** Impacts primarily related to 1) initial withdrawal of surface water for reservoir fill and 2) movement of water between and within project water bodies.
- **Groundwater quality and quantity.** Projects using groundwater for initial reservoir fill and to replace evaporative and seepage losses (typically closed-loop) have the potential to impact both groundwater quality and quantity.
- **Aquatic ecology.** Impacts on fish and other aquatic ecology primarily related to instream construction of dams (for open-loop projects), initial withdrawal of surface water for reservoir fill, and movement of water between and within project water bodies, especially naturally flowing lakes or rivers.

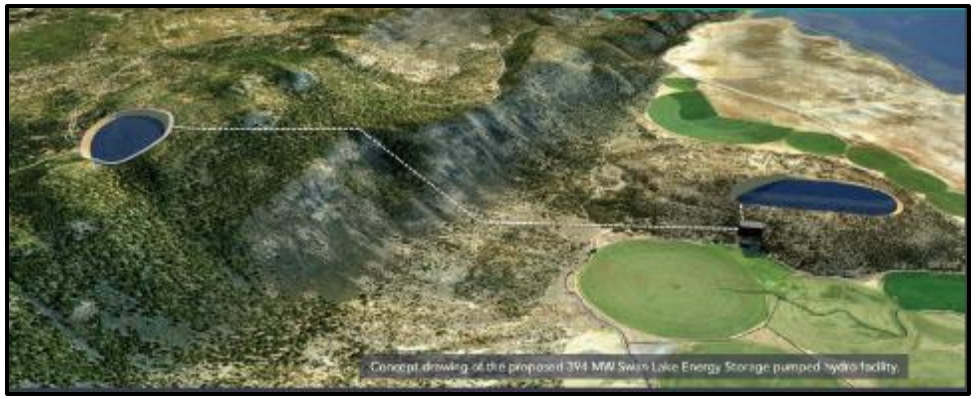
Proposed Eagle Mountain PSH Project, California

Resources Affected

Terrestrial Resources

- **Geology and soils.** Construction impacts as project reservoirs and related facilities require large-scale excavation and tunneling. Operations impacts from reservoir shoreline erosion.
- **Terrestrial ecology.** Construction impacts as project reservoirs and related facilities require clearing and/or inundating large land areas that provide wildlife habitat.
- **Land use, recreation, visual resources, and cultural resources.** Construction requires clearing and/or inundation of large land areas, especially for project reservoirs. Committing large land areas to PSH development can impact existing and planned land uses, recreation, visual resources, or cultural resources at the project site and in the vicinity.

Comparison often focuses on impacts to aquatic resources because they are typically the resources for which differences between open-loop and closed-loop PSH systems are most apparent.



Proposed Swan Lake North PSH Project, Oregon

Some Caveats

- **Report is a literature/records review. Not field work.**
- **Comparison of effects:**
  - **based on both spatial (location) and temporal (duration) factors and reflects both the likelihood and severity of impacts.**
  - **relative--characterizes impacts of each project type as generally lower than, similar to, or higher than another project type.**
  - **reflects general trends among project types; there are sometimes exceptions to the examples cited.**

Proposed Gordon Butte PSH Project, Montana

Summary of Findings

- **Conclusions tend to support conventional wisdom: environmental effects of closed-loop are generally *lower* (i.e., more localized and of shorter duration) than those of open-loop because they:**
  - **are located "off-stream," minimizing aquatic and terrestrial impacts, and;**
  - **often have greater siting flexibility than open-loop projects.**
- **However, some impacts of closed-loop can be *higher* than those of open-loop, particularly for geology and soils and groundwater. For example, impacts of constructing two above-ground reservoirs rather than one or impacts of groundwater withdrawal or circulation.**
- **One circumstance where impacts of constructing a new upper reservoir and power generation facilities for an open-loop project could be *lower* than those of constructing a new closed-loop project: "add-on" open-loop projects where the lower reservoir was already constructed for other purposes and an upper reservoir is added later for PSH operations.**
- **However, the impacts of add-on project operations are still likely *higher* than those of closed-loop because the add-on project's lower reservoir is still continuously connected to a natural water feature.**

Comparison of the Environmental Effects of Open-Loop and Closed-Loop Pumped Storage Hydropower (PNNL-29157). Department of Energy WPTO. April 2020. https://www.energy.gov/sites/prod/files/2020/04/f73/comparison-of-environmental-effects-open-loop-closed-loop-psh-1.pdf

Interest in Closed-Loop PSH is Growing

- **FERC (licenses *non-federal* hydropower) is seeing an increase in preliminary permit and license applications for closed-loop PSH. Since 2014, FERC has issued only four licenses for new PSH:**
  - **one open-loop (Iowa Hill in California)**
  - **three closed-loop (Eagle Mountain in California, Gordon Butte in Montana, and Swan Lake North in Oregon).**
- **In 2019, FERC issued final rule establishing criteria for 2-year expedited license process for *qualifying* closed-loop projects that:**
  - **cause little to no change to existing surface and groundwater flows and uses;**
  - **unlikely to adversely affect species listed as a threatened species or endangered species, or designated critical habitat of such species, under the Endangered Species Act of 1973;**
  - **utilize only reservoirs situated at locations other than natural waterways, lakes, wetlands, and other natural surface water features; and**
  - **rely only on temporary withdrawals from surface waters or groundwater for the sole purposes of initial fill and periodic recharge needed for project operation.**
- **Typical FERC licensing timeline is 5-7 years; no closed-loop projects have been licensed under the 2-year expedited process.**

Discussion Time

What questions or issues do you have about potential benefits and environmental impacts?

Join by Web

PollEv.com /lavishnature521

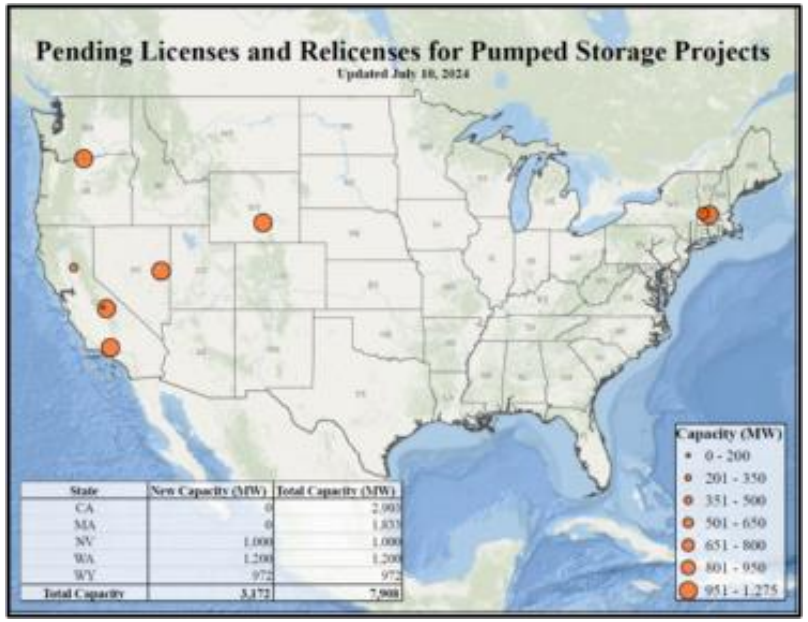
Join by QR Code

Proposed FERC-regulated PSH in Washington

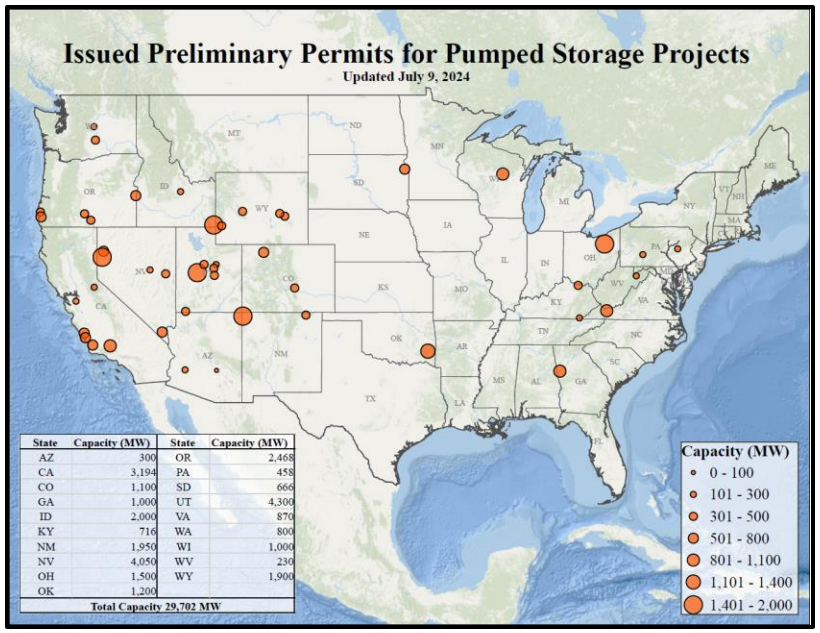
(maps do not include projects outside FERC jurisdiction like Reclamation or USACE)

- **Pending License for 1200-MW Goldendale (FERC No. 14861)**

- **Issued Preliminary Permits for 300-MW Badger Mountain (FERC No. 14892) and 500-MW Saddle Mountains (FERC No. 15245)**



State	New Capacity (MW)	Total Capacity (MW)
CA	0	2,903
MA	0	1,833
NV	1,000	1,000
WA	1,200	1,200
WY	972	972
Total Capacity	3,172	7,908



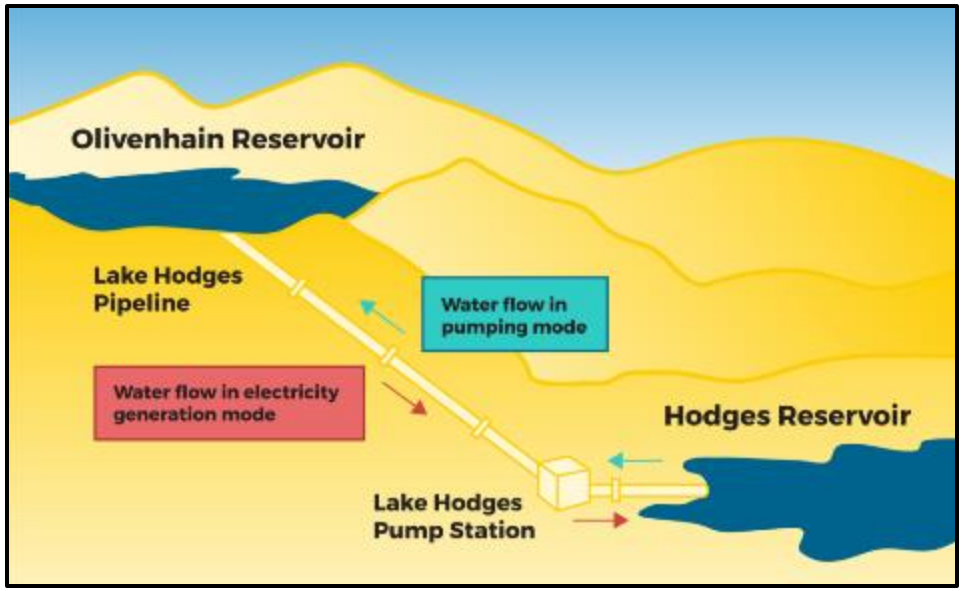
State	Capacity (MW)	State	Capacity (MW)
AZ	300	OR	2,468
CA	3,194	PA	458
CO	1,100	SD	666
GA	1,000	UT	4,300
ID	2,000	VA	870
KY	716	WA	800
NM	1,950	WI	1,000
NV	4,050	WV	230
OH	1,500	WY	1,900
OK	1,200		
Total Capacity 29,702 MW			

https://www.ferc.gov/licensing/pumped-storage-projects

- **Also, non-FERC: Reclamation's 500-MW Banks Lake Project (on hold)**
  https://www.usbr.gov/pn/programs/lopp/bankslake/index.html

Add-On, Hybrid, or Pump-Back Open-Loop PSH

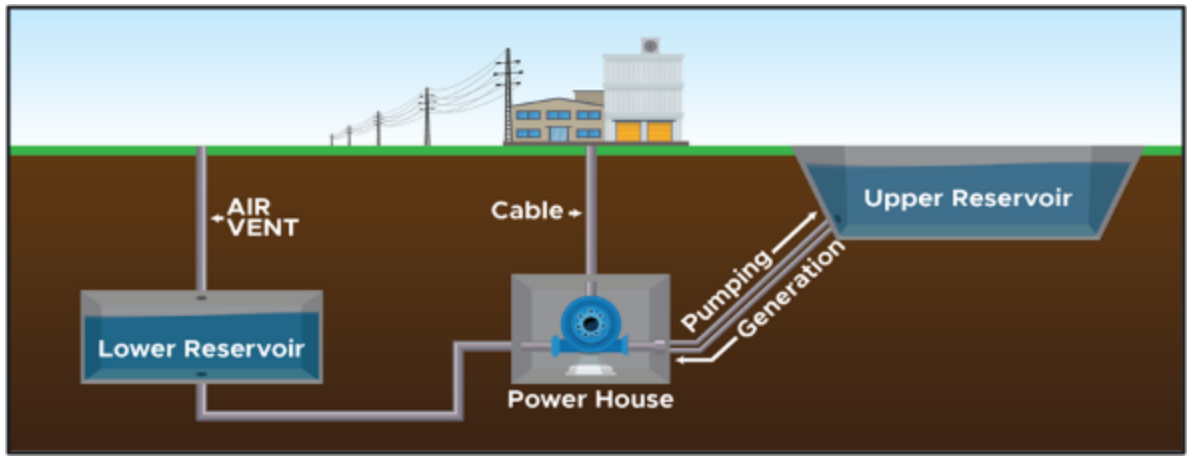
- Open-loop projects where the lower reservoir was already constructed for other purposes (e.g., conventional hydropower, irrigation, flood control) and an upper reservoir is added later (or operations at existing reservoirs are modified) for PSH operations.
- Add-on or hybrid projects comprise 12 of the 43 existing PSH projects in the United States, including the newest, the Olivenhain-Hodges in California (began operations in 2012).
- Can reduce environmental impacts of project construction, but not necessarily impacts of project operations.



Olivenhain-Hodges Project, California

Underground PSH

- Some proposed PSH projects would use abandoned surface and/or underground mine pits as reservoirs.
- Upper abandoned mine pit (surface or underground) as the upper reservoir and existing underground mine shaft opening for access, water conveyance, and other facilities.
- Underground abandoned mine pit as the lower reservoir with an underground powerhouse and associated equipment.
- Existing water remaining in abandoned underground mine or groundwater to fill reservoirs.



Conceptual diagram of an underground PSH project (DOE 2020 based on Energy Storage Association 2019)

Some Resources

FERC PSH licensing website: https://www.ferc.gov/licensing/pumped-storage-projects

***A Comparison of the Environmental Effects of Open-Loop and Closed-Loop Pumped Storage Hydropower*. Department of Energy WPTO. April 2020.** https://www.energy.gov/sites/prod/files/2020/04/f73/comparison-of-environmental-effects-open-loop-closed-loop-psh-1.pdf

***Pumped Storage Hydropower FAST Commissioning Technical Analysis Summary*. Department of Energy WPTO. July 2020.** https://www.energy.gov/sites/prod/files/2020/07/f76/PSH_FAST_Commissioning_Technical_Report_ORNL.pdf

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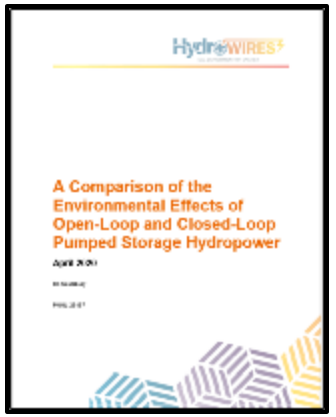

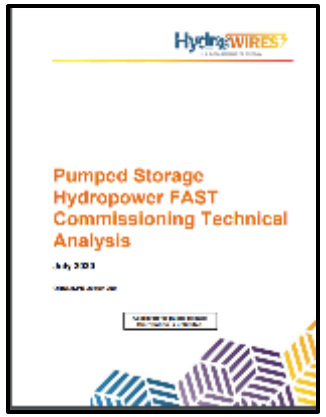

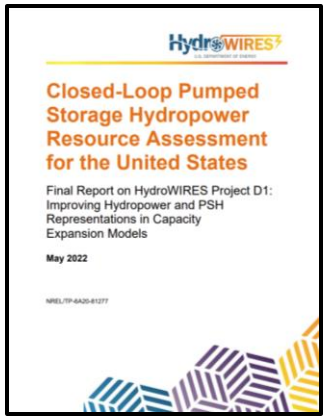

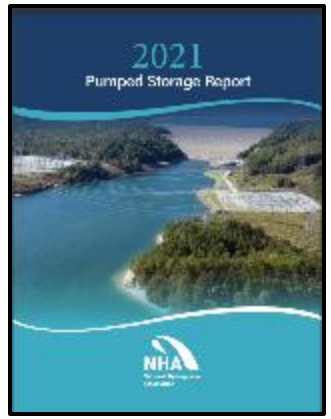

More Resources

How Pumped Storage Hydropower Works. **Department of Energy WPTO.**
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Working Paper on Sustainability of Pumped Storage Hydropower**. International Hydropower Association. September 2021.**
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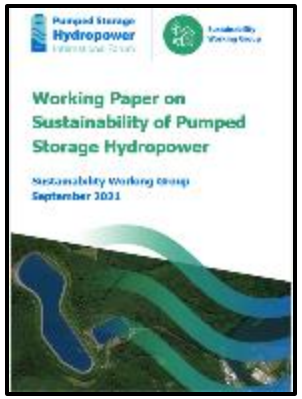

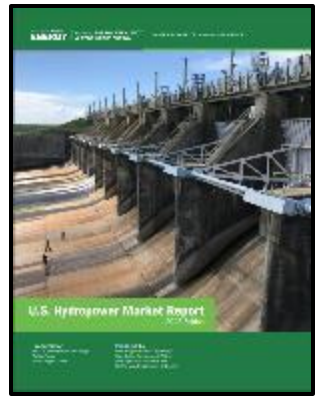

U.S. Hydropower Market Report 2023 Edition**. Oak Ridge National Laboratory for Department of Energy WPTO.**
https://www.energy.gov/sites/default/files/2023-09/U.S.%20Hydropower%20Market%20Report%202023%20Edition.pdf

Forthcoming 2024/2025: follow-on WPTO study by PNNL/INL focused on closed-loop PSH impacts and mitigation (preliminary results presented at Clean Currents in October 2023).

Forthcoming 2025: Low Impact Hydropower Institute definition for "low impact" PSH (and potentially certification program): Low Impact Hydropower Institute

LOW IMPACT HYDROPOWER INSTITUTE

Thank you!

Bo Saulsbury

Idaho National Laboratory

Energy and Water Systems Analysis

James.Saulsbury@inl.gov

865-382-5979

Break

Returning at 11:50 AM

Cultural Resource Considerations

Historic Context
and Preservation Mandates

Karen Capuder, Ph.D.
Archaeologist Senior
Confederated Tribes of the Colville Reservation
History/Archaeology Department

Cultural Resources

- **Within mainstream historic preservation discourse and most, if not all, federal, state, and local cultural resource mandates and policies, cultural resources are typically understood to consist of the following property types: object, building, structure, district, and site (including Traditional Cultural Property [TCP]).**

- **The term "resources" is problematic for many descendant communities.**

- **Moreover, this restrictive, property-based, definition of cultural resources is not fully congruent with Indigenous conceptions of culture as an integrated whole.**

Cultural Resources vs Cultural Wealth

Cultural Resources vs Cultural Wealth

Cultural Resources vs Cultural Wealth

Inherent Tribal Sovereignty

- **Sovereignty can be defined simply as "the power to make one's own laws and be governed by them."**

- **Tribal Nations possess inherent sovereignty:**

  - **"Perhaps the most basic principle of all Indian law supported by a host of decisions….is the principle that those powers which are lawfully vested in an Indian tribe are not, in general, delegated powers granted by express acts of Congress, but rather inherent powers of a limited sovereignty which has never been extinguished. What is not expressly limited [via treaty or Congressional Act] remains within the domain of tribal sovereignty." - Felix Cohen**

WHATEVER HASN'T BEEN TAKEN AWAY, REMAINS.

Government-to-Government Relations

- Federally recognized Tribes have a government-to-government relationship with federal, state, and local governments.

- The government-to-government relationship is political, and independent of race or ethnicity. This relationship is grounded in the U.S. Constitution, numerous treaties, statutes, Federal case law, regulations and executive orders, as well as political, legal, moral, and ethical principles.

- Tribal sovereignty is superior to that of states (*State of Washington v. Confederated Tribes of the Colville Reservation*, 447 U.S. 134, 154 (1980)

Treaties with Tribal Nations

- **Article I, Section 8, Clause 3 of the United States Constitution (Commerce Clause): From a legal standpoint, the United States Constitution empowered Congress to "regulate commerce with foreign nations, and among the several States, and with the Indian tribes."**
    - **Using its Indian Commerce Clause authority, Congress may determine with whom and in what manner the tribes engage in commercial activity.**
- **Article VI (Supremacy Clause) of the Constitution defines treaties as the supreme Law of the Land.**
    - **As federal law, treaties preempt inconsistent state law under the Supremacy Clause of the Federal Constitution.**
- **It is through treaties, and only through treaties, that tribes are held to have "authorized" the cession of "Indian title" to their homelands to the United States.**
    - **Treaties are "not a grant of rights to the Indians, but a grant of rights from them, a reservation of those not granted" (*United States v. Winans*, 198 U.S. 371, 381 [1905]).**

The Marshall Trilogy

- Refers to a series of United States Supreme Court cases, primarily authored by Chief Justice John Marshall, that established federal primacy in Indian affairs, excluded state law from Indian country, and recognized tribal governance authority. Moreover, these cases established the place of Indian nations in the American dual sovereign structure that still governs today.
    - In *Johnson v. M'Intosh* (1823), Chief Justice John Marshall held that Britain had passed its "rights" to extinguish "Indian title," grounded in the Doctrine of Discovery, to the federal government of the United States.
        - Marshall gave the notion that, "Indian title" consists of a "right of occupancy" or usufructory (use) right, rather than rather than a right of property ownership, the force of law. This decision also established federacy supremacy in Indian affairs.
    - In *Cherokee Nation v. Georgia* (1831), Marshall crafted the definition of Indian Tribes as "domestic dependent nations" with a relation to the United States that "resembles that of a ward to his guardian." This is the basis of the federal trust responsibility.
    - In *Worcester v. Georgia* (1832), Marshall held that tribes are distinct political entities possessing inherent sovereign powers and are not subject to State laws. He further held that the "Doctrine of Discovery" conferred upon the federal government "an exclusive right to extinguish the Indian title of occupancy, either by purchase or by conquest."

Executive Orders and Statutes

- A rider attached to the 1871 Indian Appropriations Act, subsequently codified at 25 USC 71 (with amendments), unilaterally ended treaty making in contravention to long-established legal doctrine.
  - Indian reservations thereafter established via Presidential Executive Order or Act of Congress.
  - Treaties that had been ratified prior to 1871 remained valid.
- Because treaties are grants of rights from tribes to the United States, tribes that are not signatories to treaties, and tribes whose treaties have been abrogated, have ceded nothing.
- Instruments other than treaties may also reserve Tribal rights, with equally binding effect. As one court explained, "it makes no difference whether…[Tribal] rights derive from treaty, statute or executive order, unless Congress has provided otherwise."
- "Tribal treaties, executive orders, judicial decisions, and other agreements not only recognize Tribal sovereign authority, but also reserve to Indian Tribes all rights not expressly granted to the United States" (Bureau of Indian Affairs 2022).

The Canons of Construction and Reserved Inherent Sovereign Rights

- The federal Indian canons of construction provide that treaties, statutes, and executive orders enacted for the benefit of Indian Tribes are to be interpreted as follows:
  - L: Treaties/EOs/statutes are to be construed liberally in favor of Tribes
  - I: Treaties/EOs/statutes are to be interpreted as Tribes would have understood them at the time of their "negotiation."
  - A: Ambiguous provisions in treaties/EOs/statutes are to be interpreted in favor of tribes.
  - R: Tribal rights reserved via treaty/EO/statute need not be explicit.
- "Under the 'reserved rights doctrine,' rights not addressed by Tribal treaty provisions are presumptively reserved, so long as the rights retained are consistent with federal law and the Tribe's sovereign status [...] Thus Tribes possess proprietary and use rights and sovereign control not conveyed away by the Tribal treaty or other federal law" (Bureau of Indian Affairs 2022).
- Reserved rights need not be expressly articulated in a Treaty, Executive Order, or statute because they are inherent sovereign rights (*Winters v. United States* 207 U.S. 564 [1908]).

Development of Historic Preservation, Religious Freedom, and Sacred Sites Mandates

- Antiquities Act of 1906 (34 Stat. 225, 54 U.S.C. 3203)
- Flood Control Act of 1944 (58 Stat. 887)
- 1960 Reservoir Salvage Act (16 U.S.C. 469-469c).
- Archaeological and Historic Preservation Act of 1974 AHPA) (54 U.S.C. 3125)
- National Historic Preservation Act of 1966 (54 U.S.C. §100101 et seq.)
- National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.)
    - State Environmental Policy Act (SEPA) RCW 43.21C
- American Indian Religious Freedom Act of 1978 (AIRFA) (42 U.S.C. § 1996)
- Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. 470aa)
- Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. 32)
- Executive Order 13007 – Indian Sacred Sites

National Historic Preservation Act (NHPA)

- Mandates certain roles and responsibilities for a federal historic preservation program, authorizing certain tools, resources, and processes, including:
  - The National Register of Historic Places (NRHP)
  - The Advisory Council on Historic Preservation (ACHP)
  - A requirement, known as Section 110 (54 U.S.C. §306101, et seq.), for all federal agencies to establish -- in conjunction with the Secretary of the Interior -- their own historic preservation programs for the identification, evaluation, and protection of historic properties.
  - A review process, known as Section 106 (54 U.S.C. §306108) after its location in the original law, to ensure that federal agencies consider the effects of federally licensed, assisted, regulated, or funded activities on historic properties listed or eligible for listing on the National Register.
  - 1980 amendments - The bill clarifies the responsibilities of all Federal agencies with respect to historic preservation, provides a statutory basis for State historic preservation programs, and gives local governments a specific role in the preservation effort.
  - 1992 amendments - recognized and expanded the role of Indian tribes and Native Hawaiian organizations in the national preservation program. Tribal governments are able to assume the duties of state historic preservation offices within the boundaries of their reservations and on off-reservation trust lands.
  - 1990 National Register Bulletin 38 – *Guidelines for Documenting and Evaluating Traditional Cultural Properties* (TCPs) amended in
  - 2024 ACHP Policy Statement on Indigenous Knowledge and Historic Preservation https://www.achp.gov/sites/default/files/policies/2024-03/PolicyStatementonIndigenousKnowledgeandHistoricPreservation21March2024.pdf

Deep Dive: Section 106 of the NHPA

- Requires federal agencies to take into account the effects of their undertakings on historic properties.
  - An undertaking is anything a federal agency does, funds, or authorizes.
  - An historic property is an object, site, building, or district that is eligible for listing or listed on the NRHP
- Four overarching steps of the Section 106 process:
  - Initiation
  - Identification
  - Assessment of Effect (Assessment of Adverse Effect)
  - Resolution of Adverse Effect (and Failure to Resolve)
- Participants in the Section 106 process include:
  - Agency official for the lead federal agency
  - ACHP
  - Consulting Parties – SHPO/THPO, Tribes, local government representatives, project proponents, and certain others with interests or valid concerns
  - The Public

Deep Dive: Section 106 of the NHPA

- **INITIATION**
  - **Is the proposed action an undertaking?**
  - **Does it have the potential to cause effects on historic properties?**
  - **Coordinate with other required reviews under NEPA, NAGPRA, AIRFA, ARPA, Section 4F, Section 10, Section 404, etc.**
  - **Identify appropriate SHPOs/THPOs**
  - **Identify other consulting parties**
  - **Plan for public involvement**

Deep Dive: Section 106 of the NHPA

- **IDENTIFICATION**
  - **Determine, in consultation with SHPO/THPO, the scope of identification efforts**
  - **Identify, in consultation with the SHPO/THPO, historic properties potentially affected by the undertaking**
  - **Evaluate historic significance**
  - **Results of identification/evaluation**
    - **Determination of No Historic Properties Affected**
    - **Determination of Historic Properties Affected**

Deep Dive: Section 106 of the NHPA

- **ASSESSMENT OF EFFECT**
  - **Apply Criteria of Adverse Effect**
  - **Finding of No Adverse Effect**
    - **Consulting party review**
  - **Finding of Adverse Effect**

Deep Dive: Section 106 of the NHPA

- **RESOLUTION OF ADVERSE EFFECTS**
  - **Continue consultation**
  - **Resolve adverse effects – with or without ACHP participation**
  - **Failure to Resolve**
    - **Termination**

SECTION 106 IS MORE ABOUT PROCESS THAN PROTECTION

Pearl Hill Pumped Storage Hydro Battery Facility
ACHP Comments regarding
FERC's Termination of Consultation under Section 106

Deep Dive: SEPA

- The State of Washington enacted the State Environmental Policy Act (SEPA), found at RCW 43.21C, in 1971 in order to assist state and local agencies in the identification of environmental impacts likely to result from their projects and decisions. The primary purpose of SEPA is to "insure that presently unquantified environmental amenities and values will be given appropriate consideration in decision making" (RCW 43.21C.030).

- Under the SEPA Rules, found at WAC 197-11, environmental review is required for any proposal which involves a government "action," as defined in the SEPA Rules (WAC 197-11-704), and is not categorically exempt (WAC 197-11-800 through 890).

  - Pre-Application Conference (optional)
  - Determine whether SEPA review is required
    - If a proposed project is not exempt from review, the applicant is typically required to complete a SEPA Checklist.
  - Determine the lead agency
  - Evaluate the proposal
  - Make a threshold determination
  - Use SEPA in decision making

Deep Dive: SEPA

- Review of an environmental checklist under SEPA can result in a:
  - a Determination of Non-Significance (DNS);
  - a Mitigated Determination of Non-Significance (MDNS) when applicants modify their initial proposals to mitigate potential adverse environmental effects; or
  - a Determination of Significance (DS), the lattermost of which will prompt the preparation of an Environmental Impact Statement (EIS) within which historic and cultural resources must be considered as an element of the environment (WAC 1987-11-44).
- A Draft EIS (DEIS) is first prepared and then circulated for comment, and a Final EIS (FEIS) which is revised based on, and/or responds to, comments received on the DEIS, (WAC 197-11-405[2, 3]).
- EIS must analyze analyze alternatives and possible mitigation measures to reduce the environmental impacts of the proposal.
- In order to deny a proposal under SEPA, an agency must find that the project is likely to result in significant adverse environmental impacts identified in an FEIS or SEIS, and that reasonable mitigation measures are insufficient to mitigate the identified impact (WAC 197-11-660[1][f][i-ii]).

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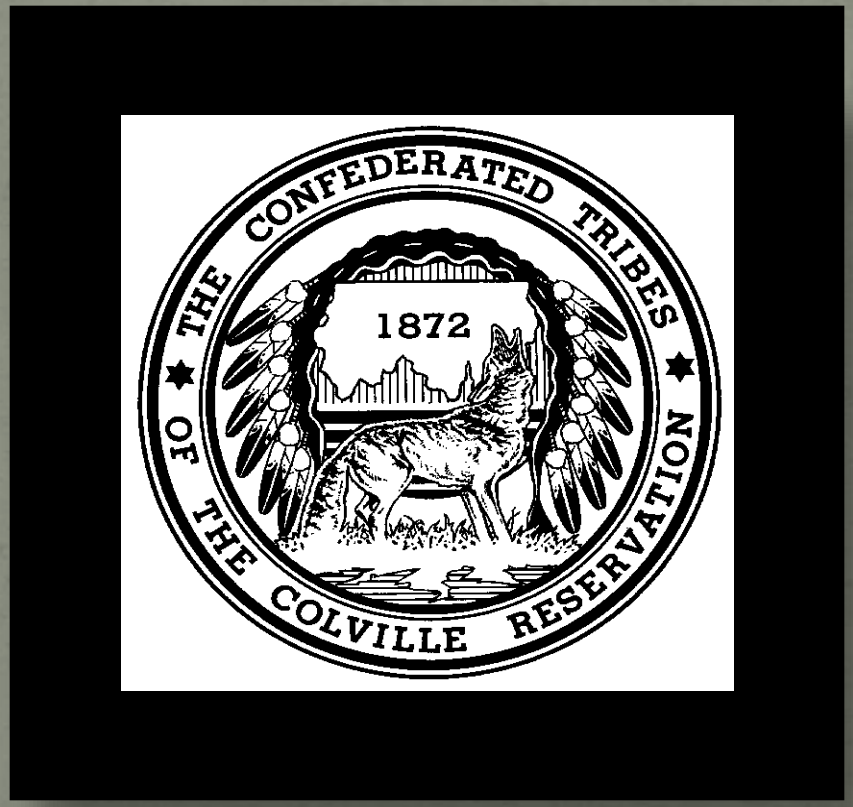
Thank You



Discussion Time

Given what we know about PSH and experience with it in the state, what are potential issues/concerns related to cultural resources?

Next Steps and Wrap up

Karen Janowitz, WSU Energy Program

Future Statewide Online Public Meetings

All meetings 10:00 AM to 12:30 PM Pacific Time

- October 8 *(watch your email for registration announcement)*
  - Aquatic ecology
  - Water quality
  - Water quantity
- October 30
  - Terrestrial ecology
  - Geology and soils
  - Air quality, greenhouse gas emissions
  - Land use and aesthetics
- December 4
  - Permitting and licensing
  - Other pumped storage and mechanical/gravity-based technologies

Specific topics and times subject to change

Tribal Forums

- Forums for Tribal leaders, members, and staff
  - Tentative dates:
    - December 10, 2024
    - December 17, 2024
    - January 16, 2025

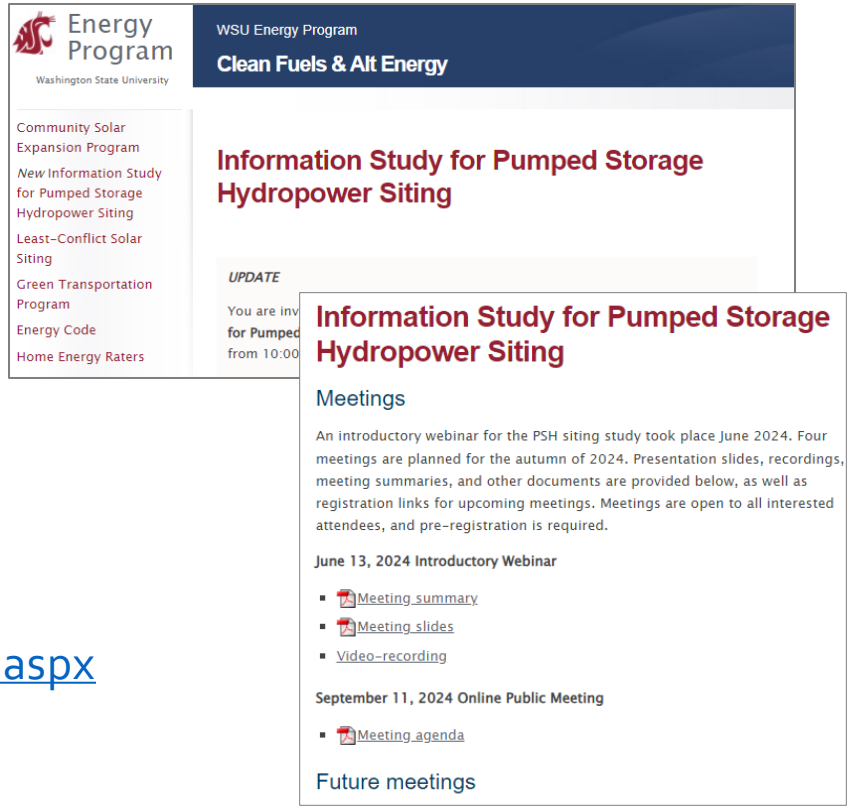
WSU PSH Website and Email List

WSU Energy Program PSH Siting Study Webpages:
https://www.energy.wsu.edu/CleanFuelsAltEnergy/PSHSiting.aspx

PSH Siting Study Meeting Webpage:

- Meeting summary
- Meeting video-recording
- Meeting slides

https://www.energy.wsu.edu/CleanFuelsAltEnergy/PSHSiting/Meetings.aspx



Sign up for the email distribution list:
https://www.energy.wsu.edu/CleanFuelsAltEnergy/PSHSiting/PHSSitingEmailRegistration.aspx

Karen Janowitz
janowitzk@energy.wsu.edu

Thank You!

Karen Janowitz and the PSH study team