

# ARGONNE'S WATER POWER TECHNOLOGIES PROJECTS TODAY

*Partnering to Develop New Modeling Tools*



“Argonne National Laboratory led several groundbreaking modeling efforts related to pumped storage hydropower.”

(Source: U.S. DOE-Water Power Technologies Office)

## VALUATION GUIDANCE AND TECHNO-ECONOMIC STUDIES FOR PUMPED STORAGE HYDROPOWER

**INNOVATION** Argonne is leading a multi-lab team for the U.S. Department of Energy’s (DOE’s) Water Power Technologies Office (WPTO) to develop valuation guidance to account for all grid services and contributions from pumped storage hydropower (PSH) plants.

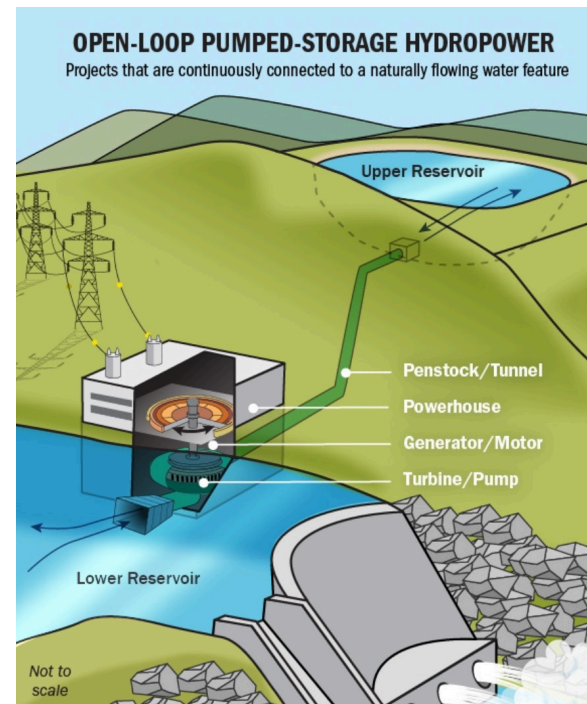
Understanding the true value that PSH technology brings to the grid will be a big step forward, removing an obstacle that is faced by PSH developers.

**IMPACT** Detailed step-by-step valuation guidance will help electric utilities, PSH developers, regulatory bodies, and other stakeholders in their assessments of the value of PSH projects.

Developing objective, comprehensive valuation guidance for PSH plants will provide consistent, repeatable methods to value PSH projects, while helping with decision-making on investments.

Working with industry will help refine the valuation framework, and test underlying methodologies.

**PARTNERS** Argonne is the Project Lead, with researchers from Idaho National Laboratory, National Renewable Energy Laboratory, Oak Ridge National Laboratory, and Pacific Northwest National Laboratory. The multi-lab team is collaborating with two industry participants and performing techno-economic studies for their proposed PSH projects. Also, the project is guided by a Technical Advisory Group consisting of prominent industry experts and other stakeholders.



Pumped-storage currently accounts for 95% of all utility-scale energy storage in the United States. Source: DOE

### WATER USE OPTIMIZATION TOOLSET

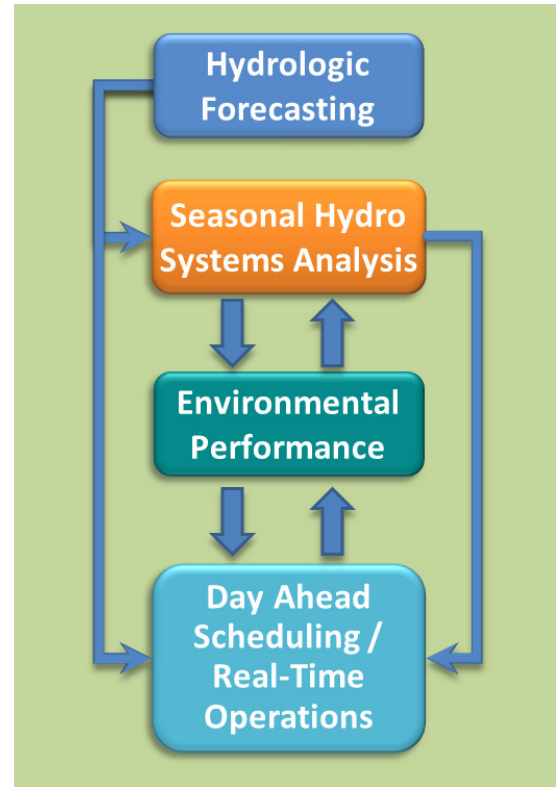
Water Use Optimization Toolset (WUOT) is a set of four tools that can be used independently or as an integrated suite to optimize hydropower planning, with the unique capability to simultaneously optimize water, power, and environmental performance.

**INNOVATION** Argonne is leading a multi-lab team to integrate advanced modeling for hydrologic forecasting, seasonal hydro systems analysis, day-ahead and real-time operations, and environmental performance modeling.

**IMPACT** The Water Use Optimization Toolset will help to enhance power economics and lower system operation costs, resulting in more energy, revenue, and grid services from available water. WUOT can help:

- Hydropower schedulers to improve water management by assisting in market, dispatch, and operational decisions.
- Environmental analysts can use WUOT to discover new modes of operations that improve environmental conditions without sacrificing water or power economics.

**PARTNERS** Argonne is Project Lead with researchers from Pacific Northwest National Laboratory and Sandia National Laboratory.



Water Use Optimization Toolset can be used to optimize hydropower planning and performance.

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