PUMPED STORAGE HYDROPOWER (PSH): How Does it Work?

Pumped Storage converts electricity into stored energy by pumping water from a lower reservoir to an upper reservoir during low-energy demand. When energy demand is high, water in the upper reservoir is released downhill through a turbine. Additionally, Pumped storage hydropower uses the natural flow of moving water to generate electricity, which is domestically sourced and abundant in most regions of the United States.

The gravity-driven force of the water is harnessed to produce electricity. The electricity is put back into the electric grid, providing communities the power they need to support energy independence and resiliency.

How Does Pumped Storage Contribute to the U.S. Energy Grid?

Unparalleled Storage Capabilities: PSH is the largest contributor to U.S. energy storage with a capacity of 21.9 GW or roughly 93% of all utility-scale energy storage capacity. It provides longer-term storage and can be combined with wind and solar plants to balance the grid during extreme weather or at peak demand.

Grid Reliability and Security: PSH provides flexible and fast responding energy storage, helps balance supply and demand on the grid, and serves as a stabilization tool for working with intermittent generation sources.

Economic Benefits: By creating jobs during construction and operation, PSH provides significant economic benefits, as well as a stable source of revenue for host communities through taxes and royalties.

Durability and Reliability: Pumped storage has a long lifespan, making it a durable and reliable energy storage solution. The oldest working pumped storage facility has been in service for nearly 120 years.

Cost Reduction: Pumped storage reduces the overall cost of electricity by storing excess energy during periods of low demand when value is lower, and releasing it during high demand periods when electricity prices are higher.