Energy Storage Project Hydropower

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Pumped Storage

The National Hydropower Association (NHA) released the 2024 Pumped Storage Report, which details both the promise and the challenges facing the U.S.

Renewable Energy Pillar

EERE's applied research, development, and demonstration activities aim to make renewable energy cost-competitive with traditional sources of energy. Learn more about EERE's work in geothermal,

[What's the best way to expand the US electricity grid?]

Growing energy demand means the U.S. will almost certainly have to expand its electricity grid in coming years. What's the best way to do this? A new study by MIT researchers examines

[Making clean energy investments more successful]

New research emphasizes the importance of well-validated models and forecasting tools in evaluating choices for investments in clean energy technologies and policies by governments and

[Explained: Generative AI's]

[environmental impact]

MIT News explores the environmental and sustainability implications of generative AI technologies and applications.

News & Insights , ARPA-E

WASHINGTON, D.C. - Today, the U.S. Department of Energy (DOE) Advanced Research Projects Agency-Energy (ARPA-E) announced selections for the Quantum Computing for Computational

New facility to accelerate materials solutions for fusion energy

The new Schmidt Laboratory for Materials in Nuclear Technologies (LMNT) at the MIT Plasma Science and Fusion Center accelerates fusion materials testing using cyclotron proton beam

A new approach could fractionate crude oil using much less energy

MIT engineers developed a membrane that filters the components of crude oil by their molecular size, an advance that could dramatically reduce the amount of energy needed for crude oil

[Pumped hydropower storage explained: how it works and why it]

Part A of the report reviews recent data and research on California's clean energy needs and storage needs. It compares pumped storage to other long-duration storage options.

FY 2026 Budget Justification , Department of Energy

Fiscal Year 2026 Budget Justification documents to support the Department of Energy Budget Request to Congress

New materials could boost the energy efficiency of microelectronics

MIT researchers developed a new fabrication method that could enable them to stack multiple active components, like transistors and memory units, on top of an existing circuit, which

Energy Department Announces Fusion Science and Technology

The U.S. Department of Energy released its Fusion Science and Technology Roadmap, a national strategy to accelerate the development and commercialization of fusion energy on the most

Evelyn Wang: A new energy source at MIT

As MIT's first vice president for energy and climate, Evelyn Wang is working to broaden MIT's research portfolio, scale up existing innovations, seek new breakthroughs, and channel

Energy Department Announces Largest Loan in Department History

U.S. Secretary of Energy Chris Wright today

announced the Department of Energy's Office of Energy Dominance Financing (EDF) has closed a historic $26.5 billion loan package to

2026 DOE 202 (c) Orders

On January 26, 2026, the Department of Energy (DOE) issued an emergency Order No. 202-26-07, pursuant to section 202 (c) of the Federal Power Act, to Duke Energy Carolinas, LLC and

Energy Department Announces Realignment of Critical Minerals and

New organizational structure for the Office of Critical Minerals and Energy Innovation will channel federal resources to the most pressing energy and national security challenges of the 21st

Department of Energy

Genesis Mission leverages the Department of Energy's unique scientific datasets-spanning more than 100 petabytes of experimental and simulation data across every major domain of science-to double

Pumped-storage hydroelectricity

OverviewPotential technologiesBasic principleTypesEconomic efficiencyLocation requirementsEnvironmental impactHistory

Pumped storage plants can operate with seawater, although there are additional challenges compared to using fresh water, such as saltwater corrosion and barnacle growth.

Inaugurated in 1966, the 240 MW Rance tidal power station in France can partially work as a pumped-storage station. When high tides occur at off-peak hours, the turbines can be used to pump more seawater into the reservoir than the high tide would have naturally brought in. It is the only large-scale power plant of its kind.

Energy Secretary Issues Order to Secure Grid Reliability in Mid

Emergency order increases grid stability and minimizes the risk of energy shortfalls in the Mid-Atlantic region of the United States.

Pumped Storage Hydropower in the United States:

Bold decarbonization goals have propelled a rapid resurgence of interest in pumped storage hydropower in the US, given its ability to provide bulk

Using liquid air for grid-scale energy storage

Liquid air energy storage could be the lowest-cost solution for ensuring a reliable power supply on a future grid dominated by carbon-free yet intermittent energy sources, according to a new

How artificial intelligence can help achieve a clean energy future

A look at how AI can be used to help support the clean energy transition by helping to manage power grid operations, plan infrastructure investments, guide the development of novel

Pumped storage hydropower guide: Everything about

Discover how pumped storage hydropower uses gravity to store energy and why it's crucial for India's clean energy future. Learn about benefits,

Energy Department Announces $175 Million to

The U.S. Department of Energy (DOE) today announced $175 million in funding for six projects to modernize, retrofit, and extend the useful life of coal-fired power plants that serve rural

MIT Energy Initiative conference spotlights research

At the MIT Energy Initiative's Annual Research Conference, industry leaders agreed collaboration is key to advancing critical technologies amidst a changing energy landscape.

Pumped storage hydropower for the energy transition

Discover how pumped storage hydropower enables grid stability and long-duration energy storage. Learn about PSH challenges and Worley's expert project support.

Storage Hydropower

Storage hydropower plants include a dam and a reservoir to impound water, which is stored and

released later when needed. Water stored in reservoirs provides flexibility to generate electricity on

Hydropower Program

Hydropower is a reliable, renewable, domestic source of energy and provides enormous benefits to the country's grid. In 2024, hydropower accounted for 24% of U.S. renewable electricity generation.

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