

# TechBriefs

## Savannah River National Laboratory

U.S. DEPARTMENT OF ENERGY • SAVANNAH RIVER SITE • AIKEN • SC

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### Benefits

- > Clean, efficient storage of energy
- > Scalable energy storage
- > Increased efficiency over traditional compressed air storage and water based systems

### Applications

- > Energy storage below ground
- > Energy storage submerged in water
- > Store excess energy from renewable systems

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## Hybrid Compressed Air/Water Energy Storage System and Method

### Technology Overview

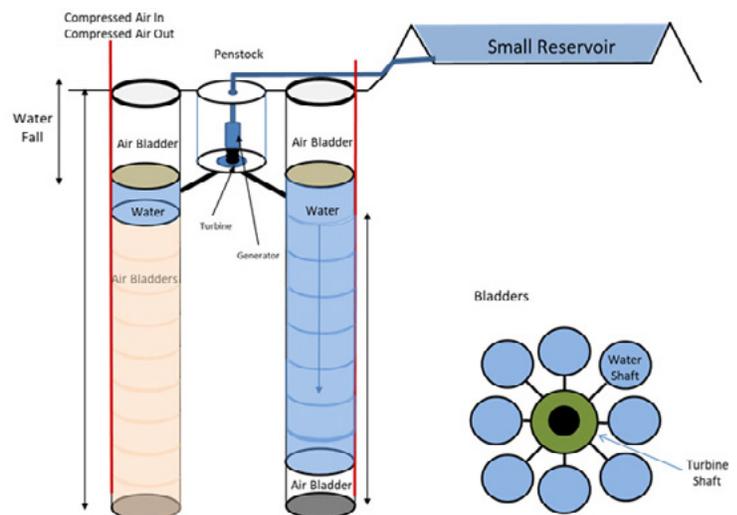
Savannah River National Laboratory (SRNL) has developed a system and method using a hybrid compressed air/water energy storage system. This system can be used in a subsurface land-based system or a submerged water-based system.

### Description

Energy storage systems that can efficiently store excess off-peak energy for use at peak-demand times would promote increasing adoption of alternative energy technologies. This method stores energy in the form of increased potential energy of water, pumped from a lower elevation to a higher elevation during times of low demand and excess energy production. This method includes storing energy by filling the inflatable bladders with compressed air. As the compressed air fills the bladders, water is pushed out of the container and up an energy gradient to a location that is at a higher potential energy. The stored energy can be accessed by controllable releasing compressed air from one or more bladders. Expansion of the compressed air can turn an expansion turbine and produce electricity.

### Intellectual Property

This technology and methods for its use have been granted U.S. Patent No. 10,415,469 B2 (September 17, 2019), "Hybrid Compressed Air/Water Energy Storage System and Method" and is available for licensing.



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### Technology transfer

The Savannah River National Laboratory (SRNL) is the U.S. Department of Energy's (DOE) applied research and development laboratory at the Savannah River Site (SRS).

With its wide spectrum of expertise in areas such as homeland security, hydrogen technology, materials, sensors, and environmental science, SRNL's cutting edge technology delivers high dividends to its customers.

The management and operating contractor for SRS and SRNL is Savannah River Nuclear Solutions, LLC. SRNS is responsible for transferring its technologies to the private sector so that these technologies may have the collateral benefit of enhancing U.S. economic competitiveness.

### Partnering opportunities

SRNS invites interested companies with proven capabilities in this area of expertise to develop commercial applications for this process under a cooperative research and development agreement (CRADA) or licensing agreement. Interested companies will be requested to submit a business plan setting forth company qualifications, strategies, activities, and milestones for commercializing this invention. Qualifications should include past experience at bringing similar products to market, reasonable schedule for product launch, sufficient manufacturing capacity, established distribution networks, and evidence of sufficient financial resources for product development and launch.

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