

ATES is an innovative and sustainable technology designed to store and retrieve thermal energy (heat or cold) within the natural permeable sediment layers known as aquifers. The basic ...

Aquifer thermal energy storage (ATES) systems use groundwater wells to store and extract energy from aquifers for reducing energy costs associated with heating, ventilating, and air conditioning (HVAC) ...

OverviewSystem typesHistoryTypical dimensionsHydrogeological constraintsLegal statusContaminated groundwaterSocietal impactsAquifer thermal energy storage (ATES) is the storage and recovery of thermal energy in subsurface aquifers. ATES can heat and cool buildings. Storage and recovery is achieved by extraction and injection of groundwater using wells. Systems commonly operate in seasonal modes. Groundwater that is extracted in summer performs cooling by transferring heat from the building to the water by means of a heat exchanger. The heated groundwater is reinjected into the aquifer, which stores the heated water. ...

Imagine cooling your building in summer using energy stored underground during winter, or heating your home with thermal energy captured months ago beneath your feet. This isn't science ...

HJ-G1000-1000F 1MWh Energy Storage Container System is a highly efficient, safe and intelligent energy storage solution developed by Huijue Group. The system adopts lithium iron phosphate ...

More recently, a new groundwater energy-transport (GWE) model type has been added to MODFLOW 6, the core version of the MODFLOW hydrologic simulator.

ATES systems consist of two separate wells--one warm, one cold--that run between the surface and the aquifer below. In the winter, you pump groundwater up from a warm well that's ...

The numerical simulations demonstrate that the inclusion of a third extraction well significantly enhances the performance and viability of Aquifer Thermal Energy Storage (ATES) ...

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The groundwater could also serve as a thermal battery, storing excess heat in the summer for use in the winter, said Michael Ahern, senior vice-president for system development at ...

High storage capacity Due to the high storage mass of an ATES, its storage capacity is high compared to other thermal storages.

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