Compressed Air Energy Storage (CAES)
Capture & Store Prime Excess Energy

Micro containerized CAES systems for the delivery of stored energy volume for peak hours.

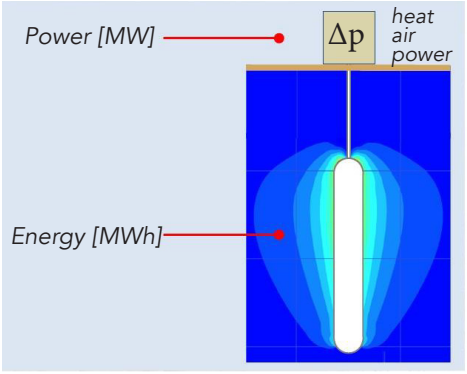
- Pressure Driven Turbine Power
- Micro CAES ISO Containers
- Macro CAES in Ground Storage
- 1MW to 1000MW Scalable
- Solar & Wind Farm Storage
- 14+ Hour Charge
- High Value Peak Shifting
- Install & Testing 180 days
- Warranted for 10 Years

Compressed Air Energy Storage (CAES) technology is the compression of ambient air to more than 3,000 p.s.i., stored until needed for peak load times or even base load power supplies. Precise management of the pressurized tanks to turbines yields an instant supply of power when needed and most valuable.

CAES is designed to capture excess renewable energy from sun, wind, or hydro and convert that electrical energy into compressed air, a different form of energy and one that can be stored with little loss over time. That compressed air is then stored in pressurized vessels as pictured above

"Pressurized tanks in stackable trailerized ISO containers can go just about anywhere; roof, barge, parking garage. No restrictions on placement."

Andrew J Mueller, Chairman CEO

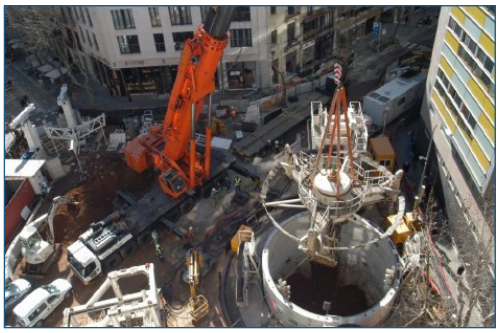


CAES System [MW+MWh]

or in purpose built underground vessels for later use. When electricity is needed, the compressed air is released through small nozzles that blow across the blades of a turbine generator, much like conventional steam, creating power.

Containerized micro CAES systems are available in 1 MW increments each when situated behind the grid connection of the generation facility. Global assists with all permitting and licensure; coordination of control software. Typically, PPAs are not required to be rewritten; CAES delivers energy of the same renewable character to the grid but for extended periods of time. The release is merely timed to coincide with demand. CAES fits within the base of a Wind Turbine, each 30m tall. Similarly, a data center has no room for an ISO container, we use the roof or parking garage. Our storage cylinders are flexible giving from 1MW to 30MW. CAES is truly flexible, individual stacked cylinders, an ISO container, a trailer, a barge for storage of 30MW upwards to the larger in ground storage of 1000MW or more.

A recent example of a battery backup project required a 120 20' containers to achieve 100MW sustained power requirement. The configuration did not work properly in the hot climate and



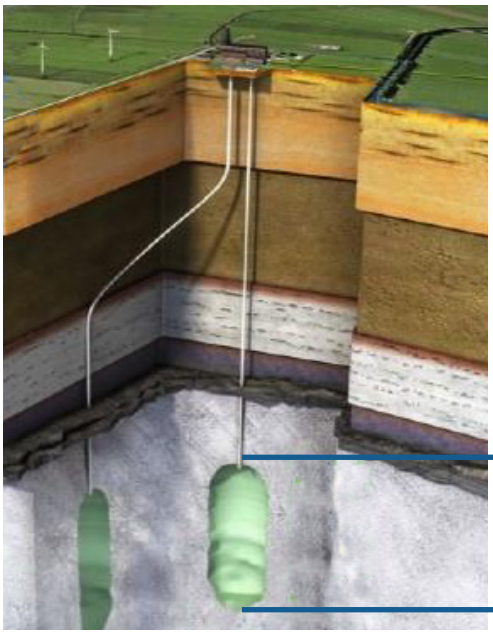
Downtown Macro CAES in Bore Construction

Underground CAES (Macro)
Site Location, Evaluation, and Prep
Environmental Impact
Infrastructure Development
Completion of On-Site Assembly
Bore Process
Extraction of Material On-Site
VBP Self Extract and Removal
Installation of CAES
Install CAES Pressure Vessel
Site Rejuvenation
CAES Commissioning
Weatherproof CIM Enclosure

they needed to disposed of 2.4 million worth of batteries.

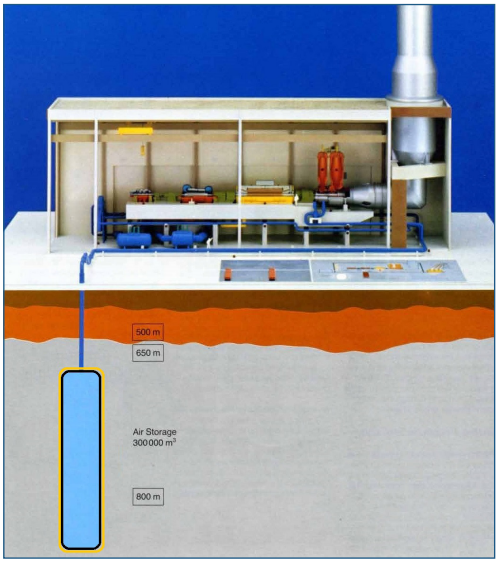
Underground CAES systems utilizing natural caverns have been proven successful on a commercial scale for over 40 years in Germany and the USA.

CAES storage, installed with Vertical Bore Platform (VBP), are now available. The boring of deep, large-diameter vertical shafts that can be built almost anywhere to serve as compressed air storage vessels.



Natural Salt Cavern CAES

Vertical Bore is a 30 to 200 foot diameter, deep vertical tunnel boring process for installing the CAES Program pressure vessel.

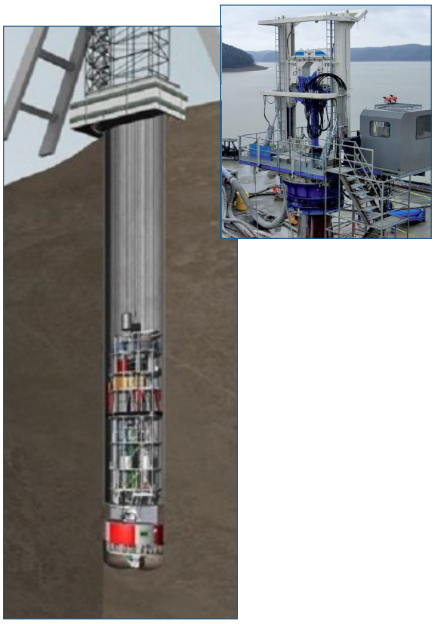


Below Ground 2,000 psi Capsule

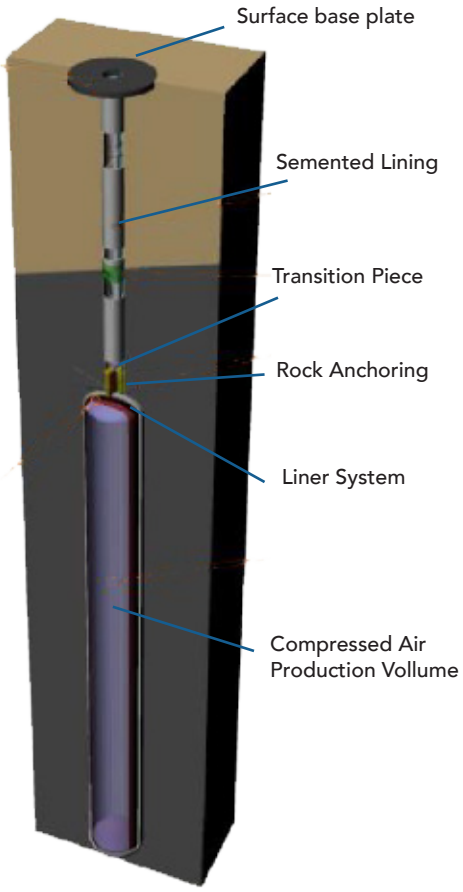
The Vertical Bore process is an astounding 180 days. Pressure vessels catering to power generation plants of 20MW through to 1000MW can be accommodated with pressure vessels of 30 foot to 200 foot in diameter and depths of 500 through 4000 foot. Other applications for underground pressure vessels or containment are storage of Natural Gas, LNG, LPG, Petroleum, Water, Feed Stocks or Records storage.

The Vertical Bore plant meets or exceeds all moratoriums, EPA mandates and federal emission standards by using natural gas to power engines, cranes, hydraulics and compressor, including firing the generators used throughout the site infrastructure. The Vertical Bore Platforms design enables water, perishables, crew quarters, emergency accommodation and other amenities to be housed on various levels.

Empire State Building



Vertical Bore Process



Underground Compressed Air Energy Storage

Compressed Air Energy Storage (CAES)
vrs Battery (Lithium Ion & Lead Acid)

Topic	CAES	Battery
Cost of Storage per Megawatt	700k to 1.7M (dependent on geological location)	2M to 2.5M installed
Footprint 1MW	1 x 20′ Container	1 x 20′ Container
Footprint 10MW	3 x 40′ Container	10 x 20′ Container, ½ acre
Footprint 50MW	1 x Underground Storage Vessel, ¼ acre	60 x 20′ Container, 3 acres
Footprint 100MW	2 x Underground Storage Vessels, ½ acre	120 x 20′ Container, 6 acres
Scalability	Yes	Limited above 20MW
Climate Range	All, -30 to +140 degrees F	Limited, 60-80 F
Regional Placement Based on Climate	Global	Limited, see above
Environmental Impact	Zero	High
Cost to Run	Zero to Low	High to Extremely High
Component Life	Indefinite	2000 cycles actual (10,000 quoted)
Earthquake Proof	Yes	Limited
Hurricane Proof	Yes	Limited
Terrorist Resistant	Yes	Limited
Other Use	Yes, Storage of LNG, Co2, NG, Water, Petroleum	No
Ramping	Yes	Limited
Frequency Change	Yes	No, Built Specific
Manufacturing Footprint	Low, no Long Term	Extreme, Toxic Emissions, Waste
Maintenance of Storage Site	Low	Med
Maintenance of Equipment	Low	High
Relocatable	Mini-Yes, Mobile-Yes, Macro-No (can be repurposed)	Yes (costly)
Integrate with other Storage Systems	Yes	No
Industrial Compressor Replacement	Yes	No
Self Generate	Yes	No
Ocean or Tidal Placement	Yes	No
Use in Maritime	Yes	Limited
Toxic Chemicals in Manufacturing	No	Yes
Produce Toxic Landfill	No	Yes
EMF Field	No	Yes
Fire & Explosion Risk	No	Yes
Offshore Use	Yes	Limited
Solar Generation	Yes	Limited
Wind Generation	Yes	Limited