ENERGYDOME

Our WORLD can't wait.

Leading Modern Energy

Long-duration energy storage at scale.
Cost-competitive, reliable, deployed globally.

OUR MISSION

Energy Dome is dedicated to giving people everywhere better access to energy by modernizing the grid with a unique, cost-competitive solution. Our mission is to play a crucial part in decarbonizing the world while delivering low-cost, sustainable energy storage at scale.

OUR TECHNOLOGY

The CO2 Battery, Energy Dome's flagship technology, is a long-duration energy storage solution designed for rapid deployment; it strengthens grids, stabilizes energy prices, and also provides the flexible and reliable capacity needed for resilience, security, and independence.

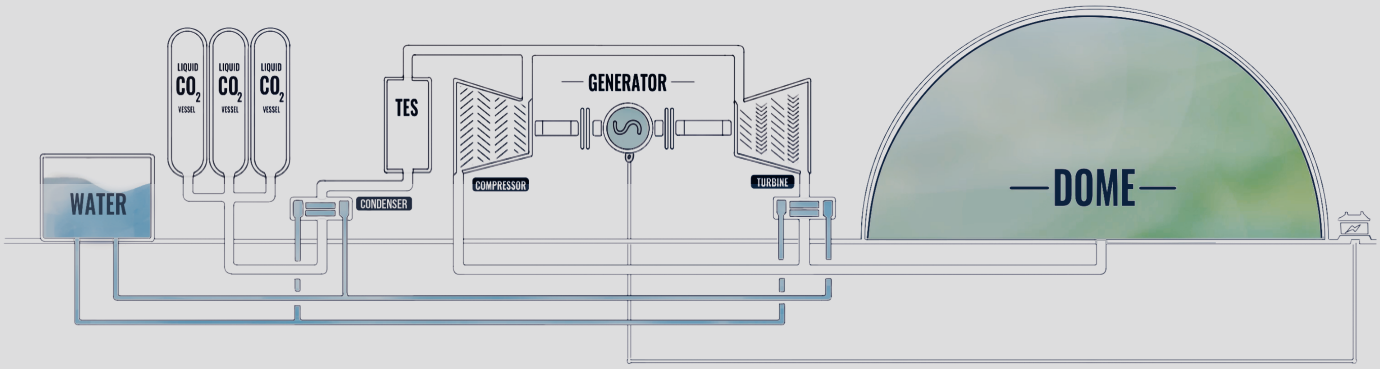
The CO2 Battery is now being deployed globally, making long-duration energy storage competitive, flexible, and reliable like never before.

CO2 BATTERY

HOW IT WORKS

Energy Dome's technology transforms CO2 from its gaseous to liquid state and vice versa. When operating in charge mode, the CO2 is withdrawn from an atmospheric gasholder, the dome, and compressed into an inter-refrigerated compressor driven by a motor. The heat generated from the compression is stored in a thermal energy storage system, whereas the CO2 is liquefied and stored in vessels under pressure at ambient temperature with zero atmospheric emissions. This process allows for high-density energy storage without using extreme cryogenic temperatures. In discharge mode – whenever energy is needed – the CO2 is heated, evaporated and sent into an expander before flowing back into the dome. In doing so, the expander drives the generator to feed carbon-neutral electricity to the grid.

The CO2 Battery has high round-trip efficiency, meaning it returns 75% of the energy it absorbs during its charge. There's no degradation during its prolonged life (30+ years), and its performance is third-party verified. Furthermore, the system relies on off-the-shelf equipment from Tier 1 and established global supply chains, ensuring virtually infinite scalability, other than ease of operation and maintenance.



QUICK EXECUTION

NTP to COD in 18 months

Efficient
Round-trip efficiency (75%+) AC-AC and MV-MV

Cost-Effective
Highly competitive CAPEX and OPEX

Flexible
CO2 Batteries can be constructed anywhere in the world

Proven
MW-scale plant already operational and grid-connected

Durable
No degradation of capacity or performance over 30+ years

Reliable
Off-the-shelf components made of eco-friendly materials

Independent
No dependence on rare metals such as lithium

Scan the QR code to learn more

energydome.com

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