



Global perspective on markets and opportunities

Medium-Duration Energy Storage: Policy and Markets

University of Nottingham – Monday 19 January 2026

Energy Dome is rapidly scaling to unlock mainstream adoption

Focused on deployment of the proven solution at scale in key markets globally.

Strong support for the mission is provided by the company's shareholders:



A proven thermo-mechanical energy storage technology using compressed CO₂

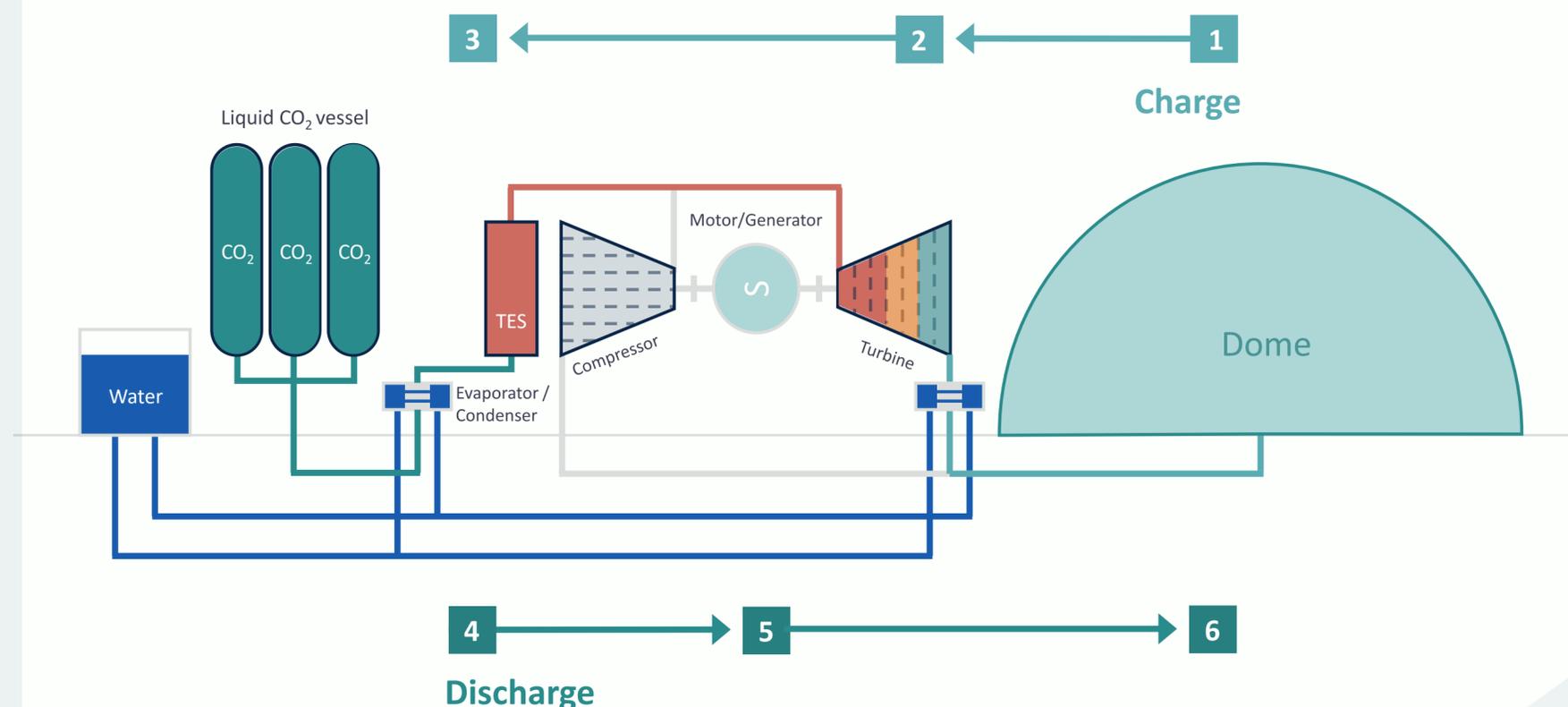
Why CO₂?

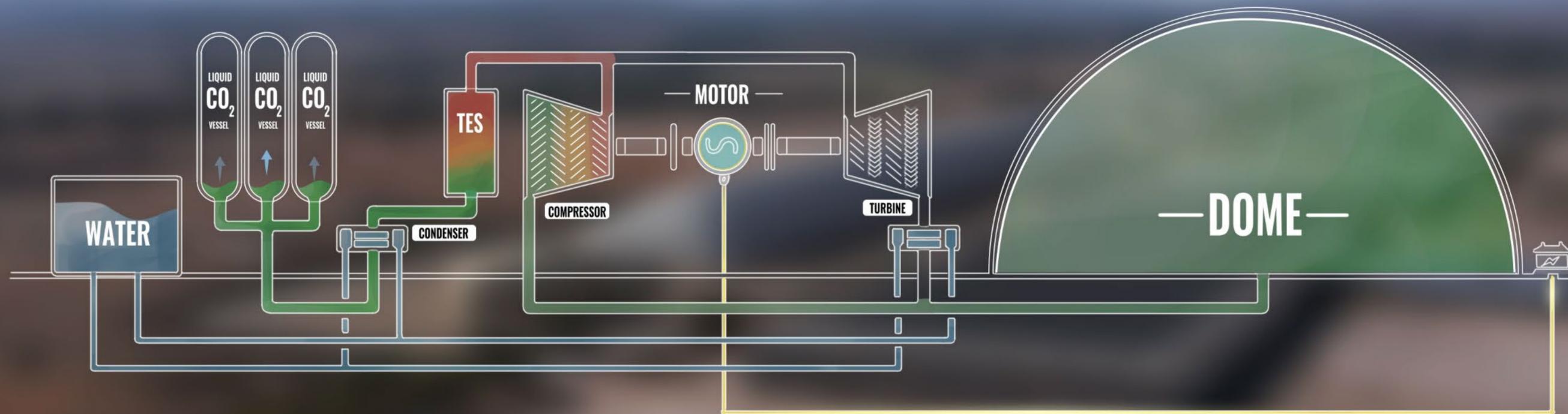
- Liquid at moderate pressure and ambient temperature – as used in fire extinguishers
- Enables a standardized, site independent product design for scalability
- Simple process → low capex & best-in-class efficiency



CO₂ Battery process overview

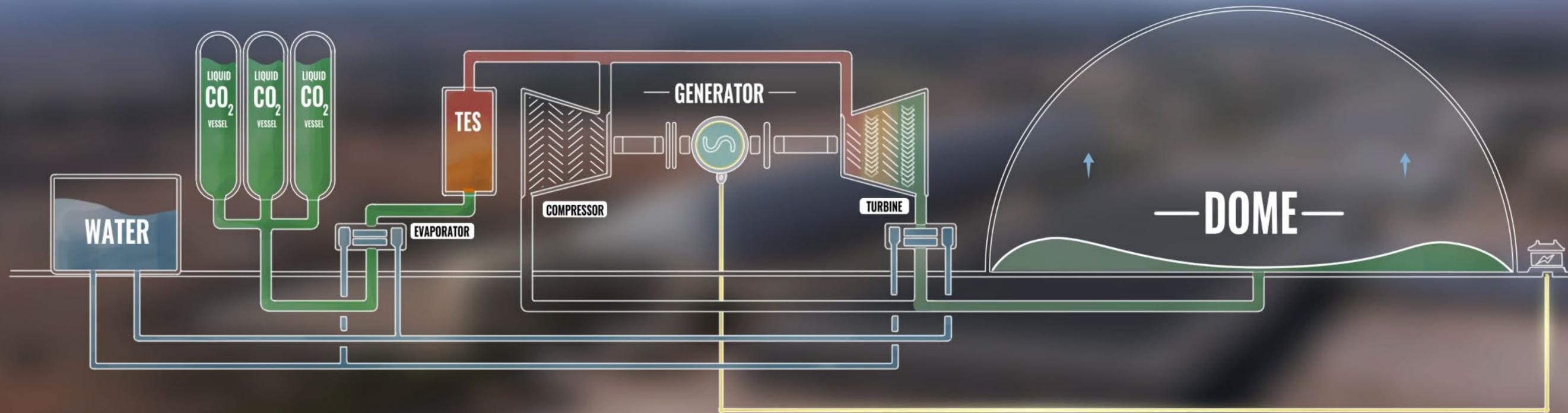
An elegant closed loop thermodynamic process





CHARGE

The CO₂ is withdrawn from the dome and compressed in a motor driven compressor. Heat generated from the compression is stored in the thermal energy storage (TES) system, and the CO₂ is condensed and stored under pressure at ambient temperature.



DISCHARGE

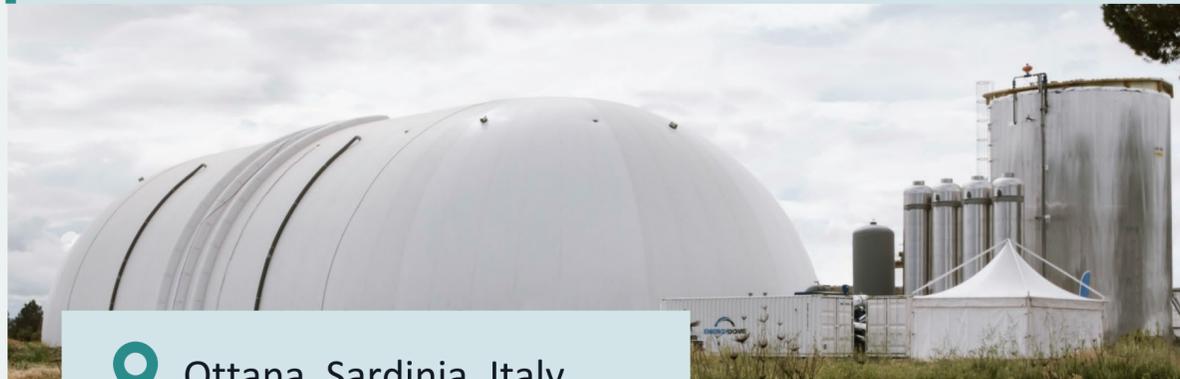
In discharge, the CO₂ is evaporated and recovers the stored thermal energy in the TES , with the hot pressurized CO₂ expanded in a turbine before returning to the dome. In doing so, the turbine drives the generator to feed carbon-neutral electricity to the grid.

Full commercial standard CO2 Battery product operational in Italy.

Demo Plant

2.5 MW – 4 MWh

Completed: Q2'22



Ottana, Sardinia, Italy

- Grid-connected demo plant at 2.5MW scale
- Quickly and successfully executed through lock-down in 2020-2021
- Independently third party verified with reports by Fichtner Engineering and EPRI
- R&D platform for the full-scale standard product .

Full commercial

20 MW / 200 MWh

Completed: Q2'25



Ottana, Sardinia, Italy

- Standard CO2 Battery product, identical to future standardized deployments
- Performance and reliability validated, with independent third-party reports from Fichtner Engineering & EPRI
- Funded by Breakthrough Energy Catalyst and European Investment Bank
- Long term offtake agreement signed with Engie
- Our own development: successfully permitted and constructed on budget

The CO2 Battery: a reliable, affordable and dispatchable source of capacity for the grid

Product fit: 8-24 hours duration delivering utility-scale power, typically daily cycling applications

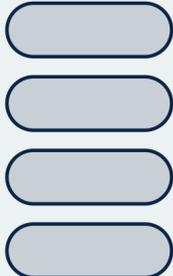
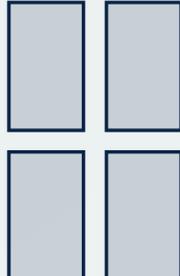
Standardized and modular product design: gives scalability and minimizes execution risk .

Grid support: conventional synchronous electrical machines **with natural inertia** provide system resilience vs inverter-based resources.

Rapid deployment: 18 months from commencement to commercial operation.



Modular technology based on standard frames which enable replication **and large-scale deployment**

		Energy bricks		Power Bricks		Charging	Discharging
<p>Standard configuration</p> <p>20MW/200MWh system</p> 	<p>DOME</p>  <p>200 MWh</p>	<p>Liquid CO2 vessels</p> 	<p>TES vessels</p> 	<p>Compressor</p>  <p>24 MWe</p>	<p>Turbine</p>  <p>18-23 MWe</p>	<p>25 MW</p> <hr/> <p>10 h</p>	<p>18-23 MW</p> <hr/> <p>8-10 h</p>
<p>Giga-scale configuration</p> <p>75 MW/1 GWh system</p> 	<p>DOME</p>  <p>1020 MWh</p>	<p>Liquid CO2 vessels</p> 	<p>TES vessels</p> 	<p>Compressor</p>  <p>24 MWe</p>	<p>Turbine</p>  <p>75-135 MWe</p>	<p>150 MW</p> <hr/> <p>9 h</p>	<p>75-135 MW</p> <hr/> <p>8-14 h</p>

Promoting **energy security** by drawing on **existing global supply chains without bottlenecks**

Hedged from geopolitics, trade wars and policy volatility

Scalable, off-the-shelf components

- Components are proven with **decades of operational history** sourced **from Tier 1 OEMs with performance guarantees**, leveraging existing oil & gas and thermal power supply chains
- Product designed-to-cost with multiple global suppliers with significant supply chain capacity / flexibility to deliver at scales required
- Realistic 30 – 50 year life-time with low cost, readily available maintenance.

Liquid CO2 vessels



TES vessels



Turbine



Compressor



Dome



Delivering energy security in an uncertain World

Strong, geographically diverse supply chain – provides optionality and flexibility of sourcing for all components, avoiding supply chain concentration risk and potential geopolitical disruption.

No Critical Materials: inputs are ubiquitous (just CO2, steel and water), with no exposure to battery metals or critical materials

Local value added and/or tariff avoidance with significant domestic content: Regional supply chains can be leveraged with locally manufactured components for local value added, jobs and local project delivery .

Blue chip customers adopting at scale - **1GWh already operating or contracted**

Strong commercial momentum:

each project - standard 20MW/200MWh CO2 Battery



“ Energy Dome’s technologically proven and scalable long-duration energy storage solution can help us unlock rapid progress.

“ **Cost-effective, efficient and scalable.** We see this as the first of many CO2 Batteries to be built.

Maud Texier

Director of EMEA Energy

Google

Raja Sundararajan

Executive Vice President

Alliant Energy

Build-Own-Operate (BOO)

Energy Dome develops, owns and operates the asset providing storage-as-a-service to offtaker client.



Major US Utility
(Confidential)

Original Equipment Manufacturer

Conventional equipment sale and service contracts



Policy and markets – global view

Market drivers and needs

- Longer duration energy storage can and should be an enabler of lower energy costs - but system level view is essential.
- Majority of countries are looking for broader societal benefits – economic value -added approach.
- Diverging views on climate make global efforts more complex. But the UK has an opportunity to lead the way.

Technology and industrial policy

- Major supply chain concentration risks across all key elements from raw materials through to technology .
- The importance of levelling the playing field - “Technology Neutrality” is not what it seems.
- Longer term view and **support for innovation** is largely absent from policy making.
- Europe needs to adapt or become simply a consumer of technology supplied by other countries.

Markets and regulatory

Most procurement policy is strongly influenced by perceptions on availability of technology.

Policy signals drive development activity.

Examples:

- UK – Cap & floor
- Italy – MACSE
- Australia, NSW – CIS
- US – wide variation, e.g. mandates (CA), planned procurement (NY).



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