



Unlocking utility-scale long duration energy storage, today.

The CO2 Battery unlocks renewable energy by making solar and wind power dispatchable.

Federico Minoli – Energy Dome

ENERGY DOME is a technological supplier of long-duration energy storage solutions worldwide, with the mission to fight climate change by contributing with a new breakthrough technology that uses CO2 to decarbonize the energy production

Commercial adoption in market

Early 2019

Feb 2020

4Q21

May 2022

2023

Patent families
filed

Start of operations

Series A closed at
\$25M

Commercial
demo in
Sardinia
operational

2-3 projects to
get the
product
established in
market

<2 years





COMMERCIAL DEMONSTRATION PLANT

2.5MW-4MWh

Successfully in
operation since
May 2022.



CO2 Battery process uniqueness

Our proprietary technology is based on the principle of manipulating and storing CO2 in different state conditions, in a thermodynamic closed loop

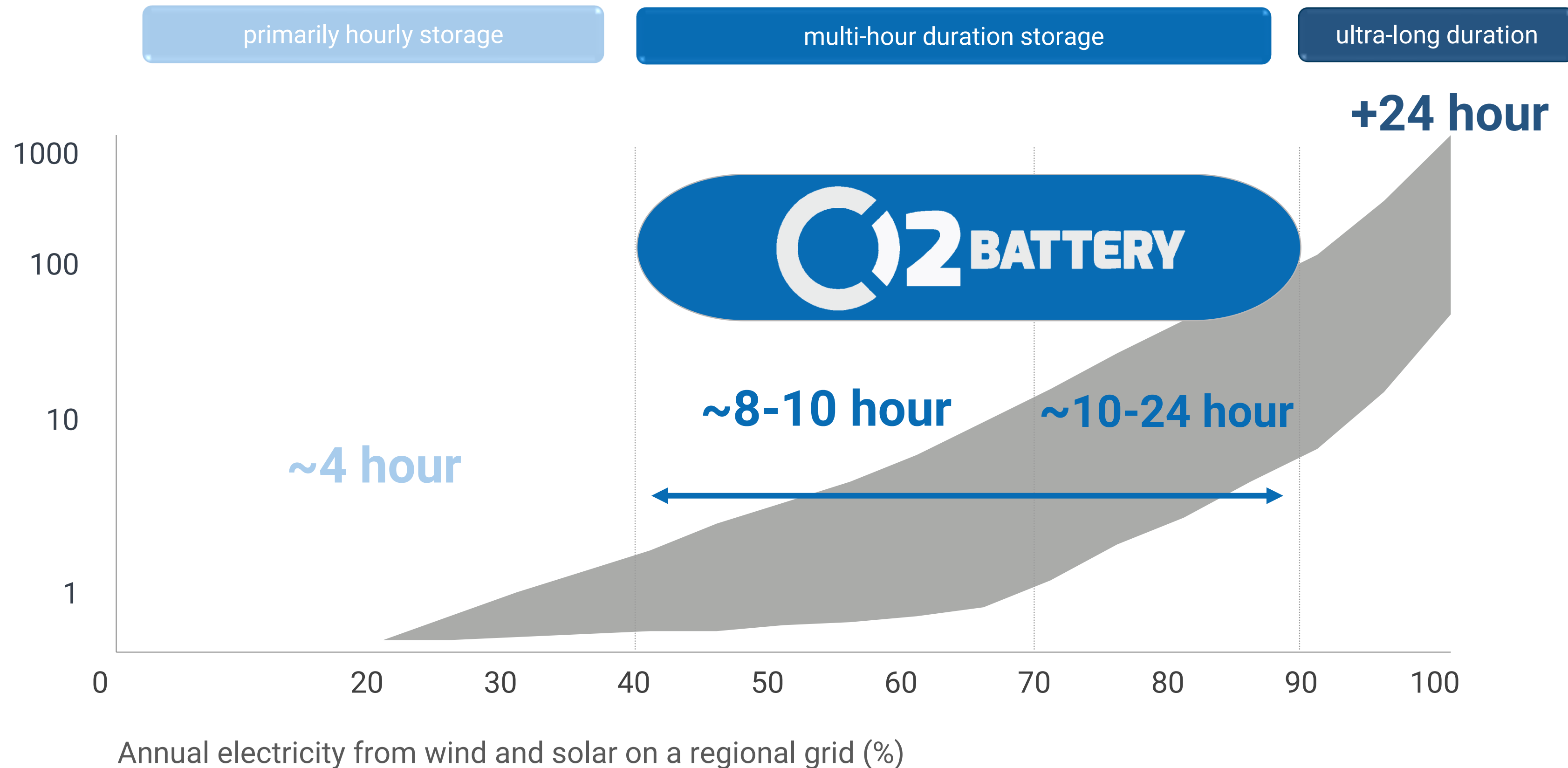


- Off-the-shelf components from existing supply chains
- Innovation in **process**, not components
- **CO2** is the **perfect working fluid**: critical temperature 31°C
- **RTE of 75%, AC-AC, MV-MV**
- No degradation over the plant lifetime, **30+ years**



The CO2 Battery value sweet-spot

Max duration of energy storage needed to ensure demand met at all times vs
Fraction of energy from intermittent wind and solar



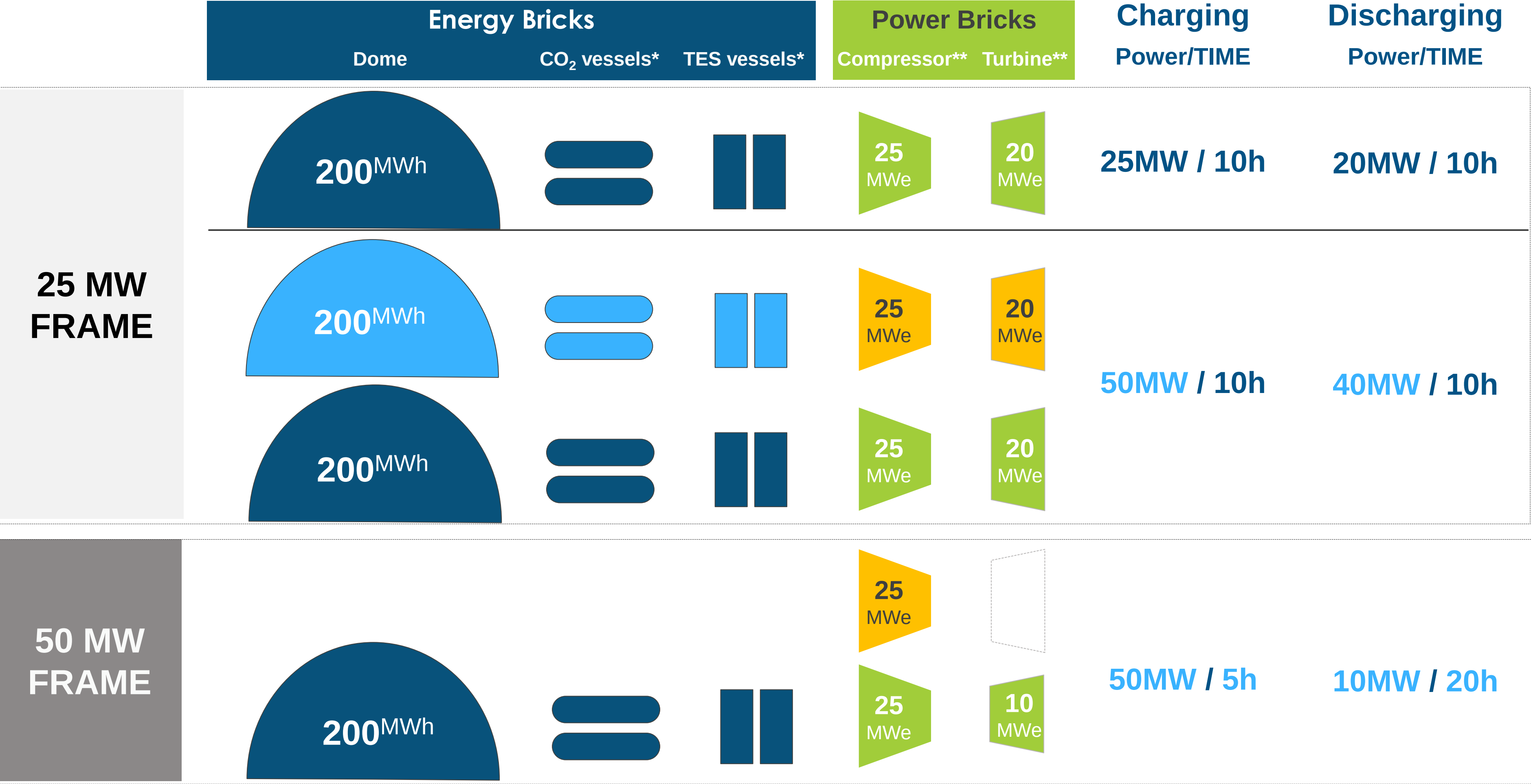
> **+8hour is the sweet-spot** where LDES becomes crucial to boost RE penetration

> **Long Duration Energy Storage (LDES)** becomes a crucial enabler at **~40% renewable energy (RE)** penetration

> **Ultra-long duration** required at **~90% RE** penetration and beyond

> **Energy Dome's** technology **addresses the key market need** between **4 hours and 24 hours**, enabling the decarbonization of the grid

Modularity allows configuration across customer use cases addressing ~90% of market needs



Independent energy vs. power

Independent charging vs. discharging

Standardized components configured in modular fashion across use cases in 25MWe compressor and 10MWe turbine increments:

- Fast charging & slow discharging to play in energy arbitrage
- Slow charging & fast discharging for peaker-like use cases

* Identical design to Demo Plant ; ** Same type of turbomachinery as demo plant (integrally geared compressor and axial turbine) but larger in scale

	Lithium-ion	
RTE	• 80-85% RTE • degradation over time	• 75% • no degradation
CAPEX *	• \$300/kWh • (Mass Scale)	• \$ 220 - \$150 kWh
LIFETIME	• 10 y	• 25 - 30 y
CAPACITY (Usable DOD range)	• 20-80% • degradation over time	• 0-100% • no degradation
EQUIPMENT TRL	• TRL9	• TRL 9
PERFORMANCE VALIDATION		• Fichtner • Politecnico di Milano

- CAPEX of Li-Ion Battery for large scale projects 4h;
- CAPEX of CO2 Battery calculated for 20 MW, 10h and inflatable dome;



Why the CO2 Battery can be a reliant solution for developing countries?



GRID STABILITY

RE improvement and power isolated centres



SUSTAINABLE

- Easy disposal
- No hazardous substances
- No rare materials



MARKET READY, TODAY

Deployable in 18 months
NTP to COD



OFF-THE-SHELF COMPONENTS

coming from reliable supply-chains all over the world



**NO PROCESS TRAINING &
STANDARDIZED CIVIL WORKS**



Contacts

Headquarters
c/o PoliHub
Via Durando, 39
20158 - Milano (MI) Italy

info@energydome.com
<https://energydome.com>

Tel. +39 0291773100

Thank you
for the attention!