



The Future of Energy Storage

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World-Class Investors and Technology Partners

Malta's ecosystem brings together leading industrial players, including investors and strategic technology partners, to deliver proven components, robust product development expertise, and a reliable supply chain.



THE FUTURE OF ENERGY STORAGE



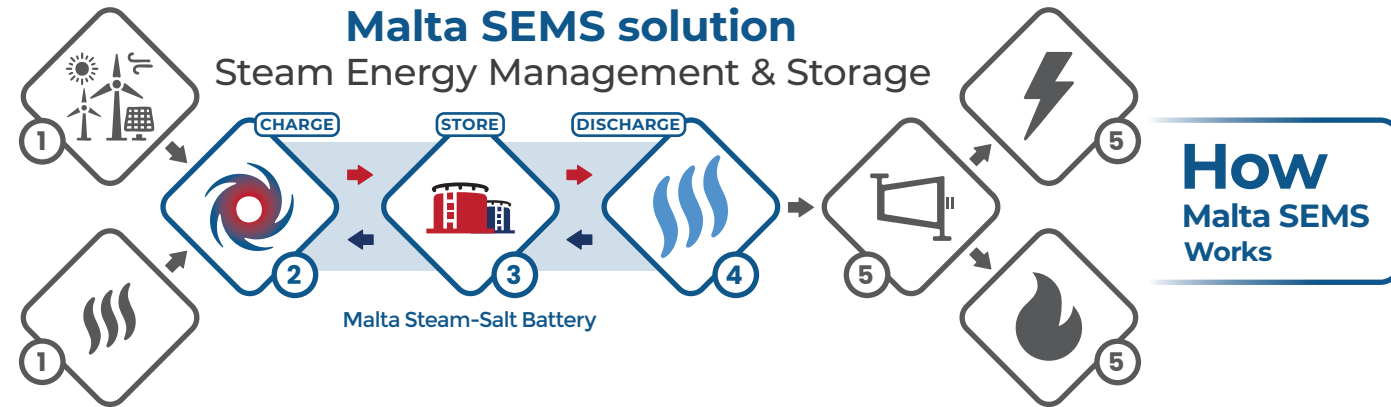
Platts
Global Energy Awards
2024 Finalist

Malta SEMS

Storage, Power and Heat at unmatched scale

Malta has developed a long-duration energy storage solution leveraging steam-based heat pump technology that offers a cost- and energy-efficient, flexible, and integration-ready solution to utility and industrial clients. **Malta SEMS (Steam Energy Management and Storage)** seamlessly integrates with existing energy infrastructure or operates as a stand-alone system, delivering clean, reliable power and heat at scale. Designed to accelerate decarbonization, SEMS offers grid-scale synchronous long-duration storage with unmatched adaptability.

The Malta system empowers leaders to achieve ambitious climate goals, diversify and decarbonize their economies, promote social and economic development, and strengthen energy security and independence.



1 Input, Variable Power and Residual Heat. Electricity is collected from renewables or excess grid power. Residual heat can also be collected when available.

2 Charge, Hi-temp Heat Pump (COP > 1.6). An efficient high-temperature heat pump converts electrical energy into thermal energy – both hot and cold.

3 Store, Salt / Water (8h to Multiday). The heat is stored in molten salt, and the cold is stored in water.

4 Discharge, Clean Steam (up to 180bar 550C). The thermal energy is discharged in the form of clean steam into a conventional Rankine cycle.

5 Output, Clean Power and Heat. Clean electricity and/or heat supply are cogenerated and delivered to end users as and when needed.

Malta SEMS

An LDES Solution to Decarbonize Utility and Industrial Assets

- Long Duration Energy Storage**
8+ hours to multiday
- Decarbonized Power and Heat Supply**
adjustable and at scale
- Cost and Energy Efficient Scaling**
from 50 MW up to 500 MW
- Superior RTE and Energy Density Footprint**
- Flexible and Integration-Ready with running assets**
- Decoupled charge/discharge trains**
- Synchronous power generation for Grid reliability services**
- No geological dependencies**

Integrated Solutions

for Energy Decarbonization



Utilities: Transition and Repowering

- Natural gas and coal power plants transition
- Geothermal power plants hybridization
- Co-generation and district heating



Industrial: Heat and Power decarbonization



Next generation data centers



Standalone

Why Malta?

A viable clean alternative to today's large-scale power and heat supply.

Integrable: Malta's solution can leverage existing power generation infrastructure and steam cycles, resulting in reduced capex and increased performance.

Flexible: With independent charge and discharge cycles, the Malta system can be tailored to your energy storage and cogeneration needs.

Cost-Leading Scaling: Increasing the power output and the duration of storage follows sublinear scaling and allows the system to grow with the need.

Zero Waste, Circular Solution: Malta's solution uses non-hazardous materials, has no waste by-products, poses no long-term disposal challenges, and is 100% recyclable.

Long-Duration, Longer Lifespan: Malta's solution can discharge stored energy in the form of power and/or heat from 8 hours to multiday periods. Like other power plants, its lifespan is expected to be 30 years or longer.

Reliable Supply Chains and Existing Technology: Malta's solution uses conventional components, abundant raw materials (e.g. salt, and water), reliable supply chains and existing technology in the energy and power industries.

Malta SEMS

Specification sheet

Key features	Malta Commercial Scale
Plant Output	Power (MW): 50 - 500 MW Heat (MWth): From 0 to 2.5x the Power output
Energy Storage Capacity	8 hours to multiday
Round Trip Efficiency (RTE)	Power to Power: 55-60% Power to Heat: 96% Cogeneration Heat + Power: 85-95%
Charge Cycle	High temperature heat pump (585C) COP 1.6
Thermal Energy Storage	Hot reservoir: Solar Salt Cold reservoir: Water or existing low-temp stream
Discharge cycle	Power: Steam generated into rankine cycle Heat: Steam supply up to 180 bar and 550C
Plant Design Life	30+ Years
Land Footprint	~13.5 Acres (5.5 Hectare) for a 100MW/10h system