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# Transforming The Future of Energy Storage



Platts  
Global Energy Awards  
2024 Finalist

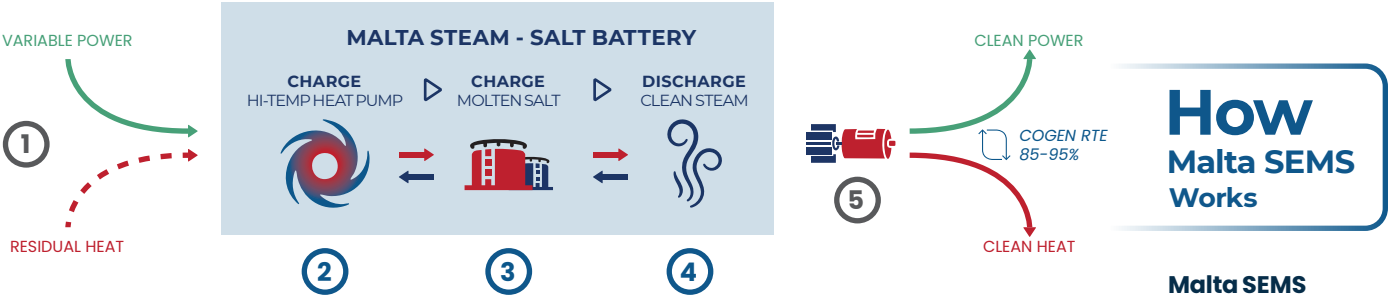
# Malta SEMS

## Storage, Power and Heat at unmatched scale

Malta has developed a utility-scale long-duration energy storage solution powered by steam-based heat pump technology. Using proven subsystems, a locally sourced supply chain, and abundantly available materials like salt, the system delivers economical, clean energy with a flexible power and heat delivery mix without geological constraints. Whether integrated with energy-intensive industries, generation assets, or deployed as a standalone system, **Malta's Steam Energy Management and Storage (SEMS)** fully replaces the attributes of fossil-fired energy, delivering identical synchronous generation for grid reliability without emissions. Its cost-efficient, adaptable design provides a scalable, future-proof solution for asset owners navigating evolving energy demands and market structures.

**Malta SEMS is more** than just energy storage—it's an integrated clean energy solution that powers industries, data centers, and cities, stabilizes grids, and delivers flexible clean heat and power, cost-efficiently, strengthening energy independence and security, all in one system.

## Malta Steam Energy Management and Storage (SEMS)



- Input, Variable Power and Residual Heat.** Electricity is collected from renewables or excess grid power. Residual heat can also be collected when available.
- Charge, Hi-temp Heat Pump (COP > 1.6).** An efficient high-temperature heat pump converts electrical energy into thermal energy.
- Store, Salt / Water (8h to Multiday).** The heat is stored in molten salt.
- Discharge, Clean Steam (up to 180bar 550C).** The thermal energy is discharged in the form of clean steam into a conventional Rankine cycle.
- 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

## to Maximize Economic Value and Reliability



### Utilities: Transition and Repowering

- Natural gas and coal power plants transition
- Geothermal and Biomass energy dispatchability
- Co-generation and district heating



### Industrial: Heat and Power decarbonization



### Next generation data centers

## 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.

**Utility Scale:** As with conventional power plants, the Malta system's specific costs benefit greatly from scaling up beyond 100 MW and beyond 10 hrs.

**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, 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



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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.

