



Actualidad del Almacenamiento Energético en España

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Proyectos de Almacenamiento Innovadores

Malta Inc.
November 18th, 2025



Deep Bench of Financial, Strategic and Commercial Partners

- **2012** Conceived by Nobel Laureate, Stanford professor
- **2015** Acquired by Google; incubated at Google X
- **2018** Malta Inc. Spun out as private company
- European Affiliates:
 - Germany
 - Spain
 - Italy

Blue-Chip Financial Investors



Technology Partners & Investors



Independent Validation



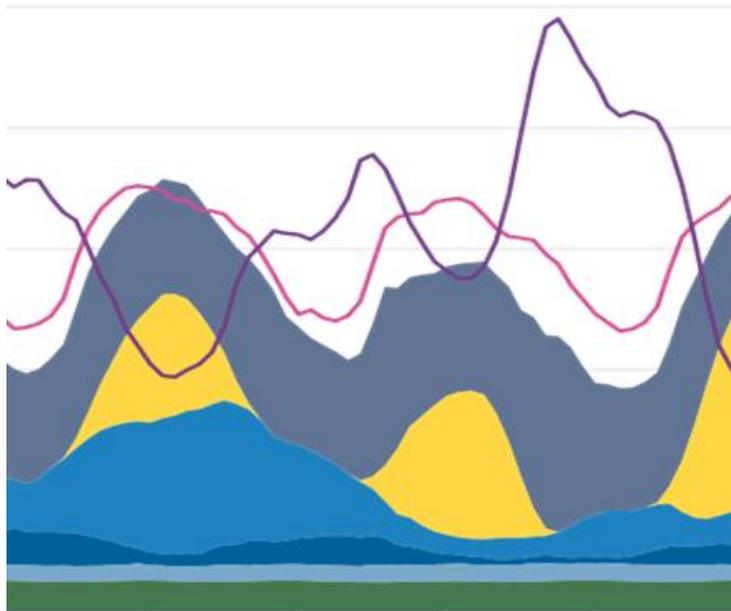
EPC Partners



Robust ecosystem of blue-chip investors and technology and deployment partners provides **strong validation and execution capability**

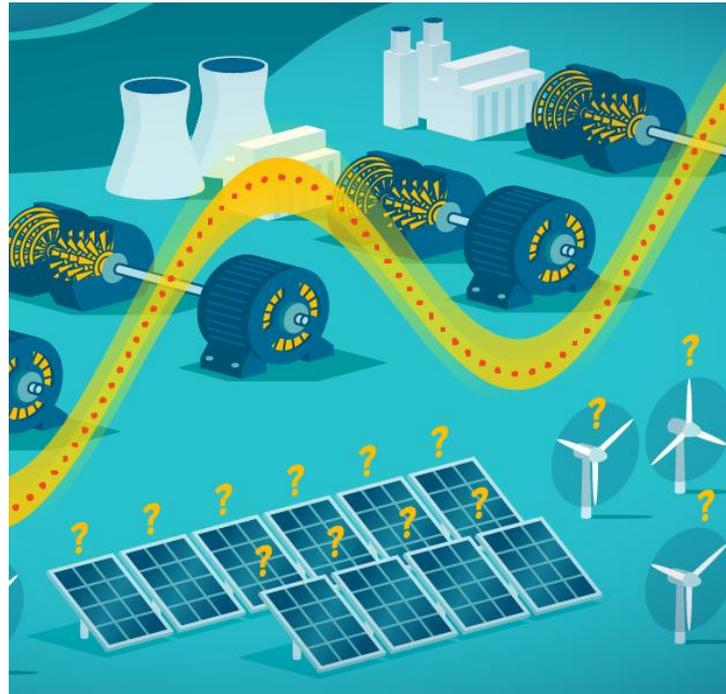
Why do we need large-scale storage systems for decarbonisation with renewables and grid stabilisation?

Imbalance between the demand for power and heat and its renewable production



Source: <https://www.agora-energiewende.de>

Maintenance of 50Hz network frequency, which is guaranteed today by rotating turbomachinery ("Synchronous Inertia")



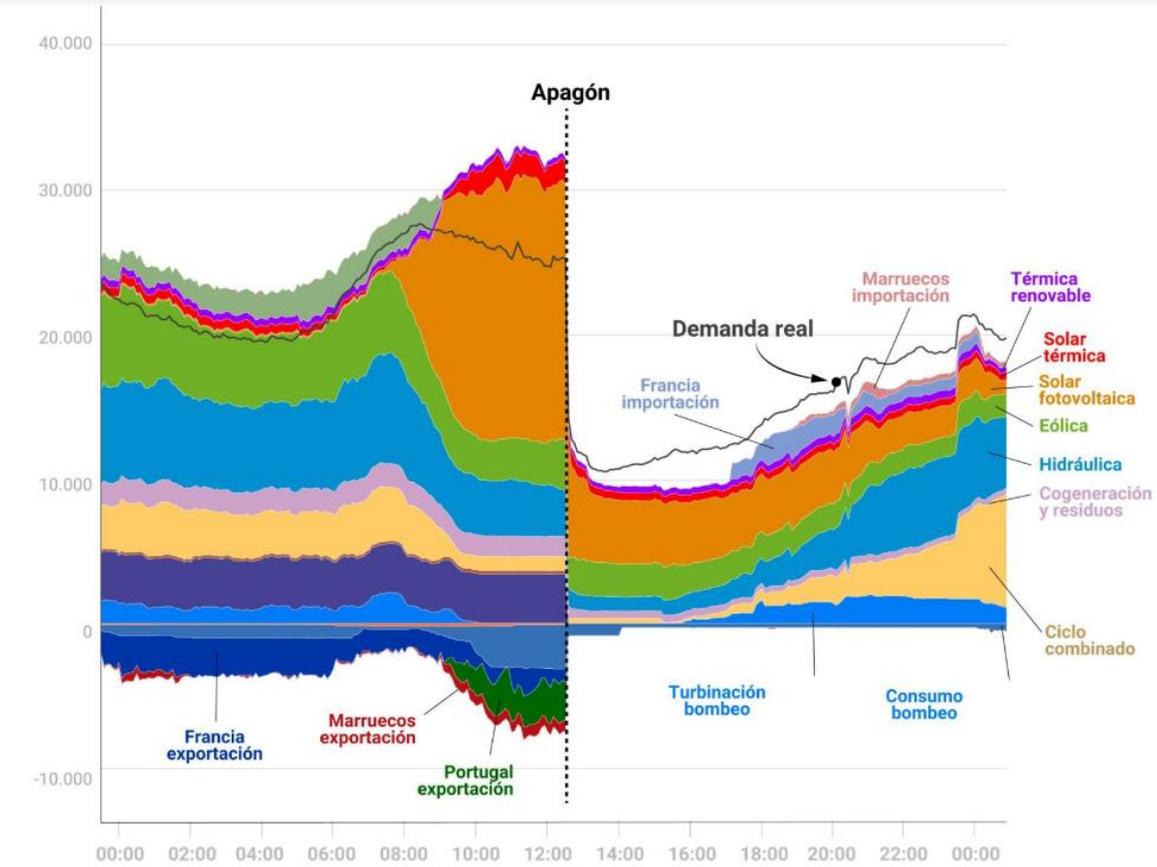
Source: <https://eprijournal.com/>

Lack of renewable CHP infrastructure for sector coupling (example district heating)



Source: <https://www.ise.fraunhofer.de/>

Lack of synchronous power generation – a trigger of the Iberian blackout



Source: Red Eléctrica de España (REE)

China, the first country to integrate molten salt storage in coal-fired power plant



Source: <https://www.ceic.com/gjnyjtwEn/xwzx/202509/7c3bd81e48a043c6ac8e054c22ae30ee.shtml> ,

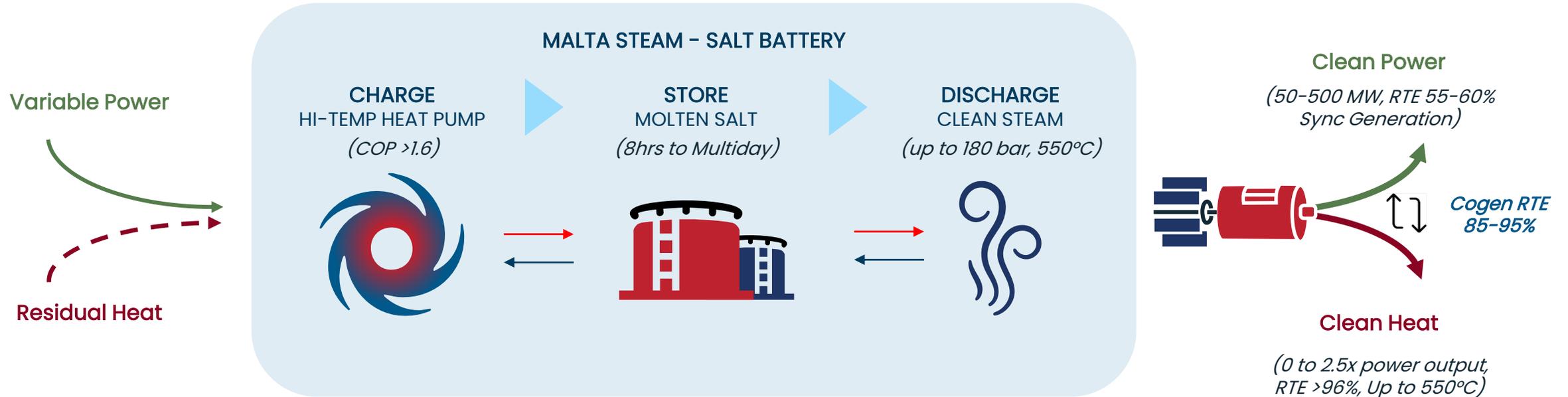
- Integration of 1000MWh molten salt storage in CHN Energy's 630MW coal-fired power plant unit in Suzhou.
- First application in 2022, completion and commissioning after four years on August 30, 2025.
- Uses ternary molten salt to circulate heat between a 390°C high-temperature tank and a 190°C low-temperature tank.
- The load control capability of the coal-fired power plant has been significantly improved.

Commercial scale of long duration molten salt storage originated in Spain



Malta's Steam Energy Management and Storage (SEMS)

Malta SEMS is a cost efficient, steam-based heat pump, storage and generation solution that is easily integrated with existing cycles or deployable as a stand-alone solution



1. Inputs

- **Renewable energy** or **energy from the grid** charges the system
- Integration with systems that produce excess heat and steam to drive the evaporation process and improve efficiency

2. Charge Cycle

- Heat pump with **multiple compression stages** with intercooling, connected in series produces **superheated steam** to **heat molten salt to 565°C**

3. Discharge Cycle

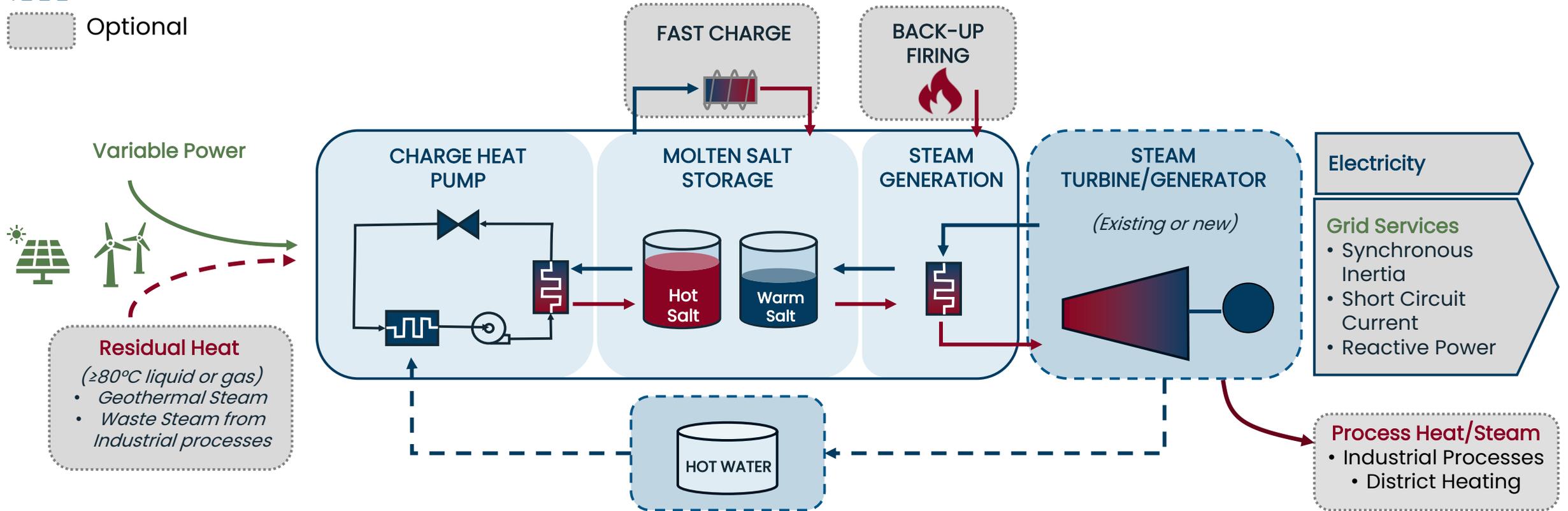
- Salt transfers **heat to water to produce superheated steam**
- Superheated **steam flows through a steam turbine to produce electricity** or is **extracted for heat / steam applications**

4. Outputs

- Adjustable combinations of **power, steam and heat** are supplied across applications
- **Flexible generation modules** enable the ability to **integrate with other power / heat / steam generation assets**

Malta Steam Energy Management and Storage (SEMS)

- Core System w/ Flexible Sizing
- Integration-ready
- Optional



Malta SEMS System – Charge Cycle

Illustrative 100 MW Malta SEMS System

- Heat pump with multiple compression stages with intercooling, connected in series
- Salt–Steam Heat Exchangers: Compressed steam heats salt to 565°C

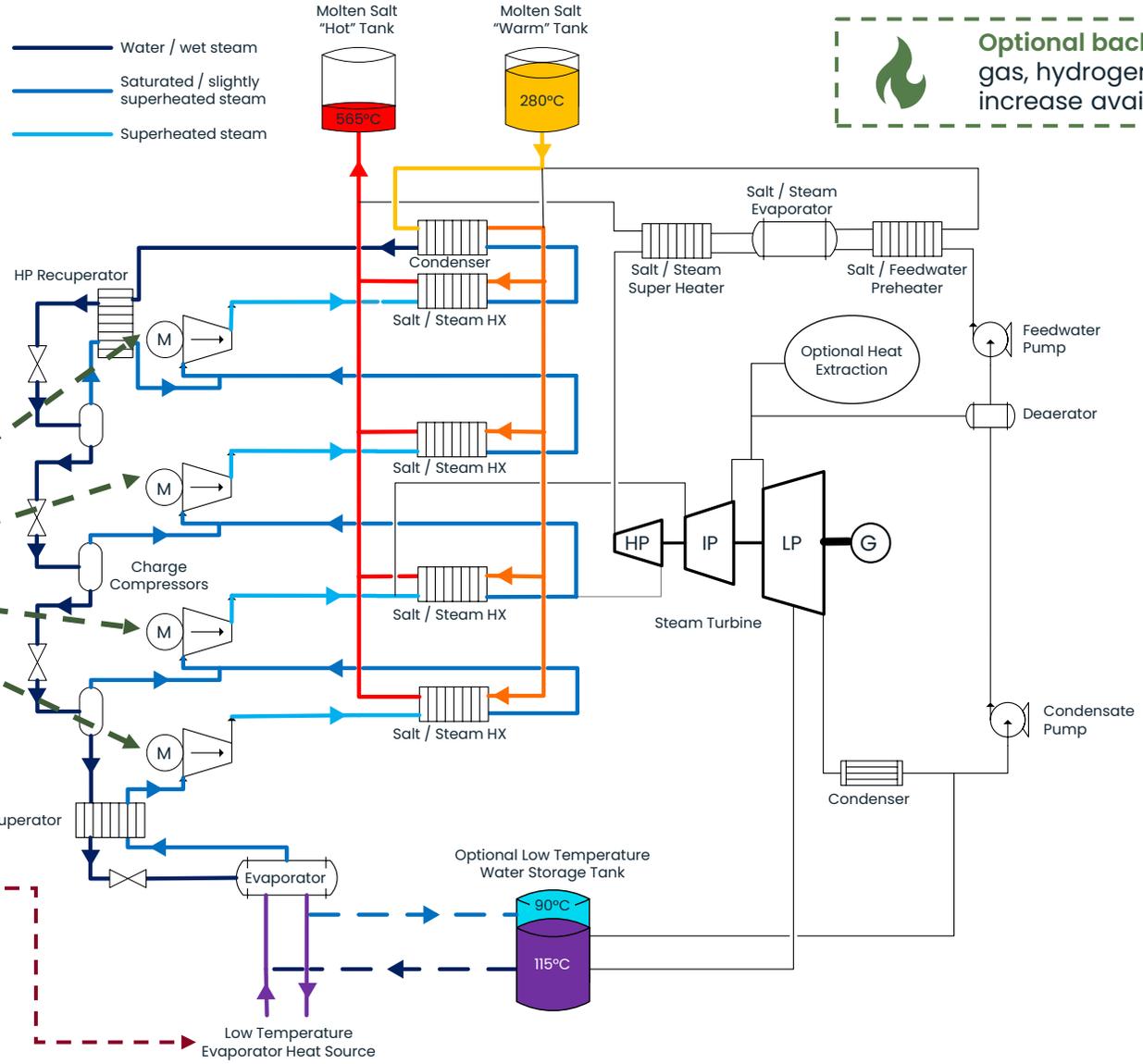


Renewable Energy

 ~180 MW charge power

 COP >1.6

Integrated solution leveraging available **waste heat** in lieu of low temperature storage increases cycle efficiency




Optional back-up firing with natural gas, hydrogen or other biofuels to increase availability

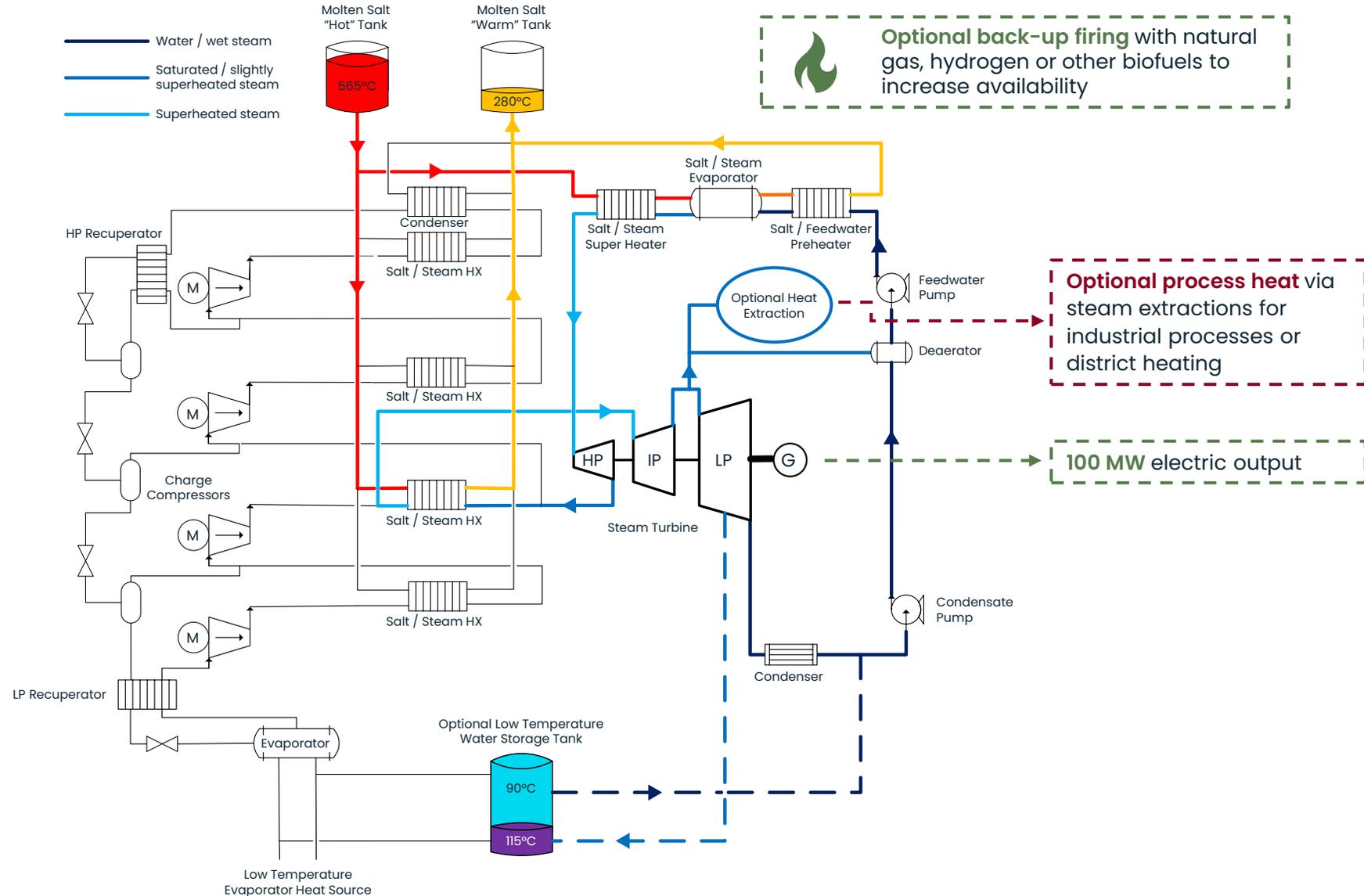
Note: Illustrative diagram with key Malta system components.



Malta SEMS System – Discharge Cycle

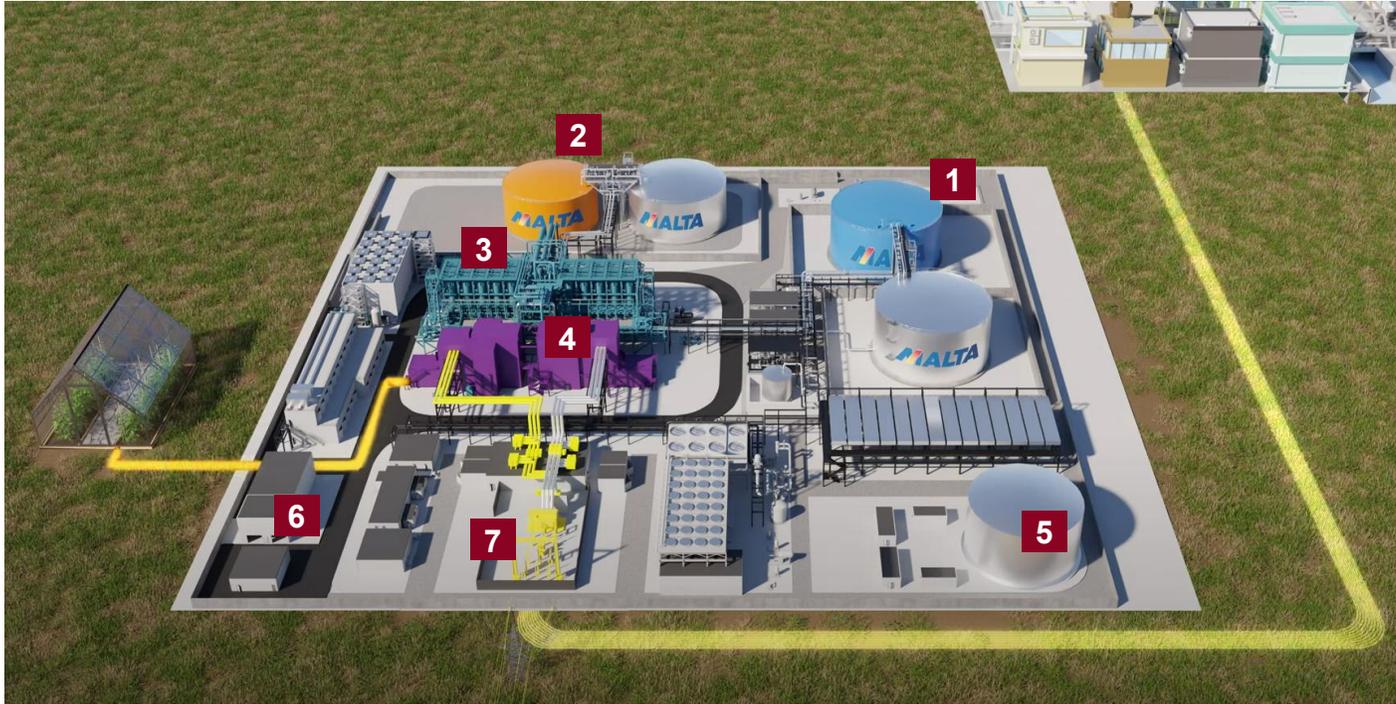
Illustrative 100 MW Malta SEMS System

- Salt transfers heat back to water to produce superheated steam
- Superheated steam flows through a steam turbine with multiple sections to produce electricity
- Conventional steam generation cycle with ability to integrate with other steam generation assets



Note: Illustrative diagram with key Malta system components.

Malta SEMS thermal storage system with high-temperature heat pumps for grid services and decarbonisation of power and heat generation



1 Water Storage Tank

2 Salt Tanks

3 Heat exchanger

4 Turbomachinery

5 Firewater Tank

6 Control Room

7 Switchyard

Malta SEMS Parameter

- Storage Capacity: 50 - 500MW+
- Long-duration Storage: 8h to 8 days
- Charge/discharge efficiency
electric 52-60%
Power/Heat >90%
- Minimal degradation, lifespan:
30+ years /10.000cycles
- Energy losses during standby: <0.5%
/day
- Same Grid services as turbine power plants
- CHP storage for decarbonization of district heating networks

Malta SEMS with Industrial Processes and District Heating



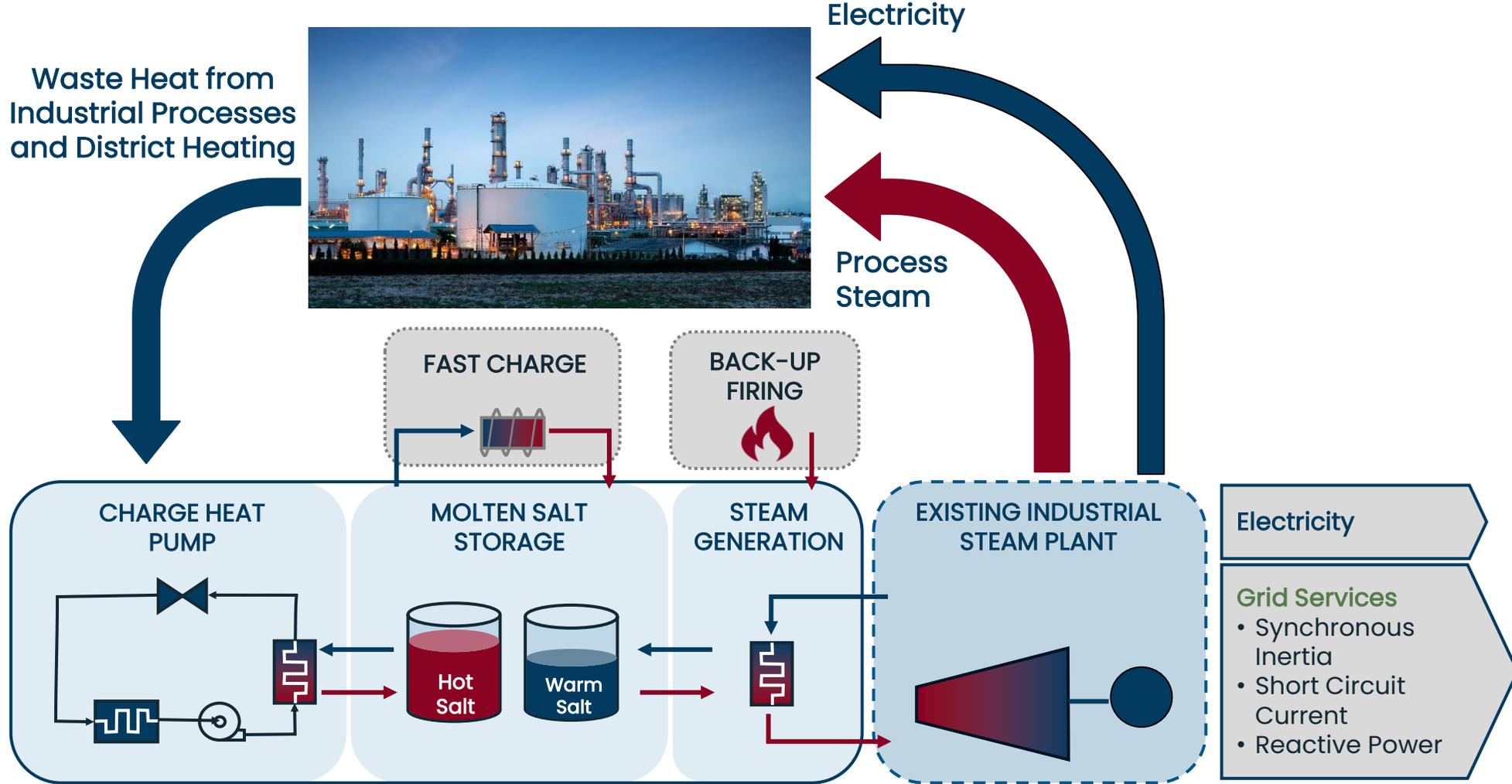
Waste Heat from Industrial Processes and District Heating



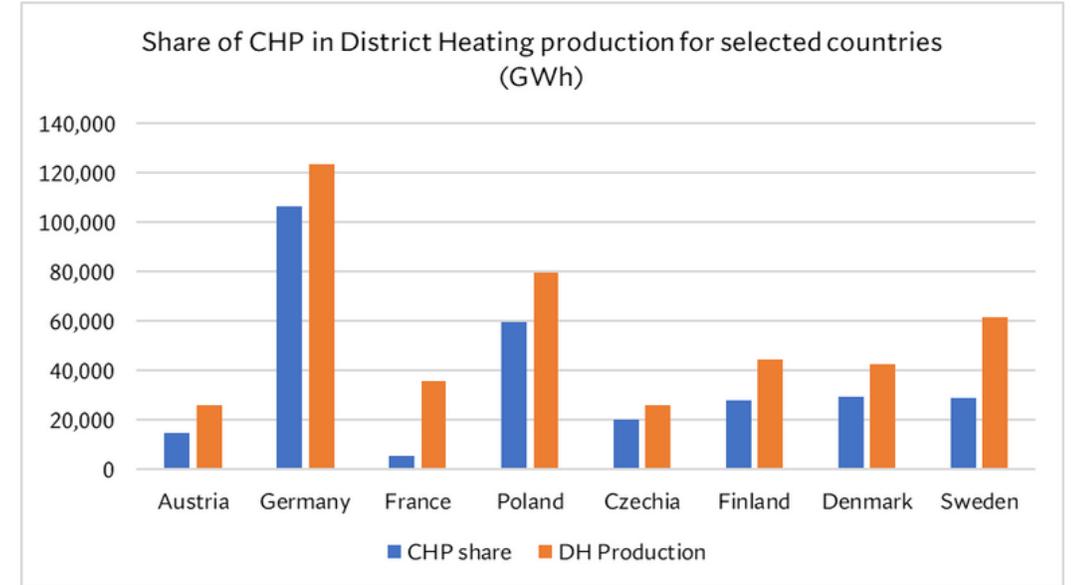
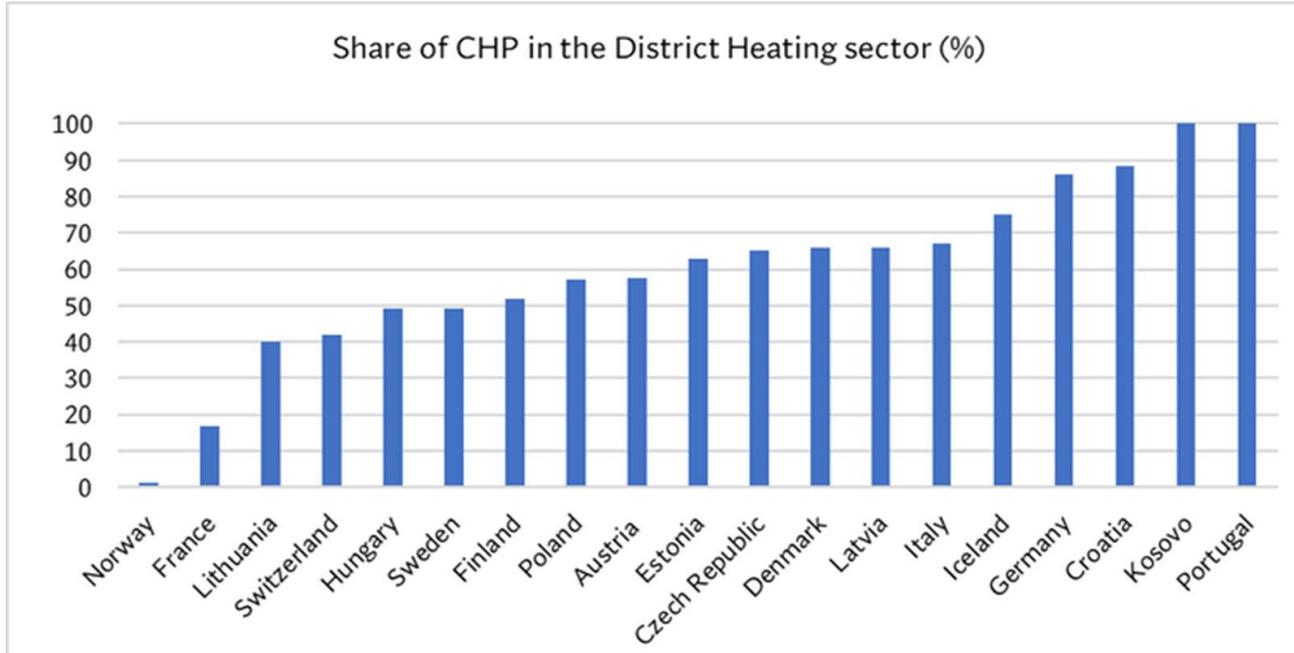
Electricity

Process Steam

Grid-Excess Variable Power



Replace fossil cogeneration plants in municipal power and district heat networks



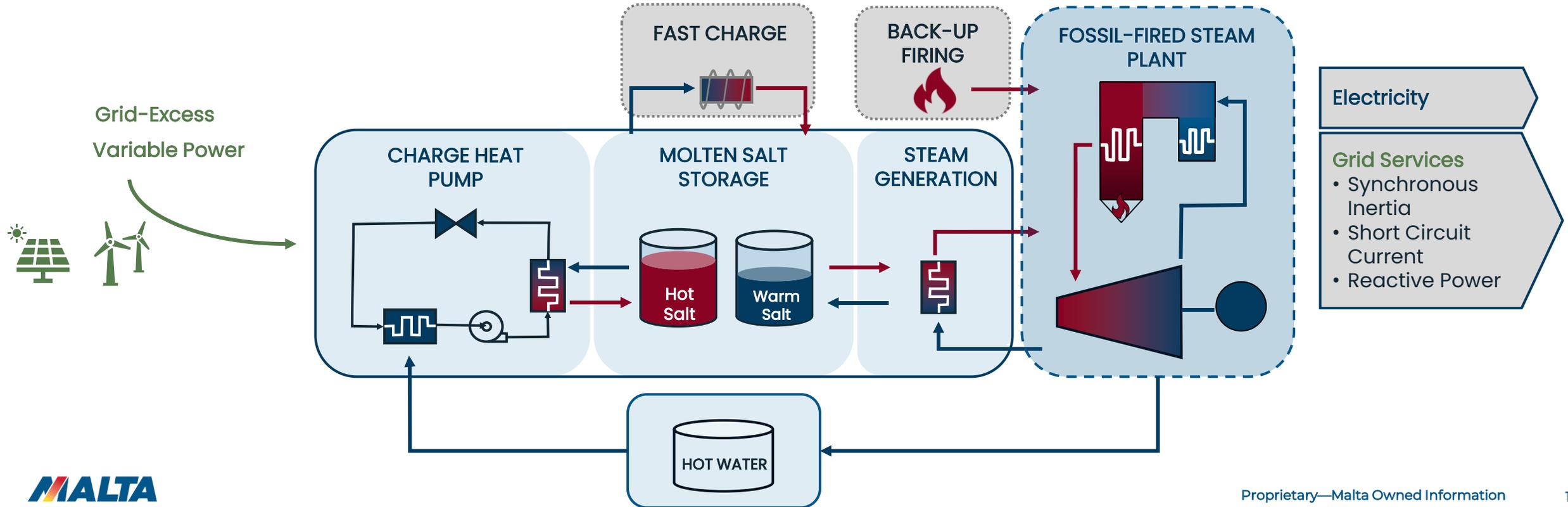
- **Municipal Energy Decarbonization:** Municipalities obliged to decarbonize their power& heat systems
- **Replace fossil CHP:** Fossil CHP systems focus on heat in heating season and power supply rest of year
- **Steam Networks for Industrial Processes:** Many municipalities own steam networks for industrial consumers
- **High Land Cost:** Favor high temperature thermal storage due to smaller footprint
- **Use of waste heat:** from waste incineration, industrial processes, data centers
- **Use of geothermal heat**

Source: https://api.euroheat.org/uploads/DHC_Market_Outlook_Insights_Trends_2023_81498577a7.pdf

Malta SEMS for Decarbonization of Coal Plants



Synchronous Long Duration Energy Storage
to Make Variable Renewables Dispatchable
Transition Coal Fired Power Plants and
Keep the Lights on



Solution: Decarbonization of gas-fired power plants with thermal storage systems

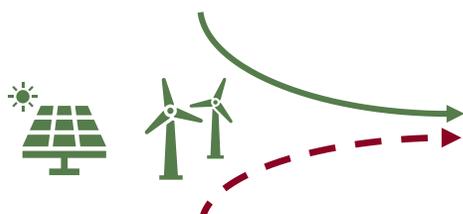
Example: Malta Steam Energy Management and Storage System

 Core System w/ Flexible Sizing

 Flexible Integration

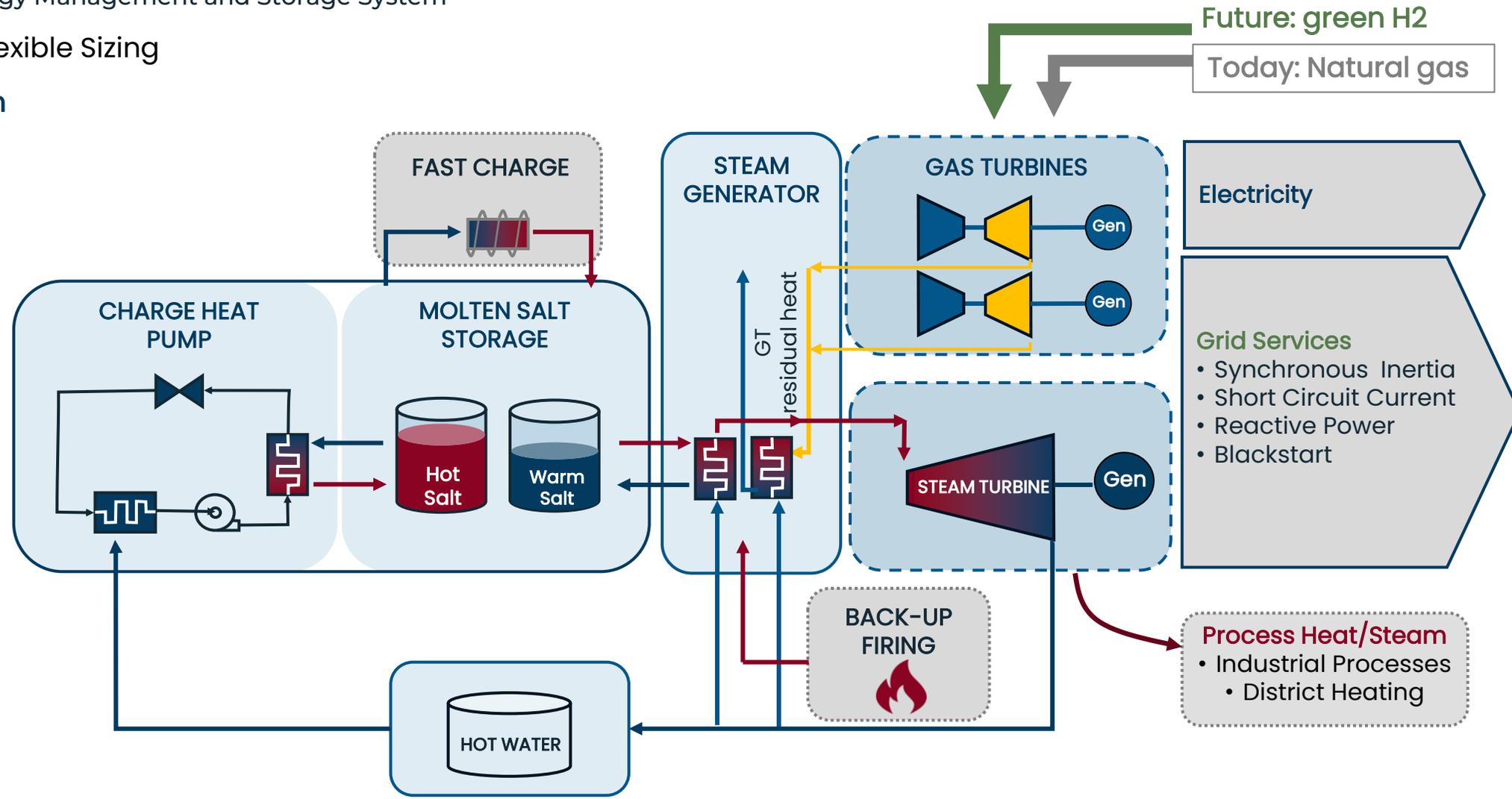
 Optional

Grid-Excess Variable Power

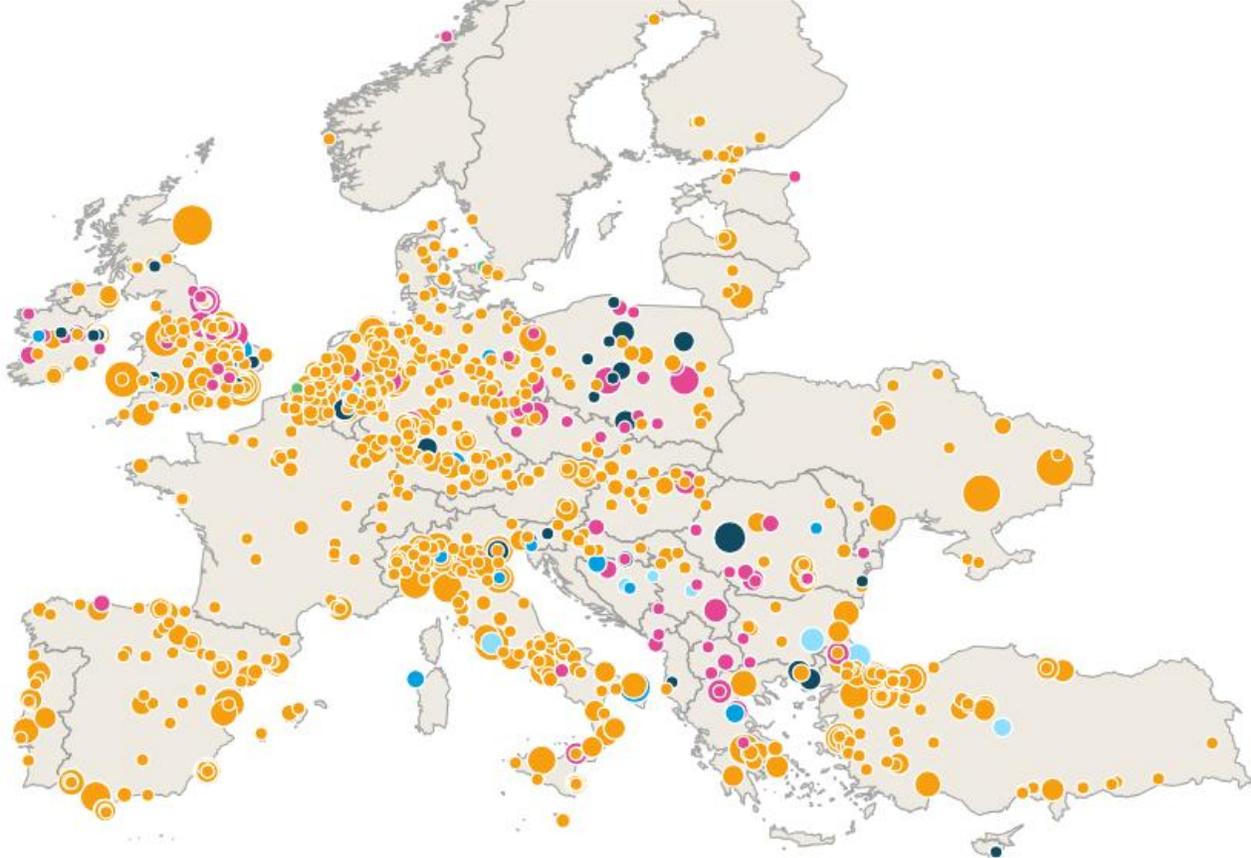


Residual Heat
($\geq 80^{\circ}\text{C}$ liquid or gas)

- Geothermal Steam
- Waste Steam from Industrial processes



Europe's existing and planned gas power plants April 2025



100MW ○ 1000MW ● Installed ● Planned ● Construction ● Shelved ● Cancelled ● Retired

<https://beyondfossilfuels.org/gas-tracker-tab/>

This is the time to start decarbonization of industrial processes with storage



PRESS RELEASE | Nov 6, 2025 | Brussels | 3 min read

Commission approves €700 million Spanish scheme to support cleantech manufacturing capacity, in line with Clean Industrial Deal objectives

The scheme was approved under the Clean Industrial Deal State Aid Framework (CISAF) adopted by the Commission on 25 June 2025

https://ec.europa.eu/commission/presscorner/detail/en/ip_25_2583

An aerial photograph of a large industrial facility, likely a water treatment plant, featuring several large white cylindrical tanks with the MALTA logo, various processing buildings, and piping. The facility is situated in a vast, open landscape with rows of solar panels in the foreground and a line of wind turbines in the middle ground. In the background, there are large, rugged mountains under a blue sky with scattered white clouds.

Thank you for your attention!

Contact

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