sCO_2 - Efekt

Development of innovative systems for efficient energy storage

TAČR Theta 2, TK02030059

Presentation structure

- Project Summary
- Objectives & expected impact
- Scope
- Main results/outcomes
- Options for exploitation/collaboration/follow-up activities

Project summary

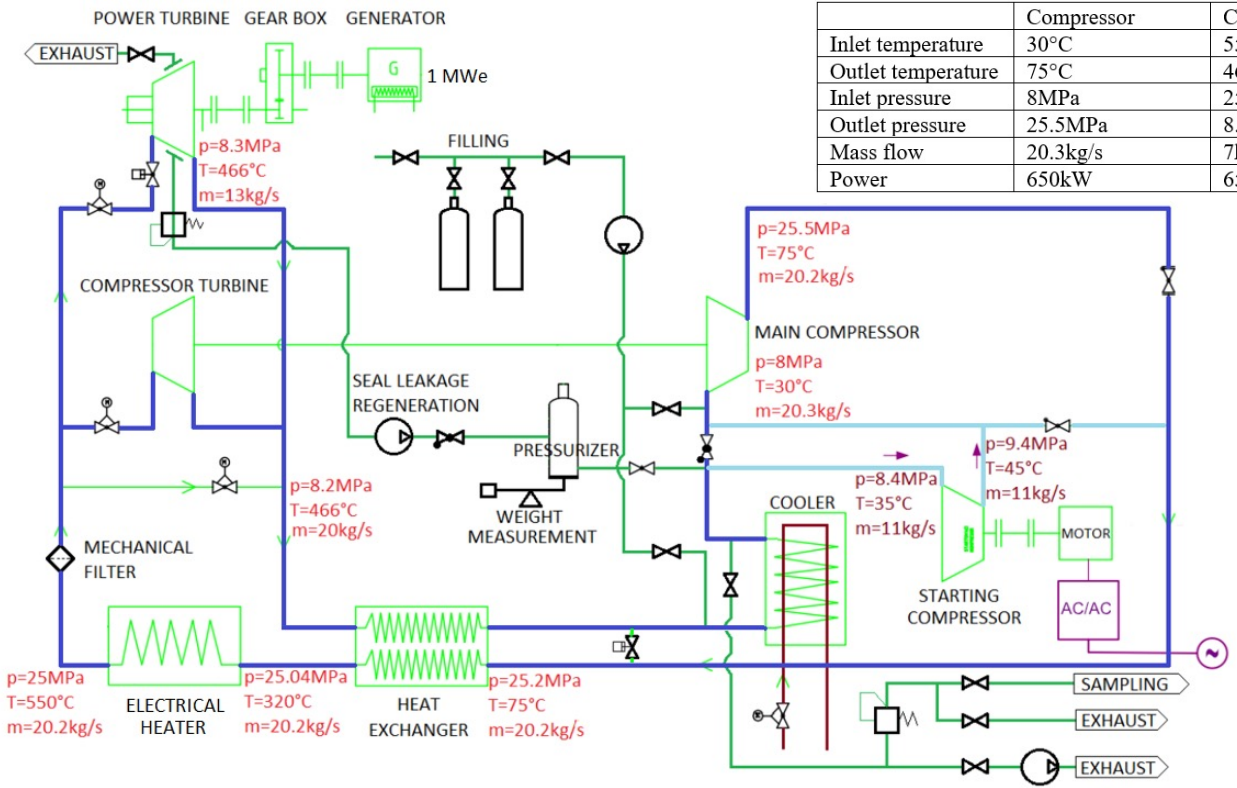
Funding source	TAČR – Technological Agency of Czech Republic MPO – Ministery of Industry and Trade – Institutional support Own resources
Budget	~ 4 Mil. €
Duration	66 months (5/2019 – 10/2024)
Start TRL	4
End TRL	6

Partners: CVR, Doosan Škoda Power, Inpraise Systems, ÚJV

Objectives & expected impact

- Design of a "zero emission heating plant" - flexible and effective system for thermal energy storage (TES) and its reverse use for a combined power and heat supply.
- Design, fabrication and experimental verification of the key components of the designed energy storage system in relevant environment.
- Application of the system to be developed will support the power grid stability and enable to increase the share of renewable resources.

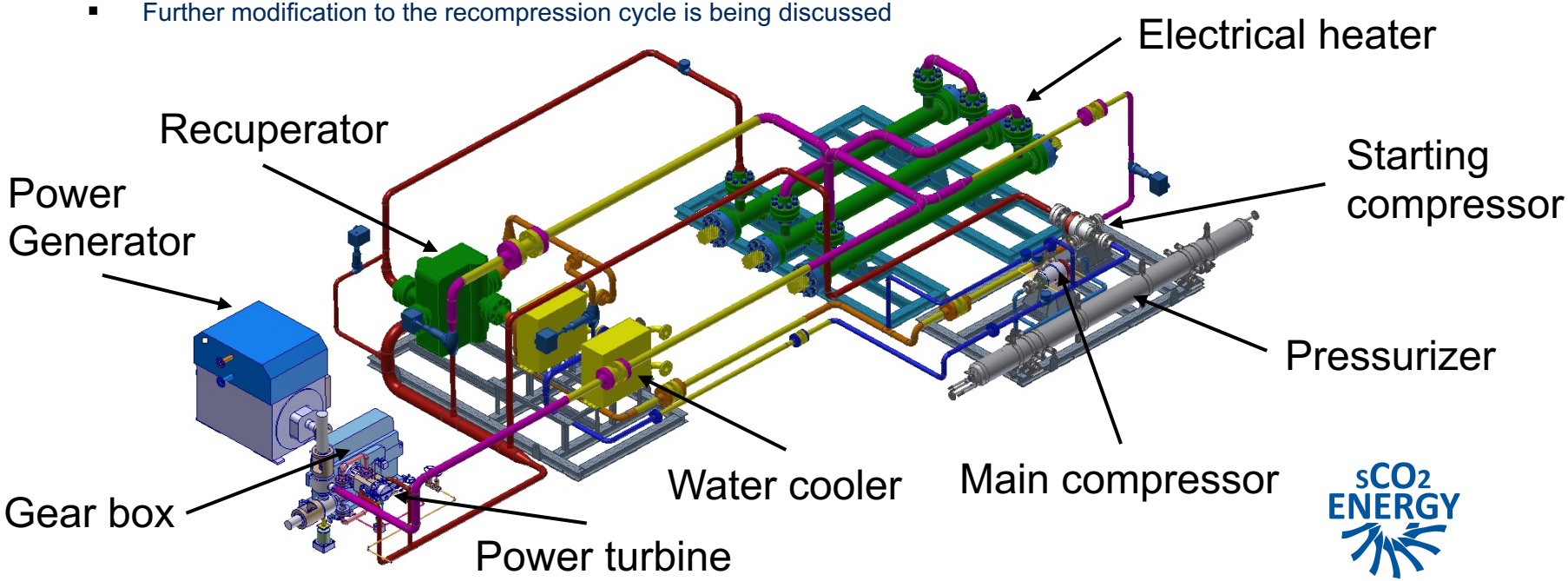
Scope



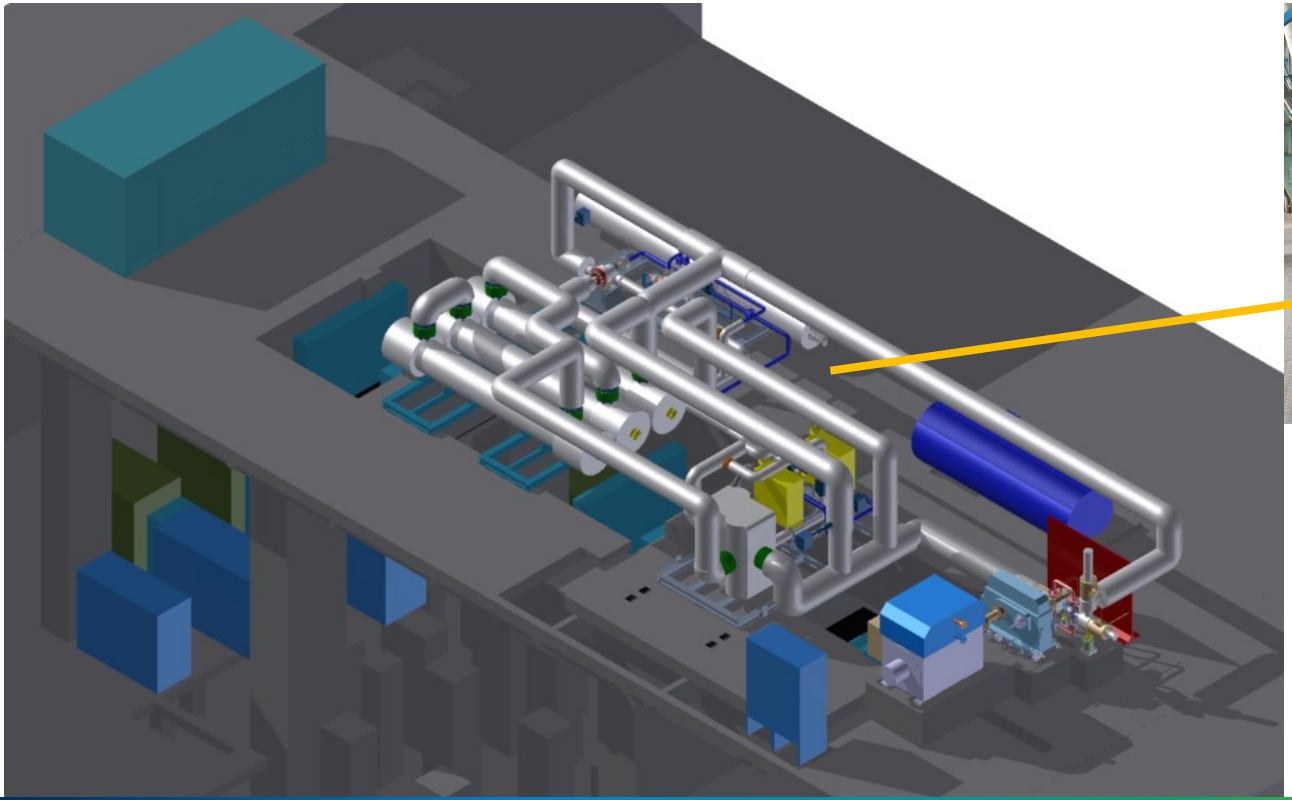
	Compressor	Comp. Turbine	Power Turbine
Inlet temperature	30°C	550°C	550°C
Outlet temperature	75°C	460°C	XXX°C
Inlet pressure	8MPa	25MPa	25MPa
Outlet pressure	25.5MPa	8.5MPa	8.5MPa
Mass flow	20.3kg/s	7kg/s	13kg/s
Power	650kW	650kW	1050 kW

Scope

- The SOFIA facility will be realized at the site of Mělník heating plant
- The first operation expected in 2024
- Further modification to the recompression cycle is being discussed

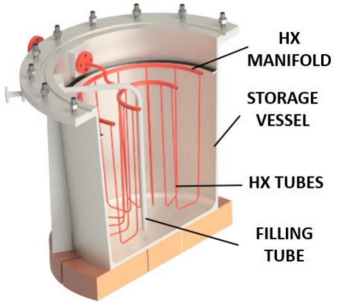


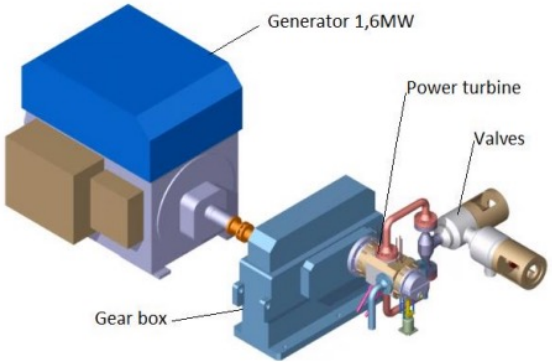
Scope

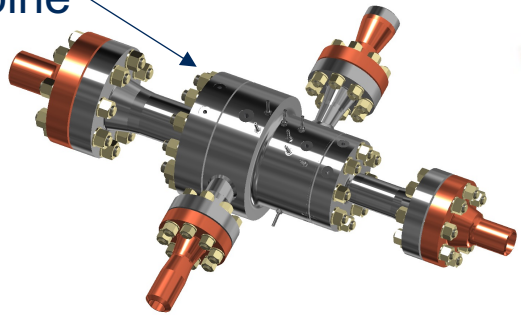


Main results/outcomes

- Thermal storage tank mock/up
- Experimental loop for testing of
  - compressors
  - turbines up to 1,6MWe
- Power turbine - 1 MWe
- Starting compressor
- Main compressor with a drive turbine







Options for exploitation/ collaboration/ follow-up activities

- Testing of compressors, turbines and other components
- Testing of cycle flexibility, hot start-up procedures, stand-by regimes
- CVR is widely involved in EC supported project and is open to any kind of cooperation
- Coupling with heat storage system
- Upgrade to recompression cycle

Contacts

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