Supercritical CO2 cycle for FLEXible power plant

ETN Webinar Series

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In Brief

Supercritical CO2 cycle for FLEXible power plant

“develop and validate a scalable/modular design of a 25MWe Brayton cycle using supercritical CO2 that will enable an increase in the operational flexibility”

sCO2-Flex: Our consortium

sCO2-Flex: Our objectives

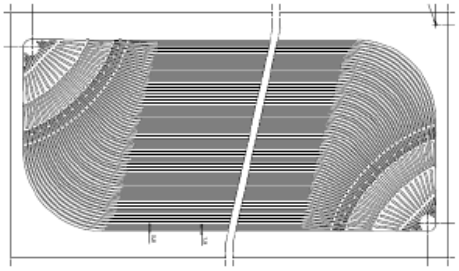
Flexibility & Efficiency

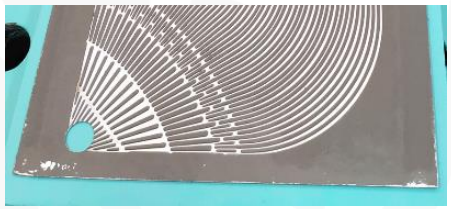
GreenHouse Emissions & Cost

sCO2-Flex: Our Results

Equipment Development:

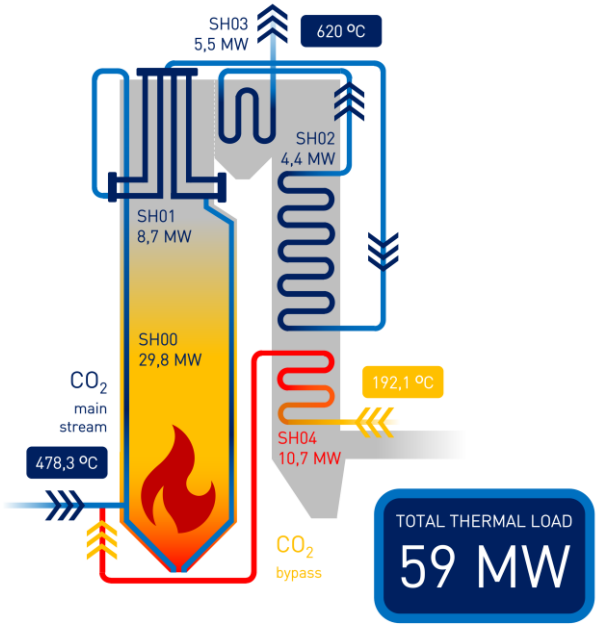
Heat Exchangers





Turbomachinery

Boiler



sCO2-Flex: Our Results

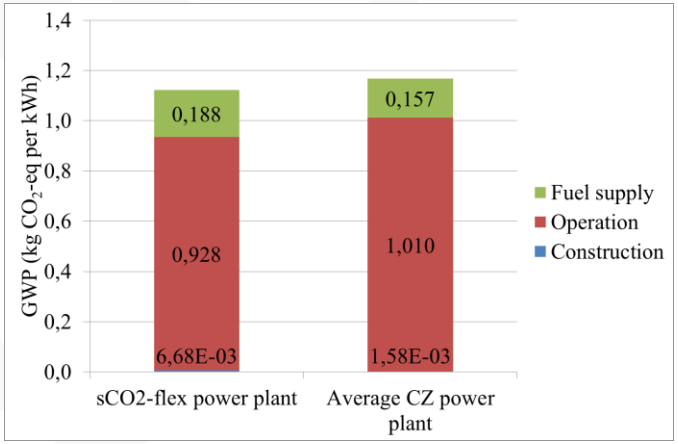
Flexibility:

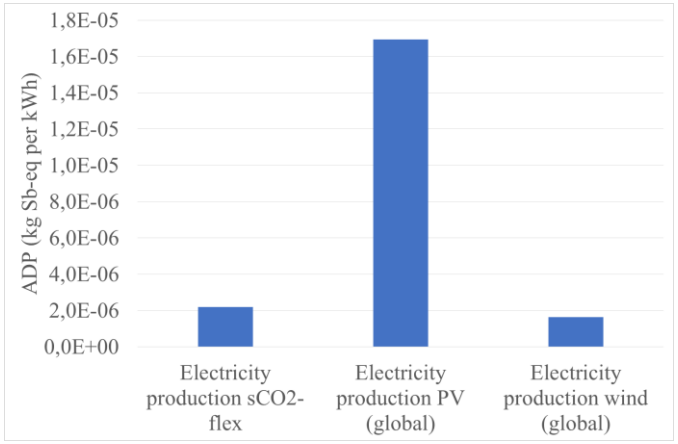
The plant is easy to control with classical PID controllers and a density-based control at the main compressor's inlet

Optimal control strategies for faster transients are under investigation

Part-load down to 20% is achievable

Environmental Impact





Supercritical CO2: Future Challenges

Large Scale Demonstration

- > 10/15 MWe required to validate industrial choices
- Help to prepare the industrial sector
- Establishment of competition / diversified offer

Equipment

- Search for cost reduction drivers
- Improvement of some yields
- Analysis of choices/assumptions from a reliability and life cycle point of view

Albannie CAGNAC

Albannie.Cagnac-1@edf.fr

+33 (0)1 30 87 86 64

EDF – R&D - MFEE Department

6 Quai Watier

78401 Chatou Cedex