sCO_2 bottoming cycle

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Why should we look at bottoming cycles applications for sCO_2

Pros

- Synergy with gas turbine prime mover
- Simple cycle gas turbines widely deployed, both for power generation and industrial applications
- Increased operability/flexibility compared to steam cycle

Cons

- Manufacturing maturity is low...still too expensive
- No clear «sweet spot»

sCO_2 Task Force

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Phase 1: a study on sCO_2 as a bottoming cycle in off shore applications

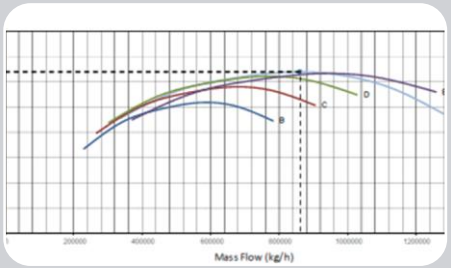
Leveraging student exchange from USE to POLIMI

No/Low competition from other technologies

No Bias

Multi objective cycle configuration optimization

Efficiency, power, weight, cost...



Entitlment vs constrained performance

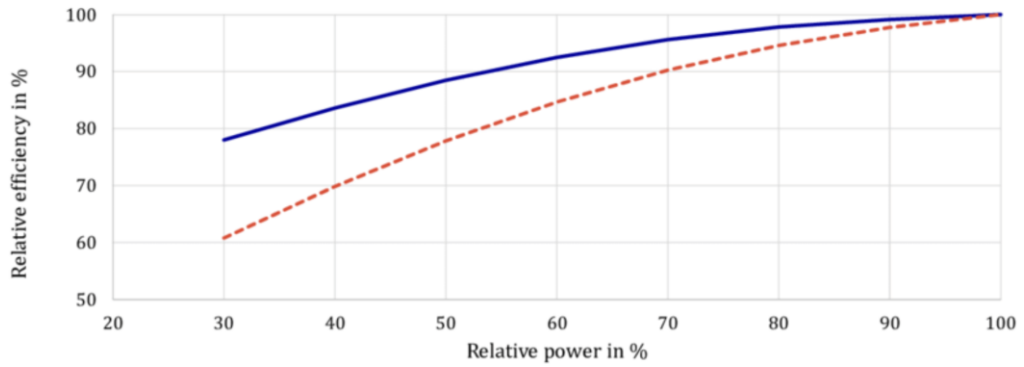
How far are we?

Target to turn study into a paper for ASME 2023

sCO_2 Task Force

Phase 2: Assessing the thermodynamic potential of gas turbine and sCO_2 power cycles and the implications on gas turbine design

Fresh look at GT exhaust conditions and operation mode



Understand the entitlment of the overall system

Call for Ideas and Volunteers

Potential task force topics

- «What if...» scenarios; for example techno economic studies assuming component cost maturity or component cost sensitivity studies
- Deep dive studies in specific applications / mission profiles

WE NEED YOU!