

Scaling & technoeconomic analysis of a hybrid SOFC + mGT system, from 10 kW to 100s kW

Master Project (30 ECTS)/Semester Project (10 ECTS)

Administrative

Supervision: Martin Gay, Prof. J. Van Herle

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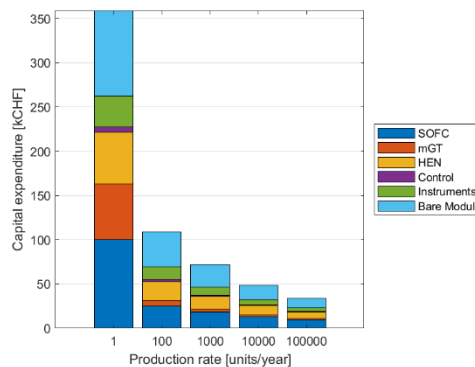
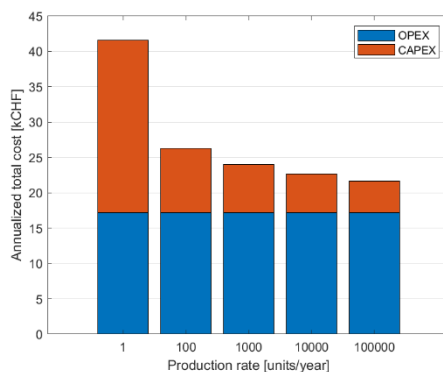
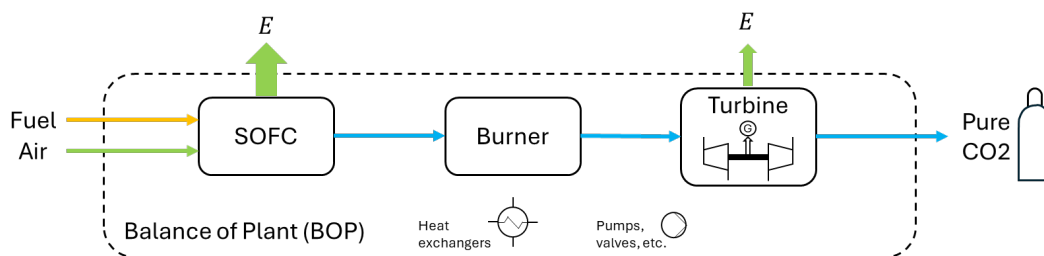
Location: Sion or remotely (travel allowance offered)

Remarks: If interested, please send your CV, with a short motivation letter, to Martin.

Project description:

The coupling of an SOFC with a mGT is investigated. A 10 kW prototype will be built in the lab in the coming months. During the sizing of the components, the final system efficiency was found to be smaller than expected. It was supposed that the scale could be a problem by allowing too much heat loss at certain points of the system as well as physical limitations for the mGT.

The goal of the project is to use and adapt existing models to assess the thermal and economic aspects of such systems according to the scale and production rate (in units/year). Guidelines for the construction of bigger systems could be proposed at the end of the project.



Your tasks:

- See evolution of size, cost, and efficiency according to system size
- Assess the economic aspects of the different sizes
- Propose design guidelines for construction of SOFC + mGT systems

Skills :

- Good programming skills (Matlab, python)
- Strong motivation and ability to work in a autonomous environment