

Development of Oil Free Centrifugal Blower as Enabling Technology for Solid Oxide Fuel Cell Anode Gas Recycling

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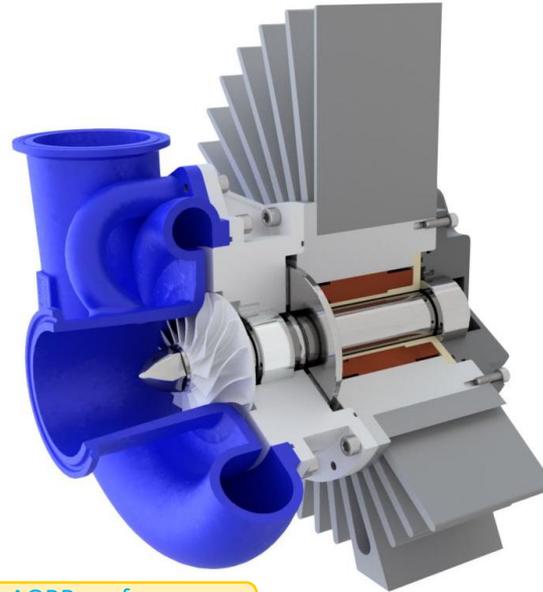
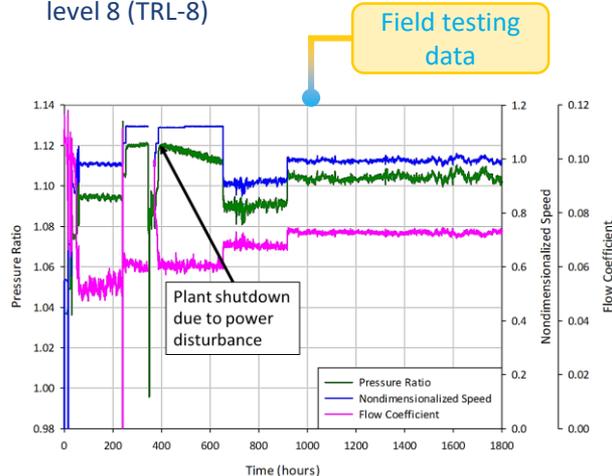
Motivation

The goal of this project was to develop a high temperature anode offgas recycle blower (AORB) for solid oxide fuel cell (SOFC) power plants to:

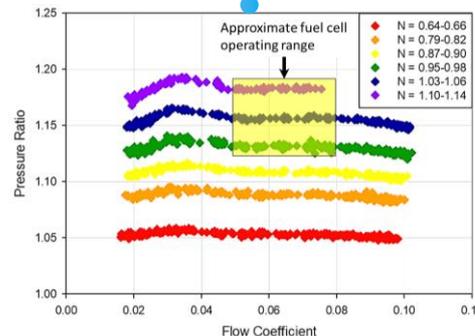
- Enhance overall performance
- Improve efficiency
- Decrease balance of plant (BOP) costs

Milestones

- Durability testing successfully completed for over 1000 hours in MITI's laboratory
- Successfully completed over 1800 hours of field testing in FuelCell Energy's prototype 200 kW SOFC power plant (DE-FE0026199)
- Currently, the AORB is at technology readiness level 8 (TRL-8)



AORB performance data



Ongoing Work

Successor project (DE-SC0020793) awarded in 2021 to:

- Reduce AORB manufacturing and assembly costs through additive manufacturing
- Expand the blower's range of application via component modularity
- Test blowers with additively manufactured components

Additively manufactured impellers



Modular prototype

