Bechtel Marine Propulsion Corporation
Bettis Atomic Power Laboratory
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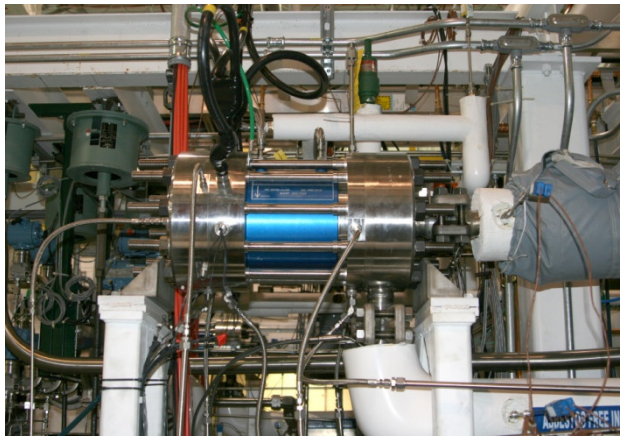
Supercritical Carbon Dioxide Brayton Cycle R&D at Bechtel Marine Propulsion Corporation

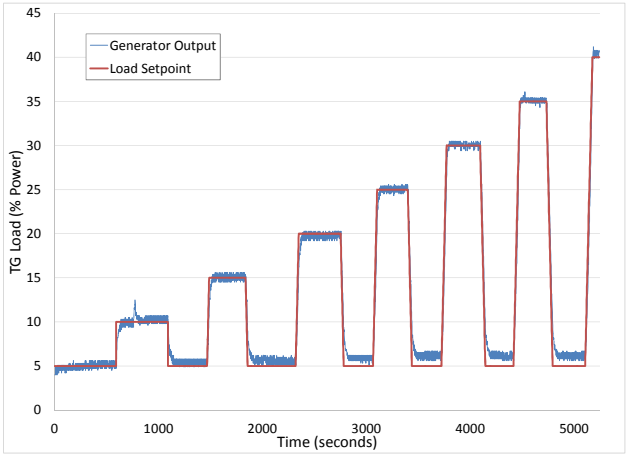
Eric Clementoni

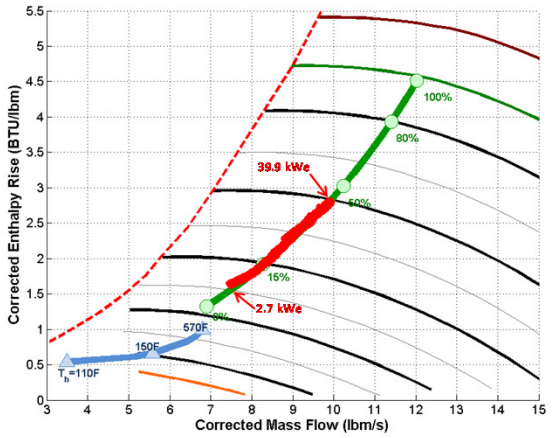
100 kWe Integrated System Test

Primary Objectives

- Demonstrate system controllability and feasibility
- Provide test data to verify the ability to model sCO_2 Brayton system
- Provide sCO_2 loop operating experience and design feedback







Compact Heat Exchanger Modeling and Testing

Heat Exchanger Test Facility

Water-to-CO_2 Heat Exchanger Approach

Evaluation Task	Goal
Small scale water to water heat exchanger testing	Obtain initial temperature and pressure drop data to develop COMSOL model of the heat exchanger.
Large scale water to supercritical CO_2 heat exchanger testing	Obtain data to validate COMSOL modeling and scale modeling up to validate future heat exchanger size and weight.
Heat exchanger structural evaluation	Evaluate failure mode and manufacturing technique structural effectiveness.