



DE-FOA-0001816 Kickoff Meeting

Bechtel National, Inc. – FE0031618

Turbo-Compound Reheat Gas Turbine Combined Cycle

PI: John Gülen (scgulen@bechtel.com)

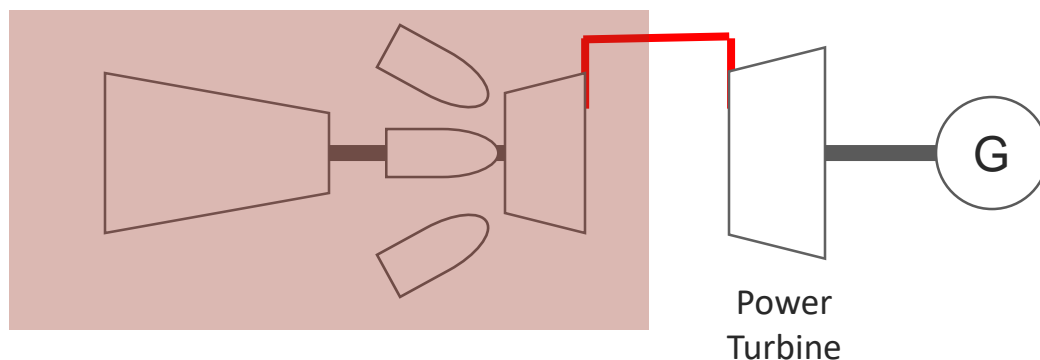
PO: Robin Ames (robin.ames@netl.doe.gov)

CS: Chuck Tomasiak



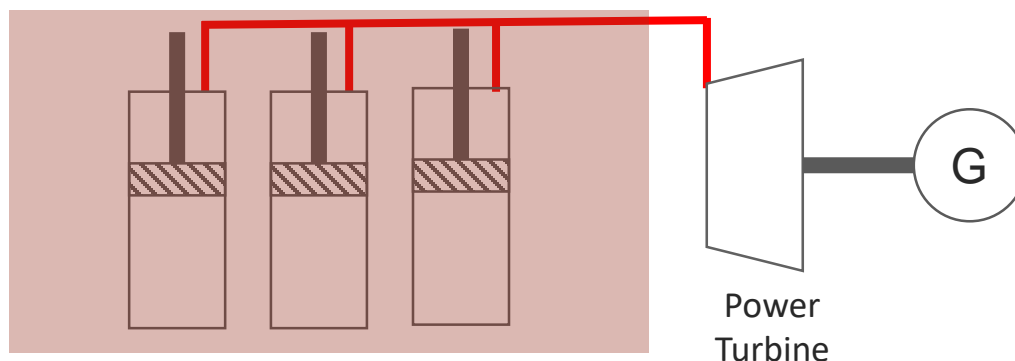
BACKGROUND

GAS GENERATOR: JET ENGINE

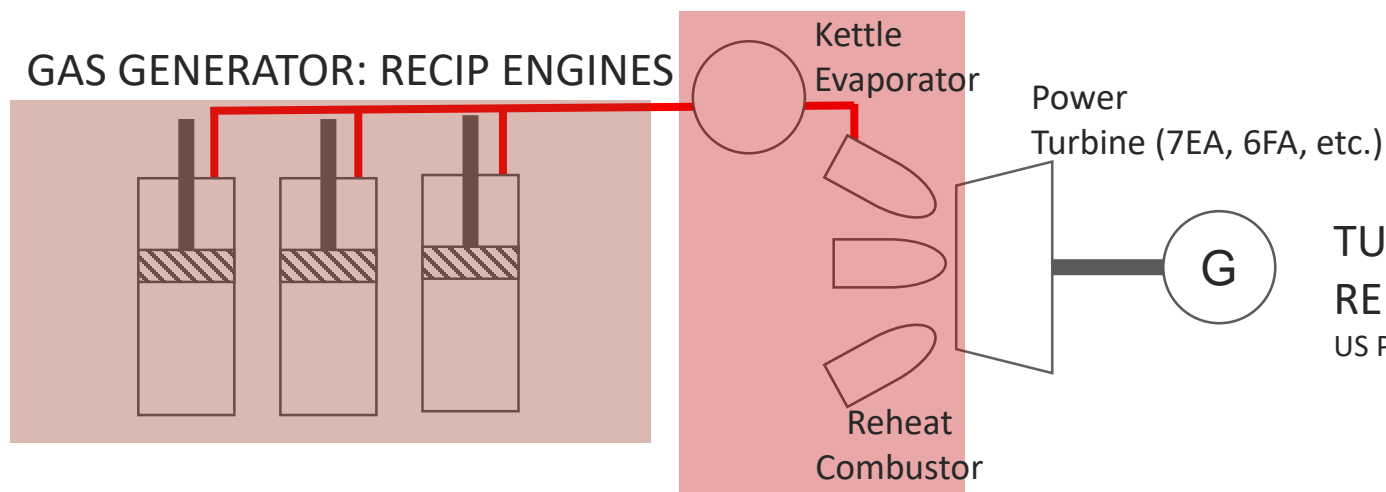


AERODERIVATIVE GT

GAS GENERATOR: RECIP ENGINES



GAS GENERATOR: RECIP ENGINES

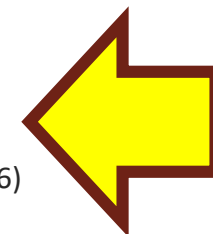


TURBOCOMPOUND
ENGINE

- Gotaverken (Sweden) diesel gas generator plus turbine drive for railroad locomotive (1933)
- Pratt & Whitney PT1 aircraft engine (1941)
- Napier Nomad (UK) aircraft engine (1950-55)
- Scania/Volvo truck engines (current)
- Fort George Power Plant in Mauritius (2000)

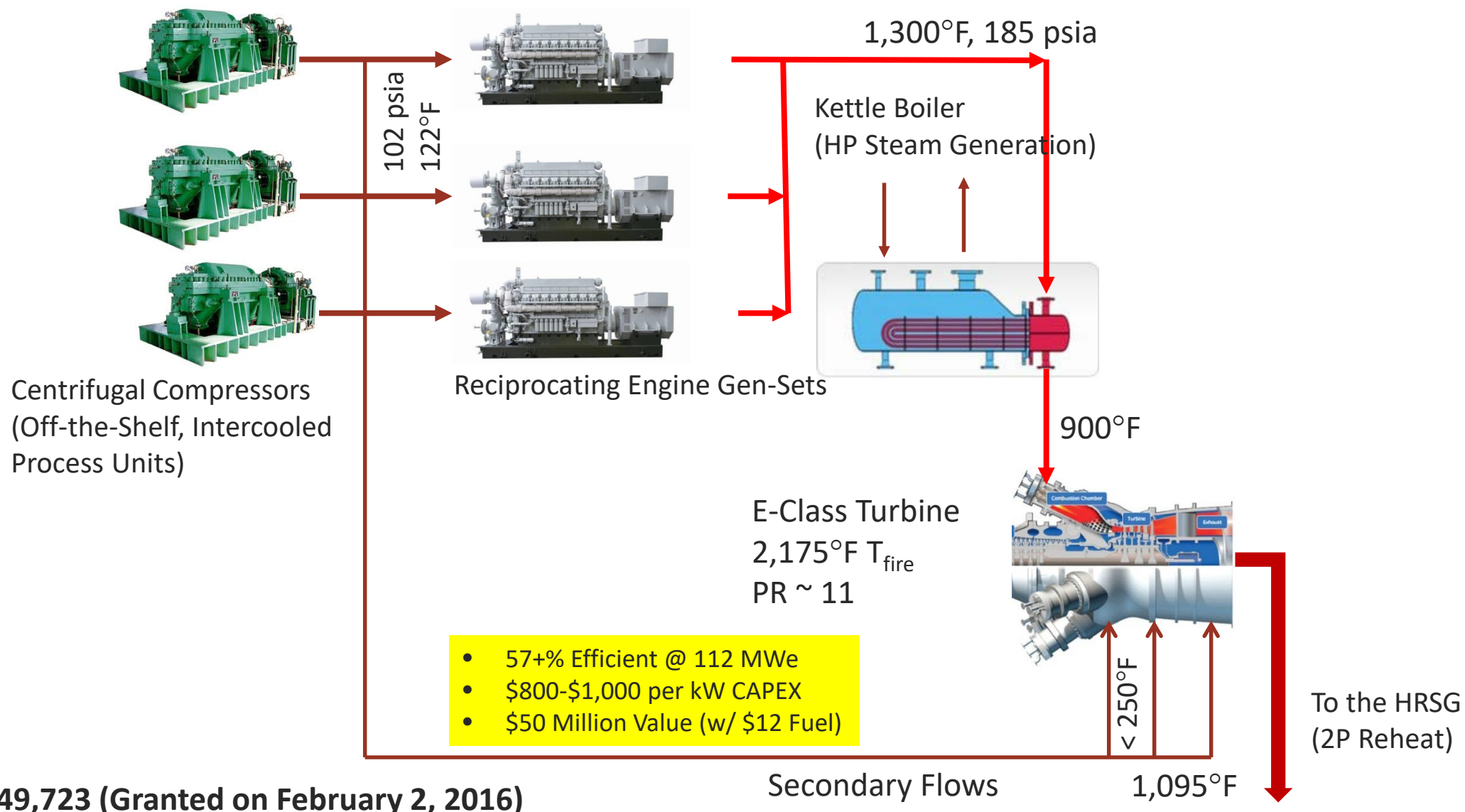
TURBOCOMPOUND
REHEAT GTCC

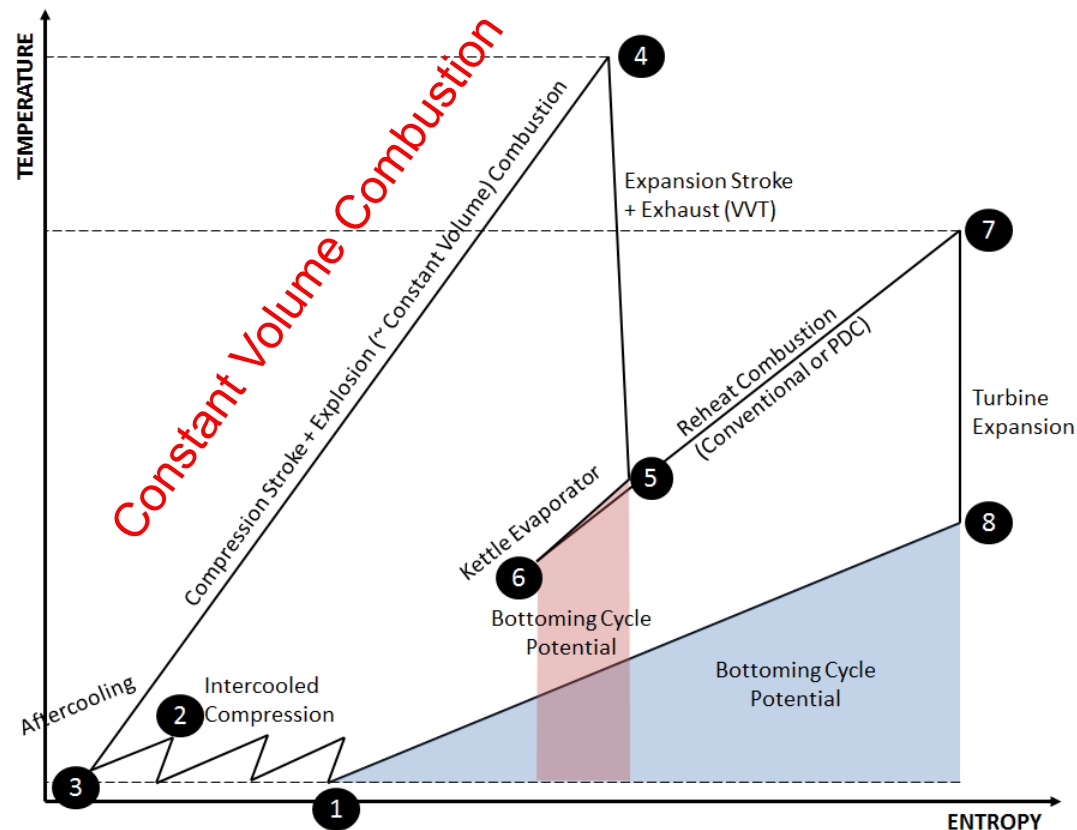
US Patent 9,249,723 (2/2/2016)





Turbocompound Reheat GTCC Power Plant







Project Objectives

The objective of this project is to develop of the proposed **Turbo-Compound Reheat Gas Turbine Combined Cycle (TC-RHT GTCC)** technology to a stage of readiness for a small-scale demo/test system to be built and run to prove:

- (i) successful integration of the key components;
- (ii) operability; and
- (iii) multifuel compatibility.

This effort will advance the maturity of this technology to a TRL 6 or 7.



Project Structure

1. Investigation of Market Opportunities
2. Investigation of Fuel Flexibility
3. Conceptual Plant Design
 - a. Prepare Equipment Specs
 - b. Issue & Review Equipment Bids
 - c. BOP & Piping Design/Sizing
 - d. Define Plant Layout
 - e. PFD & PID Drafting
4. Heat & Mass Balances
5. Technology Maturity Plan
6. Test Plan



Year	2018				2019			
Quarter	1	2	3	4	1	2	3	4
1. PMP Review								
2. Investigation of Market Opportunities								
3. Investigation of Fuel Flexibility								
4. Conceptual Plant Design								
4.1 Prepare Equip. Specs								
4.2 Issue & Review Equip. Bids								
4.3 BOP & Piping Design/Sizing								
4.4 Define Plant Layout								
4.5 PFD & PID Drafting								
5. Heat and Mass Balances								
5.1 Develop Oper. & Controls Philosophy								
6. Technology Maturity Plan								
7. Test Plan								



Project Budget

FUNDING AND COSTING PROFILE

Funding Profile

	BP1									
	Q1		Q2		Q3		Q4		Total	
	DOE	Cost Share	DOE	Cost Share	DOE	Cost Share	DOE	Cost Share	DOE	Cost Share
Prime Applicant	\$125,000	\$31,250	\$125,000	\$31,250	\$125,000	\$31,250	\$125,000	\$31,250	\$500,000	\$125,000
Total	\$125,000	\$31,250	\$125,000	\$31,250	\$125,000	\$31,250	\$125,000	\$31,250	\$500,000	\$125,000
Cost Share	80.0%	20.0%	80.0%	20.0%	80.0%	20.0%	80.0%	20.0%	80.0%	20.0%

\$625K Total – 80/20 Share



Project Management Plan

1. Schedule/Timeline (Slide 6)
2. Funding & Costing Profile (Slide 7)
3. Milestone Log
4. Success Criteria & Decision Points
5. Risk Management Plan

Provided in the PMP Document

