# SECA SOFC Phase I IGFC Systems Overview

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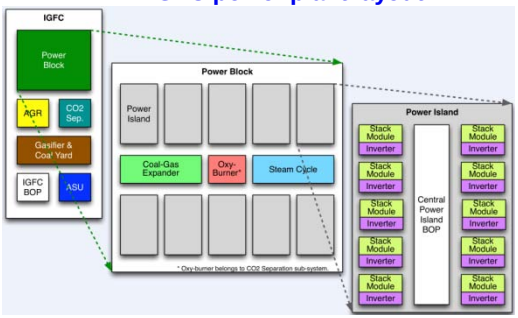
## Achievements:

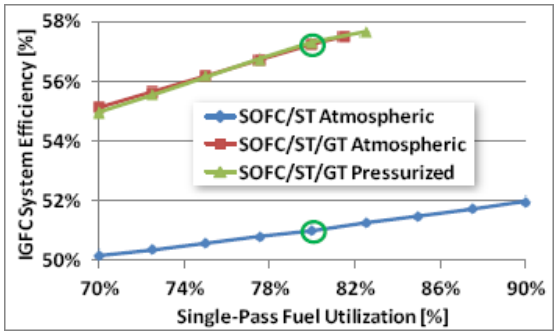
- System analyses of two atmospheric and a pressurized system concept completed
- Developed library of models for gasifier, SOFC, GT/ST and oxygen combustor, ASU and coal gas clean-up

## IGFC System Design Summary: All Concepts meet

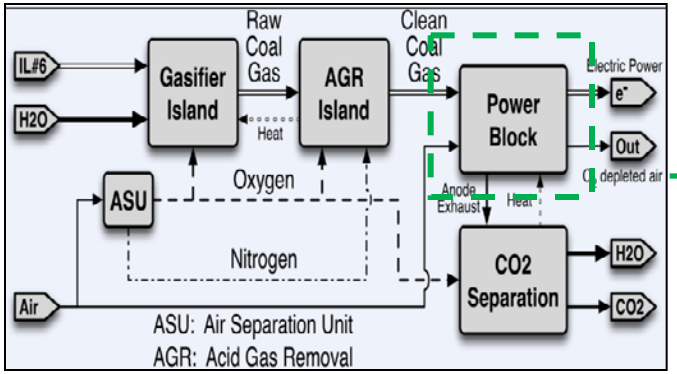
- ≥ 100 MW power
- ≥ 50% (HHV) efficiency,
- capture > 90% carbon in coal feedstock
- Solid-oxide fuel cell - part of power block

IGFC power plant layout



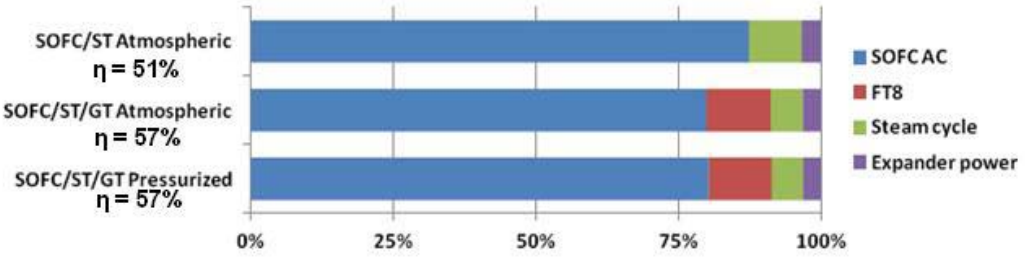




Sensitivity analysis showed robustness of IGFC design operating point



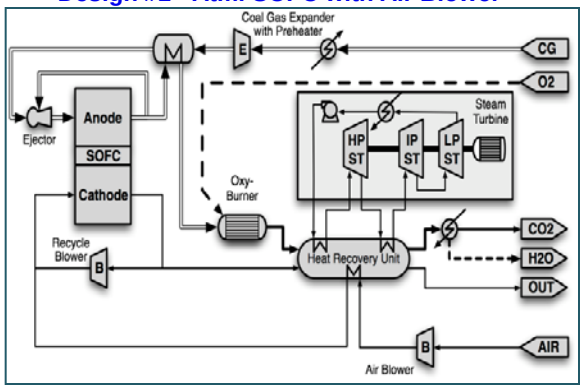

Components of an IGFC plant

All Systems meet ≥ 50% (HHV) efficiency

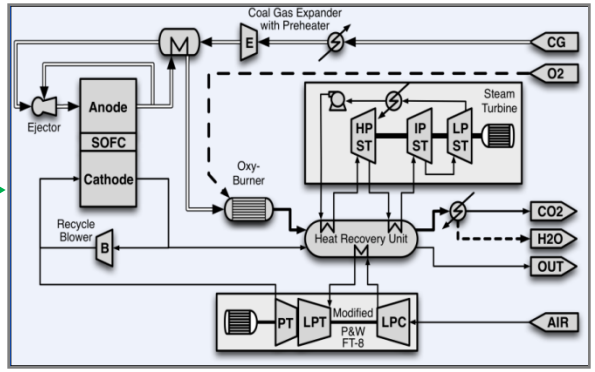



IGFC break-down of power generation by device

Design #1 - Atm. SOFC with Air Blower




Design #2 - Atm. SOFC with Gas Turbine




Design #3 - Pressurized SOFC with Gas Turbine