An Introduction to GSP - IGCC

Gasify : Separate : Purify
Sour Shifted Syngas → H₂ PSA → H₂ Product

Oxygen → H₂ PSA → CO₂

Qout for use as N₂ preheat for GT, BFW preheat, stm generation, reforming, etc.
Coal → Gasifier → Shift System → Power PSA → Power Generation

Low Carbon Fuel – primarily H₂

Pure Hydrogen for off-site sale and on-site H₂O₂ Production

Oxygen → CES Burner CV Control → H₂/Pow Control → Hydrogen PSA

CO₂, CO, SO₂, N₂ and some H₂

Offgas Compressor

CV of 100 Btu/SCF

To Hot Steam/CO₂ Expander

Note: Pressures are Approximate

Oxygen

50 bars

1.3 bars

50 bars

40 bars

530 or 760 °C

Hot Water Recycle from Desaturator
COTEC Energy Recovery Unit for GSP

- 530 or 760 °C
- 40 bars
- Hot Steam/CO₂ Expander

- 12 bars
- 180 °C

- HP Hot Water Circuit to/from CCU

- 100 bar CO₂

- CO₂ Grid Compressor

- Synthesised Water

- Desaturator

- BFW

- Hot Water Recycle to CES Burner

- Steam Boiler

- LP Steam To CCU

- Electricity

- Note: Pressures are Approximate
GISTEMP Anomaly (including seasonal cycle)

Seasonal cycle from MERRA2. Lines color coded by year 1880 to 2016.