

Composite Fuels



Plant Configuration

- Utilities needs: cheap sources of fuel, supply of green power, reduced emissions
- Project should include a gasifier using proven technology, 50 to 100 MW
- Piggyback on existing IGCC plant and use slipstreams to demonstrate new technology



Fuel Properties

- Composite fuel:
coal plus something else, i.e., coal plus natural gas, sawdust, gob coal, petroleum coke, tire chips (50 cents per tire to shred), MSW or biomass
- Composite fuel: 10-12,000 Btu/lb



Synthesis Gas

- Produce Syn Gas from conventional gasifier
- Syngas cleanup:
 - **Use conventional technology and take a slipstream to hydrogen membranes**
 - **SO₂ sorbent**
 - **H₂ purification sorbent**
 - **Test bed for various new technologies**



Hydrogen Uses

- Provide fuel to a wrapped bus/auto
advertise to public
 - Hydrogen-fired gas turbine
 - Power fuel cell / hybrid fuel cell
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- CO₂: inject into coal seam and recover methane
 - Gasify recovered methane to close “green” loop

