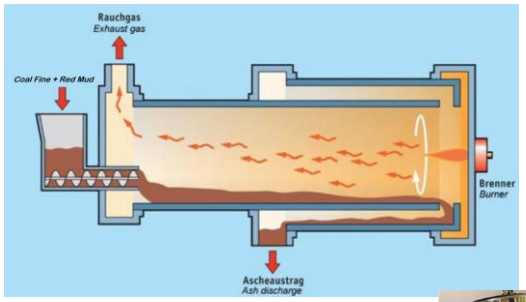
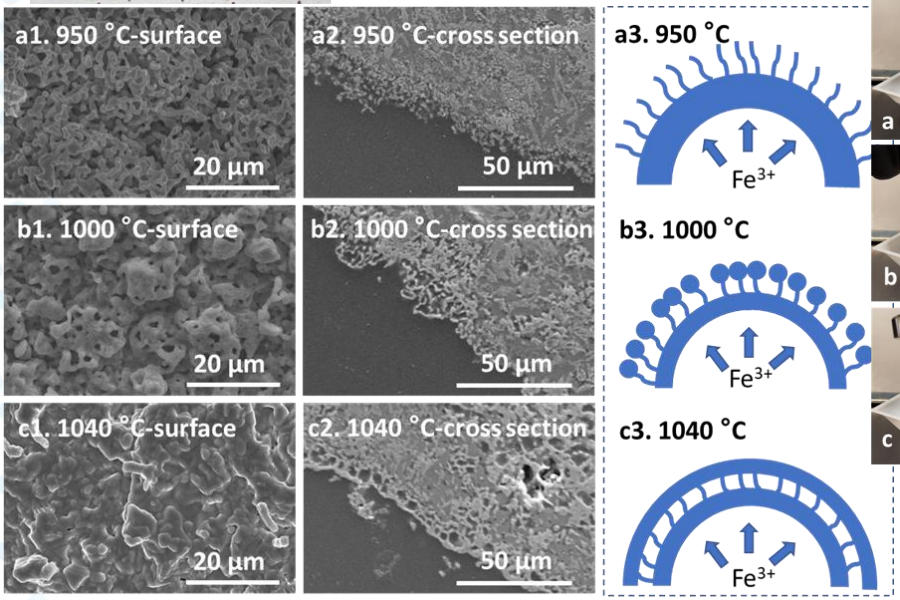
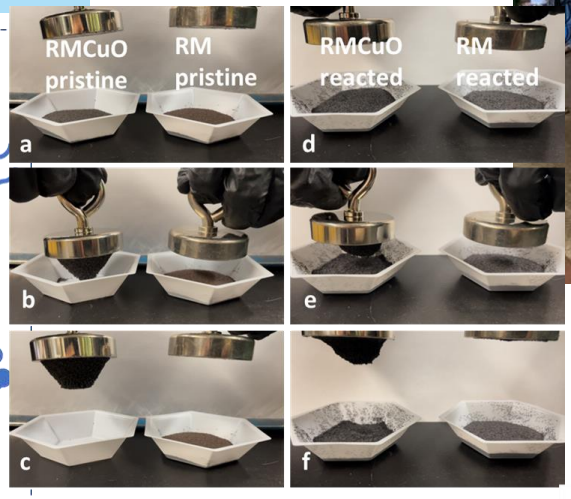
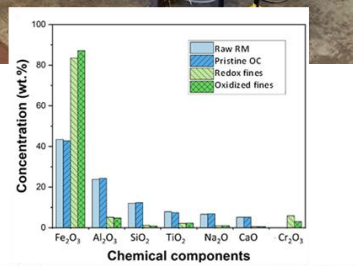
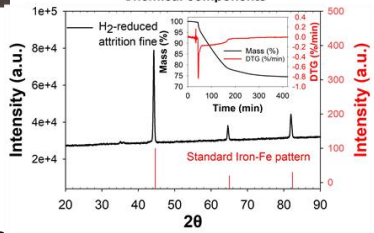
Technology Characteristics -- Bauxite Residue to Direct Reduced Iron with Hydrogen Co-production











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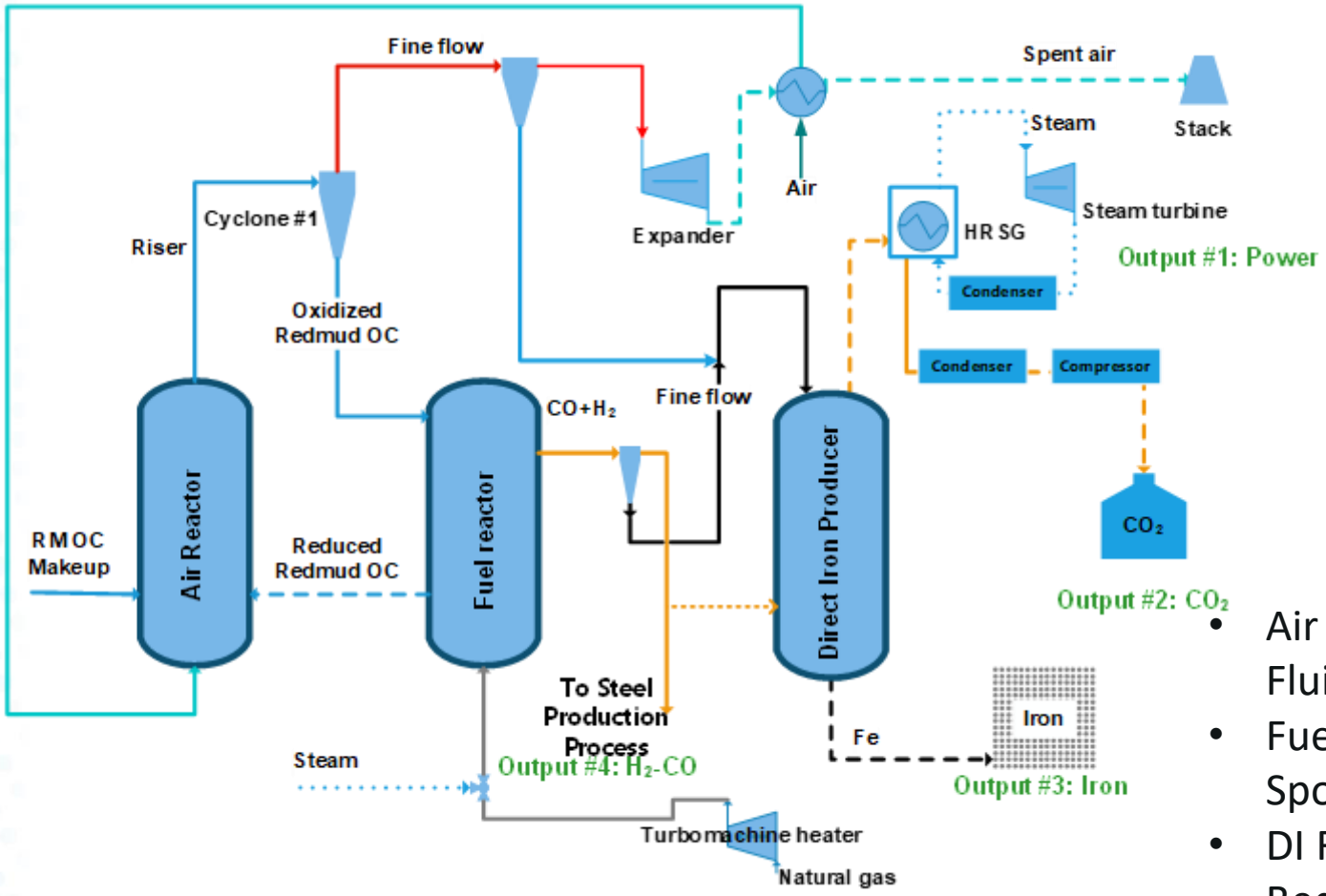
Technology Advantage - UKy Three-unit Process Coupling with Turbo Heaters



- Air Reactor: Fast Fluidized Bed
- Fuel Reactor: Spouting Bed
- DI Reactor: Moving Bed

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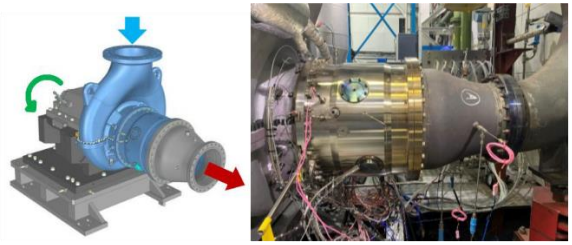
Planned Project Approach

Retrofit UKy's existing 50 kWth CLC with

(1) Installation of a moving bed
(2) External Electroheating for operating temperature
(3) Two turbo heaters for NG and syngas produced from fuel reactor
(4) Fabricate 100 kg Red Mud- based oxygen carrier
(5) Collect solid samples from fuel reactor and Direct Iron Producer for composition analysis using XRF and XRD
(6) >100 hour operation with >10kg Direct Iron produced to Nucor for suitability evaluation



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