Direct Fired sCO2 Power Cycle for Solid Fuels
- Closer to Commercialization than Ever Before

AFC-C Biome

8 RIVERS

Disclaimer

This document contains forward-looking statements relating to 8 Rivers' operations and energy transition plans that are based on our current expectations, estimates, and projections about energy-related industries. These statements are not guarantees of future conduct, policy, or performance and are subject to certain risks, uncertainties, and other factors, many of which are beyond the company's control, including government regulation and commodity prices.

Therefore, the actual conduct of our activities, including the development, implementation or continuation of any initiatives or activities discussed or forecasted in this report, may differ materially in the future. As with any projections or estimates, actual results or numbers may vary. The performance data in this report are not guarantees of future performance nor intended to be a demonstration of linear progress against aspirations, targets, or objectives. Many of the standards and metrics used in preparing this document continue to evolve and are based on 8 Rivers' assumptions believed to be reasonable at the time of preparation but should not be considered guarantees, and no representation or warranty is made as to the accuracy or completeness of the data. The statements of intention in this report speak only as of the date of this document. 8 Rivers undertakes no obligation to update publicly any statements in this document.

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Pioneering the Clean Energy and Climate Future

Innovation | Commercialization | Deployment

Hands-On Execution Experience in Technology and Project Development

16+ Years
In Clean Energy Development

>500
Patents Granted

>$1B
Invested into 8 Rivers &
Our Past/Present Technologies

>$75M
Grants Awarded

TECHNOLOGY DEVELOPMENT

8 Rivers has invented and partnered with a robust set of technologies to meet a diverse set of Net Zero challenges.

PROJECT DEVELOPMENT

The 8 Rivers project development engine specializes in marquee deployment of low-carbon projects.

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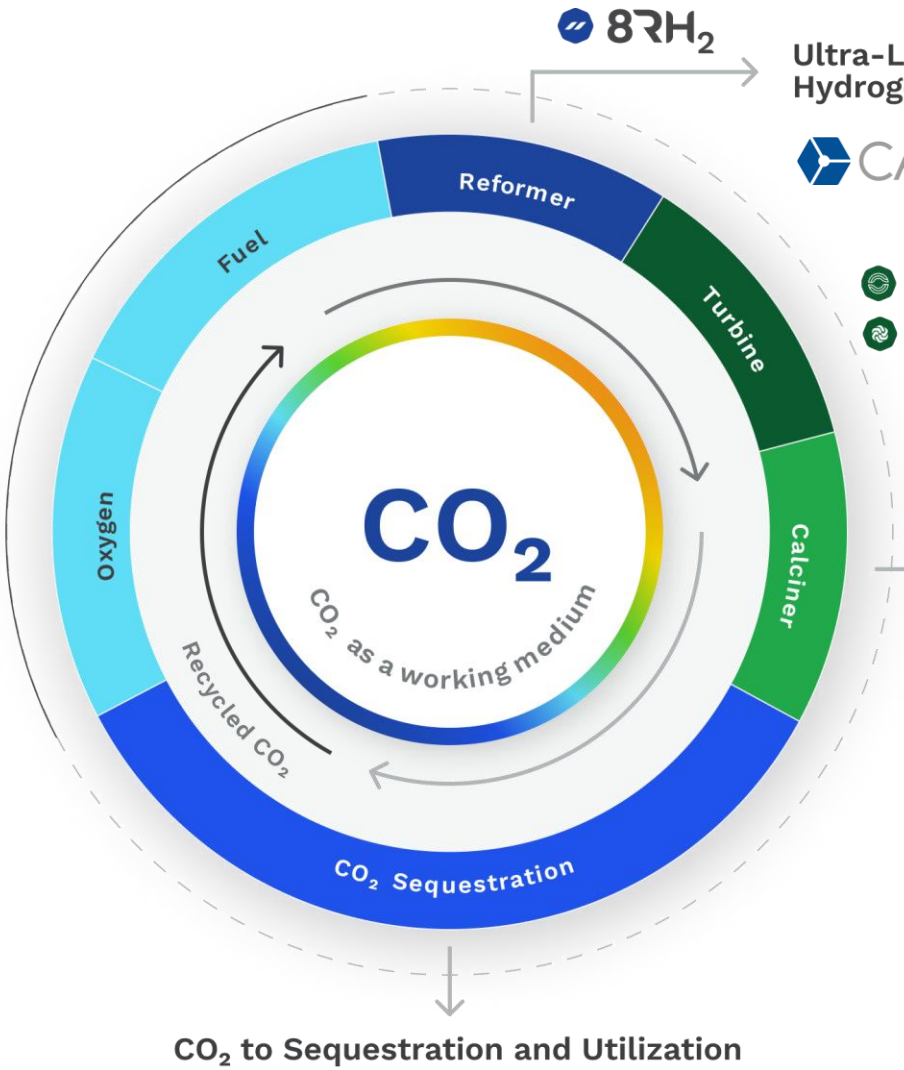
Comprehensive Decarbonization Platform Providing Infrastructure Scale Solutions



Combusting fuel with pure oxygen instead of air

8RH2

Ultra-Low-Carbon Hydrogen (H_2) & Ammonia (NH_3)

CASALE

CORMORANT CLEAN ENERGY

Biome

AFC-C

Reliable, Affordable Clean Electricity

SIEMENS energy

Calcite

Durable, Scalable Direct Air Capture

ENEOS Xplora

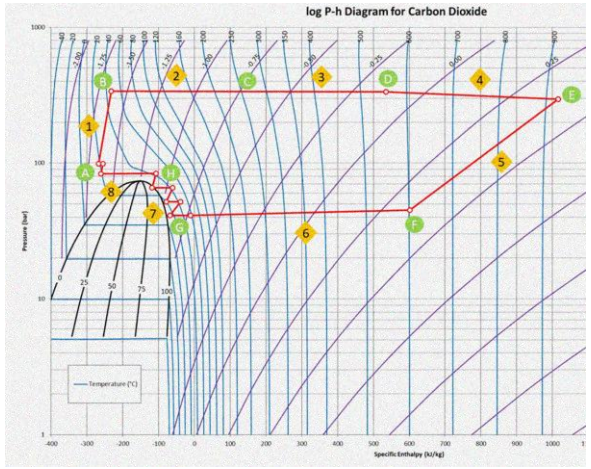
U.S. DEPARTMENT OF ENERGY

CO_2 to Sequestration and Utilization

net power

exclusive rights to the natural gas fired sCO2 power cycle

Direct fired sCO2 Power Cycle for Solid Fuels



Solid Fuel → Gasifier

Syn Gas 1.25%

Oxygen 4.75%

Steam 2.75%

Hot CO_2 94%

COMBUSTOR

Very Hot CO_2

TURBINE

Hot CO_2

HEAT EXCHANGER

Cool CO_2 97.25%

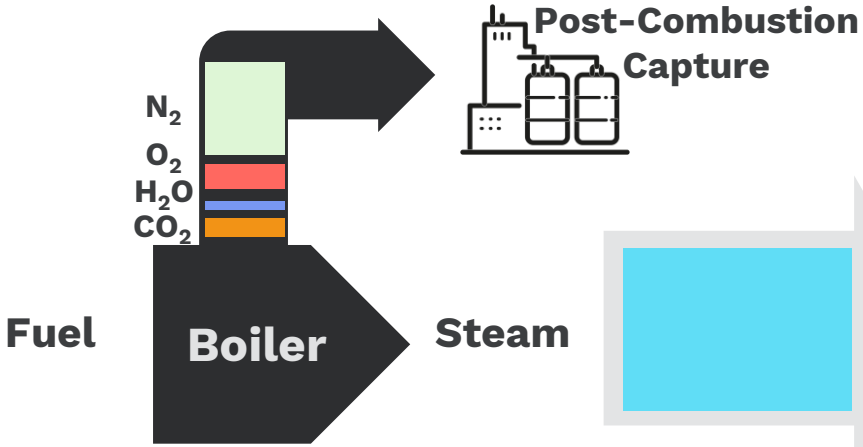
COMPRESSOR & PUMP

CO_2 3.25%

Water 2.75%

MASS % PROPORTIONAL TO LINE WIDTH

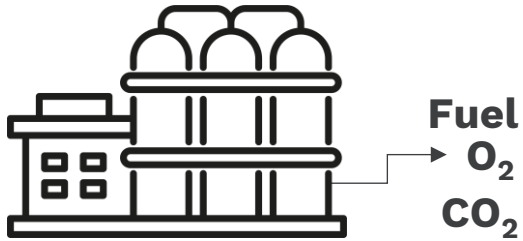
Higher Efficiency Zero Emissions Power Production



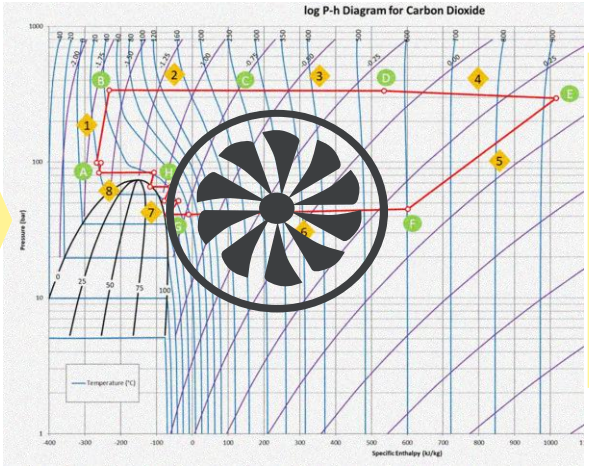
Traditional Power Cycle

Limitations of back end CO_2 capture

- Heat of condensation is a net energy loss
- Absorbents (nearly all solvents including amines) creates liquid waste and VOC emissions
- Significant parasitic load addition lowering overall efficiency



Direct fired sCO2 Cycle

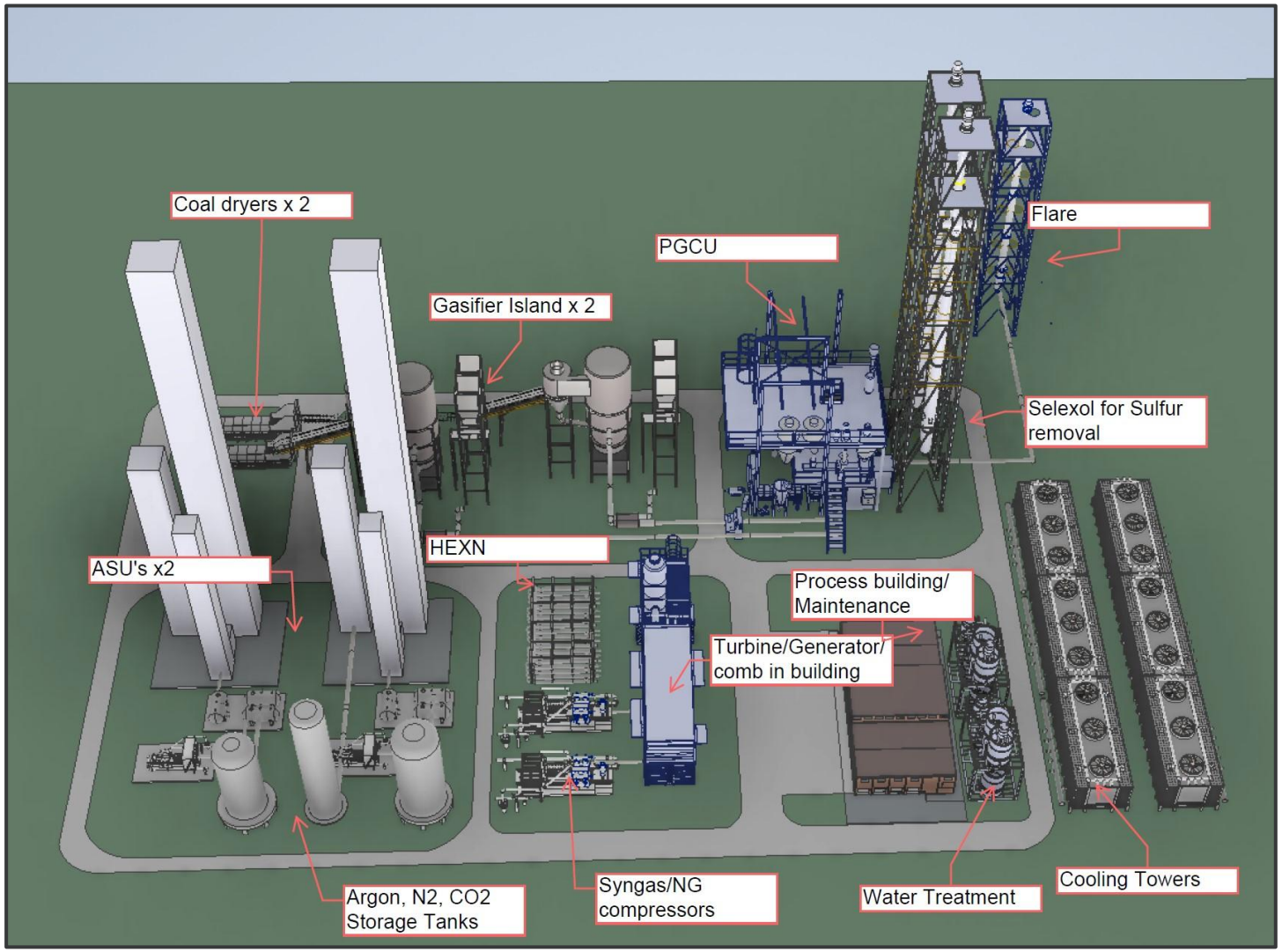


Benefits From Fighting Entropy on the Front-end

- No energy loss due to heat of condensation
- Inherent CO_2 capture without the need for additional absorbents

Key Numbers

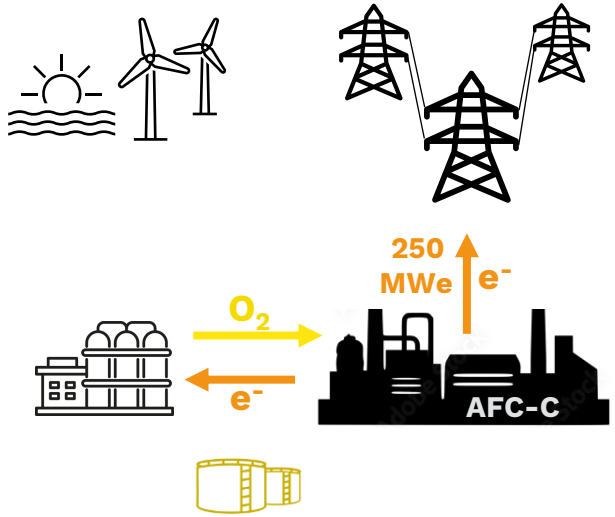
AFC-C

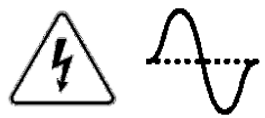


Key Inputs / Outputs	
Coal Input	1.2-2 MTPA (depending on the coal)
Electricity Output	~200-300 Mwe 24/7 (~135-200k homes)
CO_2 Capture	1.7-1.9 MTPA
EOR via Captured CO_2	1-1.2 MM barrels of oil
Argon (for export)	~50k tonnes/yr

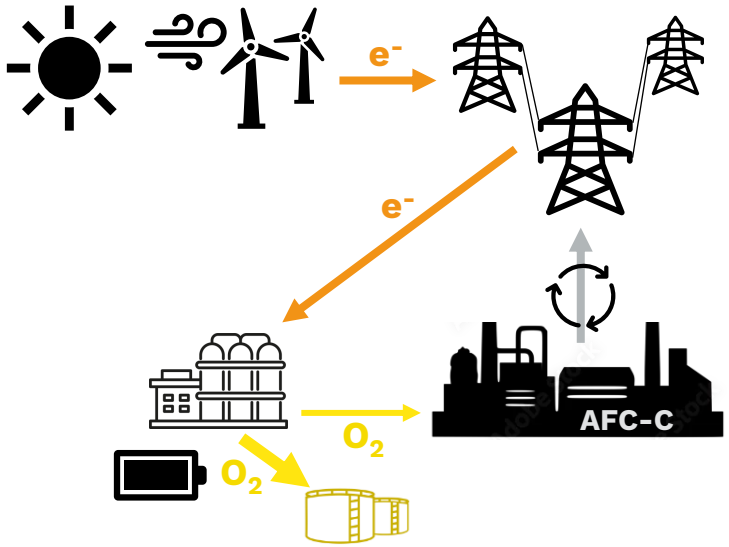
Additional Value to the Grid

1. Baseload Mode

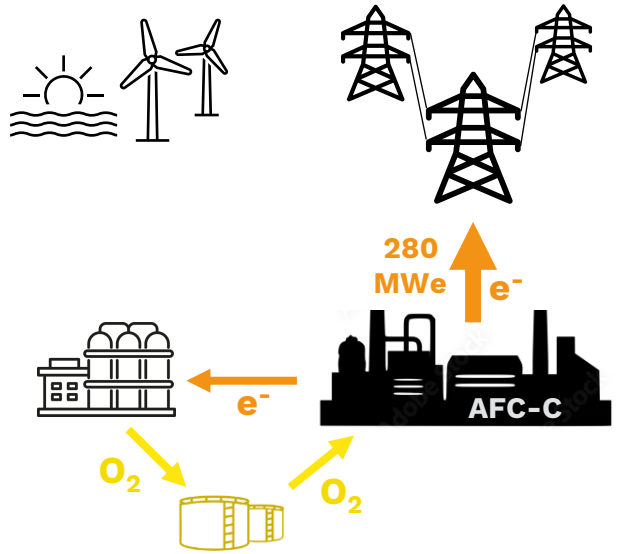




2. Energy Storage & Spinning Reserve Mode

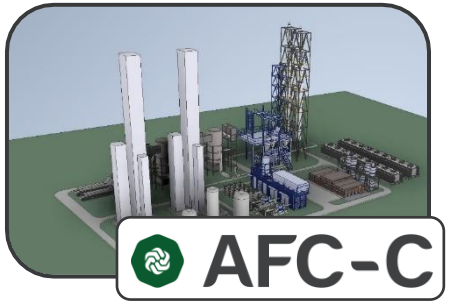


3. Demand Response Mode



Multiple Options

Greenfield Development



- The AFC can be developed on greenfield sites
- Layout can be optimized without constraints from legacy infrastructure
- Provides long-term expansion potential
- Lower operating risk for entire facility than brownfield due to newbuild systems

Brownfield Re-Powering

- The AFC can be developed on brownfield sites
- Capex and construction timelines can be reduced by reusing existing systems and infrastructure
- Grid interconnection already available
- Permitting timelines typically quicker

IGCC Conversion

- Existing IGCCs can be reconfigured into AFCs
- Gasifiers can be modified to use CO_2 rather than N_2 as the fluidizing agent
- Capex and construction timelines can be reduced by reusing existing infrastructure
- Grid interconnection already available
- Permitting timelines typically quicker

Biomass Co-Firing

- The AFC can co-fire biomass with carbonaceous solid fuels
- Climate intensity can be reduced beneath zero depending on percentage of biomass
- Existing coal gasifiers can accommodate blended feedstocks up to a certain level

100% Biomass Firing

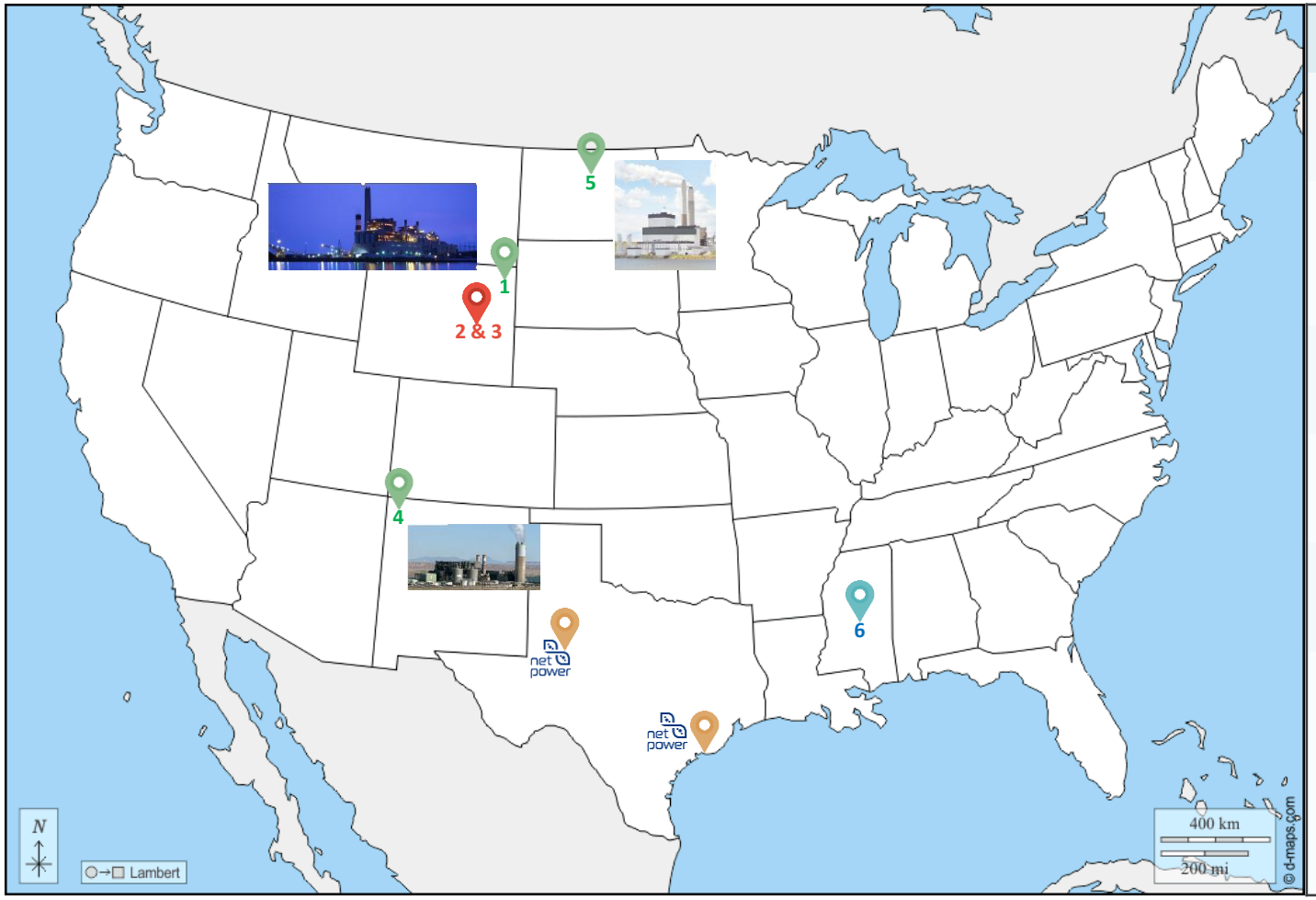
- The AFC can use 100% biomass as a feedstock
- Valuable biogenic CO_2 can be sold directly to industry or sequestered to generate CDRs
- Enables negative emissions power
- Requires biomass gasifier

SIEMENS energy | 8 RIVERS

- Siemens Energy is a world-class OEM that focuses on providing innovative solutions and equipment across the entire energy value chain, specializing the design and manufacturing of power generation equipment such as gas and steam turbines, generators, transformers, and compressors.

- In **December 2023**, 8 Rivers executed the agreement with Siemens Energy for the development and delivery of a syngas-ready turbine equipped with oxy-combsutors

Three Pre-FEEDs Completed



Identifier	Status	MWe
1	AFC-C Pre-FEED complete PACIFICORP	250
2	MOU executed pipeline site	500
3	MOU executed pipeline site	250
4	AFC-C Pre-FEED complete Navajo Transitional Energy Company	1,000
5	AFC-C Feasibility study / Pre-FEED complete	250
6	Biome feasibility study complete; MOU signed; site evaluation underway prior to Pre-FEED	250

8 Rivers continue to march forward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