RockWise, LLC

Booth 2463

Unlocking Low-Risk Geothermal in the Gulf Coast Frio Fairway

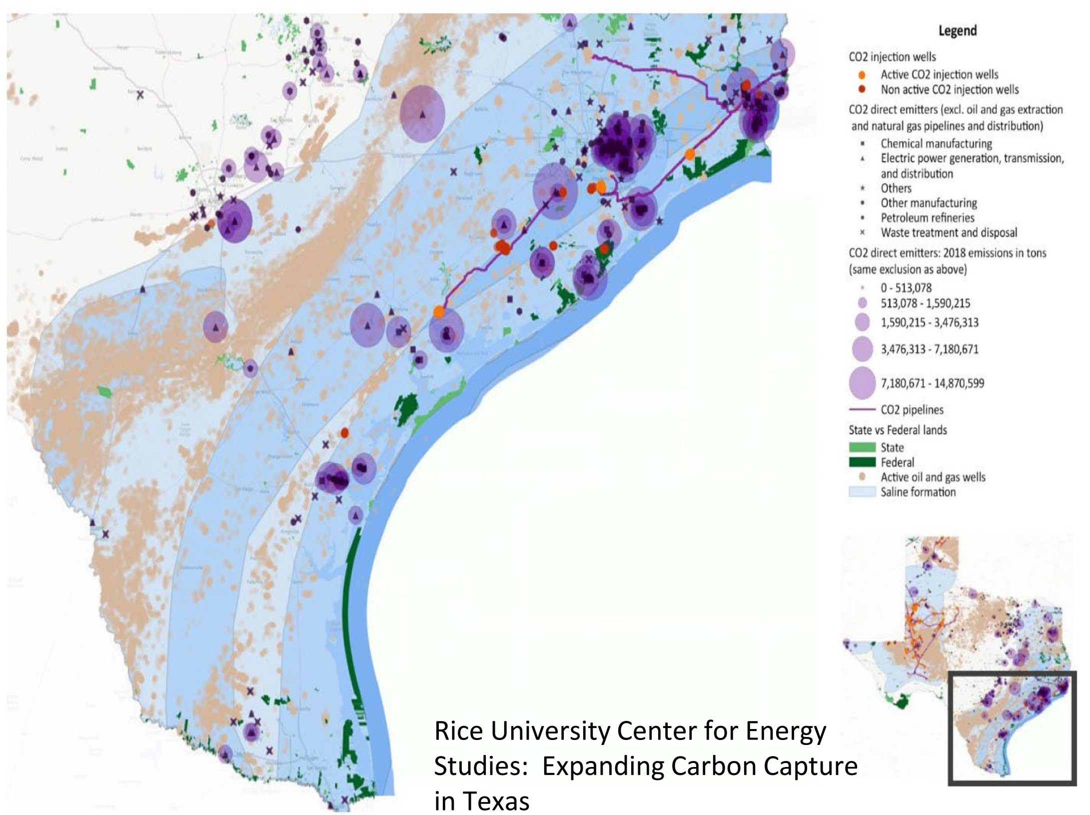
Data-Driven Sedimentary Plays for Binary-Cycle Power

ERCOT / Texas BTM Markets

Harris Co., Texas (adjacent)

The Opportunity – Why Gulf Coast Frio Now?

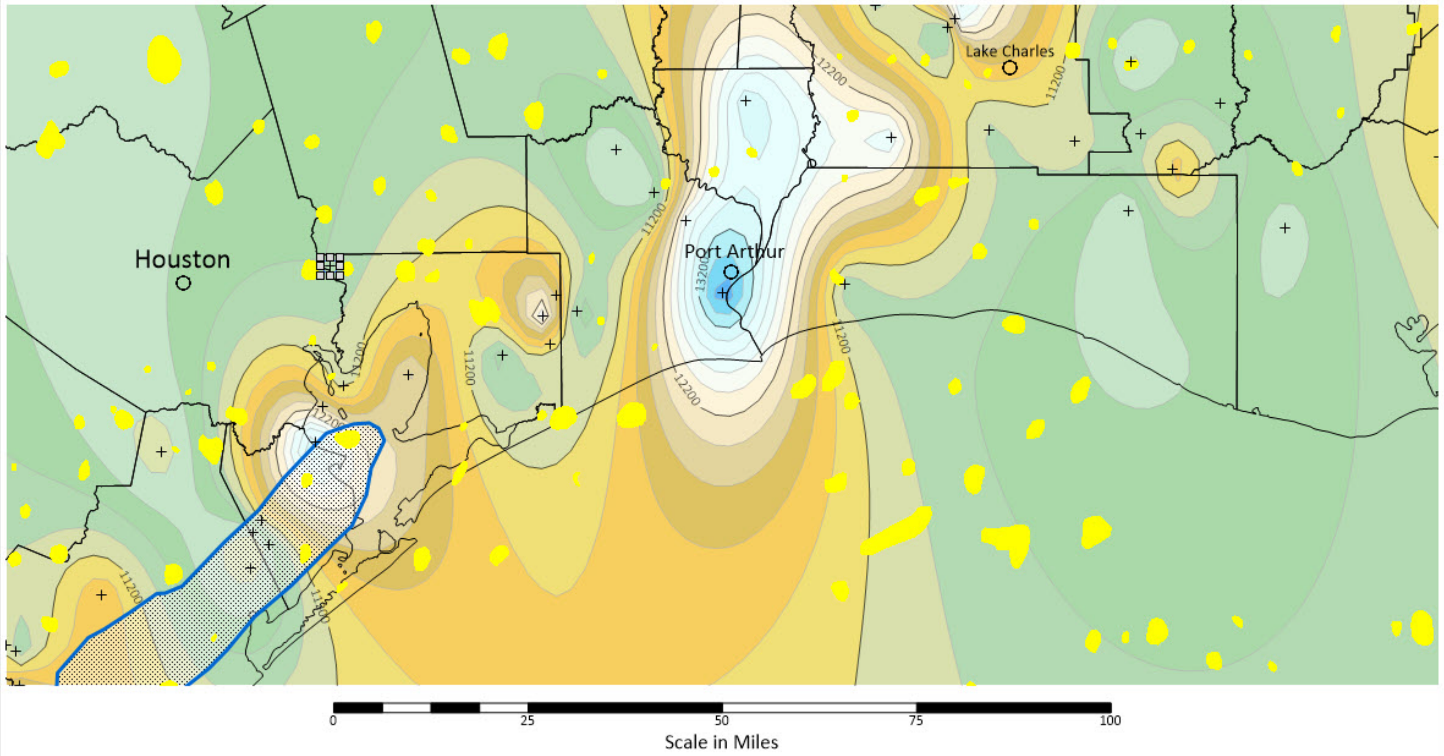
- ERCOT demand + IRA incentives (30–50% ITC) + dispatchable baseload premium.
- Behind-pipe potential in legacy wells: Perforate hot Frio zones → 40–80% capex savings.
- High-permeability Frio sandstones preserved by overpressure (>0.7 psi/ft).
- Corrected temps >250°F in hotspots (binary/ORC viable; 100–150°C low-enthalpy sweet spot).
- Ties to Stautberg & Sonnenberg (2023): Play Type 1 (Paleogene geopressured deltaic/marine sandstones) + salt diapir boosts.
- Reservoir quality constrained by LAS-based petrophysics & regional type sections



Rice University Center for Energy Studies: Expanding Carbon Capture in Texas

Top Frio Temperature Fairway –BHT Map

- Hotspots: >250°F corrected in over-pressured zones.
- Salt diapirs: Thermal refraction boosts (high conductivity).
- Derived from corrected BHT + LAS calibration + public datasets



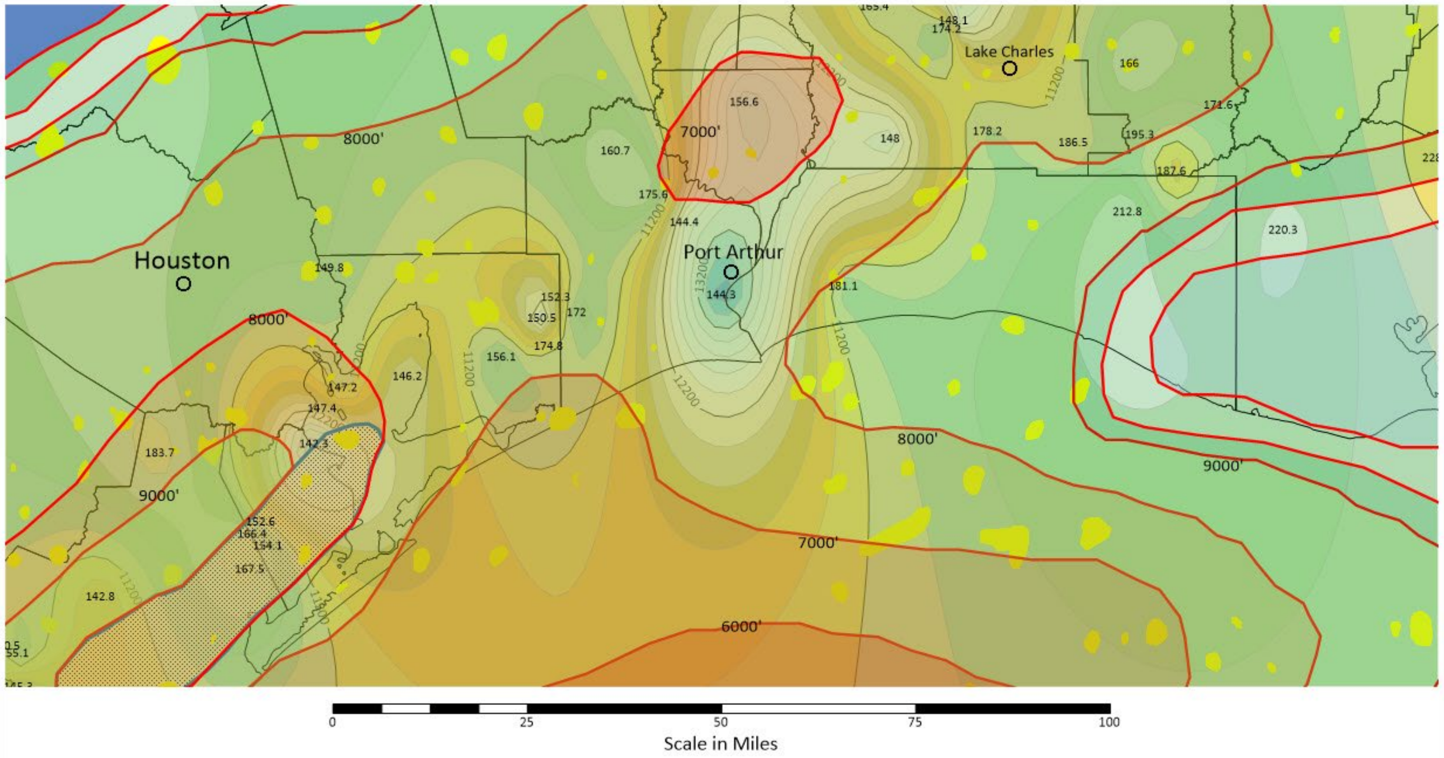
Top Frio Geothermal Fairway – Texas-Louisiana Gulf Coast

Kriged corrected BHTs at top Frio Formation highlight geopressured-geothermal potential in Paleogene sandstones. Hotter zones (greens to reds) indicate high-value fairways for binary-cycle power generation. Geopressured zones (light blue shading, depth to first 0.70 psi/ft gradient from USGS OFR 2013–1058) preserve porosity/permeability. Salt diapirs (yellow) enhance local heat anomalies. Depth contours (feet below sea level) from USGS Open-File Report 2013–1257 show access to >250°F reservoirs (Stautberg & Sonnenberg, 2023).

Color ramp: "Corrected Temperature (°F) – Warmer = higher potential"
Light blue shading: "Geopressured fairways (>0.70 psi/ft first occurrence)"
Yellow markers: "Salt diapirs (heat anomalies)"
Depth contours: "Feet below sea level"

Behind-pipe re-entry: Proven Frio perm + overpressure

- Overpressure (>0.7 psi/ft): Preserves porosity 10–40% & perm 10–1,000+ mD.
- Salt diapirs: Local heat anomalies + structural highs.
- Play Type 1 focus: Deltaic/marine sandstones (Frio) for open-loop binary.
- Depth access: Shallower in sweet spots (6–10k ft).



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Geothermal Economics - Scalable

- 1MW Scale
  - CAPEX: $1.8–2.5 million (after IRA ITC 30–50%)
  - Monthly Net Income: $15,000–$30,000 (after debt service + O&M)
  - Payback Period: 5–8 years
  - ROI: 12–18%
- 5 MW Scale
  - CAPEX: $7.5–10 million ($1.5–2.0M per MW with shared infrastructure)
  - Monthly Net Income: $80,000–$150,000+ (after debt + O&M)
  - Payback Period: 7–10 years (shorter with heat co-use or methane co-prod)
  - ROI: 15–25%+ over 25–40 year life

Geothermal Potential

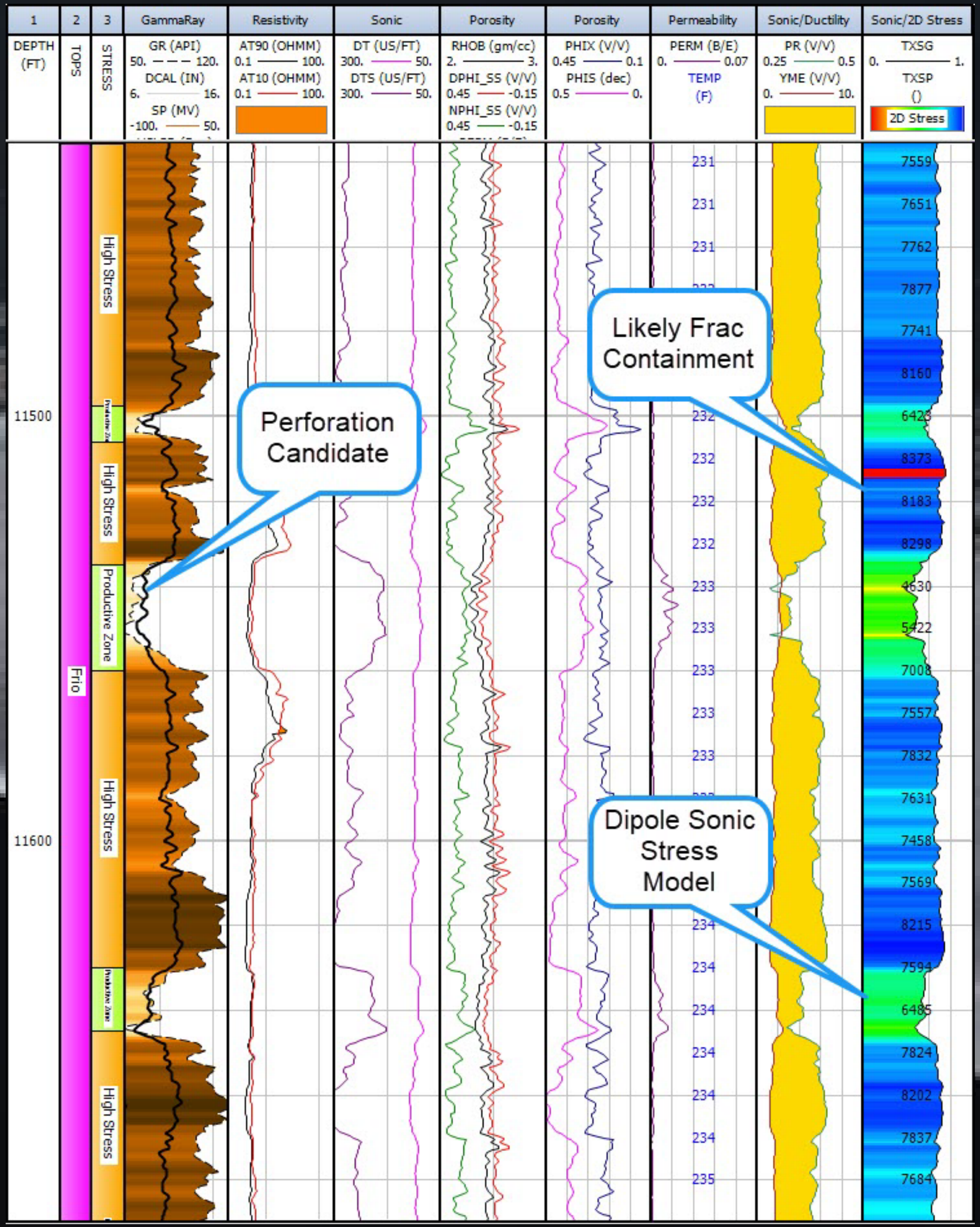
Power Output	Production Wells	Injection Wells	Total Wells	Notes
1 MW	1-3	1	2-4	Single well viable in high-flow hotspots (e.g., Pleasant Bayou analog); add for redundancy. Large neighborhood capacity.
5 MW	5-10	2-3	7-13	Cluster: Shared injection; scale from 1 MW base, assuming 1 MW per 1–2 wells. Small city capacity.
10 MW	10-20	3-5	13-25	Medium cluster; efficiencies from central ORC reduce per-MW wells slightly. Industrial park capacity.
20 MW	20-40	5-8	25-48	Large cluster; further sharing + EGS enhancements could optimize to lower end.

- Brine flow: ~2,000–4,000 bbl/day needed per MW (at 120°C inlet, 10% efficiency).
- Frio perm (100–1,000+ mD) enables good output from repurposed wells; overpressure preserves flow.
- Positive cash flow from year 1 (with strong PPA)
- Injection: Typically 1 per 2–5 production to maintain reservoir pressure.
- Upsides: Methane co-prod (25–45 cf/bbl) adds revenue; hybrids with CCUS share infrastructure.

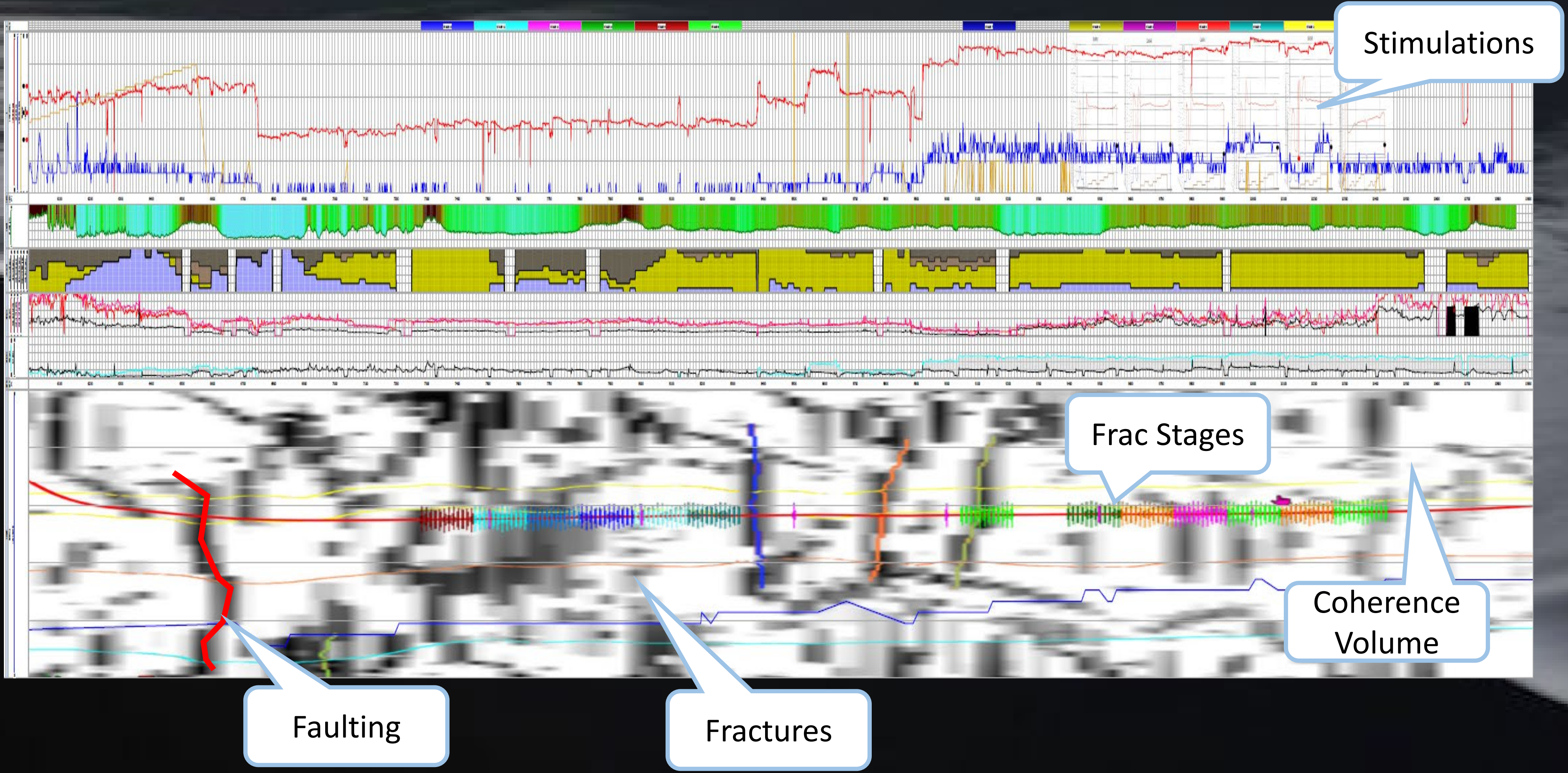
Geothermal Potential

- Low-Temperature Binary/ORC Systems (isobutane fluid, 100–150°C brine)
- Behind-Pipe Advantage: Legacy wells → 40–80% capex savings vs. greenfield
- Positive cash flow from year 1 (with strong PPA)
- Long-term baseload asset (>30 years) in data-rich Frio fairway
- Key Drivers
  - Revenue: $80/MWh PPA (ERCOT baseload premium) + methane upside
  - O&M: Low ($8k–15k/month per MW)
  - Upsides: Co-generation (residual heat sales), escalating electricity prices, data center demand

Frio Petrophysics



Geophysics



Stimulations
Frac Stages
Coherence Volume
Faulting
Fractures

Why Partner with RockWise?

- De-risked prospects: Mapped fairways + legacy data.
- Transition expertise: Bridge O&G to geothermal (CCUS synergies possible).
- Open to: JV, investment, co-development, or consulting.

- Let's turn Gulf Coast heat into reliable power – stop by Booth 2463

RockWise, LLC

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- RockWise role: Subsurface screening → fairway mapping → re-entry targeting

SCAN ME

Binary-Cycle Power Plant

Binary-cycle geothermal power plants can use lower temperature geothermal resources, making them an important technology for deploying geothermal electricity production in more locations. Binary-cycle geothermal power plants differ from dry steam and flash steam systems in that the geothermal reservoir fluids never come into contact with the power plant's turbine units. Low-temperature (below 182°C/360°F) geothermal fluids pass through a heat exchanger with a secondary, or "binary," fluid. This binary fluid has a much lower boiling point than water, and the modest heat from the geothermal fluid causes it to flash to vapor, which then drives the turbines, spins the generators, and creates electricity.