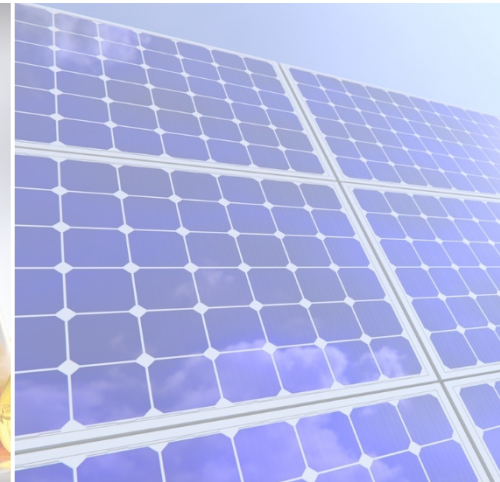




**CARBON
SOLUTIONS**



Time's Ticking:
**Embarking on the Wyoming
Trails Carbon Hub (Project
WyoTCH)**



**Mikey Hannon | Richard Middleton |
Erin Middleton | Monica Hernandez-
Lara**

CARBON SOLUTIONS LLC

August 28th, 2023





Mission-driven small business

- CARBON SOLUTIONS works with industry, government, non-profits, researchers, & other stakeholders to identify & implement real-world solutions for low-carbon energy challenges.

History

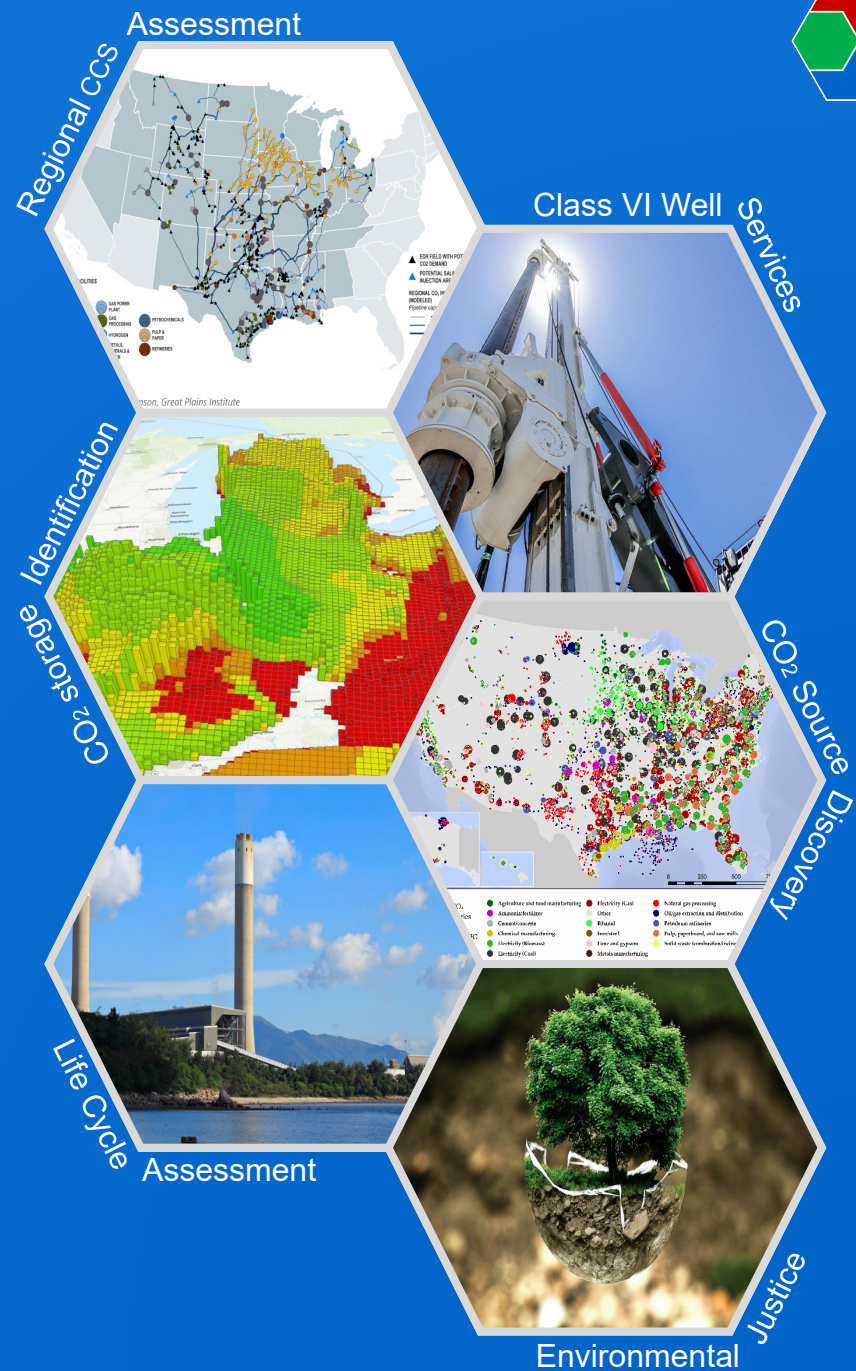
- Launched 2021 | ~35 employees | 60+ projects.
- Research | Consulting & Services | Software Development
- **FUNDING:** 70% Fed. | 15% NGOs | 15% Industry.

Energy applications

- CCS, hydrogen, direct air capture, geothermal, wind, energy storage, grid modeling,, energy equity, environmental justice...

Data analytics

- Optimization, reservoir simulation, ML/AI, LCA, TEA, econometrics, GIScience...



The Wyoming Trails Carbon Hub: *Project WyoTCH*

Long-term vision

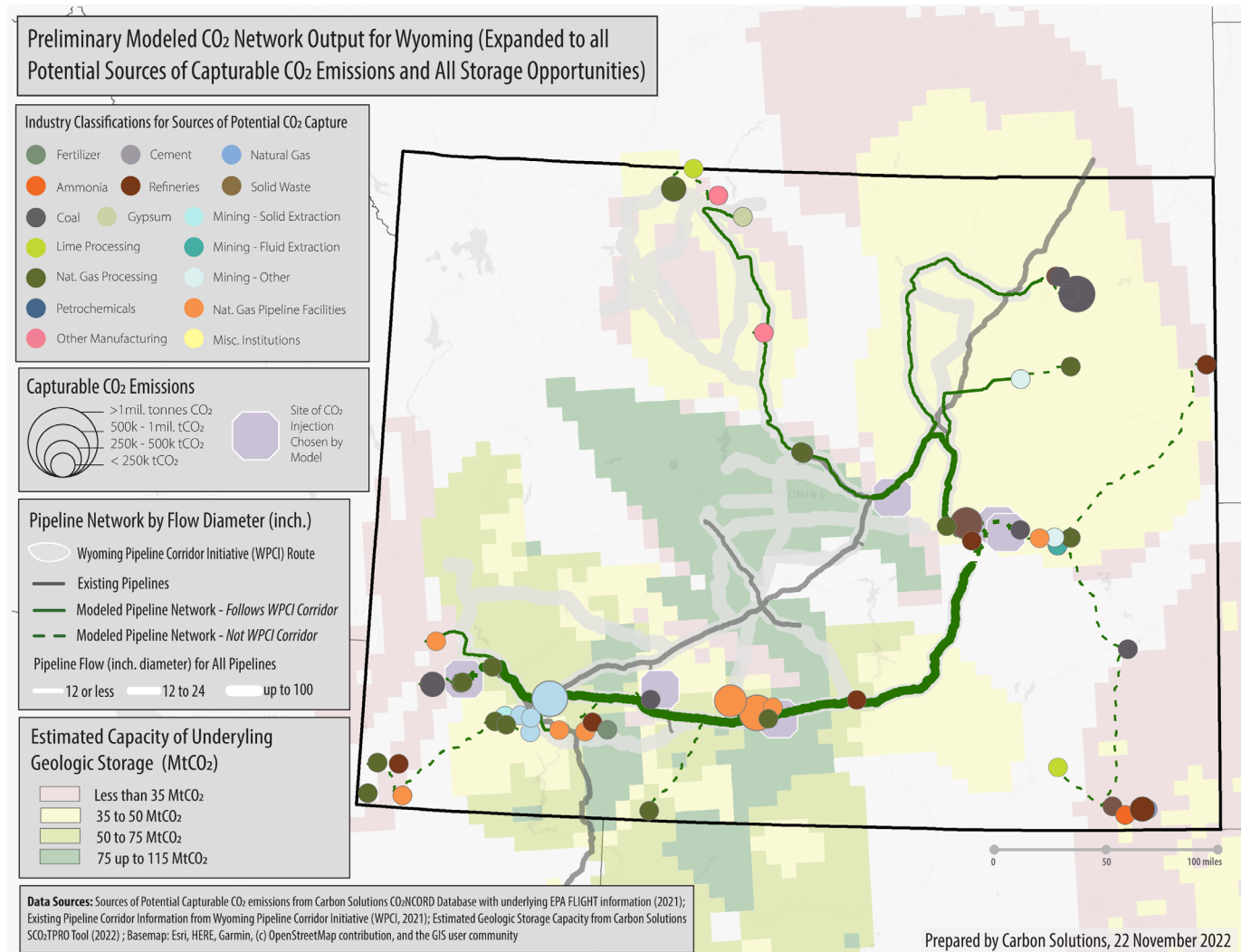
- Develop a Wyoming statewide CO₂ transportation network capable of managing tens of millions of tonnes of CO₂ each year (10s MtCO₂/yr).

Benefits

- Open-access pipeline to support statewide carbon management.
- Accelerate Wyoming net-zero economy.
- Sustainable job creation.

Leverage & support

- Private industry projects.
- State & federal investments including CarbonSAFE storage projects & direct air capture (DAC) hubs.
- Wyoming Pipeline Corridor Initiative.
- Working with Tribal communities.*
- **WyoTCH Hub award**



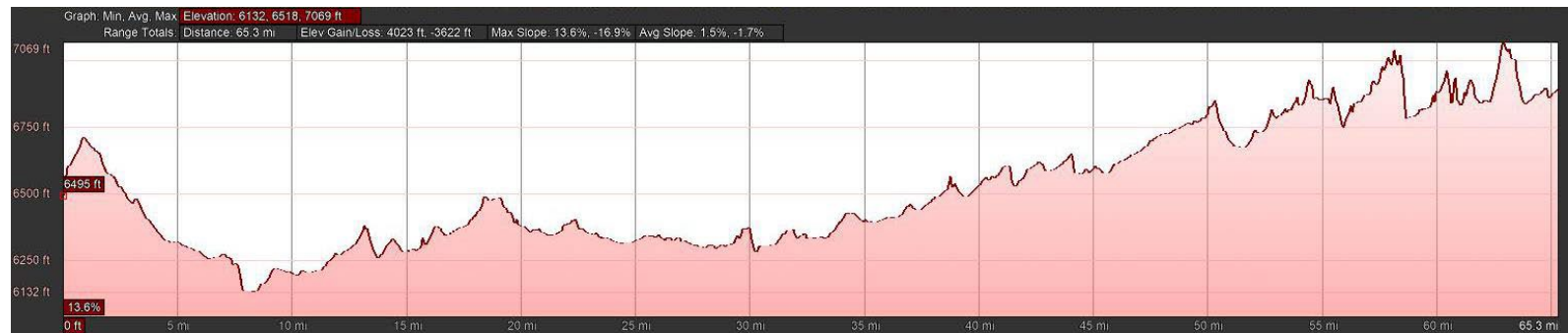
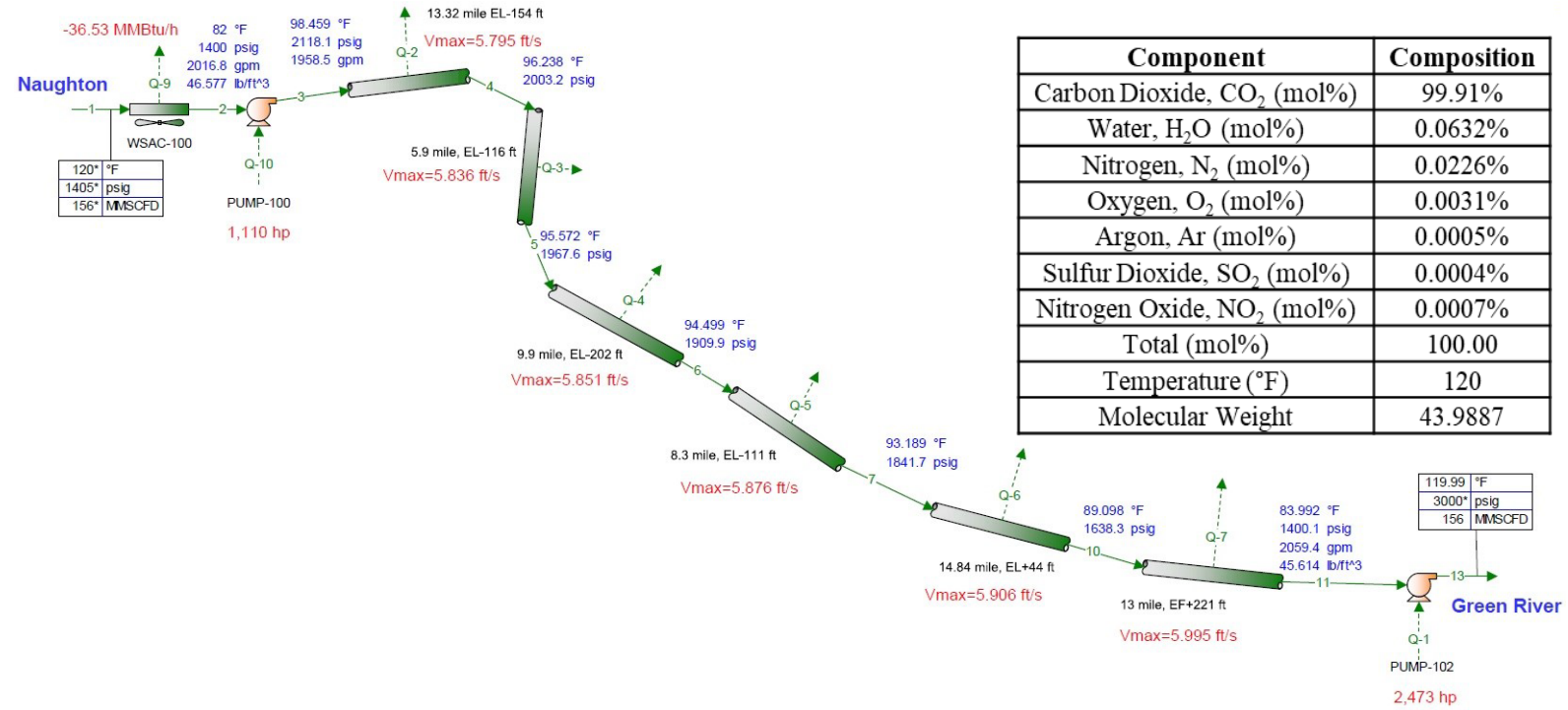
Phase I: CO₂ Transport FEED Study

DOE Award

- **Title:** *Time's Ticking: Embarking on the Wyoming Trail Carbon Hub ("WyoTCH").*
- **What:** 18-month front-end engineering design (FEED) study for a 10–25 MtCO₂/yr pipeline.
- **Award:** Total: **\$5M** | DOE: **\$3M** | Commercial partners: **~\$2M** (~40% cost share).

Commercial pre-work

- Pre-feasibility study (previous slide).
- Pipeline pre-FEED study (right).



Project WyoTCH: Pipeline pre-FEED study

Project Details

Timeline

- **Start:** 10/1/2023 (anticipated).
- **Month 1:** Kick-off meeting.
- **Month 2:** Project Management Plan.
- **Month 3:** Workforce Readiness Plan + **Feasibility Plan**.
- **Month 18:** FEED Study, Regulatory Plan, Community Benefits Plan, Environmental Safety and Health Assessment, & Business Case Analysis, **Concept Study for Hub**.

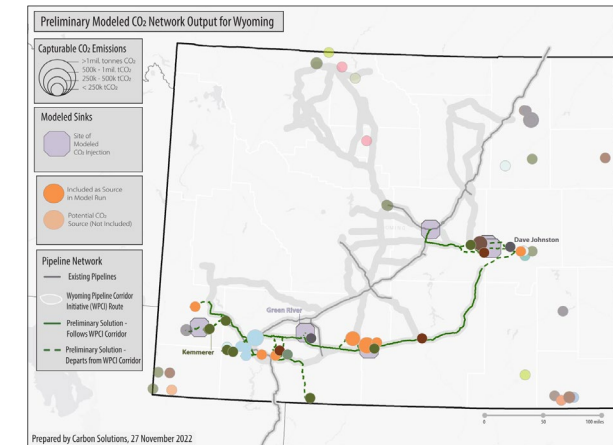
Project team:

- **PI:** Mikey Hannon | CARBON SOLUTIONS.
- **Co-PI:** Eric Robertson | UWyo-EORI.
- **PM:** Monica Hernandez-Lara | CARBON SOLUTIONS
- **Technical team:** CARBON SOLUTIONS, UWyo (Regulatory Plan), INTERA Incorporated (ES&H), PCS (FEED study).
- **Commercial team:** Carbonvert, Glenrock Energy, Live Oak Environmental, Kanata America, Williams.

Project WyoTCH

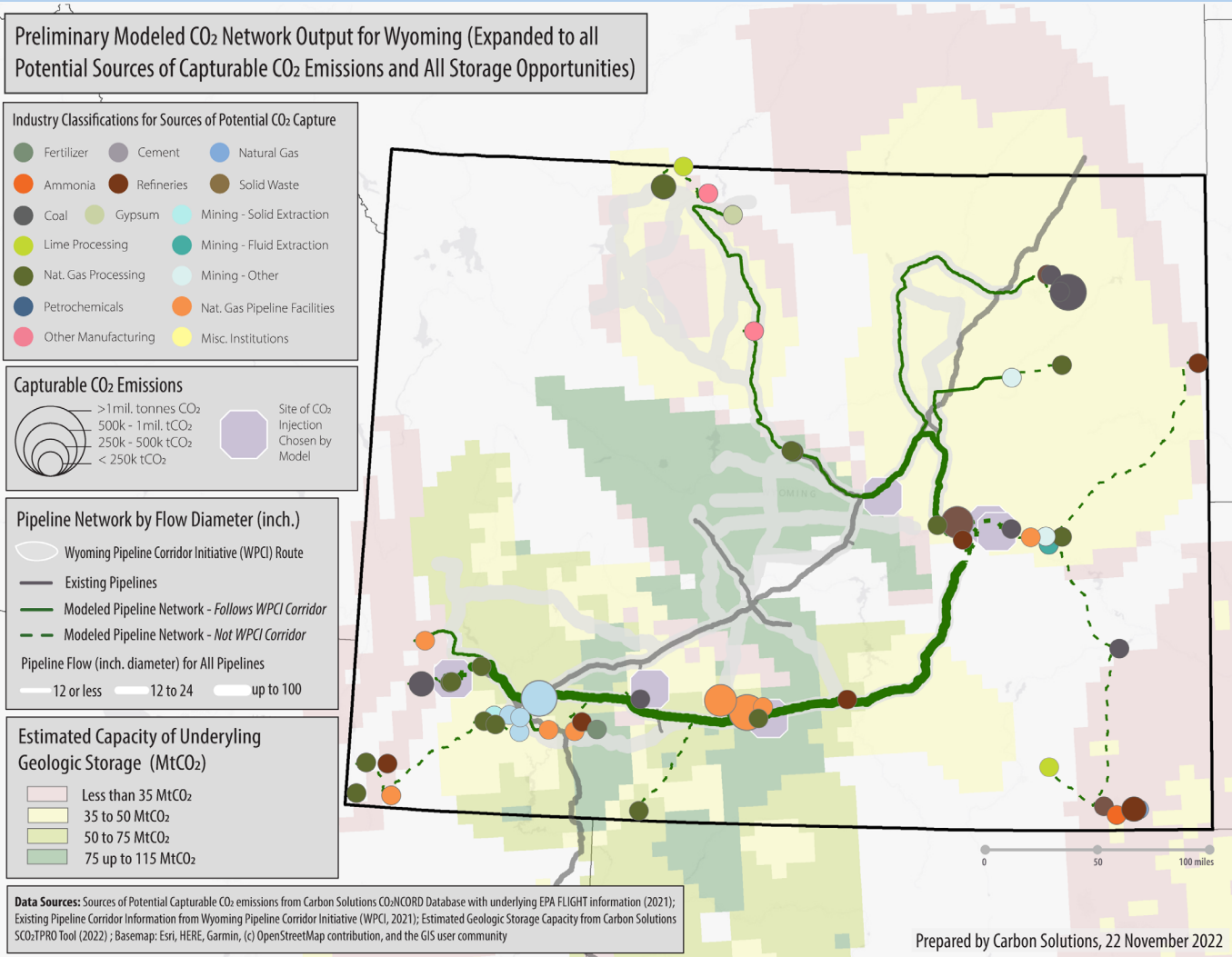
The Wyoming Trails Carbon Hub

Open access pipeline system transforming carbon management in Wyoming



Project Overview

- **Goal:** Lay the groundwork (technical, commercial, permitting/regulatory, public acceptance) for a statewide, open-access CO₂ pipeline system that optimizes commercial deployment of Carbon Management projects.
- **Scope:** FEED Study, Business Case, Regulatory Plan, Community Benefits Plan.
- **CO₂ Sources:** Connect a diverse range of facilities across Wyoming: 25 MtCO₂/yr in Phase I (topic of FEED study) and up to 45 MtCO₂/yr in Phase II (Concept Study).
- **CO₂ Storage:** Establish large -scale distributed storage across Wyoming, focused on key sites owned and operated by the *Project WyoTCH* commercial development team.
- **Workforce Development:** Leveraging existing Community Benefits Plan with scope on tribal -focused workforce development in Project WyoTCH Carbon Management Hub (awarded through DE -FOA-0002799).



CONCLUSION

Take Home Message

Why?

- Deploying Carbon Management across the State under the concept of “No Carbon Left Behind”

How?

- Leveraging visionary statewide policy and commercial framework for carbon management in Wyoming (notably, WPCI)
- Coordination among multiple industry partners.
- Being pro-active to account for regulatory considerations, environmental impacts, and social acceptance.

What?

- FEED Study, Regulatory Plan, Business Case Analysis, ES&H, Community Benefits Plan

Questions?

