

DIRECT AIR CAPTURE (DAC)

WHAT IS DIRECT AIR CAPTURE (DAC) TECHNOLOGY?

DAC is a form of Carbon Capture Utilization and Sequestration (CCUS) where air is captured, and the CO₂ is separated out and then permanently stored underground or converted into products.

- It is similar to what plants and trees do daily, but DAC does it faster and on a larger scale with a smaller footprint.
- DAC is helpful in balancing carbon emissions for industries that don't have a lot of other choices, like long-distance transport and heavy industry.
- In May of 2022, the Department of Energy (DOE) released a Notice of Intent to provide \$3.5 billion in funding to establish Direct Air Capture Hubs for large-scale CO₂ removal.

WHAT DOES A DAC FACILITY PRODUCE?

- CO₂ for permanent storage underground
- CO₂ to be used in food processing or in products like synthetic aviation fuels or cement
- CO₂ for enhanced oil recovery
- Carbon Removal Credits

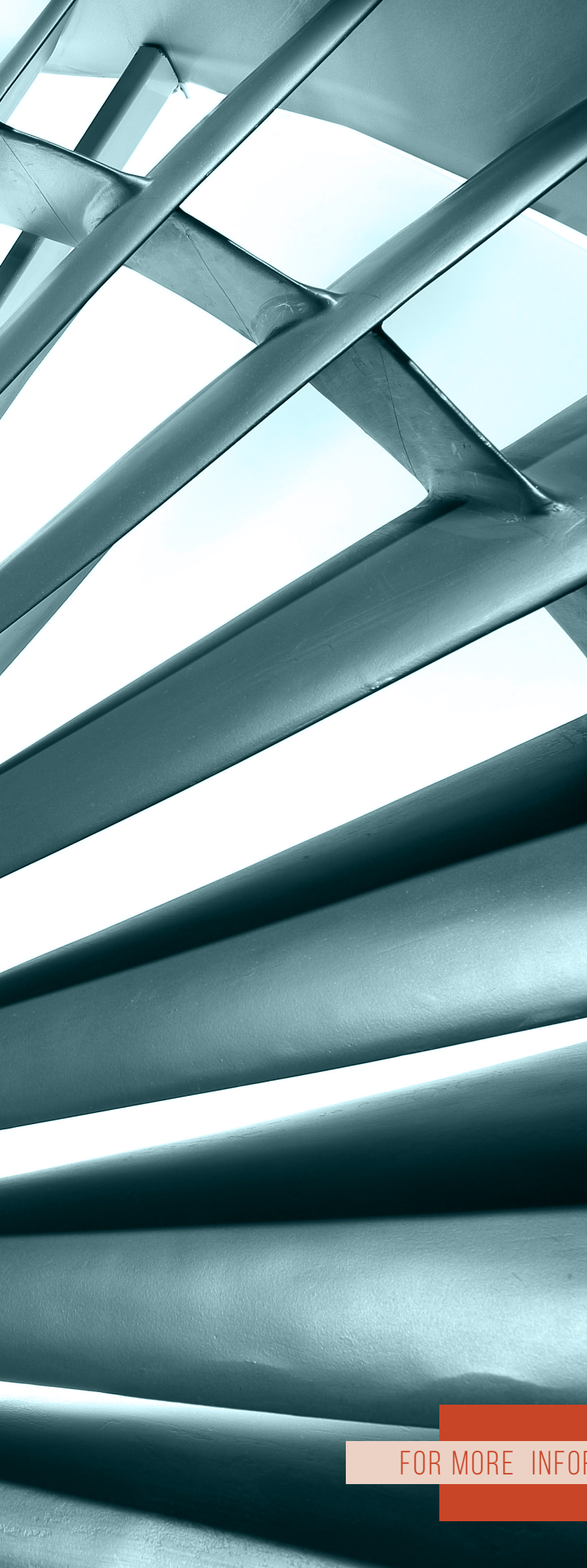
WHAT ARE THE NEEDS OF A DAC COMPANY?

DAC company inputs include land and a variety of power sources. Also important to siting are sequestration wells and the availability of DAC-specific manufacturing.

- **Energy:** A variety of energy sources can be used to power a DAC facility. Scaling up today's DAC systems would use non-trivial amounts of energy. Many DAC companies are interested in renewable energy sources in order to keep facility emissions overall net negative.
- **Land:** Because DAC facilities are small and modular, there is flexibility when it comes to siting DAC facilities. Many companies are looking to locate close to suitable storage, eliminating the need for long-distance CO₂ transport. DAC facilities also require permanent storage. Wyoming has more than 40 billion tons of CO₂ storage.
- **Water:** Water usage will vary depending on the DAC system, local temperature and humidity.

WHAT KIND OF JOBS DO DAC FACILITIES NEED?

Many of these jobs will be similar to plant operators and maintenance, as well as some construction needs. Job opportunities will fit well with Wyoming's current mining and plant workforce. The majority of engineering, technical and innovation positions will likely be held offsite.



CARBON REMOVAL

When you purchase a carbon removal credit, you are paying for someone to remove CO₂ from the atmosphere and store it permanently for you. This differs from a carbon offset, which is a permit showing you've paid someone not to emit CO₂ rather than remove it.

Companies, including Shopify, Microsoft, and others, have committed to buying carbon credits in addition to taking other measures, such as using renewable energy to help reach their net-zero or net-negative emissions goals.

HOW DOES A DAC FACILITY PRODUCE CARBON REMOVAL CREDITS?

A DAC facility can create carbon credits by capturing CO₂ from the atmosphere, storing it permanently, and tracking and recording the process very precisely. Then, they can sell these credits. This is one way for DAC companies to make money.

Carbon removal credits produced from DAC are considered among the most reliable and valuable but are also currently the most expensive. The global carbon credit market is projected to grow at least 15x by 2030 to reach \$50 billion.

WHY WYOMING?

DAC requires many of the same exact skillsets, infrastructure, assets, and know-how that Wyoming's current energy industries do, making it one of the best places for DAC in the world.

Wyoming is the Energy State and has been a leader in carbon management for decades:

- CCUS leader
- High density of active oil/gas extraction
- Renewable energy generation
- Existing transmission infrastructure
- Capacity for geological storage
- Class VI primacy and other forward-looking carbon management policy provides responsible and reliable stewardship on short timelines

Wyoming has energy industry-friendly policies and policymakers.

Wyoming has a veteran energy workforce.

Wyoming's existing industry, workforce and infrastructure may make it a strong candidate for DOE funding for DAC Hubs.

FOR MORE INFORMATION

Wendy Lopez
wendy.lopez@wyo.gov
307.777.2806

Chance Price
chance.price@wyo.gov
307.286.2550