



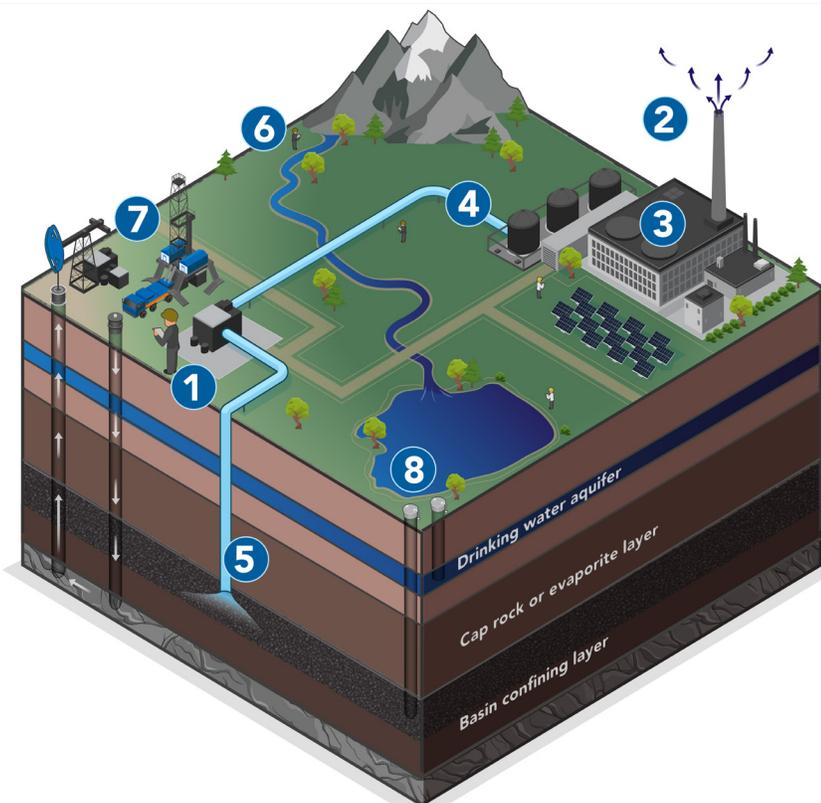
Barr believes in a holistic and comprehensive approach to addressing climate concerns, tailoring solutions to best fit our client's needs. We can help assess your carbon footprint through greenhouse gas accounting, analysis of your carbon-cycle management, cost-of-carbon evaluations, and more.

We help clients balance practical project schedules with the advancement of new, innovative technologies to help meet their commitments to long-term sustainability goals. Energy usage greatly impacts carbon intensity, so we help our clients use energy resourcefully in projects that integrate renewable energy, energy storage, efficiency upgrades, and electrification. When designing and implementing carbon management projects, we work with our clients to identify ways to lower carbon intensity or convert carbon to value-added products. Barr can provide a broad spectrum of

decarbonization services from fundamental approaches like designing sustainable landscapes to complex and innovative technologies like alternative fuels such as hydrogen, ammonia, and carbon capture.

## 1. Class VI well permitting / other regulations and permitting

Understanding how local, state, and federal governance impact business operations is no small task, especially when it comes to ever-evolving carbon legislature. Barr has experts ready to assist clients with obtaining regulatory permits and conducting compliance audits to ensure operations either meet or exceed the applicable governing rules. Staying up to date on the latest regulations and guidelines, creating pollution prevention plans, and obtaining air, water, and wastewater permits are all essential in meeting the needs of the client as they prioritize carbon management.



### Service areas

- 1 Class VI well permitting / other regulations and permitting
- 2 Emissions and energy assessments / review
- 3 Technology studies / design implementation
- 4 Pipeline transmission and distribution
- 5 Storage and sequestration
- 6 Stream crossing permits / environmental review
- 7 Enhanced oil recovery (EOR) with CO<sub>2</sub>
- 8 CO<sub>2</sub> modeling and monitoring

## 2. Emissions and energy assessments / review

Barr provides services to help clients get the full carbon picture for their operations. Obtaining a carbon baseline is necessary to measure growth against as clients continue to pursue more aggressive carbon reduction and mitigation practices. Barr offers a suite of services to determine, manage, and reduce carbon emissions.

## 3. Technology studies / design implementation

Barr can help determine which technologies are the best fit when assisting a client with providing facility upgrades to reduce carbon emissions. This includes best available control technology (BACT) reviews which evaluate the technical and economic feasibility of a technology. By prioritizing the needs of the client and completing an assessment of current operations, Barr assists not only in providing carbon capture, utilization, and storage technologies, but also with procurement and integration of those technologies. Barr can also understand how carbon capture technologies can be integrated in your overall plant. We have experience identifying areas of the process that can use waste energy and waste effluent as well as understand operating conditions to optimize sorbent and solvent degradation.



## 4. Pipeline transmission and distribution

Barr offers complete design packages to transport high pressure gases safely and efficiently, whether across a field or across the country. Compressor and pipeline design has long been a staple service for Barr. We prioritize minimizing pipeline system losses while avoiding deflection and developing specifications that enhance operational integration and reduce cost.



Measurement of greenhouse gas emissions from tailings basin and mine area.

## 5. Storage sequestration

Barr's geological and geotechnical experts can help you identify areas and properties optimal for carbon storage. Through feasibility studies, geological modeling, geotechnical analysis, well design, and reservoir design we can provide a full suite of engineering services that provide you with holistic solutions.

When a site has been selected, Barr can provide engineering and design for all above-ground equipment at the injection site. This typically includes high pressure injection pumps, controls, and monitoring equipment, along with all the support systems such as electrical service, motor control centers, equipment cooling, and maintenance facilities. Barr has decades of experience with design of heavy industrial facilities.

## 6. Stream crossing permits / environmental review

Barr's scientist, engineers, and permitting specialist can assist you in identifying the appropriate and applicable regulatory approvals and permits necessary to meet project goals. Through database searches, desktop reviews, field data collection, and analysis, Barr can identify protected and sensitive resources and provide a full suite of environmental review and permitting services to maintain project schedules, budgets, and regulatory compliance.



Carbon-evaluation services for new mining facilities.

### 7. Enhanced oil recovery (EOR) with CO<sub>2</sub>

Until recently, the most common type of CO<sub>2</sub> sequestration has been the injection of CO<sub>2</sub> into older oil and gas plays to extract oil by displacing the hydrocarbons with CO<sub>2</sub>. This process, known as enhanced oil recovery (EOR), allows more efficient extraction than other methods such as water flood techniques. Barr has helped our clients acquire and develop oil and gas assets for both CO<sub>2</sub> and water flood operations including due diligence for the assets, permitting, and remediation of old leaking wells and spills. We also have capabilities through our partner network to help you evaluate economic recovery rates and design a profitable EOR plan that can provide a return on income from the extracted hydrocarbon as well as a carbon credit.

### 8. CO<sub>2</sub> modeling and monitoring

We can conduct CO<sub>2</sub> plume modeling for Class VI well permitting. For existing sites that already have an injection permit, or that are moving to the implementation stage, Barr can help you model the potential impacts of CO<sub>2</sub> storage on surface resources and identify safety hazards. We also have decades of experience developing monitoring networks that can detect leakage of CO<sub>2</sub> into shallow aquifers. These precautions are critical aspects of a safe operation and require thoughtful data collection and attention to pre-existing CO<sub>2</sub> concentrations in groundwater to avoid “false-positives” from naturally occurring CO<sub>2</sub> that exists in every aquifer. To combat this, we conduct baseline sampling to determine the threshold statistical limits that define whether a leak has occurred.



Carbon-capture-system feasibility study. Analysis demonstrates scalability of innovative carbon-capture concept.



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resourceful. naturally.