

EXXONMOBIL LABARGE CARBON DIOXIDE CAPTURE AND STORAGE PROJECT

Developer / Lead: ExxonMobil Corporation

Location: Lincoln County, WY

Status Category: Operational / Expansion Underway

Prepared By: Carbon Solutions

OVERVIEW

The Shute Creek Treating Facility has processed gas from the LaBarge field since 1986, separating CO₂, methane, helium, nitrogen, and hydrogen sulfide. Current operations capture ~6–7 million metric tonnes of CO₂ per year, with most CO₂ marketed to regional enhanced oil recovery (EOR) projects; acid-gas streams are injected for disposal under state and federal oversight. The facility is also a major helium producer—ExxonMobil cites ~20% of global supply—and continues to supply treated natural gas to market. An approved expansion is designed to add up to ~1.2 MtCO₂/yr, with startup targeted in 2025.

FACILITY & OPERATIONS

Produced gas at LaBarge is CO₂-rich (approx. 65% CO₂, 21% methane, 7% nitrogen, 5% H₂S, 0.6% helium), requiring large-scale separation. Shute Creek uses amine treating and cryogenic processes to separate CO₂, methane, and helium; H₂S and entrained CO₂ are managed via acid-gas injection (AGI). Processing, compression, and transport infrastructure support CO₂ delivery to EOR customers and disposal wells, with helium recovered for industrial markets.

CO₂ CAPTURE, USE & INJECTION

Most captured CO₂ is sold for EOR via pipeline to nearby fields. In parallel, acid-gas injection (AGI) disposes of H₂S and associated CO₂; EPA's MRV technical review describes AGI wells and expected stream compositions, and MIT documents indicate ~400,000 tCO₂/yr has historically been injected along with H₂S. These activities occur within a well-characterized reservoir system in the LaBarge area under Wyoming DEQ and U.S. EPA oversight.

2022–2025 EXPANSION

ExxonMobil reached final investment decision in Feb 2022 on a ~\$400 million project designed to add up to ~1.2 MtCO₂/yr of capture, with startup planned in 2025. The EPC scope was awarded to Technip Energies (engineering/procurement) and Saulsbury Industries (construction and pipeline installation). Company materials and trade press describe modifications to the existing gas-treating train, additional compression, and pipeline connections to transport captured CO₂ to utilization/disposal.

MARKETS & CO-PRODUCTS

- **CO₂:** Supplied primarily for EOR in Wyoming and Colorado, consistent with long-running commercial arrangements from Shute Creek.
- **Helium:** ExxonMobil reports ~20% of global helium supply from LaBarge, supporting medical imaging, fiber-optics, semiconductors, and aerospace markets.
- **Natural gas:** Treated sales gas (methane) continues to be delivered to market through existing pipeline infrastructure.

REGULATORY OVERSIGHT & MONITORING (MRV)S

Injection and disposal activities at Shute Creek occur under state and federal oversight. Acid-gas injection (AGI) wells manage hydrogen sulfide with associated CO₂, and these operations are covered by an EPA monitoring, reporting, and verification (MRV) technical review that outlines the expected stream composition, monitoring parameters, and reporting requirements. Current CO₂ handling reflects a dual pathway: sales to regional EOR projects and regulated AGI for disposal. The planned 2025 capture expansion proceeds within this established regulatory framework, with ongoing compliance and reporting obligations.

STRATEGIC IMPORTANCE

The LaBarge facility is among the world's largest and longest-running carbon capture sites, operating since 1986. It captures 6–7 million tonnes of CO₂ annually from one of North America's most CO₂-rich natural gas streams. In addition, the site produces roughly 20% of the world's helium supply, supporting global industry. A US \$400 million expansion project, scheduled to begin operations in 2025, will add ~1.2 million tonnes of CO₂ capture capacity per year, strengthening Wyoming's position as a leader in carbon management and demonstrating ExxonMobil's commitment to large-scale industrial decarbonization.

