

September 2022

Beyond Compliance: Emission Reduction Initiatives



Enerplus' Approach to ESG

ENVIRONMENTAL, SOCIAL & GOVERNANCE

Material focus areas

EMISSIONS MANAGEMENT⁽¹⁾⁽²⁾

2021 Performance

- 35% methane emissions intensity reduction
- 25% total GHG emissions intensity reduction

Targets: Methane intensity

- 30% reduction by 2025
- 50% reduction by 2030

Target: GHG intensity

- 35% reduction by 2030

WATER MANAGEMENT⁽¹⁾

2021 Performance

- 31% freshwater reduction per well completion in North Dakota

Target: Produced water use

- 50% or greater produced water used in well completions by 2025

HEALTH & SAFETY⁽¹⁾

2021 Performance

- Zero lost time injuries
- 116 consecutive incident free days

Target: LTIF⁽³⁾ reduction

- 25% LTIF reduction, on average, from 2020-2023



1) 2021 performance is relative to a 2019 baseline. Emissions targets are relative to a 2021 baseline. Water and Health & Safety targets are relative to a 2019 baseline.

2) Enerplus' GHG emissions reduction targets address scope 1 and 2 emissions. Scope 1 emissions are direct emissions from owned and operated facilities. Scope 2 emissions are indirect emissions from the generation of purchased energy for the Company's owned and operated facilities.

3) Lost Time Injury Frequency.

ESG Evolution at Enerplus

- Set and have since revised our GHG emission intensity reductions
 - 35% reduction of Scope 1 & 2 emission intensity by 2030
 - Methane intensity targets for 2025 and 2030
 - Water Reuse and Safety targets
- Created an internal Emission Reduction Fund
 - Funds emission reduction projects that may not meet internal economic thresholds
 - 2022 investment of ~\$4.5 million
- Created cross-disciplinary teams to focus on:
 - Carbon Capture
 - Carbon Sequestration
 - Engine Efficiency
 - Flaring
 - Pneumatics
 - Waste Heat
 - Scope 2 Electricity Usage

Innovative Technology

- Focus on developing technologies
 - Evaluation teams searched for new technologies
 - External funding evaluated
 - Innovative technology for power generation
- Carbon Capture Team
 - Identified a startup proposing small-scale portable carbon capture skid for engine exhaust
 - Received a ND Clean Sustainable Energy Authority (CSEA) grant providing 50% of pilot project funding
- Waste Heat Team
 - Identified a startup proposing geothermal power solution
 - Received a ND Clean Sustainable Energy Authority (CSEA) grant providing 50% of pilot project funding

Carbon Capture on Engine Exhaust - Pilot

- Portable skid uses proprietary technology to extract carbon dioxide from engine exhaust, and compressing for liquification
- Pilot Funding through CSEA
- Benefits of the project
 - Assists clean energy startups in early-stage development
 - Promotes small-scale, portable solutions necessary for O&G production
 - Provides line of sight to positive economics and commerciality
 - Provides alternatives to electrification
- Challenges of the project
 - Economics rely heavily on carbon pricing
 - Transportation of liquified CO₂
 - Sequestration of liquified CO₂

Geothermal Power Project - Pilot

- Utilizes the Organic Rankine Cycle to generate power from produced water
- Pilot Funding through CSEA
- Benefits of the project
 - Assists clean energy startups in early-stage development
 - Cools produced water to meet pipeline temperature specifications
 - Goal is to replace current air coolers used to meet pipeline specifications
 - Produces power that can be used onsite or sold to the grid
- Challenges of the project
 - Materiality of power created
 - Incorporating generated power

Enerplus' Successes

- **Pneumatic Devices**
 - Replacing field gas with compressed air to power intermittent bleed pneumatic devices on acquired assets
- **Vapor Recovery Units**
 - Intermediate pressure separators (60 psi to 110 psi)
 - Low-pressure tank vapors (2 psi to 110 psi)
- **Flowback**
 - Through facilities immediately, reducing flaring
- **Emissions Avoided**
 - ~20,000 metric tons of CO₂e reduced in 2021
 - ~200,000 metric tons of CO₂e reduced in 2022
- **Increasing awareness and changing mindsets for emission reductions**

CSEA Opportunities

The Clean Sustainable Energy Authority is created to support research, development, and technological advancements through partnerships and financial support for the large-scale development and commercialization of projects, processes, activities, and technologies that reduce environmental impacts and increase sustainability of energy production and delivery. The purpose of the financial support is to enhance the production of clean sustainable energy, to make the State a world leader in the production of clean sustainable energy, and to diversify and grow the State's economy.