



## CASE STUDY

### Continuous monitoring systems: Project Canary and NextDecade

In 2021, NextDecade and Project Canary started a joint pilot project for monitoring, reporting, and independent third-party emissions measurement and facility certification of greenhouse gas intensity of LNG to be sold from NextDecade's planned Rio Grande LNG export facility. The joint pilot project will measure emissions across the value chain through Canary X and Aeris continuous emissions monitoring devices, and use certification processes to confirm emissions levels of each element of the natural gas value chain – from the wellhead to the ship at Rio Grande LNG.

#### Context

In line with the Paris Agreement, expectations for greenhouse gas emission accounting and mitigation have shifted. No longer is it good enough for an oil and gas producer, pipeline operator, or exporter to rely on outdated government estimates and spot checks. From investors to policy-makers, expectations are shifting toward continuous site-level measurement, financial grade Environmental, Social, and Governance (ESG) reporting, and dedicated action to eliminate methane leaks from the natural gas value chain.

Many industry operators are demonstrating climate leadership by deploying continuous emissions monitoring technologies and seeking independent certification to validate strong operational and ESG performance. These technologies enable operators to accurately measure emissions in real-time and transparently report ESG performance to the market.

These advances in monitoring and performance verification have developed new markets for differentiated premium commodities such as certified responsibly sourced gas (RSG). With continuous emissions monitoring and third-party certification, RSG buyers can make informed choices when seeking low-emissions oil and gas.

## The project

Rio Grande LNG expects to offer one of the lowest carbon-intensive LNG products on the global market by combining emissions reduction through its planned carbon capture and storage project, responsible sourced gas and its pledge to use net-zero electricity. This will rest on the proper management of both methane and carbon dioxide emissions.

The joint pilot project between NextDecade and Project Canary focuses on delivering independent, trustworthy, continuous emissions monitoring data and related technologies to assess environmental performance across the energy value chain. To achieve these outcomes, Project Canary will deploy its Canary X and Aeris continuous emissions monitoring devices, and certification processes, to confirm each element of the natural gas value chain – from the wellhead to the ship at Rio Grande LNG – has achieved low emissions targets and kept to the highest standards of environmental performance and social responsibility.

Project Canary will also deploy its Trustwell™ upstream and midstream certification programs to evaluate management systems, operations, compliance, and other data to assess the supply chain's ESG spectrum. This third-party certification is linked with Project Canary's continuous monitoring devices, which record and report emissions continuously to a cloud-based dashboard.

In this context, NextDecade recently executed a 15-year sale and purchase agreement for 1.75 million metric tonnes per annum of LNG with Engie S.A., a significant European energy supplier, looking to transition toward lower-carbon energy solutions.



## Project Canary & Emission Monitoring Systems

Project Canary (Colorado-based) provides climate data analytics focusing on accurate corporate ESG data for emissions-intensive industries. The company provides financial-grade environmental assessments (including data regarding impacts on air, water, land, and community) and continuous monitoring solutions at the facility level, enabling companies to measure and improve their operations and emissions profiles. Likewise, Project Canary's solutions allow commodity buyers to track environmental performance in real-time and verify progress over time.

Project Canary uses the software-as-a-service (SaaS) business model, deploying continuous environmental monitoring devices that record emissions in real-time via cloud-based systems. Below is a full breakdown of the various devices that are used Across THE Industry:

	Continuous Monitoring	Drones	Planes	Satellites
Reading (estimates)	40,000 / month	1 / month	1 / month	30 / month
Gas species detected	Methane, TVOCs	Methane, ethane	Methane	Methane
Lower detection limit	1 kg/hour	0.5-2 kg/hour	40-70 kg/hour	100-200 kg/hour
Measurement principle	Tunable Laser Diode Absorption Spectroscopy (TDLAS), Photoionization Device	Laser absorption spectroscopy (infrared)	LiDAR, Infrared absorption spectroscopy, direct plume measurement, & others	Absorption spectroscopy
Weather interference	No	No	Yes	Yes

Emissions monitoring can be performed using an array of platforms: ground-based “fence line” sensors, mobile/handheld devices, drones, aircrafts, and satellites. See [Monitoring and managing methane emissions](#) for further information on the topic and [Monitoring Pathways](#) for related case studies. For more on continuous monitoring systems, you can check [this collaboration](#) between Northeast Natural Energy and Baker Hughes.

## Find out more

Monitoring and managing methane emissions



METHANE  
GUIDING  
PRINCIPLES

This case study was prepared and submitted by Project Canary and does not necessarily reflect the views or positions of all of the Signatories and Supporting Organisations of the Methane Guiding Principles.