

# CLEAN RESOURCES

## ADVANCED HYDROCARBONS

CLEANER HYDROCARBON PRODUCTION – METHANE EMISSIONS REDUCTION

### Scalable Mobile Methane Sensing System for Emissions Detection, Quantification, and Reduction

The University of Calgary is developing a new scalable mobile technology to efficiently and cost-effectively measure and monitor methane emissions from the oil and gas (O&G) sector. The technology consists of a vehicle-based sensing system that uses field-proven hardware, advanced analytics, IoT, and edge and cloud computing to measure, map, attribute, and quantify methane emissions from upstream facilities.



#### FUNDING DETAILS



**RECIPIENT:**  
**University of  
Calgary – Dr. C.  
Hugenholz**



**PARTNERS:**  
**U of C Global  
Research Initiative,**  
**U of C SENST**



**TOTAL BUDGET:**  
**\$816,000**



**AI FUNDING:**  
**\$366,000**



**PROJECT DATES:**  
**JAN 2019 –  
MAY 2022**



**PROJECT TRL:**  
**Start: 6  
End: 9**

#### APPLICATION

The immediate target market for the technology is the Alberta oil and gas industry. Specific end users of the technology include oil and gas producers, service providers, and regulators. The longer-term target market includes oil and gas producers, service providers, and regulators in Saskatchewan, BC, Colorado, Texas, and other production areas in the USA.

# ALBERTA INNOVATES

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### PROJECT GOALS

- The goal of the project is to translate a prototype system into a commercial solution by Q2 2022 or sooner. This will be accomplished by:
  - Upgrading and refinement of system components to create an optimized product for commercial distribution.
  - Validating the technology through tests used to mature custom analytical methods for detecting, attributing, and quantifying facility-level methane emissions.
  - Pilot deployment will be used to define the market fit and potential.

### BENEFITS TO ALBERTA

- This technology supports Alberta's goal of enabling sustainable development of oil and gas resources that have low carbon intensity and achieve cleaner production than other production regions globally.
- The project will also create a pathway for commercializing made-in-Alberta technology with a strong scientific underpinning and increased potential for export and uptake in foreign markets.
- Key benefits are:
  - Reduced Leak Detection and Repair (LDAR) program costs of 10-50%
  - Partnership between academia and end users
  - Collaborations between oil and gas producers and leak detection service provider
  - Attraction and retention of HQP
  - Emerging commercial use of the technology



2 Publications



5 Students  
Trained



5 Project Jobs



13 Future Jobs



1 New  
Products/Services



1 Spinoff  
Companies



410 kT/yr Future  
GHGs Reduced  
(enabled)

### CURRENT STATUS

#### March 2020

The technology has matured rapidly. Testing has been conducted to demonstrate the system's effectiveness in detecting methane emissions in a controlled environment and at 180 upstream oil and gas facilities in Alberta. An IoT/cloud system has been developed to consume field data and support scalability. The project is on track and on schedule.