

CANADIAN METHANE JOBS MARKET ANALYSIS



**An inventory of technology and service providers offering the
Canadian oil and gas industry tools to reduce methane**

METHANE EMISSIONS LEADERSHIP ALLIANCE

TECHNOLOGY. PARTNERSHIPS. INNOVATION.

INTRODUCTION

Background

One of the Government of Canada's global commitments to fight climate change includes reducing methane emissions from the oil and gas industry 40 to 45% below 2012 levels by 2025. Methane, the principal component of natural gas, was targeted as an important greenhouse gas for Canada to reduce as part of the Pan-Canadian Climate Framework (December 2016) and the Alberta Climate Plan (November 2015). To achieve this commitment, producers will have to deploy methane mitigation technologies across the value chain and enlist the services of local businesses to support methane reduction management activities. Methane emission reductions are achievable at low-cost, using readily available technologies to recover leaking or vented methane.

The Methane Emissions Leadership Alliance conducted a market survey in Q1 2017 to identify the current number of methane mitigation companies in

Canada and to assess the potential capacity of this industry to scale with new customer demands for emissions reduction solutions.

This report contains a review of companies with offices located in Canada and the associated number of jobs within each of those organizations related specifically to methane emissions reduction activities. The report does not include jobs from the supply chains that support the technology and service sectors analyzed. The data is broken down by methane source category in order to demonstrate which sources are currently served and to what capacity market demand can be met upon implementation of federal and provincial methane regulations. This report did not seek to quantify the total number of jobs but rather to provide a sense of the scale and opportunities for job creation in this sector. A Phase 2 report is being planned to quantify the total number of jobs.

About the Methane Emissions Leadership Alliance

The Methane Emissions Leadership Alliance (MELA) members provide the data, services and technology solutions critical to methane emissions management in the Canadian oil and gas industry. The Alliance is a partner to government, industry, and other key stakeholders, focused on building a clean economy and generating new jobs.

The Alliance serves as a centralized location for technology and service providers to collaborate with industry and government on building a robust economy in a changing regulatory environment. The core objectives of the Alliance include:

- Advance and support the deployment of methane emissions reduction solutions and technologies throughout the oil and gas industry in Canada
- Promote clean, efficient, and cost effective technologies and services that reduce operating costs and minimize regulatory compliance costs for oil and gas producers
- Elevate public awareness and profile of methane emissions reduction technologies
- Educate all levels of government and industry organizations on the value, applicability, and performance results of methane emissions reduction technologies
- Foster and support relationships with mutual stakeholders and partners of methane emissions management

EXECUTIVE SUMMARY



There are more than 170 Canadian companies providing methane emissions management solutions



40% of companies surveyed anticipate 100%+ growth in headcount due to methane regulations



80% of companies surveyed expect job growth in the next 12-18 months as a result of methane regulations



More than three-quarters of the companies have offices in Alberta



One third of companies provide field inspection services to help their customers manage fugitive emissions



This survey does not include small businesses with no internet presence

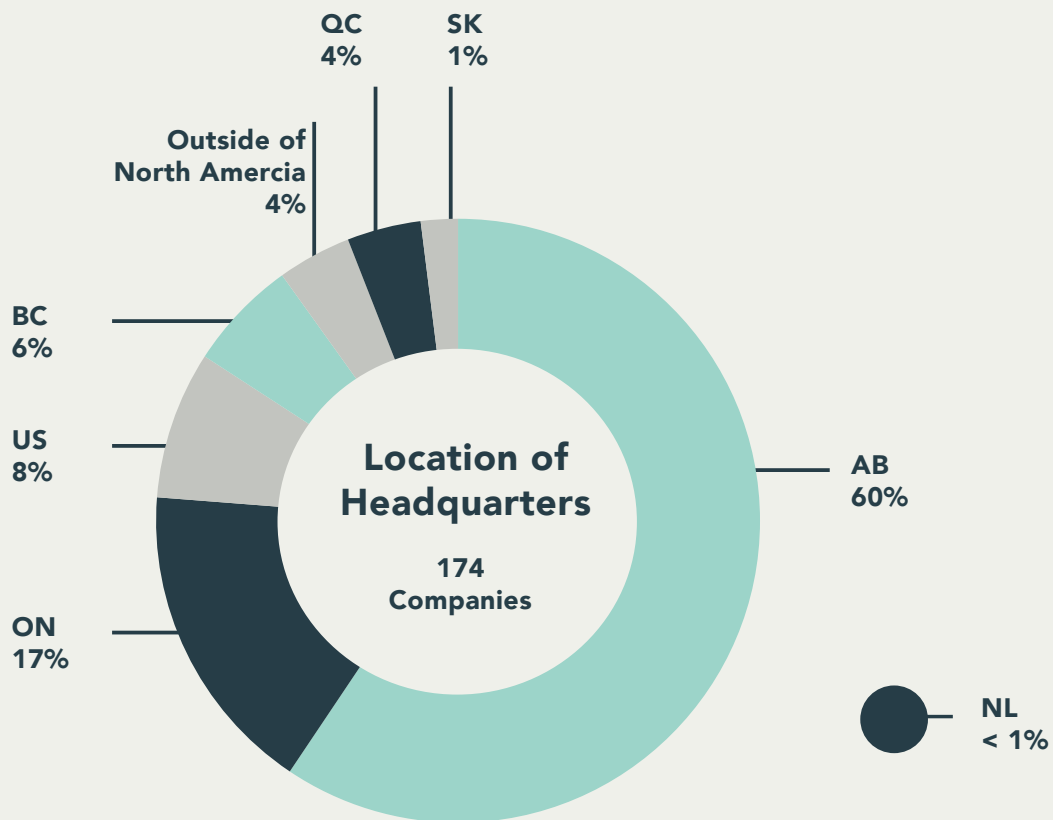
METHANE MITIGATION: BY THE NUMBERS



Geographic Reach

More than half of the technology and service providers identified are headquartered in Alberta. A few organizations with US or international headquarters have satellite offices located in Canada that provide methane related services to the oil and gas industry. Data shows that 78% of identified companies are either headquartered or have

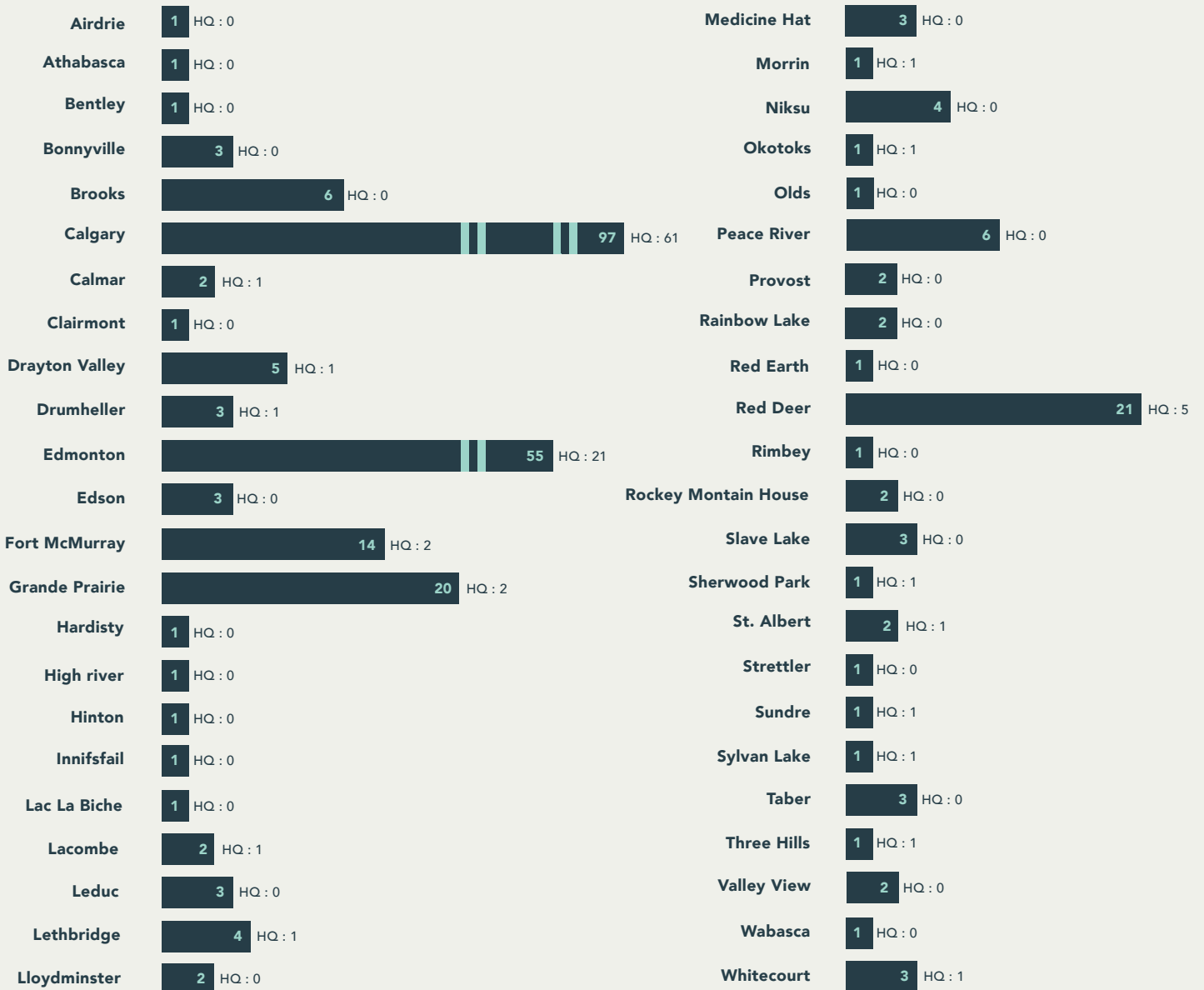
a satellite office in Alberta. One company interviewed explicitly mentioned that there are stronger oil and gas methane regulations in the United States and unless Canada develops comparable regulations, it may be more cost-effective to move some jobs from Canada to the U.S.



METHANE MITIGATION: BY THE NUMBERS

Office Locations in Alberta

■ Number of Offices
 HQ: ■ Number of Offices That Are Headquarters



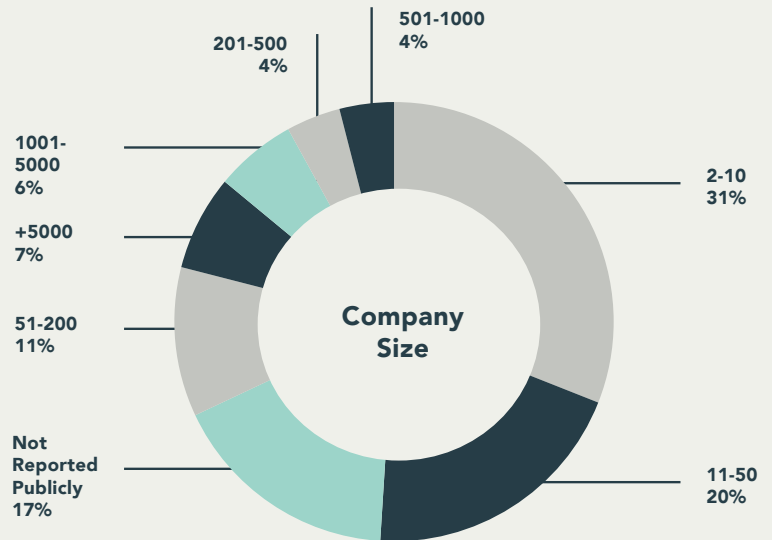
Totals ■ Number of Offices - 292 HQ: ■ Number of Offices That Are Headquarters - 104

METHANE MITIGATION: BY THE NUMBERS



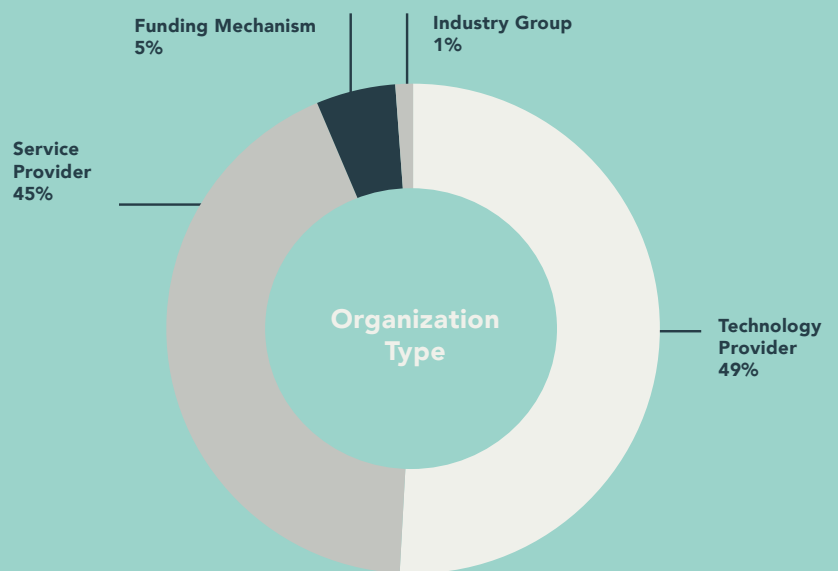
Company Size

Company size is determined by publicly available data on total employees unless informed by a specific company survey response. Therefore, some figures exceed the number of jobs directly associated with methane mitigation technologies and services within the organization.



Company Type

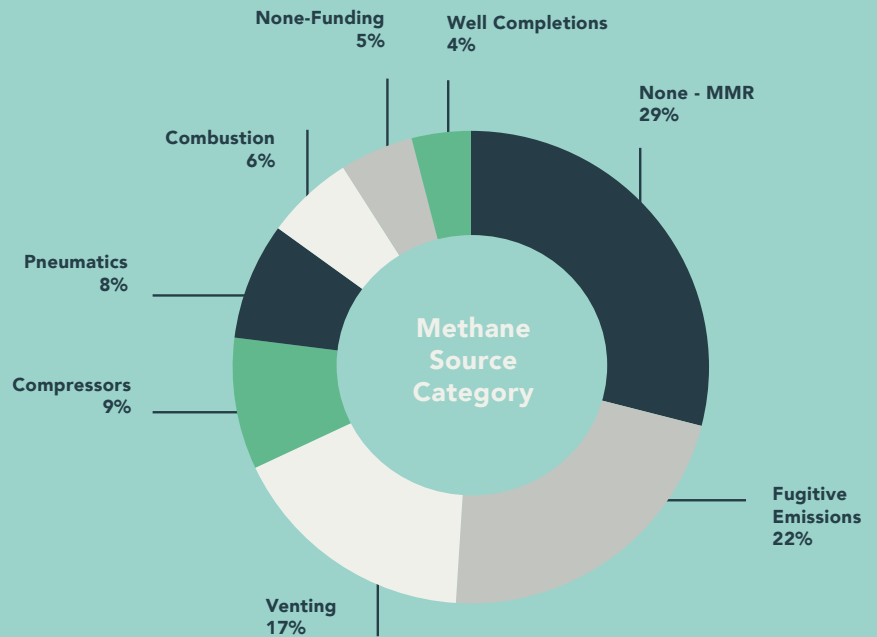
Organizations are characterized by the following categories: Technology Provider, Service Provider, Funding Mechanism, or Industry Group. This study did not include government or regulatory bodies.



METHANE SOURCE CATEGORY

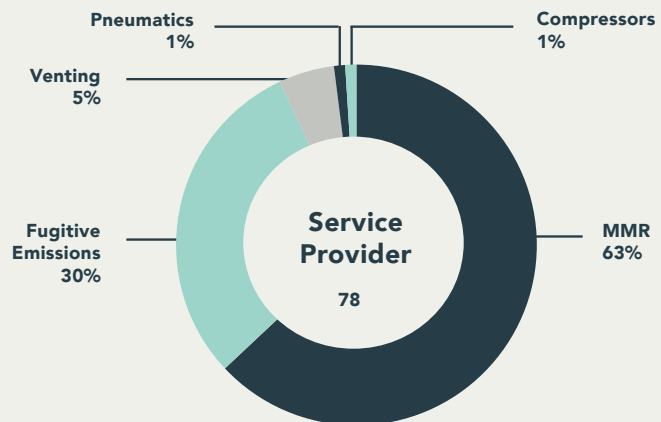
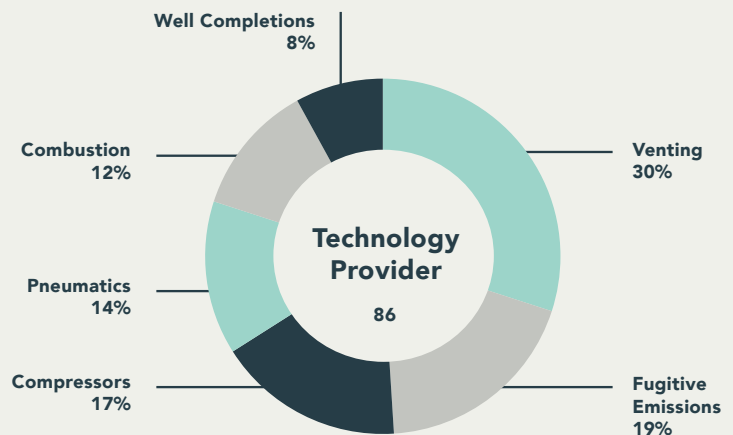
Overview

Canadian methane mitigation companies are evaluated by the methane source category to which their technology or service applies. These emissions source categories are informed by Canadian Federal and Alberta regulatory developments. They include: Combustion, Compressors, Fugitive Emissions, Pneumatics, Venting, Well Completions, Funding, Measurement, Monitoring and Reporting (MMR).



Providers

The following two charts demonstrate the breakdown of methane source categories by the two largest Organization Types: Technology and Service. Companies designated as MMR (Measurement, Monitoring and Reporting) are classified as a Service Provider and represent the highest percentage of organizations in this offering category due to the diversity in services covered. The 23 fugitive emissions service providers largely conduct leak detection and repair services. This segment is expected to grow under the likely three times per year federal leak detection requirements.



A CLOSER LOOK: METHANE MITIGATION SURVEY RESULTS

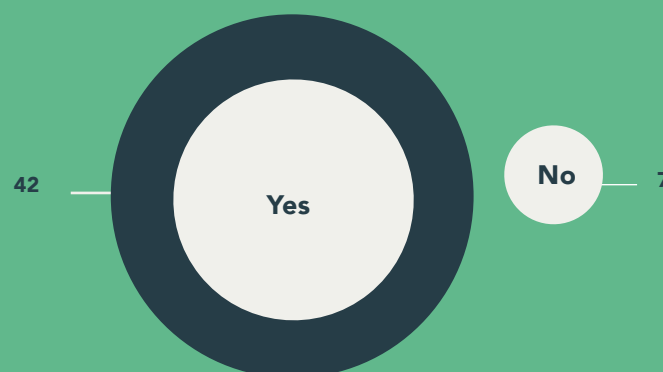
About the Survey

With the upcoming release of draft Federal and Provincial methane emissions reduction regulations, the Methane Emissions Leadership Alliance surveyed 174 companies identified as being directly involved in methane emissions

management in the Canadian oil and gas industry. Each company was asked 5 questions to help determine an accurate employee count and the job growth potential for this sector as a result of new methane rules. At the time of publication, 49 organizations had provided a response. Only raw data was used below. No assumptions or extrapolations were made.

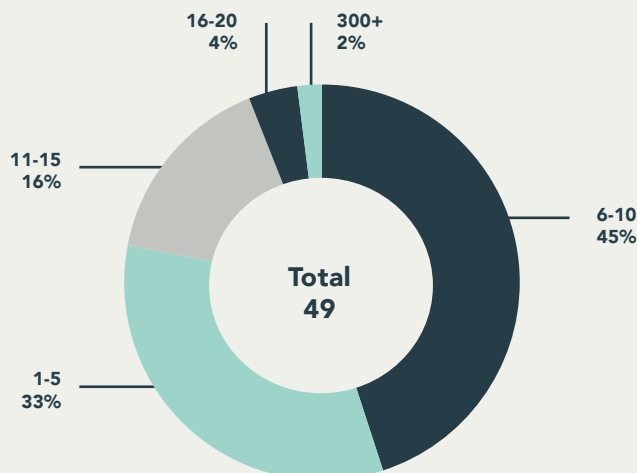
QUESTION 1

Do you engage with government and/or regulators on methane regulations in Canada?



QUESTION 2

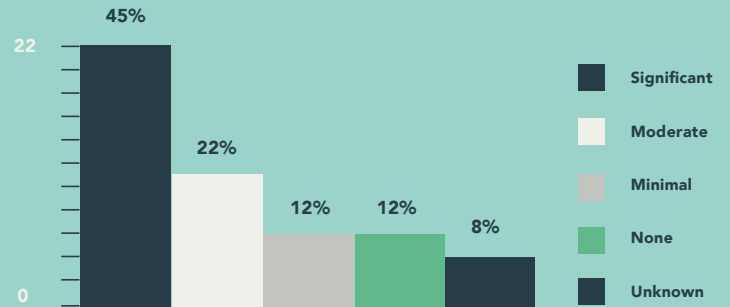
How many employees are directly related to methane?



A CLOSER LOOK: METHANE MITIGATION SURVEY RESULTS

QUESTION 3

How would you estimate your potential business growth as a result of the regulations?



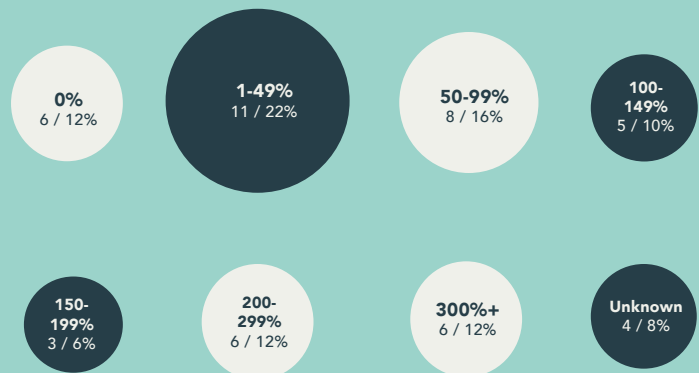
QUESTION 4

How many people will you hire in the next 12-18 months as a result of the new regulations?



QUESTION 5

How will your organization grow, as a percentage of existing headcount as a result of the proposed methane regulations?



COMPANIES

3PAnalysis and Consulting
Able Seal and Design Inc
ACCURATA Inc.
ACS (Applied Compression Systems)
ACTIA (Alberta Clean Technology Industry Alliance)
Advanced Coil Tubing Inc.
AEREON
Aeryon Labs
AET Group Inc.
AirDar Technology
AIRTEK SYSTEMS Inc.
Alberta Innovates Energy and Environmental Solutions
Alberta Welltest Incinerators
Amberg Corp.
AMEC Americas Limited
AMEC Earth and Environmental
ARCADIS Canada Inc.
Atlantis Labs
ATZ Applied Technologies
BalanceCO2 Ltd.
Bechthold & Becker
Beta Machinery
Black Gold Rush Industries
Blair Air System
BlueSource
BOREAL
Brahma Compression
BrezaWorks & Consulting Inc.
Brightspot Climate
Bruin Pumps
CALSCAN Solutions
Cameron Instruments
Canadian Pump and Packing Co
CanDyne Inc
CAP-OP
Carbon Quantum Inc.
Cenco wireline Inc.
Central Inc
C-FER Technologies Inc.
CH2M HILL Canada Limited
ClearSky Engineering Inc.
Clearstone Engineering
ClydeUnion Pumps
CMC Research Institutes
Colfax Fluid Handling
ComEnCo Systems Inc
Compass Oil and Gas Solutions Ltd
Conestoga-Rovers & Associates (GHD Canada)
Consultants Enviroconseil
COSIA (Canada's Oil Sands Innovation Alliance)
DARKAI Valve
Deloitte and Touche LLP
Delphi Group
EagleBurgmann Canada
Ecometrica (Canada) Limited
Emission Control International Ltd
ENERFLEX

Energy Profiles Limited
Enviro Trace Ltd
Enviro-access Inc.
Envirosoft
Envirotech Engineering
Envision Manufacturing and Supply Ltd.
Epscan
Ernst & Young LLP
Evergreen Energy Technologies Inc.
Extreme Telematics Corp. (ETC)
FERUS
First Environment, Inc.
FLIR
FMC Technologies
Forum Energy Technologies
Freudenberg Oil & Gas
Gas Recon Inc.
GASPRO Compression Corp.
GE (General Electric)
General Magnetic
GHGSat
Global Energy Services (2011)
Green Sky Sustainability Consulting Inc.
Greenpath Energy
Hallite Seals Ltd
HC Piper Manufacturing Inc
Heat Seeking Thermal Imaging LTD
Hetek
Hi-Tech Seals
HSE Integrated
Illusense
Industrial Skyworks
Infratech Corporation
Insight Emissions Management Inc
Internat Energy Solutions Canada Inc.
InterPraxis Consulting
IRIS (Infrared Imaging Solutions)
John Crane Canada Inc
K.C. Seals Inc.
Keystone Environmental
Kinetica Ventures
Kineticor
KPMG Performance Registrar Inc.
Kuzuka Ltd.
LCO Technologies
Levelton Consultants Ltd. (WSP)
Linewise Aerial
LOOKNORTH
LUXMUX
MCI Solar MFG LTD
Millenium EMS Solutions Ltd.
MNP LLP
Modern West Advisory
Morrison Hershfield Ltd.
National Oilwell Varco
Nelgar
New Paradigm Engineering Ltd
Nexsource
North Shore Environmental Consultant
Nsolv Corp.
Opgal

OptaSense
Pace Technologies
Parker
Pason Systems Inc.
Petro Techna International Ltd.
Power Diagnostic Technologies Ltd.
PricewaterhouseCoopers LLP
Process Ecology
PTAC (Petroleum Technology Alliance Canada)
Pure Technologies Ltd.
Quest Gasket & Supply Inco
Questor
R.J.A. Contracting Ltd.
Raise Production Inc.
Rapid Rod Service
Raymond Chabot Grant Thornton LLP
REM Technology (Reciprocating Equipment Management)
RME geomatics
Robco Inc.
Roska DBO Inc
Rotech Pumps & Systems Inc.
SafeSeal Valve Systems Corp.
SafetyScan
SAGE Energy Corp
SAI Global
Saskatchewan Research Council (SRC)
Sirius Controls
SNC-Lavalin
Solar West
SPARTAN Controls
Stantec Consulting Ltd.
Stimline
StreamFlo
Sustainable Development Technology Canada
Synodon Inc
Tanknology Canada Inc.
Target Emissions Services
Tarpon
TCI Incinerators
Tec Edmonton
Tenaris
TETRA TECH
Titanium Corporation
T-RAM Canada Inc.
Triangle Fluid Controls Ltd.
TRIDO Industries
Tundra Process Solutions
TüV Rheinland Energie und Umwelt GmbH
Unified Valve Group LTD
VaporTech
Vapure Engineering Ltd.
Williams Engineering Canada Inc.
Winterhawk Well Abandonment
Wise Intervention Services Inc.
Yokogawa Canada
ZEECO

**For more information
on the Methane Emissions
Leadership Alliance,
please visit us at
www.methanealliance.ca**