

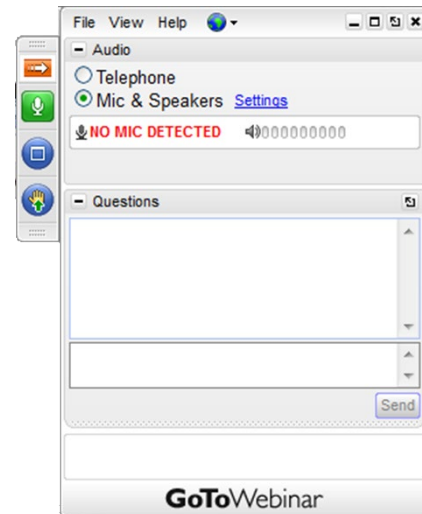
Global Methane Initiative (GMI) Oil & Gas Subcommittee Webinar

24 October 2018



Webinar Notes

- All participants (except speakers) are in listen-only mode during the presentations
- There will be a question and answer period at the end of each presentation
 - Note that you must enter your Audio PIN if you would like to participate in the discussion
 - Your Audio PIN is provided in the GoToWebinar pane
- If you are experiencing technical difficulties, please let us know using the Questions pane on the right side or contact Jay Gallo at 1-203-687-9432



Agenda

- Welcome
- Introducing the Global Methane Challenge – GMI Secretariat
- Technical Briefing: Identification and Evaluation of GHG Reduction & Energy Efficiency Improvement Opportunities at Oil and Gas Facilities
- Discussion about implementing the Subcommittee's 2018 Action Plan
- Upcoming Event in 2019
- Wrap up

Global Methane CHALLENGE



ACCELERATING AND SHOWCASING METHANE MITIGATION IN 2019

October 2018



BACKGROUND ON THE GLOBAL METHANE CHALLENGE

- 2016 Global Methane Forum marked renewed collaboration between GMI, the United Nations Economic Commission for Europe (UNECE) and the Climate and Clean Air Coalition (CCAC)
- GMI Steering Committee communiqué announced intention for the Challenge at Global Methane Forum in April 2018
- Task force of GMI Partner Country delegates formulated a proposal for the Challenge
- GMI Steering Committee endorsed and adopted the Challenge proposal in July 2018

WHY THIS CHALLENGE?

- Raise awareness about methane emissions and encourage reductions around the world
- Methane is a short-lived climate pollutant, so reductions made now can have significant short-term benefits
- Cost-effective technologies to capture and use methane are widely available today

CHALLENGE OVERVIEW

- **Who:** The Challenge is open to all public- and private-sector actors interested in showcasing their actions to reduce methane emissions
- **Goal:** Take more ambitious action to reduce methane emissions and showcase policies and technologies being used to reduce methane emissions around the world
- **When:** 2019 calendar year

WHY PARTICIPATE IN THE CHALLENGE?

- Each Challenge participant will be publicly recognized for actions to reduce methane emissions
 - Opportunity to highlight new actions as well as ongoing efforts
 - Challenge website will showcase actions
 - GMI, CCAC and UNECE events will provide forum for sharing actions
- Collectively, we can make an impact by raising awareness and catalyzing broader action
- Challenge participants and actions will be celebrated at a 2020 capstone event

EXAMPLES OF CROSS-CUTTING ACTIONS



Monitor methane emissions and create an emissions inventory



Develop an action plan for reducing emissions in one or more sectors



Provide technical or financial support to a methane mitigation project



Educate the public about methane emissions and abatement opportunities

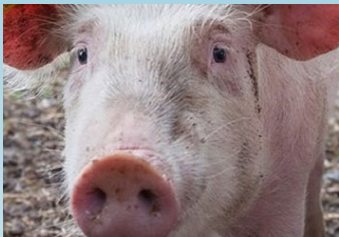


Showcase a methane mitigation project or technology

EXAMPLES OF SECTOR-SPECIFIC ACTIONS

All Sectors

- Monitor methane emissions and create an emissions inventory
- Provide technical or financial support to a methane mitigation project
- Develop or promote implementation of sector-specific best practices



Agriculture

Adopt anaerobic digestion technology



Coal Mines

Install collection systems to recover and use methane from abandoned/closed coal mines



Municipal Solid Waste

Divert organic waste from landfills



Wastewater

Install biogas capture systems at existing open air anaerobic lagoons

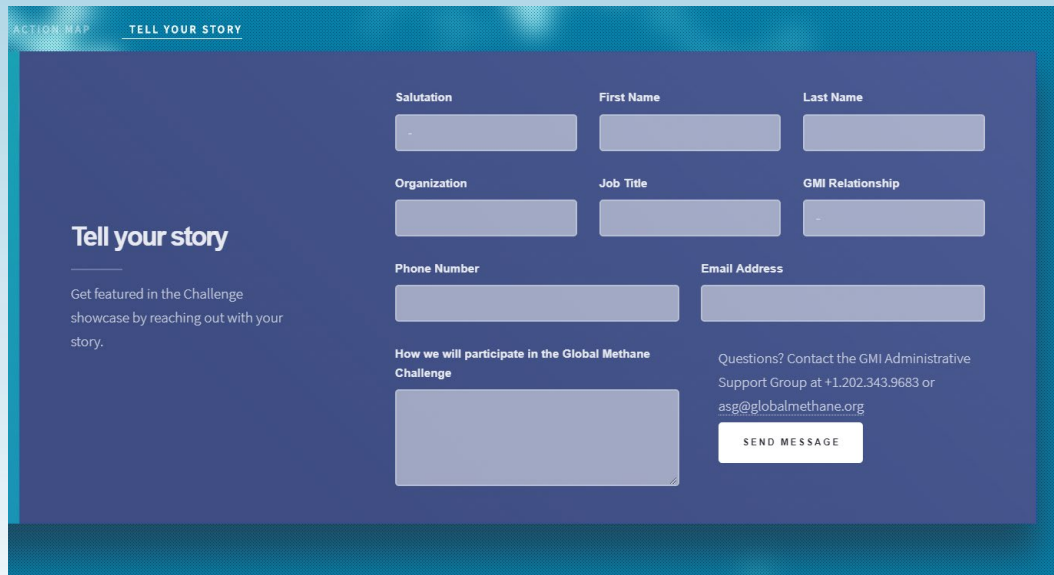


Oil & Gas

Install vapor recovery units

SHOWCASE YOUR ACTIONS

- **How:** Complete the online form on the Challenge website
 - The GMI secretariat may contact you for additional information to showcase your story on the Challenge website
 - globalmethane.org/challenge/



The screenshot shows a web form titled "TELL YOUR STORY" with a sub-header "ACTION MAP". The form is set against a dark blue background with white text and light blue input fields. On the left side, there is a section titled "Tell your story" with the text: "Get featured in the Challenge showcase by reaching out with your story." Below this is a large text area for "How we will participate in the Global Methane Challenge". On the right side, there are several input fields: "Salutation", "First Name", "Last Name", "Organization", "Job Title", "GMI Relationship", "Phone Number", and "Email Address". At the bottom right, there is a "SEND MESSAGE" button and contact information for the GMI Administrative Support Group.

TELL YOUR STORY

Get featured in the Challenge showcase by reaching out with your story.

How we will participate in the Global Methane Challenge

Salutation First Name Last Name

Organization Job Title GMI Relationship

Phone Number Email Address

Questions? Contact the GMI Administrative Support Group at +1.202.343.9683 or asg@globalmethane.org

SEND MESSAGE

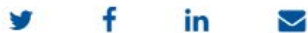
VISIT GLOBALMETHANE.ORG/CHALLENGE

HOME

THE CHALLENGE

ACTION MAP

TELL YOUR STORY



Global Methane CHALLENGE

It's time to take action! Join the Global Methane Challenge and showcase your work to reduce methane emissions.

The Global Methane Challenge is open to all public and private-sector actors interested in promoting their actions to reduce methane emissions. The goal of the challenge is to catalyze ambitious action to reduce methane emissions and showcase policies and technologies being used to reduce methane emissions around the world. Learn more about the [Global Methane Initiative \(GMI\)](#).



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Why methane?

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- Cost-effectiv
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ADD YOUR ACTIVITY TO THE ACTION MAP

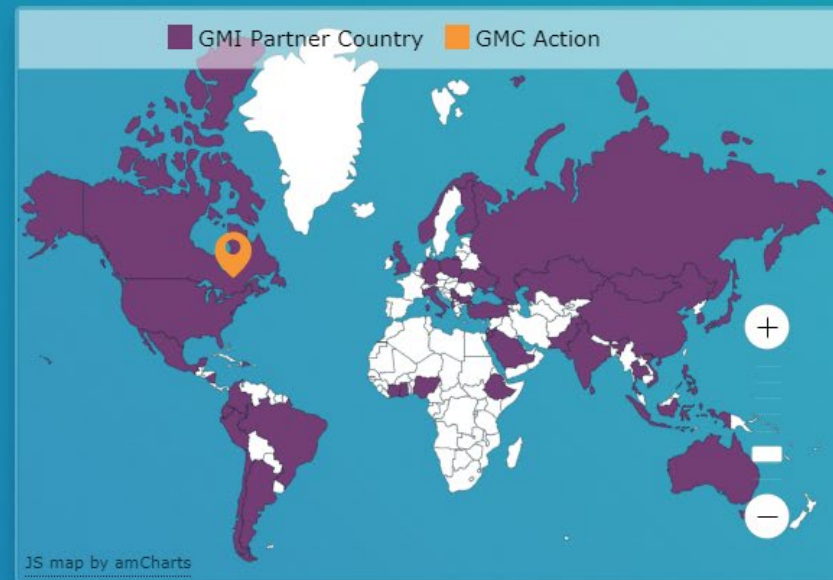
THE CHALLENGE

ACTION MAP

TELL YOUR STORY

↻ Action Map ↻

Coming soon! Click on the map to learn more about how actors around the world are participating in the Global Methane Challenge.



TELL YOUR STORY ON THE GMC WEBSITE!

ACTION MAP

TELL YOUR STORY

Tell your story

Get featured in the Challenge showcase by reaching out with your story.

Salutation

First Name

Last Name

Organization

Job Title

GMI Relationship

Phone Number

Email Address

How we will participate in the Global Methane Challenge

Questions? Contact the GMI Administrative Support Group at +1.202.343.9683 or asg@globalmethane.org

SEND MESSAGE

CONTACT INFORMATION

Global Methane Initiative Administrative Support Group

asg@globalmethane.org or +1-202-343-9683

Social Media



[Facebook.com/globalmethane](https://www.facebook.com/globalmethane)



[Twitter.com/globalmethane](https://twitter.com/globalmethane)



[LinkedIn.com/company/global-methane-initiative-gmi](https://www.linkedin.com/company/global-methane-initiative-gmi)

Identification and Evaluation of GHG Reduction & Energy Efficiency Improvement Opportunities at Oil and Gas Facilities

Updating the Emissions Audit Manual

**GMI Oil & Gas Subcommittee Meeting
Oct 24, 2018**

David Picard, Clearstone Engineering Ltd



Genesis of the Manual

- Developed in 2008 as part of collaborative work in China with CNPC.
 - Capacity building tool to help oil and gas facilities systematically identify and assess GHG emission reduction opportunities.
- Sponsored by:
 - Canada's Upstream Petroleum Air Issues Research Initiative (UPAIRI)
 - Global Methane Initiative (GMI)

TECHNICAL REPORT

Identification and Evaluation of GHG Reduction & Energy Efficiency Improvement Opportunities at Oil and Gas Facilities

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March 30, 2008



Overview

EXECUTIVE SUMMARY

This document presents guidance for conducting integrated GHG emissions and energy management audits at oil and natural gas facilities. Procedures are presented for focusing efforts on the types of facilities and operations most likely to offer opportunities for significant cost-effective improvements. While the document highlights standard approaches for controlling GHG emissions and improving energy efficiencies, it also identifies specific operational issues or problems to watch for that can be contributing to unaccounted for emissions, product losses and process inefficiencies.

Relevant standards, guidelines and best management practices are referenced wherever possible to provide the reader with access to more detailed information on available control technologies and measurement or assessment techniques.

Initial Rationale for Integrated Audits

- Maximize the potential of finding practicable GHG emissions reduction opportunities.
- Take maximum advantage of the audit team's expertise and tools while on site.
- Adapt to differences between expected key sources (desk reviews) and actual key sources.
- Allow consideration of the operator's priority objectives and knowledge of the key opportunities.

Why Update the Manual?

- Knowledge has improved regarding:
 - Key types of sources to target.
 - Opportunity to align with the CCAC OGMP priority sources (9) and classification scheme.
 - What to look for?
 - Measurement techniques.
 - Control strategies.
- Improved understanding of enabling conditions for successfully advancing GHG emission reduction projects:
 - Developing a creditable business case.
 - Identifying and quantifying potential risks.
 - Highlighting co-benefits (especially those that align with local or regional priorities).
- Improved information available on potential funding mechanisms.

Updates: Key sources

Two updates:

1. Restructure document to align with the 9 core methane emissions sources identified by the CCAC OGMP:

- NG-driven pneumatic devices, pumps
- Fugitive equipment and process leaks
- Hydrocarbon liquid storage tanks
- Glycol dehydrators
- Centrifugal compressors with wet (oil) seals
- Reciprocating compressor rod seal/packing
- Well venting of liquids unloading
- Well venting/flaring during well completion
- Casinghead gas venting for hydraulically fractured wells

2. Highlight these additional sources:

- Combustion equipment.
- Fuel gas systems.

Updates: How to make a business case

- **Audit strategy:**
 - Efficient opportunity identification and delineation.
 - Screening and ranking of opportunities (pre-feasibility assessments).
 - Development of refined business cases.
 - Accessing financing.
 - Documentation of direct benefits and co-benefits achieved.
 - Catalyzing ongoing and self-sustaining implementation activity.
- **Source-specific guidance.**
 - Recommended checks.
 - Measurements.
 - Reduction potential.

Updates: Co-Benefits



- **Direct Benefit:**
 - Cost-effective reduction in climate forcing.
- **Potential Co-Benefits:**
 - Improved workplace air quality:
 - Worker health and safety benefits.
 - Improved local air quality:
 - Human health and environmental benefits.
 - Improved public relations.
 - Reduced wastage and inefficiencies resulting in improved profitability:
 - Conservation of a non-renewable resource.
 - Increased product yields and Improved system reliability.
 - Increased sales and reduced energy consumption.
 - Improved marketplace profile:
 - Best-in-class recognition (sustainable development and social responsibility).
 - Access to green funds.

Updates: Key Considerations at Oil & Gas Production Facilities

- Most of the economic value in rich natural gas streams comes from the LPG and NGL fractions rather than the methane.
- The LPG and NGL value is only realized if the gas is processed on site or at a downstream gas processing plant.
- Attractive economic opportunities exist to recover the LPG and NGL and simply use the methane to power the process with the balance being flared if it cannot be conserved.
- Recovered liquids can be recombined with the weathered crude oil and sent to market using the existing crude oil transportation infrastructure provided RVPs are managed.

Key Considerations at Oil & Gas Production Facilities (Concluded)

Table i: Applied commodity prices.

Commodity	Value	Units of Measure
Natural Gas	4.06	USD/GJ
Ethane	75.47	USD/m ³ (Liquid)
LPG	0.58	USD/L (Liquid)
NGL	594.64	USD/m ³ (Liquid)

Table ii: Relative commodity price index expressed on a gross energy basis (HHV).

Commodity	Value Relative to Processed Natural Gas
Natural Gas	1.0
Ethane	1.0
LPG	5.7
NGL	4.2

Thank You!



Implementing the Oil & Gas Subcommittee Action Plan

**GMI Oil & Gas Subcommittee Meeting
Oct 24, 2018**

Oil & Gas Subcommittee Action Plan

- Action Plan adopted in April 2018
- Four Goals:
 - Establish long-term relationships
 - Develop tools and resources to enhance capacity-building efforts
 - **Identify and address barriers to projects**
 - **Identify country-specific needs and opportunities**

Goal: Identify and Address Key Barriers to Project Development

- Three activities discussed during the July 2018 meeting:
 - Compile a list of barriers to methane mitigation projects
 - Conduct discussions that focus on strategies to overcome project barriers
 - Identify financing options and mechanisms

Upcoming Events

- **UNECE 6th Session of the Group of Experts on Gas**
 - 25-26 March 2019 – Geneva, Switzerland
 - 26 March 2019 - Meeting of UNECE and the Oil and Gas Subcommittee of the Global Methane Initiative
 - 27 March 2019 – Workshop on Methane Emissions

Wrap Up

- A recording of this webinar and the presentation will be posted to the GMI website
- Thank you for participating!