

IPIECA's work on Methane

Lorena Perez (IPIECA)


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THE GLOBAL OIL AND GAS
INDUSTRY ASSOCIATION
FOR ENVIRONMENTAL
AND SOCIAL ISSUES

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IPIECA's history on methane




The expanding role of natural gas

Comparing life-cycle greenhouse gas emissions

Climate change 2013


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Understanding short-lived climate forcers

Climate change 2014


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Natural gas, the cleanest-burning fossil fuel, is increasingly accessible, affordable, abundant and flexible. It has a critical role to play in today's and tomorrow's secure and diverse energy mix. In power generation, combined cycle gas turbines (CCGTs) generate around half the greenhouse gas (GHG) emissions of coal-fired power stations, at the generation plant¹. They also have a significantly lower impact on air quality and emit much less nitrogen oxide (NOx) and sulphur dioxide (SO₂).²

Natural gas production has been expanding globally as a result of a number of factors. Significantly increased resource estimates, and improvements in production and transport technologies, are allowing it to fill an expanding role in the global energy supply. In some regions, gas prices have also declined due to its increased availability.

Natural gas can play an important role in helping many nations' efforts to decarbonize their energy systems. Taking advantage of the flexibility offered by liquefied natural gas (LNG), China is importing increasingly larger volumes for domestic use. Between 2011 and 2014, China's consumption of LNG increased 56%, from 12.8mtpa to 20mtpa³. While the increased energy consumption in the processing of LNG



Exploring methane emissions

An IPIECA fact sheet

While a significant amount of attention surrounding climate change has focused on carbon dioxide (CO₂) emissions, there is growing interest in the role of methane (CH₄) and other short-lived climate forcers¹. This fact sheet explores methane emissions, their wider implications, and the associated challenges, opportunities and continuing efforts within the oil and gas sector to address them.



Natural gas: Into the future

THE PARIS PUZZLE
Natural Gas

This document is one piece of the Paris Puzzle – a series of papers intended to address what we see as key components of efforts to address climate change, and demonstrate our commitment to meeting the challenge. Find the other pieces at www.ipieca.org



KEY MESSAGES

- Natural gas is the cleanest-burning fossil fuel and is increasingly accessible, affordable, abundant and flexible.
- Natural gas will continue to play a pivotal role in a global path towards a low-carbon economy.
- There is a significant near-term opportunity to reduce global emissions by fuel-switching from coal to natural gas.

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increases life-cycle emissions compared to natural gas, a 2015 study by Imperial College London⁴ found that total emissions from LNG, when used to produce electricity, are lower than from coal.

THE BENEFITS OF NATURAL GAS

As we consider what it means to transition to a low-carbon future, natural gas offers an immediate and material opportunity to reduce global emissions through fuel switching from coal. For example, a study by energy consultancy IHS⁵ demonstrated that conversion of all European coal and oil-fired power generation to best-in-class CCGT would reduce European emissions by 58% relative to 1990 levels.

In its United States Clean Power Plan, the US Environmental Protection Agency (EPA) also acknowledged that raising the capacity of natural gas plants offered one of the best levers for reducing nationwide emissions. According to the EPA, the US federal government is counting on individual states to increase the federal average utilization rate of existing natural gas combined cycle capacity to 70% to displace higher carbon-intensity fossil fuel electricity generation⁶.

Footnote

¹ International Panel of Experts (IPE) Report on the Role of Natural Gas in a Low-Carbon Energy System, IPE, 2014. Available at www.ipieca.org/publications/role-of-natural-gas-in-a-low-carbon-energy-system

² IHS Global Energy Services, Global Energy Outlook 2014, IHS Global Energy Services, September 2014.

³ IHS Global Energy Services, Global Energy Outlook 2014, IHS Global Energy Services, September 2014.

⁴ IHS Global Energy Services, Global Energy Outlook 2014, IHS Global Energy Services, September 2014.

⁵ IHS Global Energy Services, Global Energy Outlook 2014, IHS Global Energy Services, September 2014.

⁶ EPA, United States Clean Power Plan, EPA, June 2015. Available at www.epa.gov/epa/energy/clean-energy/clean-power-plan

Methane TF

Recent work

- **Methane glossary**

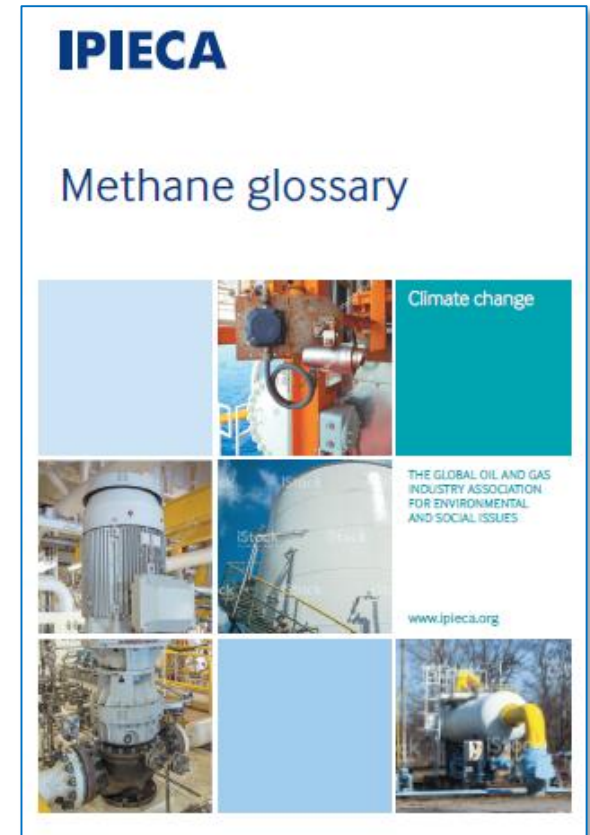
- Objective:

- Support the industry and other stakeholders in the use of consistent terminology
 - Increase confidence in understanding and managing methane emission sources

- Split into the following categories:

- Methane sources
 - Emission estimation methodologies
 - Methane detection and measurement technologies and work practices
 - General terms
 - Acronyms
 - Further reading

- Published March 2018



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Status of work – Mapping exercise

- **Aim:** Understand the synergies, gaps and opportunities to advance the technical understanding and methane science.
- **Scope:** Explore workshops, published articles, studies, reports, assessments, data as well as activity related to the detection, measurement and reduction of methane.
- **Methane initiatives** (non-exhaustive list):
 - Initiatives related to methane e.g. CCAC OGMP, GMI, UN Environment
 - Universities with active and specific methane programmes
 - Industry bodies
 - International institutions
 - NGOs
- **Pre-pilot** exercise
 - Collected information from 11 initiatives
 - Adjust the final template and extend to other initiatives

Thank you

Resources

- [Methane glossary](#)
- [Expanding role of natural gas workshop report](#)
- [Understanding short-lived climate forcers](#)
- [Exploring methane emission factsheet](#)
- [Natural gas: Into the future](#)

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