PROJECT CONCEPT NOTE

Project Title	Methane Management in Extractive Industries (Upstream Oil and Gas / Downstream Gas)
Project Manager	Scott Foster
Subprogramme	Subprogramme 5 "Sustainable Energy"
Implementing Entity	UNECE
Start Date	01 July 2017
End Date	31 December 2019
Budget	249,500 USD
Beneficiary Countries	UNECE and GMI member States
Cooperating Entities within the UN System	ESCAP, ECLAC
Other Implementing Partners	GMI

Background

Methane, the primary component of natural gas, is one of the greenhouse gases with a 100-year global warming potential 25 times that of carbon dioxide (CO_2) (IPCC) and a 100-year global temperature potential 6 fold greater than CO_2. The main sources of anthropogenic methane emissions are agriculture (including fermentation, manure management, and rice cultivation), landfills, wastewater treatment, coal mines, and the oil and gas industries.

Currently available information on methane emissions, being largely based on estimates, is often uneven and incomplete. As of today, there is neither a common technological approach to monitoring and recording methane emissions, nor a standard method for reporting and verifying them. Consequently, the level of the uncertainty with regard to the available data is very high.

Based on the best currently available calculations and studies, out of approximately 550 million tons of global annual methane emissions, those from the oil and gas sector are estimated to amount to 55 million tonnes of vented gas annually (IIAS Working Paper December 2016). IPCC reference studies indicate that the share of methane emissions originating from oil and gas sectors is between 9% and 12% of total global methane emissions, which translates into about 2% of annual global natural gas production.

In the broader methane management area UNECE seeks to explore current practices and technologies along the value chain in key energy-related extractive industries, namely coal, natural gas and oil, with the objectives of (1) determining and promoting best practices for measurement, reporting, and verification (MRV) of methane emissions in these industries, and (2) identifying best practices to reduce methane emissions. The work is intended to be relevant at all levels such as facility-level, national-level, and international-level.

From consultation with stakeholders, it is clear that stakeholder communities differ significantly across and within the sectors, so it is not sufficient to create three groups on coal, natural gas and oil. Therefore, the adopted approach distinguishes between four (4) subject-specific pillars, each representing one of the relevant energy-related extractive industries, namely: Coal, Downstream Oil (processing through distribution), Downstream Gas, and Upstream Oil and Gas (i.e. exploration and production). Work undertaken within the framework of each of these pillars is conducted by subsidiary bodies of the Committee on Sustainable Energy (CSE), as well as by UNECE external partners. The results of their work are being reviewed, compiled, and transformed into prescribed deliverables by the Task Force on Methane Management in Extractive Industries.

Within the framework of this funding, the project will focus on two pillars only, namely (1) Upstream Oil and Gas and (2) Downstream Gas, and it will be developed jointly with the United States Environmental Protection Agency (US EPA) on behalf of the Global Methane Initiative (GMI). Consequently, all tangible outputs of the project will bear logos of UNECE and GMI, and all events organized within the framework of this project will be held under auspices of both previously-mentioned entities. Representatives of both

entities will attend up to four meetings/events jointly throughout the duration of the project (i.e., GMI Oil and Gas Subcommittee meetings and relevant CCAC events) in order to present on their efforts and update relevant stakeholders on the progress made. For coordination purposes, regular monthly phone calls will also be held.

The project will consist of four phases, each building on existing efforts:

A. The first phase of the project focuses on identifying the scope and breadth of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries. This goal is to be achieved through the following activities:
   - review of existing data on sources of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries;
   - preparation of a high level compilation of data relating to the estimated methane emissions from Upstream Oil and Gas, and Downstream Gas industries in UNECE member States;
   - determination of the largest-emitting sources of methane in Upstream Oil and Gas, and in Downstream Gas industries.

B. Building upon the information gathered in the first phase, the second phase will review and assess current MRV systems on a range of scales (e.g. at the facility, national, and international levels), as well as available information regarding strategies, practices and/or technologies for MRV of methane emissions, such as national regulations and information from governments, industry, academia, and NGOs. The outcome of the assessment will be the identification of comprehensive best practices for MRV of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries.

C. The third phase, drawing from government and industry experience in addressing methane emissions, will identify best practices for reducing methane emissions in Upstream Oil and Gas, and in Downstream Gas industries.

D. The fourth phase will consist of dissemination of the products developed in the second and third phases of the project (best practices and case studies for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries) and capacity building workshops and seminars.

In implementation of the assignments, the Secretariat will endeavor to strengthen the participation of women in conformity with the UNECE Gender Action Plan, with concrete strategies designed to achieve equal participation of women in the activities.

The project will directly support the implementation by member States of the sustainable development goals: 7, 13, 3, 8, 9, and 12. (See below for further details)

Relationship to the Strategic Framework and the Sustainable Development Goals

The proposed project is linked to the expected accomplishment (a) "Improved policy dialogue and cooperation among all stakeholders on sustainable energy issues, in particular energy efficiency, cleaner electricity production from fossil fuels, renewable energy, coal mine methane, mineral resources classification, natural gas and energy security" of Subprogramme 5 "Sustainable Energy" of the UNECE Strategic Framework for 2018–2019.

The Committee on Sustainable Energy at its 23rd session, held on 19–21 November 2014 in Geneva, considered the potential role for the UNECE in developing norms and standards on methane management. The Committee requested that the relevant UNECE groups of experts prepare a coordinated, solutions-oriented report on methane management in extractive industries with a focus on establishing a baseline, benchmark and scale of current methane emissions in those industries, with the aim of giving clear guidance to policy makers and the oil and gas industry (see § 46 ECE/ENERGY/96 and of ECE/ENERGY/2015/L.1/Rev.1). The Committee has also authorized creation of a Task Force on Methane Management in Extractive Industries for the purpose of coordinating work in the mandated field (see § 44 ECE/ENERGY/99). Having a broad overview of, and access to multiple relevant projects conducted

worldwide, the Task Force is well informed about the work that has been and is being done in the field in question and thus capable of directing its own activities towards issues that remain unexplored or knowledge of which lacks sufficient detail. The activities and deliverables of the Task Force have been carefully selected in order to build on the existing data and provide an added value to it rather than replicate it. In order to obtain the broadest possible set of data the Task Force is open to cooperation with all partners whose expertise and information possessed could constitute an added value to its work. Using a wide network of UNECE partners, the Task Force serves as a convenient tool for information exchange and coordination of efforts between stakeholders that are involved in the process.

Throughout the proposed project, the Task Force on Methane Management in Extractive Industries will draw from the work of the Task Force on Methane Emissions along the Gas Value Chain operating within the framework of the Group of Experts on Gas (GEG). The latter was established by GEG at its first session held in April 2014 (see §30 (a) ECE/ENERGY/GE.8/2014/2) for the purpose of:

- preparing a systematic assessment of methane emission rates across the full value chain, i.e., in gas production, transport, distribution, and use in ECE member States, including a review of approaches to MRV;
- reviewing the range of gas technology, pipelines, and infrastructure construction and maintenance techniques deployed across the ECE region, with special focus on the best and worst performers, to explain the differences in methane emissions rates and to identify opportunities for improvement;
- reviewing the existing options and techniques that exist and costs associated with reducing methane emissions throughout the gas chain;
- preparing Best Practice Guidance in Reducing Methane Emissions Rates throughout the Gas Value Chain, taking into account, when implementing it, the local conditions for use by industry, regulators, and policy-setters.

A Vice-Chair of the Bureau of the Group of Experts on Gas nominated by the United States and representing the US EPA will guide the work on the project within the GEG, championing development of the relevant deliverables and mobilizing Group members to contribute to the project.

The project will directly support the implementation by member States of the following Sustainable Development Goals:

- 7 “Affordable and Clean Energy”, by disseminating best practices for MRV and reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries, the project will provide the basis for more efficient use of resources (methane), thus contributing to sustainability of the gas industry and to enhancement of its cost-effectiveness.
- 13 “Climate Action”, by disseminating best practices for MRV and reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries, the project will contribute to decreasing the environmental damage caused by the gas industry. It will provide means for (1) lowering emissions associated with gas extraction, production, transmission, storage, distribution, and utilization, and thus also for (2) more efficient use of gas as a valuable energy resource.
- 3 “Good Health and Well-being”, by lowering methane emissions in Upstream Oil and Gas, and in Downstream Gas industries the project will contribute to improvement of air quality and thus also to lowering the number of deaths and illnesses from pollution-related diseases.
- 8 “Decent Work and Economic Growth”, by improving efficiency of the gas sector the project will contribute to the economic growth.
- 9 “Industry, Innovation and Infrastructure”, the project will provide the technological basis for improvement of equipment and infrastructure utilized for monitoring and reduction of methane emissions in the gas sector. Furthermore, by disseminating knowledge on best practices for monitoring and reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries, it will pave the way for further development in these fields, thus adding to the innovation capacity of the beneficiary states.

- 12 “Responsible Consumption and Production”, by reducing methane emissions in Upstream Oil and Gas, and in Downstream Gas industries the project will contribute to lowering resource consumption, and thus to more responsible gas production.

Objective

The objective of the project is to increase capacity of the UNECE Member States to measure, report, verify and reduce methane emissions in Upstream Oil and Gas, and in Downstream Gas industries.

This objective will be achieved by exploring current methane management practices and technologies in Upstream Oil and Gas, and in Downstream Gas industries, with the ultimate goal of (1) determining and promoting best practices for measurement, reporting, and verification (MRV) of methane emissions in these industries, and (2) identifying best practices to reduce methane emissions.

The work is intended to be relevant at all levels, such as facility-level, national-level, and international-level.

Expected accomplishments

EA1. Improved understanding of the UNECE member States of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries;
EA2. Improved understanding of strategies, techniques and methods for MRV and reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries in the UNECE Member States;
EA3. Improved capacity of the UNECE member States to MRV and reduce the methane emissions from Upstream Oil and Gas, and Downstream Gas industries.

Indicators of achievement

IA1.1. At least 100 experts from 6 countries were presented with the results of the assessment of sources of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries and confirmed their increased understanding the matter in question.
IA2.1. At least 8 operators of gas infrastructure in 4 different countries confirmed application of the best practice guidance for MRV of methane emissions.
IA3.1. At least 100 experts from 6 countries participated in the capacity-building events organized within the framework of the project and confirmed improvement of their capacity to MRV methane emissions in Upstream Oil and Gas, and in Downstream Gas industries.

Main activities

The objectives of the project will be achieved through the following activities:
A1.1. Assessment of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries in the UNECE member States;
A2.1. Development of case studies (i.e., by company, emission source, industry segment, and/or country) for MRV of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries;
A2.2. Identification of best practices for MRV of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries;
A2.3. Development of case studies for reducing methane emissions (i.e., by company, emission source, industry segment, and/or country) in Upstream Oil and Gas, and in Downstream Gas industries;
A2.4. Identification of best practices for reducing methane emissions in Upstream Oil and Gas, and in Downstream Gas industries;
A3.1. Development of standard training modules on best practices for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries;

A3.2. Implementation of two (2) capacity-building seminars to test and validate the training modules;
A3.3. Implementation of two (2) capacity-building workshops on best practices for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries;
A.3.4. Participation in four meetings to present and promote the results of the project (attended jointly with GMI);
A.3.5. Translation to various languages (e.g. Spanish, Russian, French) and dissemination - electronically and in print - of the products developed (i.e. case studies, as well as best practices for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries).

Assumptions and Risks

Assumptions

- Continuous interest and active engagement of the UNECE partners in the project.
- Active engagement of the GEG members in the project.
- The governments of targeted states as well as private entities operating in Upstream Oil and Gas, and in Downstream Gas industries are interested in and committed to implementing the identified best practices for MRV and reduction of methane emissions.
- The governments of targeted states as well as private entities operating in Upstream Oil and Gas, and in Downstream Gas industries are financially and technologically capable of implementing the identified best practices for MRV and reduction of methane emissions.

Risks

The existence of financial, institutional, bureaucratic, and/or political obstacles that will prevent the governments of targeted states and/or private entities operating in Upstream Oil and Gas, and in Downstream Gas industries from implementing the identified best practices and measures for MRV and reduction of methane emissions.

Mitigating Factors

The developed best practices should be widely applicable as well as technically and financially feasible to implement by entities operating in Upstream Oil and Gas, and in Downstream Gas industries.

Results-based work plan

The results-based work plan is provided in Annex 1.

Budget

The detailed budget is presented in Annex 2.

Annex 1

Results-based work plan

EA	Activities	Timeframe by activity		Budget class and Code	Amount (USD)
		Year	**Quarter**		
E.A.1. Improved national capacities for assessing methane emissions in Upstream Oil and Gas, and in Downstream Gas industries.	A1.1 Assessment of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries in the UNECE member States	Y1	Q1-Q4	FT30 CLASS 010 Staff and personnel costs FT30 CLASS 010 Consultants Total	$10,000 $7,000 **$17,000**
E.A.2. Improved knowledge about strategies, techniques and methods for MRV and reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries in the UNECE Member States.	A2.1 Development of case studies (5-10 pages-long) (i.e., by company, emission source, industry segment, and/or country) for MRV of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries	Y1-Y2		FT30 CLASS 010 Staff and personnel costs Total	$20,000 **$20,000**
	A2.2 Identification of best practices for MRV of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries and preparation of the Best Practice Guidance for Effective MRV of Methane Emissions in Upstream Oil and Gas, and in Downstream Gas industries	Y1	Q1-Q4	FT30 CLASS 010 Staff and personnel costs FT30 CLASS 010 Consultants Total	$20,000 $7,000 **$27,000**
	A2.3 Development of case studies (5-10 pages-long) (i.e., by company, emission source, industry segment, and/or country) for reducing methane emissions Upstream Oil and Gas, and in Downstream Gas industries	Y1-Y2		FT30 CLASS 010 Staff and personnel costs Total	$20,000 **$20,000**
	A2.4 Identification of best practices for reducing methane emissions in Upstream Oil and Gas, and in Downstream Gas industries, and preparation of the Best Practice Guidance for Effective Reduction of Methane Emissions in Upstream Oil and Gas, and in Downstream Gas industries	Y1 Y2	Q3-Q4 Q1-Q2	FT30 CLASS 010 Staff and personnel costs FT30 CLASS 010 Consultants Total	$20,000 $7,000 **$27,000**
E.A.3. Improved capacity of the UNECE member States to MRV and reduce methane emissions from Upstream Oil and Gas, and Downstream Gas industries	A3.1 Development of standard training modules on best practices for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries;	Y2	Q1-Q2	FT30 CLASS 010 Staff and personnel costs Total	$20,000 **$20,000**
	A3.2 Two (2) capacity-building seminars to test and validate training modules, organised in cooperation with GMI and preferably held in Geneva or in countries that are both GMI Partners and UNECE Member States.	Y2	Q2-Q4	FT 30 CLASS 160 Travel of Staff FT30 CLASS 160 Travel of meeting participants Total	$4,000 $24,000 **$28,000**
	A.3.3 Two (2) capacity-building workshops on best practices for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries: organised in cooperation with GMI and held in countries that are both GMI Partners and UNECE Member States	Y2	Q2-Q4	FT 30 CLASS 160 Travel of Staff FT30 CLASS 160 Travel of meeting participants FT30 CLASS 010 Staff and personnel costs Total	$4,000 $32,000 $3,500 **$39,500**
	A3.4 Up to four (4) meetings/events organized jointly with GMI to present and/or update relevant stakeholders on the progress	Y1-Y2		FT 30 CLASS 160 Travel of Staff Total	$8,000 **$8,000**
	A3.5 Translation to various languages and dissemination - electronically and in print - of the products developed (i.e. case studies, as well as best practices for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries).	Y1-Y2		FT30 CLASS 120 Contractual services FT30 CLASS 010 Consultants Total	$5,000 $8,000 **$13,000**
Budget summary					$219,500
13% of Programme Support Costs					$30,000
Total					**$249,500**

Annex 2

Budget

Staff and personnel costs (010) $113,500 (Total)

Temporary assistance at P3 level to perform tasks in support of activities:

A1.1. 1 month x $10,000 per month = $10,000.
A2.1. 2 months x $10,000 per month = $20,000.
A2.2. 2 months x $10,000 per month = $20,000.
A2.3. 2 months x $10,000 per month = $20,000.
A2.4. 2 months x $10,000 per month = $20,000
A3.1. 2 months x $10,000 per month = $20,000.

Temporary assistance at G4/G5 level to perform tasks in support of activities:

A3.3 3 months x $7,000 per month (25%) = $3,500.

Consultants (010): $29,000 (Total)

National consultants

National consultants for the task of translating best practices and case studies for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries into additional languages, in support of activities: A3.5. 2 x 1 month of work x $4,000 per month = $8,000.

Total = $8,000.

International consultants

International consultants for the task of assessing methane emissions in Upstream Oil and Gas, and in Downstream Gas industries in the UNECE Member States, in support of activities: A1.1. 1 month of work x $7,000 per month = $7,000.

International consultants for the task of identifying best practices for MRV of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries and preparing the Best Practice Guidance for Effective MRV of Methane Emissions in Upstream Oil and Gas, and in Downstream Gas industries, in support of activities: A2.2. 1 month of work x $7,000 per month = $7,000.

International consultants for the task of identifying best practices for reducing methane emissions in Upstream Oil and Gas, and in Downstream Gas industries, and preparation of the Best Practice Guidance for Effective Reduction of Methane Emissions in Upstream Oil and Gas, and in Downstream Gas industries, in support of activities: A2.4. 1 month of work x $7,000 per month = $7,000.

Total = $21,000.

Travel of Staff (160): $16,000 (Total)

2 missions by 1 UN staff member for the purpose of delivering two (2) capacity-building seminars to test and validate training modules, organised in cooperation with GMI and preferably held in Geneva or in countries that are both GMI Partners and UNECE Member States, in support of activities A3.2. ($ 2,000 average mission cost) x (2 missions) x (1 UN staff member) = $4,000.

2 missions by 1 UN staff member for the purpose of delivering capacity-building workshops on best practices for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries, in support of activities A3.3. ($ 2,000 average mission cost) x (2 missions) x (1 UN staff member) = $4,000.

Up to 4 missions by 1 UN staff member for the purpose of participation in the meetings/events organized jointly with GMI to present and/or update relevant stakeholders on the progress of the project, in support of activities A3.4. ($ 2,000 average mission cost) x (4 missions) x (1 UN staff member) = $8,000.

Total = $16,000.

Contractual services (120): $5,000 (Total)

A provision of $5,000 is required for printing services in support of activity A3.5. “Translation to various languages and dissemination - electronically and in print - of the products developed (i.e. case studies, as well as best practices for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries).”

Travel of meeting participants (seminars, workshops, seminars) (160): $56,000 (Total)

Capacity-building seminars to test and validate training modules organised in cooperation with GMI in support of A3.2. Duration of seminar: 1 day; $2,000 per participant x 6 participants x 2 seminars = $24,000

Capacity-building workshops on best practices for (1) MRV and (2) reduction of methane emissions in Upstream Oil and Gas, and in Downstream Gas industries in support of A3.3. Duration of workshop: 1 day; $2,000 per participant x 8 participants x 2 workshops = $32,000

Total direct cost	$219,500
2% for evaluation	N/A
13% UN Programme Support Cost	$30,000
Total budget	**$ 249,500**