

Development of an Accurate and Consistent Method for Methane Emission Estimation of the Gas Distribution Grid

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Project Proposal MEEM DSO

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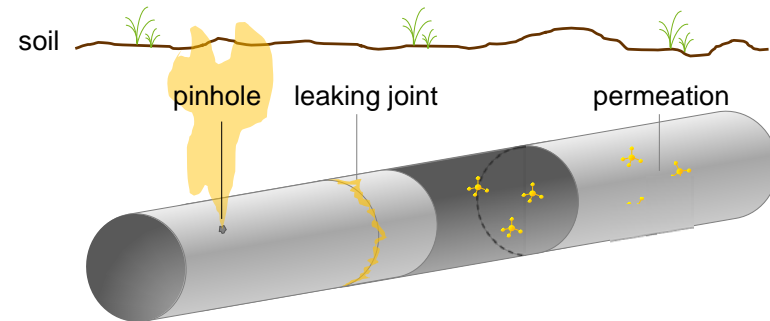
WHY DO WE NEED A METHOD FOR EMISSION ESTIMATION?

Motivation of the Project



- Estimation and publication of **methane emissions** from the gas distribution grid is an **obligation** for the national authorities within the United Nations Framework Convention on Climate Change (UNFCCC)

- Methane emissions are **increasingly meaningful** in public debates for **political, administrative, and public stakeholders** and can have significant (economic) **impact on the future** of gas. (It also might be included in the EU Emission Trading Scheme.)



- The **different approaches/methods** for emission estimation in place **cause difficulties** to identify the methane emissions in the countries correctly/consistently and put the gas industry in a **difficult situation**.

New consistent and accurate method that also unveils the positive effect of recent improvements is the fundament for a reliable, flexible, transparent and complete emission estimation from the gas infrastructure.

→ To establish such a method is the aim of our proposed project.

WHAT HAVE WE ALREADY ACHIEVED?

Lessons Learned from Phase I of the Project



Studies/ methods evaluated in phase I:

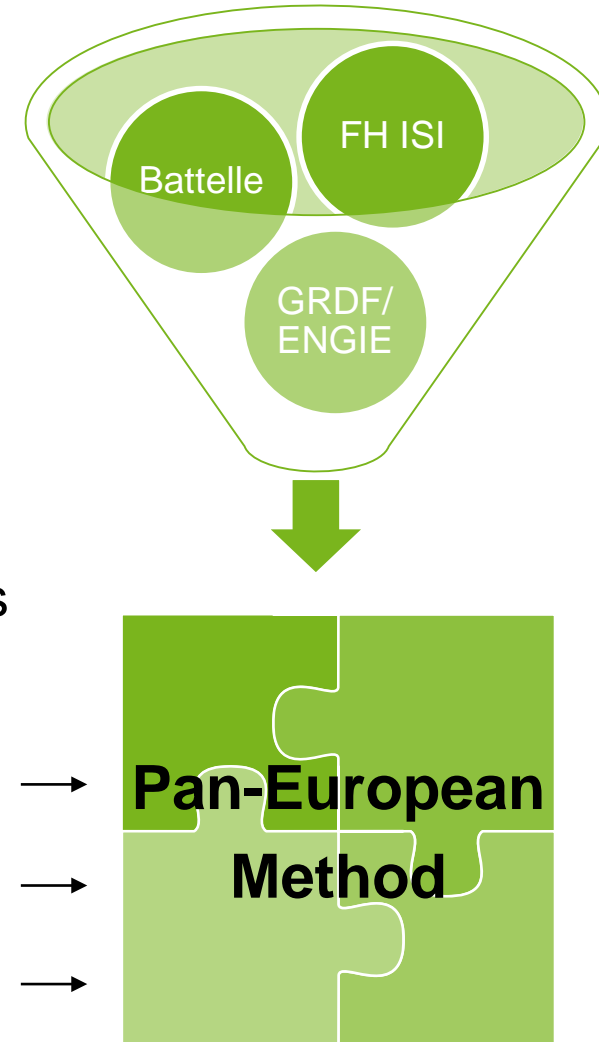
- Method of Battelle 1989 (DE) → applied by **Belgium, (Italy)**
- Method of Battelle 1994 (CH) → applied by **Switzerland**
- Method of FH ISI 2000 (DE) → applied by **Germany, Netherlands, (Sweden)**
- Method of Stoller-DBI 2012 (DE) → applied by **Germany**
- Method of British Gas / National Grid (UK) → applied by **United Kingdom**
- Method of GRDF/ENGIE (FR) → applied by **France**
- Method applied by Gas Natural Fenosa (SP)¹ → applied by **Spain**
- Method of EPA → applied by **USA**
- Method of IGU 2000 / IPCC Guidelines 2006 → applied by **Romania**
- Method per Sale of Natural Gas → applied by **Poland**
- Method of Marcogaz 2005 → emission estimation at EU level

**impressive
variety** of
approaches/
methods in
place

Different approaches prevent a consistent and transparent estimation in Europe.

¹⁾ GNF applies EF provided by Marcogaz and other studies. The only exception is for the polyethylene medium pressure networks, where emissions are estimated with emission factors determined by own measurements with pressure variation method (PVM).

- Every analysed approach for emission estimation shows **strengths** but also comprises **weaknesses**.
- Combination** of promising elements extracted from the existing methods **is recommended**.
- Sophisticated emission estimation** may lead to lower total emissions.
- Transparency** increases reliability and supports visibility of emission reduction measures (e.g. dynamic pressure control).
- Good balance** of cost/effort and benefits is important.

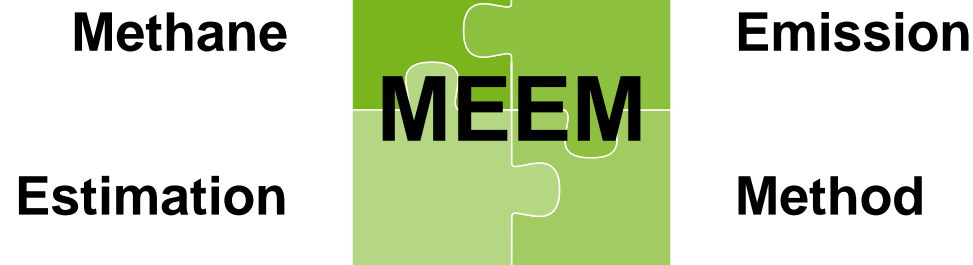


WHAT ARE OUR AIMS?

Main Objective of the Project



Aim is to develop an accurate and consistent method for emission estimation of the gas grid.



- **Two sister projects** will ensure that the methane emissions of gas networks will be covered:

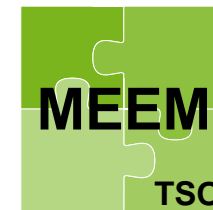
DSO Aspects

Will be considered in
this project



TSO Aspects

Will be considered in
a sister project



- **Aligning of the methods**, as far as possible/ beneficial will be ensured by an information exchange and if needed meetings

WHAT DO WE DO?

Scope of the Project



WP1: Benefit/Effort

- Inventory of availability and accuracy of input data
- Investigation of statistical uncertainty and proof of representativeness
- Evaluation of effort for providing data
- Selection of elements for pan-European method

WP7: Alignment with MEEM TSO (optional)

- Investigation of interfaces, common features and differences to the transmission grid

WP2: Adding Missing Features/ Definitions

- Agreeing on missing definitions
- Implementing missing features e.g. suitable consideration of measures that lead to emission reductions

WP3: External Requirements

- Identification of needs e.g. of authorities
- Requirements for verification

WP4: Final Development of Method

- Combining the results in the previous work packages
- Final Evaluation and last modifications

WP6: Reporting

- Technical report, management summary, presentation

WP5: Validation

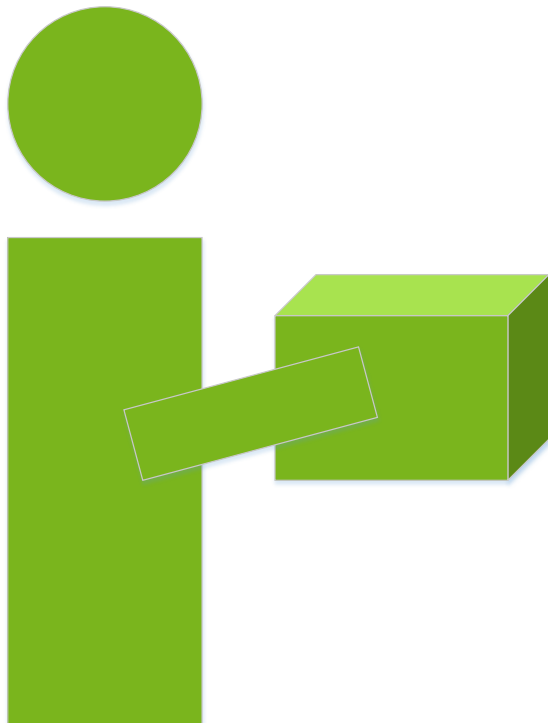
- Continuous validation of method in the course of the project



WHAT ARE THE RESULTS?

Deliverables and Benefits of the Project





Aligned European method for emission estimation of the distribution grid

Basis for verification of the method (e.g. CEN, Ecoinvent)

Consistent emission estimation of gas distribution within Europe



Better understanding of methane emissions from the gas distribution grid

Improved data exchange processes between different actors (DSO, associations, national authorities)

New method comprises **suitable consideration** of measures that lead to **emission reductions**

WHO WILL USE THE MEEM RESULTS IN THE FUTURE?

Integration of the Method by further Stakeholders



1. Scope of the MEEM-Project

Guidelines for Determination of EF & AD

- Equations
- Assumptions
- Definitions
- ...



Method for emission estimation is developed by **MEEM**

2. Use of Project Results on National Level

Determination of national EF & AD

Member States of UNFCCC estimate national emissions by using the developed method

3. Use of Project Results on European Level

Collection of national EF & AD

The Project results can be **used e.g.** by **Marcogaz** and **Eurogas** for emission estimation on European level

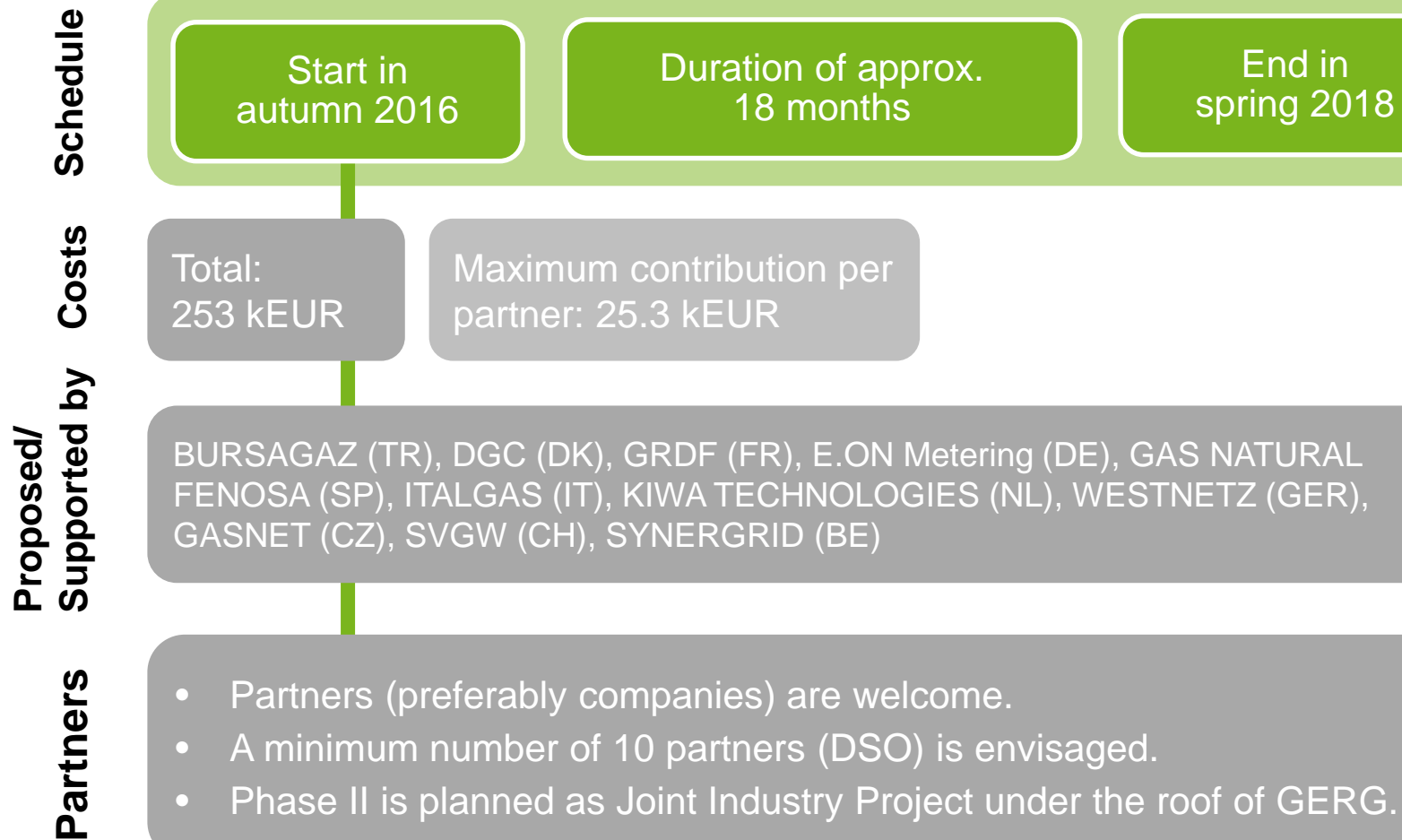
WHAT ELSE IS IMPORTANT?

Project Characteristics



PROJECT PROPOSAL MEEM DSO

PROJECT CHARACTERISTICS



ORGANISATIONAL ISSUES



MEEM = Joint industry project under the roof of GERG

Partners of MEEM DSO



Associations



Steering Committee

- Partners are full members of the steering committee
- Can participate in all meetings
- Have voting rights



- Project guidance
- Decision making

Expert Advice

- International associations can be guests of the steering committee
- Can send a representative to selected meetings
- Advisory role without voting rights

PROJECT PROPOSAL MEEM DSO

ORGANISATIONAL ISSUES

■ **Broad base supports** the **acceptance** of the developed method

■ **Interest to join** the MEEM DSO project:

— Confirmed participation (10 partners):



■ Project is furthermore **supported by**:



NEXT STEPS



PROJECT PROPOSAL MEEM DSO

NEXT STEPS

September 2016

Signing of
Agreements

Oct/Nov 2016

Kick off
Meeting
envisaged

...

Are you interested in the MEEM Project?
Do you have further questions?
Do you know companies who might be interested?

Please contact

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PROJECT PROPOSAL MEEM DSO

TIMELINE (WORK PACKAGES AND MILESTONES)

Task/ Work Package (WP)	Period																								Cost Allocation
	2016						2017						2018						[%]						
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9		10	11	12	1	2	
WP 1 "Benefit effort"																								30,00%	
Inventory of input data																									
Evaluation of availability and accuracy of input data																									
Investigation of statistical uncertainty and proof of representativeness																									
Evaluation of effort for providing data																									
Recommendations for providing missing data																									
Suggestions for adjusting method																									
Selection of elements for pan-European method and possible improvement																									
WP 2 "Adding missing features/definitions"																								10,00%	
Agreeing on missing definitions																									
Adding missing features (e.g. consideration of emission reduction measures)																									
WP 3 "External requirements"																								15,00%	
Needs of the authorities																									
Requirements for verification																									
WP 4 "Final development of pan-European method (distribution grid)"																								15,00%	
Combining the results of the previous work packages																									
Final Evaluation and last modifications																									
WP 5 "Validation of the pan-European method (distribution grid)"																								15,00%	
Continuous validation of method in the course of the project																									
WP 6 "Reporting"																								15,00%	
Report, management summary, presentation																									
WP 7 "Alignment of methods" (optional)																									
Investigation of interfaces, common features and differences to the transmission grid																									
Aligning of interfaces and methods																									

Explanation

-  Work Package (WP)
-  Sub Work package
-  Beginning/ End of Project
-  Milestone

Milestone 1: Elements for pan-European method selected

Milestone 2: External requirements clarified

Milestone 3: Method developed and validated