gasnet

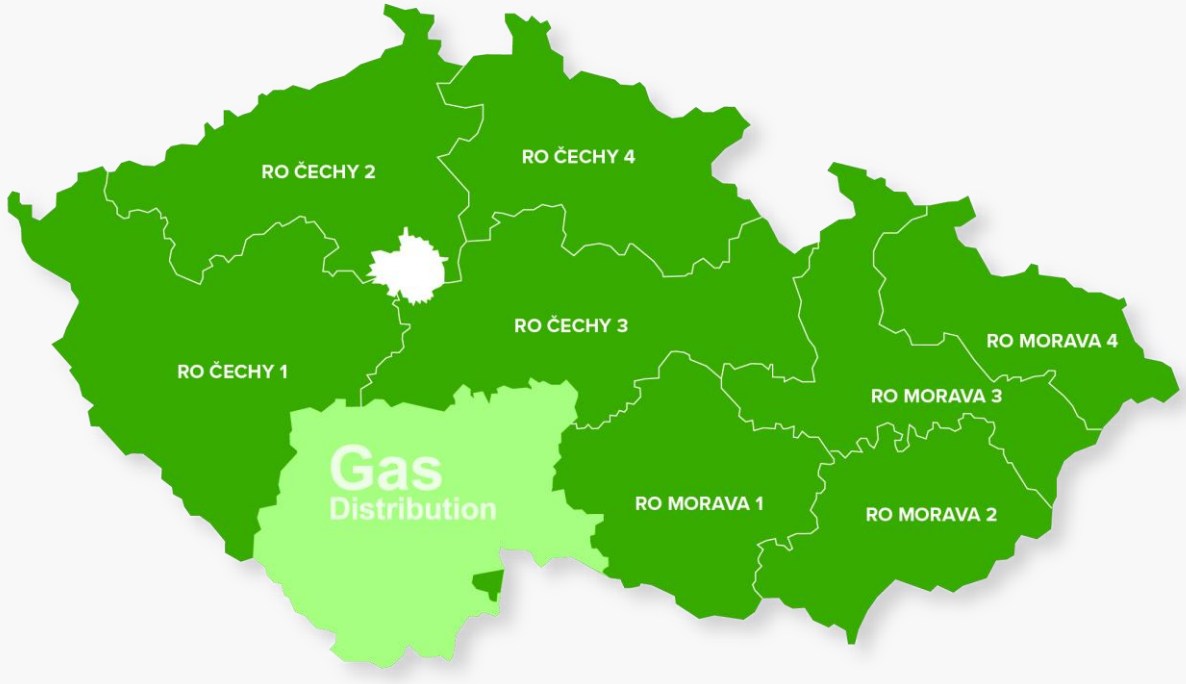
LDAR Implementation: Meeting MER obligations at GasNet

Aleš Pecka

28/10/2026

GasNet (and Gas Distribution): Safe and reliable gas supplies throughout Czechia

GasNet Regional Areas & Gas Distribution service territory (to be merged with GasNet by 2027)



Data on GasNet a Gas Distribution

- **69,600 km of gas pipelines**
- **85% share of gas distribution in the Czech Republic**
- **2.3 million customer connections**
- **Operating in all regions except Prague**

Methane Emissions Regulation (MER): Essential Elements of the Regulatory Framework

Methane Emission Regulation (MER)

CZ Adaptation law (pending)

- Appointment of SEI as the national Competent authority for grids operators
- Definition of competencies
- Reporting requirements
- Sanction regime and penalties

EC Delegated acts (pending → 2029)

- Thresholds for leaks detection and rules for emission quantifications
- Detection limits for detection technique
- Quantification of methane emissions

IMEO OGMP ☑

- Emissions reporting
- DSO Component-level Granularity
- Methane Emissions Calculation Methodology
- Reporting levels (L1-L5)

Tech. standards within CGA ☑

- CEN Performance Standards Development:
  - LDAR
  - Emissions Quantification
  - Venting and flaring
- Adaptation of TPG to Czech conditions

LDAR (Leak Detection And Repair) **IMEO** (International Methane Emission Observatory) **OGMP** (Oil and Gas Methane Partnership) **SEI** (State Energy Inspection) **TPG** (CZ Sector-specific technical rules in gas sector)

MER scope of application for GasNet as DSO operator

- What is exempted from the DSO perspective:
  - Metering systems at end-use consumption points and
  - Pipeline sections between the distribution network and metering systems at end customers' premises

GasNet grids

80 % of the territory

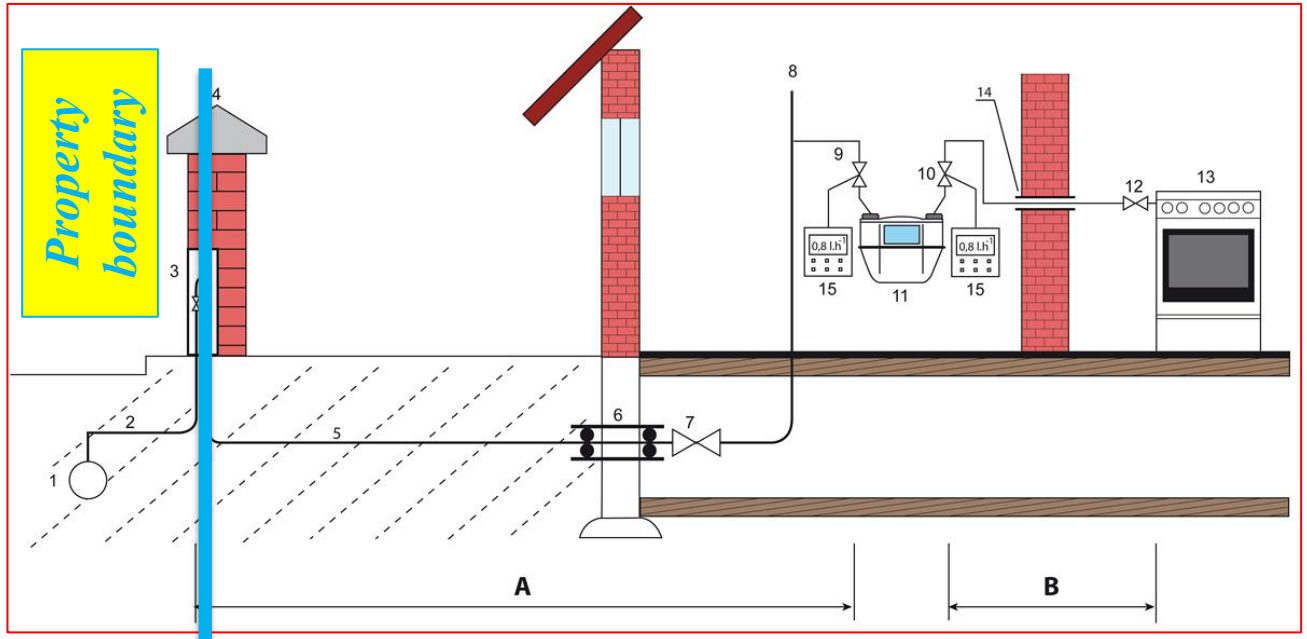
65,049 km
Gas pipelines

~2,2 mil.
Points of consumption

~65 TWh
Annual Distribution of gas
(Average 2018-2025)

...

End-customer's assets (ruled by sector specific tech. rules)

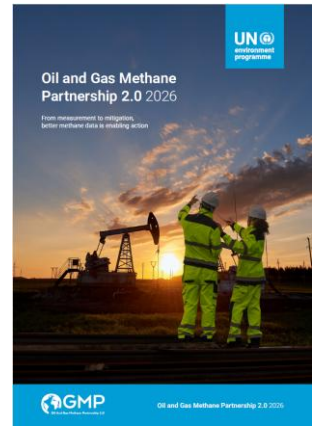


LDAR – Inspections and Repairs (under MER)

GasNet internal strategy and projects ...

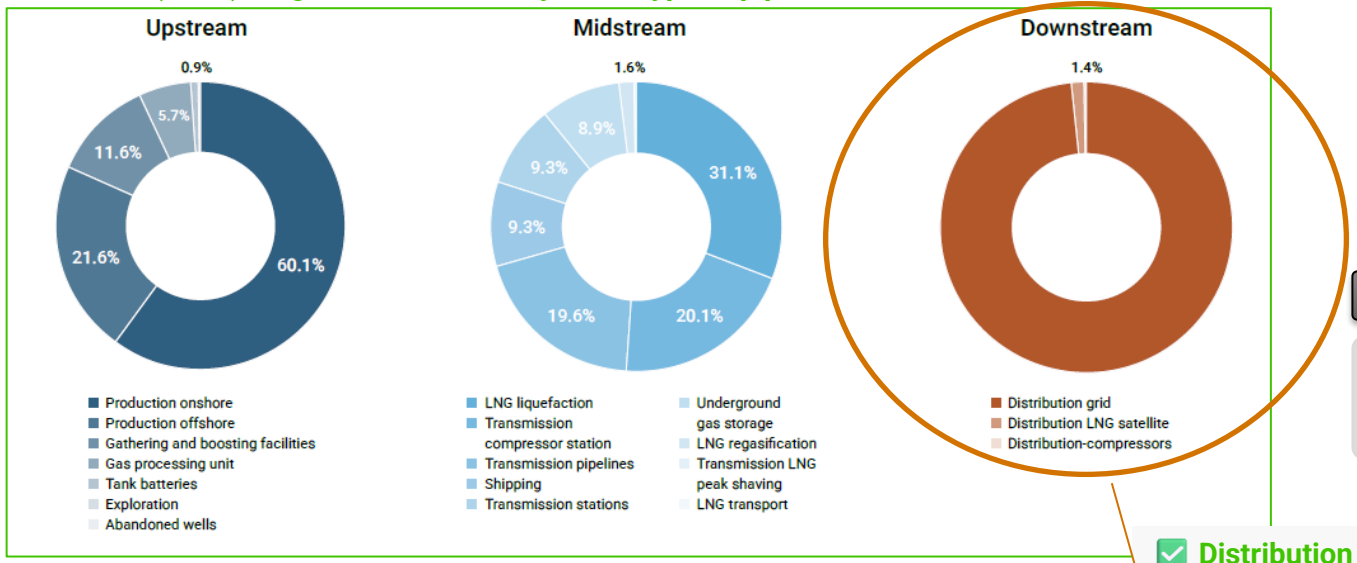
Sector-specific technical rules (TPG) : design, construction, operation, maintenance, and safety of gas infrastructure and gas installations.

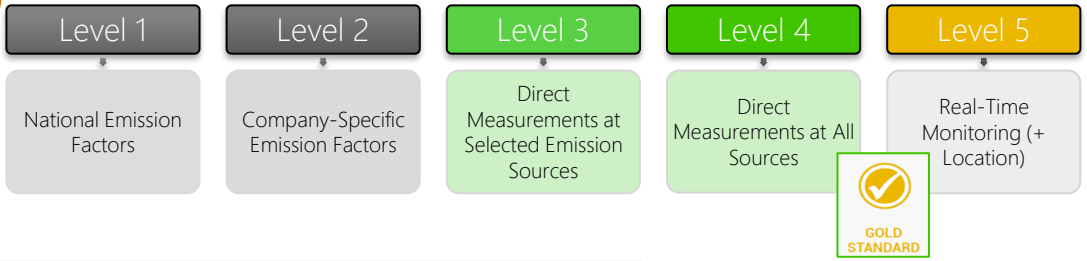
GasNet: Developing internal emissions reporting in accordance with the IMEO (OGMP 2.0) methodology



Source: *Oil and Gas Methane Partnership 2.0 2026: From measurement to mitigation, better methane data is enabling action*

OGMP 2.0 (2026): Segment emissions by asset type of pipelines





✅ **Distribution grids account for ~ 4% of total emissions**

OGMP 2.0 (2026): Share of emissions by segment and asset type



- DSOs dominate downstream emissions, but…
- DSOs' overall contribution to total methane emissions represents only small fraction of total annual emissions
- GasNet reported methane emission using OGMP methodology firstly in 2025…
- …gradually moving to reach Level 5 in 2027 based on direct measurements

Meeting legislative requirements: Turning the Gasnet's safety and emission reduction strategy into practice

Adaptation to regulatory environment

- Implementing new legislative requirements → (EU Methane Regulation, new CEN standards)
- Establishing an emissions management framework → Leakage measurement and quantification
- Developing internal emissions reporting → In accordance with the IMEO (OGMP 2.0) methodology
- Building cooperation with National Competent Authority → (SEI – State Energy Inspection) for gas network operators (TSO and DSOs)

ESG

- Progressive Fugitive Methane Emissions Reduction → Implementation of the Green GasNet process strategy and management of Scope 1 and Scope 2 emissions
- Focus on Key Areas Driving the Net Zero Strategy → Prioritisation of high-impact areas through targeted technological and strategic measures to reduce fugitive emissions
- Establishment of the Reporting framework → to support compliance

Operational and business model

- Setting new rules for inspection activities → Operational safety and reliability & emissions quantification (g/h)
- Rules and methodology for efficient performance → rules for HTS (High-Technology Screening) and leak mitigation within 5-/30-day timelines
- GasNet's New Operating model → Deployment of advanced detection technologies and Integration of digital tools for operational planning a resource allocation (capacities)
- Integrated IT architecture: connection (EAM, Maximo, One WFM, Data platform, etc.)

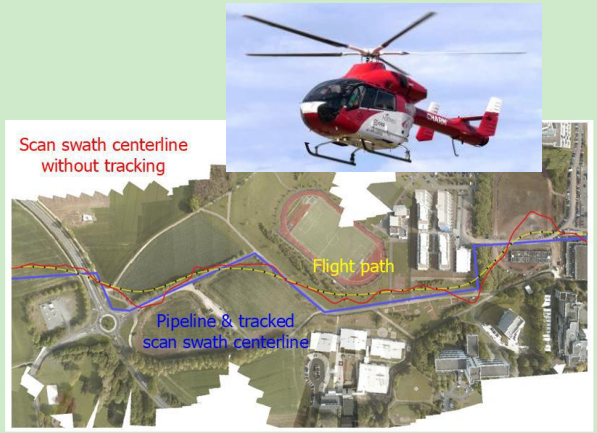
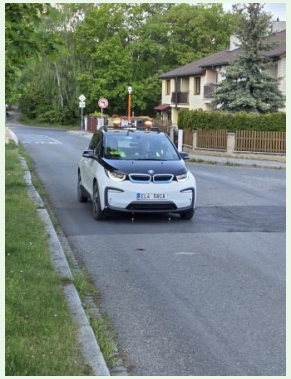
Technology

- RFI Process for LDAR Technology Selection → Evaluation of technologies to support effective and efficient inspection activities
- Technology allocation by asset class → High-pressure pipelines, local distribution grids and pressure reduction stations
- High pressure pipelines → Helicopter-based monitoring technology selected, operational deployment from 2027
- Local distribution grids → Vehicle-based monitoring technology selected, pilot testing in 2027 and full deployment from 2027+

LDAR (Leak Detection And Repair), IMEO (International Methane Emission Observatory), OGMP (Oil and Gas Methane Partnership), SEI – State Energy Inspection, HTS (Assessment of the Equipment's Technical Condition) RFI (Request for Information)

Smart Inspection program - Division of areas and their products

- **Turning technological and operational safety and emission reduction strategies into reality (1/3) – Implementation of AMLD by gas pipeline design**

What	How	Ilustrative examples
High pressure (HP) (above 16 bar) pipelines LDAR programme: Emission control at the site-level emission measurement (OGMP – L5)	• Detection from the air – helicopter • Fulfilment of legal obligations (emissions & safety) • Connection of data communication (emissions, safety) with the GasNet/GasNet Služby IT platform • Reporting • GasNet's New Operating model setup • Commissioning from 2027	
Local grids (Low/Middle pressure) (below 16 bar) LDAR programme: Emission control at source-level emission measurement (OGMP - L4 → L5 potential)	• Ground - vehicle detection + anemometer sensor • Fulfilment of legal obligations (emissions & safety) • Connection of data communication (emissions, safety) with the GasNet/GasNet Služby IT platform • Reporting – quantification (reconciliation) • GasNet's New Operating model setup • Piloting in 2027 and commissioning from 2027+	 

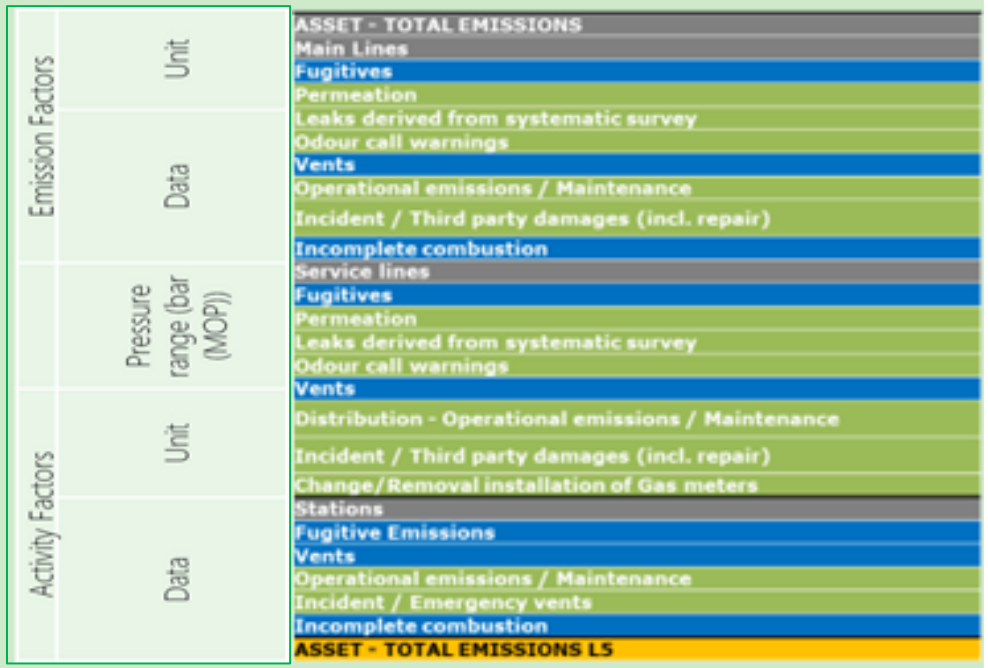
Smart Inspection program - Division of areas and their products

- Turning technological and operational safety into reality (2/3) – protection of infrastructure

What	How	Illustrative examples
Monitoring of High pressure (HP) safety zones encroachment	• Aerial Detection and Monitoring (Airplane/Helicopter) • Monitoring of unauthorized activities within gas pipeline corridors • Geospatial identification of risk points using georeferenced digital mapping • Right-of-way integrity monitoring and threat alerts • 2027 pilot project on a selected network corridor for internal assessment	   

Smart Inspection program - Division of areas and their products

- Turning emission reduction strategies into reality (3/3) – Data management and reporting

What	How	Illustrative examples
Data management based on emission sources Data platform for data integration in the GN/GNS IT architecture	• Fulfilment of legal obligations (reporting of emissions & safety) • EU, OGMP, and SEI (national competent authority) reporting obligations • Processing inspection results and emission calculations • Integrated into audited ESG and sustainability frameworks	

Implementing LDAR: Current findings from the ongoing process

1) Use proven AMLD technologiesu until CEN standards are available

- Allow commercially available solutions, such as vehicle-based systems and drones, to support early implementation and practical experience.
- GasNet: Analysis of the New Operating Model through 2035 and assessment of the most suitable AMLD technologies (satellites, drones, etc.), complemented by AI-based capabilities.

2) Aerial monitoring for networks above 16 bar

- Aircraft, helicopters, and unmanned sensor platforms provide suitable monitoring options for higher-pressure infrastructure.

3) Satellite monitoring is not yet fit for DSO needs, but holds long-term potential

- Current satellite detection thresholds remain too high for midstream and downstream applications, which require much greater sensitivity.
- Significant improvements are expected around 2035 through advances in sensor performance and pattern-recognition capabilities.

4) Performance criteria should drive early deployment and learning

- Early practical testing will support best-practice development, generate operational experience, and provide valuable input for future CEN standardization.
- GasNet: Improved digitalization of planning processes, investments, and cost efficiency through a new EAM (Enterprise Asset Management) platform.

AMLD (Advanced Mobile Leak Detection)

Thank you for your attention!

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