ACER
European Union Agency for the Cooperation of Energy Regulators

CEER
Council of European Energy Regulators

# *Rules to Prevent Methane Leakage in the Energy Sector*

"European Green Deal" Regulatory White Paper series (paper #3)

relevant to the European Commission's Methane Strategy

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## Introduction

This European Green Deal Regulatory White Paper provides the views of Europe's energy regulators, represented by ACER and CEER[1] on rules to prevent methane leakage in the energy sector.

On 14 October 2020, the European Commission (EC) adopted a Communication on an EU strategy to reduce methane emissions[2] (EU Methane Strategy). As regards the energy sector[3], the specific objectives of the EU Methane Strategy proposal are two-fold: i) to improve the availability and accuracy of information on the specific sources of methane emissions associated with energy consumed in the EU, and ii) to put in place EU obligations on companies to mitigate those emissions across different segments of the energy supply chain. The scope of actions considered by the EU Methane Strategy for energy-related methane covers the entire oil, gas and coal supply chains, including liquefied natural gas (LNG), gas storage and biomethane introduced into gas systems, but not emissions by the residential and other final use sectors[3].

[1] ACER is the European Union Agency for the Cooperation of Energy Regulators. See www.acer.europa.eu. CEER is the Council of European Energy Regulators which is the European association of energy national regulatory authorities, see www.ceer.eu.

[2] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on an EU strategy to reduce methane emissions, COM/2020/663 final. Cf. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A663%3AFIN

[3] The energy sector is defined as the oil, gas, and coal supply and use chains. Cf. EU Methane Strategy, p. 2-3 and footnote 18. [3] Ibid., p. 9.

## Overview of Regulator's Key Recommendations

This section summarises the main recommendations of ACER and CEER regarding the introduction of new rules to prevent methane leakage in the energy sector:

### 1. *General scope & overall approach*

a) **Start with prescriptive measuring and mitigation requirements** in order to establish a robust measurement and reporting scheme, **then consider performance-based requirements in a second step**, as envisaged in the European Commission's policy design approach.

b) **Recognise the role of infrastructure in the entire supply chain** in terms of the scale of directly-attributable methane emissions, which are only a small fraction compared to emissions from other sources. Monitoring, reporting and verification (MRV) obligations as well as emission mitigation action (including regulatory) concerning infrastructure should be focused, proportionate and commensurate with the expected emissions mitigation result, in consideration of alternative solutions.

c) **Assess the case for including biogas/biomethane** in the European Commission's policy proposals, especially with regard to mitigating measures. In this respect, given that methane emissions are environmentally harmful, regardless of whether their origin is fossil gas or biogas/biomethane, the leaks associated with biogas/biomethane or synthetic methane also should be properly monitored and reduced to the extent possible.

d) **Trace the emissions through the entire supply chain**, including the possibility to extend the obligations on methane emissions to companies importing/exporting fossil energy into/from the EU. Such tracing is important given that methane emissions is a global issue with negative externalities also spanning across borders. At the same time, a level playing field between energy producers inside and outside the EU must be ensured, as well as consistent and reliable data on methane emissions. In this respect, **a Methane Supply Index and/or a carbon tax[4] should only be introduced on the condition of first having in place a robust MRV system** for all companies (including harmonised reporting).

### 2. *Monitoring and detection*

e) **Provide guidance on minimum technical standards for leak detection and repair (LDAR) programmes,** in order to achieve reasonable consistency and reliable data availability on fugitive emissions across Member States (MSs) and asset operators.

### 3. *Quantification*

f) **Establish an EU-level harmonised approach to methane emissions monitoring and detection**, based in particular on mandatory monitoring of methane emissions by all gas infrastructure operators – transmission system operators (TSOs), storage operators (SSOs), LNG terminal operators, and distribution system operators (DSOs). Oil and Gas Methane Partnership (OGMP)[5] 2.0 could be the approach for an EU harmonised quantification of methane emissions, while acknowledging that different infrastructures might be subject to different levels of detail according to a reasonable cost/benefit ratio.

g) **Promote exchange of best practices** and provide further technical guidance on quantification, including on the itemisation of the estimated emissions and the level of such losses allowed for regulatory purposes.

### 4. *Reporting*

h) **Include MRV and LDAR in a set of prescriptive requirements**, under the general principle of the best available technique (BAT). Restrictions on flaring or venting are also considered of primary importance. Such requirements should cover all types of methane emissions (fugitive, vented, incomplete combustion).

i) **Acknowledge the urgency to put in place a harmonised, well-structured, robust and fit-for-purpose MRV system**. OGMP 2.0 and Marcogaz methane emissions frameworks and templates should be considered, especially for the implementation of a well-structured, fit-for-purpose MRV system in the EU, noting that OGMP 2.0 could serve as the basis for the data reporting format.

j) **Ensure data availability and reliability**, which are key for the development of policy instruments, and in particular performance-based requirements. Methane emissions should be preferably measured and quantified, rather than estimated based on emission factors. The International Methane Emissions Observatory (IMEO) should be the basis for establishing the methane supply index in the future[6]. In this regard, we recommend a **harmonised approach to establishing a single window for the reporting** of methane emissions on a mandatory basis, such as that of the IMEO.

k) **Guarantee that national regulatory authorities (NRAs) have adequate access to methane emissions data**, preferably direct unlimited access to all data reported to the IMEO or at least to all data referring to entities operating in their legal domain of responsibility. In providing such access, it should be ensured that data is traceable, trustworthy, attributable to pathways, flows, and entities, internationally consistent and timely.

### *5. Validation and mitigation*

l) **Verify data independently.** Verification of methane emissions should be assigned to an independent entity, such as a third-party auditing company or an independent agency of the EU (for data referring to the EU domain). For example, the IMEO could be tasked to provide a data clearinghouse service and cross-checking of data, with the help of third-party data audits. Combining a single reporting window (such as IMEO) with a consistent data validation process based on independent data assessment and verification would enhance the value of the reported data.

### *6. Regulatory treatment of costs related to methane emissions*

m) **Favour initiatives at EU level for a harmonised regulatory approach to methane emissions abatement cost recovery**, notably by introducing specific mandatory cost recovery requirements, especially in relation to the costs of MRV and mitigation. However, in this respect, the **need for cost recovery should also be subject to cost efficiency and cost effectiveness principles**, with the possible application of tailored incentive mechanisms.

## 1. General scope and overall approach

Overall, **we find the policy design approach envisaged by the European Commission reasonable** (notably to start off with prescriptive measuring and mitigation requirements to establish a robust MRV scheme, then consider performance-based requirements in a second step). Further considerations should tackle the ranking of priorities (frequent LDAR campaigns, minimisation of venting & flaring rather than TSO-related emissions), and the fact that the IMEO could be the basis

[4] The mentioned carbon tax is not to be confused with the Carbon Border Adjustment Mechanism proposed by the European Commission as part of the Fit for 55 package on 14 July 2021. The latter topic is beyond the intended scope of the paper and not yet examined by ACER and CEER.
[5] Cf. http://ogmpartnership.com/
[6] Cf. also ACER/CEER Gas Bridge to 2025 and CEER Input on the Roadmap for an EU Strategy for Methane 2020.

for establishing the methane supply index in the future. Finally, data availability and reliability are key for the development of policy instruments, in particular performance-based requirements.

Furthermore, it is important to **recognise the role of infrastructure in the entire supply chain**, regardless of the chosen MRV approach, especially in terms of the scale of methane emissions directly attributable to infrastructure in this chain (which are only a small fraction compared to emissions from other elements of the chain and other energy sector operations). MRV obligations, as well as emission mitigation action (including regulatory) concerning infrastructure should be focused, proportionate and commensurate with the expected emissions mitigation result, in consideration of alternative methane emission mitigation actions.

In terms of scope, we are supportive of the intention of the European Commission to **assess the case for including biogas/biomethane** in its policy proposals, especially regarding mitigating measures. In this respect, biogas/biomethane leaks should be properly monitored and reduced to the extent possible throughout the whole value chain, also including alternative non-pipeline transportation methods such as trucks, containers and other (e.g., in case of LNG and bio-LNG). Our view is that **all forms of methane, including synthetic methane, should be considered**; as methane emissions are just that: methane emissions.

A relevant topic is the possibility to extend the obligations provided in the EU legislation on methane emissions in the energy sector to companies importing fossil energy into the EU and to companies exporting fossil energy from the EU. An option would be to extend such obligations to gas importers and exporters, with the aim of tracing the emissions through the entire chain. On the other hand, concerns regarding the possible lack of a level playing field between energy producers inside and outside the EU as well as on the low reliability of data associated with methane emissions should be resolved. In this respect, **a Methane Supply Index and/or a carbon tax should only be introduced on the condition of having in place a robust MRV system** for all companies (including harmonised reporting). Otherwise, an obligation for companies importing fossil energy into the EU may be difficult to implement in the short term as data associated with methane emissions still have a wide range of uncertainty. At this time, some companies do not directly measure methane emissions, but use emission factors derived from catalogues, and other companies do not even estimate what emissions they cause. For these reasons, the introduction of a proper MRV system for all companies to report in a harmonised way, including data independent from these companies, such as satellite data, should be a priority first step, as without such a system it would not be possible to have a Methane Supply Index or to introduce a carbon tax applied at the EU's borders.

## 2. Monitoring and detection

As a general remark, it has to be noted that the degree to which various entities in MSs participate in methane leakage monitoring and detection frameworks, such as OGMP 2.0, differs significantly. Overall, the geography of substantial participation by entities in such frameworks currently involves about 70% of MSs. The reasons for participation by companies in monitoring and detection activities also show a significant variation, as it is either on a mandatory or – more frequently – on a voluntary basis. Lastly, the degree to which companies dealing with gas infrastructure participate in monitoring and detection is also different: entities participating in the OGMP 2.0 are mostly transmission system operators (TSOs), and to a lesser extent DSOs, SSOs, and LNG terminal operators.

Entities legally responsible for setting monitoring and detection rules and frameworks appear to exist only in a few MSs. In a couple of other instances, gas infrastructure operators are doing this on a voluntary basis, either individually or collaboratively within national associations.

Meanwhile, the deployment of LDAR technology has already gained considerable traction and is used in the majority of MSs, also in consideration of safety implications. However, the practice of using LDAR varies considerably depending on the following aspects:

- The extent of prioritisation for LDAR investments that are the most cost efficient;
- Whether or not there is leak surveillance on assets with known issues or on all assets where issues may arise, with subsequent repairs or replacements planned only on the assets where issues have been identified;
- At distribution level, the shift from traditional LDAR methods to more capital-intensive solutions, based on technologies combining acquired data on emissions with other types of information such as weather or network topography;
- The extent to which air and ground inspections are combined;
- The extent to which LDAR is performed in accordance with national and international standards for leak detection, qualification, inspection of gas stations, and measurement of fugitive emissions, as opposed to cases where there are no requirements to abide by such standards;
- The overall degree to which LDAR methods are deployed, e.g. whether fully deployed or still under implementation and not fully operative; and
- The use of various technologies (portable detectors, ultrasonic devices, Optical Gas Imaging (OGI) cameras, lasers) following particular technical recommendations on LDAR programmes, or using the technologies on the basis of other technical approaches.

In terms of LDAR deployment and practices**,** the status quo indicates that considerable work is already underway, but to a varying degree in different parts of the gas supply chain. This may, at least to some extent, be a consequence of the different challenges faced by operators across the various elements of the gas supply chain.

At the same time, there is still a need to achieve reasonable consistency and reliable data availability on fugitive emissions across MSs and asset operators. In particular, **guidance on minimum technical standards for LDAR programmes could be provided**, covering at least the following:

- Applicable LDAR technologies and combinations thereof, including use of non-LDAR data (e.g. ground and air, Marcogaz or equivalent, weather and network topology, etc.), and regarding best available technologies on a case-by-case basis (periodically updated as new technologies emerge);
- Cooperation between operators at EU level on their respective knowledge on research and development (R&D) practices regarding fugitive gas emissions and best practices implementation;
- Full coverage of the LDAR programmes across the gas supply chain (e.g. TSO, DSO, SSO, LNG terminal operators, upstream operators, producers of biomethane / biogas, and major end users of gas);
- Standards for inspection, leak detection, and measurement of fugitive emissions to a sufficiently narrow confidence interval without using assumed factors of emissions;
- Interpretation of LDAR results, in particular classification of required action to eliminate fugitive emissions by providing criteria for the degree of urgency and efficiency; for transmission and distribution, standards on quality of service should include the time of intervention in case an emergency is reported;
- Third-party emissions detection, evaluation, and reporting, including a possible penalty/reward system for the operator and the third party (in cases of emissions reported by that party, but not by the operator);

- Safety, particularly in terms of materials to be employed in order to achieve a reduction of methane emissions; and
- Format, frequency, and modality of LDAR data reporting by operators and/or mandatory direct emission measurement for venting and flaring, including NRA access to reported data.

## 3. Quantification

The way in which emissions are quantified considerably varies across MSs and operators, and NRAs often have no clear view on the quantification methodology. Moreover, there are very few cases of MSs with mandatory provisions on quantification and they could be set either by a ministry or by an independent agency. Regulators believe there is a clear need to **establish a consistent ("harmonised") methodology for the quantification of methane emissions across the EU**, complemented with an equally consistent and transparent system of quantified data reporting, storage, and access (including NRAs).

**OGMP 2.0 could be the approach for an EU harmonised quantification of methane emissions**, on the condition that the quantification of methane emissions should be based on harmonised methods for measuring, data handling, and the use of specific models. To the extent possible, the quantification of emissions should be based on actual measurements rather than on standard emission factors. The use of already-existing methane emissions detection systems (if any) should also be possible, so long as such systems comply with the requirements for harmonised methane emissions quantification methods.

On the "levels" of the OGMP 2.0[7], it should be stressed that **different infrastructures might require a different level of detail** in terms of being in line with a reasonable cost/benefit ratio. It might not be the best solution to impose a higher tier to certain companies, for example, DSOs, since that would mean that they would have to monitor significantly their network and this carries significant costs. In the case of storage or LNG, conversely, a more detailed approach could be implemented, as long as the cost/benefit ratio is still reasonable.

Given that quantification, irrespective of the precise methodology, would always be within a certain margin of error, it would be reasonable to **set up a framework for exchanging best practices across Europe**, in pursuit of efficient quantification within a reasonable confidence interval.

It must be noted that the current technical guidance documents regarding quantification are weighted towards the upstream production stage of the gas value chain. To ensure that a uniform and cost-effective approach to reducing methane emissions is achieved across all operators, **further guidance on quantification would be required** with particular regard to assets that vent while functioning, e.g. relief valves and pneumatically actuated valves.

On transmission networks, for system balancing purposes in the books ("commercial balancing"), the value of losses ("lost gas") related to fugitive emissions is usually estimated using emissions factors. In such instances, **guidance should be provided regarding the itemisation of the estimated emissions and the level of such losses allowed for regulatory purposes**.

Regarding **physical system balancing**, at least the methodology used for this purpose should be provided. Whenever possible, the total emissions should be itemised separately for estimated emissions and for those quantified by using direct measurement methods; both should rely on well-established engineering methods and practices.

[7] For a definition of OGMP levels, cf. https://www.ccacoalition.org/en/resources/oil-and-gas-methane-partnership-ogmp-20-framework. For a guidance on using Marcogaz and other frameworks, cf. https://www.marcogaz.org/wp-content/uploads/2021/04/WG_ME-710.pdf.

We believe that trustworthy and accurate methane emissions quantification at a sufficiently detailed level is at the core of a better, more accurate and efficient management of methane emissions. We stress the need to accurately quantify methane emissions, including by not relying on emission factors whenever direct measurements are possible on a reasonable cost/benefit basis. The envisaged EU legislation to reduce methane emissions should include a methane emissions quantification methodology which:

- Covers all types of methane emissions (fugitive, vented, incomplete flaring and combustion) and all types of emitted methane, including as a component of natural gas, biomethane, and biofuels;
- Is put in place urgently, providing the ground for a robust and fit-for-purpose MRV system;
- Is built upon the OGMP 2.0 reporting framework (MRV system), applied to the whole energy supply chains (from upstream to downstream), with due regard to the applicability of relevant tiers to various operators according to the principles of focus and proportionality.

## 4. Reporting

In terms of scope and modality of reporting, the frameworks differ substantially across MSs. While we note several cases of operators reporting methane emissions, only in a few instances is such reporting mandatory. There are also differences on where, how, and at what level of detail the quantified emissions data are reported, as well as to what extent NRAs have access to the reported quantified data. In this respect, we note one case of a MS where the quantified data is provided to an integrated register of environmental pollution, which is operated as a public information service. Reporting may not cover all types of operators; may differ by type and level of data detail (e.g. cover all accidental emissions but not incomplete burning); be subject to publication (or not), be directed towards different subjects (e.g. to a government office, to an independent agency, to the NRA, or directly done by operators going public with the data in reports); and even be combined with voluntary reporting for emissions not covered by mandatory reporting frameworks. We also note that in some instances, the reported data is benchmarked to indicators for operators' emissions. In this respect, we stress the importance of **ensuring mandatory reporting for all types of emissions, operators, and operated assets**.

As regards the methane emissions templates to be employed, similar to the approach suggested for quantification, we note the importance of **ensuring consistency of reporting, possibly on the basis of the templates developed by Marcogaz and OGMP 2.0**. Currently, the Marcogaz template is employed on a voluntary basis in some MSs. In one instance, it was recently reviewed and updated to comply and align with the OGMP 2.0 reporting framework. We think the use of the Marcogaz template by the IMEO could be an option, though not necessarily on a mandatory basis.

In consideration of the various approaches to reporting, we recommend a **harmonised approach to establishing a single window for the reporting of methane emissions on a mandatory basis**, such as the IMEO. One possible approach is to make data reported into OGMP 2.0 available to the IMEO on the same basis as is set out in the OGMP 2.0 framework. In case it is not possible to establish such a single window, preference could be given to mandatory reporting to a national entity (best if the NRA, see below) under a harmonised EU-wide reporting methodology, which also considers the aspects of reporting belonging to the gas supply chain beyond the EU's borders.

With regard to access by NRAs to methane emissions data, we note some cases of MSs where methane emissions data is reported to the NRA. While emissions from TSOs are always within the scope of such reporting, the participation of DSOs, SSOs and LNG terminal operators is more limited, with only two cases of MSs where reporting to the NRA is foreseen by all types of operators. The varying patterns of reporting requirements and involvement of the NRAs result in a relatively low level of awareness among NRAs about the actual volume of methane emissions. In light of such considerations, we believe that **NRAs should be given unlimited direct access to all reported data for all reporting entities.** As a second-best solution, at least unlimited direct access to all data

for all entities in the NRA's MSs should be granted. Regardless of the modality, we emphasise the importance of accessing data, in particular in instances where NRAs have the power to reward or penalise regulated entities for reaching or not meeting the requirements of methane emissions regulations.

In conclusion, to ensure that reported methane emissions data is trustworthy, up-to-date, accurate and consistent across the various reporting entities and domains, the following should be considered:

- To ensure that reporting is on a mandatory basis for all types of emissions, operators, and operated assets;
- To ensure that a consistent template is used for reporting, on the basis of the templates developed by Marcogaz and OGMP 2.0;
- To reduce reporting workload, establish a reliable data store and ensure the consistency of reported data across operators, domains and time horizons; setting up a single reporting window that would be in a position to handle all relevant reporting, regardless of whether in the EU or from beyond its borders; IMEO could serve these objectives; and
- To ensure that NRAs have continuous and unimpeded access to all data reported for the purpose of performing their functions and establishing baselines for good practices and performance benchmarks.

## 5. Validation and mitigation

When considering which entities are responsible for validation of methane emissions, we note that third-party validation of reported data is practiced only in a few MSs. Data validation may be performed via third-party auditing or a (public) verification authority, and the validation may cover only certain types of operators (e.g. only DSOs or only TSOs).

To enhance the consistency and trustfulness of the verified data, the **IMEO could be tasked to provide a data clearinghouse service and cross-checking data** (including OGMP 2.0 data) with science studies, country reporting, and new data sources such as satellite measurements, also with the help of third-party data audits. IMEO could also issue independent commentaries on the state of data reporting and include this in its management of data acquisition, verification, and country interactions. Our view is that combining a single reporting window (such as that of the IMEO) with a consistent data validation process based on independent data assessment and verification would enhance the value of the reported data and help to establish benchmarks for cross-reference across operators and domains. Assuming the granting of a proper level of access to data to NRAs, such an approach would also enable the design of cost-effective and cost efficient mitigation strategies across domains and operators.

## 6. Regulatory treatment of costs related to methane emissions

Regarding the role and responsibilities of NRAs, we reiterate that **NRAs should have oversight over the mitigation of methane emissions associated with regulated assets**. This is because the costs associated with the mitigation of emissions and the efficiency of the mitigating action may have an impact on the regulated revenues allowed for the network operators as well as on tariff setting. In this respect, a wide variety of mitigation "cases" may be encountered in terms of cost and efficiency, ranging from very high net costs to negative net costs, i.e. to cases where the value of the (avoided) loss of commodity is greater than the cost of the mitigation action (net savings). The validation of data and the access to validated data are therefore of critical importance for enabling informed decisions by NRAs regarding cost efficient methane emissions mitigation formats that would also properly incentivise the operators.

We note that, when addressing the role and responsibilities of NRAs, the European Commission's Methane Strategy focuses mainly on the issue of cost recognition, i.e. on the fact that investment

costs related to methane emission activities (e.g. LDAR, mitigation) borne by regulated entities should be recovered via the tariff system[8]. In general terms, such costs have always been taken into account by regulators for setting the allowed revenues, as they are related to the safe operation of the network by regulated entities. However, at EU level, there are several different approaches regarding the specific way in which cost recovery takes place. As regards the costs related to MRV as well as mitigation activities, costs are either pass-through (charged to network users' tariffs) or they follow the overall regulatory regime in place for OPEX and CAPEX, which may include efficiency targets (e.g. price cap mechanism). We also note that specific incentive mechanisms are in place in some MSs. Additional options include the definition of allowed revenues over the tariff period based on the planned actions programme of each network operator, which may include R&D on emissions reduction, based on a cost-benefit analysis with regard to the value of avoided equivalent $CO_2$ emissions.

One key consideration put forward by the European Commission to justify cost recovery by NRAs is that network operators, as regulated businesses, do not own the gas. Therefore, contrary to upstream gas producers who can sell the gas that they prevent from leaking, they do not necessarily have any direct financial incentive to implement emission mitigating measures. However, while it is true that regulated businesses do not own gas as such, it is also true that in some cases, according to the regulatory framework in place, they bear the cost (or a share thereof) of the "lost gas" (emitted and unaccounted) – which ultimately gives them an incentive to undertake methane emission reduction activities. That is, in some cases, in terms of costs related to the commodity being lost while being handled by a regulated entity the costs of lost gas are considered a pass-through to network users. In other instances, there are incentives in place whereby the standard incentive regulation approach is applied on the costs of lost gas, or the cost is borne by the system operator up to a certain threshold (i.e. the cost is shared between the network user and the infrastructure operators). In at least one instance, the "lost gas" costs are entirely borne by the infrastructure operator.

The presence of incentives is often the result of an ex-ante definition of the level of allowed gas "losses". Furthermore, the variations among the approaches to mitigate methane emissions are enhanced by the fact that most NRAs do not employ standard emission factors methodology for quantifying methane emissions as, in most cases, the quantification is based on historical data (statistics). There are, however, also cases of NRAs employing standard emission factors methodologies. Yet another consideration to take into account is the fact that incentives are usually applied in relation to the quantity being emitted and not to the price of the emitted commodity, which is often the market price of methane (natural gas, in some cases also including the price of carbon emissions). Similarly, costs related to emissions trading system (ETS) permits are usually treated as a pass-through.

In relation to the initiatives envisaged by the European Commission on the issue of regulatory treatment of costs related to methane emissions and their mitigation, we believe that:

- Initiatives would be appreciated at EU level for a harmonised approach, notably by **introducing specific mandatory cost recovery requirements, especially in relation to the costs of MRV and mitigation**. We note the importance of such harmonisation for the establishment of a level playing field on the single EU gas market, by helping to avoid distortions in tariff setting and other business practices.

[8] "*Transmission, storage, and distribution systems operators (including many LNG terminals) are regulated businesses and do not own the gas. For this reason, the Commission will promote the recognition by National Regulatory Authorities (NRAs) of LDAR and methane reduction investments as allowed costs for regulated entities in transmission, storage and distribution, including through possible guidance to regulators*". European Commission 2020, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on an EU strategy to reduce methane emissions.

- In this respect, however, we stress the importance of **keeping cost recovery subject to incentive regulation, to ensure cost efficiency and cost-effectiveness**. Specific regulatory approaches to recover the cost of the "lost" commodity could help to reach the objective of cost-effectiveness of methane emission reduction activities, as the preference of infrastructure operators would be for solutions delivering the highest benefit-to-cost ratio. Such a focus on cost efficiency and effectiveness is particularly relevant given the magnitude of costs that are expected to be incurred in the coming years due to the likely implementation of methane emissions MRV and mitigation policies.

## Relevant ACER/CEER Papers

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| 1 | European Energy Regulators' Overview Paper, "The Bridge Beyond 2025 Conclusions Paper", 19 November 2019 |
| 3 | ACER-CEER Regulatory White Paper "When and How to Regulate Hydrogen Networks?", 9 February 2021 |
| 4 | ACER-CEER Regulatory White Paper "Regulatory Treatment of Power-to-Gas", 11 February 2021 |