

Regulatory treatment of costs related to methane emissions

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I. INTRODUCTION

1. About ECRB

The Energy Community Regulatory Board (ECRB) operates based on the Energy Community Treaty. As an institution of the Energy Community¹ the ECRB advises the Energy Community Ministerial Council and Permanent High Level Group on details of statutory, technical and regulatory rules and makes recommendations in the case of cross-border disputes between regulators.

ECRB is the independent regional voice of energy regulators in the Energy Community. ECRB's mission builds on three pillars: providing coordinated regulatory positions to energy policy debates, harmonizing regulatory rules across borders and sharing regulatory knowledge and experience.

2. Background and scope

ECRB Gas Working Group (GWG) Work Program 2022 foresees establishment of the Task Force to deal with methane emissions and develop a review of practice in the Energy Community Contracting Parties with regard to the regulatory treatment of methane emissions from natural gas infrastructure.

Having in mind that none of the Contracting Parties has LNG terminals, and only some of them have storages, this work focuses on transmission and distribution infrastructure.

3. Methodology and scope

The Task Force has performed the following:

1. Created a questionnaire to collect information on existing regulatory practices with regard methane emissions;
2. Performed survey on regulatory practices in relation to determination and treatment of methane emissions;
3. Evaluated the results of the survey.

Data and analyses provided in present report are exclusively based on information provided by the regulatory authorities of the analyzed markets.

¹ www.energy-community.org. The Energy Community comprises the EU and Albania, Bosnia and Herzegovina, North Macedonia, Kosovo*, Moldova, Montenegro, Serbia and Ukraine. Armenia, Georgia, Turkey and Norway are Observer Countries. [* Throughout this document the symbol * refers to the following statement: This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence].

The report covers Albania, North Macedonia, Georgia, Moldova, Serbia and Ukraine. In addition to the Contracting Parties, the report includes also information from the Observer country – Armenia.

Bosnia and Herzegovina did not complete the questionnaire due to limited data. Kosovo* and Montenegro did not provide information due to absence of gas infrastructure.

Topics that were covered related to:

- Legislative obligations imposed on transmission/distribution system operators,
- Determination of methane emissions (methodology, quantification, reporting),
- Operators distinction between different sources of methane emissions,
- Regulatory treatment of network losses,
- Practice regarding leak detection and repair,
- Strategies for methane emissions abatement.

II. FINDINGS

1. Obligations imposed on system operators- laws/strategies

In the first step, it is important to determine whether there is a legislative document imposing obligations related to methane emissions to gas companies- transmission system operators (TSOs) and distribution system operators (DSOs). And if there is no such an obligation established in a high level document such as law or strategy, whether there is any kind of legislation in place related to methane emissions.

Table 1. Legislative documents imposing obligations to system operators

Contracting Party	Strategy	Law	Other	No legislative obligation
Albania	√			
Ukraine			√	
Moldova		√		
North Macedonia			√	
Serbia			√	
Georgia				√
Observer				
Armenia	√			

Legislative obligations exist in the Contracting Parties, but in very different kinds of documents. Some have obligations defined in laws, like Moldova and Armenia or in Energy Efficiency Action Plan in Ukraine. Sometimes obligations related to methane emissions are included in legislation related to environmental protection such as in Serbia (Law on Climate Change), or in Albania in the Climate Change Strategy and Action Plan or as company strategy as in the Green strategy of TSO in North Macedonia. Only Georgia reported that there are no legal obligations regarding methane emissions.

The obligation for system operators to report on emissions does not exist in North Macedonia and Georgia, but it exists in Moldova, Albania and Armenia. In Serbia, such

obligation does not exist yet, but secondary legislation that introduces such obligation is being prepared.

The body responsible for data gathering also differs- sometimes it is the ministry in charge of energy or environmental agency, statistical body, but not national regulatory authorities.

2. Methane emissions quantification

Some of the Contracting Parties (Ukraine, Georgia and Serbia) and Armenia are following IPCC Guidelines for National Greenhouse Gas Inventories² regarding rules for methane emissions quantification. In Albania, Moldova and North Macedonia, there are no methodologies in place for quantification of methane emissions.

In most of the Contracting Parties determination of methane emission is established in some way for both transmission and distribution infrastructure-in Moldova, Albania, Armenia, Ukraine and Serbia but just for transmission in North Macedonia.

There is only one Contracting Party that reports about actual measurement of emissions- North Macedonia. Other Contracting Parties apply emission factors in accordance with the IPCC Guidelines (Moldova, Armenia, Serbia and Ukraine) or do not have any kind of emissions determination (Georgia).

In gathering information about emissions only a few Contracting Parties (Moldova and North Macedonia) make distinction between fugitive emissions, vented, incomplete flaring and combustion as different sources of emissions.

3. Network losses

In all analyzed Contracting Parties, the most frequent reason for losses are pipe leaks.

The procedure for approving and reimbursement of losses is the same for all analyzed cases. Network losses are reimbursed just up to a certain level, reimbursement is obtained via tariff, and it is the competence of the national regulatory body to approve the level of losses to be reimbursed.

² IPCC- www.ipcc.ch Intergovernmental Panel on Climate Change is an intergovernmental body of the United Nations. Its job is to advance scientific knowledge about climate change caused by human activities. The World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the IPCC in 1988.

Table 2. Network losses approval and recovery

Contracting Party	Losses approved up to a certain level	Entity responsible for losses approval	Losses recovered through taiff
Albania	√	NRA	√
Georgia	√	NRA	√
Moldova	√	NRA	√
North Macedonia	√	NRA	√
Serbia	√	NRA	√
Ukraine	√	NRA	√
Observer			
Armenia	√	NRA	√

The levels of losses vary a lot between the analyzed data.

Transmission losses reported were 0% (Serbia), 0.1-0.25% (Moldova), or as high as 3.54% (Armenia).

Distribution losses reported were 1.21% (Serbia), 2.24-3.09% (Moldova), 1.53% (Armenia), up to 3% (Georgia).

The levels of losses approved by the regulators are:

- for transmission: 0,4% (Albania); 3,54% (Armenia); 0,5% (North Macedonia); 0,04% (Moldova); 0,3% (Serbia);
- for distribution: up to 3% (Georgia); 1,53% (Armenia); 1,65% (Moldova); up to 2% (Serbia);

It can be observed the actual levels of losses as well as the levels regulators consider justifiable differ a lot among the Contracting Parties.

All of the system operators in analyzed markets are responsible for procurement of gas to cover losses.

Although the responsibility for losses procurement is on system operators, in all Contracting Parties, the ownership of the gas in pipes also differs. Sometimes it is the system user (supplier) or sometimes it is the network operator. This could lead to different incentive for the system operators to reduce network losses.

Regulatory framework that is already in place in all observed parties envisages losses' reduction as a possible way for methane emissions abatement.

4. Leak detection and repair (LDAR)

The rules (procedures, frequency) regarding LDAR are provided in the network code in Albania, by technical standards in North Macedonia, Moldova and Serbia, for both TSOs and DSOs, or by internal acts of companies (in Serbia, for frequency). In some cases the LDAR rules are not defined in legislation (Armenia, Georgia).

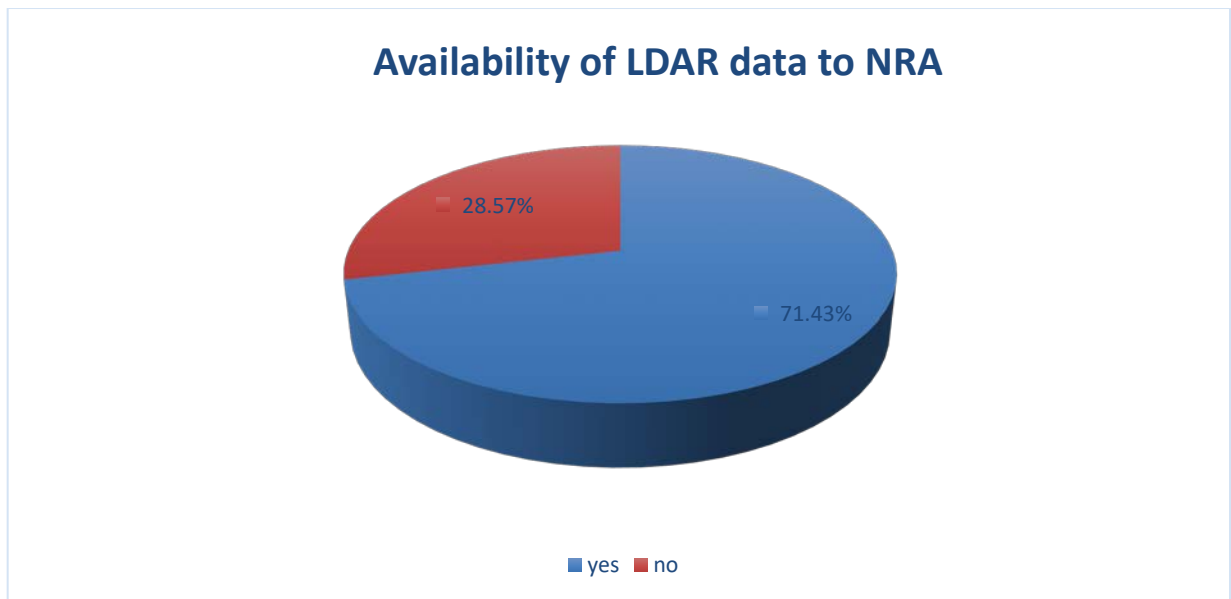
The obligation to monitor leak detection and repair exist in different ways in Contracting Parties. Sometimes, even if it is not contained in technical regulation, it can be included in licensing obligations (Armenia).

Table 3 Monitoring and detection of leaks

Contracting Party	Mandatory	Voluntary
North Macedonia		yes
Albania	yes	
Georgia	yes	
Moldova	yes	
Serbia	yes	
North Macedonia		yes
Ukraine		yes
Observer		
Armenia	yes	

The information about leakages is often available to regulators (Albania, Moldova, Serbia, Georgia, Armenia) and not available in Ukraine and North Macedonia.

Figure 4 Availability of information about LDAR



Since the regulators approve costs and investment plans, in all of the analyzed cases, the information about maintenance costs related to pipe repair is available to the NRAs (Ukraine, Armenia, Georgia, Moldova, North Macedonia, Albania and Serbia).

The information on the time of response in case of emergency is available to regulators as a part of quality of service supervision (Ukraine, Serbia, Georgia, Moldova, Albania and Armenia) but not in North Macedonia.

Most of the survey participants reported that there were no specific materials employed in order to achieve reduction of methane emissions except in Moldova and Albania.

Frequency of leakage detection and repair is something that does not fall into competences of regulators, but according to information available to regulators regular inspections are conducted.

Entity legally responsible for setting methane leakage monitoring and detection rules is related to environmental protection in Serbia and Albania, the Ministry of Economy and Infrastructure in Moldova, or not defined in Georgia, North Macedonia and Armenia.

The recovery of costs related to methane emissions' reduction is not envisaged in regulatory framework of Ukraine, Georgia and North Macedonia. Direct methane



emissions abatement is not recognized in the regulatory framework in Serbia, but reduction of network losses is incentivized. Methane emissions abatement costs recovery is envisaged in the regulatory frameworks of Moldova, Albania and Armenia.

III. CONCLUSIONS

There are no common mandatory rules concerning methane emissions quantification, nor unique methodology for this quantification, Therefore an obligation to measure/determine and report on methane emissions should be established.

Distinction between different kinds of emissions is rare, as well as direct measurement of emissions. Different obligations regarding reporting about emissions to different institutions exist in Contracting Parties. Very often ministries or agencies (environmental or other) are included in the process of determination and reporting, but NRAs as a general rule are not.

Different natural gas infrastructure is subject to emissions determination. Sometimes emissions are observed for transmission systems and sometimes for both transmission and distribution systems. When it comes to DSOs, consideration should be given to their size which also vary a lot, so certain threshold could be considered in this respect, meaning that maybe the rules for small distribution networks should not be the same as for the bigger ones.

If a starting point for emissions is determined as a benchmark for possible future targets in emissions reduction, it should be considered whether to set targets for all sector participants (for all transmission system operators or all distribution system operators) or each company should have its own targets and compare its own results with the previous ones.

As a part of common regulatory duties, all observed NRAs have competences in approving the network losses. They all approve them up to a certain level, and related costs are reimbursed via tariffs.

Another emissions related information available to almost all regulators is surveillance of quality of service, namely the number of incidents on the system that lead to gas leakages and time of response in such cases. By setting standards for these quality parameters, benefits related to emissions reduction could be achieved.

Leak detection and repair practices usually exist, as well as prohibition of unnecessary venting- but this is often not within the competences of the NRAs. Procedures related to leakage control were already in place in the past, as a part of regular safety measures, not related to methane emissions abatement. Nevertheless, information about LDAR activities and directly attributed costs to it should be available to the regulators.

The ownership of gas in pipelines is sometimes on system operators and sometimes on network users, raising the question whether system operators are incentivized enough to reduce losses.

If the NRAs should be in a position to incentivize methane emissions abatement, they should be able to recognize efficiently incurred costs attributed to methane emissions, pipe repairs caused by leakages, variations in quality of service related to time response in case of emergencies, or technologies applied for emissions reduction.

Since there is a tendency to determine methane emissions in the whole gas chain, the LNG terminals, storages, production and final use of gas are also necessary to be surveyed in this respect in the future work.