

# QUALITY



## **Quality of Gas Distribution and Supply Services in the Energy Community**

Findings and Recommendations

November 2018



# **Quality of Gas Distribution and Supply Services**

2018

## Content

<b>INTRODUCTION .....</b>	<b>3</b>
1. About ECRB .....	3
2. Background.....	3
3. Scope of the report .....	4
4. Methodology .....	4
<b>FINDINGS.....</b>	<b>5</b>
1. Structure of gas networks.....	5
a) Network length.....	5
b) Pressure regulating and metering gas stations.....	6
c) Pressure levels in use .....	6
2. CONTINUITY OF SUPPLY IN GAS NETWORKS.....	8
a) Regulations and rules .....	8
b) Definitions of interruption, incident, accident emergency.....	9
c) Recording of interruptions and events .....	12
d) Continuity indicators .....	13
3. GAS QUALITY.....	16
a) Responsibilities regarding gas quality .....	16
b) Procedures for handling complaints related to gas quality and relevant compensations.....	18
4. COMMERCIAL QUALITY.....	20
a) Customer information .....	23
b) Customer care .....	25
c) Access to the grid .....	26
d) Activation, deactivation, reactivation of supply.....	28
e) Metering.....	29
f) Invoicing.....	31
<b>CONCLUSIONS .....</b>	<b>32</b>

## INTRODUCTION

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### 1. About ECRB

The Energy Community Regulatory Board (ECRB) operates based on the Treaty establishing the Energy Community. As an institution of the Energy Community<sup>1</sup> 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

Article 41(1) litera (h) of Directive 2009/73/EC<sup>2</sup> ('Directive') establishes an obligation for nation energy regulators to set or approve standards and requirements for quality of service and supply in the gas sector.

The obligations related to quality of gas supply services are similar to those applied in the electricity sector. During the last years, many studies and analyses were done in the electricity sector, both for the EU countries as well as for the Energy Community Contracting Parties ('EnC CPs').<sup>3</sup> Some regulatory authorities of the EnC CPs approved standards related to quality of service.

In the gas sector, such analysis was done by CEER in 2016, and the results have been reflected in 6<sup>th</sup> CEER Benchmarking Report on the Quality of Electricity and Gas Supply,<sup>4</sup> which contains data on quality of service in the gas sector of the EU countries for the period 2010 - 2014. Data for the EnC CPs has not been collected for the purpose of the 6<sup>th</sup> CEER Benchmarking Report. Albeit this and taking into account the obligations of the EnC CPs established by the Directive, an analysis of the status quo regarding quality of service in gas sector remains of utmost relevance and has therefore been included in the activities of ECRB.

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<sup>1</sup> [www.energy-community.org](http://www.energy-community.org). The Energy Community comprises the EU and Albania, Bosnia and Herzegovina, FYR of Macedonia, Georgia, Kosovo\*, Moldova, Montenegro, Serbia and Ukraine. Armenia, 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]. For more details see: [www.energy-community.org](http://www.energy-community.org).

<sup>2</sup> Directive 2009/73/EC of July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC ([https://www.energy-community.org/dam/jcr:004b3ca7-fa52-4633-875e-8ac1b2cea021/Directive\\_2009\\_73\\_GAS.pdf](https://www.energy-community.org/dam/jcr:004b3ca7-fa52-4633-875e-8ac1b2cea021/Directive_2009_73_GAS.pdf)).

<sup>3</sup> E.g. ECRB, contribution to the 5<sup>th</sup> CEER Benchmarking Report on Quality of Electricity Supply (2011).

<sup>4</sup> <https://www.ceer.eu/documents/104400/-/-/0261ad33-6b06-f708-354b-5adf04683129>.

### 3. Scope of the report

The present report assesses the legislative and regulatory framework related to quality of gas distribution and supply services in the EnC CPs.

The report covers Bosnia and Herzegovina, Georgia, Moldova, FYR of Macedonia, Serbia and Ukraine as Energy Community Contracting Parties as well as Italy as EU country. Data for Bosnia and Herzegovina relates to its entity Republika Srpska.

Albania, Kosovo\* and Montenegro are not included in the present report due to absence of gas infrastructure in these markets. Nevertheless, national legislation of these EnC CPs also covers the gas sector; thus, where applicable the present report also present the relevant legal provisions for these EnC CPs.

### 4. Methodology

Data and analyses contained in the present report are based on information provided by the national regulatory authorities (NRA) of the analyzed markets. For data analysis and interpretations, the methodology of the 6th CEER Benchmarking Report on the Quality of Electricity and Gas Supply has been applied.

## FINDINGS

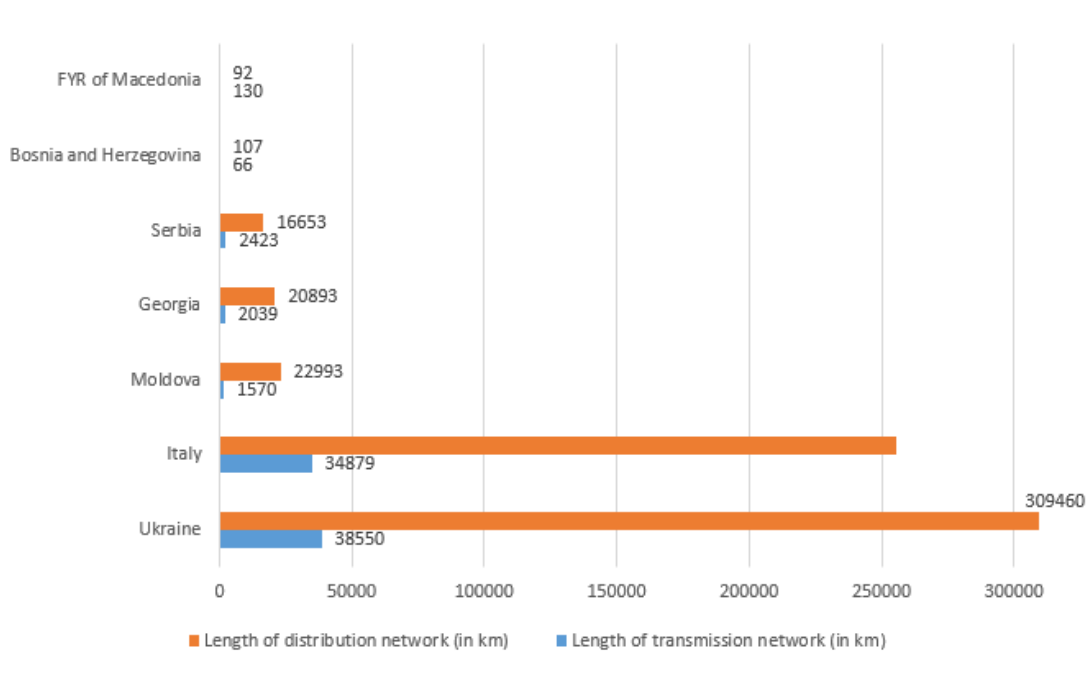
### 1. Structure of gas networks

In order to get a picture of the gas networks for which the analysis of quality of supply regulation is done, it is worth providing their basic technical characteristics, such as length of networks, numbers of metering stations and pressure levels.

#### a) Network length

Among the EnC CPs, Ukraine has the longest gas network - both on transmission and distribution level - comparable with the gas networks in Italy. For more details, please see Figure 1 below.

**Figure 1 Length of natural gas networks in the EnC CPs (in km)**



## b) Pressure regulating and metering gas stations

Due to different understanding of the term “*pressure regulating and metering gas station*”, the obtained data are not homogenous. In order to reach a certain level of comparability, the next table shows **only data for high-pressure and mid- pressure gas stations**.

**Table 1 Number of pressure regulating stations**

	Number of pressure regulated and metering gas stations	Comment
<b>Bosnia and Herzegovina</b>	5	
<b>fYR of Macedonia</b>	8	Only 2 high- pressure and 6 mid- pressure stations. 304 pressure-regulating stations in low- pressure gas networks.
<b>Georgia</b>	380	Data refers to metering/pressure-regulation stations at transmission level (exits from transmission network). Information for distribution not available in requested format.
<b>Moldova</b>	80	Data refers to the points of cross-border exchange and delivery points from transmission to distribution networks.
<b>Serbia</b>	239	Data refers to stations on transmission level
<b>Ukraine</b>	1455	The number of city gates. The pressure regulating stations from DSO networks (51 808 units) was not taken into account for this comparison.
<b>Italy</b>	7571	The data refers to the delivery points of the transmission networks.

## c) Pressure levels in use

The definition of pressure levels in use varies widely between the analyzed countries. Allowed variations of pressure in gas networks are defined by relevant legislation in Italy and Serbia. In Moldova the variation of pressure is not prescribed by legislation but via regulatory rules on quality of gas distribution and transmission services. According to those, the pressure at the connection point of a household customers must not exceed 0.003 MPa. For non-households the variation of pressure at the connection point is established in bilateral contracts.

In Serbia the MIP (maximum incidental pressure) for transmission system should not exceed 15% of the maximal allowed operating pressure (MOP). According to Rulebook on conditions for unhindered and safe natural gas distribution via pipelines of pressure up to 16 bar, safeguarding of pressure override is defined so that MIP (maximum incidental pressure) is in line with SRPS EN 12007-1<sup>5</sup> and SPRS EN 12 007-5.<sup>6</sup>

For more information, please refer to the Table 2 below.

**Table 2 Pressure levels in use**

	High pressure	Medium pressure	Low pressure
<b>Bosnia and Herzegovina</b>	16-50 bar	6-16 bar	< 6 bar
<b>fYR of Macedonia</b>	Entry level max 54 bar (transmission level)	40-25 bar (transmission level)	Entry level 12-8 bar (transmission level). Exit level 4 bar or below (distribution level)
<b>Georgia</b>	HP > 12 bar (transmission level) HP I Category – 6-12 bar (distribution level) HP II Category – 3-6 bar (distribution level)	0.05 - 3 bar (distribution level)	< 0.05 bar (distribution level)
<b>Moldova</b>	HP > 12 bar HP I Category – 6-12 bar HP II Category – 3-6 bar	0.05-3 bar	< 0.05 bar
<b>Serbia</b>	> 16 bar	No	≤ 16 bar
<b>Ukraine</b>	HP > 12 bar HP I Category – 6-12 bar HP II Category – 3-6 bar	0.05-3 bar	< 0.05 bar
<b>Italy</b>	> 5 bar	0.04-5 bar	≤ 0.04 bar

<sup>5</sup> [http://www.iss.rs/rs/standard/?natstandard\\_document\\_id=55886](http://www.iss.rs/rs/standard/?natstandard_document_id=55886).

<sup>6</sup> [http://www.iss.rs/rs/standard/?natstandard\\_document\\_id=51312](http://www.iss.rs/rs/standard/?natstandard_document_id=51312).



## 2. CONTINUITY OF SUPPLY IN GAS NETWORKS

### a) Regulations and rules

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This chapter provides an overview of the quality of service regulation in the EnC CPs.

In Georgia, the only applicable regulation is the Natural Gas Supply and Consumption Rules, which state that distribution companies should guarantee continuity of supply; indicators and standards are not defined.

In fYR of Macedonia continuity indicators are prescribed in the Gas Supply Rules and Market Monitoring Rulebook. Network operators are obliged to collect and keep data on supply interruptions and duration and report to the regulatory authority on monthly basis. Basic principles on continuity of supply are also defined in the primary legislation.

In Moldova, quality of services is defined in the Gas Law including continuity of supply. Based on this, a separate Regulation on quality of gas distribution and transmission services was approved by the regulator, ANRE.

In Bosnia and Herzegovina, detailed obligations are not established in primary legislation. Suppliers and network operators in Republika Srpska report to the relevant regulatory authority in accordance with the Rulebook on Reporting on half annual and annual basis. The transmission and distribution network codes as well as supplier's general conditions of supply (approved by the NRA) also define continuity of supply activities.

The law defines principles of regulation of continuity of gas supply in Serbia and detailed rules are defined in a separate regulation, drafted and adopted by the NRA.

In Ukraine, a regulation on continuity of gas supply is currently not in place

In Italy, the regulator developed quality standards although the primary legislation does not stipulate directly such an obligation of the regulator.

b) Definitions of interruption, incident, accident emergency

Table 3 Definitions of interruptions, incidents and emergency

Described event		Yes	No	Definition
BOSNIA AND HERZEGOVINA	Planned interruption	•		Reporting requirements of network operators and suppliers are defined in the regulator's (RER) Rulebook of Reporting. Reporting requires information about causes and description of interruptions including the number of affected consumers.
	Unplanned interruption	•		
	Gas incident	•		
	Accident	•		
	Emergency	•		
	Planned interruption	•		
FYR OF MACEDONIA	Planned interruption	•		Planned interruptions can occur in the following cases: regular check-ups and maintenance; testing and control measurement; connecting new consumers; reconstruction and expansion works; execution of works on DSO/TSO pipeline upon request of third parties, execution of works by third parties in the protection area of the gas pipeline.
	Unplanned interruption	•		Unplanned interruption is in the cases where the operator was not aware of the reasons for such interruption
	Gas incident		•	
	Accident		•	
	Emergency	•		Crisis situation of the gas system is each event or occurrence due to which the balanced work of the system or part of the system is being obstructed or the gas transmission and supply are interrupted.
GEORGIA	Planned interruption	•		An interruption announced in advance to affected customers.
	Unplanned interruption	•		An interruption, which was not announced in advance to affected customers.
	Gas incident			Force majeure definition in place
	Accident			
	Emergency			

	Described event	Yes	No	Definition
<b>MOLDOVA</b>	Planned interruption	•		An interruption, announced in advance to affected customers, operated by network operator in order to realize some planned works,
	Unplanned interruption	•		An interruption, operated by network operator for reparation of damages, caused after a gas incident or accident.
	Gas incident	•		failure or deterioration of the technical installations used in the gas network, deviation from the technological process regime, violation of the provisions of normative and technical documents, established by law, regulating the execution of the works in gas networks;
	Accident	•		deterioration, destruction of buildings and / or technical installations used in the gas network, spontaneous deflagrations of flammable substances;
	Emergency		•	
<b>SERBIA</b>	Planned interruption	•		Interruption that started and ended as envisaged and announced
	Unplanned interruption	•		Interruption that was not planned, or planned but did not start or end as planned
	Gas incident		•	
	Accident		•	
	Emergency		•	
<b>UKRAINE</b>	Planned interruption		•	
	Unplanned interruption		•	
	Gas incident		•	
	Accident		•	
	Emergency		•	

Described event		Yes	No	Definition
ITALY	Planned interruption	•		Is the interruption communicated to all final customers involved with a notice of at least three working days
	Unplanned interruption	•		Is the interruption that does not fall into the definition of interruption with notice
	Gas incident	•		An event involving gas distributed through networks that interests any part of the distribution system and / or end-user facilities, including use equipment, causing death or serious injury to persons or damage to things for a value of not less than 5,000 euro in the event of a loss in the distribution network and not less than 1,000 euro in case of occurrences in the plants of the final customers and which is caused by one of the following causes: (A) a gas dispersion (whether voluntary or not); (B) uncontrolled combustion in a gas appliance; (C) bad combustion in a gas appliance, including inadequate ventilation; D) inadequate ventilation of premises; (E) inadequate evacuation of combustion products from a gas appliance.
	Accident		•	
	Emergency	•		An event that can produce serious and / or large-scale effects for security and continuity of the distribution service and which causes one or more of the following conditions: (A) unplanned delivery of delivery points or interconnection points; (B) unscheduled out of service of AP or MP or BP networks causing the gas disruption without notice to one or more final customers; (C) disruption of gas delivery without prior notice of gas delivery to one or more final customers; D) disruption caused by excess or pressure drop in mesh compared to the values set out in the current technical standards. Emergency is also defined as any event causing the gas dissipation without notice to at least 250 final customers and for which the gas delivery will not be reactivated to all final customers involved within 24 hours of the start of the gas, Interruption, excluding end customers that are not reactivated at the time of the first attempt to reactivate.

### c) Recording of interruptions and events

**Table 4 Requirements for recording interruptions**

		Georgia	Macedonia	Moldova	Bosnia and Herzegovina	Serbia	Ukraine	Italy
Incident (accidents, interruptions etc) classification	DSO responsibility	•	•	•	•	•		•
	Force majeure	•	•	•	•	•		•
	Exceptional events		•	•	•			•
	Third parties		•	•	•	•		•
	Due to customers installations		•	•	•			•
	Other					•		
Recording of interruptions causes	Planned	•	•	•	•	•		•
	Unplanned	•	•	•	•	•		•
	DSO responsibility	•	•	•	•	•		•
	Force majeure	•	•	•	•	•		•
	Exceptional events		•	•	•			•
	Third parties	•	•	•	•	•		•
	Due to customers installations	•	•	•	•			•
	Other					•		

Most of the EnC CPs use similar classification of interruption events occurring in the distribution networks as well as a similar mode of recording the interruptions. Only Ukraine reported that no classification is used and no rules for recording of events are applied.

According to the Italian regulator, the distribution company records the causes of interruptions with reference to:

(A) causes of force majeure, as acts of public authority, exceptional natural events for which the state of calamity has been declared by the competent authority, strikes, failure to obtain authorizations;

(B) external causes, intended as damages caused by third parties, gas accident, for facts not attributable to the distribution company;

(C) other causes, understood as all the other causes not mentioned in (A) and (B) above, including unspecified causes.

A similar approach is in place in Georgia – exceptional events and force majeure events are classified under the same group.

#### d) Continuity indicators

In some countries, indicators such as SAIDI,<sup>7</sup> SAIFI<sup>8</sup> and CAIDI<sup>9</sup> are used to evaluate the continuity of gas supply for network operators. The indicators are similar to those used for evaluation of continuity in the electricity systems and are calculated as follows:<sup>10</sup>

The frequency of interruptions (SAIFI)

$$\text{SAIFI} = \frac{\sum_{i=1}^n C_i}{C_{tot}}$$

where the summation is extended to all the n interruptions that occurred in the solar year, and where:

- $C_i$  is the number of final customers involved in the above breakdown;
- $C_{tot}$  is the total number of final customers served by the distribution company at the end of the solar year.

The total duration of interruption for the system (SAIDI) is defined by the following formula

$$\text{SAIDI} = \frac{\sum_{i=1}^n C_i \cdot t_i}{C_{tot}}$$

where the summation is extended to all the n interruptions that occurred in the solar year and where:

- $C_i$  is the number of final customers involved in the above breakdown;
- $t_i$  is the corresponding term of interruption for  $C_i$  customers;
- $C_{tot}$  is the total number of final customers served by the distribution company at the end of the solar year.

Distribution companies could calculate the SAIFI indicator for all interruptions or separately for planned and unplanned interruptions.

Another indicator which can be used is CAIDI which is calculated using the formula:

$$\text{CAIDI} = \frac{\text{SAIDI}}{\text{SAIFI}}$$

According to reported data, three EnC CPs calculate continuity indicators for gas distribution service. The Georgian NRA began to monitor these indicators as of 2017. The Serbian NRA calculates the indicators separately for planned and unplanned interruptions<sup>11</sup>:

- Planned: SAIDI=44.49 minutes/customer; SAIFI =0.12;

<sup>7</sup> System average interruption duration index.

<sup>8</sup> System average interruption frequency index.

<sup>9</sup> Customer average interruption duration index.

<sup>10</sup> <https://www.ceer.eu/documents/104400/-/-/0261ad33-6b06-f708-354b-5adf04683129>

<sup>11</sup> Data for 2017

- Unplanned: SAIDI= 10.92 minutes/customer; SAIFI = 0.06;

SAIDI and SAIFI are also monitored in Bosnia and Herzegovina- Republika Srpska and in Italy.

**Table 5 Continuity of gas supply indicators**

	Georgia	fYR of Macedonia	Moldova	Bosnia and Herzegovina	Serbia	Ukraine	Italy
<b>General continuity indicators</b>							
SAIDI	•			•	•		•
SAIFI	•			•	•		•
CAIDI							
<b>Guaranteed continuity indicators</b>							
Number of interruptions for a single customer				•			
Duration of interruption for a single customer			•	•			
<b>Penalties and compensations</b>							
for general indexes							
for guaranteed indexes			•	•			

An indicator for guaranteed continuity of supply is used in Moldova. According to the Regulation on quality of gas distribution and transmission services, for every final customer the time of an interruption (planned and unplanned) is limited. If the DSO does not comply with the established requirements, the customer is entitled for a compensation.

**Table 6 Requirements for network users notification about interruptions**

Requirements for in advance announcement about the planned interruptions	
<b>Bosnia and Herzegovina</b>	24 hours for DSO and 48 hours for TSO
<b>fYR of Macedonia</b>	7 days
<b>Georgia</b>	Maximum 5 days and minimum 1 day before the interruption
<b>Moldova</b>	3 calendar days
<b>Serbia</b>	5 working days
<b>Ukraine</b>	5 working days
<b>Italy</b>	3 working days

In all analyzed countries, except Ukraine, network operators have the obligation to give an advance notice for planned interruptions.

### 3. GAS QUALITY

#### a) Responsibilities regarding gas quality

Depending on its origin, the composition of natural gas can differ. Gas can be supplied to a country from different sources such as local production, imports via interconnection points with neighboring countries or imports through liquefied natural gas terminals. As a result of the varying supply mixes, each country has its own gas quality standards.<sup>12</sup> This chapter compares different standards across the EnC CPs and the responsibilities of gas market participants related to gas quality.

<sup>12</sup> See as well: ECRB, Gas Quality Standards in the Energy Community (2014 and 2016).



**Table 7 Responsibilities related to gas quality**

	TSO	DSO	Other	Comments
<b>Bosnia and Herzegovina</b>	•	•		In accordance with the General Conditions of Natural Gas Supply (approved by RERS), suppliers are responsible for the quality of gas delivered to final customer. TSO can reject gas of inappropriate quality at the entry point of the transmission network in accordance with Transmission Network Code.
<b>fYR of Macedonia</b>	•	•		The TSO continually controls the chemical content of the gas and gas pressure. DSOs control the gas pressure. Only in the case of <i>Strumica</i> (closed DSO) the DSO is controlling the chemical content of the gas too.
<b>Georgia</b>			•	The quality of gas is measured by the TSO every day at 13 points in the system. TSO and, when appropriate, also DSO should measure the composition of gas. There are no rules regulating TSO/DSO responsibilities in case receiving off-spec gas, the responsibility for gas quality is with the supplier.
<b>Moldova</b>	•	•		The chemical composition of gas is measured continuously at 3 cross-border points of exchange in the transmission system. According to Regulation on Quality, the network operators (TSO and DSO) are responsible for the quality. In practice gas is received from only one source, so DSOs cannot influence the compositions. The responsibility of DSOs is to maintain the pressure at the point of connection of final customers.

	TSO	DSO	Other	Comments
<b>Serbia</b>	•	•		Responsibilities of TSOs and DSOs for gas quality are defined in relevant network codes.
<b>Ukraine</b>	•	•	•	TSO is responsible for gas quality on exit points from gas transmission system. Gas producers are responsible for the quality on entry points to transmission and distribution systems.
<b>Italy</b>	•			The responsibility for gas quality is with the TSO.

From the table above it can be concluded that in all EnC CPs there are some limited responsibilities of distribution and transmission system operators related to gas quality. For countries with no local gas production, the gas quality cannot be influenced in practice, so the responsibilities of TSO are reduced to measuring the gas quality at the entry points to the transmission network. Both transmission and distribution network operators are responsible for maintaining the appropriate value of pressure at the connection points of network users. For the gas quality or for its chemical composition the producer or the supplier who imported gas are responsible.

In Italy, the transmission company normally intercepts the out-of-specification natural gas at entry points of the managed transmission network to check whether the out-specification influences safe use of natural gas by final customers. Moreover, import, LNG, production and storage companies are required to promptly provide written notice to the shippers and to their users on:

- (a) natural gas out of specification;
- (b) natural gas that, even if it is not out of specification, contains elements normally not present in natural gas in quantities that could damage service's users.

#### b) Procedures for handling complaints related to gas quality and relevant compensations

The regulatory authorities were asked if they apply penalties in case the established level of quality is not met by network operators or suppliers. All EnC CPs reported very different approaches in this respect.

In **Georgia**, quality of gas (calorific value), injected into the transmission system is always higher than the minimal quality requirement set by the national regulation. For this reason,

cases of non-compliance never occurred in the recent years. There is no special procedure for handling complaints on gas quality but they would be treated as all other customer complaints.

In **fYR of Macedonia**, if the quality level is not met, transmission and distribution system operators are obliged to undertake infrastructure improvements in order to ensure standard quality of the gas. If a customer complains about gas quality, the DSO/TSO is obliged to measure the quality of the gas within 15 days from the day of complaint submission. A report on the results of the measurement of the gas quality on a consumer metering point is then to be submitted to the supplier within 7 days after the measuring procedures is finalised. Within a period of maximally 7 days, the supplier has to submit this report to the consumer. In case results show that the complaint was unfounded, measurement costs are to be paid by the consumer, otherwise costs will be covered by the operator. If the consumer submits measurement results provided by a company authorized for such measurements, the operator can accept those results or undertake its own measurements of the quality as described above. In case results show that the quality level is not met, the DSO/TSO is obliged to undertake infrastructure improvements in order to ensure standard quality of gas.

**Moldova** uses a set of rules related to gas quality, which are quite similar to those applied in fYR of Macedonia. According to the Law on Natural Gas, ANRE is entitled to apply penalties and/or compensation in case of non-compliance with the required level of gas quality. Regulation on quality of gas distribution and transmission services, approved by ANRE, stipulates the procedure for handling complaints of final customers related to gas quality. The period of examination of a complaint on gas quality is 30 calendar days. Taking into account that gas is practically coming from a single source only, the quality of gas can be confirmed to a customer in a report about the chemical composition of gas issued by the nearest pressure regulating and measurement station. If the customer does not agree with this report, it is possible to take a gas sample from the point of connection of the customer and make a chemical analysis. If the claim is confirmed, the cost of analysis is covered by the network operators, otherwise by the customer. In practice, cases of non-compliance were not registered during the last several years. More cases are though registered related to non-compliance with the pressure level at the connection points. The DSO is obliged to perform measurement of the pressure at the connection point within 5 calendar days from the day of complaint registration. If the claim is confirmed by the measurement, the DSO has to solve the situation and the final customer is entitled to receive a compensation, calculated as 10% of the gas bill for the period when the complaint was registered with the DSO.

In **Bosnia and Herzegovina**, procedures related to gas quality are prescribed by the General Conditions of Natural Gas Supply and Network Codes (approved by RERS). If the quality is not respected, final customers may submit a request to the supplier for extraordinary control of gas quality, which will be done by an independent authority. The final customer pays the amount of measured energy taken from the supplier and the supplier compensates the costs of inappropriate gas quality. Also, if the complaint of the customer is confirmed, the supplier compensates the costs of inappropriate gas quality; again, gas analysis done by independent authority.

In **Serbia** penalties are applied to operators in case the quality is under required level. System users are compensated according to the rules, stipulated in the network codes.

In **Ukraine**, customers are compensated differently, depending on the place where the violation of gas quality occurs. If that happened in the zone of TSO responsibility, compensation is paid according to the transmission contract; if it was a DSO responsibility, compensation is paid according to Gas Distribution System Code. Complaints on quality are handled according to the procedures established by those documents

#### 4. COMMERCIAL QUALITY<sup>13</sup>

Commercial transactions between gas companies and customers are usually classified as follows:

- Pre-contractual transactions, such as information on connection to the network and prices associated with the supply of gas. These actions occur before the supply contract comes into force and incorporate actions by both the DSO and the supplier. Generally, customer rights with regard to such actions are set out in codes (such as Connection Agreements and the General Conditions of Supply Contracts) and are approved by the NRA or other governmental authorities;
- Transactions during the contract period, such as billing, payment arrangements and responses to customers' complaints. These transactions occur regularly like billing and meter readings or occasionally (e.g. when the customer contacts the company with a query or a complaint).

The quality of service during these transactions can be measured by the time the company needs to provide a proper reply. These transactions could relate to the DSO, the supplier/universal supplier (USP) or to the meter operator (MO) and are regulated according to the regulatory framework of the particular country.

In order to simplify the approach indicators related to commercial quality used for the purpose of this report are classified in six groups:

- I. Customer information
- II. Customer care
- III. Access to the grid
- IV. Activation, deactivation, reactivation of supply
- V. Meters
- VI. Invoicing

The table below provides an overview of the commercial quality indicators implemented in the analyzed EnC CPs and Italy.

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<sup>13</sup> The theoretical background and classification of indicators in this chapter stems from the 6th CEER Benchmarking Report on the Quality of Electricity and Gas Supply <https://www.ceer.eu/documents/104400/-/-/0261ad33-6b06-f708-354b-5adf04683129>.

**Table 8 Commercial quality indicators applied by the EnC CPs and Italy**

Commercial quality indicators		Georgia	FYR of Macedonia	Moldova	Bosnia and Herzegovina	Serbia	Ukraine	Italy	Nr. of countries using the indicator
I. Customer information	1.1 Time of response to the customer request and/or complaints	√		√	√	√		√	5
	1.2 Time period between the receipt of the customer request or complaint and the written response of the operator	√		√	√	√	√	√	6
	1.3 Average response time to the customer request or complaint	√	√		√	√		√	5
	1.4 Number of complaints	√	√	√	√	√	√	√	7
	1.5 Percentage of responses to customer complaints and/ or requests in written form within a given time period	√			√	√		√	4
	1.6 Time of availability of a market participant's call centre	√			√	√			3
	<b>Other</b>	√		√			√		3
	1.7 Registering as a subscriber	√							1
	1.8 Time for providing the customer with information on gas content								0
	1.9. Number of planned interruptions, for which the information is provided to all affected customers.	√		√					2
II. Customer care	2.1 Punctuality of market participants regarding appointments with customers			√				√	2
	2.2 The personnel of the Licensee arrives at the customer site within the time range (number of hours) previously agreed with the customer.							√	1
	2.3 The customer is present on the customer site when the personnel of the licensee appears, within the time range (number of hours) previously agreed.				√				1
	2.4 Time limit for market participants/clients to cancel an appointment							√	1
	2.5 Time limit for waiting in customer centers								0
	2.6 Percentage of customers with a waiting time below the limit in customer centers								0
	2.7 Obligation for DSO regarding response time for emergency situations	√		√	√	√	√		5
	<b>Other</b>								
	2.8 Onsite inspection of technical quality of supply on the basis of customer application	√							1
	2.9 Time for pressure and/or gas quality verification on customer written request	√					√		2
III. Access to the grid	3.1 Number of requests for grid access	√	√	√	√	√	√		6
	3.2 The time for issuing a connection permit by network operator	√	√	√	√	√	√		6
	3.3 The number of connection permits, issued in the given time	√	√	√	√	√	√		6
	3.4 The time for connection of a new customer to the network	√	√	√	√	√	√		6
	<b>Other</b>						√		1
	3.5 Submission of the contract for gas distribution signed by DSO on written request of the customer						√		1
	3.6 Delivery of gas to customer network	√					√		2

Commercial quality indicators		Georgia	FYR of Macedonia	Moldova	Bosnia and Herzegovina	Serbia	Ukraine	Italy	Nr. of countries using the indicator
IV. Activation, deactivation, reactivation of supply	<b>4.1 Number of activations of supply/deactivations of supply due to late payment/reactivations of supply after payment (for bad payer previously disconnected) carried out.</b>	√		√	√	√	√	√	6
	4.2 Time of activation of supply following a request	√		√	√	√	√	√	6
	4.3 Time of deactivation of supply following a request	√		√	√	√	√	√	6
	4.4 Time of reactivation of supply after payment (for bad payers previously disconnected)	√		√	√	√	√	√	5
	4.5 Time of disconnection of a customer following deactivation for non-payment					√			1
	Other								
V. Meters	5.1 Number of installed gas meters	√	√	√	√		√		5
	5.2 Number of gas meters not installed in due time	√			√				2
	5.3 Time for meter verification	√		√	√		√	√	5
	5.4 Time of replacement of the meter (when found out of order after verification)	√		√	√	√		√	5
	5.5 Number of network clients who have been informed about meter readings in their absence								0
	5.6 Number of market participants who offer the possibility of online meter data reading (self service)		√						1
	5.7 Number of customers receiving real time meter data						√		1
	5.8 Minimum period of reading the meter			√	√				2
	5.9 Percentage of meter readings made on time				√				1
	Other								0
VI. Invoicing	6.1 Percentage of invoices submitted in due time				√				1
	6.2 Percentage of corrected invoices submitted in due time				√	√			2
	6.3 Time to change provider on customer request		√			√			2
	Other								

## a) Customer information

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### **Bosnia and Herzegovina**

Utilities have to respond within 24 hours to customers' requests or complaints. Also within 24 hours the operator has to present a written answer. According to data from 2016 utilities received 571 complaints and 100% were resolved in the required timeframe.

### **fYR of Macedonia**

In fYR of Macedonia, the indicators 1.3 „Average response time to the customer request or complaint“ and 1.2 „Number of complaints“<sup>14</sup> are reported by the DSOs on monthly basis via the market monitoring system established by the NRA.

### **Georgia**

The regulatory authority of Georgia uses **7 indicators** for monitoring the quality of customers information.

In relation to indicators 1.1 and 1.2 from the table 8, the utility<sup>15</sup> is obliged to provide reasonable answer to a written query and/or react to it no later than **10 working days** after its receipt, by sending a text message in case the request of the customer is satisfied, or an official letter in other cases. The utility is not obliged to answer or react to complaints whose content is not directly related to the activities of the utility. Hereby, the provision of written response to the written request of the customer is not mandatory if appropriate measures have been taken and customer confirms it by signing respective act;

In case the customer's request and/or complaint is declined, the response shall be provided in writing.

For the indicator 1.6 - calls at the call center should be responded within 80 seconds after their registration. In order to meet the standard, **80% of calls should be answered in time.**

In addition to 6 more common indicators, Georgia uses a specific indicator, namely **registration as a subscriber**. This indicator means that the utility is obliged to register a person as a subscriber and ensure its supply no later than **5 days** after receipt of application on registering as a subscriber. This standard applies to the supply of apartment, utility or other unit which is being supplied in accordance with the current legislation.

There are also compensations applied in the amount of 5 GEL<sup>16</sup> for residential customers and 10 GEL for non-residential, in case of non-compliance with the limit value for indicators 1.1, 1.2 and specific indicator 1.7 (5 days for registering as a subscriber).

In case of indicator 1.6 the time of availability of call center, there is a penalty/incentive scheme applied. In case the annual target indicators are improved/worsened, the regulated asset base

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<sup>14</sup> See table 8.

<sup>15</sup> DSO and supplier supplying gas to end customers connected to the distribution network.

<sup>16</sup> Georgian lari, 1 GEL ≈0.32€.

of the company will be increased/ reduced respectively by 0.1 % of regulated asset base for every improved/worsened 1%.<sup>17</sup>

### **Moldova**

The time period between the receipt of the customer request or complaint and the written response of the operator (indicator 1.2) is prescribed by the Law on Petitioning with 30 working days from the date of registering the complaint. A new regulation on gas supply is currently in the process of public consultation, which will include provisions related to customer information and utility responsibilities. Utilities provide general information on customers' requests and complaints, but no penalties or compensations are established for non-compliance with the law.

In case of planned interruptions operators have the obligation to inform all affected customers about the time and duration of the interruption. The minimum percentage i.e. overall standard for this indicator is 95% of all planned interruptions. If this value is not achieved the regulator can apply a penalty by reducing the tariff for distribution service.

### **Serbia**

All 6 indicators mentioned in table 8 are monitored by the Serbian regulator. For most of the indicators the average time of response is monitored.

### **Ukraine**

In Ukraine, a new regulation entered into force in October 2017 that includes indicators 1.2 and 1.4 from table 8. The time for presenting the written answer to a customer is 1 month from the date of registering the request. If the value of the above indicator exceeds this threshold, a compensation is provided to customer as reduction of amount defined in a bill for DSO services.

### **Italy**

Indicators 1.1 – 1.5 for customer information are monitored by the regulator. The time for full reply to written complaints or queries is for the distributor, the time, measured in days, between date of receipt of a customer's written complaint or query relating to the distribution service and the date of notification to the customer of a reply stating the distributor's position (Overall standard: Minimum percentage of full replies to written complaints or queries regarding the distribution service communicated within 30 solar days: 95%).

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<sup>17</sup> Example: standard says that DSO should answer 80% of calls in defined time (80 seconds). If the DSO manages to answer e.g. 85% of calls in time, RAB will be increased by  $(85\%-80\%)*0.1\%$ .



## b) Customer care

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### **Bosnia and Herzegovina**

Indicators 2.3 and 2.7 are partially monitored. In case of indicator 2.3, operator has the obligation to inform the customer 15 days in advance about the onsite verification of gas installation. In case of any emergency situations, the response time of the operator is 24 hours.

### **fYR of Macedonia**

None of the customer care indicators of table 8 are currently measured in fYR of Macedonia

### **Georgia**

The regulator monitors indicator 2.7 - **obligation for DSO regarding response time for emergency situations**. If restoration of supply requires performance of simple works, the DSO is obliged to restore unscheduled outage within **6 hours**. If restoration of supply requires complex works, the DSO is obliged to provide information to the customers within respective area on the reasons of outage and approximate time of restoring supply, within maximum 12 hours, via sources selected by customer (electronically or via message). If the number of customers to whom supply has been interrupted exceeds 2% of customers in the respective self-governing territorial unit<sup>18</sup> but not less than 100 customers, the DSO shall also disseminate relevant information through media within the abovementioned time in accordance with Georgian legislation. In order to meet standards, supply shall be restored to 80% of customers on time.

In case the annual target indicators are improved /worsened, the regulated asset base of the company will be increased/reduced respectively by 0.01 % of regulated asset base for every improved/worsened 1%.

Georgia also uses an additional indicator related to customer care - **onsite inspection of technical quality of supply on the basis of customer application** (2.8). The utility is obliged to ensure onsite inspection of technical quality of supply no later than **5 days** after a customer's application. Hereby, if entering the territory within the ownership of a customer is necessary for providing service, the customer is obliged to allow representatives of the utility to enter. A compensation for non-compliance is in place: 5 GEL<sup>19</sup> for residential and 10<sup>20</sup> GEL for non-residential customers.

### **Moldova**

As mentioned in the chapter 2, in Moldova a clear definition of emergency is not in place. If an unplanned interruption can be considered as emergency, indicator 2.7 is monitored. Operators

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<sup>18</sup> Expression refers to territorial division in Georgia.

<sup>19</sup> Approximately 1.6 EUR (exchange rate in October 2018).

<sup>20</sup> Approximately 3.2 EUR (exchange rate in October 2018).

are obliged to restore gas supply after a gas incident or an accident which caused an unplanned interruption in a time no exceeding:

**36 hours** in case of interruption of up to 100 final customers;

**54 hours** in case of interruption of up to 200 final customers;

**72 hours** in case of interruption of up to 500 final customers;

**120 hours** in case of interruption of more than 500 final customers;

Operators also have the obligation to provide customers with information about unplanned interruption after not more than 6 hours after the interruption was operated (i.e. the valve was closed). An overall standard is established for this – 95% of unplanned interruptions have to be notified to customers in given time, and in case of noncompliance the regulator can apply a penalty.

### **Serbia**

There is an obligation of DSOs to respond to emergency situations which is monitored by the NRA. As quality indicators, the NRA monitors the total number of reported incidents, the number of incidents where DSOs appeared on-site within a timeframe of 1 hour and according to this data the NRA calculates the number of incidents for which DSO's reaction was within the timeframe of 1 hour.

### **Ukraine**

Ukraine does not use common indicators mentioned in table 8 for customer care, but reported about an additional indicator – Time for pressure and/or gas quality verification on customer written request (2.9). In urban territory, this time can be up to 2 working days, in rural territory up to 5 working days. In case of non-compliance, a compensation is to be provided to the customer as reduction of amount defined in a bill for DSO services.

### **Italy**

Italy monitors indicators 2.1, 2.2 and 2.4.

Punctuality of market participants regarding appointments with customers (2.1) is an important indicator and a certain tolerance interval for punctuality at customized appointments is adopted. In case of noncompliance – customer will receive a compensation.

The personnel of the licensee have to arrive at the customer site within the time range, previously agreed with the customer (indicator 2.2). This time range is 2 hours.

Also, the time limit for market participants/clients to cancel an appointment (indicator 2.4), is monitored. This can be done 1 day before the appointment and no compensation is provided.

### c) Access to the grid

The third group of commercial quality indicators, **access to the grid**, is the most implemented set: all EnC CPs as well as Italy use all indicators, provided in table 8 above.

The **time for issuing a connection permit** by network operator differs for different countries:

- **Bosnia and Herzegovina – 15 days** according to the network code.
- **fYR of Macedonia** – according to the DSOs' network codes, the DSOs are obliged to issue connection permits for access to the grid in 20 days after receiving a request for access (in case a request fulfills required criteria).
- **Georgia – 10 working days**. Compensation of 5GEL for residential and 10 GEL for non-residentials is paid by DSOs in case of non-compliance.
- **Moldova – 15 calendar days** for final customers. This time is prescribed by the Law on Natural Gas. The NRA monitors the number of connection permits issued in time and can apply a penalty if less than 95% of connection permits were issued in more than 15 days. In case of gas producers or gas storage operators, the connection permit must be issued in **30 calendar days**.
- **Ukraine – up to 10 working days** after receiving the written permission of the network owner. In case of non-compliance compensation is provided to customers as reduction of amount defined in a bill for DSO services.

The **time for connection of a new customer to the network** (3.4) is treated in different ways in the EnC CPs:

- In **fYR of Macedonia**, according to the network code, the DSO is obliged to issue a decision on access to the DSO grid maximum 10 days after receiving the request, in the case all required criteria are met. According to market monitoring data for 2017, the average time for access to the grid was 8 days.
- In **Georgia** this timeframe is set by the regulator, GNERC, and differs for different types of connections:
  - a) Connection fee will be reduced by 50% if the DSO does not establish connection within the deadline set by GNERC – 40, 45 or 60 days, depending on the capacity requested by the customer;
  - b) Repeated expiration of connection deadline for the connection leads to 100% reduction of the connection fee.
- **Moldova** – the time for connection of a new customer is **4 days** starting from the day of signing the contract. The compensation for non-compliance is 15% from the connection fee after the 4 days term expires and 5% for every next day.
- **Bosnia and Herzegovina** - in accordance with the Distribution Network Code DSO has about approximately **45 days** to finalize connection procedure from the day of submission of customer's connection request (connection procedure includes activities of connection request approval with energy conditions, construction, functional test, signing of supply contract).

- **Serbia** – the time of connection is counted from the day of signing the contract for gas supply. The deadline for connection of a customer is 15 days after the supply contract is signed.
- **Ukraine** - the time for physical connection of a new customer to the network after submission of all necessary documents to DSO is:
  - in urban territory - **up to 10 working days** after submission of the documents to DSO which prove the commissioning of customers networks,
  - in rural territory - **up to 15 working days** after submission of the documents to DSO which prove the commissioning of customers networks.

Besides this, three more indicators are defined:

- Total time for connection of a new customer to the network (from the date of payment for connection until the date of gas delivery to customer) - this time is established in the connection contract.
- Submission of the contract for gas distribution signed by DSO on written request of the customer - up to 10 working days;
- Delivery of the gas to customer network - In urban territory - up to 5 working days, in rural territory - up to 10 working days.

Every time an indicator is violated, the final customer will receive a compensation as reduction of amount defined in a bill for DSO services.

#### d) Activation, deactivation, reactivation of supply

All EnC CPs, except fYR of Macedonia, monitor the number of activations of supply, deactivations of supply due to late payment as well as reactivations of supply after payment (for bad payer previously disconnected) – indicator 4.1 from table 8.

The time for activation, deactivation upon request of a final customer, of reactivation of supply after debts payment are also monitored by all EnC CPs (indicators 4.2, 4.3 and 4.4), and the definitions of these indicators are understood in the same way by all CPs. These indicators are not applied in fYR of Macedonia.

In Serbia, there is a timeframe for activation of connection (15 days) once all requests defined in legislation are met, the deadline for termination of supply due to non- payment is 8 days, and there is a deadline for reactivation of supply (24 hours) after the reasons for deactivation no longer exist; the NRA monitors the average time for the above mentioned actions.

**Table 9 Values of indicators, related to time of activation, deactivation or reactivation of a contract**

	Georgia	fYR of Macedonia	Moldova	Bosnia and Herzegovina	Serbia	Ukraine	Italy
<b>4.2 Time of activation of supply following a request</b>	10 working days	n/a	4 working days	24 h	-	Urban – up to working 2 days; Rural – up to working 5 days	Maximum activation of service time
<b>4.3 Time of deactivation of supply following a request</b>	10 working days	n/a	-	24 h	-	Urban – up to working 5 days; Rural – up to working 10 days	Maximum time for disconnection of service at customer's request
<b>4.4 Time of reactivation of supply after payment (for bad payers previously disconnected)</b>	5 hours	n/a	2 working days	78 h	-	Urban – up to working 2 days; Rural – up to working 5 days	Maximum time for restoration of service following past-due payment

In **Georgia** there is a special procedure for reconnection of a customer upon previous disconnection due to non-payment: the DSO is obliged to restore supply to the customers being disconnected within timeframes not exceeding 5 hours after the payment has been reflected or the customer has submitted a proof of payment or a contract between the utility and customer on covering charges by installments has been signed - to the extent, reflection of payment, proof of payment or agreement on payment took place between 09:00 and 16:00 (14:00 in highland settlements) o'clock. If reflection of payment, proof of payment or agreement on payment took place after 16:00 (14:00 in highland settlements) o'clock restoration of supply shall take place no later than by 12:00 o'clock of upcoming day.

The indicator 4.2 for **Moldova** is the same as indicator 3.4 – connection of the new customer to the grid. That happens because the day of activation/reactivation is considered the day when the customer is physically connected or reconnected to the grid.

In **Serbia** the average time is monitored.

**Ukraine** uses different times for activation/deactivation/reactivation of a contract, depending on the area where the customer is situated.

A different approach is used for **compensation payments** – Georgia uses a fixed amount of compensation (5 GEL for residential and 10 GEL for non-residential), Moldova links the amount of compensation to the value of fee for the service of activation (connection)-reconnection, while in Ukraine compensation is provided to customers as a future payment for DSO services.

Italy provided some explanations related to used definitions:

- **Activation of service time** is the time, measured in working days, between the date of receipt by the distributor of the request for activation of service forwarded by the supplier and actual activation of service (guaranteed standards: maximum activation of service time);
- **Time for disconnection of service** at the consumer's request is the time, measured in working days, between the date of receipt by the distributor of the request for deactivation of service sent by the supplier on the consumer's behalf and the date service is disconnected (guaranteed standards: maximum time for disconnection of service at customer's request).
- **Reactivations of supply after payment** (for bad payer previously disconnected) carried out: Time for restoration of service following past-due payment is the time, measured in solar days, between the date of receipt by the distributor of the restoration of service request forwarded by the supplier and the date on which service is restored (guaranteed standards: maximum time for restoration of service following past-due payment).

#### e) Metering

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In **Bosnia and Herzegovina**, 4807 gas meters are installed. The regulated verification period of meters is 10 years. The minimum period of meter reading is one month.

In **fYR of Macedonia**, the number of installed gas meters (indicator 5.1) and number of market participants who offer the possibility of online meter data reading (indicator 5.6) are monitored via the Market Monitoring System established by the NRA. Companies report on a monthly basis.

**Georgia** – indicators 5.1 to 5.4 from table 8 are monitored.

- The DSO is obliged to ensure meter verification no later than 10 days after customer's application. Hereby, if entering territory in the ownership of customer is necessary for providing services the customer is obliged to allow representatives of the utility to enter the territory within its ownership at time agreed in advance;
- The utility is obliged to replace the meter no later than 10 days after customer's application. Hereby, if entering territory in the ownership of customer is necessary for providing services the customer is obliged to allow representatives of the Utility to enter the territory within its ownership at time agreed in advance;
- For non-compliance with above terms utilities will pay compensations to customers (5 Gel for residential and 10 for non-residential customers).

**Moldova** monitors four indicators from the metering group: 5.1, 5.3, 5.4, 5.8.

- The number of installed gas meters (indicator 5.1) is reported by utilities on a yearly basis as well as the number of meters that must be verified (indicator 5.3) during the next period (year).

Time of verification is monitored too, and based on this data the plan of verification is elaborated.

- The time for replacement of a meter (indicator 5.4) is established in the Regulation of gas supply. The restoration on metering system have to be realized during one month.
- The minimum period of meter reading (5.8) is one month, and the time of reading is not prescribed.

In **Serbia** the number of gas meters is monitored and this number corresponds to the total number of connections. In case of meter replacement (when found out of order after verification), the average time is monitored.

Reporting about the indicator 5.3, i.e. time for meter verification, in **Ukraine** refers to the time needed for an operator to perform the verification after the conclusion of the protocol on meter submission for verification - **10 working days**. If this timing is not respected, the operator has to pay compensation to the final customer.

According to the **Italian** regulator, the time for inspection of the meter (indicator 5.3), set at the consumer's request is the time, measured in working days, between the date of receipt by the distributor of the supplier's confirmation of the meter set inspection request and the date of notification of the inspection report to the supplier (guaranteed standards: Maximum time of meter sets inspected at the customer's request). The time for replacement of the meter (indicator 5.4), is the time, measured in working days, between the date of available report with outcome and the date of the replacement of the meter out of order (Guaranteed standards: Maximum time for replacement of the meter).

It can be concluded that the verification of the meters is understood differently by analyzed countries: in some cases it is related to regular verifications of meters, in another it refers to verifications done on request or upon necessity.

#### f) Invoicing

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In this group of indicators, the application of three indicators was analyzed: percentage of invoices submitted in due time, percentage of corrected invoices submitted in due time and Time to change provider on customer request. The results show that these indicators are used only in limited number of cases.

The indicator 'percentage of invoices submitted in due time' is monitored in **Bosnia and Herzegovina**.

In **Serbia**, the NRA does not monitor due time for issuing or correcting invoices but monitors total number of complaints on issued invoices, number of accepted and rejected complaints on invoicing and monitors the reasons for complaining (inadequate metering, inadequate reading, inadequate energy- related calculations and errors in financial or address- related data). The average time of handling these invoicing complaints is also monitored.

The percentage of corrected invoices submitted in due time is monitored in **Bosnia and Herzegovina and Serbia**.

The indicator 'time to change provider on customer request' is monitored only in **fYR of Macedonia and Serbia**.

EnC CPs or Italy reported no other specific rules or indicators related to invoicing.

## CONCLUSIONS

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**Characteristics of gas networks** in the EnC CPs and Italy differ substantially, in terms of length of transmission and distribution network, number of metering and regulating stations and pressure levels in use. All this **influences the extent and scope of quality of supply regulation**.

Primary legislation in half of the analyzed countries provides the legal background and rules on **continuity of gas supply**. In all of them, except Ukraine, the regulatory authorities monitor in a certain way the occurrence of interruptions and/or relevant continuity of supply indicators. SAIFI and SAIDI indicators are calculated by the NRAs of Georgia, Bosnia and Herzegovina-Republika Srpska, Serbia and Italy. Guaranteed continuity indicators are applied in Moldova and Bosnia and Herzegovina-Republika Srpska where also compensations for customers are provided in case of non-compliance.

The responsibility for **natural gas quality** is set differently in the EnC CPs and Italy. While in some of them, the main responsibility remains with suppliers and producers (Bosnia and Herzegovina-Republika Srpska and Georgia), in most of the analyzed countries TSOs and DSOs also have a substantial role, sometimes even the main role (Italy). Procedures for handling complaints related to gas quality and relevant compensations vary across analyzed countries.

A great number of **commercial quality** indicators is monitored by the EnC CPs especially those related to customer information, access to the grid, (de/re)activation of supply and metering. Limited monitoring is performed with respect to customer care and invoicing. Of course, all these indicators are set and monitored differently, reflecting the specificities of national markets and policies.

Based on the analyses of the present report, it is **recommendable** for the regulatory authorities of the EnC CPs to:

- Broaden the scope of regulating and monitoring quality of supply in gas sector;
- Establish harmonized definitions of quality indicators for the purpose of market monitoring and comparability with other countries;
- Harmonize monitoring processes, techniques and reporting systems for quality of gas supply.