



Energy Community Regulatory Board

**Regulatory treatment of distribution system
losses**

Questionnaire

GWG – TF 2 Regulatory treatment of distribution system
losses

February 2016

TABLE OF CONTENT



1 INTRODUCTION

1.1 Background

The ECRB Gas Working Group (GWG) Work Program 2016¹ foresees the GWG Task Force Regulatory treatment of losses (TF2) to develop a review of practice in EnC countries with regard the treatment of losses that exists on natural gas infrastructure (storage, transmission, distribution), and particularly on distribution systems because of its significance on distribution level. Losses on transmission level are significantly lower and not all countries have storages so these topics are left for further discussion if the regulatory treatment of losses on these systems is also necessary to be surveyed.

1.2 Methodology

Task Force 2 has performed the following:

1. Created a questionnaire to collect information on existing regulatory practices with regard losses on distribution networks.
2. Performed survey on the regulatory practices in relation to determination and treatment of losses determined
3. Evaluated the results of the surveys

The questionnaire was fulfilled by the countries: Austria, Ukraine, Croatia, Poland, Bosnia and Hercegovina, Serbia, Moldova, Georgia. Macedonia did not complete the questionnaire due to low development of distribution network and very few consumer connected to it.



2 METHOD OF DISTRIBUTION USE OF A SYSTEM REGULATION

The regulation method applied in distribution use of a system charge influences the way distribution system losses are treated. For most countries it is cost plus like in Bosnia and Hercegovina, Georgia, Serbia, Ukraine, Austria, while Croatia and Moldova apply revenue cap distribution use of a system regulation. Poland reported that their model of distribution use of a system regulation can be considered as cost of service with elements of revenue cap.

Contracting Party	Cost plus	Revenue cap	Price cap	Other
Bosnia and Herzegovina	yes			
Moldova		yes		
Serbia	yes			
Ukraine	yes			
Georgia	yes			
EU Neighboring Country				
Austria	yes			
Poland				yes
Croatia		yes		



The structure of the prices also differs, but in all of the countries it consists of commodity (energy related) charge. Capacity charge is applied in Serbia (this is not applied for small commercial and household consumers that just have commodity charge), Austria (larger, hourly measured consumers) and Poland (non-household customers pay capacity charge) and standing charge in Austria, Poland and Croatia, or combination thereof. In Poland for instance, the distribution use of a system charge depends on the customer category, and it differs for households (commodity and standing charge) and others pay commodity and capacity. In Croatia according to yearly consumption there are 12 categories of customers that pay for commodity and standing charge. Moldova, Georgia and Ukraine have just commodity based charge but Moldova and Georgia differentiate charges depending on pressure levels.

Contracting Party	Capacity	Commodity	Standing charge	Other
Bosnia and Herzegovina				
Moldova		yes		
Serbia	yes	yes		
Ukraine		yes		
Georgia		yes		
EU Neighboring Country				
Austria	yes	yes	yes	
Poland	yes	yes	yes	
Croatia		yes	yes	

Commented [BT1]: Please provide the answer

Price for end users is often given in different units, some countries have prices defined in cubic meters (Bosnia and Hercegovina, Moldova, Ukraine, Georgia and Serbia) while others refer to energy delivered (Croatia, Poland and Austria). This is important because sometimes different data acquisition procedures can lead to different quantities determined, which can contribute to losses. For instance, in Serbia the measured quantity of cubic meters is used to calculate the energy delivered a customer is being charged. And all of the countries have the same practice regarding the prices units no matter the customer category. i.e. countries do not differentiate between households and non-households customers.



Contracting Party	Cubic meters	Energy delivered
Bosnia and Herzegovina	yes	
Moldova	yes	
Serbia	yes	
Ukraine	yes	
Georgia	yes	
EU Neighboring Country		
Austria		yes
Poland		yes
Croatia		yes

Neither of the countries reported different regime with respect the units used for distribution prices in relation to type of consumers, i.e. if cubic meters are used in a certain country than it is used for both households and non-households customers, and the same goes for energy delivered units, if they are applied they are used for all customers` categories.



3 DISTRIBUTION LOSSES
3.1 COMMERCIAL LOSSES

In most of the countries (aside from Ukraine and Moldova), so called commercial losses are contained in overall losses of the system. It important to know whether these quantities belong to losses approved by the regulator or treated differently. It is also important to know is definition of illegal consumption defined or not and how it is determined.

Contracting Party	Illegal consumption defined in legislation	Illegal consumption part of the losses
Bosnia and Herzegovina	yes	yes
Moldova	yes	no
Serbia	no	yes
Ukraine	yes	no
Georgia	yes	yes
EU Neighboring Country		
Austria	no	yes
Poland	yes	yes
Croatia	yes	yes

3.2 REASONS FOR LOSSES, THEIR STRUCTURE AND QUANTIFICATION

The reasons for losses on distribution networks are very typical for all of the countries. They are usually: pipe leaks, equipment damage, measurement error and illegal consumption (BiH, Poland, Croatia, Ukraine, Georgia, Austria, Serbia). Only Moldova has a methodology that defines different categories of losses, but some of the reasons for losses are as the ones stated by other countries.

Some countries have the information about the losses structure (BiH, Moldova), but the regulator does not ask for them in Bosnia, while others do not have these precise losses structure (Poland,

Commented [BT2]: Check if this is correct in relation to answer to question 7



Croatia, Ukraine, Georgia, Serbia, Austria). It would be useful for others to know where such information exists, in what way it is used. This kind of information about the network losses structure is reported in Moldova where the structure of losses is for the technological losses determined according to formulae and for commercial losses as a percentage of volume.

Commented [BT3]: How precise is this breakdown?

In the procedure of losses determination, some countries like Ukraine apply certain formulae defined by the Ministry, while other calculate the losses as the difference between the quantities entering the system and exiting the system. According to international gas association like American Gas Association the losses are represented by the difference of the quantities available from all of the resources and all of the quantities recorded as traded, quantities necessary for the operation of the system and the needs of the company itself. This difference includes leakages, metering irregularities, variation in pressure/temperature and other variables such as non-coincident metering.

Some countries determine the percentage of losses, some the quantity and some both.

Contracting Party	%	volume
Bosnia and Herzegovina	yes	yes
Moldova		yes
Serbia	yes	yes
Ukraine		yes
Georgia	yes	yes
EU Neighboring Country		
Austria	yes	yes
Poland	yes	
Croatia	yes	

The countries that declared losses can have negative values are Serbia, Poland and Georgia.

Commented [BT4]: What are the reasons? In Georgian case losses are negative because there is no pressure correction. Any other reasons in Serbia and Poland?

Austria, Serbia indicate that almost all metering devices are without (temperature) compensation. Depending on country characteristics, it can have different effect on measured losses.



3.3 PROCUREMENT OF LOSSES

All of the distribution system operators are responsible for procurement the gas for losses

The responsibility for losses procurement is on DSO in all countries (Poland, Bosnia and Hercegovina, Croatia, Ukraine, Georgia, Moldova, Serbia, Austria) but the ownership of the gas which is distributed differs. Gas is owned by the DSO in Georgia and Bosnia and Hercegovina, while it is owned by the system users i.e. suppliers in Ukraine, Moldova, Serbia, Croatia, Austria, Poland.

Quantities for losses procurement are most usually provided for along with other gas quantities, i.e. there are no separate contracts for losses procurement (Poland, Bosnia and Hercegovina, Croatia, Georgia). This leads to further questions and need to determine whether losses procurement is market based or provided for via regulated tariff (most commonly yearly) such as in Moldova, Poland, Croatia.

Prices for losses procurement are determined on monthly basis (Bosnia and Hercegovina) or on a yearly basis (Poland, Croatia, Georgia, Moldova). In Serbia they are determined on a monthly level for the purpose of determination of deviation over previous years' revenues (ex post), and for the purpose of price determination it is determined on a yearly basis ex ante.

They are regulated in Poland, Bosnia and Hercegovina, Croatia, Moldova and competitive in Ukraine, Georgia, Serbia.

In Austria prices for losses procurement can be negotiated or market based, and they are determined at the moment of transaction.

Commented [BT5]: is this for the purpose of price regulation or for determination of deviation over previous revenues or both?

Commented [BT6]: In Georgian case it actually depends on the gas contract. Prices might change either on annual or monthly basis.

Commented [BT7]: Everyone please provide answers to question 25 with separate answers for the purpose of price determination and for the purpose of determination of deviations over previous years' revenues

Commented [BT8]: can you provide the information/explanation to question 25?

4 PRICE DETERMINATION

In price process determination countries use expected and calculated losses.

Contracting Party	Expected	Calculated	Actual
Bosnia and Herzegovina		yes	
Moldova		yes	
Serbia	yes		
Ukraine		yes	



Georgia	yes		yes
EU Neighboring Country			
Austria			yes
Poland	yes		
Croatia	yes		yes

In all of the countries distribution operators are reimbursed for losses via tariff. But not all the costs related to losses are reimbursed, but up to a certain level.

In Moldova just normative losses are reimbursed.

Contracting Party	All costs	Up to a certain level	Actual
Bosnia and Herzegovina			
Moldova		yes	
Serbia		yes	
Ukraine		yes	
Georgia		yes	
EU Neighboring Country			
Austria		yes	
Poland		yes	
Croatia		yes	

Commented [BT9]: the given answer is that the costs related to losses are not reimbursed, than what are they reimbursed via tariff as declared in question 8

The decision on the amount of losses to be recovered is in most of the countries responsibility of the regulator, the only exception is Ukraine where ministry is involved in determination of the methodology how losses are to be determined and what losses are to be approved. Only Bosnia and Hercegovina declared distribution losses are determined by the standard. This implies the responsibility for approval of losses is on regulatory authorities, and consequently the possible



impact on the viability of the distribution system operators it might have if the losses are much higher than approved.

Contracting Party	Ministry	Regulatory authority	Other
Bosnia and Herzegovina			yes
Moldova		yes	
Serbia		yes	
Ukraine	yes		
Georgia		yes	
EU Neighboring Country			
Austria		yes	
Poland		yes	
Croatia		yes	

Commented [BT10]: could you refer to what standard?

All countries that approve losses declared that just losses up to a certain level are considered to be acceptable (Poland 2%, Bosnia and Hercegovina 3%, Croatia 3%, Ukraine, Moldova – just normative losses, Austria 2%, Georgia 2%, but until 2022-2023 there is an exception for companies with higher level of losses).

Some countries deal with the issue of allowed measurement error that can influence the overall losses such as Poland (3%), Austria (2%), Ukraine, Moldova, while in other countries like Bosnia and Hercegovina Croatia, Georgia, there are not documents that deal with this issue. In Serbia this issue is regulated by the regulation about metrology.

Exceptions to approved losses are possible in Croatia and Serbia depending on specific business conditions and characteristics of the distribution system of each operator separately, Georgia (if losses are higher than 2% different approaches are applied), Moldova, while not in Bosnia and Hercegovina, Poland, Ukraine. In Austria they are usually capped to 1%, but in case they are higher, NRA decides on a case by case basis.

Commented [BT11]: check whether referred standard allows for exemptions or not?

Benchmarking techniques are used in the process of allowed losses levels in Bosnia, Serbia, Georgia- based on national data and not in Poland, Croatia, Ukraine, Moldova.



Some countries do not use benchmarking but use data from previous years (Poland, Bosnia and Hercegovina, Croatia, Ukraine, Georgia). Moldova does not use neither benchmarking nor historical data.

Allowed losses are determined for each company separately in Poland, Croatia, Ukraine and Georgia while in Bosnia and Hercegovina there is only one company. This way the companies interests are taken into account and more precisely the costs are reviewed in the process of price determination.

5 TRANSPARENCY, QUALITY OF SUPPLY, TAXATION

Transparency can also be very important in the process of both determination and approval of the losses, because the outcome of these activities influence the prices and economic viability of the distributors, so it is important to have this procedure public if possible. In most of the countries there are documents that describe this procedure (Croatia, Ukraine, Serbia, Georgia, Moldova), but it is for further work to see whether and to what extent this transparency is clear to distribution system operators. There are no documents defining the procedure of determination and approval of losses in Poland.

Most of the countries did not introduce quality of service regulation so there are no special concerns about the network losses with this respect (Poland, BiH, Ukraine, Georgia). Croatia has introduced the quality of supply but there are no limits for common standards determined yet. In Moldova there is also quality of supply introduced, but concerns about the leakages are within the other regulation i.e. technical regulation. It could be useful to see if in the cases where there is quality of service introduced this has led to losses decrease.

Taxation principles for losses are different for instance in BiH, Georgia (allowed losses are excluded from VAT) like in Serbia but not in Poland, Croatia, Ukraine, Moldova.

6 CONCLUSIONS AND RECOMMENDATIONS

Illegal consumption can significantly influence the overall losses, to be explored further since almost all of the countries declare it as a part of distribution losses.

Another issue that influence losses, is whether metering equipment is with or without temperature/pressure corrections. There are different assumptions what should be considered as allowed metering error. Whether it should relate just to the tolerances of how metering device is precise, or to the coincidental reading of the meters at the entrance and exits of the system or whether devices are equipped for corrections. So this issue could be further elaborated.



In cases where information on the precise structure of distribution losses is available to regulatory authorities it could be useful for future work to see it and in what way it is used.

There is different practice in granting the exemptions to approved losses- if there are exemptions in place, there should be clearly defined procedure or preconditions for obtaining the exemption, so DSOs can predict whether there are going to be exemptions with this regard or not.

Another issue to be further analyzed could be the effect of the applied regulation, because it is reasonable to expect that introduction of distribution use of system charge regulation could lead to lower network losses. This particularly could be interesting for the countries that apply incentive based regulation that should lead to higher efficiency.

Commented [BT12]: For the final version we can have a box in section 4 on Georgian case. There is clear definition, who get an exemption for what time period. Or any other country If they have such procedures defined.