DOCUMENT OF
FINAL CONSULTATION

UNDER ART. 26 OF REGULATION EU 2017/460 ESTABLISHING A NETWORK CODE ON HARMONISED TRANSMISSION TARIFF STRUCTURES FOR GAS

Sofia, December 2019

BULGARTRANSGAZ

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BULGARTRANSGAZ

Enclosed:

1. Draft Methodology Determining Prices for Access and Transmission of Natural Gas through the Gas Transmission Networks Owned by Bulgartransgaz EAD

1. OBJECTIVE OF THE DOCUMENT

This document has been prepared by Bulgartransgaz EAD in line with Regulation (EC) No.715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks, Commission Regulation (EU) 2017/460 of 16 March 2017 establishing a network code on harmonised transmission tariff structures for gas and the national regulatory framework, reflected in the Methodology determining prices for access and transmission of natural gas through the gas transmission networks owned by Bulgartransgaz EAD approved with Decision of the Energy and Water Regulatory Commission (EWRC)

In line with Regulation 2017/460 the national regulatory authority or the transmission operator depending on the Decision of the national regulatory authority shall carry out a consultation of the methodology setting the reference price, repeated at least at 5 years.

In line with article 26 of Regulation 2017/460 and EWRC's Decision No.РТПГ-1 of 01.12.2017 the final consultation under the Regulation must be carried out by the operator of the gas transmission system of Bulgaria – Bulgartransgaz EAD.

This document has been developed in the process of preparing a proposal setting the required revenue for a new regulatory period 1 October 2020 – 30 September 2025. Values and parameters indicated in the document are indicative, based on an assessment of pricing elements that may undergo some adjustments in the course of preparing the final proposal.

Simultaneously with the final consultation carried out by Bulgartransgaz EAD in line with article 26 of Regulation 2017/460, EWRC shall carry put a consultation with the national regulatory authorities of all directly connected member states and the relevant stakeholders on discounts, multipliers and seasonal factors in line with article 28 of the Regulation.

Following the public consultation procedure Bulgartransgaz EAD shall publish the received positions from the consultation and a summary thereof.

In line with the requirement of article 26 of Regulation 2017/460 the document has been prepared in Bulgarian and English language, and in case of discrepancy and/or contradiction, the text in Bulgarian language shall prevail.

All stakeholders are invited to express their opinion and make comments on the submitted documents under the consultation by 12.02.2020 to:

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2. SHORT DESCRIPTION OF THE GAS TRANSMISSION SYSTEM, OWNED BY BULGARTRANSGAZ EAD

2.1 Short description

The gas transmission system, owned by Bulgartransgaz EAD and shown on Fig. 1, may be split into the historically arisen national gas transmission network and the gas transmission network for transit transmission that are interconnected and operate as one common gas transmission system. The only gas storage facility in Bulgaria has also been connected to the gas transmission system – the underground gas storage facility Chiren.

Fig.1 Map of the gas transmission system, owned by Bulgartransgaz EAD
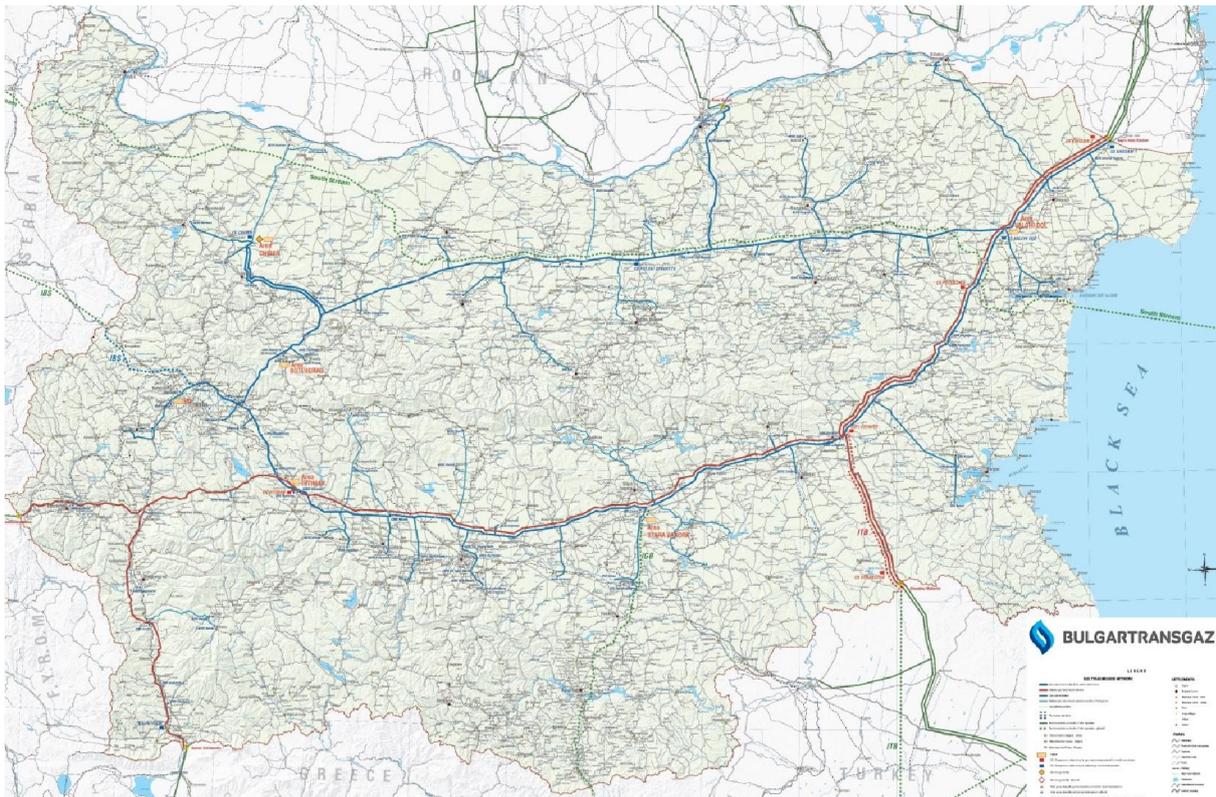
The construction of the gas transmission system started in the 1970s; currently the system includes high pressure gas pipelines with a total length of 2 788 km, 8 compressor stations, 68 gas regulating stations and 25 gas metering stations. The working pressure of the system is up to 5,4 MPa.

The national gas transmission network is ring-shaped with gas branches. A significant number of customers have been connected to the gas transmission network – district heating companies, chemical and other industrial undertakings from different sectors as well as automobile natural gas compression stations. The number of physical points of connection to the gas transmission system of directly linked natural gas customers totals to 240.

The design annual capacity of the national gas transmission network is 78 218 GWh (7,4 bcm), however the total annual domestic consumption had never exceeded 36 995 GWh (3,5 bcm) over the last 20 years.

The gas transmission network for transit transmission has been built as a network, ensuring the transport of natural gas from the Russian Federation through Bulgaria to neighbouring

countries from the Balkan region (the Republic of Turkey, the Hellenic Republic, the Republic of North Macedonia).

The technical capacity of the transit network as currently determined totals to 188 146 GWh (17,8 bcm) on annual basis where part of capacity has been booked by virtue of the existing long-term contract for transit transmission of Russian natural gas, signed in 1998, with a validity term by 2030.

Gas distribution networks of the gas distribution companies licensed by the national regulatory authority have also been connected to the gas transmission system – regional and local. These gas distribution networks are still under development, however despite the continuous growth rate of consumption the share of the household gas supply in the country is low.

Due to a lack of significant local sources the supply covering the domestic consumption of the Bulgarian market is carried out mostly by imports. Currently the main imports are mainly from Russia. Significant quantities have been imported from Greece over the past year. Diversification of supply sources is expected in future.

Locally produced gas is also supplied to the gas transmission network and the relative share of the produced gas against the total consumption in the country for gas year 2018/2019 amount to about 0,55%.

Over gas year 2018/2019 the natural gas quantities transported for customers connected to the gas transmission system total to 31 968 GWh, where at the same time the natural gas quantities transported beyond long-term contracts to cross-border exit points are 1 966 GWh.

A fully automated telemetric system allowing the real time monitoring of the readings of all installed gas metering devices and the technological parameters of the more important technological groups have been built.

The gas transmission system is controlled by a dispatching centre that is linked with the dispatching centres of the operators of transmission systems of the neighbouring countries.

The main parameters of the gas transmission system, owned by Bulgartransgaz EAD, are shown in Table 1.

Table 1. Gas transmission system characteristics

Diameter	Length of gas pipelines, in km.
⌀ 1200	271,52
⌀ 1000	542,14
⌀ 700	951,65
⌀ 500	420,11
⌀ 400	27,04
⌀ 300	166,87
⌀ 250	54,70
Up to ⌀ 200, included	354,35
Total length:	**2 788**

Compressor station	Installed power, in MW
CS Kardam	75,0
CS Provadia	44,0
CS Lozenets	40,3
CS Strandzha	42,0
CS Ihtiman	31,3
CS Petrich	23,3
CS Valchi dol	15,0
CS Polski Senovets	10,0
Total installed power:	**281**

2.2 Structural representation of the gas transmission system, owned by Bulgartransgaz EAD

Fig. 2 shows the structural topography of the gas transmission system. The topology shows the actual system configuration. Separate exit points to natural gas customers in the country are grouped in zones for simplification purposes. Thus, we have the larger national exit zones Sofia, Pleven, Lovech, Ruse, Varna, Burgas, Stara Zagora, Ihtiman and Southwest Bulgaria. Zones are set in a way to indicate the actual path of gas flows in the gas transmission system with a view of providing the appropriate signals depending on the location. This topology has been used when determining the indicative capacity booking reference prices.

Fig. 2 Structural representation of the gas transmission system
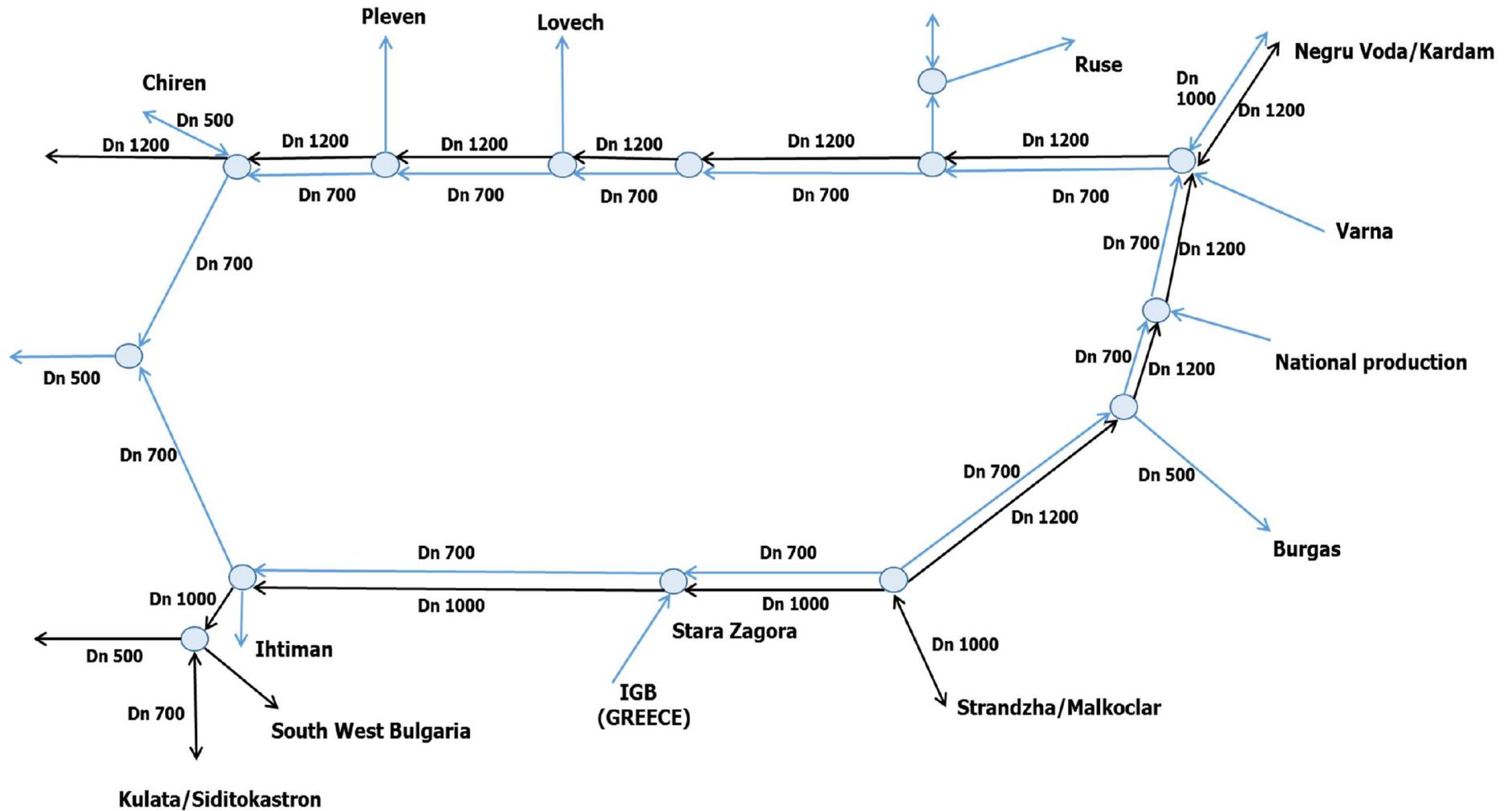
3. PROPOSED METHODOLOGY DETERMINING THE REFERENCE PRICE

Bulgartransgaz EAD currently uses the matrix model to determine the reference price (price of firm capacity product with a duration of one year) and proposes the method to be kept and used in future as well.

3.1 Matrix model

3.1.1 Description of the matrix model

The matrix model calculates reference prices (prices) at entry and exit points of the gas transmission system, property of the company, by determining them in such a way that the sum of prices of each couple of entry and exit point to reflect as correctly as possible the costs determined for gas transport between the two points.

The starting point to calculating prices is the required revenue of the transmission operator allowed by the national regulatory authority for the provision of the transport service out of revenues derived from the execution of long-term fixed price contracts and the determined share of revenues, paid through prices based on booked capacity products.

When doing the calculations, the gas transmission system is split in groups and sections to establish a model. The matrix model presumes that gas may flow from any entry to any exit point.

The calculation of tariffs uses data on the technical capacity at the points and separate sections of the gas transmission system. To allocate costs to the gas transmission system sections and the entry and exit points accordingly, information is used on separate assets that took part in the activity of natural gas transmission.

The adopted matrix method considers the costs for asset replacement to be the key for allocating the required revenue to the network sections, using data on the diameter and length of gas pipelines and power of compressor stations. The technical capacity is assessed for every individual section.

Applying this method, the reference prices are formed from the required revenue, the value of assets in the gas transmission system, system topology, technical and booked capacities at every point.

The sequence of calculations when using the matrix method is the following:

The first step in the calculation is to split the gas transmission system in nodes and sections. Sections are defined as connections between two network nodes with relatively homogenous technical characteristics (diameters, working pressure, etc.). Then unit route costs are determined. They are calculated using the allocation of required revenue, using as key the share of costs needed for the restoration of the specific section in the general costs for the restoration of the gas transmission system. Costs needed for the restoration of a gas pipeline section shall also be added to the costs for the replacement of compressor stations that belong to the section, if any.

The required revenue, allocated to every section, shall be divided by the general value of the peak flow that may flow through this section. Then the unit route costs for the use of this section are calculated, i.e. the costs for the transport of a unit quantity through this section are equal to the unit costs for this section.

Summary route unit costs are deployed in the form of a unit cost matrix. Unit cost matrix has as many lines as are the exit points of the gas transmission system and as many columns as are its entry points. The values in this matrix are the sum of separate unit costs for the different sections of the gas pipeline through which one cubic meter of gas is transported from the respective entry to the respective exit point. Thus, the total unit cost sum, incurred when using the respective transport route is calculated for each of these combinations.

Entry and exit tariffs must reflect as much as possible the values of the unit cost matrix, i.e. the sum of tariffs at a given entry point and the tariff at a given exit point must be as close as possible to the respective value of the unit cost matrix. This is achieved using an optimization algorithm that minimises the sums from the differences of the lowest squares between the values of the unit cost matrix and the sum of the corresponding entry and exit tariffs according to the equation:

$$\text{Minimizing} \qquad \sum_{ij} (C_{ij} - (TN_i + TX_j))^2$$

$$\text{if} \qquad TN_i, TX_j > 0$$

where:

C_{ij} = the amount of unit costs for gas transport from entry i to exit j

TN_i = tariff at entry i

TX_j = tariff at exit j

The revenues that may be generated using these initial results from the multiplying of the reached tariffs and the estimated booked capacities for each entry and exit point can be different from the required revenue covered by the capacity prices. This problem is resolved with the scaling of all tariffs with uniform factor, determined so as to reach the allowed required revenue, covered by the realization of capacity products.

Lastly certain additional limitations can be added to the optimization model:

- Avoidance of zero tariff levels;
- Grouping and price alignment in certain entry and/or exit points and pricing zones;
- Compliance with pre-set ratio of received revenue generated from entry and exit points;
- Determining a discount from tariffs for specific points.

3.1.2 Clarifying the parameters and assumptions used

The proposed matrix method includes the following parameters:

- Structural representation of the gas transmission system for the needs of determining reference prices (see Fig. 2);
- Technical capacity of the individual sections of the system - the technical capacity of the section has been assessed for each of the designated sections. The technical capacity has been assessed taking into account the maximum and minimum sections' operating pressure, length and diameter, as well as the maximum flows generated in

the gas transmission system. Estimate of the technical capacities by entry and exit points of the system for Gas Year 2020/2021 is shown in Table 2;

- Estimate for the booked transmission capacities at entry and exit points of the gas transmission system. The estimate is made on the basis of historical data on the allocated natural gas quantities at the entry and exit points of the system, as well as on the basis of the bookings expected for the period considered. Indicative estimate is show in Table 3. The table shows the estimates for the average annual booked capacity where the estimate for booking short-term products is adjusted to an annual product.

Table 2 Estimate of the technical capacities at entry and exit points of the gas transmission system owned by Bulgartransgaz EAD, in MWh/day

Entry and exit points and zones	2020/2021
Entry points/zones	
Negru Voda/Kardam	837 174
Domestic production	26 002
Ruse/Giurgiu	26 822
Kulata/Sidirokastro	46 491
Strandzha/Malkoclar	577 122
IGB/Stara Zagora	95 130
GMS Chiren	13 330
Exit points/zones	
Negru Voda/Kardam	4 649
Exit zone Bulgaria	256 430
GMS Chiren	11 595
Ruse/Giurgiu	26 373
Kulata/Sidirokastro	117 055
Strandzha/Malkoclar	476 168
Kyustendil/Zhidilovo	27 210
IGB/Stara Zagora	95 130
Kireevo/Zaychar	401 660

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Table 3. Estimate of the booked capacities at entry and exit points of the gas transmission system owned by Bulgartransgaz EAD, in MWh/day

Entry and exit points and zones	2019/2020	2020/2021
Entry points/zones		
Negru Voda/Kardam	24 063	160
National production	6 255	7 998
Ruse/Giurgiu	876	959
Kulata/Sidirokastro	17 733	24 458
Strandzha/Malkoclar		15 666
IGB/Stara Zagora		19 822
GMS Chiren	10 562	11 175
Exit points/zones		
Negru Voda/Kardam	14 577	17 584
Exit zone Bulgaria	110 654	113 173
GMS Chiren	10 936	11 092
Ruse/Giurgiu	3 541	3 197
Kulata/Sidirokastro	2 747	2 398
Strandzha/Malkoclar		-
Kyustendil/Zhidilovo		-
IGB/Stara Zagora		-
Kireevo/Zaychar		15 666

3.1.3 Conditions imposed when determining the prices are as follows:

- Grouping the exit points to national natural gas customers in one exit zone "Bulgaria";

- Grouping the entry points from local natural gas production companies in one entry zone "Domestic Production";

- Allocation of required revenue for revenue received from entry points and revenue received from exit points in a 50/50 ratio;

3.2. Discounts on calculated tariffs for the provision of capacity products for typical entry and exit points.

Considering the positive effect of the availability of a gas storage connected to the gas transmission system owned by Bulgartransgaz EAD on the regulation of the peak natural gas flows passing through the system, as well as on settling the seasonal fluctuations in the natural gas consumption, we propose a discount on the capacity booking tariffs at entry and exit point from/to natural gas storage facilities to the amount of 80% of the calculated tariffs without applying the discounts. Based on these circumstances it could be stated that lower transmission prices at the entry points of the gas storage facilities and at the exit points to the gas storage facilities derive from a more efficient costs allocation.

The discount proposed is in line with Art. 9 of Regulation 2017/460. Discounts for gas transmission system connection points with LNG terminals and infrastructure with the purpose of ending the isolation of Member States is not foreseen as no such entry/exit points are available in the gas transmission system owned by Bulgartransgaz.

3.3 Discounts for the provision of interruptible capacity products

Discounts are determined in line with the requirements of Art. 16 of Regulation 2017/460.

Considering that in during the last Gas Year (2018/2019) no interruption of interconnection points due to physical congestion has been reported, the lack of such in the indicative 2020/2021 gas demand scenarios and the lack of historical data required to calculate the interruption's probability, we propose a discount for Gas Year 2020/2021 to be applied based on the actual measured duration of the interruption (ex-post discount).

When applying ex-post discounts, the prices of interruptible capacity products will be the same as the prices of firm capacity products, and in case of interruption, the users who have booked interruptible capacity will be compensated with a discount determined in accordance with the provisions of Art. 16 (4) of Regulation 2017/460, the value of the discount being equal to the triple price for the daily capacity product, calculated on the real interrupted capacity in accordance with the formula:

$$D = 3 . P_{dp}. C. t \quad , \text{ where}$$

D – discount, BGN;

P_{dp} – price for daily capacity product, BGN/kWh/d;

C – actually interrupted capacity, kWh/h;

t – interruption time, h.

Compensation of the users with this discount will be made when determining the monthly charges for the amounts due for natural gas transmission which is done after the end of the reporting month.

3.4 Indicative Reference Prices

Pursuant to Art. 12 of Regulation 2017/460 the reference price shall be used as a booking price for yearly standard capacity product for firm capacity. Also, the reference price is used to determine the prices of capacity products with a duration other than one year. Prices for non-yearly standard capacity products for firm capacity shall be set in accordance with Chapter III of Regulation 2017/460.

The estimated indicative reference prices for the entry and exit points of the gas transmission system for Gas Year 2020/2021, as a result of the proposed reference price methodology are show in Table 4.

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Table 4 Indicative Reference Prices

Entry/Exit point/zone	Reference price 2019/2020 BGN/kWh/ day/year	Indicative Reference Prices 2020/2021 (BGN/MWh/ day/year)	Change in %
Entry points/zones			
Negru Voda/Kardam	0.1856	0.3146	70%
Domestic production	0.0988	0.1329	35%
Ruse/Giurgiu	0.2907	0.2520	-13%
Kulata/Sidirokastro	0.2884	0.2343	-19%
Strandzha/Malkoclar	0.1444	0.4682	224%
IGB/Stara Zagora		0.1839	
GMS Chiren	0.1050	0.0694	-34%
Exit points/zones			
Negru Voda/Kardam	0.2074	0.1788	-14%
Exit zone Bulgaria	0.3346	0.3293	-2%
GMS Chiren	0.1121	0.0893	-20%
Ruse/Giurgiu	0.3044	0.4084	34%
Kulata/Sidirokastro	0.3861	0.3930	2%
Strandzha/Malkoclar	0.1126	0.4398	291%
Kyustendil/Zhidilovo	0.4843	0.5113	6%
Kireevo/Zaychar		0.5737	70%

3.5 Matrix method assessment

3.5.1 Reproduction of the reference price calculation and forecasting

Network users can calculate indicative average reference prices on the basis of existing data and on the basis of a simplified model enclosed to the documents for this consultation. The necessary revenues as well as other pricing parameters are determined by the regulatory framework, based on a Methodology Determining Prices for Access and Transmission of Natural Gas through the Gas Transmission Networks Owned by Bulgartransgaz EAD.
The required revenues allocated to the capacity booking prices for Gas Year 2020/2021 shall be published on the TSO's website in accordance with Art. 30 of Regulation 2017/460.

3.5.2 Taking into account the actual costs and the gas transmission system's complexity

The gas transmission system of the Republic of Bulgaria is a complex and sensitive to changes regarding the natural gas transmission. Separate and rather large parts of the system serve natural gas customers connected to the gas transmission system, with more than 240 exit points to them.

Although the national gas transmission network and the gas transmission network for transit transmission are interconnected, it cannot be assumed that the whole system is sufficiently developed to be a homogeneous system through which natural gas flows are supplied from different routes in arbitrary volumes.

In this respect, in the case of the Republic of Bulgaria, we consider the matrix method to be an appropriate method for determining the reference price, since it takes into account the geographical distribution of the natural gas flows as well as the actual investments made in the individual elements of the gas transmission system.

Implementing the requirements of Art. 5 of Regulation 2017/460 shows a better result in the matrix method than in the CWD methodology which is an additional argument for its implementation.

All costs included in determining the reference prices in accordance with the matrix method shall be transparent, corresponding to the costs incurred by an efficient and structurally comparable TSO and shall include an economically justified rate of return on the invested capital.

The methodology selected for determining the reference price is proposed to be valid for all entry and exit points of the gas transmission system owned by Bulgartransgaz EAD.

3.5.3. Ensuring non-discrimination and undue cross-subsidisation

The proposed matrix method takes into account the geographical location of the individual entry and exit points, as well as the current topology of the gas transmission system.

The matrix method shows the ratio of the estimated revenues from intra-system and cross-system network use of 1.42, calculated on the basis of Art. 5 of Regulation 2017/460. The estimated share of cross-system network use revenue for Gas Year 2020/2021 is 41.32%. The factor calculated for the cost allocation, related to revenues from transmission services, received through capacity-based tariffs when applying the matrix method is 50.14%. The cost allocation factor when applying the capacity weighted distance (CWD method) is 63.95%.

The matrix method also does not discriminate against domestic users because it takes into account the geographically specified territories and their remoteness from the system's entry points, as well as the areas through which natural gas must reach final customers.

The proposed RPM methodology ensures non-discrimination and prevents cross-subsidization, taking into account the allocation of costs under Art. 5 of Regulation 2017/460.

The inherent cost factors of the proposed RPM methodology are objective and result in fair prices uniformly applied to all gas transmission system users for the same transmission services which defines the chosen RPM methodology as non-discriminatory.

The distribution of natural gas transmission costs through a single RPM methodology for all gas transmission system entry and exit points also defines non-discrimination.

The individual costs, determined by the transmission operator Bulgartransgaz EAD which serve as input parameters for the calculation of reference prices according to the RPM

methodology, are approved by the NRA who limits and prevents the possibility of discrimination.

3.5.4. Risk-taking at cross-system network use

National Regulator and TSO shall strive for sustainable and predictable tariff formation which at the same time reflects the real costs from executing the activity, the market demand for transmission services and the main characteristics of the transmission system.

During the period considered, as well as in the medium term for the gas transmission system owned by Bulgartransgaz EAD, a significant increase of the natural gas volumes transported cross-system is expected which is a prerequisite for a relative preservation of the applied price levels despite the significant investments that the TSO is expected to make. From this point of view, end customers will be prevented from a significant increase in the natural gas transmission tariffs.

3.5.5 To ensure that the resulting reference prices do not distort cross-border trade

The matrix method ensures an appropriate cost allocation between entry/exit interconnection points, so that a single point is not disproportionately costly and at the same time sets reference prices that guarantee competitive levels in the regional natural gas market. Compared to the CWD methodology, the matrix method gives lower reference prices for interconnection points, which further stimulates the development of cross-border trade.

3.6 Cost allocation assessments

In accordance with Art. 5 of Regulation 2017/460, Bulgartransgaz EAD carried out cost allocation assessment in terms of revenues from capacity-based tariffs and an cost allocation assessment in terms of revenues covered by commodity-based tariffs. The cost allocation assessment is based on the indicative prices for gas year 2020/2021 in order to calculate benchmark indices separately in terms of revenues from capacity-based tariffs and in terms of revenues from commodity-based tariffs.

The estimated booked capacity for gas year 2020/2021 was used as a costs driver in evaluation of the revenues from capacity-based tariffs.

The estimated transported natural gas quantities for gas year 2020/2021 were used as a costs driver in evaluation of the revenues covered by commodity-based tariffs.

The results of the calculations are presented in Table 5.

A comparison of the evaluation made in applying the matrix method and evaluation in applying the reference price at capacity weighted distance method (CWD method) are presented in Table 6.

The high levels of the comparative index for capacity-based tariffs are mainly due to the complexity of the gas transmission system owned by Bulgartransgaz EAD. Characterized by a complex topology of two interconnected historically separated networks with various characteristics of the transmission pipelines, different number of compressor stations, as well as a lot of branches of the national gas transmission network, which serves more than 240 points unevenly distributed throughout the country.

A significant difference is also observed in the value of the assets in the different sections of the gas transmission system, which is an input parameter for calculation of the reference prices in the proposed matrix method.

At the same time, the same index calculated in applying the CWD method for setting reference prices is determined at 63.95%

Table 5 Cost allocation assessment

Parameter	Expressed in	Value
Evaluation of costs allocation for capacity-based tariffs (Art. 5, para 1b of Regulation 2017/460)		
Intra system revenue	thousand BGN	45 073
Cross-border revenue	thousand BGN	35 600
Intra-system cost factor	MWh/day/year	164 278
Cross-border cost factor	MWh/day/year	77 735
Intra system ratio		274
Cross-border ratio		458
Comparative index	%	50.14%
Evaluation of costs allocation for commodity-based **tariffs (Art. 5, para 1b of Regulation 2017/460)**		
Intra system revenue	thousand BGN	17 363
Cross-border revenue	thousand BGN	8 367
Intra system cost factor	GWh	53 305
Cross-border cost factor	GWh	25 685
Intra system ratio		0,33
Cross-border ratio		0,33
Comparative index	%	0.00%

3.7 Comparison of the Matrix method with the Method for reference price at capacity weighted distance (CWD)

According to Art. 26 (1) (a) (vi) of Regulation 2017/460, if the transmission system operator chooses a methodology for setting a reference price other than the Methodology for reference price at capacity weighted distance (CWD), the consultation documents should include a comparison of the proposed methodology with the CWD methodology.

Table 6 presents a comparison between the two methods, and Table 7 presents the indicative prices for entry and exit points of the gas transmission system when applying the matrix method and the method at capacity weighted distance for 2020/2021 gas year.

When comparing the indicative prices resulting from applying the two methods, it is observed that the prices at the interconnection points set by the proposed matrix method are lower than those set by the method of capacity weighted distances, which favours the development of cross-border trade in natural gas.

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Table 6 Comparison between the applied Matrix method and the CWD method

	Benchmarks	Matrix method	Capacity Weighted Distance Methodology
A	**Input parameters**		
1.	Allowed revenue allocated for each point	Yes	Yes
2.	Evaluation of capacity booking	Yes	Yes
3.	Distance between individual points of the transmission system	Yes	Yes
4.	Ratio of the allocation of the required revenues covered by capacity booking tariffs by entry and exit points	50/50	50/50
B	**under Art. 7 of Regulation 2017/460**		
1.	The Methodology should enable network users to reproduce the calculation of the reference prices and their estimated values	Yes	Yes
2.	The Methodology shall take into account the actual costs incurred in providing transmission services, considering the degree of complexity of the transmission system	Yes	No
3.	The Methodology ensures that there is no discrimination and prevents illegal cross-subsidization, also by taking into account the evaluations of the cost allocation referred to in Art. 5 of Regulation 2017/460	Yes	Yes
4.	The Methodology ensures that the end customers within a given entry-exit system are not significantly exposed to the risk associated with transport through that entry-exit system.	Yes	Yes
5.	The Methodology should ensure that the resulting reference prices do not distort cross-border trade	Yes	Yes
Entry	**(Art. 5, para 1a of Regulation 2017/460) Cost allocation assessment for capacity**		
1.	Intra system revenue, BGN thousand	45 073	39 287
2.	Cross-border revenue, BGN thousand	35 600	36 066
3.	Intra system cost factor, MWh/day/year	164 278	164 278
4.	Cross-border cost factor, MWh/day/year	77 735	77 735

	Benchmarks	Matrix method	Capacity Weighted Distance Methodology
5.	Intra system ratio	274	239
6.	Cross-border ratio	458	464
7.	Comparative index, %	50.14%	63.95%
year	**(Art. 5, para 1b of Regulation 2017/460) Cost allocation assessment for transmission**		
1.	Intra system revenue, BGN thousand	17 363	17 363
2.	Cross-border, revenue, BGN thousand	8 367	8 367
3.	Intra system cost factor, GWh	53 305	53 305
4.	Cross-border cost factor, GWh	25 685	25 685
5.	Intra system ratio	0,326	0,326
6.	Cross-border ratio	0,326	0,326
7.	Comparative index	0,00%	0,00%

Table 7 Comparison of the resulting indicative tariffs for 2020/2021 gas year

Entry/exit point	Matrix method (BGN/kWh/day/year)	Methodology capacity weighted distance (BGN/kWh/day/year)	Difference
Entry points/zones			
Negru Voda/Kardam	0,3146	0,3866	19%
Domestic production	0,1329	0,3156	58%
Ruse/Giurgiu	0,2520	0,3791	34%
Kulata/Sidirokastro	0,2343	0,5847	60%
Strandzha/Malkoclar	0,4682	0,4180	-12%
Interconnector IGB/Stara Zagora	0,1839	0,3643	50%
GMS Chiren	0,0694	0,0822	16%
Exit points/zones			
Negru Voda/Kardam	0,2014	0,2069	3%
Exit zone Bulgaria	0,3413	0,1557	-119%
GMS Chiren	0,0573	0,0552	-4%
Ruse/Giurgiu	0,2083	0,2047	-2%
Kulata/Sidirokastro	0,4129	0,2214	-86%
Strandzha/Malkoclar	0,3080	N/A	N/A
Kyustendil/Zhidilovo	0,3801	N/A	N/A
Kireevo/Zaychar	0,5869	0,3662	-60%

4. REVENUES' STRUCTURE OF THE TRANSMISSION OPERATOR

This section provides indicative information on the estimated revenue structure of the gas transmission system operator for the first year of the new regulatory period 1 October 2020 - 30 September 2025 in accordance with the applicable Methodology determining prices for access and transmission of natural gas through the gas transmission system, owned by Bulgartransgaz EAD (Methodology) and the parameters proposed in this consultation. It should be noted that the revenues covered by applying the entry-exit tariff system are derived from and are determined as a difference between the required annual revenues of the operator and the revenues derived from the execution of long-term fixed price contracts.

According to the Methodology, the revenues from applying floating prices based on an entry-exit tariff system are collected from the fees charged for transported natural gas quantities (commodity-based tariffs) and revenues from applying capacity-based prices (capacity-based tariffs).

In view of the smooth transition from prices entirely based on transported natural gas quantities towards prices for realization of capacity products (until 1 October 2017, the prices applied by the gas transmission operator were entirely based on the transported natural gas quantities) and taking into account the opinions expressed by Users of the gas transmission system and stakeholders in the course of the discussions on the results of the implementation of the new entry-exit tariff model, we offer during the new regulatory period (2020-2024) the prices based on transported natural gas quantities to have the following structure:

- Common component of the commodity based price covers 15% of the required revenue paid by applying the entry-exit tariff system .
- Technological component of the commodity-based price covers technological operating costs directly dependent on the transported natural gas quantities.

In accordance with Regulation 2017/460, the ratio of the revenue derived from the price based on transported natural gas quantities is 50/50.

The structure of the indicative revenue, as well as the proposed ratios are presented in Table 8.

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Table 8 Revenues structure

Revenues	Expressed in	Value
Required revenues	thousand BGN	363 110
Revenues from provided natural gas transmission services	thousand BGN	363 110
Revenues covered by long-term fixed price contracts	thousand BGN	256 708
Required revenues covered by an entry-exit tariff system	thousand BGN	106 403
Revenues covered by commodity based tariffs, including	thousand BGN	25 730
Revenues covered by a common component of the commodity based tariff	thousand BGN	15 960
Revenues covered by the technological component of the commodity based tariff	thousand BGN	9 770
Revenues covered by capacity-based tariffs	thousand BGN	80 673
Ratio of the revenues derived from commodity based tariffs and capacity-based tariffs		15/85
Ratio of the revenues derived from capacity-based tarrifs from entry points and exit points of the gas transmission system		50/50
Ratio of the revenues derived from commodity based tariffs from entry and exit points of the gas transmission system		50/50

5. INFORMATION ON COMMODITY BASED TARIFFS AND TARIFFS NOT DIRECTLY RELATED TO NATURAL GAS TRANSMISSION

5.1. Setting commodity based tariffs

In accordance with the proposed tariff methodology, the tariffs imposed for transported natural gas quantities are determined as follows:

The total costs of providing natural gas transmission services out of revenues covered by long-term fixed price contracts, are divided, based on their direct dependence on the transported gas quantities, to fixed costs and variable costs.

15% from them are set for payment through the commodity based tariffs. These tariffs include also all variable costs grouped into a separate tariff component - the technological component.

The reported variable costs are: fuel gas costs for compressor stations, natural gas costs related to the transmission technology, electricity costs for operating compressor stations powered by electricity.

In accordance with Art. 4 (3)(a)(ii) of Regulation 2017/460, commodity-based tariffs are the same for all entry and exit points.

Estimated quantities natural gas allocated at entry and exit points and the estimated flow direction for Gas Year 2020/2021 are presented in Table 9.

Table 9. Estimated quantities allocated at entry and exit points and estimated predominant flow direction

Entry/Exit point/zone	Estimated quantities GWh	Flow direction
Entry points/zones		
Negru Voda/Kardam	53	reverse
Domestic production	2 093	forward
Ruse/Giurgiu	317	reverse
Kulata/Sidirokastro	8 086	reverse
Strandzha/Malkoclar	5 179	forward
Interconnector IGB/Stara Zagora	6 553	forward
GMS Chiren	3 964	forward/reverse
Exit points/zones		
Negru Voda/Kardam	5 814	forward
Exit zone Bulgaria	35 938	forward
GMS Chiren	3 964	forward/reverse
Ruse/Giurgiu	1 057	forward
Kulata/Sidirokastro	792,8	forward
Zajecar	5 179	forward

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5.2 Indicative tariffs based on transported natural gas quantities

Estimated indicative commodity based tariffs for Gas Year 2020/2021 are as follows:

Commodity based tariff 0,00032574 BGN/kWh, including:

- Natural gas transmission component to the amount of 0,00020206 BGN/kWh
- Technological component to the amount of 0,00012368 BGN/kWh

5.3 Determining tariffs which are not related to the natural gas transmission

In addition, a tariff has been set to cover the costs incurred in connection with the public obligations imposed by the Government of the Republic of Bulgaria (obligations related to security of supply) which are imposed only at national exit points to natural gas users on the basis of the transported natural gas quantities. The revenues collected from this tariff shall be determined by the TSO's costs for the fulfilment of the imposed obligations and shall not be related to the required revenues determined for fulfilment of the obligations under the issued licenses for the natural gas transmission activity.

Indicative value of this tariff for Gas Year 2020/2021 is 0,0000956 BGN/kWh.

6. MULTIPLIERS, SEASONAL FACTORS AND DISCOUNTS FOR SPECIFIC POINTS FROM THE GAS TRANSMISSION SYSTEM

The information provided is in connection with the requirement of Art. 28(1) of Regulation 2017/460 for consultations on discounts, multipliers and seasonal factors and the discounts under Art. 9 and Art. 4 of the Regulation with the regulatory authorities of neighbouring Member States and all interested parties. Such consultation shall be hold by the regulatory authority (Energy and Water Regulatory Commission) for every price period.

6.1 Multipliers

RPM determines the tariffs for booking capacity products by calculating reference prices for yearly standard capacity products. For such products, the reference price is used as a booking price while other prices for booking short-term standard capacity products are calculated by applying multipliers and seasonal factors to the reference price calculated for the respective point and flow direction.

The gas transmission system is designed and carries the cost of a capacity transmission system ready to meet the peak consumption levels under maximum load conditions. Most of the time, the gas transmission system is used under medium load conditions.

From this point of view, the multipliers are applied to short-term product prices, enabling to increase the contribution into the collected revenue of network users for whom natural gas is transported during periods of high demand at the expense of network users with consistent consumption.

When determining the value of the multipliers, it is important to take into account the balance between efficient use of the network and revenue collection by the TSO. Low multiplier values encourage network users to book short-term products, smoothing their capacity booking profile, while high multiplier values encourage long-term product booking (yearly and products lasting more than one year).

When determining the level of multipliers, it is necessary to take into account some of the following aspects, in accordance with Art. 28(3a) of Regulation 2017/460:

- balance between facilitating short-term gas trade and providing long-term signals for efficient investment in the transmission system;
- the impact of the selected values on the capacity based natural gas transmission services revenue and its recovery;
- the need to avoid cross-subsidisation between network users and to enhance cost-reflectivity of real costs in the reference prices;
- situations of physical and contractual congestion;
- the impact on cross-border flows.

Considering the complexity of the gas transmission system in Bulgaria and the strive to guarantee non-discriminatory access and to eliminate the cross-subsidisation, we propose to use the same multipliers and seasonal factors at IP's and all other points.

Proposed multipliers for gas year 2020/2021 are shown in Table 10

Table 10 Multipliers used to determine the short-term products prices

Capacity products	Quarterly	Monthly	Daily	Within-day
Multipliers	1.3	1.4	2	2.5

6.2 Seasonal factors

Seasonal factors shall apply to form the prices for short-term capacity products taking into account the seasonality of natural gas flows over the year. The aim of applying seasonal factors is to stimulate the network users to use the gas transmission system during the low demand season (summer) providing efficient use of the transmission system. Thus, the aim is mitigating the risk from gas transmission overloading during high natural gas demand, avoiding the need of additional investments to increase the cross-system capacity of the transmission system.

Calculating the proposed seasonal factors is based on monthly average estimate of natural gas transported quantities for Gas Year 2020/2021 in line with Art. 15 (2-6) of Regulation 2017/460.

Table 11 shows the proposed values of seasonal factors. Final price-setting coefficients for short-term products are shown in Table 12

Table 11 Values of seasonal factors by months

Seasonal factors	Quarterly	Monthly/Daily/With in-day
October	1.13	0.86
November		1.11
December		1.42
January	1.27	1.48
February		1.28
March		1.03
April	0.87	0.95
May		0.88
June		0.79
June	0.73	0.70
August		0.68
September		0.82

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Table 12. Final price-setting coefficients for short-term capacity products

Month	Quarterly	Monthly	Daily	Within-day
October		1.21	1.73	2.16
November	1.47	1.55	2.22	2.78
December		1.99	2.85	3.56
January		2.07	2.96	3.71
February	1.64	1.79	2.56	3.20
March		1.45	2.07	2.58
April		1.33	1.89	2.37
May	1.13	1.23	1.75	2.19
June		1.11	1.58	1.98
June		0.98	1.39	1.74
August	0.95	0.95	1.36	1.69
September		1.15	1.64	2.05
Average value	**1.30**	**1.40**	**2.00**	**2.50**