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EXPLANATORY NOTE TO THE
AGENCY REPORT - ANALYSIS OF THE CONSULTATION DOCUMENT ON THE
GAS TRANSMISSION TARIFF STRUCTURE FOR BULGARIA

This Agency’s Report is based on the TSO’s (Bulgartransgaz) final consultation¹ on the reference price methodology (‘RPM’). There has been contradictory information on the intermediate or final status of this consultation, which has led to a significant delay in the publication of the Agency’s report and a potential breach of the legal obligations by the Bulgarian NRA (Energy and Water Regulatory Commission - ‘EWRC’).

According to the initial NRA’s communication² to the Agency, the consultation carried out by the TSO was the final consultation pursuant to Article 26(1) of the NC TAR³. The Agency was ready to publish its Report by the legal deadline of 12 April 2020⁴.

Prior to the deadline for the publication of the Agency’s report analysing the consultation, EWRC revealed that a subsequent final consultation would take place, as mandated by national Bulgarian law. EWRC was responsible for carrying out this final consultation⁵.

The Agency therefore halted the publication of its Report, based on the information that the TSO’s consultation would not be the final one. The Agency prepared to re-work a new Report, based on the NRA’s final consultation, from September 2020 (expected date of the conclusion of the NRA’s final consultation), and to publish it by November 2020 to comply with the two month deadline foreseen in Article 27(3) of the NC TAR.

Despite the above timeline communicated to the Agency by the NRA, and despite the various requests to the NRA for updates on the progress of its final consultation, the Agency did not receive any information from the Bulgarian NRA until the end of August. At this time, the NRA informed the Agency that it had already approved the RPM methodology on 16 August⁶.

According to the information shared with the Agency, the process to consult the tariff RPM has followed a mix of EU and national obligations, and it is ultimately not compliant with the NC TAR requirements. Regrettably, the information provided by EWRC during the process was contradicting its actions: the Agency had not been notified of the start of the final NRA consultation, nor of the related responses received, as required by Article 27(1) and 26(3) of the NC TAR. Not being aware of the launching of the final consultation, the Agency did not conclude its analysis nor publish its related report. In its final communication, the NRA indicated that the TSO consultation should be seen as final under the NC TAR.

Following these exchanges, the Agency is now publishing its Report, which analyses the initial consultation launched by the TSO. In doing so, the Agency complies with its obligation laid

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¹ Open from 12 December 2019 to 12 February 2020.
² By email, in February 2019.
³ Article 27(2) of Commission Regulation (EU) 2017/460 of 16 March 2017 establishing a Network Code on Harmonised Transmission Tariff Structures for Gas (‘NC TAR’).
⁴ The Agency shared its final draft Report with EWRC and the TSO Bulgartransgaz, for information and checks of factual errors, on 31 March 2020. The intended and agreed publication date had been set for 8 April 2020, ahead of the legal deadline.
⁵ The NRA confirmed this with official letters dated 9 April and 8 May 2020.
⁶ EWRC confirmed this with official letter on 24 November 2020.
out in Article 27(3) of the NC TAR, aiming at providing transparency to stakeholders. EWRC stated that the RPM methodology finally adopted does not differ substantially from that consulted by the TSO and analysed in the Agency’s Report. The Agency has not been able to verify this claim.

The Agency recommends that EWRC undertake the subsequent RPM public consultations in compliance with the requirements laid out in the NC TAR, that are intended to provide transparency and clarity to stakeholders and to the Agency.
Agency Report

Analysis of the Consultation Document on the Gas Transmission Tariff Structure for Bulgaria

NRA: Energy and Water Regulatory Commission (EWRC)
TSO: Bulgartransgaz

15 December 2020
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1. ACER conclusion

(1) The Transmission System Operator (‘TSO’) Bulgartransgaz proposes a matrix Reference Price Methodology (‘RPM’) with a 50/50 entry-exit split. Transmission tariffs to and from the storage facility are 80% discounted. Furthermore, the TSO proposes to apply two commodity-based transmission tariffs and no non-transmission tariffs.

(2) The Agency, after having completed the analysis of the consultation document pursuant to Article 27(2) of Commission Regulation (EU) 2017/460 of 16 March 2017 establishing a Network Code on Harmonised Transmission Tariff Structures for Gas (‘NC TAR’), concludes that:

- As reported in Table 1, the consultation document does not contain most of the required information listed in Article 26(1) of the NC TAR: most importantly, the values of the parameters used as input in the matrix RPM are missing;
- The consultation document is published in English, but does not include the detailed analytical assumptions allowing the Agency to assess the RPM;
- The simplified tariff model is not compliant with the requirements of Article 30(2)(b) of the NC TAR because it does not report the reference prices for the relevant points, nor the capacities, nor does it allow to insert and modify them;
- Network users would not be able to reproduce and forecast the reference prices using the information present in the tariff model and the consultation document;
- Long-term contracts are excluded from the RPM: as a result, the proposed RPM covers only 29% of the allowed revenue.
- The cost-reflectivity of the RPM cannot be assessed, given the lack of sufficient information. Although in principle the chosen cost drivers are correct, their values and interactions to derive the reference prices are not presented transparently.
- The adjustments applied are allowed by the NC TAR, but their effects on the reference prices cannot be derived from the public consultation;
- The comparison with the capacity weighted distance (‘CWD’) shows that the matrix methodology gives a lower (thus better) cost allocation assessment (‘CAA’);
- The consultation document does not include sufficient evidence to properly assess cross-subsidisation and non-discrimination, yet:
  - i. The CAA is 50%, showing high cross-subsidisation between cross-system and intra-system users, which is neither thoroughly explained nor justified;
  - ii. Based on the information available, the treatment of long-term contracts is likely to create discrimination between users of these contracts and other users.
- Volume risk may exist, since 41% of the transported gas volumes are transited to other transmission systems;
- The proposed RPM may distort cross-border trade given the high CAA ratio and the existence and treatment of long-term contracts;
- The application of a common component for the commodity charge, not based on the costs related to the quantity of gas flown, is not transparent and excessive, and should phase out towards the end of the regulatory period;
An additional SoS charge is levied at domestic exit points, according to a government decision;

(3) The Agency recommends the NRA in its final decision to:

- Verify that the conditions to exclude long-term contacts from the RPM, as described in Article 35 of NC TAR, are satisfied;
- Provide complete analytical evidence on the inputs to the matrix RPM and its calculations to derive the tariffs, as described in paragraph (51), so to allow a better assessment of:
  - Overall cost-reflectivity and the application of adjustments to the RPM;
  - Non-discrimination and undue cross-subsidisation;
  - Volume risk;
  - Cross-border trade.

In doing so, the NRA shall take special care to clarify the interaction of long-term contracts with the RPM and how the related choices impact the compliance with the requirements set out in Article 7 of the NC TAR.

- Provide network users with a simplified tariff model that allows them to reproduce and forecast the tariffs;
- Provide a sufficient level of detail to allow a proper comparison of the proposed matrix RPM and the counterfactual CWD RPM;
- Explain the reasons of the tariffs changes in a more substantiated quantitative way;
- Provide higher transparency on the common component of the commodity charge and a clear decreasing path so that commodity charges mainly cover the costs directly related to the quantity of gas flown.
- Allocate the SoS costs as non-transmission services, so that the resulting tariffs are subject to the requirements for non-transmission tariffs, thus providing more transparency to stakeholders.
2. Introduction

Commission Regulation (EU) 2017/460 of 16 March 2017 establishes a network code on harmonised transmission tariff structures for gas ('NC TAR').

Article 27 of the NC TAR requires the Agency to analyse the consultation documents on the reference price methodologies for all entry-exit systems⁴. This Report presents the Agency’s analysis for the transmission system of Bulgaria.

On 12 December 2019, Bulgartransgaz launched the public consultation and forwarded it to the Agency. On 12 February 2020, the public consultation closed. On 11 March 2020, Bulgartransgaz published the response to the public consultation and its summary in English. The Agency notices that only one respondent replied to the public consultation, which is a low number compared to most other consultations across the EU. In any case, the Agency has taken this response into consideration for this Report.

Within five months following the end of the final consultation, and pursuant to Article 27(4) of the NC TAR, the Bulgarian National Regulatory Authority ('NRA') Energy and Water Regulatory Commission ('EWRC') shall take and publish a motivated decision on all the items set out in Article 26(1). The Agency notes that EWRC has missed by a wide margin the deadline of 31 May 2019 specified in Article 27(5) regarding the publication of the motivated decision.

Reading guide

Chapter 3 presents the analysis on completeness, namely whether all the information referred to in Article 26(1) has been published. Chapter 4 focusses on compliance, namely whether the RPM complies with the requirements set out in Article 7 of the Code, whether the criteria for setting commodity-based transmission tariffs as set out in Article 4(3) are met, and whether the criteria for setting non-transmission tariffs as set out in Article 4(4) are met. Chapter 5 includes other comments. This document contains two annexes, respectively on the legal framework and a list of abbreviations.

3. Completeness

3.1 Has all the information referred to in Article 26(1) been published?

Article 27(2)(a) of the NC TAR requires the Agency to analyse whether all the information referred to in Article 26(1) of the NC TAR has been published.

Article 26(1) of the NC TAR requires that the consultation document is published in the English language, to the extent possible. Bulgartransgaz has published the whole consultation document in English.

The consultation document lacks important details allowing a full understanding of the rationale behind the choice of the RPM and some of its features.

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⁴ With the exception of Article 10(2)(b), when different RPMs may be applied by the TSOs within an entry-exit zone.
ACER ANALYSIS OF THE CONSULTATION DOCUMENT ON THE GAS TRANSMISSION TARIFF STRUCTURE FOR BULGARIA

(12) Overall, the TSO has published the information in Article 26(1) of the NC TAR in a patchy way, as showed in Table 1 below. This seriously hampers the possibilities for stakeholders to provide meaningful responses to the consultation.

(13) The Agency therefore recommends to publish, and consult on, all the required information before taking the final decision on the RPM and to allow stakeholders sufficient time to comment, and to subsequently take their comments into account, according to Article 26(1) and (2) of the NC TAR.

Table 1 Checklist information Article 26(1)

<table>
<thead>
<tr>
<th>Article</th>
<th>Information</th>
<th>Published:</th>
</tr>
</thead>
<tbody>
<tr>
<td>26(1)(a)</td>
<td>the description of the proposed reference price methodology</td>
<td>Yes</td>
</tr>
<tr>
<td>26(1)(a)(i)</td>
<td>the indicative information set out in Article 30(1)(a), including:</td>
<td>Partly:</td>
</tr>
<tr>
<td>26(1)(a)(i)(1)</td>
<td>• the justification of the parameters used that are related to the technical</td>
<td>costs and</td>
</tr>
<tr>
<td>26(1)(a)(i)(2)</td>
<td>characteristics of the system</td>
<td>distances</td>
</tr>
<tr>
<td>26(1)(a)(i)(3)</td>
<td>• the corresponding information on the respective values of such parameters</td>
<td>used for</td>
</tr>
<tr>
<td>26(1)(a)(i)(4)</td>
<td>and the assumptions applied</td>
<td>the matrix RPM</td>
</tr>
<tr>
<td>26(1)(a)(ii)</td>
<td>the value of the proposed adjustments for capacity-based transmission tariffs</td>
<td>Partly:</td>
</tr>
<tr>
<td>26(1)(a)(iii)</td>
<td>the indicative reference prices subject to consultation</td>
<td>the indicative</td>
</tr>
<tr>
<td>26(1)(a)(iv)</td>
<td>the results, the components and the details of these components for the cost</td>
<td>reference</td>
</tr>
<tr>
<td>26(1)(a)(v)</td>
<td>the assessment of the proposed reference price methodology in accordance with</td>
<td>No:</td>
</tr>
<tr>
<td>26(1)(a)(vi)</td>
<td>where the proposed reference price methodology is other than the capacity</td>
<td>Partly:</td>
</tr>
<tr>
<td>26(1)(a)(vii)</td>
<td>weighted distance reference price methodology detailed in Article 8, its</td>
<td>the consultation</td>
</tr>
<tr>
<td></td>
<td>comparison against the latter accompanied by the information set out in point (iii)</td>
<td>brings a</td>
</tr>
<tr>
<td>26(1)(a)(viii)</td>
<td>where the CWD method is other than the capacity weighted distance</td>
<td>comparative</td>
</tr>
<tr>
<td>26(1)(a)(ix)</td>
<td>weighted CWD method is other than the capacity weighted CWD method</td>
<td>table,</td>
</tr>
<tr>
<td></td>
<td>detailed in Article 8, its comparison against the latter accompanied by the</td>
<td>with little</td>
</tr>
<tr>
<td></td>
<td>information set out in point (iii)</td>
<td>explanation(^3).</td>
</tr>
</tbody>
</table>

\(^2\) The TSO provided partial access to this information with the analytical tariff model bilaterally to the Agency on a TSO’s remote computer. The Agency required full access to the information needed to carry out its task in an independent manner and therefore could not rely on the Bulgartransgaz’s additional information.

\(^3\) Moreover, the analytical tariffs model does not include the calculation of the comparison with the CWD. Bulgartransgaz has provided the comparison with the CWD to the Agency on a separate file. The Agency cannot verify if the inputs of both methodologies have the same values. In any case, network users could not access the same level of information as the Agency.
4. Compliance

4.1 Does the RPM comply with the requirements set out in Article 7?

Article 27(2)(b)(1) of the NC TAR requires the Agency to analyse whether the proposed reference price methodology complies with the requirements set out in Article 7 of the NC TAR. Said article refers to Article 13 of Regulation (EC) No. 715/2009 and lists a number of requirements to take into account when setting the RPM. As these overlap, in the remainder of this chapter the Agency will take a closer look at the five elements listed in Article 7 of the NC TAR.

Bulgartransgaz has proposed a matrix RPM. As a first step, the revenue derived from the execution of long-term contracts is subtracted from the overall allowed revenues. The indicative reference

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4 The capacity/commodity split is unclear, as there are two types of commodity charges: in the consultation document, the TSO does not consider one of these commodity charges, therefore the reported capacity/commodity split is 85/15; however, the TSO considers in the Agency’s template both charges, therefore it reports a 76/24 split. The Agency requests that both charges are always accounted for as commodity charges.

5 The two proposed commodity charges underpin different types of cost: fixed and variable. The assumptions on the so-called common component, covering fix costs, are not presented in detail.

6 The consultation does not comply with Article 30(2)(e)(ii), since it does not provide the estimated tariffs difference between the first year of the regulatory period and the following ones.
prices result from the remaining share of allowed revenue that is to be recovered. The cost drivers are the asset value, system topology, and technical and booked capacity. The Agency understands from bilateral clarifications with the TSO and its feedback to the single response to the consultation document, that all long-term contracts have been excluded from the RPM according to Article 35 of the NC TAR. Yet, the TSO does not make explicit reference to this legal basis in the consultation document, which would have helped to clarify the scope of the proposed RPM.

As a result of the exclusion of long-term contracts, the matrix RPM is only applied to recover 29% of the TSO’s allowed revenue for the tariff period 2020/2021. This implies that the overall value of the RPM is significantly reduced. The consultation document does not include estimates on the share of allowed revenue to be recovered for the remaining years of the regulatory period. The consultation document does not provide information on if the conditions to apply Article 35 of the NC TAR are respected.

The Agency recommends the NRA to confirm that the conditions to apply Article 35 of NC TAR are satisfied and to assess their impact on compliance with the requirements set out in Article 7.

In general, a matrix methodology can be appropriate for complex transmission networks with stable flows. In such cases, the complexity of the methodology, which allows for more targeted tariffs at particular IPs approximating contractual flows, is outweighed by its greater cost-reflectivity. The TSO claims that the matrix RPM is the most appropriate one since, as the network is not homogeneous, it can take into account the geographical distribution of gas flows and actual investments in individual network sections.

Bulgartransgaz claims that the consulted matrix RPM meets the requirements of Article 7 of the NC TAR.

The Agency, given the lack of appropriate information at its disposal about the costs, distances, and capacity drivers of the proposed RPM cannot verify if these principles are respected.

The Agency recommends the NRA to provide detailed information about all cost drivers and their interaction to form the reference prices, as well as full access to the Agency, and possibly stakeholders, to the full tariff model.

4.1.1 Description of the network

Bulgartransgaz describes its transmission system network as an interconnected national and transit system. The total length is 2,788 km, with a ring shape and branches. A high number of customers

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7 Article 35 states that the NC TAR: ‘shall not affect the levels of transmission tariffs resulting from contracts or capacity bookings concluded before 6 April 2017 where such contracts or capacity bookings foresee no change in the levels of the capacity- and/or commodity-based transmission tariffs except for indexation, if any’; that the ‘contract provisions related to transmission tariffs and capacity bookings […] shall not be renewed, prolonged or rolled over after their expiration date’; and that the TSO shall send the relevant information to the NRA before 6 May 2017.

8 Yet the TSO confirmed to the Agency that all conditions, as reported in footnote 7, have been satisfied.

9 In particular, as prescribed in Article 13 of the Gas Regulation: ‘Tariffs for network users shall be non-discriminatory and set separately for every entry point into or exit point out of the transmission system […] By 3 September 2011 […] network charges shall not be calculated on the basis of contract paths’. In addition, Article 2(3) of the Gas Directive specifies that the transmission activity does not include supply. As such, transmission contracts (and the related tariffs) and gas supply contracts shall be separated. On the other hand, the Agency understands from bilateral clarifications with the TSO that the existing long-term contracts (or at least one of them) have a different pricing system, not aligned with the aforementioned principles.

10 The Agency understands from bilateral clarifications with the TSO that the investments enter the matrix RPM in the form of replacement costs.
are directly connected with the transmission system. A structural representation of the system is provided at page 6 of the consultation document.

The national transmission system can transport 78 TWh, but in recent years it has been used for less than half of its capacity. The transit system can transport 188 TWh and has been booked and utilised under long-term contract agreements signed in 1998 and due to expire by 2030.11

In order to apply the matrix methodology, the pipelines are grouped according to their diameter, ranging from 0.25 to 1.2 meters. The system also has eight compressor stations, with a total power of 281 MW.

Overall, the Bulgarian transmission network has the following relevant points:

- 4 bidirectional interconnection points (IPs):
  - i. 1 with Romania at Negru Voda / Kardam;12
  - ii. 1 with Romania at Ruse / Giurgiu;
  - iii. 1 with Greece at Kulata / Sidirokastron;
  - iv. 1 with Greece at IGB / Stara Zagora;13
- 2 bidirectional points with third countries
  - i. 1 with Turkey at Strandzha / Malklocar;
  - ii. 1 with Serbia at Kireevo / Zaychar
- 240 exits to consumption points;
- 2 entry points from national production;
- 1 entry points into, and exit point to, the storage facility in Chiren.

The entry from national productions are clustered into a single point, like the domestic exits.

The Agency considers that the distinction between transit and national transmission systems should not apply to the scope of application of the RPM.14 More complete information on the technical capacities of all points considered in the RPM would help to understand the RPM.

The Agency recommends to better explain how all capacities are treated for tariffs purposes, especially in relation to the long-term contracts and their inclusion or exclusion from the RPM.

11 The Agency understands from bilateral clarifications with the TSO that two long-term contracts are still in place: one signed in 1998, and the other in 2019. While the former is a pure transit contract, the latter results from an open season. The TSO proposes to exclude both long-term contracts from RPM.

12 As bilaterally explained by the TSO to the Agency, the three parallel pipelines that in Romania reach the IP Negru Voda/Kardam are not connected to the transmission system of Romania: this explains why a virtual interconnection point has not been created with the other IP connecting Bulgaria with Romania.

13 As bilaterally explained by the TSO to the Agency, this IP is expected to become operational by the end 2020; the Interconnector Greece-Bulgaria ('IGB') pipeline holds a 25-year exemption from the application of regulated tariffs starting from the beginning of the commercial operation.

14 While long-term contracts may be excluded from the RPM, as explained in paragraph (15)

15 In particular: technical, long-term booked, non-long-term booked, and available capacities.
4.1.2 Transparency

(29) Article 7(a) of the NC TAR requires that the RPM ensure that network users can reproduce the calculation of reference prices and their accurate forecast.

(30) Bulgartransgaz publishes the consultation document in English, but with limited explanations, considering the complexity of the proposed RPM. Bulgartransgaz proposes a matrix RPM. The methodology requires extensive input data and calculations to derive the indicative reference prices.

(31) Moreover, the simplified tariff model does not allow to calculate transmission tariffs for the regulatory period. Instead, the simplified tariff model only shows partial information for the first tariff year of the regulatory period for which the RPM is consulted. The capacities and tariffs are not shown for each relevant point, but only average capacities, average tariffs, and short-term multipliers are provided.

(32) The consultation document does bring some additional information: the indicative reference prices at all relevant points are reported, but still only for the first year of the regulatory period.

(33) Finally, not all the inputs to the RPM are reported in the consultation document: only partial information on technical and booked capacity\(^{16}\) (and only for the tariff year 2020/2021), while distances and costs\(^{17}\) are not provided at all\(^{18}\).

(34) Overall, the Agency considers that network users would not be able, by connecting the information provided in the consultation document and the simplified tariff model, to reproduce and forecast the reference prices, nor they would understand how the tariffs are derived.

(35) The Agency recommends the NRA to provide network users with a simplified tariff model that allows to reproduce and forecast tariffs. For this purpose, the simplified tariff model should allow changing the main inputs of the RPM.

4.1.3 Cost-reflectivity

(36) Article 7(b) of the NC TAR requires the RPM to take into account the actual costs incurred for the provision of transmission services, considering the level of complexity of the transmission network.

(37) Bulgartansgaz proposes to use a matrix RPM.

(38) Moreover Bulgartansgaz proposes to use:

- A 50/50 entry-exit split;
- A 76/24 capacity-commodity split.

(39) As anticipated in footnotes 2 and 18, the Agency could only get limited access the full tariff model from Bulgartransgaz, which proved insufficient for the purpose of the analysis presented in this Report\(^{19}\). In particular it is not possible to assess cost-reflectivity without accurate analytical information on the inputs of the RPM and their interaction to form the reference prices.

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\(^{16}\) The consultation document does not clearly identify for each IP what is the capacity dedicated to long-term contracts and thus what should be the capacity share that is excluded from the application of the RPM.

\(^{17}\) The proposed RPM uses costs for asset replacement as an input, as specified in paragraph (44).

\(^{18}\) The Agency could partly access the full tariff model, through which it realised that part of the information reported on capacity is not fully corresponding to that included in the consultation document.

\(^{19}\) The Agency is formally following up with the TSO and NRA in order to get proper access to the full tariff model.
Therefore, the Agency’s assessment is purely based on the information provided in the consultation document and the simplified tariff model.

4.1.3.1 Inputs to the methodology

The proposed matrix RPM uses as inputs:

- The allowed TSO’s revenue, after the revenue from the execution of long-term contracts\(^\text{20}\) has been deducted from the overall allowed revenues;
- The minimum distances between each entry and exit point;
- Technical and booked/forecasted contracted capacity at entry and exit points;
- Cost for asset replacement\(^\text{21}\).

Distances, capacities, and costs are identified for each group and section\(^\text{22}\) in which the transmission system is split, for modelling purposes. The matrix model presumes that gas may flow from any entry to any exit point.

The Agency understands from bilateral clarifications with the TSO that the RPM is applied to the whole transmission network (both national and transit), with flow scenarios applied. The flow scenarios, which are a standard feature of a matrix methodology, are not mentioned nor presented in the consultation document.

The adopted matrix considers the costs for asset replacement as the key for allocating the required revenue to the network sections, using data on the diameter and length of gas pipelines and the power of compressor stations.

The matrix model calculates reference prices at entry and exit points of the gas transmission system by determining them in such a way that the sum of prices of each couple of entry and exit points reflects as closely as possible the costs determined by the transport of gas between the two points.

The sequence of steps applied to by the matrix methodology is the following:

- The first step in the calculation is to split the gas transmission system into nodes and sections;
- 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. This applies to both pipelines and compressor stations.
- 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 one unit of gas through this section are equal to the unit costs for this section.

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\(^{20}\) The revenue of long-term contracts is paid through prices based on booked capacity products.

\(^{21}\) The Agency understands that the matrix does not take into account the depreciation period of assets, but values them as if they needed to be procured once again in the market, at current value.

\(^{22}\) From bilateral clarifications with the TSO, the Agency understands that groups are defined as sets of pipelines, compressor stations, and big gas metering station; only one group is identified, for network modelling purposes. Sections are defined in the consultation document as connections between two network nodes with relatively homogenous technical characteristics (diameters, working pressure, etc.).
Summary route unit costs are deployed in the form of a unit cost matrix. The unit cost matrix has as many lines as are the exit points of the gas transmission system and as many columns as 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.

Next, entry and exit tariffs must reflect as closely 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.

The Agency in principle considers the methodology itself sound, as it generally reflects a standard matrix approach. It considers the choice of the inputs to the methodology reasonable. On the other hand, the Agency could not verify how the inputs of the model are calculated and used as input for the model. This is especially valid for the distances and the unit costs, since the consultation document and the simplified tariff model do not provide any quantitative detail. Finally, also the capacity aspects, which are key in every RPM, are not transparently presented in the consultation document, as it is not straightforward to identify which capacity belongs to long-term contracts, which to transit use, and which to domestic use.

The Agency recommends the NRA to provide complete analytical evidence on the inputs to the matrix RPM and its calculations to derive the tariffs, in particular:

- The cost details per combination of points (unit costs based on replacement values) specifying:
  - The allocation of compressors;
  - What are the components of the unit costs (e.g.: pipeline costs, other services such as metering, etc.);
- The distance between points;
- The capacity assumptions (both contracted and technical);
- Any other input to the methodology;
- The flow scenarios underlying the RPM.

4.1.3.2 Adjustments to the application of the RPM

Bulgartransgaz proposes to apply the following adjustments:

- Equalisation of domestic exit points;
Equalisation of entry points from national production;
• 80% discount to storage facilities;
• Rescaling via a uniform multiplicative factor, applied equally to all entry and exit points, to ensure that the required revenue is recovered via the final reference prices, after
  i. The application of the storage discount;
  ii. The outcome of the algorithm solving the matrix reference prices.

In principle, the adjustments consulted are allowed by the NC TAR.
In practice, the Agency cannot assess the cost-reflectivity of the proposed adjustments, because the consultation document offers limited information. Specifically, it is not possible to verify:
• The indicative reference prices of each domestic exit and entry point from national production before and after the application of the adjustments;
• How much revenue the rescaling applied after the matrix optimisation is solved needs to recover and the effect of the uniform multiplicative rescaling factor on the relative reference prices.

The Agency recommends the NRA to provide full analytical transparency on the applied matrix RPM to allow a better understanding of the application of adjustments to the RPM.

4.1.3.3 Comparison with Capacity Weighted Distance methodology

Bulgartransgaz offers a comparison of the consulted matrix RPM with the CWD RPM in section 3.7 of its consultation document. When applying the comparison, the TSO applies the same entry-exit split (50/50) and storage discount (80%). The TSO points out as the main outcome of the comparison that the reference prices at IPs with the consulted matrix RPM are lower than those with the CWD: as a result, cross-border trade should be favoured.

However, while the Agency notes that the matrix RPM makes most entry IPs cheaper, the exit IP to Greece at Kulata/Sidirokastro becomes remarkably more expensive (+86%)

Moreover, the Agency notes that the matrix RPM makes the entry point from Turkey and the exit point to Serbia more expensive (respectively +30% and +60%).

Finally, the Agency notes that the highest tariff increase takes place at domestic exits (+119%).

According to the TSO, the CWD methodology would not be cost-reflective in the Bulgarian transmission system: it would lead to considering a lower share of intra-system revenues, causing an even higher capacity CAA index (64%, instead of 50% with the matrix).

The Agency could only verify the information reported in the consultation document and had insufficient access to the analytical tariff model, therefore is not in a position to evaluate the deviations of the proposed matrix RPM with respect to the CWD RPM.23

23 To be precise, the Agency cannot even verify how the reference prices have been derived using the matrix RPM, therefore to what extent the two RPMs are comparable. The TSO sent to the Agency a file only including some of the analytics of the CWD RPM, but since the resulting tariffs differed from those reported in the consultation document, the Agency has considered the file not reliable for a full comparison.
The Agency recommends the NRA to provide sufficient level of details to allow a proper comparison of the proposed matrix RPM with the counterfactual CWD RPM. More specifically, it has to be quantitatively clear which assumptions and inputs are maintained and which ones are modified.

4.1.3.4 Comparison with the tariffs in the prevailing period

Bulgartransgaz provides a comparison with tariffs in the prevailing period in table 4, page 12 of the consultation document. Tariffs change at all points, often significantly. The most stable tariffs are those at domestic exit (-2% in the tariff year 2020/2021) and exit IP to Greece (+2%).

The Agency cannot assess the reasons for the tariff change, since there are no explanations in the public consultation and it could not properly access the analytical tariff model.

From the only received response to the consultation and from bilateral clarification with the TSO, the Agency understands that the difference may relate to a lower allowed revenue and the different flow patterns and capacity bookings in the prevailing tariff period24.

The Agency recommends the NRA to explain the reasons of the tariffs changes in a more substantiated quantitative way.

4.1.4 Cross-subsidisation and non-discrimination

Article 7(c) of the NC TAR requires the RPM to ensure non-discrimination and prevent undue cross-subsidisation.

The Agency is not in the position to properly assess the non-discrimination and prevention of undue cross-subsidisation given the lack of information at its disposal. Broadly speaking, and should the information be available in the consultation, the Agency would look into how the inputs to the matrix RPM have been calculated and used, with a special care of the difference between cross-border and domestic purposes.

The Agency recommends to provide full analytical transparency on the applied matrix RPM, as required in paragraph (51), to allow a better understanding to network users and an easier assessment of non-discrimination and undue cross-subsidisation.

4.1.4.1 Cross-subsidisation between intra-system use and cross-system use

For this analysis, the Agency defines ‘cross-subsidisation’ as a deviation from cost-reflectivity whereby users of the entry-exit system are charged tariffs that differ from the costs they cause to the system. One instrument to evaluate cross-subsidisation is the cost allocation assessment (‘CAA’, Article 5 of the NC TAR).

Bulgartransgaz shows the results of the CAA for the capacity tariffs in table 5 of the consultation document. Since the value of the capacity CAA is 50%, the Agency considers that there is high degree of cross-subsidisation25.

24 The main import route from Romania has been replaced by the one from Turkey, in the next regulatory period.

25 Whereby cross-system users subsidise intra-system ones, except if the methodology really reflects that the two categories use different assets.
Bulgartransgaz justifies such a high CAA due to the complexity of the network, formed by two interconnected but historically separated systems, and different asset values associated to different sections of the network.

The Agency could not analytically verify Bulgartransgaz’s statements and cannot conclude on its justification, therefore questions whether the high CAA values are appropriate.

The Agency reminds that such high values of CAA requires an appropriate justification and the one provided in the consultation is insufficient. In the absence of an appropriate justification, including transparency on the matrix calculation and on the two network branches, the Agency considers the consultation document incompliant.

The Agency recommends the NRA to provide a more detailed justification on the value of the CAA and clarify the cross-subsidisation patterns in light of the assumed flow scenarios.

4.1.4.2 Cross-subsidisation among intra-system users

The CAA only assesses cross-subsidisation between intra-system and cross-system network use.

The Agency usually assesses also cross-subsidisation between groups of intra-system users.

The proposed grouping of points described in Section 4.1.1 of this Report, and adjustments, described in Section 4.1.3.2 of this Report, decrease the cost-reflectivity of the RPM and thus create cross-subsidisation. Yet the resulting cross-subsidisation might not be undue, since the proposed adjustments are allowed by the NC TAR.

However, the Agency could not estimate the amount of intra-system cross-subsidisation since the consultation document does not report any comparison between pre- and post-adjusted tariffs and Bulgartransgaz did not properly share the analytical tariff model.

4.1.4.3 Discrimination

For this analysis, the Agency defines ‘discrimination’ as ‘applying different rules to comparable situations or the same rule to different situations’.

According to Bulgartransgaz, the proposed matrix RPM also does not discriminate against domestic users because:

- It is a single RPM;
- It takes into account the topology of the network;
- Its inherent cost factors are objective and result in fair prices uniformly applied to all gas transmission system users for the same transmission services;
- The individual costs used as input for the RPM methodology are approved by the NRA, which limits and prevents the possibility of discrimination.

While the Agency may agree with the former two criteria, it considers the latter two tautological statements. It also lacks information about the revenue distribution between the domestic network and transit network, where long-term contracts still exist.

Based on the information available, the Agency cannot conclude that the proposed RPM is compliant with the principle of non-discrimination. In particular, the Agency lacks transparency on
how the replacement costs are calculated, how the long-term contracts interact with the RPM, and the application of flow scenarios.

The Agency recommends to provide higher transparency on the elements listed in paragraph (81).

4.1.5 Volume risk

Article 7(d) of the NC TAR requires that the RPM ensure that significant volume risk related particularly to transports across an entry-exit system is not assigned to final customers within that entry-exit system.

In the consultation document, Bulgartransgaz does not openly address the volume risk. The only statement on the topic is given in Section 3.5.4 of the consultation document, where a significant increase of the transit flow in the medium-term is presented as a stabilising element for the tariffs. The consultation document does not provide any quantitative evidence beyond the first year of the regulatory period, but the TSO shared additional information bilaterally with the Agency to back its statement.

Given that cross-system network use revenues for the tariff period 2020/2021 are estimated at 41% of total revenues, there is a potential volume risk that deserves a thorough assessment in the consultation document.

From bilateral talks with the TSO, the Agency understands that the long-term contract signed in 1998 carries an intrinsic currency exchange risk, as it is priced in dollars. The Agency understands from bilateral talks with the TSO that any fluctuation of the exchange rate causing over/under-recovery on this contract may be compensated through the reference prices via the regulatory account. The TSO confirmed that during the current 5-year regulatory period, the exchange rate fluctuations has provided an average stability of possible over/under-recovery, and that from the tariff period 2017/2018, the first of the current regulatory period, the fluctuations were little.

Based on paragraphs (87-89), the Agency cannot conclude definitively on volume risk and recommends to provide full analytical transparency on the applied matrix RPM to allow a better assessment.

4.1.6 Cross-border trade

Article 7(e) of the NC TAR requires that the RPM ensure that the resulting reference prices do not distort cross-border trade.

Bulgartransgaz only shortly assesses the effects of the RPM on cross-border trade in section 3.5.5 of the consultation document. The TSO claims that lower cross-border tariffs at IPs compared to the CWD shall stimulate cross-border trade.

The Agency already noted in paragraphs (57-59) that, unlike the TSO states, the cross-border tariffs at IPs are not always lower with the consulted matrix than with the counterfactual CWD RPM. The Agency instead notes that all entry tariffs are 35%-to-65% cheaper with the matrix RPM than with the CWD RPM, except the entry from Turkey at Strandzha / Malkoclar, which is 30% more
ACER ANALYSIS OF THE CONSULTATION DOCUMENT ON THE GAS TRANSMISSION TARIFF STRUCTURE FOR BULGARIA

expensive\textsuperscript{26}. Regarding exit tariffs, the Agency notes that the matrix RPM makes certain points significantly more expensive, i.e. the IP to Greece at Kulata / Sidirokastro (+86%), the point to Serbia at Kireevo / Zaychar (+60%)\textsuperscript{27}, and domestic exits (+120%), while other points are practically stable. Beyond the mere numbers, it should be considered to what extent trading between Bulgaria and the neighbouring markets has taken place, also in light of the existing long-term transit contracts and regional hubs’ development.

The Agency therefore considers that, overall, the proposed RPM may attract some gas into the Bulgarian market, should capacity be available and price dynamics be favourable.

However, taking into account the high CAA ratio, the existence of long-term transit contracts, and the considerations in paragraphs (92-93), the Agency considers that the proposed RPM may distort cross-border trade. Moreover, the Agency would wish to verify further its conclusion, which could not as it could not assess whether the proposed RPM complies with the principle of cost-reflectivity, which is key to prove that the RPM does not distort cross-border trade.

The Agency recommends the NRA to explain the tariffs changes and their effects on cross-border trade more thoroughly, having regard to the impact of long-term transit contracts and their respective routes and utilised capacity.

4.2 Are the criteria for setting commodity-based transmission tariffs as set out in Article 4(3) met?

Article 27(2)(b)(2) of the NC TAR requires the Agency to analyse whether the criteria for setting commodity-based transmission tariffs as set out in Article 4(3) of the NC TAR are met.

The NC TAR allows for two types of commodity-based transmission tariffs: a flow-based charge and a complementary revenue recovery charge.

Until 1 October 2017, the TSO applied only commodity-based tariffs on its network. In view of a smooth transition towards capacity tariffs, the TSO proposes to apply 24% of commodity based tariffs, divided in:

- A common component, covering 15% of the allowed revenue, once the revenues from the execution of long-term contracts are excluded;
- A technological component, equal to additional 9% of the allowed revenue, once the revenues from the execution of long-term contracts are excluded.

The Agency understands from bilateral talks with the TSO that the common component is set as a deterministic share of the allowed revenue, aiming at recovering a share of fixed cost, and not costs depending on the quantity of gas flown. On the other hand, the technological component covers technological operating costs directly dependent on the transported natural gas quantities. The consultation document provides additional details on what is considered as technological component: fuel gas costs for compressor stations, natural gas costs related to the transmission

\textsuperscript{26} The proposed tariffs at this point apply only to the capacity that will be booked beyond those already reserved through the open season procedure. This capacity cannot be less than 10% than total technical capacity. The Agency reminds that the interaction between the RPM and incremental capacity shall be addressed according to Article 33 of the NC TAR.

\textsuperscript{27} The same principle explained in footnote (26) applies.
technology, electricity costs for operating compressor stations powered by electricity. Both commodity charges apply at all entry and exit points, including storages.

(100) While the Agency understands the need to ensure a smooth transition away from a tariffs system entirely based on commodity prices, it considers the application of the common component of 15% arbitrary, not transparent explained, and excessive28.

Table 2 Criteria Article 4(3a)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Y/N?</th>
</tr>
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<tbody>
<tr>
<td>levied for the purpose of covering the costs mainly driven by the quantity of the gas flow</td>
<td>Not for the so-called common component</td>
</tr>
<tr>
<td>calculated on the basis of forecasted or historical flows, or both, and set in such a way that it is the same at all entry points and the same at all exit points</td>
<td>Yes</td>
</tr>
<tr>
<td>expressed in monetary terms or in kind</td>
<td>Yes</td>
</tr>
</tbody>
</table>

(101) The result of the commodity CAA29 is equal to 0%, therefore below the threshold of 10% above which the NRA would need to provide a justification to the Agency.

(102) The Agency recommends higher transparency on the common component of the commodity charge and a clear decreasing path so that commodity charges at the end of the regulatory period only cover the costs directly related to the quantity of gas flown.

4.3 Are the criteria for setting non-transmission tariffs as set out in Article 4(4) met?

(103) Article 27(2)(b)(3) of the NC TAR requires the Agency to analyse whether the criteria for setting non-transmission tariffs as set out in Article 4(4) of the NC TAR are met.

(104) Bulgartransgaz does not consider any non-transmission charge in its consultation document. As a result, it does not apply Article 4(4).

5. Other comments

(105) The Agency understands that the TSO proposes a charge to cover the costs incurred due to the public service obligations related to security of supply (‘SoS’). The SoS obligation is imposed by the national government. The charge is levied at national exit points based on the quantity of gas transported. For the tariff period 2020/2021 it is equal to 0.0956 BGN/kWh. The related revenues are not included in the allowed revenue for the transmission activity.

(106) The Agency recommends to allocating these costs as non-transmission services, so that the resulting tariffs are subject to the requirements for non-transmission tariffs. The Agency considers this approach beneficial as it provides more transparency to stakeholders.

28 The Agency would expect this share to gradually decrease during the regulatory period.

29 Presented at page 49 of the English versions of the consultation document.
Annex 1: Legal framework

(107) Article 27 of the NC TAR reads:

1. Upon launching the final consultation pursuant to Article 26 prior to the decision referred to in Article 27(4), the national regulatory authority or the transmission system operator(s), as decided by the national regulatory authority, shall forward the consultation documents to the Agency.

2. The Agency shall analyse the following aspects of the consultation document:
(a) whether all the information referred to in Article 26(1) has been published;
(b) whether the elements consulted on in accordance with Article 26 comply with the following requirements:
   (1) whether the proposed reference price methodology complies with the requirements set out in Article 7;
   (2) whether the criteria for setting commodity-based transmission tariffs as set out in Article 4(3) are met;
   (3) whether the criteria for setting non-transmission tariffs as set out in Article 4(4) are met.

3. Within two months following the end of the consultation referred to in paragraph 1, the Agency shall publish and send to the national regulatory authority or transmission system operator, depending on which entity published the consultation document, and the Commission the conclusion of its analysis in accordance with paragraph 2 in English. The Agency shall preserve the confidentiality of any commercially sensitive information.

4. Within five months following the end of the final consultation, the national regulatory authority, acting in accordance with Article 41(6)(a) of Directive 2009/73/EC, shall take and publish a motivated decision on all items set out in Article 26(1). Upon publication, the national regulatory authority shall send to the Agency and the Commission its decision.

5. The procedure consisting of the final consultation on the reference price methodology in accordance with Article 26, the decision by the national regulatory authority in accordance with paragraph 4, the calculation of tariffs on the basis of this decision, and the publication of the tariffs in accordance with Chapter VIII may be initiated as from the entry into force of this Regulation and shall be concluded no later than 31 May 2019. The requirements set out in Chapters II, III and IV shall be taken into account in this procedure. The tariffs applicable for the prevailing tariff period at 31 May 2019 will be applicable until the end thereof. This procedure shall be repeated at least every five years starting from 31 May 2019.

(108) Article 26(1) of the NC TAR reads:

1. One or more consultations shall be carried out by the national regulatory authority or the transmission system operator(s), as decided by the national regulatory authority. To the extent possible and in order to render more effective the consultation process, the consultation document should be published in the English language. The final consultation prior to the decision referred to in Article 27(4) shall comply with the requirements set out in this Article and Article 27, and shall include the following information:
   (a) the description of the proposed reference price methodology as well as the following items:
      (i) the indicative information set out in Article 30(1)(a), including:
(1) the justification of the parameters used that are related to the technical characteristics of the system;
(2) the corresponding information on the respective values of such parameters and the assumptions applied.

(ii) the value of the proposed adjustments for capacity-based transmission tariffs pursuant to Article 9;
(iii) the indicative reference prices subject to consultation;
(iv) the results, the components and the details of these components for the cost allocation assessments set out in Article 5;
(v) the assessment of the proposed reference price methodology in accordance with Article 7;
(vi) where the proposed reference price methodology is other than the capacity weighted distance reference price methodology detailed in Article 8, its comparison against the latter accompanied by the information set out in point (iii);
(b) the indicative information set out in Article 30(1)(b)(i), (iv), (v);
(c) the following information on transmission and non-transmission tariffs:
   (i) where commodity-based transmission tariffs referred to in Article 4(3) are proposed:
      (1) the manner in which they are set;
      (2) the share of the allowed or target revenue forecasted to be recovered from such tariffs;
      (3) the indicative commodity-based transmission tariffs;
   (ii) where non-transmission services provided to network users are proposed:
      (1) the non-transmission service tariff methodology therefor;
      (2) the share of the allowed or target revenue forecasted to be recovered from such tariffs;
      (3) the manner in which the associated non-transmission services revenue is reconciled as referred to in Article 17(3);
      (4) the indicative non-transmission tariffs for non-transmission services provided to network users;
(d) the indicative information set out in Article 30(2);
(e) where the fixed payable price approach referred to in Article 24(b) is considered to be offered under a price cap regime for existing capacity:
   (i) the proposed index;
   (ii) the proposed calculation and how the revenue derived from the risk premium is used;
   (iii) at which interconnection point(s) and for which tariff period(s) such approach is proposed;
   (iv) the process of offering capacity at an interconnection point where both fixed and floating payable price approaches referred to in Article 24 are proposed.

Article 7 of the NC TAR reads:
The reference price methodology shall comply with Article 13 of Regulation (EC) No 715/2009 and with the following requirements. It shall aim at:
a) enabling network users to reproduce the calculation of reference prices and their accurate forecast;
b) taking into account the actual costs incurred for the provision of transmission services considering the level of complexity of the transmission network;
c) ensuring non-discrimination and prevent undue cross-subsidisation including by taking into account the cost allocation assessments set out in Article 5;
(d) ensuring that significant volume risk related particularly to transports across an entry-exit system is not assigned to final customers within that entry-exit system;
(e) ensuring that the resulting reference prices do not distort cross-border trade.

Article 13 of Regulation (EC) No 715/2009 reads:

1. Tariffs, or the methodologies used to calculate them, applied by the transmission system operators and approved by the regulatory authorities pursuant to Article 41(6) of Directive 2009/73/EC, as well as tariffs published pursuant to Article 32(1) of that Directive, shall be transparent, take into account the need for system integrity and its improvement and reflect the actual costs incurred, insofar as such costs correspond to those of an efficient and structurally comparable network operator and are transparent, whilst including an appropriate return on investments, and, where appropriate, taking account of the benchmarking of tariffs by the regulatory authorities. Tariffs, or the methodologies used to calculate them, shall be applied in a nondiscriminatory manner.

Member States may decide that tariffs may also be determined through market-based arrangements, such as auctions, provided that such arrangements and the revenues arising therefrom are approved by the regulatory authority.

Tariffs, or the methodologies used to calculate them, shall facilitate efficient gas trade and competition, while at the same time avoiding cross-subsidies between network users and providing incentives for investment and maintaining or creating interoperability for transmission networks.

Tariffs for network users shall be non-discriminatory and set separately for every entry point into or exit point out of the transmission system. Cost-allocation mechanisms and rate setting methodology regarding entry points and exit points shall be approved by the national regulatory authorities. By 3 September 2011, the Member States shall ensure that, after a transitional period, network charges shall not be calculated on the basis of contract paths.

2. Tariffs for network access shall neither restrict market liquidity nor distort trade across borders of different transmission systems. Where differences in tariff structures or balancing mechanisms would hamper trade across transmission systems, and notwithstanding Article 41(6) of Directive 2009/73/EC, transmission system operators shall, in close cooperation with the relevant national authorities, actively pursue convergence of tariff structures and charging principles, including in relation to balancing.

Article 4(3) of the NC TAR reads:

3. The transmission services revenue shall be recovered by capacity-based transmission tariffs. As an exception, subject to the approval of the national regulatory authority, a part of the transmission services revenue may be recovered only by the following commodity-based transmission tariffs which are set separately from each other:

(a) a flow-based charge, which shall comply with all of the following criteria:
   (i) levied for the purpose of covering the costs mainly driven by the quantity of the gas flow;
   (ii) calculated on the basis of forecasted or historical flows, or both, and set in such a way that it is the same at all entry points and the same at all exit points;
   (iii) expressed in monetary terms or in kind.

(b) a complementary revenue recovery charge, which shall comply with all of the following criteria:
   (i) levied for the purpose of managing revenue under- and over-recovery;
   (ii) calculated on the basis of forecasted or historical capacity allocations and flows, or both;
   (iii) applied at points other than interconnection points;
(iv) applied after the national regulatory authority has made an assessment of its cost-reflectivity and its impact on cross-subsidisation between interconnection points and points other than interconnection points.

(112) Article 4(4) of the NC TAR reads:

4. The non-transmission services revenue shall be recovered by non-transmission tariffs applicable for a given nontransmission service. Such tariffs shall be as follows:
   (a) cost-reflective, non-discriminatory, objective and transparent;
   (b) charged to the beneficiaries of a given non-transmission service with the aim of minimising cross-subsidisation between network users within or outside a Member State, or both.

Where according to the national regulatory authority a given non-transmission service benefits all network users, the costs for such service shall be recovered from all network users.
### Annex 2: List of abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ACER</td>
<td>Agency for the Cooperation of Energy Regulators</td>
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<tr>
<td>CAA</td>
<td>Cost Allocation Assessment</td>
</tr>
<tr>
<td>CRU</td>
<td>Commission for Regulation of Utilities</td>
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<tr>
<td>CWD</td>
<td>Capacity Weighted Distance</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<td>GNI</td>
<td>Gas Networks Ireland</td>
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<tr>
<td>IP</td>
<td>Interconnection Point</td>
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<tr>
<td>MS</td>
<td>Member State</td>
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<tr>
<td>NC TAR</td>
<td>Network code on harmonised transmission tariff structures for gas</td>
</tr>
<tr>
<td>NRA</td>
<td>National Regulatory Authority</td>
</tr>
<tr>
<td>RPM</td>
<td>Reference Price Methodology</td>
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<tr>
<td>TSO</td>
<td>Transmission System Operator</td>
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</table>
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