

BUSINESS RULES

EXTRACT OF THE INTERCONNECTION AGREEMENT

BETWEEN

THE NATIONAL GAS TRANSMISSION COMPANY "TRANSGAZ S.A."

AND

BULGARTRANGAZ EAD

FOR

IP NEGRU VODA 1 (RO)/KARDAM (BG)

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ARTICLE 1 – DEFINITIONS

The terms used in this IA shall have the meaning as follows:

Active TSO shall mean one of the adjacent TSOs, which receives the single-sided nominations submitted by the Network User(s) on behalf of itself and on behalf of counterpart Network User(s) of the adjacent TSO to whom the active TSO forwards the single-sided nominations. For the purpose of this IA, TRANSGAZ is the Active Transmission System Operator.

Backhaul shall mean a service relating to natural gas transmission against the prevailing physical flow. Parties fulfil Backhaul transmission services by netting the Backhaul Nomination with the gas transmission tasks arising from forward (physical) flow. Backhaul services shall be interruptible.

Bundled capacity product shall mean a standard capacity product offered on a firm basis, which consists of the corresponding entry and exit capacity at both sides of the Negru Vodă 1/Kardam IP.

Capacity product shall mean a certain amount of transport capacity over a given period of time, at a specified interconnection point. The capacity offered shall be expressed in kWh/d. A flat flow rate over the Gas Day is assumed. Parties acknowledge that the reference conditions shall be 0°C for volume and 25°C for default combustion reference temperature.

Common data exchange solution means the common data network, data exchange protocols and data formats for the electronic communications.

Counterparty means any party with whom any of the Parties exchanges data for the purpose of the implementation of Regulation (EC) No. 715/2009, unless specifically otherwise defined in this Agreement.

Double-Sided Nomination (DSN) shall mean the delivery nomination submitted by the Network User pair who successfully booked unbundled capacity at the IP.

Downstream Operator shall mean the Party physically receiving the natural gas.

Exceptional event means any unplanned event that may cause, for a limited period, capacity reductions, affecting thereby the quantity or quality of gas at interconnection points, with possible consequences on interactions between the Parties as well as between any Party and its network users.

Lead time means a period of two hours starting on the first full hour after nomination's submission, after which the actual implementation of the nomination starts.

Firm capacity means gas transmission capacity contractually guaranteed as uninterruptible by the transmission system operator.

Gas Measuring Station at IP Negru Vodă 1/Kardam (hereinafter referred to as Gas Measuring Station or GMS Negru Vodă 1): shall mean the border measuring station owned by Transgaz.

GMS Negru Vodă 1 has been designed, built and operated in accordance with the design specifications and operating standards and procedures, in accordance with sound and prudent gas industry practice, in accordance with international standards (for example EN and ISO) and in accordance with all laws, rules and regulations of any authority having jurisdiction above it.

The Gas Measuring Station Negru Vodă 1 shall be used for measuring and/or determination of the quantity and quality of gas delivered from Romania to Bulgaria and from Bulgaria to Romania.

Gas Day shall mean the period from 5:00 to 5:00 UTC the following day for winter time and from 4:00 to 4:00 UTC following day when daylight saving is applied. The reference date of any Gas Day is the date of the calendar day on which the Gas Day begins.

Gas Year shall mean the period of time beginning with the first October of the current year and ending with the first October of the next year.

Gas quantity expressed in energy units at normal reference conditions (kWh) shall mean the energy content of a given volume of gas calculated as the product of the gas volume expressed at normal reference conditions ($t=0^{\circ}\text{C}$) without decimals (truncated, not rounded), multiplied by the Gross Calorific Value (25/0), expressed at normal reference conditions, with 6 decimals.

Gross (Superior) Calorific Value (GCV(25/0)) at Normal Reference Conditions shall be calculated for real gas according to ISO 6976 taking into consideration the normal reference conditions and combustion reference temperature of 25°C . The Gross Calorific Value is expressed in $\text{kWh}/\text{V}(0)/\text{m}^3$. These data shall be applied between the Parties while performing all duties as stipulated in this IA.

For energy calculation, the GCV in $\text{kWh}/\text{V}(0)/\text{m}^3$ shall be used with a rounding at 6 decimals, with rounding up if the 7th decimal is 5 or more, and with a rounding down if the 7th decimal is 4 or less.

Forecasted GCV shall mean the average GCV, calculated in the GMS Negru Voda 1 by using ISO 6976, on the Gas Day D-2, immediately preceding the Gas Day D-1 on which the matching process for the Gas Day concerned (D) takes place. The Forecast GCV is expressed in kWh/m^3 (reference combustion temperature 25°C , reference volume temperature 0°C).

Hydrocarbon dew point means the temperature at which the hydrocarbons in gas begin to condense at a certain pressure.

Initiating System Operator (ISO) means the Party initiating the matching process by sending the necessary data to the Matching System Operator (**MSO**). For the purpose of this IA, BULGARTRANGAZ is the **ISO**.

Interconnection Point Negru Vodă 1/Kardam shall mean the DN 1000 interconnection between the TRANSGAZ's Transmission System and the BULGARTRANGAZ's Transmission System at the Romanian/Bulgarian border near to Negru Vodă / Kardam. The measuring and/or determination of quantities and quality of gas delivered at this IP shall be carried out at the Negru Vodă 1 Gas Measuring Station in case of Romania-to-Bulgaria physical flow and Bulgaria-to-Romania respectively.

Interruptible capacity means gas transmission capacity that may be interrupted by the transmission system operator in accordance with the conditions stipulated hereinafter.

Kilowatt hour (kWh) is equal to 3.6 MJ.

Lesser rule means that in case of different processed quantities at either side of the interconnection points, the confirmed quantity will be equal to the lower of the two processed quantities.

Matching System Operator (MSO) means the Party performing the matching process and sending the result of the matching process to the Initiating System Operator (**ISO**). For the purpose of this IA, TRANSGAZ is the **MSO**.

Matching process shall mean the process of comparing and aligning processed quantities of network users at both sides of the interconnection point, which will result in confirmed quantities for the network users. Nominations given by the Network Users are expressed in kWh/d during the matching process.

Measured quantity means the quantity of gas that a Party determines from its measurement equipment to have physically flowed across an interconnection point per time period.

Month: shall be a period beginning at 5:00 UTC in winter time, and 4:00 UTC in summer time on the first day of a calendar month and ending at the same time on the first day of the next calendar month.

Net (Inferior) Calorific Value (NCV(25/0)) at Normal Reference Conditions shall be calculated for real gas according to ISO 6976 taking into consideration the normal reference conditions and combustion reference temperature of 25°C . The Net Calorific Value is expressed in $\text{kWh}/\text{V}(0)/\text{m}^3$.

Natural gas or **gas** is a mixture of hydrocarbons (principally methane) and non-combustible components in a gaseous state, prepared for pipeline transmission.

Network User shall mean a natural person or legal entity that holds transportation capacity at the IP, on the basis of a transportation contract concluded either with TRANSGAZ and/or BULGARTRANGAZ. Each Network User is assigned a unique identification code by the respective Operator.

Network User Code shall mean a unique identification code assigned by an Operator to a registered Network User to be used for identification in the procedures and systems administered by the Operator.

Pair of Network Users shall mean the mutually served, in line with corresponding transportation contracts, Network Users or group of Network Users at the both sides of the IP.

Passive TSO shall mean the TSO, which receives the single-sided nominations forwarded by the Active TSO. For the purpose of this IA, BULGARTRANGAZ is the Passive Transmission System Operator.

Normal cubic meter (V(0)/m³): is the gas amount which at the temperature of 0 degrees Celsius (°C) and the absolute pressure of 1.01325 bar, in the absence of water vapours, occupies the volume of one cubic meter (1m³). For the purpose of this IA, this volume is calculated as per Annex 7.

Normal reference conditions of temperature, pressure and humidity to be used for measurement and calculations on natural gas are 273.15 K (=0 °C) and 101.325 kPa (= 1.01325 bar (absolute)) for real dry gas.

Operational Balancing Account (OBA) is a joint account where the Daily Balance Position of both TSOs at the IP is recorded. TRANSGAZ is the TSO responsible for calculating, on a daily basis, the Daily Balance Position and the Total Balance Position and update the Operational Balancing Account accordingly.

Total Daily Allocated Quantity (TDAQ^D) shall mean a quantity defined as:

$$TDAQ^D = \sum_i Q_{AL,F,i}^D - \sum_j Q_{AL,R,j}^D$$

Where:

$Q_{AL,F,i}^D$ is the allocated quantity, expressed in kWh for a given pair of NUs in Forward Flow Direction (RO-BG), during the Gas Day D;

$Q_{AL,R,j}^D$ is the allocated quantity, expressed in kWh (for a given pair of NUs in Reverse Flow Direction (BG-RO), during the Gas Day D;

i , is the pair of NUs active in the Forward Flow Direction (RO-BG) during the Gas Day D;

j , is the pair of NUs active in the Reverse Flow Direction (BG-RO) during the Gas Day D;

Daily Balance Position (DBP) shall mean a quantity calculated on a daily basis, for each Gas Day D of the period of implementation of the **Operational Balancing Account (OBA)** allocation procedure. The calculation of DBP for a specific Gas Day D is performed according to the following formula:

$$DBP^D = TDAQ^D - Q_M^D$$

Where:

Q_M^D is the measured quantity, expressed in kWh of the physical flow through the IP towards the Forward Flow Direction (RO-BG) or in the Reverse Flow Direction (BG-RO) during the Gas Day D;

TDAQ^D is the Total Daily Allocated Quantity during the Gas Day D;

Total Balance Position (TBP) shall mean the actual accumulation of DBP over a consecutive number of Gas Days. The calculation of TBP for each Gas Day D of the period of implementation of the OBA allocation procedure, is performed as follows:

1. For the first Gas Day D of implementation of the OBA allocation procedure, the TBP is set equal to the DBP calculated for this Gas Day D.
2. For each subsequent Gas Day D and up to (and including) the last Gas Day of the period of implementation of the OBA allocation procedure, the TBP for the Gas Day D shall be calculated as the algebraic sum of the TBP of Gas Day D-1 and the DBP for the Gas Day D concerned.

Negative TBP indicates that BULGARTRANGAZ is indebted towards the zero balance position, with a quantity equals to the absolute value of TBP. Positive TBP indicates that TRANSGAZ is indebted towards the zero balance position, with a quantity equals to the value of TBP.

Limitation range (LR) shall mean the allowed range of values of the **Total Balance Position**.

Processed quantity means the quantity of natural gas assessed by Parties, which takes into account the network user's nomination (respectively re-nomination) and contractual provisions as defined under the relevant transport contract;

Confirmed Quantity shall mean the quantity of Natural Gas confirmed to be scheduled to flow on a Gas Day at the IP, taking into account the nominated quantities for that Gas Day at both sides IP and the matching process used for comparing and aligning the Natural Gas quantity requested by the Network Users to be transported at the IP.

Single-Sided Nomination (SSN) shall mean the delivery nomination submitted to the Active TSO by the Network User who successfully booked bundled capacity at the IP.

Standard cubic meter (V(20)/m³) is the gas amount which at the temperature of 20 degrees Celsius (°C) and the absolute pressure of 1.01325 bar, in the absence of water vapours, occupies the volume of one cubic meter (1 m³).

Steering difference means the difference between the quantity of gas that the Parties has scheduled to flow and the measured quantity for an interconnection point.

Time: all the data regarding time shall be expressed using the **UTC INT NC**, except in the Matching Schedule tables (where time shall be in Central European Time).

Upstream Operator: shall mean the Party delivering physically the natural gas.

Water dew point means the temperature at which the water vapours in gas begin to condense at a certain pressure.

Working Day: shall be all days with the exception of Saturdays, Sundays, Romanian and Bulgarian public holidays and rest days based on government decree. Public holidays and other designated rest days must be communicated by both Parties to each other. Communication covering the next calendar year's holidays is expected in written form until 1 December of the previous calendar year.

Working hours: for TRANSGAZ, it shall be from 5:00 UTC to 13:00 UTC in winter time (from last Sunday in October to last Sunday in March and 04:00 UTC to 12:00 UTC in summer time (from last Sunday in March to last Sunday in October). For BULGARTRANGAZ, it shall be from 6:30 UTC to 15:00 UTC in winter time (from last Sunday in October to last Sunday in March and 5:30 UTC to 14:00 UTC in summer time (from last Sunday in March to last Sunday in October).

ARTICLE 7 – BUSINESS RULES

7.1 Network Users' setup and update

On a regular basis and as soon as possible but before the new Network User plans the transmission, new Network User's codes for the Isaccea 1 - Negru Vodă 1 pipeline and/or the BULGARTRNSGAZ's Transmission System, respectively shall be discussed:

- TRANSGAZ shall communicate to BULGARTRNSGAZ the list of Network User codes (according to Annex 1A), which shall be used by the Network Users for nominating gas quantities for transportation in the Isaccea 1 - Negru Vodă 1 pipeline; whilst
- BULGARTRNSGAZ shall communicate to TRANSGAZ the list of Network User codes (according to Annex 1B), which shall be used by the Network Users for nominating gas quantities for transportation in the BULGARTRNSGAZ's Transmission System.

7.2 Matching procedure

- a) The Network Users active on both sides of the IP shall be entitled to submit to BULGARTRNSGAZ and TRANSGAZ the double-sided nomination for Gas Day D no later than UTC 13:00 (in winter time) and UTC 12:00 (in summer time) of the Gas Day D-1.
- b) The Network Users shall submit all single-sided (re-)nominations to the TRANSGAZ, until the deadlines mentioned at a) and g) at the latest.
- c) All single-sided (re-)nominations shall be forwarded by the TRANSGAZ to the BULGARTRNSGAZ for processing using the DELORD – ANC message according to the Edig@s format. This shall be done as soon as technically possible but no later than the beginning of the next full hour after the (re-)nomination was submitted by the Network Users to the TRANSGAZ. In case a single-sided (re-)nomination is forwarded by the TRANSGAZ to the BULGARTRNSGAZ for processing after the beginning of the next full hour, both the TRANSGAZ and BULGARTRNSGAZ shall start processing it in the next re-nomination cycle in order to avoid misunderstandings and with respect to the usage of automated processes in the information systems involved.
- d) By UTC 13:45 (in winter time) and UTC 12:45 (in summer time) of the Gas Day D-1, BULGARTRNSGAZ shall send to TRANSGAZ the DELORD message according to Edig@s-XML format regarding the Processed quantities for delivery/offtake for Gas Day D at IP by Network User pairs. The Processed quantities are accepted to be equally allocated per hours during Gas Day D.
- e) TRANSGAZ shall carry out a matching procedure of the Processed quantities for delivery/offtake at the IP per Network User pairs and within 45 minutes after the receipt of the message under item d) a DELRES message shall be sent to BULGARTRNSGAZ according to Edig@s-XML format. If there is a difference in the Processed quantities at both sides of the IP, then the "lesser rule" shall be applied.
- f) By UTC 15:00 (in winter time) and UTC 14:00 (in summer time) of Gas Day D-1, the Parties shall inform their Network Users about the confirmed quantities. Network Users which submitted single-sided nominations shall be informed by the TRANSGAZ about their confirmed quantities.
- g) Network Users active on both sides of the IP shall have the right to re-nominate between UTC 15:00 (in winter time) and UTC 14:00 (in summer time) of Gas Day D-1 and UTC 02:00 (in winter time) and UTC 01:00 (in summer time) of Gas Day D. The Parties shall start a re-nomination cycle in the beginning of every hour, between UTC 16:00 (in winter time) and UTC 15:00 (in summer time) of Gas Day D-1 and UTC 02:00 (in winter time) and UTC 01:00 (in summer time) of Gas Day D. During each re-nomination cycle the notification

and matching procedure according d) and e) shall apply. For re-nominations a lead time of two hours prior to the start of implementation of the nomination shall apply.

- h) Two hours after the full hour following the Network Users` re-nomination request(s) receipt, the Parties shall inform their Network Users about the confirmed quantities. Network Users which submitted single-sided re-nominations shall be informed by the TRANSGAZ about their confirmed quantities.
- i) Both parties shall have the right to reject an intraday (D) single-/double-sided re-nomination submitted by their Network User if it deviates by more than 15% from the last confirmed day-ahead (D-1) quantity. The last confirmed day-ahead (D-1) quantity shall mean the last quantity confirmed before the beginning of the Gas Day D.
- j) Both parties shall have the right to reject an intraday (D) single-/double-sided re-nomination submitted by their Network User if it deviates by more than 3% from the last confirmed intraday (D) quantity or from the confirmed day-ahead (D-1) quantity in case of first submitted intraday (D) re-nomination by the Network User.
- k) In case a single-/double-sided re-nomination has been rejected by a transmission system operator, the Parties shall use the network user`s last confirmed quantity, if any.
- l) In case the BULGARTRANSGAZ has not sent to the TRANSGAZ, until the expiration of the deadline specified in paragraph d) above, the Processed quantities (DELORD) for a Gas Day D, these will be considered, by the TRANSGAZ, equal to zero (0), for the implementation of the matching process.
- m) In case the BULGARTRANSGAZ has not sent to the TRANSGAZ, in a given re-nomination cycle until the expiration of the deadline specified in paragraph g) above, the Processed quantities (DELORD) for a Gas Day D, the TRANSGAZ shall consider, for the implementation of the matching process, the last Processed quantities for the Gas Day D, which were sent by the BULGARTRANSGAZ to the TRANSGAZ.
- n) In case the TRANSGAZ has not sent the Confirmed quantities (DELRES) as a result of the Day-ahead nomination matching process for a Gas Day D to the ISO, until the expiration of the deadline specified in paragraph e) above, the Confirmed quantities (DELRES) shall be considered equal to zero (0).
- o) In case the TRANSGAZ has not sent a Confirmed quantities (DELRES) for a Gas Day D to the BULGARTRANSGAZ in a given re-nomination cycle, until the expiration of the deadline specified in paragraph e) above, the last Confirmed quantities (DELRES) shall be considered as Confirmed quantities (DELRES) for that re-nomination cycle, as a result of the matching process.
- p) The matching processes under article 7.2 shall be carried out using Edig@s-XML data format. The Parties shall endeavor to provide a redundant data exchange method for the purposes of the matching process via web interface with HTTP/S protocol enabled. Temporary document-based data exchange method is agreed (Annex 2, Annex 3, Annex 2A) and shall be implemented by the Parties until the implementation of the above mentioned data exchange method.

ARTICLE 8 – ALLOCATION

8.1. In respect of the allocation of gas quantities, TRANSGAZ and BULGARTRANGAZ establish allocation procedure ensuring consistency between the allocated quantities at both sides of the IP. This allocation procedure shall be based on the Operation Balancing Account (OBA), specified below.

8.2. Under the OBA allocation procedure the Natural Gas quantity allocated for a Gas Day D to a pair of Network Users at the IP shall be equal to the Natural Gas quantity confirmed for delivery/off-take, for that Gas Day D, to the said pair of Network Users, according to article 7.2.

$$Q_{Al,F,i}^D = Q_{C,F,i}^D \text{ and}$$

$$Q_{Al,R,j}^D = Q_{C,R,j}^D ,$$

where:

$Q_{C,F,i}^D$ is the confirmed quantity, for a given Pair of Network Users in the Forward Flow Direction, during the Gas Day D;

$Q_{C,R,j}^D$ is the confirmed quantity, for a given Pair of Network Users in the Reverse Flow Direction, during the Gas Day D;

$Q_{Al,F,i}^D$ is the quantity allocated, to a given pair of Network Users in the Forward Flow Direction, during the Gas Day D;

$Q_{Al,R,j}^D$ is the quantity allocated, to a given pair of Network Users in the Reverse Flow Direction, during the Gas Day D;

i, is the pair of Network Users active in the Forward Flow Direction during the Gas Day D;

j, is the Pair of Network Users active in the Reverse Flow Direction during the Gas Day D;

8.3. The OBA allocation procedure shall not be applied in the event that:

8.3.1. The gas quality parameters are not in accordance with Annex 5A and Annex 5B of the Agreement and the Parties are not able to perform their daily nominations;

8.3.2. The pressure is not according to the specifications in Article 12 of the Agreement and the Parties are not able to perform their daily nominations.

8.3.3. The provisions of paragraph 9.3, item (b) are implemented;

8.4 For each Day D, when any of the conditions in paragraph 8.3 is in effect, the daily measured quantity is allocated to the pairs of NUs proportionally to their confirmed Natural Gas quantities in both directions of the IP. The OBA allocation procedure shall be re-applied on the next Day D+1 after the Day D in which all of the conditions in paragraph 8.3 are no longer in effect, unless both Parties mutually agree to postpone the application of the OBA for a specific period. Pro-rata allocated quantities shall be calculated by using the following formulas:

In the Forward Flow Direction:

$$Q_{Al,F,i}^D = Q_{C,F,i}^D + Q_{SD}^D * \frac{Q_{C,F,i}^D}{\sum_i Q_{C,F,i}^D + \sum_j Q_{C,R,j}^D}$$

In the Reverse Flow Direction:

$$Q_{Al,R,j}^D = Q_{C,R,j}^D - Q_{SD}^D * \frac{Q_{C,R,j}^D}{\sum_i Q_{C,F,i}^D + \sum_j Q_{C,R,j}^D}$$

Where:

Q_{SD}^D is the steering difference during the Gas Day D:

$$Q_{SD}^D = Q_M^D - \sum_i Q_{C,F,i}^D + \sum_j Q_{C,R,j}^D$$

Each Day for which the pro-rata allocation procedure applies, the OBA is updated by calculating the TBP, considering DBP that equals to zero (0).

8.5. The indicative allocation of Natural Gas quantities shall be carried out via an ALOCAT message according to Edig@s-XML format, for each Pair of Network Users, on a daily basis, until UTC 8:30 (winter time) and UTC 7:30 (summer time) for the previous Day.

ARTICLE 14 – CONSTRAINTS

Whenever a limit for the gas quality specification according to Annex 5A and Annex 5B is approached or exceeded, TRANSGAZ and/or BULGARTRANGAZ shall inform each other thereof and shall take appropriate measures to shut off such gas or organize the flow in a way accepted by the respective Downstream Operator. Depending on the position of the Downstream Operator, the gas will be interrupted or not, whilst the Upstream Operator shall immediately take corrective actions to bring the gas properties back on spec as soon as possible.

If during any Gas Day (D) an unforeseen exceptional/emergency event occurs, which causes capacity reductions, (e.g. compressor outage, or leakage, etc.) TRANSGAZ and/or BULGARTRANGAZ shall react promptly in order to minimize the impact of such an event by using best efforts and all reasonable measures.

Both Parties shall undertake to assure prompt exchange of all relevant information (exchange within 1 hour after occurrence of an emergency), which may affect the quantity of gas being transported in the future and the quality parameters of the gas.

- (a) The communication shall be performed by means of telephone call for information, followed by a written confirmation;
- (b) where an exceptional event occurs on a contracting party's network affecting the interconnection point, the relevant contracting party shall without delay inform and keep informed the other contracting party in respect of the possible impact on the quantities of gas that can be transported over the interconnection point.
- (c) where a contracting party considers there is an evident danger to system security and/or stability and an exceptional event may have an impact on the confirmed quantities of its network users, as soon as reasonably practicable, each contracting party shall inform its respective affected network users that are active at the concerned interconnection point of the consequences for the confirmed quantities;
- (d) once the exceptional event ends, the relevant affected contracting party(ies) shall inform the other contracting party as soon as reasonably practicable and each contracting party shall inform its respective affected network users accordingly.

Contact data of the Parties related to emergency activities are listed in Annex 6A and Annex 6B.