

Daily Imbalance Charge Calculation Methodology

Chapter One GENERAL information

Art. 1. This methodology determines the main requirements, price-setting elements and procedures for the formation and application of daily imbalance charge on the basis of Art. 11, Par. 3, of Natural Gas Trading Rules (SG, No 59/2015, eff. from 04.08.2015).

Art. 2. The methodology is prepared in accordance with the requirements of Commission Regulation (EU) No 312/2014 of 26 March 2014 establishing a Network Code on Gas Balancing of Transmission Networks, and with the requirements of the current national legislation.

Art. 3. The methodology's objective is to guarantee the formation of non-discriminatory imbalance charges for the users of the gas transmission system by creating incentives for the network users on the territory of the country to balance efficiently their balancing portfolios by reflecting the real costs made for balancing activity, including economically based return.

Art. 4. The methodology is applied individually with regards to the balancing zones of natural gas transmission networks on the territory of the Republic of Bulgaria.

Art. 5. (1) The applicable balancing model is a model for daily balancing, using tolerance and financial settlement of occurred daily imbalances.

(2) The balancing entity is purchasing and selling natural gas for balancing, in order to cover the individual imbalances of the users of natural gas transmission networks, subject to balancing.

Art. 6. The balancing entity has a separate accounting for the costs and assets, with which it is performing the balancing activity.

Chapter Two IMBALANCE CALCULATING

Art. 7. For each gas day D, the predetermined daily quantity imbalance (Δ_{np}), allocated to the network user is calculated by the balancing entity, at the next day D+1, by subtraction of the predetermined allocations, off-taken at exit points of the balancing zone by the network user from the predetermined allocations, input at entry points of the balancing zone for the gas day D by the same network user according to the following formula:

$$\Delta_{np} = Q_{np}^{EX} - Q_{np}^{IN} \quad [\quad \Delta_{pr} = Q_{pr}^{en} - Q_{pr}^{ex} \quad]$$

where:

$Q_{\text{np}}^{\text{BX}} [Q_{\text{pr}}^{\text{en}}]$ - the sum of initial allocations to the network user at all entry points in its balancing portfolio for the balancing zone during the gas day D;

$Q_{\text{np}}^{\text{V3X}}$ - the sum of initial allocations to the natural gas network user at all exit points in its balancing portfolio for the balancing zone during gas day D;

Art. 8. The balancing entity informs each network user for the predetermined daily quantity imbalance for day D, no later than 1:00 pm on the next gas day D+1.

Art. 9. (1) At any given time between 1:00 pm of D+1 and 1:00 pm on the fourth day in the month following the month of the accounting day (M+1), the predetermined daily quantity imbalance of the network user for each gas day of the month can be changed as a result of the change in the predetermined daily allocations at the entry and exit points from the balancing portfolio of the user for the respective gas day. Some reasons for the change in the predetermined allocations can be errors in IT - routine procedures, reporting protocols for allocation of quantities between the users at the entry and exit points, human error or discovered deviations from the permissible range of accuracy, found in the readings of the devices for commercial metering.

(2) The balancing entity is allocating to each network user the final imbalance quantities for each gas day of the previous month, after the final allocations of inputs and off-takes for the balancing zone for the respective day are made according to the formula:

$$\Delta_{\text{kp}} = Q_{\text{kp}}^{\text{BX}} - Q_{\text{kp}}^{\text{V3X}} \quad [\quad \Delta_{\text{fin}} = Q_{\text{fin}}^{\text{en}} - Q_{\text{fin}}^{\text{ex}} \quad]$$

where:

1. $Q_{\text{kp}}^{\text{BX}} [Q_{\text{fin}}^{\text{en}}]$ - the sum of final allocations to the network user at the entry points, regarding the gas day D, predetermined according to the formula:

$$Q_{\text{kp}}^{\text{BX}} = Q_{\text{np}}^{\text{BX}} + q^{\text{BX}} \quad [\quad Q_{\text{kp}}^{\text{BX}} = Q_{\text{np}}^{\text{BX}} + q^{\text{BX}} \quad]$$

$Q_{\text{np}}^{\text{BX}} [Q_{\text{fin}}^{\text{en}}]$ - the sum of initial allocations to the network user at all entry points in its balancing portfolio for the balancing zone for the gas day D;

$q^{\text{BX}} [q^{\text{en}}]$ - the adjustment in daily allocations at the entry points after carried out procedure for reallocations (positive or negative) for the gas day D.

2. $Q_{\text{kp}}^{\text{V3X}} [Q_{\text{fin}}^{\text{ex}}]$ - the sum of final allocations to the network user at the exit points on the gas day D, predetermined according to the formula:

$$Q_{kp}^{u3x} = Q_{np}^{u3x} + q^{u3x} \quad [Q_{fin}^{ex} = Q_{fin}^{ex} + q^{ex}]$$

Q_{np}^{u3x} [Q_{fin}^{ex}] - the sum of initial allocations to the network user at all exit points in its balancing portfolio for the balancing zone for the gas day D;

q^{u3x} [q^{ex}] - the adjustment in daily allocations at exit points following the procedure for reallocations (positive or negative) for the gas day D.

Art. 10. (1) The balancing entity provides the network user with information for final allocated daily imbalance quantities for each balancing zone, immediately when it becomes available, but no later than 5:00 pm on the fourth day of the gas month following the reporting month.

(2) If the predetermined daily imbalance quantities and final daily imbalance quantities allocated to the network user for each gas day are different, the calculated daily imbalance charges for each balancing zone are recalculated and this recalculation is based on the predetermined final daily imbalance quantities.

Art. 11. (1) All daily imbalances for the defined balancing zones are a subject of financial settlement to the financial account of the respective user, and for each day of the month the balance of the financial account is changed by the amounts calculated according to the formula:

(2) for the part of the daily imbalance, which is within the provided tolerance:

1. When the absolute value of the daily imbalance is bigger than the calculated tolerance for the day D depending on the sign of imbalance:

$$C_m^D = \pm T^D U_{\text{ITB}}^D \quad [C_t^D = \pm T^D P_{\text{ITB}}^D]$$

2. When the absolute value of the daily imbalance is smaller than the calculated tolerance for the day D

$$C_\tau^D = \Delta^D U_{\text{ITB}}^D \quad [S_t^D = \Delta^D P_{\text{GB}}^D]$$

(3) For the part of the imbalance, which is outside of the provided tolerance – it is calculated when the daily imbalance, in absolute value, is bigger than the calculated tolerance for the day D according to the formula:

1. If the imbalance is positive

$$C_{\text{IT}}^D = (ABS(\Delta^D) - T^D)(U_{\text{ITB}}^D - MK.U_{\text{ITB}}^D)$$

$$[S_{\text{EXT}}^D = (ABS(\Delta^D) - T^D)(P_{\text{GB}}^D - MK.P_{\text{GB}}^D)]$$

2. If the imbalance is negative

$$C_{IT}^D = -(ABS(\Delta^D) - T^D)(\Pi_{ITB}^D + MK.\Pi_{ITB}^D)$$

$$[S_{EXT}^D = (ABS(\Delta^D) - T^D)(P_{GB}^D + MK.P_{GB}^D)]$$

where:

- the sum of settlement of daily imbalance within the tolerance BGN;

C_{IT}^D [S_{EXT}^D] - the sum of settlement of daily imbalance outside of the tolerance BGN;

Π_{ITB}^D [P_{GB}^D] – the price of natural gas for balancing for the day D in BGN/MWh;

T^D – calculated tolerance for the day D, MWh;

Δ^D – value of the predetermined imbalance for the day D, MWh;

SA – small adjustment in %.

(4) The amounts under Art.11, Par.2 and Par.3 are added to the financial account of the respective user for each day of the period of balancing.

(5) Small adjustment, SA, expressed by % within 3% to 10%.

(6) For the first year after introducing the imbalance charge a small adjustment is calculated in the amount of 10%. For each following year the amount of small adjustment is accepted by EWRC following the proposal of the balancing entity.

Art. 12.(1) The tolerance is determined for each network user separately for each balancing zone by the balancing entity on a daily basis, as a percentage of the summary reserved capacity at exit points of the balancing zone for the specific day.

(2) Each gas year, the balancing entity determines the amount of the tolerance as a percentage, the same for all natural gas transmission network users and for all balancing zones, and it cannot be bigger than 5%.

Chapter three

CALCULATING THE PRICE OF NATURAL GAS FOR BALANCING

Art. 13. (1) For each day of the month a price is calculated for natural gas for balancing, according to the formula

$$L_{\Pi B}^D = L_P^D + K_{PB} [P_{GB}^D = P_R^D + C_{RB}]$$

where:

$L_{\Pi B}^D [P_{GB}^D]$ – the price of natural gas for balancing for the day D in BGN/MWh;

$L_P^D [P_R^D]$ – reference price of natural gas for the day D in BGN/MWh;

$K_{PB} [C_{RB}]$ – cost component of the price of natural gas for balancing in BGN/MWh.

(2) The reference price of natural gas for the day D ($L_P^D [P_R^D]$) is calculated for each day of the period for balancing in the following way:

1. When there is an exchange for trading with natural gas and there are carried out more than 10 trade trades for purchase/sale of natural gas for balancing with a volume no less than 6,000 thousand m³ for the day of accounting and the previous 2 days - it is equal to the weighted average price from the carried out trade deals for the period;

2. When the condition under point 1 is not fulfilled – it is equal to the price approved by the public provider for the day, for the sale of natural gas to end suppliers of natural gas and to clients joined to the gas transmission network without included price for transmission through the gas transmission system.

Art. 14. The cost component of the price of natural gas for balancing is a value with positive or negative sign per unit of imbalance, determined by the balancing entity yearly according to the formula:

$$K_{PB} = \frac{H\Pi_B \mp C_d}{\Delta_{год}} \quad [C_{RB} = \frac{NYR_B \square S_d}{\Delta_{year}}]$$

where:

$K_{PB} [C_{RB}]$ – the cost component of the price of natural gas for balancing, BGN/MWh;

$H\Pi_B [NYR_B]$ – required yearly revenues for the activity of balancing, BGN;

$C_d [S_d]$ – yearly transferred amount from the account for neutrality at balancing, BGN;

$\Delta_{год} [\Delta_{year}]$ – expected summary yearly imbalance, common for all balancing zones, MWh.

Chapter Four

Required revenues for balancing activity

Art. 15. Required yearly revenues for balancing activity are determined yearly from the balancing entity according to the formula:

$$НГП_{\text{б}} = ОПР + АМ + ББ \cdot HB \quad [NYR_{\text{б}} = POC + De + BR \cdot NR]$$

where:

О П Р [POC] are estimated operational yearly costs for balancing activity of natural gas for the year of calculating;

А м [De] - depreciation costs of assets, with which the balancing activity is carried out, reported for the previous fiscal year;

Б Б [BR] - basis of return;

Н Б [NR] – the rate of return on capital.

Art. 16. The basis of return is calculated according to the formula:

$$ББ = А - \Phi - АМН + НОК \quad [BR = A - F - Den + NWC]$$

where:

А is the value of assets, with which the balancing is performing and which have useful life at the end of the previous fiscal year;

Φ [F] – the balancing value at the end of the previous fiscal year of assets, servicing the activity, which are acquired through financing or by the way of grants, including grant schemes, donations, assistance, from clients etc.;

А м н [Den] - aggregated depreciation at the end of the previous fiscal year of assets, with which the balancing is performed;

Н О К [NWC] - required working capital for carrying out the activity of balancing for the year of calculating;

Art. 17. (1) The required working capital reflects the results of the research on the necessary funds for maintaining of enough amount of financial funds for fulfilling the current obligations, as well as the obligations toward providers.

(2) In connection with the calculation of the required yearly revenues under Art.15, the balancing entity carries out a research on the required working capital.

(3) The working capital is calculated on the basis of the so-called “net cycle of the working capital”, based on the days, for which the balancing entity returns the spent financial funds directly related to the balancing activity, by receiving the respective income.

Art. 18. (1) The required working capital is calculated as part of the financial costs, directly related to the activity corresponding to the net cycle of the working capital for one year, according to the following formula:

$$НОК = \frac{ГПР}{N_{\text{пс}}},$$

where:

Г П Р [YFC] – yearly financial costs;

$N_{nc} [N_{FC}]$ – average number of cash cycles for one year.

Art. 19. If the balancing entity does not carry out the research, the working capital is calculated not higher than 1/8 from the yearly operational financial costs for the activity, including the costs for purchasing of operating gas and providing a reserve from it, in order to carry out the physical balancing of the natural gas transmission networks.

Art. 20. (1) The rate of return on capital is calculated as rate before taxes. It is equal to the weighted average cost of capital ($C \pi \lambda K$ [WACC]), calculated for the total capital of the balancing entity according to the formula.

$$HB = \mathcal{D}_{CK} * \left(\frac{HB_{CK}}{1 - \frac{\mathcal{D}C}{100}} \right) + \mathcal{D}_{IK} * HB_{IK}$$

$$NR = SH_{oc} * (NR_{oc} / 1 - IT / 100) + SH_{BC} * RR_{BC}$$

where:

$HB [RR]$ – the rate of return on capital before taxes in %;

$\mathcal{D} c \kappa [SH_{oc}]$ – share of own capital in the total capital, in %;

$HB c \kappa [RR_{oc}]$ – the rate of return of own capital after taxes;

$\mathcal{D} C [IT]$ – income tax under the Law for corporate income tax, in %;

$\mathcal{D} n \kappa [SH_{BC}]$ – share of borrowed capital in the total capital, in %;

$HB n \kappa [RR_{BC}]$ – the rate of return on borrowed capital.

(2) With its decision, the Energy and Water Regulating Commission (EWRC) approves the rate of return of own capital following the proposal of the balancing entity, or it determines the target rate of return on capital.

(3) Each year, when calculating the required yearly revenues under Art. 15, the balancing entity calculates the return rate pursuant to this article.

Chapter Five

NEUTRALITY ACCOUNT AT BALANCING

Art. 21. (1) The account for neutrality is kept by the balancing entity, which at the end of each gas year determines the yearly financial balance for the activity of balancing, according to the formula:

$$\Phi C_B = \Pi_B - P_B - B_B \quad [FS_B = R_B - C_B - R_B]$$

where:

$\Pi_B [R_B]$ – yearly revenues of the activity of balancing, including revenues from the sale of surpluses of natural gas, resulting from carrying out the activity, and revenues from the

differences in the prices of purchased natural gas for physical balancing and realised natural gas for carrying out of balancing activity;

$P_{\text{B}} [C_{\text{B}}]$ – yearly costs for carrying out the activity, including:

- costs for purchasing natural gas for physical balancing;
 - costs for purchasing natural gas for commercial balancing;
 - operational costs for carrying out the activity;
 - yearly depreciations of assets, with which the balancing activity is performed.
 - costs from differences in the prices of purchased natural gas for physical balancing and realised natural gas for carrying out of balancing activity;
- $[R_{\text{B}}]$ the determined return on the basis for return calculated according to Art. 16.

Art. 22. (1) The determined yearly financial balance from the activity ΦC_{B} [FSB] with positive or negative sign is aggregated in the account for neutrality at the balancing.

(2) The balancing entity strives to achieve zero value of the account for neutrality at balancing, and at the end of each gas year it undertakes action for releasing the whole or part of the aggregated value.

(3) The balancing entity releases/compensates annually part of the aggregated sum by adjustment of cost component of the price of natural gas for balancing, when:

1. At a positive value of the account for neutrality, the balancing entity can release an amount not bigger than the determined under Art.15 required yearly revenues for the activity of balancing;

2. At a negative value of the account for balancing, the balancing entity can compensate an amount not bigger than twice the determined under Art.15 required yearly revenues for the activity of balancing;

(4) If, after carrying out the operation under Par. 3, in the account remains the determined positive sum and if the balancing entity is also an operator of natural gas transmission networks, for which it performs balancing, then it can release the aggregated amount by including it in the calculation of the prices for access and transmission of natural gas in the directly transferred costs for the next pricing period with negative sign.

Chapter Six

SETTLEMENT OF IMBALANCES. INVOICING AND PAYMENT

Art. 23. (1) For each network user, the balancing entity keeps a financial balancing account. In this account, it aggregates the daily financial settlements of allocated imbalances for each balancing zone separately, according to Art. 11. All imbalance charges, subject of the daily financial settlements, are entered in the financial balancing account.

(2) When calculating the final quantities of imbalance, different from the initial determined for the gas day, the balancing entity re-calculates the meaning of the financial balancing account having in mind the determined final imbalance quantities.

Art. 24. The aggregated by the financial account imbalance charges are settled to/from the network users monthly. When the balance of the financial account for the month is negative, the balancing entity issues invoice to the network user for the aggregated amount; when the balance of the financial account for the month is positive, the network user issues invoice for the aggregated balance within 7 days from the date of calculating the final imbalances. In the beginning of each month, the financial account is reset to zero, and daily imbalance charges for the new month start to aggregate therein.

Art. 25. (1) The monthly invoice carries out the value determined from all calculations regarding the daily allocation imbalance for each balancing zone separately, and the applied prices for imbalance on a daily basis. The network user pays to/receives from the balancing entity the resulting total amount in BGN.

(2) For calculating the value of monthly invoice, the balancing entity prepares summary for settlement of imbalances by days of the month and by balancing zones for each user of natural gas transmission networks, within 2 days term of the date of calculating the final imbalances, and within the same term, it sends it by e-mail or fax to the respective user.

(3) Up to 2 days after its receiving, the user sends the signed by it monthly statement by e-mail or fax to the balancing entity. When the balancing entity has not receive the signed by the user monthly statement in the set time, the signed only by the balancing entity monthly statement is considered valid.

(4) The user has the right to challenge the statement or part thereof or to submit additional evidence accepted by the Balancing entity that require a change in the summary and he shall be liable to accept/issue an invoice based on the summary irrespective of the challenge

Art. 26. (1) All payments from/to the network user are carried out by bank transfer to bank accounts, provided by the two parties.

(2) All payments are made in BGN.

(3) The payment of monthly invoices is made up to 25 day of the month of issuing the invoices and after presenting duly issued invoice by the issuing party.

(4) The payments are considered carried out, if the amount is transferred to the bank before 11:00 on the date of payment.

Chapter Seven

ORDER OF CALCULATING AND CHANGING OF THE PRICE-SETTING ELEMENTS, FORMING THE IMBALANCE CHARGE

Art. 27. (1) Within 2 (two) months before the beginning of each gas year, the balancing entity determines the required revenues for balancing activity for the gas year by the order

of this methodology; the amount for releasing/compensating from the account for neutrality at the balancing; the amount of the tolerance in percents, according to Art. 12; and the amount of small adjustment in percent, according to Art. 11, Par. 5.

(2) On the basis of the determined values under Art. 15 and Art. 22 Par. 3, and the total forecast amount of the yearly imbalance total for all balancing zones, the balancing entity calculates the cost component of the price for imbalance according to Art. 14.

(3) The balancing entity publishes a draft of the decision of its managing body for calculating the price-setting elements of imbalance charge for the gas year on its web page within 2 (two) months before the beginning of the new gas year.

(4) The balancing entity organises and holds public consultation of the draft under Par. 3.

Art. 28. (1) The procedure for public consultation starts with announcing of the draft of the decision of the managing body of the balancing entity on its web page.

(2) The balancing entity determines the time for presenting opinions on the draft of the decision, which cannot be less than 14 days.

Art. 29. (1) After concluding the procedure for public consultation, the balancing entity adopts a decision for the price-setting elements of the imbalance charge.

(2) Within 3 (three) days after the date of adoption, the balancing entity sends to EWRC a copy of the adopted decision together with the following information: the values of the price-setting elements, description of the approach and the specific calculations used for the establishment of the price-setting elements, as well as the starting parameters for their calculations, the opinions of the stakeholders taken from the carried out public consultation, and the comments of the balancing entity on each opinion.

Art. 30. (1) The balancing entity publishes the decision for the adoption of the price-setting elements in mass media and on its web page, no later than 7 days before the beginning of the gas year.

(2) The balancing entity provides on its page updated information for the price-setting elements and methodologies, related to the formulation, calculation and application of daily imbalance charges, as well as daily announcement of the price of natural gas for balancing, calculated by this methodology.

Art. 31. When exercising its authority, EWRC is carrying out continuous observation, monitoring and control of the activity of the balancing entity in accordance with the applicable legislation.

Art. 32. (1) By its initiative, at any given time EWRC, with its decision and by the order and conditions of the current legislation, can give prescriptions to the balancing entity about the application of this methodology, and can determine the time of their fulfilment.

The time should be enough to allow the balancing entity to undertake the necessary actions.

(2) The balancing entity is obliged to fulfil the prescriptions or the mandatory instructions in the determined time.

ADDITIONAL PROVISIONS

§ 1. By the meaning of this methodology:

1. **Imbalance quantity** is the difference between the daily allocations passing through the entry points of the transmission network in the balancing portfolio of the network user and the daily allocated to it quantities at the exit points of the network. The imbalance can be positive or negative. The quantities of the daily imbalance are given in MWh.

2. **Tolerance** is a determined by the balancing entity range of possible imbalance, within which a special regime of calculating the daily imbalance charge is applied.

3. **A financial balancing account** is an account for each individual user of the gas transmission network, in which are aggregated the results of the daily quantities of imbalance (positive or negative), subject of financial settlement at the end of the gas day, and valid for the respective gas day price for natural gas for balancing (within and out of determined tolerance).

4. **Gas day** is a period of twenty-four (24) hours, starting at 7:00 am local time (Sofia) on the respective day. The current gas day is marked as D. The previous gas day is marked as D - 1.

5. **Gas month** is a period of twenty-eight (28) to thirty-one (31) gas days, starting and finishing within one and the same day of the month at 7:00 am local time (Sofia). The current gas month is marked as M. The next gas month is marked as M +1.

6. **Network user** is any natural or legal person registered by the network operators as a user of the transmission network, which intends to use the transmission services.

7. **Entry point** is a physical point of the gas transmission network consisting of one or more natural gas acceptance points.

8. **Exit point** is a physical point of the gas transmission network consisting of one or more natural gas delivery points.

9. **Neutrality balancing account** is a financial account kept by the balancing entity for the purpose of achieving neutrality about the revenues and costs for the activity.

10. **Pricing period** is a period of one year, during which the cost component of the price of natural gas for balancing remains unchanged.

11. **Small adjustment** is a correction in the price of natural gas for balancing, expressed by a percentage of it, applied with a positive or negative sign, depending on the sign of imbalance for the purpose of calculating the daily imbalance charges.

12. **Virtual trading point** is a non-physical point through which the network users can transfer between themselves the property of natural gas.

13. **Imbalance charge** is a sum of money calculated on a daily basis, which the network user pays or receives depending on the amount of its daily imbalance;

14. **Balancing portfolio** is the sum of inputs and off-takes of a network user;

15. **Balancing zone** is an entry-exit system, about which a special regime for balancing is applied.

TRANSITIONAL AND FINAL PROVISIONS

§ 2. This methodology is adopted by EWRC with a decision No from on the basis of Art. 11, Par. 3 of the Natural Gas Trading Rules and in accordance with the requirements of Directive 2009/73/ E C of the European Parliament and of the Council on common rules of the internal market of natural gas and the requirements of Regulation (EU) No 312/2014 of the Commission, establishing a Network Code on Gas Balancing natural gas transmission networks.

§ 3. The methodology can be changed by the initiative of EWRC or by the proposal of the balancing entity. Any changes in the methodology are effective after their approval by EWRC in accordance with the current legislation, and to that time, the last approved by EWRC methodology is applied.

§ 4. This methodology becomes effective from the day of its publishing in State Gazette.