Technical Rule no. 15 Rev. 05 MGAS

(under article 4 of the Natural-Gas Market Rules, approved by the Ministry of Economic Development with its Decree of 6 March 2013, as subsequently amended and supplemented)

Title	**Verification of Order Adequacy and Guarantee Coverage**

Reference legislation	Article 72, paras. 72.1, 72.2, 72.4 and 72.6 of the Natural-Gas Market Rules

In force from….

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1. Foreword

Article 31, para. 31.1, subpara. g), Article 105 quinquies, para. 105 quinquies.2, subpara. d), Article 36, para. 36.1, subpara. g), and Article 58, para. 58.1, subpara. g) of the MGAS Rules provide that, after receiving each order in the MGP-GAS, MI-GAS, and MT-GAS, respectively, GME shall check whether the order is guaranteed under Article 72 of the same Rules.

Article 43, para. 43.2, subpara. e) of the MGAS Rules provides that, for the MPL, GME shall check whether each buy order is guaranteed under Article 72 of the same Rules.

Article 51, para. 51.2, subpara. e) of the MGAS Rules provides that, for the MGS, GME shall check whether each buy order is guaranteed under Article 72 of the same Rules.

Article 26, para. 26.5, subpara. b) of the MGAS Rules provides that the registration of the Market Participant's net position shall be allowed if it is guaranteed under Article 72 of the same Rules.

Article 72 of the MGAS Rules stipulates that:

- GME shall determine and update the available amount of the guarantee taking into account the allocation made by the Market Participant in accordance with the modalities and within the time limits defined in the Technical Rules (para. 72.1);
- if the guarantee is insufficient, the Market Participant must adjust the guaranteed amount according to the time limits and conditions defined in the Technical Rules (paragraph 72.2). Pending the adjustment of the guaranteed amount, the Market Participant may not conclude trades that increase the Market Participant's exposure towards GME, as indicated in the Technical Rules (paragraph 72.2).
- GME shall determine and update the available amount of the guarantee and carry out the adequacy verifications under the procedures specified in the Technical Rules and the principles stated in the same Article 72 (para. 72.4);
- GME shall decrease the Market Participants' guaranteed amount by a value specified in the Technical Rules (para. 72.4, subpara. a));
- Buy and sell orders submitted into the MGP-GAS, MI-GAS, and MT-GAS shall be verified as adequate if the payables/receivables resulting therefrom are covered to the extent indicated in the Technical Rules (paragraph 72.4, subpara. b));
- when the circumstance of participation in the netting markets occurs, the amount of the guarantee considered for the verification of the adequacy of orders submitted by the Market Participant into the MPGAS shall be determined taking into account, in a unified manner, also

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the participation in the MGP and MI, in accordance with the Integrated Text of the Electricity Market Rules (paragraph 72.4, subparagraph f));

- the values of the parameters α and β shall be defined in the Technical Rules (para. 72.6).

Article 102, paragraph 102.2, subpara. e) of the MGAS Rules provides that, in the AGS, GME shall verify that each order submitted by participants other than Snam Rete Gas is guaranteed pursuant to Article 72 of the same Rules.

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2. MGAS netting markets guarantee system

2.1 Definition of adequacy verifications in the MPGAS guarantee system

2.1.1 Adequacy verifications

As part of its guarantee system, GME carries out financial adequacy verifications to assess whether the available amount of the guarantee of each Market Participant is sufficient to cover its exposure for each payment date (settlement), calculated on the basis of orders submitted and positions held.

The available amount of the guarantee (C) is obtained by the algebraic sum of the guarantee (G)[1], calculated as described in paragraph 2.2 below, and the exposure (E)[2], calculated as described in this paragraph:

Equation 1

$$C^{MPGAS} = G^{MPGAS} + E^{MPGAS}$$

The adequacy verification of the guarantee is successful if:

$$C^{MPGAS} \geq 0$$

With reference to component E, the exposure referred to the trading day t and the flow day g ($E_{t,g}$) and the credit position relating to the settlement period S (CR_S), as defined in paragraph 2.5 below, for which the verification is being carried out, will be considered by taking also into account the exposure and the credit position relating to the settlement periods S±N other than S only if in debit ($P_{S±N}$).

[1] It can be a positive or zero value.
[2] It can be a negative or zero value.

$$E^{MPGAS} = CR_S + \sum_{t \in S} E_{t,g} + \sum_{\forall S \pm N \neq S} P_{S \pm N}$$

where

$$P_{S \pm N} = se\left[\left(CR_{S \pm N} + \sum_{t \in S \pm N} E_{t,g}\right) < 0; CR_{S \pm N} + \sum_{t \in S \pm N} E_{t,g}\,; 0\right]$$

The amount of the guarantees and of the credit position suitable to cover the exposure is determined in light of the principle that adequacy verifications must be carried out considering that the trading date t to which the individual exposures $E_{t,g}$ refer falls within the period of validity of the guarantees and that the flow date g to which the individual exposures $E_{t,g}$ refer falls within the same settlement period as the credit position relating to the reference market.
The guarantee allocation algorithm in the context of adequacy verifications gives priority to the resource with the earliest expiration date for the coverage of individual debt exposures. If, during the relevant settlement period, there are no expiring bank guarantees, the allocation algorithm will first use the net credit positions to be settled in the same period, then the bank guarantees with a later expiration and then the bank guarantees with no expiration date and the non-interest-bearing cash deposits.

If there is a bank guarantee expiring during the settlement period of reference, for individual exposures with a trading date equal to or prior to the expiration date of the guarantee, the allocation algorithm will follow, instead, the following order: 1) bank guarantee with expiration during the settlement period, 2) net credit positions, 3) any other bank guarantees with expiration date, 4) guarantees with no expiration date and non-interest-bearing cash deposits. For exposures with a trading date subsequent to the expiration date of the bank guarantee, the priority rules set out in the previous paragraph shall apply.

2.1.2 Adequacy verifications on proposals

Proposals submitted into the MPGAS are considered to be adequate if the guarantee is sufficient, i.e. when C≥0.

If this condition is not met, the proposals will not be accepted.

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2.1.3 Other cases of update of the available amount of the guarantee

The available amount of the financial guarantee on the netting markets of the MGAS is also recalculated:

- upon withdrawal of a buy/sell order from the MPGAS order book;
- upon registration at the PSV of the net position resulting from the MGP-GAS and MI-GAS;
- at the end of each MGP-GAS and MI-GAS market session;
- upon updating the MPGAS check price[3];
- upon updating the MPGAS parameter α;
- upon terminating the ASG, MGS and MPL auctions;
- upon the modification of the VAT code;
- upon updating the amount of the guarantee;
- upon settlement of payments[4].

The position is guaranteed if the guaranteed amount is sufficient. If the result of the check is negative, where an order, which has already been verified as adequate at the time of submission, is no longer adequate as a result of an event that leads to a situation of guarantee insufficiency (C<0) for the Market Participant (e.g. updating of check prices, modification of the VAT code, etc.), the order is to be revoked.

2.2 Definition of the guarantee for adequacy verifications

The amount of guarantees provided by each Market Participant, in the form of bank guarantee or non-interest-bearing cash deposit[5], is reduced by an amount called maintenance margin (MM).

Considering the fact that each Market Participant may determine the guaranteed amount to allocate in the netting markets of the MGAS[6], the guarantee is equal to:

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[3] See Art. 2, para. 2.1, subpara. fff) of the MGAS Rules.
[4] Payments shall mean payments done to completely settle market payables/receivables according to Technical Rule no. 16 MGAS and, if the Market Participant also participates in the ME, according to Technical Rule no. 08 ME. Therefore, in case of partial payments with respect to the amount due, the guarantee capacity is not updated.
[5] PA Market Participants can only issue guarantees in the form of non-interest-bearing cash deposits.
[6] The sum of the shares of the guarantee distributed among the PCE, MPEG, MTE, MT-GAS and the netting markets, as distributed by the Market Participant, must be 100%.

Equation 2

$$G^{MPGAS} = \left(\sum_i F_i + \sum_j D_j \right) \times \partial^{MPGAS} \times (1 - MM^{MPGAS})$$

where:

G = guarantee;

F_i = amount of the i-th bank guarantee posted by the Market Participant

D_j = amount of the j-th cash deposit made by the Market Participant

∂^{MPGAS} = part of the guarantee allocated to the netting markets of the MGAS (where $0 \leq \partial^{MPGAS} \leq 1$[7]);

MM^{MPGAS} = maintenance margin on the netting markets of the MGAS.

The maintenance margin for the portion of the guarantees allocated to the netting markets of the MGAS is set at 3%, of which 2% to cover default interest for late payment and 1% to cover the penalty.

It should be noted that for a bank guarantee to be considered suitable to cover an exposure, the period of validity of the bank guarantee must include the trading date on which the exposure occurs. If the expiration dates of all bank guarantees posted are later than the trading dates on which the exposures arose, these guarantees may be considered cumulatively and indistinctly, together with the non-interest-bearing cash deposit, for the purpose of covering the total exposure. Otherwise, for each exposure, only bank guarantees whose period of validity includes the date on which the exposure arose will be considered. It is understood that each exposure is in turn associated with a given flow day falling within a given settlement period.

2.3 Definition of the exposure for the guarantee adequacy verifications on the MGP-GAS and MI-GAS

For adequacy checks purposes, the exposure relating to the MGP-GAS and MI-GAS is given by the operations in both continuous-trading and auction-trading sessions, as subsequently represented in paragraphs 2.3.1 and 2.3.2, respectively.

[7] See note 6.

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Each proposal, submitted in the continuous-trading MGP-GAS and MI-GAS order book (see 2.3.1.1) or collected during the AGS auction (see 2.3.2.1) and/or the MGP-GAS auction[8] (see 2.3.1.1), after the closure of the market sitting generates guarantee absorption, per single trading day - defined as the closing day of the session[9] in which the participant is operating - in association with the flow day[10] (hereinafter: "gas-day") in question, depending on:

(1) the mark-to-market, namely the differential between the offer price and the check price, calculated for both sell and buy positions (EC exposure);

(2) the share - measured by the Alpha parameter - of the value of the sell order (EF exposure) or of the entire value of the buy orders valued at the check price (PF exposure).

Subsequently, each position on the MGP-GAS and MI-GAS resulting from trading (see 2.3.1.2), with reference to each single trading day t and single gas-day g, not yet subject to delivery, generates guarantee absorption depending on:

I. the mark-to-market, namely the differential between the trading price and the check price, calculated for both sell and buy positions;

II. the share - measured by the Alpha parameter - of the value of the net sell position until delivery or the entire value of the net buy position (valued at the check price) until settlement.

Finally, each position delivered, resulting from the MGP-GAS and MI-GAS (see 2.3.1.3) or any position generated as a result of the AGS (see 2.3.2.2), with reference to each trading day t and

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[8] See Subsection IV “Transitional Provisions regarding Auctions under Art. 10 of Law-Decree 21/2026” of the MGAS Rules.

[9] For the MGP-GAS and MI-GAS, the trading date will be uniquely equal to the date on which the participant offers/matches. For example, for the participant offering in the session of 8 November 2017 opening at 06:00 a.m. and closing at 02:30 a.m. on 9 November, any order possibly present on the order book at 00:00 a.m., and verified to be adequate at the time of submission in relation to the trading date of 8 November, will be subject to a new financial adequacy check, automatically carried out by the system at 00:00 a.m., with reference to the trading date of 9 November.

[10] Or to single consecutive and following gas-days in case of a weekend product or of a working days next week product.

gas-day g, determines the calculation of the PF component of the exposure in an amount equal to 100% of its value.

Specifically, in order to determine the exposure on the MGP-GAS and MI-GAS, the individual components of exposure deriving from continuous and auction trading will be considered as an addition:

Equation 3

$$EC_{t,g}^{MGP+MI} = EC_{t,g} + EC'_{t,g}$$

where:

$EC_{t,g}^{MGP+MI}$= overall exposure component of the MGP-GAS and MI-GAS relating to the mark-to-market;
$EC_{t,g}$= exposure component arising from the sittings of the MGP-GAS and MI-GAS and relating to the mark-to-market;
$EC'_{t,g}$ = exposure component resulting from the sittings of the AGS relating to the mark-to-market.

Equation 4

$$EF_{t,g}^{MGP+MI} = EF_{t,g} + EF'_{t,g}$$

where:

$EF_{t,g}^{MGP+MI}$= overall exposure component of the MGP-GAS and MI-GAS relating to the Alpha parameter;
$EF_{t,g}$= exposure component arising from the sittings of the MGP-GAS and MI-GAS and relating to the Alpha parameter;
$EF'_{t,g}$ = exposure component resulting from the sittings of the AGS and relating to the Alpha parameter.

Equation 5

$$PF_{t,g}^{MGP+MI} = PF_{t,g} + PF'_{t,g}$$

where:

$PF_{t,g}^{MGP+MI}$= overall exposure component of the MGP-GAS and MI-GAS relating to the entire value;
$PF_{t,g}$= exposure component arising from the sitings of the MGP-GAS and MI-GAS and relating to the entire value;
$PF'_{t,g}$ = exposure component arising from the sittings of the AGS and relating to the entire value.

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2.3.1 Definition of the exposure with reference to the sessions of the MGP-GAS and MI-GAS

2.3.1.1. Exposure on proposals

With reference to the calculation in point **(1)** of paragraph 2.3, upon presentation of a proposal, whether a buy or sell order, in the sessions of the MGP-GAS and MI-GAS, the following EC component is calculated:

Equation 6

$$EC_{t,g} = \sum_i Se\left[\left(Pp_i * (1+VAT) - PC_g * (1+VAT)\right) \times QP_{t,g,i} \geq 0; 0; QP_{t,g,i} * \left(Pp_i * (1+VAT) - PC_g * (1+VAT)\right)\right]$$

where:

$EC_{t,g}$ = exposure determined by all proposals for trading day t of any type of contract on the gas-day g;

t = trading day, corresponding to the date when the session where orders are submitted/matched/awarded closes

g = gas-day

i = i-th contract

Pp_i = proposal price

PC_g = check price of the gas-day g

$QP_{t,g,i}$ = volume of the proposal for the i-th contract referred to the trading day t and gas-day g, with a negative sign for buy orders and a positive sign for sell orders

VAT = tax rate applicable to the Market Participant on the transactions of the same sign with respect to the contract when referred to the Pp_i price or the tax rate applicable to the Market Participant on the opposite transactions with respect to the i-th contract when referred to the PC_g price.

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As regards the calculation in point **(2)** of paragraph 2.3, the determination of the exposure depends on the sign of each order:

- For sell orders, the EF exposure, equal to the Alpha parameter applied on their value, is determined:

Equation 7

$$EF_{t,g} = -\left[\sum_{i \forall QP_{t,g,i}>0} QP_{t,g,i} \times \alpha \times PC_g \times (1 + VAT)\right]$$

- For buy orders, the PF exposure, equal to 100% of their value, is determined:

Equation 8

$$PF_{t,g} = \sum_{i \forall QP_{t,g,i}<0} QP_{t,g,i} \times PC_g \times (1 + VAT)$$

where:

$EF_{t,g}$ = exposure equal to a part (measured by the Alpha parameter) of the value of all sell orders on the trading day t and referred to gas-day g;

$PF_{t,g}$ = exposure equal to 100% of the value of all buy orders on the trading day t and referred to gas-day g;

α = Alpha parameter.

2.3.1.2 Exposure on a position traded, but not delivered

As regards the calculation in point **I.** of paragraph 2.3, for each transaction carried out in the sessions of the MGP-GAS and MI-GAS, whether a purchase or a sale, the following EC component is calculated:

Equation 9

$$EC_{t,g} = \sum_i \left[\left(P_i * (1 + VAT) - PC_g * (1 + VAT)\right) \times Q_{t,g,i}\right]$$

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where:

$EC_{t,g}$ = exposure determined by all contracts traded on trading day t for gas-day g but not yet delivered;

i = i-th contract

P_i = trading price

PC_g = check price of the gas-day g

$Q_{t,g,i}$ = volume of the trade on trading day t of the i-th contract referred to gas-day g, with a negative sign for buy orders and a positive sign for sell orders

VAT = tax rate applicable to the Market Participant on the transactions of the same sign with respect to the i-th contract when referred to the price P_i or tax rate applicable to the Market Participant on the transactions of opposite sign with respect to the i-th contract when referred to the price PC_g

With reference to the calculation in point **II.** of paragraph 2.3, guarantee absorption depends on the sign of the net position considered,

- If the net position is a sell position, the EF exposure, equal to a part, measured by the Alpha parameter, of its value, is determined:

Equation 10

$$\sum_i Q_{t,g,i} > 0$$

$$EF_{t,g} = -\left[\sum_i Q_{t,g,i} \times \alpha \times PC_g \times (1 + VAT)\right]$$

- If the net position is a buy position, the PF exposure is determined as 100% of its value:

Equation 11

$$\sum_i Q_{t,g,i} < 0$$

$$PF_{t,g} = \sum_i Q_{t,g,i} \times PC_g \times (1 + VAT)$$

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where:

EFt,g = exposure equal to a portion (measured by the Alpha parameter) of the value of the net sell position traded on the trading day t and referred to the gas-day g, but not yet delivered;

PFt,g = exposure equal to 100% of the value of the net buy position traded on the trading day t and referred to the gas-day g but not yet delivered.

2.3.1.3 Exposure on the traded and delivered position

With reference to each trading day t and flow day g, each held position for transactions concluded in the sessions of the MGP-GAS and MI-GAS already delivered by registration at the PSV, determines the calculation of the PF exposure[11] equal to 100% of its value, to be settled on the settlement date.

This PF component is calculated as:

Equation 12

$$PF_{t,g} = \sum_{i} Q_{t,g,i} \times P_i \times (1 + VAT)$$

where:

VAT = VAT rate applied to the transaction.

2.3.2 Definition of the exposure in the AGS

2.3.2.1. Exposure on proposals

With reference to the calculation referred to in point **(1)** of paragraph 2.3, upon collection of the proposals at the closing of the auction, whether for purchase or sale, the system calculates the following EC^{l} component:

Equation 13

$$EC'_{t,g} = \sum_{i} Se \begin{bmatrix} \left(Pp_i * (1 + VAT) - PC_g * (1 + VAT)\right) \times QP_{t,g,i} \geq 0; 0; \\ QP_{t,g,i} * \left(Pp_i * (1 + VAT) - PC_g * (1 + VAT)\right) \end{bmatrix}$$

[11] The sign depends on the net position (buy or sell) sign.

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where:

$EC^{I}_{t,g}$ = exposure on all the proposals of the trading day t on any type of contract present on the gas-day g;

t = trading day, corresponding to the closing date of the session in which orders are submitted/the auction is awarded

g = gas-day

i = i-th contract;

Pp_i = price of proposal;

PC_g = check price of gas-day g;

$QP_{t,g,i}$ = volume covered by the proposal for the i-th contract referred to the trading day t and the gas-day g, with a negative sign for purchases and a positive sign for sales;

VAT = VAT rate applicable to the participant on transactions of the same sign with respect to the contract when referred to the Pp_i price or VAT rate applicable to the participant on transactions of opposite sign compared to the contract when referred to the PC_g price.

With reference to the calculation referred to in point **(2)** of paragraph 2.3, the determination of the exposure depends on the sign of the individual orders:

- For sell orders, the EF^{I} exposure is determined, equal to the share, measured by the Alpha parameter, of the value of such sell orders:

Equation 14

$$EF'_{t,g} = -\left[\sum_{i \forall QP_{t,g,i}>0} QP_{t,g,i} \times \alpha \times PC_g \times (1 + VAT)\right]$$

- For buy orders, the PF^{I} exposure, equal to 100% of their value, is determined:

Equation 15

$$PF'_{t,g} = \sum_{i \forall QP_{t,g,i}<0} QP_{t,g,i} \times PC_g \times (1 + VAT)$$

where:

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$EF^{I}_{t,g}$ = exposure equal to a share (measured by the alpha parameter) of the value of all the sell orders entered in the order book on trading day t and referred to gas-day g

$PF^{I}_{t,g}$ = exposure equal to 100% of the value of all the buy orders entered in the book on the trading day t and referred to the day-gas g;

α = Alpha parameter.

2.3.2.2. Exposure on the traded position

Each position determined following the AGS[12], with reference to each trading day t and gas-day g, and subject to settlement on the settlement date, determines the calculation of the PF^{I} component of the exposure in the amount of 100% of the value of the same; the calculation of the PF^{I} component is based on the following formula:

Equation 16

$$PF'_{t,g} = \sum_{i} Q_{t,g,i} \times P_i \times (1 + VAT)$$

where:

VAT: VAT rate applied to the transaction.

2.4 Definition of the exposure on the MGS and MPL

2.4.1 Exposure on proposals

Exposure calculation is based on the principle that:

- a purchase generates exposure based on 100% of its value;

- a sale does not generate exposure, since the successful outcome of delivery is always guaranteed both (i) on the MGS, where trading takes place within the limits of the volumes of gas stored at Stogit or another storage company, and (ii) on the MPL, where trading takes place within the sales limits sent by SRG.

During the adequacy check, after the closing of the market sitting of the MGS and MPL, for the acceptance of the orders collected for the determination of the auction results, the proposals

[12] The delivery is considered simultaneous with the awarding of the auction.

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generate exposure, for a single trading day[13] uniquely linked to a single gas-day, according to the worst scenario, i.e. awarding of buy orders only.

Equation 17

$$PF_{t,g}^{MGS+MPL} = \left[\left(\sum_{i \forall QP_{t,g} \times Pp_{t,g,} < 0} {QP^{j}}_{t,g} \times {Pp^{j}}_{t,g}\right) \times (1 + VAT)\right]$$

where:

$PF_{t,g}^{MGS+MPL}$ = exposure determined from the financial position of all the i-th buy orders submitted on trading day t and relative to gas-day g;

j = type of session (MGS/MPL);

$Pp_{t,g}$ = price on the i–th proposal referred to the trading day t and relative to gas-day g;

$Qp_{t,g}$ = volume[14] of the proposal for the i-th contract submitted on trading day t and relative to gas-day g, with a negative sign for buy orders and a positive sign for sell orders;

VAT = VAT rate applied to the transaction.

During the adequacy check, if the total exposure exceeds the guarantee, the acceptance of orders will take place up to the capacity limit according to merit priorities, considering those already deemed adequate.

The exposure and, therefore, the amount of the guarantee is updated after the determination of the auction results.

2.4.2 Exposure on the traded position

Each position determined as a result of the MGS and MPL, with reference to each individual trading day t and gas-day g, and to be settled on the settlement date, generates the calculation of the PF component according to the following formula:

[13] On the MGS and MPL, trading day t is the date of execution of the reference auction.
[14] On this, see Technical Rule no. 03 MGAS.

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Equation 18

$$PF_{t,g}^{MGS+MPL} = \left[\left(\sum_i {Q^j}_{t,g} \times {P^j}_{t,g}\right) \times (1 + VAT_i)\right]$$

where:

$Q_{t,g}$ = quantity of the i-th accepted order on trading day t and referred to gas-day g. It has a negative sign for purchases and a positive sign for sales;

$P_{t,g}$ = price recognised on the i-th accepted order on trading day t and referred to gas-day g.

Net buy positions generate exposure for each trading day and gas-day, and therefore guarantee absorption, according to the 100% of the equivalent of the net buy position, valued at the offered price awarded in the auction.

Conversely, the net sell positions generate a sort of virtual credit that can be used to offset only debt exposures related to the same settlement date.

2.5 Exposure and credit position on the MGAS netting markets

The Market Participant's integrated exposure on the MGP-GAS, MI-GAS, MGS and MPL, considering all the EC, EF and PF components mentioned in paras. 2.3 and 2.4 above, is equal to:

Equation 19

$$E_{t,g}^{MPGAS} = EF_{t,g}^{MGP+MI} + if\left[EC_{t,g}^{MGP+MI} < 0;\ EC_{t,g}^{MGP+MI}; 0\right] +$$

$$+if\left[PF_{t,g}^{MGP+MI} < 0;\ PF_{t,g}^{MGP+MI}; 0\right] + if\left[PF_{t,g'}^{MGS+MPL} < 0;\ PF_{t,g'}^{MGS+MPL}; 0\right]$$

where:

$g' = g + 1$ in order to make it consistent with the current approach of grouping positions by settlement date.

The positive components determine, instead, the CR credit position that can be used by the Market Participant to offset exposures relating to the same settlement date S.

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Equation 20

$$CR_S{}^{MPGAS} = \sum_{\forall PF_{t,g}^{MGP+MI}>0 | g \in S} PF_{t,g}^{MGP+MI} + \sum_{\forall PF_{t,g'}^{MGS+MPL}>0 | g' \in S} PF_{t,g'}^{MGS+MPL}$$

2.6 Definition of the exposure for adequacy verifications in the netting markets integrated guarantee system

If the Market Participant also participates in the ME, the provisions of Technical Rule no. 07 ME will apply for the determination of the Market Participant's exposure and credit position on the netting markets.

3 MT-GAS guarantee system

3.1 Definition of adequacy verifications in the MT-GAS guarantee system

3.1.1 Adequacy verifications

GME, on the MT-GAS guarantee system, requires verification of the financial adequacy of the available amount of the Market Participant's guarantee with respect to the Market Participant's exposure, determined on the basis of the orders presented and the positions held, taking into account the amount due for payment (settlement).

The available amount of guarantee C is the algebraic sum between guarantee G[15], calculated as described in paragraph 3.1.3 below, and exposure E[16], calculated on the basis of what is described in paragraph 3.2 below:

Equation 21

$$C^{MTGAS} = G^{MTGAS} + E^{MTGAS}$$

An order submitted or matched is deemed to be adequate if the guarantee is sufficient, i.e. when C≥0.

[15] It may have a positive or zero value.
[16] It may have a negative or zero value.

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If this condition is not met, the order will not be considered as adequate and the existing position, no longer covered by the guarantee, will generate a condition of default for the Market Participant, unless it consistently updates the guarantees, as provided for in paragraph 5 below.

3.1.2 Other cases of update of the available amount of the guarantee

In addition to the periods of the contract mentioned above, such as the submission or matching of orders, the available amount of the financial guarantee is also recalculated:

- upon revocation of a buy/sell order on the order book;
- at the end of each market session;
- upon updating the check price[17];
- upon updating parameter α;
- upon changing the VAT code;
- upon updating the amount of the guarantee;
- on delivery;
- upon settlement of payments[18].

The position is guaranteed if the guarantee is sufficient. If this is not the case, if an order, which has already been verified as adequate at the time of submission, is no longer adequate as a result of an event that generates a situation of insufficiency (C<0) for the Market Participant (e.g. modification of the delivery exposure, updating check prices, changing the VAT code ...), the order is to be revoked.

3.1.3 Definition of the guarantee for adequacy verifications

The amount of the guarantees submitted by each Market Participant, in the form of a bank guarantee with no expiration date or a non-interest-bearing cash deposit[19], is reduced by an amount, called the maintenance margin (MM).

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[17] See Article 2, para. 2.1 fff) of the MGAS Rules.
[18] Payments shall mean payments made to completely settle market payables/receivables as per Technical Rule no. 16 MGAS. Therefore, in case of partial payments with respect to the amount due, the guarantee capacity is not updated.
[19] PA participants may only submit a guarantee as a non-interest-bearing cash deposit.

Considering the fact that each Market Participant may define the portion of their own guarantees to be allocated among GME's markets[20], the guarantee allocated to the MT-GAS is equal to:

Equation 22

$$G^{MTGAS} = \left(\sum_i F_i + \sum_j D_j\right) \times \partial^{MTGAS} \times (1 - MM^{MTGAS})$$

where:

G = guarantee for the MT-GAS;

Fi = amount of the i-th bank guarantee submitted by the Market Participant

Dj = amount of the j-th deposit paid by the Market Participant

∂^{MTGAS} = guarantee portion for the MT-GAS (where 0 ≤ ∂^(MT-GAS) ≤ 1[21]);

MM^{MTGAS} = maintenance margin on the MT-GAS.

The maintenance margin for the portion of guarantees allocated to the MT-GAS is 10% of the total amount of guarantees, of which 3% to cover the penalty and default interest for late payment and 7% to cover the risk deriving from the partial coverage of payables/receivables arising on the MT-GAS.

It should be noted that for a bank guarantee to be considered suitable to cover an exposure, the period of validity of the bank guarantee must include the trading date on which the exposure occurs. Bank guarantees can be considered cumulatively and indistinctly, together with the non-interest-bearing cash deposit, for the purpose of covering the total exposure, within the limits of the allocation made. It is understood that each exposure is in turn associated with a given flow day falling within a given settlement period.

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[20] The sum of guarantee percentages distributed among the PCE, MPEG, MTE, MT-GAS and the netting markets must be 100%.

[21] See note 19.

3.2 Definition of exposure for the MT-GAS guarantee system adequacy verification

3.2.1 Exposure on proposals

Each proposal generates exposure, for each gas-day, depending on:

(1) the mark-to-market, i.e. the difference between the offer price and the check price, calculated for both sell and buy positions (EC exposure);

(2) the amount suitable to cover a worsening of the resulting net position with respect to that held but not delivered[22]. Its allocation is differentiated according to the gas-day covered by the order, depending on the period pending until the gas-day (EF or PF exposure).

With reference to the calculation in point (1), the following EC component is determined when submitting a proposal, whether for purchase or sale:

Equation 23

$$EC_g = \sum_i Se\left[\left(Pp_i * (1+VAT) - PC_g * (1+VAT)\right) \times QP_{g,i} \geq 0; 0; QP_{g,i} * \left(Pp_i * (1+VAT) - PC_g * (1+VAT)\right)\right]$$

where:

EC_g = exposure on all proposals of any type of contract present on gas-day g;

g = gas-day;

i = i-th contract;

Pp_i = price of the proposal on the i-th contract;

PC_g = gas-day g check price;

$QP_{g,i}$ = volume proposed for the i-th contract referred to gas-day g, with negative sign for purchases and positive sign for sales, and unit of measurement according to Technical Rule no. 03 MGAS;

VAT = VAT rate applicable to the Market Participant on transactions of the same sign with respect to the contract i when referred to the price Pp_i or VAT rate applicable to the Market Participant on transactions of opposite sign with respect to the contract i when referred to the price PC_g.

[22] If the proposal does not worsen the resulting net position, the further absorption (2) will not take place.

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With reference to the calculation in point (2), when submitting a proposal, it must be verified whether it is made on a day d preceding gas-day g by more or less n[23] days:

(2a) If an order is made on a day d preceding delivery on day g by more than n days - i.e. an order is being made on a forward product (including BoM for a compatible period) - it will be verified whether the sum of the net position resulting from contracts concluded on gas-day g and the volume of gas underlying the proposal in question and all other proposals on gas-day g of the same sign already present on each book of the MGAS is greater, in absolute value, than the net position already accrued by the Market Participant on the same gas-day g:

- if the condition is not met, it means that the proposal, together with the other proposals in the book, does not cause a worsening in terms of exposure, compared to the net position already traded. The proposal therefore does not generate further absorption of guarantee, obviously except for the possible mark-to-market referred to in point (1), compared to that absorbed for the net position already traded;

- if the condition is met, the exposure must be recalculated considering the most unfavourable[24] potential combination by matching the proposal in question and all other proposals of the same sign in the book, together with the net position already traded.

The exposure on EF proposals made on any i contract referred to day g is calculated as follows:

Equation 24

$\forall g | g - d > n$:

$$EF_g = \min\left(EF_g^+; EF_g^-\right)$$

$\forall QP_{g,i} > 0$

$EF_g^+ =$

[23] Parameter set to 7.
[24] In terms of risk exposure.

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$$Se\left\{\begin{array}{l}\left|\sum_i Q_{g,i}+\sum_{i\forall QP_{g,i}>0} QP_{g,i}\right|>\left|\sum_i Q_{g,i}\right|;\\ -\left[\left|\sum_i Q_{g,i}+\sum_{i\forall QP_{g,i}>0} QP_{g,i}\right|\times\alpha\times PC_g\times(1+VAT)\right];-\left[\left|\sum_i Q_{g,i}\right|\times\alpha\times PC_g\times(1+VAT)\right]\end{array}\right\}$$

Equation 25

$\forall QP_{g,i}<0$

$$EF_g^- = Se\left\{\begin{array}{l}\left|\sum_i Q_{g,i}+\sum_{i\forall QP_{g,i}<0} QP_{g,i}\right|>\left|\sum_i Q_{g,i}\right|;\\ -\left[\left|\sum_i Q_{g,i}+\sum_{i\forall QP_{g,i}<0} QP_{g,i}\right|\times\alpha\times PC_g\times(1+VAT)\right];-\left[\left|\sum_i Q_{g,i}\right|\times\alpha\times PC_g\times(1+VAT)\right]\end{array}\right\}$$

Where:

EF_g^+ = exposure determined by all sell orders for any type of contract in the books and referred to gas-day g, together with the previous net position;

EF_g^- = exposure determined by all buy orders for any type of contract in the books and referred to gas-day g, together with the previous net position;

g = gas-day[25];

d = day on which the proposal is submitted[26];

n = 7;

$Q_{g,i}$ = volume traded and not delivered on the i-th contracts referred to gas-day g[27];

$QP_{g,i}$ = volume covered by the order/s for the i-th contract referred to gas-day g;

P_i = price of the order;

PC_g = check price of the gas-day g;

VAT = VAT rate applicable to the Market Participant on transactions of opposite sign to the net position.

[25] The format for day g is the calendar format (dd-mm-yyyy) so as to distinguish it from the day d at the turn of a month.

[26] The format for day d is the calendar format (dd-mm-yyyy) so as to distinguish it from the day g at the turn of a month.

[27] The summation of all volumes in the i contracts including the delivery day g ($Q_{g,i}$) determines the MGAS concluded trades net position.

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(2b) If an order is made less than n[28] days before delivery on day g - i.e. an order is being made on a forward product (including BoM for a compatible period) that is close to expiration - the most unfavourable absorption of guarantee is considered between:

- the exposure determined by considering the most unfavourable[29] potential combination of matching the proposal in question and all other proposals of the same sign in the book, together with the already traded non-delivered net position (see Equation 27 and Equation 28). This recalculation is differentiated according to the sign of the resulting unfavourable net position:

  - o if the net position is in debit, the PF exposure is calculated, which is 100% of its value;
  - o if the net position is a sell position, the EF exposure is determined, which is a portion (measured by the Alpha parameter) of its value.

- the exposure of the net position already traded but not delivered (see Equation 29).

If it turns out that this is the most unfavourable condition, it means that the proposal does not result in a worsening in terms of exposure compared to the net position already traded. The proposal therefore does not lead to any further absorption of guarantee, except, of course, for the possible mark-to-market referred to in point (1).

The exposure on the proposals made on any contract i referred to day g is calculated as follows:

Equation 26

$\forall g | g - d \leq n$:

$$X_g = \min\left(X_g^+; X_g^-; X_g^{\mathrm{T}}\right)$$

where X_g may alternatively represent the PF_g or EF_g component depending on whether the net position on which the exposure is calculated is a buy or sell position, respectively, as represented both in the above description and in the following formulas.

[28] Extremal n-th day included.
[29] In terms of risk exposure.

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Equation 27

$\forall QP_{g,i} > 0$

$$X_g^+ = Se\left\{\begin{array}{c}\left(\sum_i Q_{g,i} + \sum_{i\forall QP_{g,i}>0} QP_{g,i}\right) > 0; \\ \mathrm{EF}_g = -\left[\left|\sum_i Q_{g,i} + \sum_{i\forall QP_{g,i}>0} QP_{g,i}\right| \times \alpha \times PC_g \times (1+VAT)\right]; 0\end{array}\right\}$$

Equation 28

$\forall QP_{g,i} < 0$

$$X_g^- = Se\left\{\begin{array}{c}\left(\sum_i Q_{g,i} + \sum_{i\forall QP_{g,i}<0} QP_{g,i}\right) > 0; \\ 0; \mathrm{PF}_g = \left(\sum_i Q_{g,i} + \sum_{i\forall QP_{g,i}<0} QP_{g,i}\right) \times PC_g \times (1+VAT)\end{array}\right\}$$

Equation 29

$$X_g^T = Se\left\{\begin{array}{c}\sum_i Q_{g,i} > 0; \\ \mathrm{EF}_g = -\left[\left|\sum_i Q_{g,i}\right| \times \alpha \times PC_g \times (1+VAT)\right]; \\ \mathrm{PF}_g = \sum_i Q_{g,i} \times PC_g \times (1+VAT)\end{array}\right\}$$

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where:

X_g+ = exposure determined by all sell orders of any type of contract in the books and referred to gas-day g, together with the previous net position not delivered;

X_g- = exposure determined by all buy orders of any type of contract in the books and referred to gas-day g, together with the previous net position not delivered;

X_g^T = exposure on the non-delivered previous net position of any type of contract referred to gas-day g.

3.2.2 Exposure on the traded but not delivered position

Each position held, with reference to each individual gas-day, not yet delivered, generates absorption of guarantee depending on:

(1) the mark-to-market, i.e. the difference between the trading price and the check price, calculated for both sell and buy positions;

(2) the amount suitable to cover the risk in relation to the distance in time with respect to delivery. It corresponds to:

(2a) a portion (measured by the Alpha parameter) of the value of the net sell position held until delivery and of the net buy position held until the seventh day prior to the date of delivery; and

(2b) the entire value of the net buy position (valued at the check price) in the seven days prior to the delivery date and until settlement.

With reference to the calculation in point (1), for each individual position held, whether buy or sell, the following EC component is determined:

Equation 30

$$EC_g = \sum_i \left[\left(P_i * (1 + VAT) - PC_g * (1 + VAT)\right) \times Q_{g,i}\right]$$

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where:

EC_g = exposure on all contracts traded on day g;

g = gas-day;

i = i-th contract;

P_i = trading price of the i-th contract;

PC_g = gas-day g check price;

$Q_{g,i}$ = volume traded in the i-th contract referred to gas-day g, with a negative sign for purchases and a positive sign for sales;

VAT = VAT rate applicable to the Market Participant on transactions of the same sign with respect to the contract i when referred to the price P_i or VAT rate applicable to the Market Participant on transactions of opposite sign with respect to the contract i when referred to the price PC_g.

As for the calculation referred to in point (2), a distinction should be made:

(2a) if a net position is held on the day d preceding delivery on day g by more than n days, the EF exposure is determined:

Equation 31

$\forall g|g\text{-}d > n$:

$$EF_g = -\left[\left|\sum_i Q_{g,i}\right| \times \alpha \times PC_g \times (1 + VAT)\right]$$

(2b) if a net position is held on the day d preceding delivery on day g by less than n[30] days, the absorption of the guarantee will depend on the sign of the net position concerned.

- If the net position is a sell position, the EF exposure will be determined as the portion, measured by the Alpha parameter, of its value:

[30] Extremal n-th day included.

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Equation 32

$\forall g|g\text{-}d \leq n \cup \sum_i Q_{g,i} > 0$:

$$EF_g = -\left[\sum_i Q_{g,i} \times \alpha \times PC_g \times (1 + VAT)\right]$$

- If the net position is a buy position, the PF exposure will be determined, which is 100% of its value:

Equation 33

$\forall g|g\text{-}d \leq n \cup \sum_i Q_{g,i} < 0$:

$$PF_g = \sum_i Q_{g,i} \times PC_g \times (1 + VAT)$$

It should be noted that these formulas (see Equation 31, Equation 32 and Equation 33) are not calculated on day g if there is a QP volume on the same day for which exposure is generated according to the calculations referred to in paragraph 3.2.3.2.1 above.

3.2.3 Exposure on the traded and delivered position

With reference to each gas-day, each position held and already delivered, i.e. registered at the PSV, determines the calculation of the PF component of the exposure[31] at 100% of its value, settled on the settlement date.

If a net position is held on the day d following delivery on day g, the PF component is determined:

Equation 34

$$PF_g = \sum_i Q_{g,i} \times P_i \times (1 + VAT)$$

[31] With different sign, depending on the sign of the net position (buy or sell).

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where:

VAT= VAT rate applied to the transaction.

The net buy positions determine for each gas-day an absorption of guarantee, while the net sell positions determine the possibility of offsetting in whole or in part the debt exposures referred to the same settlement date.

3.2.4 Exposure on the MT-GAS

To determine the exposure as a function of the amount due on the settlement date, the individual daily exposures EC_g, EF_g, and PF_g, determined in the cases (1) and (2) represented in the previous paragraphs, must be aggregated according to the settlement date S, which according to the settlement calendar published on GME's website - is associated with each gas-day g.

Equation 35

$$EC_S = \sum_{g \in S} EC_g$$

Equation 36

$$EF_S = \sum_{g \in S} EF_g$$

Equation 37

$$PF_S = \sum_{g \in S} PF_g$$

Equation 38

$$E_S = EF_S + PF_S + EC_S + ACC_S$$

where

ACC_S = amount of any adjustment due, by way of example but not limited to, extraordinary operations, changes in tax rates.

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The overall exposure of the Market Participant on the MT-GAS is equal to:

Equation 39

$$E = \sum_{\forall E_S<0} E_S$$

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4 Parameters

For the purposes of calculating the exposure, each product differentiated by maturity is associated with a riskiness parameter, as shown in the following table:

	MATURITY			
	1	2	3	4
Monthly[32]	19.70%	19.60%	16.50%	
Quarterly	15.00%	15.00%	15.00%	15.00%
Half-yearly	14.50%	14.50%		
Yearly	13.90%			
Daily	10.40%			

The net delivery position of each gas-day is associated with a parameter Alpha α, equal to the highest of the riskiness parameters associated with the products being traded and concerning the corresponding gas-day.

With reference to the parameter β, its exploitation as well as its recognition in the calculation level will be identified once the market offers significant correlation scenarios between products with different maturities.

[32] In order to identify the risk, the BoM product is assimilated to the monthly product, as its risk parameter is associated with the monthly product in the table.

5 Update of the available amount of the guarantee

If the guarantee cannot cover the updated exposure, GME will send to the Market Participant an e-mail with a request to update it and with an indication of the minimum amount to pay to cover the new exposure.

The Market Participant, by 10:30 of the 3rd working day following the receipt of the request:

- must pay to the treasury institute, with the beneficiary value date on the same day, via SEPA Credit Transfer Urgent/Priority or equivalent procedures – from the bank account details which have been previously notified to GME according to Article 18, para. 18.1 of the MGAS Rules according to the modalities identified in Technical Rule no. 16 MGAS – the amount needed to cover its own exposure, or
- must post a bank guarantee (or update the existing one) with an available amount at least equal to the needed amount to cover its own exposure[33].

Pending the adjustment of the guaranteed amount, the Market Participant may not conclude transactions on the MP-GAS, MI-GAS and MT-GAS. It may only conclude, on the MGS and MPL, transactions which lead to receivables for the Market Participant.

If the Market Participant does not update the guarantee within the time limits indicated above, the default procedure described in Article 78, par. 78.1 of the MGAS Rules shall apply.

The Market Participant intending to increase the available amount of the bank guarantee, submitted according to Annex C to the MGAS Rules in force until the day before of the go-live of the netting markets, must priorly conform the aforementioned Annex to Annex C of the current version of the MGAS Rules as set out in Technical Rule no. 19 MGAS.

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[33] This option is unavailable for PA participants, as they can only guarantee with a non-interest-bearing cash deposit.