Technical Rule MGAS no. 15 Rev. 01

(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	**Bids/Ask offers Adequacy and Verification of 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 36, para. 36.1, subpara. g) and Article 58, para. 58.1, subpara. g) of the MGAS Rules provide that, after receiving each bid/ask in the MGP-GAS, MI-GAS and MT-GAS, respectively, GME shall check whether the bid/ask is guaranteed under Article 72 of the same Rules.

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

Article 26, para. 26.5, subpara. b) of the MGAS Rules provide 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 adequate the guaranteed amount according to the time limits and conditions defined in the Technical Rules (paragraph 72.2). Pending the adjustement of the guaranteed amount, the Market Participant may not conclude trades that increase the Market Participant's exposure to 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);
- offers to purchase and sell submitted on the MGP-GAS, MI-GAS and MT-GAS shall be verified as adequate and the payables/receivables resulting from such offers shall be covered to the extent indicated in the Technical Rules (paragraph 72.4(b));

- when the circumstance of participation in the netting markets occurs, the amount of the guarantee considered for the verification of adequacy of the offers submitted by the Market Participant in the MPGAS shall be determined taking into account, in a unified manner, also the participation in the MGP and the 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).

2. MGAS netting markets guarantee system

2.1 Definition of adequacy verifications in MPGAS' guarantee system

2.1.1 Adequacy verifications

As part of its guarantee system, GME provides the implementation of financial adequacy verification to assess the adequacy of the available guarantee amount for each Market Participant in order to cover its exposure for each payment date (settlement), calculated on the basis of submitted bids/asks and/or the net holding position.

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 paragraph2.3:

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 (Et,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, shall be considered, also taking into account

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

the exposure and the credit position relating to the settlement periods S±N other than S only if debited (PS±N).

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

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 guarantees, the allocation algorithm shall first use the net accrued credit positions to be settled in the same period, then the guarantees with a later expiration and then the guarantees with no expiration date and the non-interest-bearing cash deposit.

If there is a 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 accrued 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 verification on proposals

Proposals submitted on 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.

2.1.3 Other cases of guarantee available amount update

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

- upon the withdrawal of a proposal on the MPGAS trading book;
- upon registration on the PSV of the net position resulting from the MGP-GAS/MI-GAS;
- at the end of each MPGAS market session;
- upon the updating the MPGAS check price[3];
- upon the updating of the MPGAS parameter α;
- upon terminating the MGS and MPL auctions;
- upon the modification of the VAT number;
- upon the updating of 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 offer, 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 unavailability (C<0) for the Market Participant (e.g. updating of check prices, modification of the VAT code, etc.), the offer 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).

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[3] See Art. 2, para. 2.1, subpara. ddd) of the MGAS Rules.

[4] Payments shall mean payments done to settle market payables/receivables according to Technical Rules 16 MGAS and, if the Market Participant also participates in the ME, according to Technical Rules 08 ME.

[5] (PA Market Participants) can only issue guarantees in the form of non-interest-bearing cash deposit.

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

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 deposited 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 interests 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 given 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.

[6] The sum of guarantee percentages distributed among PCE, MPEG, MTE/CDE, MT-GAS and netting markets, as distributed by the Market Participant, must be 100%.
[7] See note 5.

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

2.3.1 Exposure on the proposals

Each proposal generates guarantee absorption for each single trading day – meaning the day of closure for the session[8] in which a Market Participant is operating – associated with a flow day (hereinafter "gas-day"), depending on:

(1) the mark-to-market, i.e. the differential value between the bid/ask price and the check price, calculated for long and short positions (EC exposure);

(2) the portion (measured by the Alpha parameter) of the value of the offer of sale (EF exposure) or of the entire value of offers of purchase valued at the check price (PF exposure).

With reference to the calculation in point **(1)**, upon presentation of a proposal, whether a buy or sell order, the following EC component is calculated:

Equation 3

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

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 the offer is submitted closes

g = gas-day

i = the i-th contract

[8] For MGP-GAS and MI-GAS the trading date will be the date on which the Market Participant offersmatches. For example, for the Market Participant who offers in the session of November 8, 2017 with opening at 06:00 am on November 8, 2017 and closing at 02:30 am on November 9, all offers that may appear in the trading book at 00:00 am and verified adequate at the time of submission with respect to the trading date November 8, will undergo a new financial adequacy verification, automatically carried out by the system at 00:00 am, with reference to the trading date November 9.

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 order and a positive sign for sell order

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.

As regards the calculation in point Errore. L'origine riferimento non è stata trovata., the determination of the exposure depends on the sign of each offer:

- For offers of sale, the EF exposure, equal to the Alfa parameter applied on their countervalue, is determined:

Equation 4

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

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

Equation 5

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

where:

$EF_{t,g}$ = exposure equal to a part (measured by the Alfa parameter) of the value of all offers of sale entered in the trading day t book and referred to gas-day g.

$PF_{t,g}$ = exposure equal to 100% of the value of all offers of purchase entered in the book of the trading day t and referred to gas-day g;

α = Alfa parameter.

2.3.2 Exposure on traded position

2.3.2.1 Exposure on position traded, but not delivered

With reference to each trading day t and single gas-day g, any position, which is held, but has not delivered yet, the absorption of the guarantee is based on:

(1) the mark-to-market, calculated as the difference between the trading price and the check price, both for long and short positions;

the portion (measured by the Alpha parameter) of the value of the net short position up to the delivery and or **(2)** or the 100% of the counter value of the net long position (valued at the check price) until the settlement.

As regards the calculation in point **(1)**, for each trade, long or short, the following EC component is calculated:

Equation 6

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

where:

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

i = the 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 trade and a positive sign for sell trade

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 Errore. L'origine riferimento non è stata trovata., guarantee absorption depends on the sign of the net position considered,

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

Equation 7

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

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

- If the net position is long, PF exposure is determined as 100% of the counter value:

Equation 8

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

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

where:

EFt,g = exposure equal to a portion (measured by the Alpha parameter) of the value of the net short position linked to 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 long position linked to the trading day t and referred to the gas-day g, but not yet delivered.

2.3.2.2 Exposure on traded and delivered position

With reference to each trading day t and flow day g, each held position, already delivered by registration on the PSV, determines the calculation of the PF exposure[9] equal to 100% of the counter value of the same position, .

This PF component is calculated as:

Equation 9

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

where:

VAT = VAT rate applied to the transaction.

2.4 Definition of exposure in 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 MGS, where trading takes place within the limits of the amount of gas stocked at Stogit or another stocking company, and (ii) on MPL, where trading takes place within the sales limits sent by SRG.

During the adequacy check, after the closing of the auction session of the MGS and MPL, for the acceptance of the offers collected for the determination of the auction results, the proposals generate exposure, for a single trading day[10] linked to a single gas-day, according to the worst matching scenario, i.e. matching all the buy proposals.

[9] Sign depends on net position (long or short) sign.

[10] On MGS and MPL, trading day t is the date of execution of the reference auction.

Equation 10

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

where:

$PF_{t,g}^{MGS+MPL}$ = exposure determined from the financial position of all the i-th offers submitted in 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[11] of the proposal for the i-th contract submitted in trading day t and relative to gas-day g, with a negative sign for buy order and a positive sign for sell order;

VAT = VAT rate applied to the transaction.

During the adequacy check if the total exposure exceeds the guarantee, acceptance of bids/offers shall take place up to 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 MGS and MPL, with reference to each individual trading day t and gas-day g, and object of regulation to the settlement date, generates the calculation of the PF component according to the following formula:

Equation 11

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

where:

[11] On this, see Technical Rules no. 03 MGAS.

$Q_{t,g}$ = quantity of the i-th accepted offer 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 recognized on the i-th accepted offer on trading day t and referred to gas-day g.

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

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

2.5 Exposure and credit position on MGAS netting markets

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

Equation 12

$$E_{t,g}{}^{MPGAS} = EF_{t,g} + se\left[EC_{t,g} < 0;\ EC_{t,g};\ 0\right] + \\ + se\left[PF_{t,g} < 0;\ PF_{t,g};\ 0\right] + se\left[PF_{t,g'}^{MGS+MPL} < 0;\ PF_{t,g'}^{MGS+MPL};\ 0\right]$$

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.

Equation 13

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

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

If the Market Participant also participates in the ME, the provisions of Technical Rules No 07 ME shall apply for the determination of the Market Participant's exposure and credit position in netting markets.

3 MT-GAS guarantee system

3.1 Definition of adequacy verification in MT-GAS guarantee system

3.1.1 Adequacy verification

GME, on the MT-GAS's 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 offers 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[12], calculated as described in paragraph 3.1.3 below, and exposure E[13], calculated on the basis of what is described in Paragraph 3.2 below:

Equation 14

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

A bid submitted or a matched offer is deemed to be adequate if the guarantee is sufficient, i.e. when C≥0.

If this condition is not met, the bid 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 adequates the guarantees, as provided for in paragraph 5 below.

3.1.2 Other cases of guarantee available amount update

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

- upon revocation of a proposal to buy/sell on the trading book;
- at the end of each market session;
- upon updating the check price[14];

[12] May have positive or zero value.
[13] May have negative or zero value.

- upon updating parameter α;
- upon changing the VAT code;
- upon updating the amount of the guarantee;
- on delivery;
- upon settlement of payments[15].

The position is guaranteed if the guarantee is sufficient. If this is not the case, if an offer, 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 VAT code ...), the offer is to be revoked.

3.1.3 Definition of guarantee for adequacy verification

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[16], is reduced by an amount, called the maintenance margin (MM).

Considering the fact that each Market Participant may define the portion of their own guarantees to be allocated among GME markets[17], the guarantee allocated to MT-GAS is equal to:

Equation 15

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

where:

G = guarantee for MT-GAS;

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

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[14] See Article 2, par. 2.1 ddd) of the MGAS Rules.

[15] Payments shall mean payments made to settle market payables/receivables as per Technical Rules 16 ME.

[16] PA participants may only submit a guarantee as a non-interest-bearing cash deposit.

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

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

∂^{MTGAS} = guarantee portion for MT-GAS (where 0 ≤ ∂^(MT-GAS) ≤ 1[18]);

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

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

3.2 Definition of exposure for 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 both for the short and long positions (EC exposure);

(2) the amount suitable to cover a worsening of the resulting net position with respect to that held but not delivered[19]. Its allocation is differentiated according to the gas-day of the offer, 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:

[18] See note 15.

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

Equation 16

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

where:

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

g = gas-day;

i = i-th contract;

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

PC_g = gas-day g check price;

$QP_{g,i}$ = amount proposed for the i-th contract referred to gas-day g, with negative sign for purchases and positive sign for sales, and unit of measure according to Technical Rules 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.

With reference to the calculation in point (2), when submitting a proposal, it must be verified whether it is made on a day before more or less n[20] days before gas-day g:

(2a) If an offer is made on a day prior to more than n days of delivery on day g - i.e. an offer 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 amount of gas under the proposal in question and all other proposals on gas-day g of the same sign already present on each book of MGAS is greater, in absolute value, than the net position already matured 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

[20] Parameter set to 7.

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[21] 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 17

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

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

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

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

Equation 18

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

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

Where:
EF_g^{+} = exposure determined by all sales proposals of any type of contract in the books and referred to gas-day g, together with the previous net position;

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[21] In terms of risk exposure.

EF_g^- = exposure determined by all purchase proposals for any type of contract in the books and referred to gas-day g, together with the previous net position;
g = gas-day[22];
d = day on which the proposal is submitted[23];
n = 7;
$Q_{g,i}$ = amount traded and not delivered on i-th contracts referred to gas-day g[24];
$QP_{g,i}$ = amount proposed for the i-th contract referred to gas-day g;
P_i = price of the proposal;
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.

(2b) If an offer is made less than n[25] days before delivery on day g - i.e. an offer is being made on a forward product (including BoM for a compatible period) that is close to expiration - the most unfavourable absorption of guarantee of all is considered between:

- the exposure determined by considering the most unfavourable[26] 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 20 and Equation 21). This recalculation is differentiated according to the sign of the resulting unfavourable net position:

  - o if the net position is debit, the PF exposure is calculated, which is 100% of its value;
  - o if the net position is short, 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 22).

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).

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[22] The format for day g is calendar format (dd-mm-yyyy) so as to tell it from the day d at the turn of a month.
[23] The format for day d is calendar format (dd-mm-yyyy) so as to tell it from the day g at the turn of a month.
[24] The summation of all amounts in i contracts including the delivery day g ($Q_{g,i}$) determines the MGAS concluded trades net position.
[25] n^{th}-day included.
[26] In terms of risk exposure.

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

Equation 19

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

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

Where Xg may alternatively represent the PF_g or EF_g component depending on whether the net position on which the exposure is calculated is, respectively, long or short, as represented both in the above description and in the following formulas.

Equation 20

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

$X_g^{+} =$

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

Equation 21

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

$X_g^{-} =$

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

Equation 22

$X_g^T =$

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

Where:

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

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

XgT = exposure to non-delivered net past position of any type of contract referred to gas-day g.

3.2.2 Exposure on 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 both for the short and long 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 short net position held until delivery and of the long net position held until the seventh day prior to the date of delivery; and

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

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

Equation 23

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

where:

ECg = 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;

$Q_{g,i}$ = the amount 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 the 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 prior to delivery more than n days before delivery on day g, the EF exposure is determined:

Equation 24

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

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

(2b) if a net position is held on the day d prior to delivery less than n[27] days before delivery on day g, the absorption of the guarantee shall depend on the sign of the net position concerned.

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

Equation 25

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

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

- If the net position is long, the PF exposure shall be determined, which is 100% of its value:

Equation 26

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

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

[27] n^{th}-day included.

It should be noted that these formulas (see Equation 24, Equation 25 and Equation 26) are not calculated on day g if there is a QP amount on the same day for which exposure is generated according to the calculations referred to in paragraph 3.2.1 above.

3.2.3 Exposure on traded and delivered position

With reference to each gas-day, each position held and already delivered, i.e. registered on the PSV, determines the calculation of the PF component of the exposure[28] at 100% of its counter 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 27

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

where:

VAT= VAT rate applied to the transaction.

Long net positions determine for each gas-day an absorption of guarantee, while short net 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 MT-GAS

To determine the exposure as a function of the amount due to settlement, 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 the GME website - is associated with each gas-day g.

Equation 28

[28] With different sign, depending on the sign of the net position (long or short).

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

Equation 29

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

Equation 30

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

Equation 31

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

where

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

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

Equation 32

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

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[29]	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 will offer significant correlation scenarios between products with different maturities.

5 Guarantee available amount update

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

The Market Participant, by 10.30 am of the 3rd working day following the receipt of the request:

- must pay to the treasury institute, with the beneficiary value date 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 17, par. 17.1 subpara g) of the MGAS Rules according to the modalities identified in the Technical Rules 16 the amount needed to cover its own exposure, or
- must post a bank guarantee (or adequate the existing one) with an available amount at least equal to the needed amount to cover its own exposure[30].

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

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

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

The Market Participant intending to increase the available amount of the bank guarantee, submitted according to Annex C of the MGAS Rules version in force until the day before of the go live date of netting markets, must firstly conform the aforementioned Annex to Annex C of this version of the MGAS Rules as set out in Technical Rules 19 MGAS.

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