Technical Rule no. 07 Rev. 09 ME

(under Article 4 of the Integrated Text of the Electricity Market Rules, approved by the Decree of the Minister of Productive Activities of 19 December 2003, as subsequently amended and supplemented)

Title	**Bid/ask offers Adequacy Verifications and Guarantee Coverage**

Reference Legislation	Article 2, paragraph 2.1 subpara. eee bis) and Article 81, paragraphs 81.1, 81.2, 81.5 and 81.7 of the Integrated Text of the Electricity Market Rules

In force from 1 January 2020

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1. Foreword

On each market, GME determines the exposure (see Section 2.3 for MGP and MI; Section 3.3 for MPEG; Section 4.3 for MTE) of each Market Participant, depending on the potential risk of non-payment (*settlement*), and requires that Market Participant's exposure is covered by adequate guarantees (see Section 2.2 for MGP and MI; Section 3.2 for MPEG; Section 4.2 for MTE). For this goal, GME, at the proposal stage and at the following stages in which different valorization of exposure can emerge, performs the financial adequacy verifications in order to make sure that the given guarantee is fair compared to the held exposure.

Article 81 of the M E Rules also provides that

- GME shall determine and update the capacity of the guarantee taking into account the allocation made by the Market Participant according to the modalities and within the time limits defined in the Technical Rules (paragraph 81.1);

- if, after being updated, the guarantee is not sufficient, the Market Participant shall adjust the guaranteed amount in accordance with the modalities and within the time limits defined in the Technical Rules (paragraph 81.2;). Pending the adjustment of the guaranteed amount, the Market Participant may not conclude trading that lead to the increase in the Market Participant's exposure to GME, as indicated in the Technical Rules (paragraph 81.2, letter a));

- the determination, the updating of the guarantee capacity and the adequacy verification shall be carried out according to the modalities indicated in the Technical Rules and adopting the modalities defined in Article 81 (paragraph 81.5);

- GME shall reduce the amount covered by guarantee of Market Participants by an amount whose value is defined in the Technical Rules (paragraph 81.5, subpara a));

- Bids/offers submitted on the MTE are verified as adequate, providing for the partial coverage of the payables arising from these bids/offers to the extent indicated in the Technical Rules (paragraph 81.5, subpara d));

- In the case of activity both on the netting markets of the ME and on the netting markets of the MGAS, the capacity of the guarantee considered for the adequacy verifications of the bids/offers submitted by the Market Participant on the MGP and on the MI is determined by also taking into account activity on the MPGAS, pursuant to the MGAS Rules (paragraph 81.5, subpara h));

- the values of the parameters α, β, and γ are defined in the Technical Rules (paragraph 81.7);

Pursuant to Article 2, paragrafh 2.1 subpara. eee bis), the definition criteria of the MPEG check price are defined in the Technical Rules.

2. Guarantee system for the MGP and MI or for the netting markets

2.1 Definition of adequacy verifications

2.1.1 Adequacy verifications

GME carries out the financial adequacy verifications aimed at verifying the capacity of a single guarantee, based on the provisions of paragraph 2.2 below, with respect to the comprehensive exposure deriving from the netting markets, on the basis of the indications of paragraph 2.3.3 below.

The capacity of the guarantee (C) is given by the algebraic sum between the guarantee (G[1]) and the exposure (E[2]).

Equation 1

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

The verification on the capacity of the guarantee has a positive result if:

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

With reference to component E, the exposure referred to the trading day t to the flow day g ($E_{t,g}$) and the credit position related to the settlement period S (CRs) are considered, as defined in paragraph 2.3.3 below, for which the verification is being carried out, also considering the exposure and the credit position related to the settlement periods S ± N different from S only if debit (Ps ± n).

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

where

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

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

The amount of the guarantees and of the credit position suitable to cover the exposure is identified in light of the principle according to which the adequacy verifications are carried out considering that the trading date t to which the individual exposures $E_{t,g}$ refer is within the period of validity of the guarantees and that the flow date g referring to the individual exposures $E_{t,g}$ falls within the same settlement period as the credit position related to the reference market.

The guarantee allocation algorithm as part of the adequacy verifications prioritizes, for the purpose of covering the individual debt exposures, to the resource with the nearest term of validity. In the event that, in the reference settlement period there are no expiring bank guarantees, the allocation algorithm first uses 1) the net credit positions that are settled in the same period, then 2) the bank guarantees with expiring next and then 3) bank guarantees with no expiration date and finally 4) non-interest-bearing cash deposits.

In the event of a bank guarantee expiring in the reference settlement period, for individual exposures with trading date falling on or prior to the expiration date of the bank guarantee, the allocation algorithm will follow, instead, the following order: 1) bank guarantee with expiration in the settlement period, 2) net accrued credit positions, 3) any other bank guarantees with expiration date, 4) bank guarantee with no expiration date and 5) non-interest bearing cash deposits. For exposures with a trading date falling after the expiration of the bank guarantee, the priority rules specified in the previous paragraph shall apply.

2.1.2. Adequacy verifications on the proposals

When submitting a proposal to the MGP/MI, the adequacy verification, carried out at the end of the session, has a positive outcome if C ≥ 0 remains after the exposure update following the proposal.

If this condition is not met, the proposal is not accepted.

When submitting a proposal to MPGAS, the provisions of Technical Rules15 MGAS shall apply.

2.1.3. Other cases of updating guarantee capacity

In addition to the proposal phase, the capacity of the financial guarantee on the netting markets[3] is recalculated in the following cases:

- award of the MGP, MI, AGS, MGS and MPL auction;

- revocation of a purchase/sale proposal on the order book on MPGAS and MI-GAS;

- registration on the PSV of the net position deriving from MGP-GAS and MI-GAS

- at the end of each MPGAS market session;

- update of the check price on MGP-GAS / MI-GAS[4];

- update of the parameter α on MPGAS;

- change of the VAT code;

- update of the guarantee amount;

- settlement of payments[5].

The position is guaranteed if the guarantee is sufficient, otherwise an adjustment is required as indicated in the following Paragraph 5.

2.2 Definition of guarantee for adequacy verifications

The amount of the guarantees submitted by each Market Participant, in the form of a bank guarantee or non-interest-bearing cash deposit[6], is reduced by an amount, defined maintenance margin (MM).

Since each Market Participant may define the share of its own guarantees to be allocated among GME's markets[7], the guarantee for the netting markets[8] is equal to:

Equation 2

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[3] If the Market Participant is not admitted to MGAS the guarantee provided will only cover the market on which it operates.

[4] See Article 2, paragraph 2.1, subpara fff) of the MGAS Rules.

[5] Payments are defined as payments made to regulate the market's payables in accordance with the provisions of the Technical Rules 08 ME and, if the Market Participant is also an admitted to the MGAS, in the Technical Rules 16 MGAS.

[6] The PA participant can guarantee only in the form of a non-interest-bearing cash deposit.

[7] The sum of the percentages quote of guarantees allocated among PCE, MPEG, MTE, MT-GAS and the netting markets, pursuant to the allocation made by the operator, must be equal to 100%.

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

where:

$G^{NETTING}$ = guarantee intended for netting markets;

F_i = amount of the i-th guarantee submitted by the Market Participant;

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

$\partial^{NETTING}$ = share of guarantee intended for netting markets (where $0 \leq \partial^{NETTING} \leq 1$[9]);

$MM^{NETTING}$ = margine di mantenimento sui mercati in *netting*.

The maintenance margin for the share of the overall amount of the guarantees intended for the netting markets is set at 3%, of which 2% to cover default interest for late payment and 1% to cover the penalty.

It is pointed out that for a guarantee, in order to be considered eligible to cover an exposure, the period of validity must include the market execution date in which the exposure is determined. If the expiry dates of all guarantees provided are subsequent to the dates on which the exposures arise, such guarantees may be considered together and without distinction, along with the non-interest-bearing cash deposit, for the coverage of the total exposure. Otherwise, for each exposure, only guarantees whose validity includes the date on which the exposure arose will be considered. It is understood that each exposure is associated with a specific settlement period.

2.3 Definition of the exposure in the MGP and MI

2.3.1 Exposure on proposals and on traded position

During adequacy verification phase - after the closure of the market sitting on the MGP and MI - in order to accept bids/asks for the determination of the auction results, the submitted bids/asks generate exposure by each flow day and each trading day. The existing positions following the auctioning process generate exposure per single trading day and per single flow day (see Equation 3).

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[8] See note 3
[9] See note 7

Equation 3

$$PF_{t,g}^{MGP+MI} = \left[\left(\sum_i Q^j{}_{t,g} \times P^j{}_{t,g}\right) \times (1+IVA_i)\right] + \left[\left(\sum_{i \forall QP_{t,g} \times Pp_{t,g} < 0} QP^j{}_{t,g} \times Pp^j{}_{t,g}\right) \times (1+IVA_i)\right]$$

where

PF_{tg}^{MGP+MI} = financial position on all the i-th ask offers on an hourly basis submitted on the trading day t and referred to the flow day g , together with the net previous position traded on the same trading day t and referring to the same flow day g;

j = session type (MGP,MI1, MI2, MI3, etc..);

$Q_{t,g}$ = volumes expressed in MWh object of the i-th bid/ask offer accepted on the trading day t on the hour h of the flow day g. It is characterized by a negative sign for purchases and positive sign for sales;

$P_{t,g}$ = price paid on the i-th bid/ask offer accepted on the trading day t on the hour h of the flow day g , including any non-arbitrage fee;

$Pp_{t,g}$ = price paid on the i-th bid/ask offer submitted on the trading day t on the hour h of the flow day g, including any non-arbitrage fee;

$Qp_{t,g}$ = volumes expressed in MWh object of the i-th bid/ask accepted on the trading day t on the hour h of the flow day g. It is characterized by a negative sign for purchases and positive sign for sales.

In case of submission of a bid/ask offer on the MGP/MI without price indication, the calculation of the exposure is valued considering as a price of the bid/ask offer a conventional price defined by GME.

In the adequacy verification, carried out according to the provisions of Paragraph 2.1.1, if the resulting total exposure is greater than the guarantee, the acceptance of the bids/ask offers will be possible up to capacity according to hour/merit priority, considering those already deemed adequate.

2.3.2 Exposure and credit position on the MGP and the MI

With reference to any single trading day on each single flow day, each awarded position, regardless if it has already been delivered or not yet, contributes to the exposure assessment.

The net purchase positions generates exposure, equal to 100% of the countervalue, while the net sale positions determine the possibility to offset the debt exposure that are settled at the same *settlement* date:

The Market Participant's exposure on the MGP/MI is equal to:

Equation 4

$$E_{t,g}{}^{MGP+MI} = se\left(PF_{t,g}^{MGP+MI} < 0; \ PF_{t,g}^{MGP+MI}; 0\right)$$

The positive components $PF_{t,g}^{MGP+MI}$, instead, determine the credit position CR which can be used by the Market Participant to offset the exposures referred to the same settlement date *S*, within the adequacy check, carried out as indicated in Paragraph 2.1.1. It is equal to:

Equation 5

$$CR_S{}^{MGP+MI} = \sum_{\forall PF_{t,g}^{MGP+MI}>0|g\in S} PF_{t,g}^{MGP+MI}$$

2.3.3 Definition of the exposure for the purpose of adequacy verifications in the integrated guarantee system on the netting markets

Below is the Market Participant's exposure to the netting markets:

Equation 6

$$E_{t,g}{}^{Netting} = E_{t,g}{}^{MGP+MI} + E_{t,g}{}^{MPGAS}$$

With $E_{t,q}^{MPGAS}$ = exposure on MP-GAS as defined in the Technical Rules no. 15 MGAS.

The positive components of the netting markets, on the other hand, determine the CR credit position which can be used by the Market Participant to offset the exposures referred to the same settlement date S of the Market Participant for the netting markets only for each settlement date. It is equal to:

Equation 7

$$CR_S^{Netting} = CR_S^{MGP+MI} + CR_S^{MPGAS}$$

With CR_S^{MPGAS} = credit position on MGAS as defined in the Technical Rules no. 15 MGAS.

3. Guarantee system in the MPEG

3.1 Definition of adequacy verifications in the guarantee system of the MPEG

3.1.1 Adequacy verifications

Following the submission of bid/ask offers in the MPEG, which may generate Market Participant exposure[10], GME shall verify the financial adequacy of the bid/ask offers with respect to the amount of the guarantee allocated for the MPEG. These verifications are done again after offers' matching, on the actual combinations that took place in the book and that determine net debts, and once the exposure is updated, such as soon as the average value of the hourly PUN are disclosed for the applicable periods included in the daily product type object of trading in the MPEG.

The capacity of the guarantee (C) is calculated based on each trading day (trading) and is given by the algebraic sum between the guarantee (G) and the exposure (E).

Equation 8

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

The verification on the capacity of the guarantee has a positive result if:

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[10] The debt items are determined based on (1) the amount and (2) the offered price compared to the check price

Equation 10

$$CG^{MPEG} \geq 0$$

Specifically, with reference to component E, the exposure referring to the trading day t and the flow day g ($E_{t,g}$) and the credit position related to the settlement period S (CRs) shall be considered, as defined in paragraph 3.3.4 below, for which the verification is being carried out, also considering the exposure and the credit position related to the settlement periods S±N other than S only if debit ($P_{S\pm N}$).

Equation 9

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

where:

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

$G^{MPEG} = $ guarantee provided as defined in Equation 10

The amount of the guarantees and of the credit position suitable to cover the exposure is identified in light of the principle according to which the adequacy verifications are carried out considering that the trading date t referred to which the individual $E_{t,g}{}^{MPEG}$ refer is within the period of validity of the guarantees and that the given flow g to which the individual $E_{t,g}{}^{MPEG}$ refer is within the same settlement period as the credit position.

The guarantee allocation algorithm as part of the adequacy verifications prioritizes, for the purpose of covering the individual debt exposures, the resource with the nearest term of validity. Specifically, if during the reference settlement period there are no expiring bank guarantees, the allocation algorithm will first use: 1) net credit positions that are settled in the same period, 2) the bank guarantees with expiring next and then, 3) bank guarantee with no expiration date and finally 4) non-interest-bearing cash deposits.

In the event of a bank guarantee expiring in the reference settlement period, for individual exposures with trading date falling on or prior to the expiration date of the bank guarantee, the allocation will follow, instead, the following order: 1) bank guarantee with expiration in the

settlement period, 2) net accrued credit positions, 3) any other bank guarantee with expiration date, 4) bank guarantee with no expiration date and 5) non-interest bearing cash deposits. For exposures with a trading date falling after the expiration of the bank guarantee, the priority rules specified in the previous paragraph shall apply.

In light of the above, a proposal submitted or an existing traded is considered adequate if the guarantee is sufficient, i.e. when C≥0.

If this condition is not met, the proposal is not accepted.

3.1.2 Other cases for updating the guarantee capacity

In addition to the periods of the aforementioned contract, such as the proposal, the matching of bids/asks or once the value of the average of the hourly PUNs relating to the relevant periods is known and the registration of the related net position delivered on the PCE, the capacity of the guarantee financial is also recalculated in as follows:

- at the revocation of a purchase/sale proposal on the order book;

- at the end of each market session;

- when updating the check price[11];

- when changing the VAT code;

- when updating the guarantee amount;

- settlement of payments[12].

The position is guaranteed if it is sufficient, otherwise an adjustment is provided for as indicated in Paragraph 5 below.

3.2 Definition of the guarantee for adequacy verifications

The amount of the guarantees submitted by each Market Participant, in the form of a bank guarantee or non-interest-bearing cash deposit[13], is deducted by an amount, defined maintenance margin (MM), for the purpose of adequacy checks on MPEG.

Since each Market Participant can define the amount of its guarantees to be allocated to the GME markets (see note 6), the guarantee allocated for the MPEG will be equal to:

Equation 10

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[11] See Article 2, paragraph 2.1, subpara eee bis), of the ME Rules.
[12] Payments shall mean those made to offset market payables as provided for in Technical Rules 08 ME.
[13] The PA participant may only provide a guarantee in the form of a non-interest-bearing deposit.

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

Where:

G^{MPEG} = guarantee allocated for the MPEG;

F_i = amount of the i-th guarantee submitted by the Market Participant;

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

∂^{MPEG} = share of guarantee for MPEG (where $0 \leq \partial^{MPEG} \leq 1$[14])

MM^{MPEG} = maintenance margin on MPEG

The maintenance margin for the portion of the total amount of guarantees allocated for the MPEG is 3%.

It is pointed out that for a guarantee, in order to be considered eligible to cover an exposure, the period of validity must include the market execution date in which the exposure is determined. If the expiry dates of all guarantees provided are subsequent to the dates on which the exposures arise, such guarantees may be considered together and without distinction, along with the non-interest-bearing cash deposit, for the coverage of the total exposure. Otherwise, for each exposure, only guarantees whose validity includes the date on which the exposure arose will be considered. It is understood that each exposure is associated with a specific flow day of a given settlement period.

3.3 Definition of the exposure for adequacy verifications in the MPEG

Each bid/ask offer and each held position generates exposure, for each flow day corresponding to each trading day t, depending on its sign.

To be specific, a purchase[15], or potentially a sale at negative price, generates exposure equal to 100% of the value given by the sum of the offered price and the check price, plus applicable VAT, while a sale does not generate exposure, even under certain conditions it can offset.

In practice, exposure should be considered as part of the complex of the submitted offers in the book and the position held on the same flow day, as shown below.

3.3.1 Exposure on proposals

At the proposal stage, the exposure is determined considering the most unfavorable potential combination of the above proposal[16] and any other proposals of the same sign in the book[17], together with the net position already traded on the same trading day t for the flow date g (see PF_g^+ in Equation 14 and PF_g^- in Equation 15).

If the two possible adverse scenarios resulting from the matching of proposals under the net position held[18] involve a value on credit, exposure would be zero.

The exposure on the proposals made on any contract i, j base-load or peak-load contract, is calculated as follows:

Equation 11

$$PF_{t,g}^{MPEG} = \min\left(PF_{t,g}^+; PF_{t,g}^-; 0\right)$$

Where $PF^{MPEG}_{t,g}$ can be the component relative to the net position value resulting from the potential combination of all positive price purchase proposals or negative price sale ones ($PF^-_{t,g}$ and $PF^+_{t,g}$ respectively)together with the previous net position ($PF^T_{t,g}$), on trading day t for the flow day g, where the PUN is still unknown, as shown in the above description as well as in the following formulas.

The previous net position $PF^T_{t,g}$, functional to the calculation of exposures at the proposal stage, is given by:

Equation 12

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[14] See note 7
[15] Submitted with positive price.
[16] The bid/ask price is the algebraic sum of the bid/ask product price and the check price.
[17] Purchase with total positive price and sale with total negative price.
[18] Thus, it involves a credit.

$$PF_{t,g}^T = \sum_{j=B,P} \sum_{\forall Q_{t,g,i}^j < 0} \left[Q_{t,g,i}^j \times \left(P_{t,g,i}^j + PC^{j-} \right) \right] \times (1 + IVA_i)$$

$$+ \sum_{j=B,P} \sum_{\forall Q_{t,g,i}^j > 0} \left[Q_{t,g,i}^j \times \left(P_{t,g,i}^j + PC^{j+} \right) \right] \times (1 + IVA_i) + PF_{t-n,g}^T$$

where:

$PF_{t,g}^T$ = exposure given by the total value of the net past position matched on the trading day t and referred to the flow day g;

g = flow day for delivery;

i = i-th contract;

j = type of contract, which can be *base-load* B and *peak-load* P;

IVA$_i$ = applicable VAT rate;

P$^j_{g,i}$ = matching price of the j-th product for the i-th contract;

$Q_{t,g,i}^j$ = amount in MWh underlying the i-th already traded contract on the trading day t, referring to the day of delivery g. It is given by the product between the number of hours and the number of contracts. It is characterized by a negative sign for purchases and a positive sign for sales.

PC^{j-} = check price for purchase positions;

PC^{j+} = check price for sale positions;

$PF_{t-n,g}^T$ = positive component referred to the same flow day g and deriving from a different trading day (t-n other than t), capable of offsetting any debt exposure on the same flow day, as indicated in the following Equation 13.

   Equation 13

$$PF_{t-n,g}^T = Se \begin{cases} \sum_{j=B,P} \sum_{\forall Q_{t-n,g,i}^j < 0} \left[Q_{t-n,g,i}^j \times \left(P_{t-n,g,i}^j + PC^{j-} \right) \right] \times (1 + IVA_i) + \\ \sum_{j=B,P} \sum_{\forall Q_{t-n,g,i}^j > 0} \left[Q_{t-n,g,i}^j \times \left(P_{t-n,g,i}^j + PC^{j+} \right) \right] \times (1 + IVA_i) > 0; \\ \sum_{j=B,P} \sum_{\forall Q_{t-n,g,i}^j < 0} \left[Q_{t-n,g,i}^j \times \left(P_{t-n,g,i}^j + PC^{j-} \right) \right] \times (1 + IVA_i) + \\ \sum_{j=B,P} \sum_{\forall Q_{t-n,g,i}^j > 0} \left[Q_{t-n,g,i}^j \times \left(P_{t-n,g,i}^j + PC^{j+} \right) \right] \times (1 + IVA_i); \\ 0 \end{cases}$$

The component $PF_{t,g}^+$ is given by:

Equation 14

$$\forall QP^j_{t,g,i} > 0 \,\big|\, \left(P^j_{t,g,i} + PC^{j+}\right) < 0$$

$$PF_{t,g}^+ = PF_{t,g}^T + \sum_{j=B,P} \sum_i QP^j_{t,g,i} \times \left(P^j_{t,g,i} + PC^{j+}\right) \times (1 + IVA_i)$$

where:

$PF^+_{t,g}$ = exposure given by the total value of the previous net position (same trading day) and all proposals for sale of any type of contract submitted on the trading day t and on the flow day g at a negative price;

$P^j_{t,g,i}$ = price of the i-th offer on the product j;

$QP^j_{t,g,i}$ = amount in MWh object of the proposal (on the trading day t) for the i-th contract referred to the delivery day g, given by the product between the number of hours and the number of contracts; it is characterized by a negative sign for purchases and a positive sign for sales.

The component $PF_{t,g}^-$ is given by:

Equation 15

$$\forall QP^j_{t,g,i} < 0 \,\big|\, \left(P^j_{t,g,i} + PC^{j-}\right) > 0$$

$$PF_{t,g}^- = PF_{t,g}^T + \sum_{j=B,P} \sum_i QP^j_{t,g,i} \times \left(P^j_{t,g,i} + PC^{j-}\right) \times (1 + IVA_i)$$

where:

$PF^-_{t,g}$= exposure given by the total value of the previous net position (same trading day) and all previous proposals for purchase, with positive price, submitted on the trading day t, of any type of contract on the flow day g.

If proposal is confirmed and matched in the book, exposure, and thus the amount of the guarantee, is updated as soon as the exact calculation of the PUN takes place, which will replace the check price in the exposure calculation as shown in section 3.3.3.

3.3.2   Exposure on the traded position, with unknown PUN

With reference to each trading day t and each flow day with unknown PUN, each held position,generates absorption of guarantee according to the 100% of the net debt position value, valued at the bid/ask product price combined by the check price for the day g, according to the calculation presented in the following equation:

Equation 16

$$PF^{MPEG}_{t,g} = Se \begin{cases} \sum_{j=B,P} \sum_{\forall Q^j_{t,g,i}<0} \left[Q^j_{t,g,i} \times \left(P^j_{t,g,i} + PC^{j-} \right) \right] \times (1 + IVA_i) + \\ \sum_{j=B,P} \sum_{\forall Q^j_{t,g,i}>0} \left[Q^j_{t,g,i} \times \left(P^j_{t,g,i} + PC^{j+} \right) \right] \times (1 + IVA_i) + PF^T_{t-n,g} < 0 \,; \\ \sum_{j=B,P} \sum_{\forall Q^j_{t,g,i}<0} \left[Q^j_{t,g,i} \times \left(P^j_{t,g,i} + PC^{j-} \right) \right] \times (1 + IVA_i) + \\ \sum_{j=B,P} \sum_{\forall Q^j_{t,g,i}>0} \left[Q^j_{t,g,i} \times \left(P^j_{t,g,i} + PC^{j+} \right) \right] \times (1 + IVA_i) + PF^T_{t-n,g} \,; \\ 0 \end{cases}$$

The above component represents the debt exposure if the net position determines a net purchase value; otherwise it represents zero exposure if the net position determines a net sale position.

Obviously this formula does not affect the day t,g if on the same period there is a QP amount proposed for which the calculations referred to in paragraph 3.3.1 above are already determined.

3.3.3 Exposure on the position with known PUN

With reference to each trading day and flow day, each held position with known PUN[19] for flow day G being delivered, and subject to settlement at the *date of settlement S*, shall determinethe PF component updated in order to consider the entire debit and credit value of the net position, valued at the traded price plus PUN of the day g.

Equation 17

$$\forall Q_{t,g,i}$$

$$PF_{t,g}^{MPEG} = \sum_i Q^j{}_{t,g,i} \times \left(P^j{}_{t,g,i} + PUN^j{}_g\right) \times (1 + IVA_i)$$

Where

PUN^j_g = real PUN valued at the closure of the MGP.

In conclusion, it should be noted that net purchase positions determine, for each trading day matched with a flow day, absorption of guarantee, while net sale positions determine the possibility to offset the debt exposures that have the same *settlement* date (section 3.3.4).

3.3.4 Exposure and credit position in the MPEG

The Market Participant exposure in the MPEG platform for any date of *settlement* S is equal to:

Equation 18

$$E_{t,g}{}^{MPEG} = se\left(PF_{t,g}^{MPEG} < 0; PF_{t,g}^{MPEG}; 0\right)$$

Conversely, the positive components $PF_{t,g}^{MPEG}$ determine the credit position CR which can be used by the Market Participant to offset the MPEG exposures referred to the same settlement date S of the Market Participant, within the framework of adequacy verifications, carried out as indicated in Paragraph 3.1

It is equal to:

Equation 19

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[19] The daily PUN is known at the end of the MGP of day G-1 (where G is the flow day). Therefore the check price will be used during the trading period prior to the closing of the MGP session in the exposure calculation. At the end of the MGP session, the exposure must be updated considering the value of the real PUN.

$$CR_S^{MPEG} = \sum_{\forall PF_{t,g}^{MPEG} > 0 | g \in S} PF_{t,g}^{MPEG}$$

3.3.5 Parameters

For the purposes of financial adequacy verifications in the MPEG, GME for each flow day g defines a check price PC_g, suitable to estimate the expected PUN for the day g for *base-load* products and a check price PC_g, suitable to estimate the expected PUN for the day g for the *peak-load* products.

These parameters are also differentiated by application: a check price for the purchase positions (PC_g^-) or a check price for sale position (PC_g^+).

They are identified according to a quantitative model based on historical simulation approach developed *in house* and are disclosed via publication on the platform.

4. Guarantee system on the MTE

4.1. Definition of adequacy verifications with respect to the guarantee in the MTE)

4.1.1 Adequacy verifications

Within the guarantee system of the MTE, upon submission of the bids/asks in the MTE, when matching bids/asks, during the registration of its net delivery position in the PCE, GME provides for the verification of financial adequacy of the capacity of the Market Participant's guarantee with respect to its exposure, taking into account the amount due for payment (*settlement*)

The capacity of the guarantee C is given by the algebraic sum between the guarantee G[20], calculated as described in paragraph 4.2 below, and the exposure E[21], calculated on the basis of the indications of paragraph 4.3

Equation 20

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

A proposal submitted, a matched bid/ask offer or the registration on the PCE are considered adequate if the guarantee is sufficient, i.e. when C≥0.

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[20] It can have a positive or zero value.
[21] It may have a negative or zero value.

If such condition is not satisfied, the proposal or the request for registration is not accepted, the current position is no longer covered by the guarantee and generates a condition of default by the Market Participant unless it adjusts the guarantees as provided for in paragraph 5 below.

4.1.2. Other cases of updated guarantee capacity

In addition to periods of validity of the aforementioned contract, such as the proposal or the matching of bids/asks offers and the registration of the related net position delivered on the PCE, the capacity of the financial guarantee is also recalculated in the following cases:

- revocation of a purchase/sale proposal on the order book;

- at the end of each market session;

- update of the check price[22];

- update of the parameter α;

- change of the VAT code;

- update of the guarantee amount;

- settlement of payments[23].

The position is guaranteed if the guarantee is sufficient, otherwise an adjustment is required as indicated in Paragraph 5 below.

4.2.   Definition of the guarantee for adequacy verifications

The amount of the guarantees provided by each Market Participant, in the form of a bank guarantee without expiration or non-interest bearing cash deposit[24], is reduced by an amount, defined maintenance margin (MM).

Since each Market Participant can define the amount of guarantees to be allocated to the GME markets[25], the guarantee intended for the MTE will be equal to:

Equation 21

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

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[22] See Article 2, paragraph 2.1, subpara fff), of ME Rules.

[23] Payments are defined as payments made to settle marlet payables in accordance with Technical Rules 08 ME.

[24] The PA participant may only guarantee in the form of a non-interest-bearing cash deposit.

[25] See note 7.

where

G^{MTE} = guarantee allocated for the MTE

$F_{i\,=}$ amount of the i-th guarantee submitted by the Market Participant;

$D_{j\,=}$ amount of the j-th deposit paid by the Market Participant;

∂^{MTE} == guarantee share allocated for the MTE/ (where $0 \leq \partial^{MTE} = \leq 1$[26]);

MM^{MTE} = maintenance margin in the MTE

The maintenance margin for the portion of the total amount of guarantees allocated for the MTE is equal to 10% of the total amount of guarantees, determined by 3% to cover the penalty and default interest for late payment and by 7 % to cover the risk arising from the partial coverage of economic items traded in the MTE.

Please note that in order to be considered suitable for covering an exposure, the period of validity of the bank guarantee must include the trading date on which the exposure is determined. The bank guarantees can be considered cumulatively and without distinction, together with the non-interest-bearing cash deposit to cover the total exposure, within the limits of the allocation made. Each exposure is in turn associated with a specific flow day falling in a specific settlement period.

4.3. Definition of the exposure for adequacy verifications in the guarantee system of the MTE

4.3.1 Exposure on proposals

The best trading proposal for each type of contract referred to the month m generates exposure based on the mark-to-market, i.e. the gap between the offer price and the check price, calculated both for sale and purchase positions (EP exposure);

Specifically, for the purposes of calculating the exposure on the proposals on the MTE book[27], the best trading proposal submitted by the Market Participant, i.e. the bid/ask offer with priority, is

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[26] See note 7.

[27] If a bid/ask offer is submitted without a price indication, the bid/ask price is considered equal to that of the best proposals of opposite sign on the book up to the capacity of the bid/ask itself.

If the best bid/ask offer is subject to matching, GME shall verify that the bid/ask offer in the book which in the meantime has become the bid/ask offer with highest price priority, is consistent with the guarantee. If this verification is unsuccessful, the proposal verified as non adequate will be canceled from the order book, and GME will proceed with the verification of the following proposal.

considered for each type of contract listed on the MTE, and for this proposal, it is considered the amount referred to the month m equal to:

$$QP_{m,i}^{BL} = n_i * h_m^{BL} \quad \text{and} \quad QP_{m,j}^{PL} = n_j * h_m^{PL}$$

where:

$QP_{m,i}^{BL}$ = amount of the best proposal for the i-th baseload contract and referred to the month m;

$QP_{m,j}^{PL}$ = amount of the best proposal for the j-th peakload contract and referred to the month m;

n = number of contracts covered by the proposal;

h_m^{BL} = number of hours in the month m related to the baseload profile;

h_m^{PL} = number of hours in the month m related to the peakload profile.

For the purposes of this document, please consider that:

n <0 for purchase proposals;

n> 0 for sales proposals.

For the baseload and peakload profile, consider the exposure resulting from each of the best proposals referring to the different types of contracts present on the book and referred to the month m, equal to:

Equation 22

$$EP_{m,i}^{BL} = Se\left[QP_{m,i}^{BL} * \left(P_i^{BL} * (1+iva) - PC_m^{BL}(1+iva)\right) \geq 0; 0; QP_{m,i}^{BL} * \left(P_i^{BL} * (1+iva) - PC_m^{BL} * (1+iva)\right)\right]$$

$$EP_{m,j}^{PL} = Se\left[QP_{m,j}^{PL} * \left(P_j^{PL} * (1+iva) - PC_m^{PL} * (1+iva)\right) \geq 0; 0; QP_{m,j}^{PL} * \left(P_j^{PL} * (1+iva) - PC_m^{PL} * (1+iva)\right)\right]$$

where

$EP_{m,i}^{BL}$ = exposure on the best proposal for each type of i-th baseload contract present on the book and referred to month m;

$EP_{m,j}^{PL}$ = exposure on the best proposal for each type of j-th peakload contract present on the book and referred to month m;

$P_{i/,j}$ = submission price of the proposal;

VAT = VAT rate applicable to the Market Participant on transactions of the same sign with respect to the i/j contract when referred to the $P_{i/j}$ price or VAT rate applicable to the Market Participant on transactions of opposite sign with respect to the contract when referred to the PC_m price.

The overall EP_{MTE} exposure on the best proposals on the book is therefore equal to:

Equation 23

$$EP^{MTE} = \sum_m \sum_i EP^{BL}_{m,i} + \sum_m \sum_j EP^{PL}_{m,j}$$

4.3.2 Exposure on net position traded but not delivered

For the purposes of calculating the exposure on the monthly net position on the periods still in trading, calculate the net position of each month, separately for contracts with a baseload and peakload profile, equal to the sum of the amounts covered by the contracts that include the month in the period of delivery:

$$PN^{BL}_m = \sum_i Q^{BL}_{m,i} \quad \text{and} \quad PN^{PL}_m = \sum_j Q^{PL}_{m,j}$$

where

PN_m^{BL} = net position of month m related to baseload contracts;

PN_m^{PL} = net position of the month m related to peakload contracts.

Please consider the future exposure on the net baseload and peakload positions of each month still in trading equal to:

Equation 24

$$EF^{BL}_m = PN^{BL}_m * \alpha^{BL} * PC^{BL}_m * (1 + iva)$$

$$EF^{PL}_m = PN^{PL}_m * \alpha^{PL} * PC^{PL}_m * (1 + iva)$$

Where:

EF_m^{BL} = future exposure of the net baseload position of the month m;

EF_m^{PL} = future exposure of the net peakload position of the month m;

α_{BL} = parameter α related to baseload contracts;

α_{PL} = parameter α related to peakload contracts;

IVA = VAT rate applicable to the Market Participant on the opposite sign transactions with respect to the net position.

The future exposure of each month is equal to:

Equation 25

$$EF_m = se\left\{\left(EF_m^{BL} * EF_m^{PL}\right) \ge 0; \left(EF_m^{BL} + EF_m^{PL}\right); se\left(\left|EF_m^{BL}\right| \ge \left|EF_m^{PL}\right|\right); EF_m^{BL} + EF_m^{PL} * \beta; EF_m^{BL} * \beta + EF_m^{PL}\right\}$$

Where:

EF_m = future exposure of the month m

β = discount factor, between 0 and 1

The overall future EF^{MTE} exposure of months not yet delivered is equal to:

Equation 26

$$EF^{MTE} = Max\left[\left(\forall EF_m > 0, \sum_m EF_m\right); \left(\forall EF_m < 0, \sum_m |EF_m|\right)\right] - Min\left[\left(\forall EF_m > 0, \sum_m EF_m\right); \left(\forall EF_m < 0, \sum_m |EF_m|\right)\right] * \gamma$$

Where:

γ = offsetting factor, between 0 and 1.

Furthermore, consider the adjustment of the exposure on contracts traded on the MTE, limited to the periods that have not yet been delivered, at market value (mark-to-market), which is equal to:

Equation 27

$$EC^{MTE} = \sum_m \sum_i QC_{m,i}^{BL} * \left(P_i^{BL} * (1 + iva) - PC_m^{BL} * (1 + iva)\right) + \sum_m \sum_j QC_{m,j}^{PL} * \left(P_j^{PL} * (1 + iva) - PC_m^{PL} * (1 + iva)\right)$$

Where:

EC^{MTE} = exposure on contracts;

PC_m^{BL} = check price of the baseload profile of the delivery month m;

PC_m^{PL} = check price of the peakload profile of the delivery month m;

IVA = VAT rate applicable to the Market Participant on transactions of the same sign with respect to the i/j contract when referred to the $P_{i/j}$ price or VAT rate applicable to the Market Participant on transactions of opposite sign with respect to the contract when referred to the PC_m price.

4.3.3 Exposure on the monthly net position traded and delivered

Exposures are generated by any debts for net purchase positions relating to the months already delivered, but for which payments have not yet been settled. The net sales positions delivered do not generate exposure, determining instead a credit capable of offsetting any other debit exposure to be settled on the same settlement date.

Similarly, upon registration of the net delivery position in MTE purchase, GME verifies that the capacity of the guarantee allocated for the MTE is not lower than the value of this position[28], increased by the VAT where applicable.

In order to determine these debit/credit components, on the MTE, consider, both for each type of contract (baseload/peakload) traded on the MTE, the amount covered by the contract, or the transaction, and refers to the month m, equal to:

$$QC_{m,i}^{BL} = n_i * h_m^{BL} \quad \text{and} \quad QC_{m,j}^{PL} = n_j * h_m^{PL}$$

Where

$QC_{m,i}^{BL}$ = quantity (MWh) of the i-th baseload contract / transaction and referred to month m;
$QC_{m,j}^{PL}$ = quantity (MWh) of the i-th peakload contract / transaction and referred to month m;
$n_{i/j}$ = number of contracts covered by the contract / transaction;
h_m^{BL} = number of hours in the month m related to the baseload profile;
h_m^{PL} = number of hours in the month m related to the peakload profile;
For the purpose of this document, please consider:
n < 0 for purchase contracts/transactions;
n > 0 for sale contracts/transactions.

Please consider the financial position of each month already delivered[29], but not yet settled:

Equation 28

$$PF_m^{MTE} = \sum_i P_i * (1 + iva) * QC_{m,i}^{BL} + \sum_j P_j * (1 + iva) * QC_{m,j}^{PL}$$

Where

PF_m^{MTE} = financial position on the MTE related to month m;

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[28] The value is equal to the product between the amount being delivered and the corresponding average purchase price.
[29] On the MTE, months already delivered shall mean the months for which the related delivery position has already been registered on the PCE.

$P_{i,j}$ = trading price of the i-th baseload and j-th peakload contract concluded on the MTE,

IVA= VAT rate applied to the transaction.

For the purposes of the adequacy verifications on the MTE, the overall financial position of past months for which settlement has not yet been made is therefore equal to:

$$PF^{MTE} = \sum_m PF_m^{MTE}$$

With:

PF^{MTE} = financial position for MTE

4.3.4 Exposure on MTE

In order to determine, the overall exposure based on the amount due at the settlement[30], individual exposures shall be aggregated, determined as shown in the paragraphs 4.3.1, 4.3.2, and 4.3.3 above, as shown below.

Equation 30

$$E_S^{MTE} = \sum_{m \in S} EP_m - \sum_{m \in S} EF_m + \sum_{m \in S} PF_m + \sum_{m \in S} EC_m + ACC_S$$

where

m = delivery month;

ACCs = amount of any adjustments due to, by way of example but not of limitation, extraordinary operations, tax rate changes.

The overall exposure on MTE is given by:

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[30] According to a scheduling made known annually.

Equation 31

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

4.3.5 Parameters

For the purposes of the adequacy verifications in the MTE, GME defines a check price for each contract traded on the MTE which is calculated daily, based on the bids/asks submitted and/or concluded in the MTE. GME may determine the MTE check price also based on procedures that require the involvement of Market Participants.

In addition, GME, to calculate Market Participant's exposure, defines the parameters **α, β,** and **γ**. They have been determined by examining the PUN historical series and the prices of *futures* contracts with underlying electricity traded on the organized markets in Europe.

The parameter α has been determined on the basis of the volatility of the observed prices; it is differentiated on the basis of the profile, base-load (αBL) and peak-load (αPL) and on the basis of the month covered by the traded contract.

The parameter β has been determined on the basis of the correlation between the observed prices of base-load and peak-load contracts.

The parameter γ has been determined on the basis of the correlation of prices between different delivery periods.

The values of the parameters α, taken into consideration for the purpose of verifying the available amount of the guarantee, decrease with the increase of the time interval elapsing between the day on which the available amount of the guarantees is calculated and the delivery of the calendar month to which such parameter α refers. These values are shown in Table 1 below (where m identifies the month in which the available amount of the guarantees is verified):

Table 1: parameters α

	m+1	m+2	m+3	m+4	m+5	m+6	m+7	m+8	m+9	m+10	m+11	m+12	m+13	m+14	m+15	m+16	m+17	m+18	m+19	m+20	m+21	m+22	m+23	m+24
α BL	25%	20%	15%	12%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
α PL	30%	25%	20%	17%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%

After defining these monthly values, the parameters α applied to each tradable contract (month, quarter and year) are calculated as the weighted average on the hours of the parameters α of the months included in the same contracts[31].

The values of the parameters β and γ, taken into consideration for the purpose of verifying the available amount of the guarantee, are as follows:

β = 70%

γ = 70%

5.   Adjustment of the capacity of the guarantee

If the guarantee is not sufficient compared to the exposure updates, GME will send an e-mail request for adjustment to the Market Participant, specifying the minimum amount to be paid.

By 10:30 of the 3rd working day after receipt of the request, the Market Participant must:

- must send to the treasury institute, with the beneficiary value date on the same day, via SEPA Credit Transfer Urgent/Priority, or equivalent procedures -from the current account whose bank details have been previously communicated to GME pursuant to Article 17, paragraph 17.1, of the ME Rules, according to the modalities identified in the Technical Rules 08 ME - the payment of the amount suitable to guarantee its own exposure, or

- must send a further bank guarantee (or adjust the guarantee already provided) with an amount suitable to guarantee its own exposure[32] .

Pending the adjustment of the guaranteed amount, the Market Participant:

• with reference to the electricity market:

- may only conclude transactions on the MGP, MI and MPEG that generate credit receivables for the Market Participant;

- may not conclude transactions on the MTE;

• with reference to the gas market: the provisions of Technical Rules 15 MGAS shall apply.

If the Market Participant fails to pay within the above-mentioned time limits, GME will initiate the default procedure referred to in Article 89 of the ME Rules.

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[31] The α parameter of the monthly contract is equal to the α parameter of the calendar month to which the contract relates.

The Market Participant wishing to increase the amount of the guarantee, submitted in accordance with Annex 3, Annex 5 or Annex 7 of the version of the ME Rules in force until the day before of the go live date of netting markets, must previously conform the aforementioned annex to Annex 3 or Annex 5 of this Rules as defined in Technical Rules 04 ME.

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[32] This possibility is not granted to PA participant, as they may only post guarantee in the form of a non-interest-bearing cash deposit.