ELECTRICITY DERIVATIVES –

MARGINS MANUAL

(MMeL)

VERSION 3.0 - APRIL 2021

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SUMMARY

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1. FOREWORD

This document describes the methodology for calculating Margins for electricity derivative contracts traded on IDEX for which CC&G assumes the role of Central Counterparty.

Future contracts referring to the supply of electric energy for a Delivery Period of one month, one quarter and one year are traded on IDEX: The Final Settlement of Futures will take place through Cash Settlement (whereas applicable) or through physical delivery of the underlying.

This manual – although allowing for the introduction on IDEX of option contracts in later stage – focuses on those instruments that will be launched first.

The methodology described in the following pages (Margins for Electric Market – MMeL) foresees the following categories of Margins:

- **Variation Margins**, allowing for the daily settlement of gains/losses through the Settlement-to-the-Market of open positions, which are accordingly re-evaluated at the Daily Settlement Price. Such Margins are calculated until the Futures' Last Trading Day (LTD) included (cfr. Paragraph7).

- **Ordinary Initial Margins**, allowing for the evaluation of the largest possible loss under the assumption of liquidating the positions in the most unfavourable price scenario reasonably conceivable. Such Margins are applied until the Last Trading Day (cfr. Paragraph 8). Exclusively for the Monthly Futures approaching its Delivery Period, the parameters used in determining the Ordinary Initial Margins are brought to the level of the Delivery Initial Margins as from the end of the third day of Open CC&G before the first day of the Delivery Period.

- **Delivery Initial Margins**, allowing for the evaluation of the largest possible loss during the Delivery Period, keeping into account that in such period, the contract cannot be traded on the market. Such Margins are applied throughout the Delivery Period (cfr. Paragraph 8.2).

- **Mark-to-Market Margins** (exclusively for Delivery Positions), allowing for the re-evaluation of the Delivery Positions to the new Daily Settlement Price determined for such positions. Such Margins are applied throughout the Delivery Period.

The main elements characterizing the Future contracts traded on IDEX are:

- **Cascading**: mechanism allowing for the Final Settlement solely for the Monthly Futures contract; Futures having longer Delivery Periods are progressively reduced to Monthly contracts (cfr. paragraph 4).

- **Shifting**: mechanism allowing for, as time goes by, the shifting of positions from one Class to the next one (cfr. paragraph 5).

- **Multiplier**: specifies the number of hours during the Delivery Period. Unlike equity derivative contracts traded on IDEM, the Multiplier is not univocally linked to the Class but, being linked to the Delivery Period, changes for each Class as a consequence of the Cascading and Shifting processes. (Furthermore, it must be kept into account that months have different number of hours, leap years, and months during which Daylight Saving Time is introduced or is ended. (cfr. paragraph 6).

For Energy Futures, for witch it has not chosen the option of physical delivery (whereas applicable), there are a Final Differential Settlement, calculated on the Settlement Price (Underlying Price) communicated by the Exchange Managing Company (cfr. paragraph 10).

2. TYPES OF LISTED CONTRACTS

As mentioned before, the contracts listed on IDEX refer to the supply of electric energy (one Megawatt of power, times the number of hours in the Delivery Period) during the whole 24 hours of the day (Baseload Contracts) or during the relevant hours of the working day (Peakload Contracts).

The value of the Electricity Futures (expressed in €/MWh) is given by the product of its price, times its volume [number of di Megawatt-hours (MWh) in the contract itself].

The listed contracts will have a Delivery Period equal to one calendar month, one quarter (January-March, April-June, July-September and October-December) and one year (January-December) defined respectively Monthly Futures, Quarterly Futures and Yearly Futures.

On each trading day the following contracts are listed:

N° 3 Monthly Futures, Baseload and Peakload profile, from the month following the current calendar month and the two following months

N° 4 Quarterly Futures, Baseload and Peakload profile, from the quarter following the current calendar quarter and the three following quarters

N° 2 Yearly Futures, Baseload profile and N° 1 Yearly Futures, Peakload profile, from the year following the current calendar year.

Monthly Futures may be traded until the end of the last working day before the beginning of the Delivery Period.

Quarterly Futures and the Yearly Futures may be traded until the end of the fourth working day before the beginning of the Delivery Period.

As described here following and in the following paragraphs for the Baseload Futures is exactly replicated for the Peakload ones.

The following example points out listed contracts for each month of the year.

The letter "D" in the first row below the calendar indicates the current month (delivery month).

The second, third and fourth row contain, respectively, the Monthly, Quarterly and Yearly Future contracts listed during the month in any day preceding the Cascading Day.

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Figura 1

*for clarity is not reported the year 4
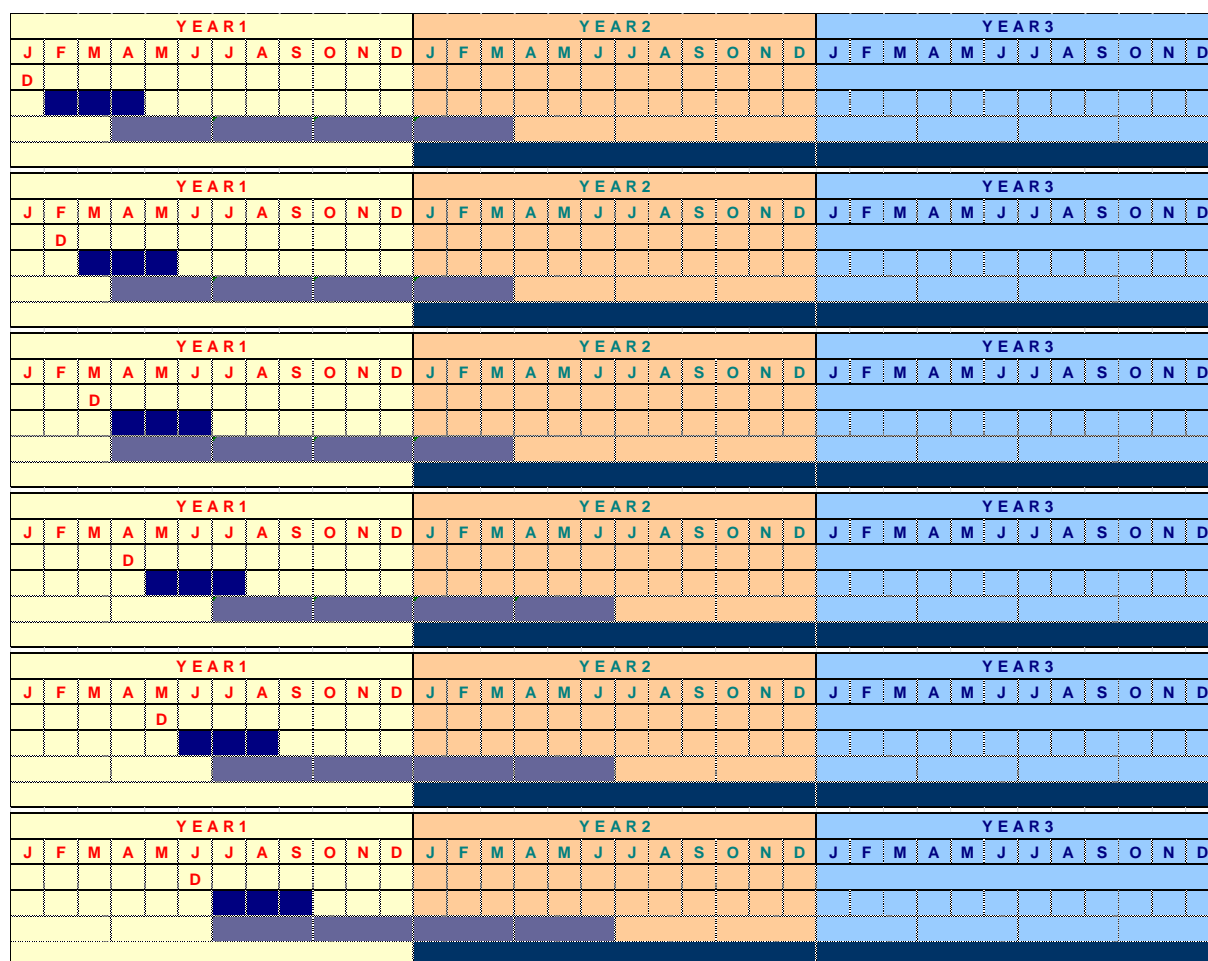
3. CLASS STRUCTURE

In order to determine the Participant's risk exposure, derivative contracts traded on IDEX are aggregated in Integrated Portfolios, evaluated unitarily and consequently subject to an aggregated calculation of Initial Margins.

The MMeL Margining methodology foresees a Class structure capable of classifying the contracts which are actually traded on the market, as indicated in paragraph 2, plus one additional Class for managing Delivery Month Positions, and another Class for managing Cash Settlement Positions.

Each Class comprises all contracts of the same species (Futures and Options) having the same underlying activity (arithmetic mean of the prices of the Italian area) and the same features (Delivery Period and type of supply: Baseload, Peakload or Off Peak). For the Baseload Futures contracts listed on IDEX the following Classes will be applied (codes are provided as an example):[1]:

Table 3-1

Class Code IT	Positions
M01FB	First Month after the current Delivery Month
M02FB	Second Month after the current Delivery Month
M03FB	Third Month after the current Delivery Month
Q01FB	First Quarter after the current Delivery Quarter
Q02FB	Second Quarter after the current Delivery Quarter
Q03FB	Third Quarter after the current Delivery Quarter
Q04FB	Fourth Quarter after the current Delivery Quarter
Y01FB	First Year after the current Delivery Year
Y02FB	Second Year after the current Delivery Year
D01FB	Delivery Month
D02FB	Cash Settlement Positions

For the Peakload Futures contracts listed on IDEX the following Classes will be applied (codes are provided as an example):

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[1] i codici riportati nelle seguenti tabelle possono essere oggetto di modifica.

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Table 3-2

Class Code IT	Positions
M01FP	First Month after the current Delivery Month
M02FP	Second Month after the current Delivery Month
M03FP	Third Month after the current Delivery Month
Q01FP	First Quarter after the current Delivery Quarter
Q02FP	Second Quarter after the current Delivery Quarter
Q03FP	Third Quarter after the current Delivery Quarter
Q04FP	Fourth Quarter after the current Delivery Quarter
Y01FP	First Year after the current Delivery Year
D01FP	Delivery Month
S01FP	Cash Settlement Positions

In order to manage also the possible introduction of option contracts, the methodology foresees the possibility of integrating the Margin calculation to a superior level of aggregation: the Class Group. The Class Group comprises in fact all the contracts having the same underlying activity (SNP) and same features (Delivery Period and type of supply: Baseload, Peakload or Off Peak) independently from the contract type (Futures or Option).

A further level of aggregation is provided by the Products Group, that comprises all contracts (Futures and Options) belonging to two or more Class Groups for which CC&G has verified significantly correlated price trends.

Two different examples of Integrated Portfolios are provided here below; the first one exemplifies the different levels of Integrated Portfolios in case of Futures and Options which are not included in a Products Group, in the second examples all Classes represented are comprised in the same Products Group[2]. .

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[2]The description of the concept of series (Strike and Call Put), is applicable only for Energy Option contracts.
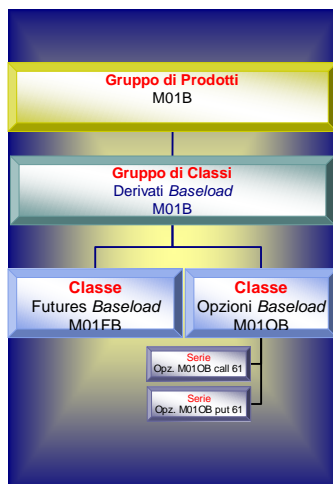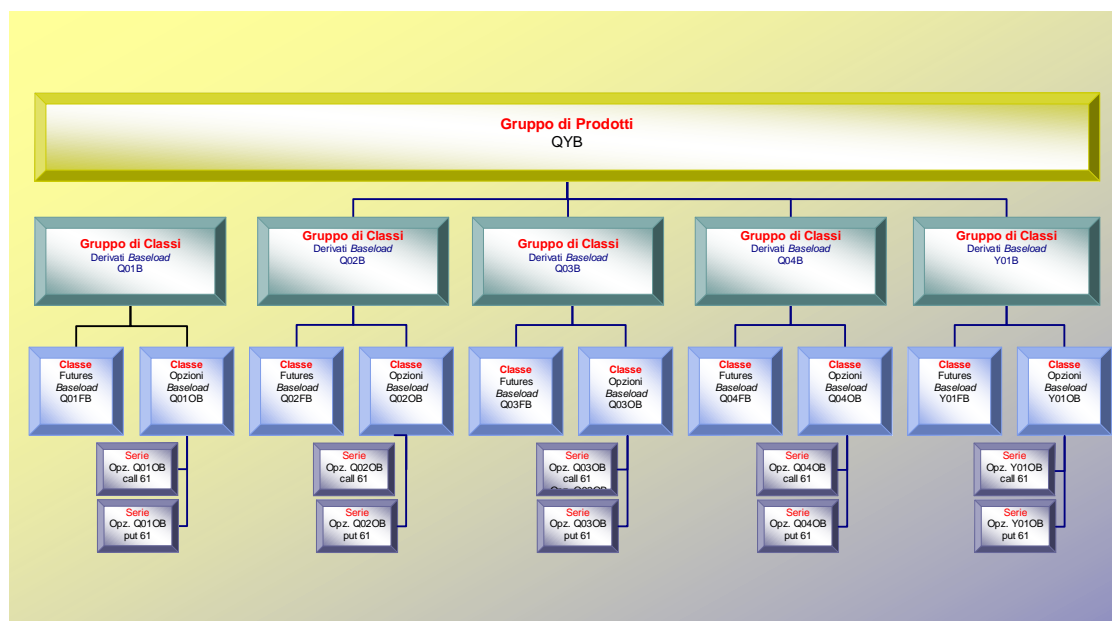
Figure 3-1

Figure 3-2

4. CASCADING

Electric Energy Futures foresee the Cash Settlement only of Monthly Contracts; Quarterly Futures and Yearly Futures are cascaded into Monthly Futures as described below.

4.1 Yearly Futures Cascading

At the end of the Last Trading Day of an Yearly Futures (Y01FB), before calculating Initial Margins, open positions in such Futures are replaced by the following equivalent positions: three Monthly Futures January (M01FB), February (M02FB) and March (M03FB) and in three Quarterly Futures April-June (Q02FB), July-September (Q03FB) and October-December (Q04FB), which, summed up, correspond to the Delivery Period of the Yearly Futures.

Example:

Figure 4-1

December 2007						
MON	TUE	WED	THU	FRI	SAT	SUN
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

LTD Y01FB = 20 December 2007

Until 20 December 2007: 1 long position Futures Y01FB (delivery year 2008)

Figure 4-2

2008 (1 Long Y01FB Position) pre-cascading											
J	F	M	A	M	J	J	A	S	O	N	D
+1											

End of day 20 December, the long position Futures Y01FB is transformed as indicated below:

- 1 long position Futures M01FB

- 1 long position Futures M02FB

- 1 long position Futures M03FB

- 1 long position Futures Q02FB

- 1 long position Futures Q03FB

- 1 long position Futures Q04FB

Figure 4-3

2008 (1 Long Y01FB Position) post-cascading											
J	F	M	A	M	J	J	A	S	O	N	D
+1	+1	+1									
			+ 1			+ 1			+ 1		

4.2 Quarterly Futures Cascading

At the end of the Last Trading Day[3] of an Quarterly Futures, before calculating Initial Margins, open positions in such Futures are replaced by the equivalent positions in the Monthly Futures whose Delivery Period is equivalent to the Delivery Period of the Quarterly Futures.

Example:

LTD Q01FB = 26 March 2008

Until 26 March 2008: 1 long position Futures Q01FB (Delivery Quarter April-June 2008)

Fino al 26 Marzo 2008: 1 posizione lunga Futures Q01FB (consegna trimestre Aprile-Giugno 2008).

Figure 4-4

2008 (1 Long Q01FB Position) pre-cascading											
J	F	M	A	M	J	J	A	S	O	N	D
			+1								

End of Day 26 March, the long position Futures Q01FB is transformed as indicated below:

   1 long position Futures M01FB

   1 long position Futures M02FB

   1 long position Futures M03FB

Figure 4-5

2008 (1 Long Q01FB Position) post-cascading											
J	F	M	A	M	J	J	A	S	O	N	D
			+1	+1	+1						

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[3] If the day after the last trading day the Market is closed and CC&G is open, the cascading will be done the day after the last trading day.
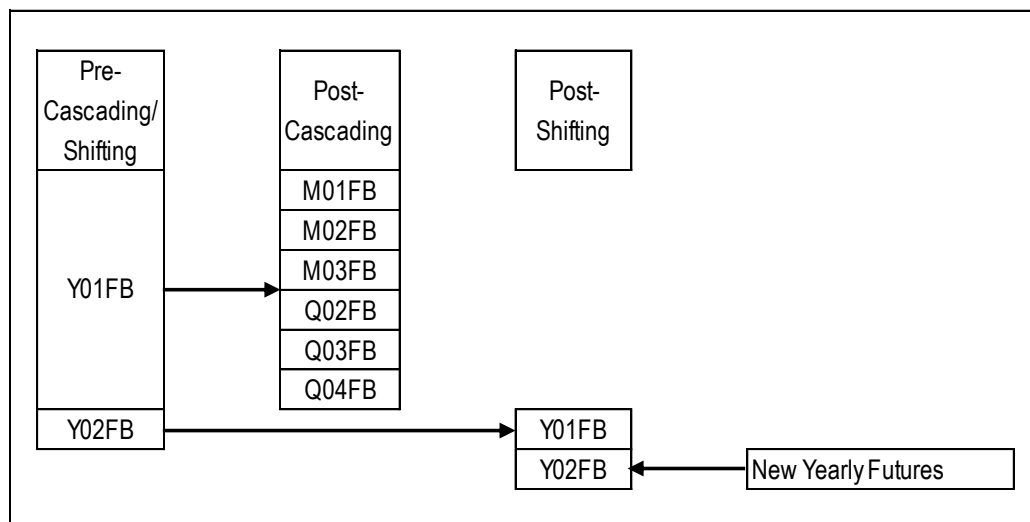
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5. POSITION SHIFTING

5.1 Yearly Futures Position Shifting

Yearly Futures Position Shifting At the end of the Last Trading Day[4] of the Yearly Futures (LTD of Y01FB), after having calculated Margins, the Yearly Futures Y02FB positions will be shifted in Y01FB.

The newly introduced Yearly contract Y02FB will be traded since September of the Year after.

Table 5-1

Pre-Cascading/Shifting		Post-Cascading	Post-Shifting	
		M01FB		
		M02FB		
Y01FB	→	M03FB		
		Q02FB		
		Q03FB		
		Q04FB		
Y02FB	→		Y01FB	
			Y02FB ←	New Yearly Futures

5.2 Quarterly Futures Positions Shifting

The Open Market Day after the Last Trading Day[5] for Quarterly Futures, the new Quarterly Futures having Delivery Period following the last listed Quarterly Futures is introduced.
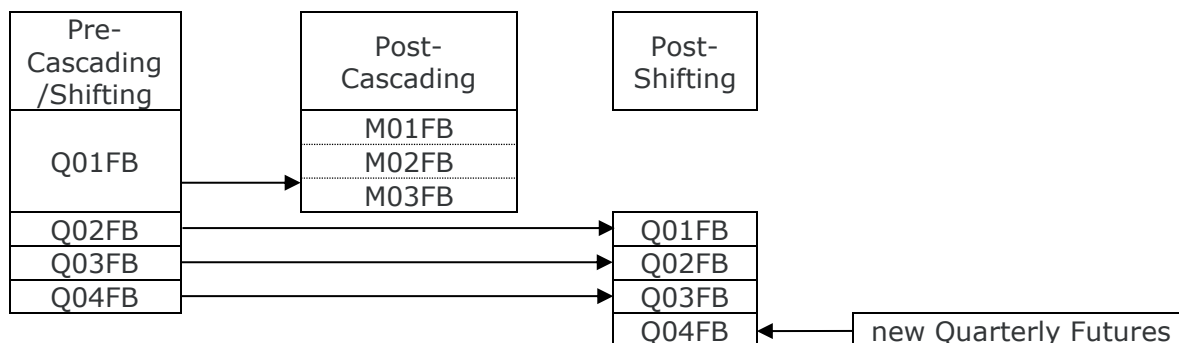
Therefore, at the end of the Last Trading Day of the Quarterly Futures (LTD of Q01FB), after Margins calculation, it is necessary to shift Quarterly Futures positions Q02FB,

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[4] If the day after the last trading day the Market is closed and CC&G is open, the shifting will be done the day after the last trading day.
[5] If the day after the last trading day the Market is closed and CC&G is open, the shifting will be done the day after the last trading day.

Q03FB and Q04FB respectively into Q01FB, Q02FB and Q03FB. The new Quarterly Futures will accordingly be Q04FB.

Table 5-2

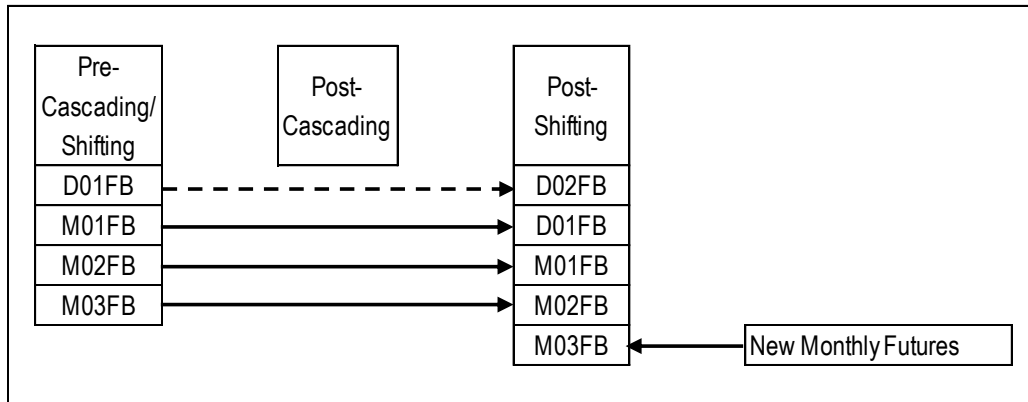| Pre-Cascading/Shifting	Post-Cascading	Post-Shifting	
Q01FB	M01FB M02FB M03FB		
Q02FB	→	Q01FB	
Q03FB	→	Q02FB	
Q04FB	→	Q03FB	
		Q04FB ←	new Quarterly Futures

5.3 Monthly Futures Positions Shifting

The Open market Day after the end of the Last Trading Day for Monthly Futures, the new Monthly Futures having Delivery Period following the last listed Monthly Futures is introduced.

At the end of the Last Trading Day of the Monthly Futures (LTD of M01FB), after Margins calculation, it is necessary to shift Monthly Futures positions M01FB, M02FB and M03FB respectively in D01FB (Delivery Positions), M01FB and M02FB.

In case the Final Cash Settlement for pre-shifting Class D01FB has not yet occurred, positions comprised in this Class must be shifted in a provisional Class D02FB, which will remain until the Final Cash Settlement will take place.

The new Monthly Futures will therefore be M03FB.

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Table 5-3

Pre-Cascading/Shifting	Post-Cascading	Post-Shifting	
D01FB		D02FB	
M01FB		D01FB	
M02FB		M01FB	
M03FB		M02FB	
		M03FB	New Monthly Futures

6. MULTIPLIER

Baseload Futures Contracts listed on IDEX are referred to the supply of electric energy (one MegaWatt of power times the number of hours included in the Delivery Period) during the whole 24 hours of the day.

Therefore, the Multiplier attributed to each contract will be equal to the number of hours included in the Delivery Period to which the contract refers. The Multiplier will accordingly be attributed to the pertinent Class when contracts are cascaded and/or shifted.

The following spreadsheet indicated the number of hours for each month, quarter and year for common and leap years, keeping into consideration the current rules for determining the day of beginning and end of the daylight saving time.

Figure 6-1

Month	Day	Hour	Hour Month	DayLight Saving	Ordinary Year			Leap Year		
					Effective hour month	Hour Quarter	Hour Year	Effective hour month	Hour Quarter	Hour Year
JAN	31	24	744		744			744		
FEB	28	24	672		672	2159			2183	
FEB leap	29	24	696					696		
MAR	31	24	744	-1	743			743		
APR	30	24	720		720			720		
MAY	31	24	744		744	2184		744	2184	
JUN	30	24	720		720		8760	720		8784
JUL	31	24	744		744			744		
AUG	31	24	744		744	2208		744	2208	
SEP	30	24	720		720			720		
OCT	31	24	744	1	745			745		
NOV	30	24	720		720	2209		720	2209	
DEC	31	24	744		744			744		

Peakload Futures Contracts listed on IDEX are referred to the supply of electric energy (one MegaWatt of power times the number of hours included in the Delivery Period) during the relevant hours of the day (from 8 a.m. to 8 p.m. from Monday to Friday, eventual day holidays are included).

7. VARIATION MARGINS CALCULATION

Variation Margins are determined on each Futures Position registered on each account or sub-account of the Participant.

The amount of the Variation Margins is equal to:

- For Open Positions arising from previous days' activity, to the difference between the Daily Settlement Price of the current day and the Daily Settlement Price of the preceding Open Market day;

- For Open Positions arising from the trading activity of that same day, to the difference between the Daily Settlement Price of the current day and the trade price;

Variation Margins are calculated until the Last Trading Day included of each contract (i.e. Variation Margins are not calculated during the Delivery Period).

For any position included in the generic Class XOYFB (with the exception of Classes D01FB and D02FB) Variation Margin for positions arising from previous days' trading activity is determined:

$$MV(X0YFB) = (P_{t(X0YFB)} - P_{t-1(X0YFB)}) \times Multiplier \times previous\_day\_positions\_X0YFB$$

For each trade executed in the current trading day:

$$MV(X0YFB) = (P_{t(X0YFB)} - P_{neg}) \times Multiplier \times trades\_executed\_during\_the\_day\_X0YFB$$

Whereas:

- $MV(X0YFB)$ are the Variation Margins for any position included in Class X0YFB
- $P_{t(X0YFB)}$ is the Daily Settlement Price for the position included in Class X0YFB of the day Variation Margins are calculated
- $P_{t-1(X0YFB)}$ is the Daily Settlement Price for the position included in Class X0YFB of the day before Margins are calculated
- P_{neg} is the trade price

- *Multiplier*: indicates the number of hours in the Delivery Period for the Class

- *Previous days positions*: indicates the number of net positions arising from the preceding trading days (positive sign for net long positions and negative sign for net short positions)

- *Trades executed during the day*: indicates the number of positions for every contract executed during the day (positive sign for long positions and negative sign for short positions).

The following section describes the Calculation of Variation Margins on Cascading and Shifting days.

7.1 Variation Margins for Positions arising from Cascading

On Cascading Day, for Cascading Positions, it will be necessary to calculate normally (i.e. before Cascading) Variation Margins as a difference between the Daily Settlement Price of the day and the Daily Settlement price of the previous day (or trade price); furthermore Variation Margins must be calculated between the Daily Settlement Prices for the newly generated positions and the Daily Settlement Price for the original position.

7.1.1 Yearly Positions Cascading

For the Cascading of Yearly Positions Y01FB the following will apply:

Variation Margins are calculated as per usual for positions arising from previous days trading:

$$MV(Y01FB) = (P_{t(Y01FB)} - P_{t-1(Y01FB)}) \times Multiplier \times previous\_days\_positions\_Y01FB$$

Or, for each trade executed during the current trading day:

$$MV(Y01FB) = (P_{t(Y01FB)} - P_{neg}) \times Multiplier \times trades\_executed\_during\_the\_day\_Y01FB$$

Furthermore, Variation Margins must also be calculated for the positions originated by Cascading as difference between the Daily Settlement Prices of each of the three new Monthly Futures and the Daily Settlement Price of the Yearly Futures which is cascaded and as difference between the Daily Settlement Prices of each of the three new Quarterly Futures and the Daily Settlement Price of the Yearly Futures which is cascaded.

$$MV(M01FB_{derived\_from\_cascading}) = (P_{t(M01FB)} - P_{t(Y01FB)}) \times Multiplier \times positions\_Y01FB\_in\_cascading$$

$$MV(M02FB_{derived\_from\_cascading}) = (P_{t(M02FB)} - P_{t(Y01FB)}) \times Multiplier \times positions\_Y01FB\_in\_cascading$$

$$MV(M03FB_{derived\_from\_cascading}) = (P_{t(M03FB)} - P_{t(Y01FB)}) \times Multiplier \times positions\_Y01FB\_in\_cascading$$

$$MV(Q02FB_{derived\_from\_cascading}) = (P_{t(Q02FB)} - P_{t(Y01FB)}) \times Multiplier \times positions\_Y01FB\_in\_cascading$$

$$MV(Q03FB_{derived\_from\_cascading}) = (P_{t(Q03FB)} - P_{t(Y01FB)}) \times Multiplier \times positions\_Y01FB\_in\_cascading$$

$$MV(Q04FB_{derived\_from\_cascading}) = (P_{t(Q04FB)} - P_{t(Y01FB)}) \times Multiplier \times positions\_Y01FB\_in\_cascading$$

The Multiplier is referred to the number of hours for the Classes arising from Cascading.

7.1.2 Yearly Positions Cascading

Similarly for Quarterly Futures Cascading, the Variation Margin is calculated for positions arising from previous days trading activity as difference between the Daily Settlement Price of the day for the Quarterly Cascading Futures and the Daily Settlement Price of the previous day:

$$MV\,(Q01FB) = (P_{t(Q01FB)} - P_{t-1(Q01FB)}) \times Multiplier \times previous\_days\_positions\_Q01FB$$

Or for each contract executed during current the trading day:

$$MV\,(Q01FB) = (P_{t(Q01FB)} - P_{neg}) \times Multiplier \times trades\_executed\_during\_the\_day\_Q01FB$$

Furthermore, Variation Margins must also be calculated for the positions originated by Cascading as difference between the Daily Settlement Prices of each of the three new Monthly Futures and the Daily Settlement Price of the Quarterly Futures which is cascaded:

$$MV\,(M01FB_{derived\_from\_cascading\_Q01FB}) = (P_{t(M01FB)} - P_{t(Q01FB)}) \times Multiplier \times positions\_Q01FB\_in\_cascading$$

$$MV\,(M02FB_{derived\_from\_cascading\_Q01FB}) = (P_{t(M02FB)} - P_{t(Q01FB)}) \times Multiplier \times positions\_Q01FB\_in\_cascading$$

$$MV\,(M03FB_{derived\_from\_cascading\_Q01FB}) = (P_{t(M03FB)} - P_{t(Q01FB)}) \times Multiplier \times positions\_Q01FB\_in\_cascading$$

The Multiplier is referred to the number of hours for the Classes arising from Cascading.

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The Total Variation Margins for each account/sub-account of the Participant will be equal to the algebraic sum of the Variation Margins for each Class:

$$MV\,(Tot) = \sum MV\,(X0YFB)$$

If this amount is positive, it will be a credit for the Participant, if this amount is negative, it will be a debit for the Participant.

8. INITIAL MARGIN CALCULATION

8.1 Ordinary Initial Margins Calculations

The risk associated with an integrated portfolio is evaluated by assuming that the prices of each instrument undergo an unfavourable price change of a predetermined maximum daily percentage, defined Margin Interval, and CC&G therefore must, in case of insolvency, liquidate the positions of the Participant in the most unfavourable market conditions reasonably conceivable.

In order to establish the largest theoretical loss within the hypothesis of daily market price Variations, the theoretical gains/losses for each portfolio are determined in correspondence with a number of price scenarios within the Margin interval. The Ordinary Initial Margin is set equal to the largest of such losses, calculated for each price scenario.

Price scenarios do not take into consideration only extreme price variations; theoretical gains/losses are determined also under the hypothesis of intermediate price variations, in order to properly evaluate the risk also for certain trading strategies whose maximum loss arises in correspondence with certain underlying values, comprised between the extremes (this circumstance will apply when options will be introduced on IDEX).

In case of instruments based to the same underlying asset[6], which may happen when options will also be listed on IDEX, an aggregation level will be introduced (Class Group) and theoretical gains/losses will be calculated jointly for the whole portfolio by summing algebraically theoretical gains/losses for each position under the same hypothesis of underlying price variations within the Margin Interval. In this way full offset between theoretical liquidation gains and losses will be possible with reference to positions which have opposite sensitivities to underlying price variations.

In case of derivative instruments connected to different underlying assets, but where CC&G has found a significant degree of correlation (Integrated portfolio at Products Group level), the methodology allows to keep into consideration part of the theoretical gains which arise in a certain price scenario of one underlying, to cover the theoretical losses that would arise on the other underlying in the corresponding price scenario (Considering the article 27 of Commission Delegated Regulation (EU) N° 153/2013).

The calculation of Initial Margins for each Class takes place through the same steps used to calculate Ordinary Initial Margins for index Futures traded on IDEM, including the possible application of Class Group and Products Group concepts. The only differences are the ones indicated below:

- On Cascading days, the calculation of Ordinary Initial Margins is executed on positions existing after the Cascading has been executed

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[6] Same Delivery Period and type of supply: Baseload, Peakload or Off-Peak and underlying: arithmetic mean of the prices of the Italian zone.

- On Shifting days, every Class (with the exception of Classes related to the first month following the delivery month; cf. line below and paragraph 8.2) assumes, before Margin calculation, the Margin Interval attributed to the Class in which positions will shift after Margin calculation

- The calculation of Ordinary Initial Margins is executed until the Last Trading Day; for positions included in Classes related to the first month following the delivery month only the Ordinary Initial Margin is fixed to the same level of the Delivery Initial Margin from the third day of Open Market before the first day of the Delivery Period.

8.1.1 Calculation of the theoretical gains/losses

10 price scenario (5 Upside and 5 Downside) are built separately for each Class, as described in the following breakdown. For the generic Class X0YFB, whose Margin interval is $IM_{1(X0YFB)}$ and including positions whose Daily Settlement Price is $P_{t(X0YFB)}$, the total liquidation gains/losses are determined for each price scenario by multiplying the unitary theoretical gain/loss times the Multiplier, times the number of positions (with positive sign if long and negative sign if short).

Table 8-1

Scen.	Price Scenario	Unitary Theoretical Liquidation Gain/loss	Total Theoretical Liquidation Gain/loss
D5	$P_{D5} = P_{t(X0YFB)} - \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (5/5) \right)$	$GL_{D5} = P_{D5} - P_{t(X0YFB)}$	$MI_{D5} = GL_{D5} \times M \times Pos$
D4	$P_{D4} = P_{t(X0YFB)} - \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (4/5) \right)$	$GL_{D4} = P_{D4} - P_{t(X0YFB)}$	$MI_{D4} = GL_{D4} \times M \times Pos$
D3	$P_{D3} = P_{t(X0YFB)} - \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (3/5) \right)$	$GL_{D3} = P_{D3} - P_{t(X0YFB)}$	$MI_{D3} = GL_{D3} \times M \times Pos$
D2	$P_{D2} = P_{t(X0YFB)} - \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (2/5) \right)$	$GL_{D2} = P_{D2} - P_{t(X0YFB)}$	$MI_{D2} = GL_{D2} \times M \times Pos$
D1	$P_{D1} = P_{t(X0YFB)} - \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (1/5) \right)$	$GL_{D1} = P_{D1} - P_{t(X0YFB)}$	$MI_{D1} = GL_{D1} \times M \times Pos$
U1	$P_{U1} = P_{t(X0YFB)} + \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (1/5) \right)$	$GL_{U1} = P_{U1} - P_{t(X0YFB)}$	$MI_{U1} = GL_{U1} \times M \times Pos$
U2	$P_{U2} = P_{t(X0YFB)} + \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (2/5) \right)$	$GL_{U2} = P_{U2} - P_{t(X0YFB)}$	$MI_{U2} = GL_{U2} \times M \times Pos$
U3	$P_{U3} = P_{t(X0YFB)} + \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (3/5) \right)$	$GL_{U3} = P_{U3} - P_{t(X0YFB)}$	$MI_{U3} = GL_{U3} \times M \times Pos$
U4	$P_{U4} = P_{t(X0YFB)} + \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (4/5) \right)$	$GL_{U4} = P_{U4} - P_{t(X0YFB)}$	$MI_{U4} = GL_{U4} \times M \times Pos$
U5	$P_{U5} = P_{t(X0YFB)} + \left(P_{t(X0YFB)} \times IM_{1(X0YFB)} \times (5/5) \right)$	$GL_{U5} = P_{U5} - P_{t(X0YFB)}$	$MI_{U5} = GL_{U5} \times M \times Pos$

whereas

M = Multiplier

Pos = Net positions (long positions – short positions)

8.1.2 Ordinary Initial Margins Calculation for Classes not comprised in Product Groups

The Ordinary Initial Margin for the generic Class X0YFB not comprised in a Products Group will be equal to the largest theoretical loss (largest negative amount) among the Theoretical gains/losses determined for each of the ten price scenarios determined in step 8.1.1:

$$IM\,(X\,0YFB\,)_{NoGdP} \ = \min(\ IM_{D5}, IM_{D4}, ..., IM_{U5}\,)$$

8.1.3 Ordinary Initial Margins Calculation for Classes comprised in Product Groups

In case one or more Classes are included in a Product Group[7], and consequently an Offset Factor OF is assigned, the Ordinary Initial Margins are no longer calculated at Class level as described in step 8.1.1, but at Product Group level as described below, in order to keep into account the risk reduction consequent to the possible existence of positions of opposite sign on different but nonetheless well correlated underlying activities.

8.1.3.1 Ordinary Initial Margins Calculation with application of offset factor

For each class comprised in a Products Group the theoretical gains determined in step 8.1.1 are multiplied for the offset factor (less then 1) and subsequently summed together and with the theoretical losses (taken in full) for each scenario.

The following table exemplifies the Ordinary Initial Margins Calculation for the Products Group 0FB composed of the Classed X0YFB and Z0WFB to which the offset factor is applied (*OF*).

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[7]A Product Group may be established when there is a significant and stable correlation between price variation of two or more Classes.

Table 8-2

Scen	Ordinary Initial Margin Product Group 0FB with application of offset factor
D5	IM_{D5} = (If $IM_{D5}X0YFB$ > 0; $IM_{D5}X0YFB$ x OF; $IM_{D5}X0YFB$) + (If $IM_{D5}Z0YFB$ > 0; $IM_{D5}Z0YFB$ x OF; $IM_{D5}Z0YFB$)
D4	IM_{D4} = (If $IM_{D4}X0YFB$ > 0; $IM_{D4}X0YFB$ x OF; $IM_{D4}X0YFB$) + (If $IM_{D4}Z0YFB$ > 0; $IM_{D4}Z0YFB$ x OF; $IM_{D4}Z0YFB$)
D3	IM_{D3} = (If $IM_{D3}X0YFB$ > 0; $IM_{D3}X0YFB$ x OF; $IM_{D3}X0YFB$) + (If $IM_{D3}Z0YFB$ > 0; $IM_{D3}Z0YFB$ x OF; $IM_{D3}Z0YFB$)
D2	IM_{D2} = (If $IM_{D2}X0YFB$ > 0; $IM_{D2}X0YFB$ x OF; $IM_{D2}X0YFB$) + (If $IM_{D2}Z0YFB$ > 0; $IM_{D2}Z0YFB$ x OF; $IM_{D2}Z0YFB$)
D1	IM_{D1} = (If $IM_{D1}X0YFB$ > 0; $IM_{D1}X0YFB$ x OF; $IM_{D1}X0YFB$) + (If $IM_{D1}Z0YFB$ > 0; $IM_{D1}Z0YFB$ x OF; $IM_{D1}Z0YFB$)
U1	IM_{U1} = (If $IM_{U1}X0YFB$ > 0; $IM_{U1}X0YFB$ x OF; $IM_{U1}X0YFB$) + (If $IM_{U1}Z0YFB$ > 0; $IM_{U1}Z0YFB$ x OF; $IM_{U1}Z0YFB$)
U2	IM_{U2} = (If $IM_{U2}X0YFB$ > 0; $IM_{U2}X0YFB$ x OF; $IM_{U2}X0YFB$) + (If $IM_{U2}Z0YFB$ > 0; $IM_{U2}Z0YFB$ x OF; $IM_{U2}Z0YFB$)
U3	IM_{U3} = (If $IM_{U3}X0YFB$ > 0; $IM_{U3}X0YFB$ x OF; $IM_{U3}X0YFB$) + (If $IM_{U3}Z0YFB$ > 0; $IM_{U3}Z0YFB$ x OF; $IM_{U3}Z0YFB$)
U4	IM_{U4} = (If $IM_{U4}X0YFB$ > 0; $IM_{U4}X0YFB$ x OF; $IM_{U4}X0YFB$) + (If $IM_{U4}Z0YFB$ > 0; $IM_{U4}Z0YFB$ x OF; $IM_{U4}Z0YFB$)
U5	IM_{U5} = (If $IM_{U5}X0YFB$ > 0; $IM_{U5}X0YFB$ x OF; $IM_{U5}X0YFB$) + (If $IM_{U5}Z0YFB$ > 0; $IM_{U5}Z0YFB$ x OF; $IM_{U5}Z0YFB$)
	MI > 0 = credit; MI < 0 = debt;

The Ordinary Initial Margin for the generic Products Group 0FB with application of offset factor will be equal to the max theoretical loss (max negative amount) identified between the theoretical gains/losses of the ten scenarios represented in Table 8-2.

$$IM(0FB)_{GdPwithOF} = \min(IM_{D5}, IM_{D4}, ..., IM_{U5})$$

8.1.3.2 Ordinary Initial Margins Calculation without application of offset factor

For each Classes comprised in a Products Group the calculation is also made separately for each class (without application of any offset factor) as indicated in the step 8.1.2 for determine the Ordinary Initial Margin without application of offset factor.

$$IM(0FB)_{GdPnoOF}$$

8.1.3.3 Determination of the Maximum Offset applicable to the Ordinary Initial Margin

The maximum offset applicable to the Ordinary Initial Margins for classes comprised in Products Group will be equal to 80% the difference between the Ordinary Initial Margin Calculated without application of any offset factor (8.1.3.2) and those calculated with application of the offset factor (8.1.3.1).

8.1.3.4 Ordinary Initial Margin for Classes comprised in Products Groups

The Ordinary Initial Margin for Classes comprised in Products Groups are equal to the difference between the Ordinary Initial Margin without application of any offset factor (as stated in step 8.1.3.1) and the maximum offset (as stated in step 8.1.3.3).

$$IM(0FB)_{GdP} = IM(0FB)_{GdPnoOF} - MaxOffset$$

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8.1.4 Total Ordinary Initial Margin for Classes comprised in Products Groups

The Total Ordinary Initial Margins are determined summing the Ordinary Initial Margin for the n Classes not comprised in a Products Group (as stated in the previous step 8.1.2) and the Ordinary Initial Margin related to the Classes comprised in all the m Products Groups (as stated in the previous step 8.1.3.4).

$$MIOtot = \sum_{i=1}^{n} MI\,(X\,0YFB_i)_{NoGdP} + \sum_{j=1}^{m} MI\,(0FB_j)_{GdP}$$

8.2 Initial Margins Calculations for Delivery Positions

As indicated above, the Monthly Futures is not tradable during the Delivery Period. In case of insolvency of a Participant therefore, CC&G will not have the possibility to close out on the market (neither derivatives, nor cash) existing Delivery Positions in Monthly Futures (hereinafter "Delivery Positions").

The Margin for Delivery Positions has the aim to cover the amount of the largest potential loss that could arise between the Last Trading Day of the contract and its settlement (which takes place after the last day of the Delivery Month).

The methodology for calculating the Margin for Delivery Positions is the same described for Ordinary Initial Margins and it is applied to Classes D01, which comprises Delivery Positions (it will be applied also to Classes D02 if the Final Cash Settlement has not taken place yet).

The price $P_{t(D01FB)}$ to be used for calculating Initial Margins for Classes D01 is normally equal to the last Daily Settlement Price of the Monthly Futures before the beginning of the Delivery Period (i.e.: the Daily Settlement Price of the Last Trading Day) $P_{ltd(M01FB)}$.

$$P_{t(D01FB)} = P_{ltd(M01FB)}$$

In order to allow for adjustments to the Margin for Delivery Positions during the Delivery Period, CC&G may change such price $P_{t(D01FB)}$ (cf. paragraph 8.3 below).

For positions included in Classes related to the first month following the delivery month, as of the third Open Market day before the beginning of the Delivery Period[8], the

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[8] The Margin Interval for Delivery Positions is applied anticipatively in order to avoid that CC&G – in case a Participant does not deposit the Margins due for Delivery Positions – is in the situation in which it cannot close out positions of the insolvent Participant. In fact if the Margin for Delivery Positions were to be applied at the end of the Last Trading Day of the Monthly Futures and on the following Open Market day (first day of the Delivery Period) such Margin were not deposited, CC&G would be in the position to be requested to manage the

Ordinary Initial Margin will be set equal to the value of the Margin for Delivery Positions; the Initial Margins in this case will be calculated according to the algorithm described in paragraph 8, applying *in lieu* of the Margin Interval foreseen for Class M01FB, the Margin Interval for Delivery Position applicable for the calendar month to which the Delivery Period refers.

These margins are not requested to the Participants that exercise the option of physical delivery for the monthly future contract because, as consequence of the exercise of the option of physical delivery through the position transfer, the participant is no longer counterparty of CC&G (cfr. Paragraph 10.2).

8.3 Mark-to-Market Margin Calculation for Delivery Positions

The Mark-to-Market Margin is calculated exclusively for Delivery Positions included in Classes D01. This Margin is applied in case the Daily Settlement Price for the Classes containing the Delivery Positions is modified[9] to re-evaluate positions at such a new price.

Considering for example positions on Futures Baseload Italian area, in case of a Participant with a long Delivery Position, the Mark-to-Market Margin represents a theoretical credit if the Daily Settlement Price of the contract M01FB on the Last Trading Day $P_{ltd\,(M\,01FB)}$ is lower than the new Daily Settlement Price determined for Class D01FB $P_{t(D\,01FB)}$; vice versa it represents a theoretical debit in case $P_{ltd\,(M\,01FB)}$ is higher than $P_{t(D\,01FB)}$. Conversely for Participants having short Delivery Positions.

The Mark-To-Market Margin will be therefore equal to :

$$MTM\,(D01FB) = (P_{t(D\,01FB)} - P_{ltd\,(M\,01FB)}) \times Multiplier\ \times positions\ \_\,D01FB$$

Where net long Delivery Positions have positive sign and net short Delivery Positions have negative sign.

The total *Mark-To-Market* Margin will be equal to the sum of *Mark-To-Market* Margins of all the *p* Classes D01 in delivery:

$$MTMtot\ = \sum_{K=1}^{p} MTM\,(D01_k)$$

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risk of the Delivery Positions (being impossible to close them out on the IDEX or on the cash markets) without the adequate Margins.

[9]When deemed appropriate CC&G - in order to limit the accrual of potential losses over a prolonged time horizon – may in fact set a new Daily Settlement during the Delivery Period; such new Daily Settlement Price, will for example keep into account the trend of the average of daily SNP already during the Delivery Period.

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Obviously Mark-to-Market Margins are different from zero only if and when the Daily Settlement Price for Delivery Positions has been modified during the Delivery Period.

It must be highlighted that theoretical gains arising from Mark-to-Market Margin credits are never paid out to the Participant but may be exclusively used within the procedure of Initial Margins calculation for the energy derivatives section to reduce the Initial Margins requests for other positions.

$$*\qquad*\qquad*$$

The total Initial Margins for each account/sub-account of the Participant will be equal to the lesser value between the sum of Initial Margins (Ordinary, Delivery and Mark-to-Market) of all Product Groups and all Classes (including those pertinent to Delivery Positions and to Positions for which the Final Cash Settlement has been executed yet) and zero.

$$IM\,(Tot\,) = \min\left(OIMtot\ + MTMtot\ ,0\right)$$

9. CASCADING/SHIFTING OPERATIONAL PHASES SYNOPSIS

The following breakdown describes the logical order of procedural steps to be executed during Cascading and/or shifting days:

Table 9-1

LTD – End of Trade
Variation Margin calculation for Cascading positions and closing of open positions
Cascading – upload of new positions (at the Daily Settlement Price of the original positions)
Variation Margin calculation (ordinary positions and those arising from Cascading)
Initial Margin calculation for Ordinary and Delivery Positions (ordinary positions and positions arising from Cascading)
Shifting – uploading of new positions at the Daily Settlement Price of the positions from which they derive and simultaneous closing of the original contract and redefinition of Classes (Multiplier)
LTD+1 – introduction of new contracts

10. FINAL SETTLEMENT

10.1 Final Cash Settlement

The calculation of the Final Cash Settlement will be executed on the last day of the Delivery Period. If the last day of the Delivery Period is a closed market day, then the calculation of the Final Cash Settlement will be executed the first CC&G working day after the last day of the Delivery Period.

The value of the Final Cash Settlement differential RF will be equal to the difference between the Settlement Price (P_L) and the Daily Settlement Price of the monthly contracts, Baseload and Peakload profile, of the Last Trading Day $P_{ltd\,(M\,01\,FB)}$ times the Multiplier, times the number of net positions (positive sign for net long posting, negative sign for net short positions).

$$RF = (P_L - P_{ltd\,(M\,01\,FB)}) \times Multiplier \times positions$$

A positive RF value represents a credit for the Participant ,whereas a negative value represents a debit.

$$* \qquad * \qquad *$$

All the parameters required to replicate the calculation of Initial Margins are published in a specific section on CC&G's website **www.ccg.it**

10.2 Final Settlement by Physical Delivery

If on third Open Market Day before the beginning of the Delivery Period the Participant exercises the option of physical delivery for the energy underlying of the future contract and this exercise, after verification[10], is accepted by the Qualified Participant GME, the position of the Participant is transferred to the Qualified Participant GME that shall delivery/withdraw the amount of energy requested through the option of physical delivery. As consequence of the transfer, the Participant is no longer counterparty of CC&G for the transferred position, so he needs not to settle the margin to CC&G.

The physical delivery related to the contract shall take place outside of the CC&G Guarantee System, through the settlement of amounts due, between the exercising Member and the Qualified Member, deriving from the purchases and sales of energy on the underlying market, according to the rules defined by the Qualified Member.

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[10] The verification criteria are determined by the GME (the Italian Manager of the Enrgy Market).

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11. PROCICLICALITY MANAGEMENT

In computing Margin Intervals, in order to mitigate procyclicality phenomena, CC&G applies the required buffer of 25% only to those instruments whose time series are shorter than 10 years.

An Internal policy defines a set of warning thresholds for proper market benchmarks that help identifying market stress circumstances under which the buffer could be temporarily exhausted, in part or in full, in order to avoid big-stepped margin changes during periods of high volatility.

12. EXAMPLES

Here below are provided some examples of Margin calculation indicating the peculiarities of the MMeL methodology.

Example 1 illustrates the margining methodology for a Monthly Baseload, in some characterizing days, from the trade day to its Final Settlement at the end of the Delivery Period.

Example 2 illustrates the effects of Cascading on the Margining methodology for Quarterly and Yearly Baseload Futures related to Italian area.

The parameter applied in the examples are indicated in the following breakdown; such values are applicable EXCLUSIVELY FOR THESE EXAMPLES (THE VALUES ARE RANDOM).

Table 12-1

Class	Contract type	Margin Interval	Product Group	Offset Factor
M01FB	BASE Month 1	15,00%		
M02FB	BASE Month 2	10,00%		
M03FB	BASE Month 3	5,00%		
Q01FB	BASE Quarter 1	12,00%	QYFB	40,00%
Q02FB	BASE Quarter 2	8,00%	QYFB	40,00%
Q03FB	BASE Quarter 3	7,00%	QYFB	40,00%
Q04FB	BASE Quarter 4	6,00%	QYFB	40,00%
Y01FB	BASE Year 1	13,00%	QYFB	40,00%

Table 12-2

Delivery Month	Applicable Margin Interval
JANUARY	65%
FEBRUARY	60%
MARCH	45%
APRIL	50%
MAY	40%
JUNE	55%
JULY	40%
AUGUST	55%
SEPTEMBER	40%
OCTOBER	45%
NOVEMBER	65%
Delivery Month	**Applicable Margin**

CONTACTS

Cassa di Compensazione e Garanzia S.p.A.
Risk Management
ccg-rm.group@euronext.com
www.ccg.it

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