



NOTICE 06/2006

Rules for Determining Electricity Indexes

28.October.2019

Versions Index

30.June.2006

Initial Version

18.November.2008

Registration with The Portuguese Securities Market Commission (CMVM) on October 30th, 2008 as a MIBEL Derivatives Market Rule as a EU Regulated Market according to Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments (MiFID)

17.December.2013

Included the IFTR E-P and IFTR P-E indexes

29.September.2015

Included the SPEL Solar Index

13.May.2016

Adding DEEL Base Index and FREL Base Index.

Change for Central European Time (CET).

Adding backup methodology for determining Spot Reference Prices.

28.October.2019

Adjustment of the DEEL index definition following the entry in force of the German and Austrian unbundling.

Improved drafting of the FREL index.

DISCLAIMER

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OMIP approves this Notice which sets the rules for determining electricity indexes.

General Definitions

- For each calendar day, OMIP calculates and publishes the following indexes:
 - SPEL Base
 - PTEL Base
 - SPEL Peak
 - PTEL Peak
 - IFTR E-P Base
 - IFTR P-E Base
 - SPEL Solar Index
 - DEEL Base
 - FREL Base
- The indexes listed in the previous paragraph are calculated based on hour marginal prices formed on the daily market of the relevant Spot Market, to the Spanish and Portuguese zones of MIBEL, and also for the German/Austrian and French systems respectively:
 - Hour marginal price of the Spanish system
 - Hour marginal price of the Portuguese system
 - Hour marginal price of the German/Austrian system
 - Hour marginal price of the French system
- The time references included in this Notice refer to the Central European Time, hereinafter referred to as CET.

SPEL Index Calculation Methodology

- For each calendar day, the “**SPEL Base**” index corresponds to the arithmetic mean of hour marginal prices of the Spanish system for the 24 (23 or 25) hours of a day (CET), rounded two decimals. The respective calculation formula is the following:

$$\text{SPEL Base Index} = \frac{\sum_{i=1}^n \text{SMP}(e)^i}{n}$$

Considering that:

n = number of hours on a calendar day (24 hours, except on the last Sundays of March – 23 hours and October – 25 hours);

i = corresponds to each hour (CET) of a calendar day for which the SPEL Base index is being calculated;

$\text{SMP}(e)^i$ = hour marginal price of the Spanish system for the hour i , defined in € per MWh with two decimals.

5. For each week day – Monday to Friday¹ - the **“SPEL Peak” index** corresponds to the arithmetic mean of hour marginal prices of the Spanish system, for the period comprised between 8:00 and 20:00 (CET), and rounded to two decimals. The respective calculation formula is the following:

$$\text{SPEL Peak Index} = \frac{\sum_{j=1}^n \text{SMP}(e)^j}{n}$$

Considering that:

n = number of “peak” hours on a business day (period comprised between 8:00 and 20:00 (CET), equivalent to 12 hours);

j = corresponds to each “peak” hour (CET) for the day the SPEL Peak index is being calculated;

$\text{SMP}(e)^j$ = hour marginal price of the Spanish system for the hour j , defined in € per MWh with two decimals.

PTEL Index Calculation Methodology

6. For each calendar day, the **“PTEL Base” index** corresponds to the arithmetic mean of hour marginal prices of the Portuguese system, for the 24 (23 or 25) hours of a day (CET), rounded to two decimals, and with the following calculation formula:

$$\text{PTEL Base Index} = \frac{\sum_{i=1}^n \text{SMP}(p)^i}{n}$$

Considering that:

n = number of hours on a calendar day (24, except on the last Sundays of March - 23 and October - 25);

i = corresponds to each hour (CET) of a calendar day for which the PTEL Base index is being calculated;

$\text{SMP}(p)^i$ = hour marginal price of the Portuguese system for the hour i , defined in € per MWh with two decimals

7. For each week day – Monday to Friday² - the **“PTEL Peak” index** corresponds to the arithmetic mean of hour marginal prices of the Portuguese system, for the period comprised between 8:00 and 20:00 (CET), and rounded to two decimals. The respective calculation formula is the following:

$$\text{PTEL Peak Index} = \frac{\sum_{j=1}^n \text{SMP}(p)^j}{n}$$

¹ This includes public holidays, from Monday to Friday.

² This includes public holidays, from Monday to Friday.

Considering that:

n = number of “peak” hours on a business day (period comprised between 8:00 and 20:00 (CET), equivalent to 12 hours);

j = corresponds to each “peak” hour (CET) of the calendar day, for which the PTEL Peak index is being calculated;

$SMP(p)^j$ = hour marginal price of the Portuguese system for the hour j , defined in € per MWh with two decimals.

IFTR Indexes Calculation Methodology

8. For each calendar day, the **"IFTR E-P" index** corresponds to the arithmetic mean of the differences, if positive, between the hour marginal prices of the Spanish system and the hour marginal price of the Portuguese system, for 24 (23 or 25) hours of the day (CET), rounded to two decimals, and with the following calculation formula:

$$IFTR\ E - P\ Base\ Index = \frac{\sum_{i=1}^n \max((SMP(e)^i - SMP(p)^i); 0)}{n}$$

Considering that:

n = number of hours on a calendar day (24, except on the last Sundays of March - 23 and October - 25);

i = corresponds to each hour (CET) of a calendar day for which the PTEL Base index is being calculated;

$SMP(e)^i$ = hour marginal price of the Spanish system for the hour i , defined in € per MWh with two decimals.

$SMP(p)^i$ = hour marginal price of the Portuguese system for the hour i , defined in € per MWh with two decimals.

9. For each calendar day, the **"IFTR P-E" index** corresponds to the arithmetic mean of the differences, if positive, between the hour marginal prices of the Portuguese system and the hour marginal price of the Spanish system, for 24 (23 or 25) hours of the day (CET), rounded to two decimals, and with the following calculation formula:

$$IFTR\ P - E\ Base\ Index = \frac{\sum_{j=1}^n \max((SMP(p)^j - (SMP(e)^j); 0)}{n}$$

Considering that:

n = number of hours on a calendar day (24, except on the last Sundays of March - 23 and October - 25);

j = corresponds to each hour (CET) of the calendar day, for which the PTEL Base index is being calculated;

$SMP(p)^j$ = hour marginal price of the Portuguese system for the hour j, defined in € per MWh with two decimals.

$SMP(e)^j$ = hour marginal price of the Spanish system for the hour j, defined in € per MWh with two decimals.

SPEL Solar Calculation Methodology

10. For each calendar day, the “SPEL Solar” Index corresponds to the weighted average of the hourly marginal prices of the Spanish system for the 24 (23 or 25) hours (CET), weighted by their respective photovoltaic productibility index, shown in the table “Productibility Index of Photovoltaic Energy” rounded by two decimal places. The respective formula is, as follows:

$$SPEL\ Solar\ Index = \frac{\sum_{j=1}^n SMP(e)^j \times IPEF_j}{\sum_{j=1}^n IPEF_j}$$

Where:

n = number of hours in a calendar day (24 hours, except in the last Sunday of March – 23 hours; and October – 25 hours);

j = corresponds to each hour (CET) of the calendar day, for which the SPEL Solar Index is being calculated;

$SMP(e)^j$ = hour marginal price of the Spanish system for the hour j, defined in € per MWh with two decimals.

IPEF_j = Productibility Index of Photovoltaic Energy for the hour j, shown in the following table of hourly values for each respective month.

	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
Enero	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,10	0,23	0,34	0,43	0,46	0,43	0,34	0,23	0,10	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Febrero	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,04	0,19	0,34	0,48	0,58	0,61	0,58	0,48	0,34	0,19	0,04	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Marzo_Inv	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,11	0,26	0,42	0,55	0,64	0,67	0,64	0,55	0,42	0,26	0,11	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Marzo_Camb	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,11	0,26	0,42	0,55	0,64	0,67	0,64	0,55	0,42	0,26	0,11	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Marzo_Ver	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,11	0,26	0,42	0,55	0,64	0,67	0,64	0,55	0,42	0,26	0,11	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Abril	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,06	0,19	0,35	0,50	0,63	0,72	0,75	0,72	0,63	0,50	0,35	0,19	0,06	0,00	0,00	0,00	0,00	0,00
Mayo	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,13	0,28	0,44	0,60	0,74	0,83	0,86	0,83	0,74	0,60	0,44	0,28	0,13	0,00	0,00	0,00	0,00	0,00
Junio	0,00	0,00	0,00	0,00	0,00	0,00	0,03	0,16	0,31	0,47	0,63	0,76	0,85	0,88	0,85	0,76	0,63	0,47	0,31	0,16	0,03	0,00	0,00	0,00	0,00
Julio	0,00	0,00	0,00	0,00	0,00	0,00	0,02	0,16	0,33	0,51	0,69	0,83	0,93	0,97	0,93	0,83	0,69	0,51	0,33	0,16	0,02	0,00	0,00	0,00	0,00
Agosto	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,09	0,25	0,43	0,60	0,74	0,84	0,88	0,84	0,74	0,60	0,43	0,25	0,09	0,00	0,00	0,00	0,00	0,00
Septiembre	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,02	0,16	0,32	0,49	0,63	0,73	0,76	0,73	0,63	0,49	0,32	0,16	0,02	0,00	0,00	0,00	0,00	0,00
Octubre_Ver	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,06	0,20	0,35	0,49	0,58	0,61	0,58	0,49	0,35	0,20	0,06	0,00	0,00	0,00	0,00	0,00	0,00
Octubre_Camb	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,06	0,20	0,35	0,49	0,58	0,61	0,58	0,49	0,35	0,20	0,06	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Octubre_Inv	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,06	0,20	0,35	0,49	0,58	0,61	0,58	0,49	0,35	0,20	0,06	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Noviembre	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,11	0,24	0,35	0,43	0,46	0,43	0,35	0,24	0,11	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Diciembre	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,08	0,20	0,31	0,38	0,41	0,38	0,31	0,20	0,08	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table obtained based on the Annex IV to the Royal Decree 413/2014 of 6th of June, by which the production activity of electric energy from renewable energy sources, cogeneration and waste is regulated, using the following modifications:

- a. Zone IV is selected;
- b. Time reference is modified to the Spanish time (CET).

DEEL Index Calculation Methodology

11. For each calendar day, the index " DEEL Base" is the arithmetic average of the hourly marginal prices for 24 (23 or 25) hours of the day (CET), rounded to two decimal places:
 - a) German/Austrian, corresponding to the Phelix-DE / AT Base index as defined by the European Energy Exchange (EEX), as long as it is determined by the spot market for the single price zone Germany/Austria;
 - b) Germany, corresponding to the Phelix-DE Base index defined by the European Energy Exchange (EEX), in the absence of the previous value.

FREL Index Calculation Methodology

12. For each calendar day, the index " FREL Base" is the arithmetic average of the hourly marginal prices of the French system for 24 (23 or 25) hours of the day (CET), rounded to two decimal places, corresponding to the Index "France Day Base" defined by the European Energy Exchange (EEX).

Backup Methodologies

13. If, due to exceptional circumstances, are not available some of the hourly marginal prices used in determining the index referred to in the preceding paragraphs, or the value of the index itself, OMIP may:
 - a) adopt approximate values of the hourly marginal prices missing, based on:
 - i. Interpolation of hourly marginal prices for other hours in the same session in the relevant daily market;
 - ii. Extrapolation of hourly marginal prices formed in previous days in the relevant daily market;
 - iii. Using the hourly marginal prices formed in the relevant intra-daily markets;
 - iv. Extrapolation of marginal price times the same day, formed in other European markets, taking into account historical values of spreads formed with the relevant daily market.
 - b) Determine the value of the index based on numerical models according to the definition of the respective indexes using their prices marginal zones or adopting approximate values based on the previous point.

Entry into Effect

This Notice has been registered with CMVM on September, 20th 2019 and enters into effect on October, 28th 2019.

The Board of Directors