part of eex group

epexspot

BENCHMARK STATEMENT In application of Article 27 of EU Regulation 2016/1011

18.12.2019

Status: validated

Version: 1.0

epexspot

Table of Contents

This benchmark statement is provided by EPEX SPOT SE ("EPEX SPOT") as the administrator the following benchmarks:

- Phelix-DE (baseload/peakload);
- Phelix-AT (baseload/peakload);
- Phelix-DE/AT (baseload/peakload/offpeak);
- French Electricity Index(baseload/peakload);
- Dutch Electricity Index(baseload/peakload);
- Belix (baseload);
- Swissix (baseload); and,
- British Electricity Index (baseload).

This benchmark statement is intended to meet the requirements of Article 27 of Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds ("Regulation 2016/1011") and should be read in conjunction with EPEX SPOT's Rules and Regulations and other associated policies / methodology documents.

Those documents are italicised whenever referenced in this benchmark statement. They are available on EPEX SPOT's website or upon request.

1. Introduction & definitions

1.1 Date of publication of the benchmark statement

The first version of the benchmark statement was published on 18 December 2019.

1.2 International Securities Identification Number (ISIN), if applicable

Not applicable as EPEX SPOT is not involved in securities trading nor clearing.

1.3 Definition of key terms (incl. criteria defining the relevant physical commodity)

Aggregator	Company that acts on behalf of a group of customers. The aggregator manages a pool of supply and/demand positions.
Balancing responsible party	Refers to the market participant responsible for settling imbalances between injections and withdrawals detected subsequently in its balance perimeter.
Day-ahead market	Refers to the market where traders can sell or buy energy for the next 24 hours.
Decoupling	Refers to situations where, due to issue occurring for one exchange or at the interconnector level, some bidding zones/exchanges and/or borders are prevented to participate in the coupling processes and therefore in the price calculation. Decoupling can either be partial (i.e. part of the bidding zones and/or borders remain coupled) or full (i.e. none of the bidding zones and/or borders is coupled).
Power exchange	Refers to the entity that operates an electricity market where electricity is traded.
Power	Has the same meaning as electricity.
Spot Market	Refers to the market where physical electricity products are bought or sold with delivery on the same-day (intraday) or the following day (day-ahead). Spot prices are the transaction prices resulting from spot market transactions.

Trading company	Refers to a firm that buys and sells power but does usually not have physical assets.
Utility	Refers to an electric power company that engages in the generation and sale of power.

1.4 Contributors to the benchmarks

There is no contributor to EPEX SPOT's benchmarks.

1.5 Types of benchmarks to which the family of benchmarks belongs

Pursuant to Article 3(23) of the Regulation (EU) 2016/1011, since the underlying asset of EPEX SPOT's benchmarks is electricity, they qualify as Commodity benchmarks.

Pursuant to Article 3(24), since (i) EPEX SPOT's benchmarks are determined "*by the application of a formula from input data contributed entirely and directly from* […] *an electricity exchange*", they also qualify as Regulated-data benchmarks.

Pursuant to Article 3(1)(4), those benchmarks form part of the same family of benchmarks.

2. Market & economic reality

2.1 General description

EPEX SPOT's benchmarks are used in electricity markets to represent the daily behavior of day-ahead physical electricity spot prices.

In the European electricity wholesale market, electricity producers, electricity retailers and large consumers can trade freely on the wholesale market to buy or sell electricity for future deliveries.

At EPEX SPOT, they can trade individual hourly contracts or blocks of hours for physical delivery of electricity the day-after, through an auction.

In Europe, electricity deliveries are performed through nominations to the transmission system operator (TSO). Market participants on the wholesale market are balancing responsible parties towards the TSOs.

If they are imbalanced between their physical and commercial buy/sell positions they face penalties from the TSO.

Market parties use the organized markets (i.e. power exchanges) or over-the-counter (OTC) to balance their positions from futures/forwards to the day-ahead.

The day-ahead auctions of power exchanges across Europe are performed simultaneously using in a matching algorithm taking into account cross-border transmission capacities available between European countries. Therefore most market participants trade on the day-ahead for physical electricity sales/purchases as this market has the highest liquidity and reflects the anticipations of the market participants on the supply/demand balance and prices for a given country for delivery on the following day. It varies across countries but the liquidity of the day-ahead auctions represents about 60% of the volumes sold day-ahead.

In 2018, a total volume of 567,3 TWh was traded on EPEX SPOT's markets by its 289 members, this corresponds to a third of the domestic consumption in the eight countries covered by EPEX SPOT.

2.2 Geographical boundaries

EPEX SPOT operates physical short-term power markets in Central Western Europe (France, Germany/Luxembourg, Austria, Netherlands, Belgium, Switzerland) and in the United Kingdom.

2.3 Information on actual / potential participants in the markets

There are different types of market participants that trade on EPEX SPOT:

- Utilities buy and sell electricity to adjust imbalances between the production of their power plants and the supply of their customers;
- Aggregators and direct marketers operate power pools or virtual power plants. They act on behalf of a group of consumers, gathering liquidity which they then bring to the wholesale market;
- In some countries (e.g. Germany) municipal and regional suppliers specialize in supplying end consumers. They often provide a whole set of services to their consumers, such as power and gas supply, water and waste infrastructure, etc;
- TSOs and distribution system operators intervene on the spot markets in order to compensate their grid losses;
- Trading companies provide additional liquidity to the market and have special expertise in the management of electricity portfolios and power trading;
- Banks and financial institutions have an essential role in providing additional liquidity: they do not necessarily own power assets but are active on the market and also trade cross-border; and,
- Energy intensive industries are also involved in the wholesale market in order to purchase power at the best price.

2.4 Indication of the size of the market / economic reality

In 2018, 289 EPEX SPOT active members traded 567 TWh – a third of the domestic consumption in the eight countries covered. While the day-ahead markets recorded 485 TWh, the Intraday markets reached 82,3 TWh. In 2018, the notional value of derivatives traded using EPEX SPOT benchmarks exceeded 110 billions of Euros.

3. Methodology

3.1 Specifications for the elements of the benchmarks

The benchmarks' methodology is based on the output of the market coupling algorithm.

An arithmetic average of all the twenty-four hourly prices over the day (00:00-23:00) returns the baseload price index and the arithmetic average of the peak load hours (8:00-20:00) returns the peak load price index.

The arithmetic average of the off-peak hours (all hours excl. peak load hours) returns the off-peak load price index.

EPEX SPOT's benchmarks methodology is available on EPEX SPOT's website.

3.2 Procedures for review of the methodology

EPEX SPOT's benchmarks methodology is defined according to industry-wide standards. It is supposed to be simple and straightforward and therefore not subject to change.

Nevertheless, for the sake of being compliant with the Regulation (UE) 2016/1011, and because other indices from EPEX SPOT might serve for the settlement of derivatives in the future, this methodology is reviewed every year.

Given the simplicity of the benchmarks' methodology, the reviewing process will consist only in analysing whether or not the methodology is still relevant and answers to the users' needs.

The dedicated procedure (*EPEX SPOT's benchmarks: internal review and approval of the methodology*) is available upon request.

3.3 Procedures for public consultation on any material changes to the methodology

Any change to the benchmarks must be formally approved by the oversight function (i.e. the Exchange Council) and its twenty-six voting members.

EPEX SPOT's benchmarks: the Oversight Function procedure and *EPEX SPOT's benchmarks: Internal review & approval of the methodology procedure* are available upon request.

4. Determination of benchmarks

4.1 Description and type of input data

The different benchmarks are used in electricity markets to reflect the daily behavior of spot prices determined with the buy/sell orders of all market participants selected in the auction.

They reflect the price of electricity in the respective market areas.

Input data used for the benchmarks provision are EPEX SPOT's transaction data (i.e. hourly prices resulting from auctions).

Transaction data are sufficient to represent the daily behavior of spot prices and reflect the marginal cost of power.

They are calculated by an algorithm, that is validated by internal testing to its use in production.

As specified in Article 3(1)(24) of the Regulation 2016/1011, EPEX SPOT's benchmarks input data are contributed entirely and directly from an electricity exchange.

4.2 Priority given to different types of input data, the minimum data needed to determine a benchmark, the use of any models or methods of extrapolation

There is no priority of use for EPEX SPOT's input data: all transaction data resulting from the relevant auctions are used indistinctly.

Furthermore, there isn't a standard of minimum input data: as long as there are auction results, the benchmarks are published.

EPEX SPOT's has implemented fall-back procedures which aim at ensuring that even in case of decoupling or stressed situations, auctions can be run and the resulting prices be published.

Even in case of no auction, the EPEX SPOT's no-auction procedure can be resorted to in order to obtain prices and therefore to be able to publish benchmarks.

There are no models nor methods or extrapolation to determine EPEX SPOT's benchmarks.

5. Rules regarding exercise of judgement and discretion

There is no discretion exercised in the calculation of EPEX SPOT's benchmarks since they are automatically calculated according to predefined rules and based on the prices arising from the matching of anonymous orders collected in a central order book.

The algorithm is based on mathematical formulation to the optimization problem the power exchanges are solving every day (combinatorial auction with pay-as-cleared uniform two-sided blind auction) based on the bids from the market parties and the available interconnexion capacities between European countries. The output of the algorithm runs is an hourly price in EUR/MWh for each country in which EPEX SPOT operates a power market.

There is no link between, on the one hand, the managers or employees of EPEX SPOT and, on the other hand, benchmarks users.

In addition, employees involved in the benchmark provision have no interest in their use: end-users of the benchmarks are companies and not natural persons.

6. Determination of benchmarks in stressed periods

In very exceptional situations, the methodology used to determine the benchmarks is adjusted, as follows.

In case of Decoupling, depending on whether it is full or partial, the price calculated by EPEX SPOT takes into account orders submitted on EPEX SPOT's platform disregarding those submitted:

i. on other power exchanges; or/and,
ii. in other bidding zones or countries.

In case EPEX SPOT is decoupled, it will run local auctions for each of its market area.

Even more exceptionally (the case has never occurred in the last 10 years), if EPEX SPOT is not able to run a local auction after a Decoupling, two *scenarii* can apply:

- the benchmarks are determined as an average of the prices provided by a Price Committee if the number of participants replying is above five; or,

- the benchmarks are calculated based on historical data considering the profile of the concerned delivery date.

7. Procedures dealing with errors in input data

Daily controls are in place to ensure the quality and correctness of benchmarks.

Firstly, prior to the order book closure, the Market Operations department verifies that orders are received for all the portfolios where orders are usually submitted, and that the volume of orders is consistent with the historical profile.

In case anomalies are detected, the Market Operations department will contact the concerned participants.

Then, prices calculated by the algorithm used for the auction are checked manually by the Market Operations department against the prices registered in EPEX SPOT Trading System.

Finally, auction results consistencies are checked.

In case of issue in the check of the prices between the algorithm and the Trading System, a manual calculation will be performed based on hourly prices to verify which ones are correct:

- if the Trading System's values are correct, the publication process will pursue. A ticket will be opened towards the Algorithm provider to investigate the issue;
- if the Trading System's values are not correct, the provider will be contacted for investigation.

8. Requirements for commodity benchmarks

Pursuant to Article 3(23) and 3(24) of the Regulation 2016/1011, EPEX SPOT's benchmarks are both commodity and regulated data benchmarks.

Consequently, Title II of the Regulation 2016/1011 applies instead of its Annex II.

The underlying physical commodity of EPEX SPOT's benchmarks is electricity.