DAY-AHEAD MARKET OPERATION

Dirección de Operación del Mercado

Operador del Mercado Ibérico de Energía – Polo Español, S.A.

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1. INTRODUCTION.

The purpose of the day-ahead market, as an integral part of electricity power production market, is to handle electricity transactions for the following day through the submission of electricity sale and purchase bids by market participants. This market, coupled with Europe since 2014, is one of the crucial pieces to achieve the objective of the European Internal Energy Market.

In the Iberian market, to participate sellers and purchasers are obliged to comply with the Electricity Market Activity Rules by signing the corresponding contract of adherence. Bids are submited to the market operators and will be included in a matching procedure that will affect the daily programming schedule corresponding to the day after the deadline date for the reception of bids for the session.

All available production units that are not bound by physical bilateral contracts are obliged to submit bids for the day-ahead market. Non-resident sales agents authorized to do so may also submit energy sales offers.

Buyers on the electrical power market are resellers and direct consumers. Buyers may submit bids to purchase electricity on the daily market. However, in order to do so they must abide by the Electricity Market Activity Rules. A purchasing unit is deemed to refer to a group of network connection nodes through which the buyer submits bids to purchase electricity.

- Retailers participate in the market to purchase the electricity that they need to supply consumers or by signing a physical bilateral contract with a producer.

- Direct consumers may purchase electricity directly on the organized market, through a reseller or by signing a physical bilateral agreement with a producer.

For more information about how to register offer units, access this link.

2. BIDS SUBMISSION.

Every day of the year at 12:00 CET, the daily market session is held in which electricity prices and energies are set throughout Europe for 24 hours the next day. The price and volume of energy in a given hour are established by the cross between supply and demand.

Sale and purchase bids can be made considering between 1 and 25 energy blocks , one for each hour, with power and prices offered in each block. In the case of sales, the bid price increases with the block number; in the case of purchases, the bid price decreases with the block number.

Buying and selling agents who are in Spain or Portugal will present their offers to the day-ahead market through OMIE, which is the only NEMO designated in these countries.

Electricity sale bids submitted by sellers to the market operator may be simple or incorporate complex conditions in terms of their content. Sellers for each hour and production unit submit simple bids, indicating a price and an amount of power. Complex bids are those that incorporate complex sale terms and conditions and those which, in compliance with the simple bid requirements, also include one or some the following technical or economic conditions:

- **Load gradients.**
- **Minimum income.**
- **Scheduled stop.**

The load gradient enables the maximum difference between the energy in one hour and the energy in the following hour of the production unit to be established, limiting maximum matchable energy by matching the previous hour and the following hour, in order to avoid sudden changes in the production units that the latter are unable to follow from a technical standpoint.

The condition of mínimum income enables bids to be submitted in all hours, provided that the production unit does not participate in the daily matching result if the total production obtained by it in the day does not exceed an income level above an established amount, expressed euros, plus a variable remuneration established in euros for every matched MWh.

The condition of scheduled stop enables production units that have been withdrawn from the matching process because they fail to comply the stipulated minimum income condition to carry out a scheduled stop for a maximum period of three hours, avoiding stoppages in their schedules from the final hour of the previous day to zero in the first hour of the following day by accepting the first slot of first three hours of their bids as simple bids, the only condition being that energy offered in bids must drop in each hour.

In the day-ahead market open positions in the futures market held by the Operator of the Iberian Energy Market Polo Portuguese, by submitting bids or sale are integrated.

3. BIDS MATCHING PROCESS.

The purpose of the Euphemia matching algorithm is to optimise what is referred to as welfare which corresponds to the sum for the combined total of all the hourly periods in the programming horizon of the gain from the purchase bids, plus the gain from the sale bids, plus the congestion charge. Gain in terms of purchase bids is understood to be the difference between the price of the matched purchase bid and the marginal price received, and the gain in terms of sale bids is understood to be the difference between the resulting marginal price and the price of the matched sale bid.

The Euphemia algorithm considers stepwise aggregate curves, which correspond to the curves for which the start price for the acceptance of a block of energy and the full acceptance price for said block of energy coincide, and to interpolated aggregate curves, which are those curves for which the start price for the acceptance of a block of energy and the full acceptance price for said block of energy differ in at least one minimum step between bid prices. For the processing of both types of curves, the Euphemia algorithm performs the matching process with the accuracy of the price values and energy values exceeding the ceiling of decimals specified for the submission of bids. Once the matching process has been completed, the figures for energies and prices are rounded off according to the accuracy specified in each market. The accuracy established for the Iberian market is two decimal points for prices, stated in euros per MWh, and one decimal point for energies, stated in MWh.

The Euphemia algorithm considers each one's specific complex conditions or block conditions, with the conditions for bids in the Iberian market being as stipulated in the operating rules of the corresponding day-ahead and intraday markets.

The result of the Euphemia algorithm is limited to the interchange established in each market between production zones. Accordingly, the net flow bidding zones (flow between Spain and Portugal, between Spain and France, and between Spain and Morocco), will be restricted to the capacity available for the market as notified by the corresponding system operators.

The Euphemia algorithm treats all simple bids as a single bid, being the combined total of all the simple bids in the production zone. Once the matching process has been completed, the market operator shall proceed to allocate the matched and unmatched blocks of the simple bids in each production zone.

Once Euphemia's matching process has been made, allocation will be made of the values of the matched and unmatched energy blocks of all the bids that have declared any one of the complex conditions, as well as the values of the matched and unmatched energy blocks for the sum of bids that have not declared a complex condition.

4. SENDING THE MATCHING RESULTS TO THE SYSTEM OPERATORS.

The results of the matching process are sent to the System Operator for validation from the point of view of technical feasibility. This process is called managing the system's technical constraints and ensures that the market results are technically feasible in the transportation network. Therefore, the results of the daily market may suffer small variations as a result of the analysis of technical restrictions carried out by the System Operator, giving rise to a viable daily program.