

# POWEL BID

**Powel Bid helps the electricity market participants manage their bids both on the spot market, intra day market and the ancillary markets, and communicates the bids to market operator. When the market is closed, it presents for the player the result of the bidding process with next day's prices and contracts.**

## THE CHALLENGE OF TRADING IN ELECTRICITY MARKETS

As a market participant your total spot bid will be a compilation of inflow and demand. These parameters are usually unequal in price elasticity. The demand is usually inelastic, but the inflow/production is more price elastic. Powel Bid assists the user in this assembly process for a total spot market bid.

When market price is set, the player's contracts are distributed by the market operator. Powel Bid assists the user in controlling the market contract against the bids. When the contract is accepted, Powel Bid sets up the price elastic contracts according to the market price.

Powel Bid has also a function for assisting the player in bidding on the ancillary market. Bidding on this market is subject to a set of rules. The bids are controlled according to these rules which are parameter driven. In addition generation plan and market price is available for decision support to this process.

## SPOT BIDDING

In Powel Bid the total spot market bid can be split into separate bid parts. This may be one or more bid parts for demand for power, and there may be one or more bid parts for power production.

The bid parts for power demand may import values from the forecasting software Powel Demand. Planned values from Powel Demand are imported both on minimum and maximum prices. If the demand is a contract for power sale which has a price ceiling, the planned values from Powel Demand may be imported on min. price and the ceiling price for the contract.

The bid parts for production is normally more price elastic. The bid parts can represent a single power plant or a group of plants. The important factor in this modelling is whether or not they have the same price curve. Powel Bid can import the bidding values from generation planning software tools like Powel Sim/Shop by accessing the corresponding time series in the database.

When all bid parts are completed, Powel Bid accumulates the bids into a total bid form. All breakpoints from the bid parts are assembled in the form and missing values are interpolated. This may result in a total bid form with more price breakpoints than allowed. Powel Bid has a function for reducing the number of price breakpoints down to the market limit. This is done by leaving a selected set of price values out of the reducing function, and removing the breakpoints with least alteration of the curves derived values.



The total bid form is sent to the market operator as an EDI message. When market operator approves the bid form, an acknowledge message is returned, and the form enters the approved state.

Powel Bid includes an option where the spot market player can send in block bids. This bid which applies for a time span of at least 4 hours and where the middle price in these hours must be higher than the bid price.

When the market operator has taken all bids into consideration and the market price is set, all bidders will receive a price message stating the market price and the participant's contract. This message is an EDI message which Powel Bid will import into the database. The user can accept the result and save the contract and all derived values for the bid parts constituting the total bid form.

### ANCILLARY SERVICES BIDS

Ancillary Service bids are mostly used by producers with vacant capacity which can be started at a given price in periods with unexpected shortage of power or stopped at unexpected fallout of a large consumption. These types of markets are typically transmission system operator specific. Powel Bid is easy to customise for use in different regulation regimes.

These ancillary services markets have different rules applied. There are time limits for how close to the current hour a bid is valid and only bids above a given limit are accepted. The plant owner may also set specific parameters to the bid. E.g. how long activation time he needs to execute this bid or he may state a maximum duration for the regulation to last.

The bid form is sent by authorized personnel to the market operator using EDI.

### POWEL SMART GENERATION

Powel Demand is part of the Powel Smart Generation portfolio, which consists of integrated computation engines for forecasting, simulation and optimization.

The Powel Smart Generation portfolio also utilizes Powel Time Series Manager, which will automatically collect, validate, correct, scale, sum and store input and output data in the database to be used in the planning process.

