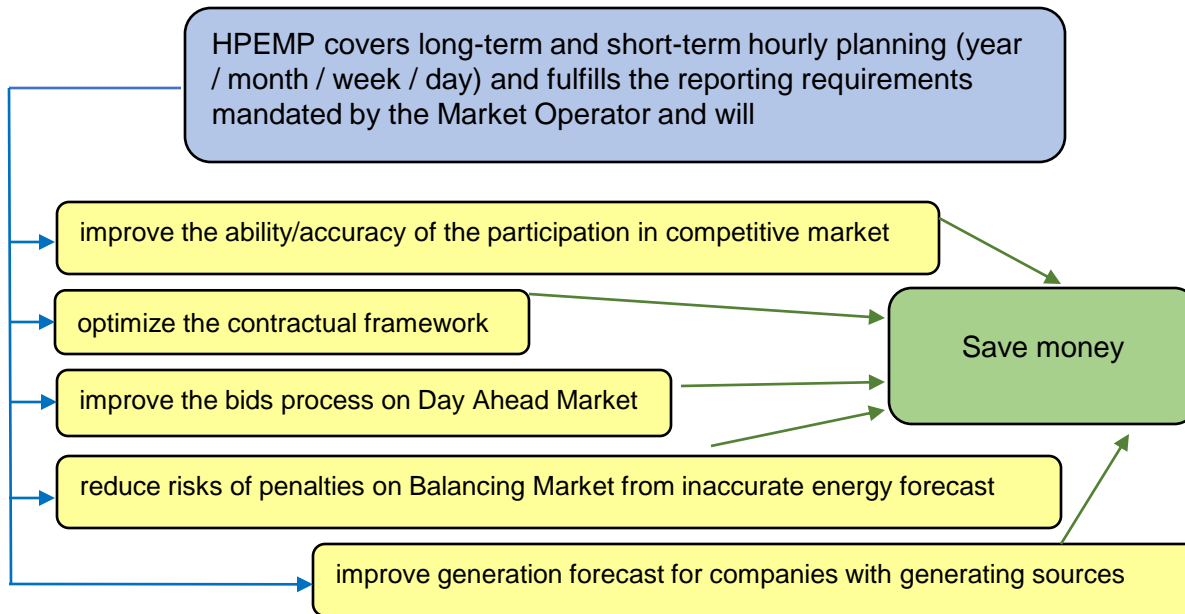# *Hourly Planning Software for Electricity Market Participants (HPEMP)*

as a tool for supporting Large Customers entering and participating in the competitive electricity markets
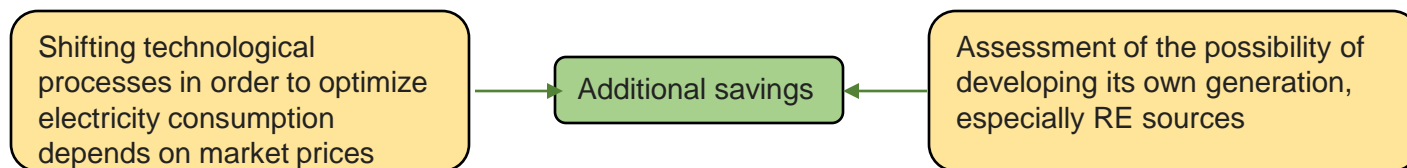
Goals and covered tasks

Reform of emerging electricity markets is based on the transition to at least hourly markets as opposed to the existing monthly ones. Trading is carried out in different segments (at least, contracts, Day Ahead and Balancing Markets) and the same consumption can give significantly different financial results, which can be largely due to the accuracy of long-term and short-term planning.

HPEMP covers long-term and short-term hourly planning (year / month / week / day) and fulfills the reporting requirements mandated by the Market Operator and will

improve the ability/accuracy of the participation in competitive market

optimize the contractual framework

improve the bids process on Day Ahead Market

reduce risks of penalties on Balancing Market from inaccurate energy forecast

improve generation forecast for companies with generating sources
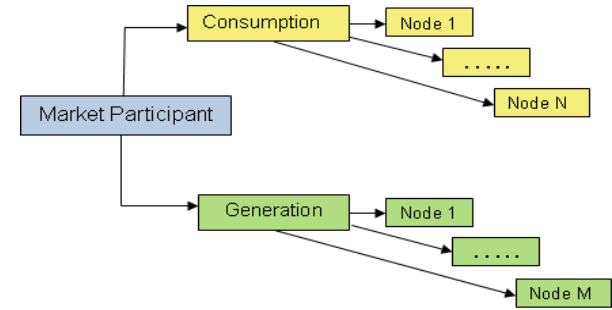
Save money

The developed software is:
- *fully compliant with National Market Rules*
- *developed with Cyber Security Protection*
- *operated from any smart devices*
- *competitively priced*
- *eliminates calculation errors by staff*
- *easy to use – comes with a detailed User Manual*
- *operates in the selected language*

Future software development providing additional financial savings opportunities

Shifting technological processes in order to optimize electricity consumption depends on market prices

Additional savings

Assessment of the possibility of developing its own generation, especially RE sources

Main modules of software

Participant Structure - Three-level structure of Market Participant makes it possible to use HPEMP software for consumers with any structure, including also the presence of its own generation.

Calendar - Any types of days (working, holidays, etc.) and synchronization by years with any depth taken into account

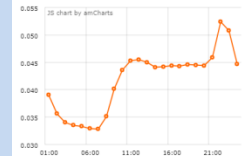**Metering** – Module includes docking with Data Acquisition System to upload historical and current metering data by nodes

Month Ahead Planning (MAP)

→ *Planning month, object (by nodes or consumption/ generation as whole) and mechanism selection*

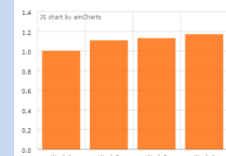→ *Historical metering data analysis and filtering incorrect data*

→ *Load shapes forms by typical days*

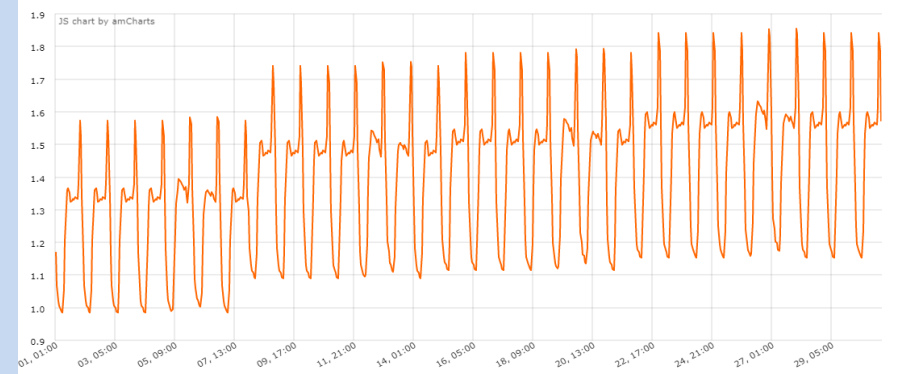→ *Electricity volumes difference by typical days*

→ *Trend by weeks*

Basic option for Month Ahead Planning

Checking for technological limitations and adjustments:
- ✓ *by changing the planned monthly volume of electricity while keeping the form of the load shape.*
- ✓ *through daily and weekly coefficients*
- ✓ *by fixing maximum and minimum loads with monthly volume recalculation*

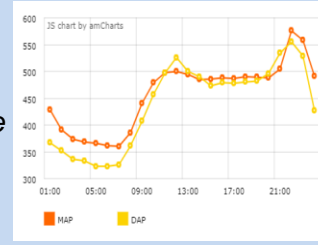← **Final results for Month Ahead Planning**

Note. *Weekly planning is included in MAP, and sum by months is the yearly planning*

Main modules of software

Day Ahead Planning (DAP)

As a starting option, the software allows to use one of the following daily load shapes:

- ✓ *obtained on the basis of monthly planning*
- ✓ *planned for the closest previous day of the same type*
- ✓ *actual for the closest previous day of the same type*
- ✓ *averaged over the actual data for the selected preceding period by days of the same type*
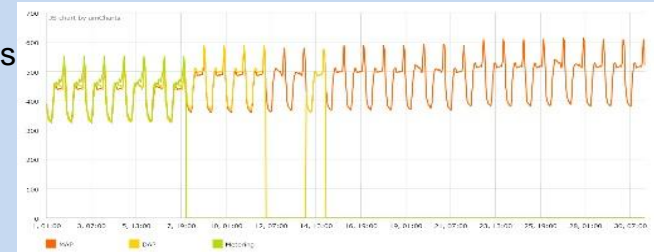
Any selected daily load shape can be adjusted by:

- ✓ *daily electricity volume while keeping the form of the curve*
- ✓ *each hour.*

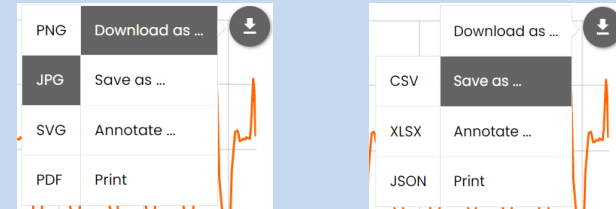Technological limitations are taken into account as well

Monitoring

To improve planning accuracy, a monitoring module provides the software user a monthly comparative analysis of load curves, obtained on the basis of monthly and daily ahead planning forecasts compared to actual metered consumption and/or production levels, in absolute values and as deviations.

Reporting and docking tools with other software

Calculation results can be converted to different type of files for docking with various software, as well as prepare formats that will simplify the development of possible various reports.

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