

# VIVAVIS

DECODING THE FUTURE



## Optimization with solutions by VIVAVIS and Energy Opticon AB

### From load forecast to optimized provision of operating reserve

In cooperation with **Energy Opticon AB**, Sweden, VIVAVIS offers solutions for energy companies, which will help them to optimize their use of energy in an economic way. For more than 25 years, Energy Opticon AB has gained experience on the market. They developed **Energy Optima 3**, a software for load forecasts, power generation schedules and energy trade.

To energy companies of all sectors, the unique and powerful tool **Energy Optima 3** provides a common basis for

- energy production planning
- energy trade
- information management
- operation, controlling

#### Various requirements – one system

The system has a modular structure and is configured in accordance with customer requirements. Application scenarios are among others:

##### 1. Optimization of schedules and use of energy

**Energy Optima 3** is the perfect tool to plan the use of energy of power generating plants and thus reduce the overall costs. The software calculates schedules that efficiently use all generating plants to maximize revenues. You can individually define boundary conditions, parameters and measurands to be considered by the planning.

You can use measured data provided by plants via online connection to the grid control system **HIGH-LEIT**. Current weather information and electricity prices, for example, may be imported as well.

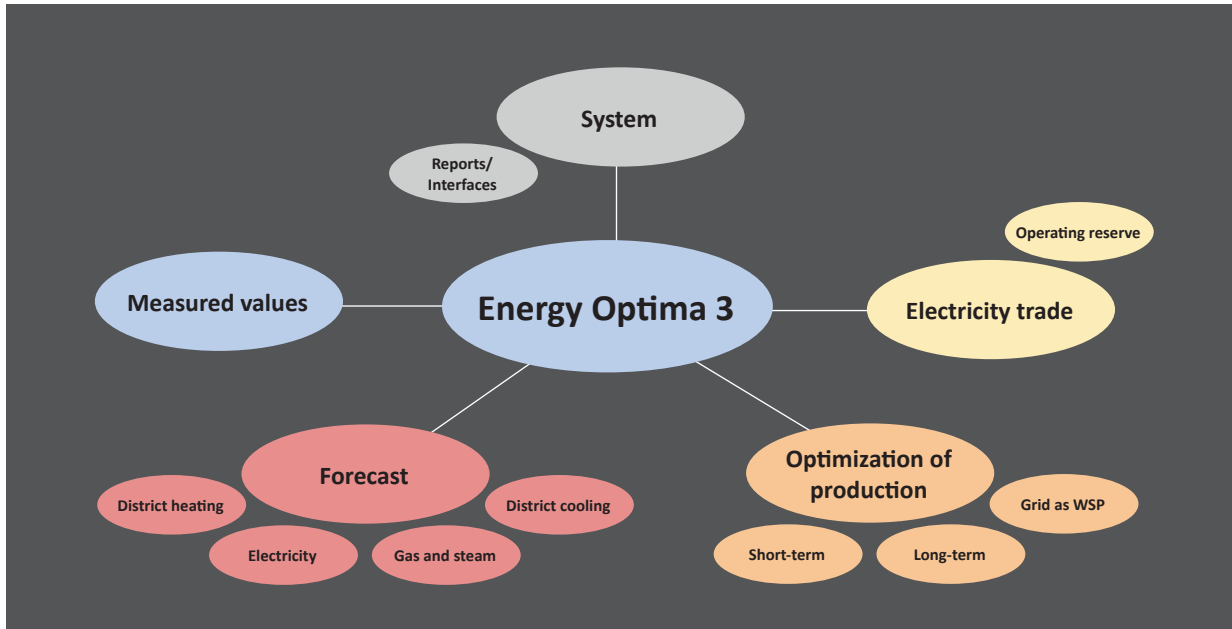
**Energy Optima 3** optimizes the operation of combined heat and power stations, for instance. Based on current prices for fuel and electricity, current heat demand and technical boundary conditions (eg current storage content and capacity) the software calculates when and to what extent powering plants and selling generated energy will be economical.

Depending on quantity and size, the savings potential of a computer-based optimization of production ranges from two to ten per cent of the annual production costs. The software thus pays off within a short time.

Thanks to the tool, the Swedish customer Öresundskraft was able to reduce its annual costs for fuel (18.2m Euro) by two per cent – and thus saved 364,000 Euro in one year.

**Energy Optima 3** features:

- forecasts of district heating demand – automated or manual
- application with multi-utility systems considering all mediums and plants
- long-term forecasts over months and years for optimized and effective planning of production



*The right solution for every use case*

2. *Optimization of energy trade*

The liberalization of the energy market created new possibilities to trade **electricity**. However, not only possibilities have increased but also tasks and challenges eg exchange trading, various subsidies and reporting. These tasks and challenges can often only be met successfully by means of computerized solutions.

Among others, **Energy Optima 3** offers functions suitable for

- physical electricity trading at the spot market
- minimization of balancing energy
- intraday trading
- price forecast for the spot market
- history storage with access to historical data

3. *Optimized provision of network services (eg operating reserve)*

**Energy Optima 3** perfectly suits to optimize the provision of operating reserves.

Depending on the company, various strategies are pursued with regard to marketing operating reserves. Producers such as combined heat and power stations (CHP), standby generators, gas turbines etc are able to provide one or more types of operating reserves. Provision services might be marketed jointly or separately and strategies to partition surcharged offers are individual too.

**Energy Optima 3** always offers a suitable solution.

## System solutions for VIVAVIS customers

VIVAVIS and Energy Opticon AB offer different system solutions depending on the use case.

### 1. Schedules as service via internet (small to medium-sized companies)

In order to keep your own effort as low as possible when using **Energy Optima 3**, we recommend that you outsource schedule generation.

In this case, **Energy Optima 3** will not be installed at the customer's premises, but run in the server centre of Energy Opticon AB. The VIVAVIS grid control system **HIGH-LEIT** transfers measured values to the server centre for analysis. Resulting optimizations are considered when creating schedules. These schedules are sent to the customer in the required format and in defined intervals. **HIGH-LEIT** smoothly applies the schedules locally. Besides generating schedules, we can also offer load and price forecasts via internet.

### 2. Stand-alone solution (medium to big energy companies)

In this case, the server is located at the customer's premises; it is operated by the customer's staff. Stadtwerke Schwäbisch Hall GmbH, for example, controls a power station and directly market its electricity. The power station is operated in accordance with the exchange prices for electricity on the spot market. The plant runs at full capacity in case market prices are high but might be turned off when prices are low.

Such adjustable power stations are essential to enable completing the energy transition as they can be used to flexibly balance load fluctuations of the grid.

### 3. Solution for service providers

Be it optimization of primary energy, energy trade or grid services: **Energy Optima 3** perfectly suits energy companies that want to provide such applications as services to other companies.

In this case, the server is also located directly at the customer's premises.