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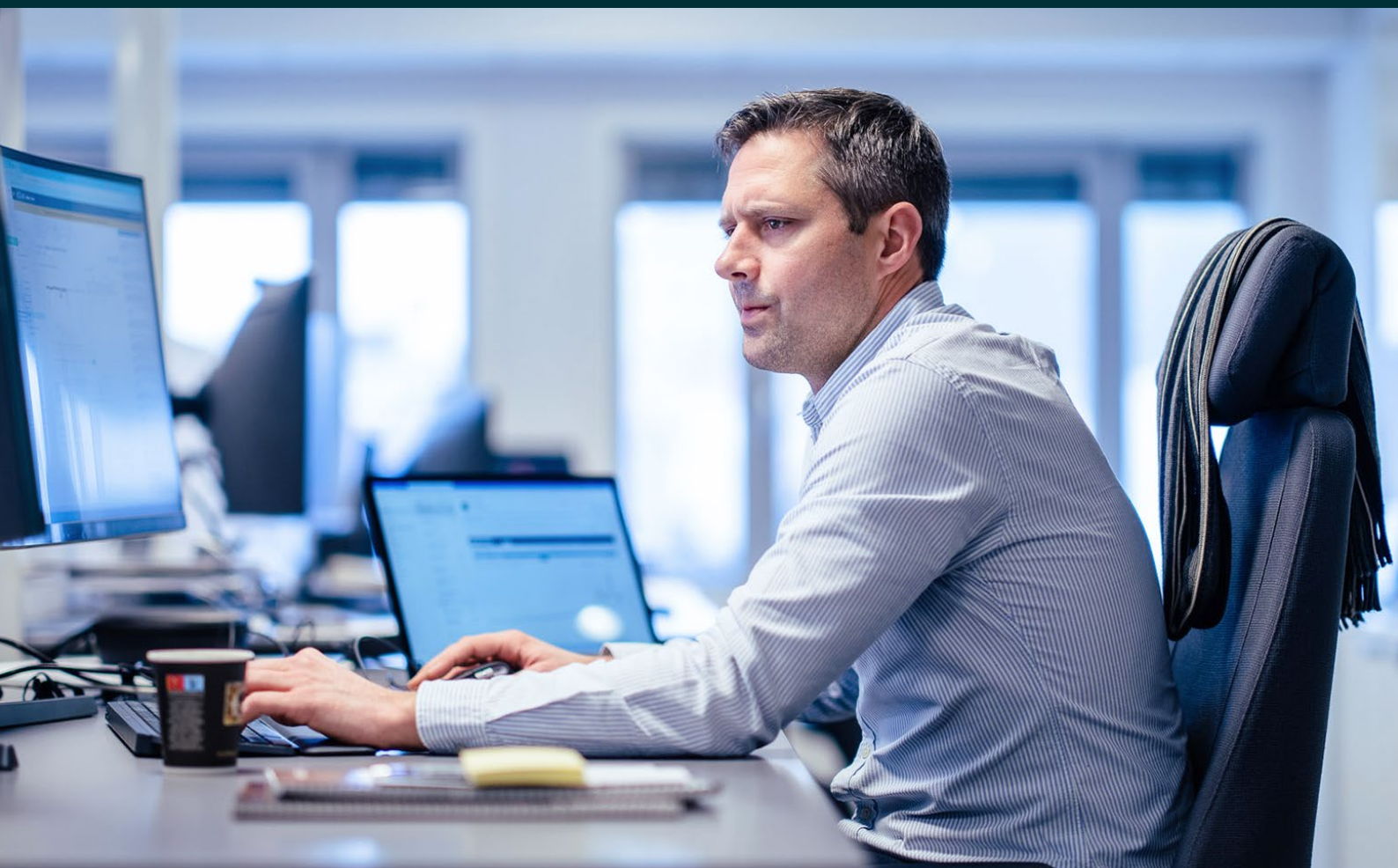
Volue BoFiT: Optimisation

In the energy transition, a production portfolio must be constantly adapted to new circumstances. Changes in strategy, new markets or business models as well as continuously changing regulatory frameworks lead to an increasing number of processes power producers need to deal with.



An optimisation solution provides a comprehensive overview of all aspects of power production planning and to make the best possible use of the existing market opportunities in different time horizons.

Key Benefits

01

Make strategic investment decisions and carry out operational planning with ease.

02

Automate data handling and calculations via application flows.

03

Get plant schedules that are mathematically proven to meet optimality criteria.

04

Save time and manpower through using monitoring and reporting to follow your processes.

The business processes needed for this purpose must be handled reliably and efficiently. Data is acquired, processed, visualised and passed on across various departments and IT systems. Besides the ability to make the optimal decision between technical and economic opportunities, the operational control of these processes is becoming a key success factor.

BoFiT Optimisation creates a techno-economic model of your individual portfolio. It maps all the relevant economic and technical constraints. Based on this model, the best possible decision is calculated from the input data (e.g. price forecasts, load forecasts, availabilities) using mathematical methods. This type of calculation ensures that every given restriction is always met. At the same time, the technical and economic flexibilities and various portfolio effects are creating the optimal contribution margin.

Who is BoFiT Optimisation for?

If you are a municipal utility company that produces electricity and heat, BoFiT Optimisation provides you with optimal plant schedules while adhering to all technical, economic and contractual obligations.

If you are an industrial company with own power supply, BoFiT Optimisation calculates the optimal plant schedules taking into account the demand for power, steam and heat at your location.

As a marketing service provider with own and third-party energy assets, BoFiT Optimisation helps you create the generation forecasts and energy demand forecasts as well as keep track of the remaining flexibility within every single asset context in order to develop the recommendations for energy trading under given trading strategies and to oversee the position in energy trading.

Product Description

BoFiT Optimisation makes it possible to operate energy plants of different sizes within a managed portfolio in the best possible way. This applies equally to renewable energy plants and conventional power plants. Plant operations should be run at the lowest possible cost, with the highest possible profit and, above all, sustainable. It is not only a question of ensuring reliable generation, but also of conserving resources and successfully participating in the market.

With BoFiT Optimisation, operating cost can be minimised and overall profits from energy trading – maximised. Typically, it runs through cycles, in which the operating status values are updated, operational planning is carried out and scheduled information is distributed, as well as energy trading and feasibility of the plant schedules has been checked. Frequent data exchange of BoFiT with distributed control systems and/or SCADA systems ensures that operational planning results in feasible plant schedules thus avoiding schedule deviations and reducing imbalance costs.

A high degree of automation can be achieved with the built-in application flow engine of BoFiT. In this way, data flows between optimisation and control systems as well as energy metering systems, portfolio management systems and schedule management systems can be automated. It goes all the way from short-term operational planning, trade recommendations, order capturing and order submission for the spot markets

keeping the market position in sight at all times.

BoFiT can work with time-varying constraint values, i.e. regarding minimum/maximum operating times, minimum/maximum power change rates and so on. Up to a certain time horizon, all operational restrictions can therefore be dealt with as hard constraints. Conversely, operational restrictions can be turned into soft constraints after a certain time horizon, which means that plant operation is more flexible and market opportunities can be exploited.

BoFiT is a versatile tool for planning and management of energy plants. It comes with its own management of time series data and its own process automation. As a result, it strengthens practically all areas of energy industry companies, such as trading and procurement. BoFiT is designed to exchange time series data with other energy data management systems or portfolio management systems and schedule management systems regarding the current market position and the control systems for monitoring and controlling energy plants.

BoFiT Optimisation is an instrument which maps your generation or trading portfolio into a mathematical model. Based on this model, optimisation tasks can be formulated and run through for the various business processes. Changes in strategy, new markets or business models as well as continuously changing regulatory conditions lead to an increasing number of processes to be dealt with. A model object in BoFiT is created graphically, and no specialised mathematical knowledge is required. A basic planning model can be used for all business processes by creating variant objects in BoFiT. An optimisation solution helps to provide a comprehensive overview of all the aspects of the planning task and to make the best possible use of the existing market opportunities in different time horizons.

With BoFiT, it is intuitive to import and load time series data from various data formats. It is possible to receive process data values from a control system in a file-based time series data exchange and to derive them from an operating status value. Basically, BoFiT offers a formula-based calculation of time series data. On the basis of process automation, a calculation of time series data can also be scripted.

On the one hand, it covers the creation of forecasting methods and the calculation of forecast values. On the other hand, BoFiT covers the creation of planning models and will run through operational planning. Thanks to a rich palette of building blocks, planning models for small or large energy plants can be created quickly and easily in BoFiT. An energy flow-oriented modeling approach is used in BoFiT.

BoFiT translates the components of a planning model and attached time series data into the declaration of an optimisation model made up of objective functions, decision variables and a set of linear equations. Such optimisation models can be tackled by problem solvers such as CPLEX or GUROBI.

BoFiT helps with the assessment of expansion scenarios of the asset portfolio for different outlooks for energy demands and market prices. This allows for looking more closely at investment options discussed in engineering and gives support for investment decisions.

Do you want to know more about Volue BoFiT?

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