

Press release

SUSTAINABLE SOLUTIONS FOR ENERGY LANDSCAPE CHALLENGES

BOFIT OPTIMISATION AND MATHEMATICAL MODELING ENABLE EFFICIENT ENERGY SUPPLY IN THE CHEMPARK

Aachen (Germany), September 4, 2023 – As the operator of CHEMPARK's three sites in North Rhine-Westphalia, CURRENTA has primary responsibility for providing the production companies there with an adequate and affordable supply of process steam and electricity. CURRENTA uses a wide portfolio of generation technologies including conventional cogeneration, modern CCGT and Power-to-Heat plants. It also makes use of the sites' waste heat.

CURRENTA uses Value's intelligent BoFIT software to ensure that the flexibility of the entire generation portfolio – especially the cogeneration plants – is optimally deployed. BoFIT allows the power plants to respond to variable production demand and in particular to fluctuating energy market prices efficiently and on a daily basis.

BoFIT optimisation harnesses cogeneration plant flexibility

The power plants operated by CURRENTA work with a mix of electricity, steam, heat and other media such as cold and compressed air. While this makes for complex plant operating parameters, it also creates opportunities for flexible management. The parameters for managing deployment of the flexibility available throughout the entire CHEMPARK are calculated using mathematical optimisation models developed by CURRENTA in the BoFIT system. In addition to the cogeneration plants, the daily optimisations also cover Power-to-Heat plants and the waste heat from the sites' production companies.

Simulating gas shortages

These models have proven especially valuable in recent times, when the threat of gas shortages has loomed large. Since summer 2022, weekly gas shortage simulations have modeled how the CHEMPARK could efficiently implement potential gas curtailment measures. The CHEMPARK companies have been providing their steam demand forecasts via a digital platform so that the models can calculate the necessary energy input for the power plants. This close cooperation has helped the companies to make appropriate provisions for gas shortage scenarios.

Intraday trading and optimized marketing

Another focus is on engaging in short-term, intraday trading that can take place up to five minutes before delivery. CURRENTA is already trading on the intraday market at the Dormagen site. Self-configured trading algorithms automatically provide the results of the continuous intraday power plant dispatch planning to the EPEX SPOT intraday market via a direct interface.

The long-term perspective: impacts of investments to reduce CO₂ emissions

The optimisation models' uses are by no means confined to short-term issues. They can also be employed to estimate the impacts of future investments, for example investments in additional Power-to-Heat plants to reduce the CO₂ emissions associated with steam production. This will be key to meeting the CHEMPARK's overall emission reduction targets over the coming years.

Supplying energy sustainably and efficiently

"Mathematical optimisation models provide CURRENTA with another valuable tool for supplying energy sustainably and efficiently to the CHEMPARK", says CURRENTA Business Line Head Energy Solutions, Dr. Ulrich Lohmann. "Our close cooperation with the CHEMPARK companies and our ongoing use of innovative technologies allow us to respond effectively to the challenges of a constantly shifting energy landscape."



Image source: Currenta GmbH & Co. OHG

A printable image file can be downloaded [here](#).

ABOUT CURRENTA | WWW.CURRENTA.DE

Currenta GmbH & Co. OHG is the manager and operator of the three CHEMPARK sites in Leverkusen, Dormagen and Krefeld-Uerdingen. Its responsibilities include utilities, environmental services, safety and security, infrastructure, analytics, training, logistics and maintenance services.

ABOUT VOLUE | WWW.VOLUE.COM

Based on 50 years of experience, Volue is a market leader in innovative technologies and services that power the green transition. Over 700 employees work with more than 2,200 customers on energy, power grid, water and infrastructure projects that ensure a sustainable, flexible and reliable future. The company is headquartered in Oslo, Norway, and is active in over 40 countries.

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