



Optimizing a complex electric heat and power generation portfolio with real-time, organization-wide data sharing

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Case study

Uniper Benelux





THE CLIENT

Uniper Benelux, part of the Uniper group, which spun off from E.ON Group in 2016, is one of Europe's biggest energy companies. Uniper has an extensive portfolio of electric and heat power generation resources, including combined heat & power (CHP), heat boilers, gas and coal. The Netherlands company produces and supplies 3,000 MW of electricity, plus heat, to customers in Belgium and the Netherlands.

The challenge

In the past, Uniper Netherlands managed nomination decisions for its coal-fired, combined heat and power, and combined-cycle power plants. After it became part of a global enterprise, nomination decisions were directed from the corporate trading headquarters in Dusseldorf. Uniper transmits data about its plants to Uniper Trading which, in turn, provides instructions for scheduling generation. Within this new business environment, Uniper needed software to most effectively manage its operations.

“The more refined we are at nominating plants, the better we can optimise our operations,” says Thijs Paes, Manager, Capacity Transfer. “The new business arrangement forced us to move from our old spreadsheets to a more capable tool. But the move also created massive process-improvement and generation-optimization opportunities.”

Uniper recognized the value that complex modeling could provide their business, but understood the importance of having the right software to enable it. This was valuable for all of its operations but was particularly important regarding its heat contracts. The company already had the ability to do this, but only by using an extremely time-consuming process.

“When creating models in the past, it took us approximately a week to develop the details,” says Ruud Peek, Director, Mid Office, “but it would take as long as six months to adjust the software to incorporate those details. We needed a far more flexible way to manage our nominating.”

Hitachi Energy's solution

Hitachi Energy had been working with the predecessor to Uniper for over 10 years. In 2006, Hitachi Energy provided an energy trading management and risk management (ETRM) solution that allowed Uniper to trade its energy on the market. The capability of that software and the support provided by Hitachi Energy established a strong client relationship.

To meet Uniper's current needs, Hitachi Energy proposed Portfolio Optimization, one of three modules in the Hitachi Energy e7 software suite.

While the functionality of e7 is separate and distinct from the ETRM solution, there is a natural integration between the two that enhances the capabilities of both.

“Uniper especially liked the modeling capabilities available in our solution,” says Brad Young, Senior Product Manager for Hitachi Energy's e7 Portfolio Optimization. “While they particularly liked the CHP features, they believed that the overall offering represented the best-in-breed, total solution that would work for both mid-term planning as well as day-ahead and intraday planning.”

“Another point of differentiation was the support Uniper had experienced in the past and expected to receive in the future,” explains Hitachi Energy Account Manager Ian Hall. “Many customers have experience of IT projects that fail to deliver the expected benefits, leaving them with incomplete implementations; Uniper’s previous experience with Hitachi Energy gave them the confidence that this solution would be delivered successfully and meet their expectations.”

“An additional benefit of e7 was that, for the first time, we had one, true dataset available throughout the organization,” says Paes. “While different areas or departments were focused on different objectives or activities, they still did so based on common data. We have one version of the truth.”

The implementation was successfully delivered on time and within budget. The software is used on a daily basis and is tightly integrated with Uniper’s full operations. A recent upgrade provided both enhanced modeling and improved performance. As part of that upgrade, Uniper opted to switch from a local installation to a cloud-based solution, reducing the load on its IT resources.

Results

Customers typically see fuel savings in the area of 0.5% with e7 Portfolio Optimization, a significant improvement considering utility fuel costs. At the outset of the product implementation, a key member of the Uniper management team expressed his expectations that Portfolio Optimization would help his company better interact with E.ON Energy Trading, optimizing its dispatch directives.

While Uniper can’t share specific metrics, the benefits delivered by e7 are estimated to be in the millions of dollars per year. Peek says it also helped Uniper become, to use a Dutch phrase, “more short on the ball,” a soccer reference meaning that the time from idea to action and from question to response has been shortened.

Hitachi Energy e7 platform

The Hitachi Energy e7 software platform integrates and enables sharing of data across a company in real time, enabling improved market simulation, as well as generation and transmission planning. The solution includes three modules:

PROMOD:

Generation and transmission modeling system with nodal and zonal price forecasting

Portfolio Optimization

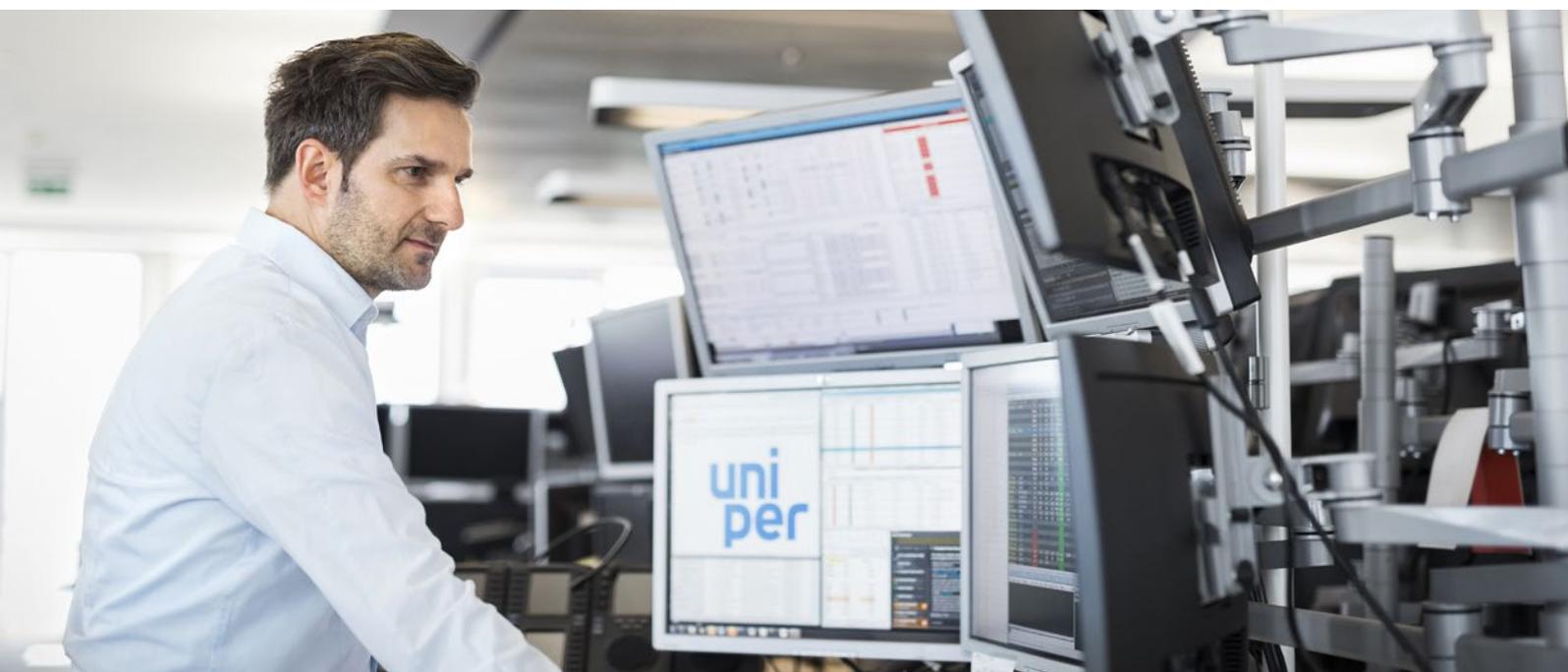
Unit commitment and economic dispatch optimization

Capacity Expansion

Long-term resource planning for resource planners and portfolio managers

“With all of our data instantly at hand, and the modeling tools available in e7, we are a far faster organization,” says Peek. “We can respond more quickly to capitalize on current opportunities, such as changing fuel prices.”

“Our technical people, operations group, and trading team are connected in a new and far superior way,” adds Paes. “Aside from optimizing our operations, it’s enabled other improvements like guiding decisions about when to schedule outages and maintenance. While implementing the software was a necessity to operate in our new business arrangement, e7 has provided many additional and unexpected benefits.”



Hitachi Energy
marketing-update@hitachienergy.com
hitachienergy.com