



New cost-efficient O&M model to turn around profitability

Fortum eNext has been responsible for the operation and maintenance of the Hamm CCGT power plant in Germany since 2007.

Along the years, changing operational environment and negative development in electricity prices led to problems with the profitability of the plant. As a result, the customer and Fortum eNext together created a new operating model that made it possible to cut the operation and maintenance costs by roughly 20%.

New cost-efficient O&M model to turn around profitability

In August 2005, Fortum eNext entered into a contract with Trianel Gaskraftwerk Hamm GmbH & Co. KG, owned by 28 German, Austrian and Dutch regional electricity companies, for the operation and maintenance (O&M) services of a new 2 x 420 MWe combined cycle gas turbine (CCGT) power plant in Hamm, Germany. The plant started commercial operation in November 2007.

For many years, the operation was profitable and yielded a good return for the owners. The problems started in 2014 when electricity prices decreased and the gas price increased. At that time, the Hamm power station had a “take or pay” fuel gas delivery, which forced the power station to run even when it was not profitable, and the gas supplier had to sell gas below market price. This led to problems with profitability for both parties and the gas contract was by mutual agreement terminated.

The owner was now facing a difficult decision: to somehow find a way to continue doing business, albeit profitably, or to shut down operations completely, which would have been devastating not only for the owner, but in particular for the plant personnel and even the local communities.

“One of the solutions presented to us as the operator of the power plant was to let one third of the personnel go. But manning levels were already low, and it is simply impossible to keep a facility running properly without enough staff. We had to come up with something else,” explains General Manager **Mikko Päivärinta** from Fortum eNext, who worked as Plant Manager at the Hamm power plant from 2010 to 2018.

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CASE Hamm

Customer challenges

- » Investment no longer profitable due to transforming energy industry and declining electricity prices
- » Serious financial problems and threat of lay-offs
- » Finding the best operation and maintenance model to continue the business

Solution by Fortum eNext

- » Creating a completely new operating model centered around motivated and skilled personnel
- » Fixed price to cover both operation of the plant as well as all maintenance work including necessary repairs
- » Deep technical knowhow and experience throughout the whole life cycle of a power plant, enabling insourcing most of maintenance work to the plant personnel

Customer benefits

- » Fortum eNext bears the risk of operation and maintenance services being profitable. With a fixed fee it is easy for the owner to plan the budget and predict cost-effectiveness long into the future
- » Technical capability to withstand fast ramp-up and ramp-down cycles in order to adjust to fluctuating market needs and catch profitable operating hours

“We chose Fortum as our O&M operator due to great price-quality ratio and we have not regretted our choice. The availability is high, and we are impressed by Fortum’s safety culture and technical competence.”

Dr. Martin Buschmeier, CEO



Aiming for a cost-efficient and flexible operation model to ramp-up fast

The situation required re-thinking of the whole operating model. In Germany, the electricity price fluctuates on a daily level, depending on the output of wind, sun and other available power supply on the market. Thus the future depended on finding a way to cost-efficiently keep the power plant in operation to cater to the demand peaks whenever high electricity prices were forecasted. In practice, this meant the ability to ramp up production very fast.

Fortum eNext has a strong track record of being fully responsible for power plant O&M while creating measurable value to the power plant owner and was committed to finding a solution to keep the power plant in operation.

“During 10 years of working together, we had formed a partnership where we could openly discuss the situation and also take up difficult questions. It was clear from the beginning that we would find the solution together. To us, this was a clear and rewarding demonstration of trust,” Mikko Päivärinta says.

A good relationship proved to be of vital importance. Together with the customer, a completely new operating model centred around motivated and skilled personnel was created to allow a flexible operation of the plant, while at the same time optimising maintenance costs.

“Based on our experience from running our own fleet and operating different kinds of power plants in various parts of the world, we had the ability to support the customer in addressing these challenges. We wanted to make sure our customer would retain both financial and technological competitiveness. It is the core of our business,” Mikko Päivärinta explains.

Eliminating financial risk for the customer

Fortum eNext and the customer agreed on a fixed price that covered the operation of the plant as well as all the maintenance work, including necessary repairs. This made it easy for the owner to plan the budget and predict cost-effectiveness far into the future.

“I am proud to say that further investments to keep the plant running were not needed, partly due to realised savings, partly due to having been able to operate at those moments when the market was lucrative,” Mikko Päivärinta says six years later, clearly pleased with the outcome.

For Fortum, agreeing to operate and maintain the plant for a fixed fee meant taking wider overall responsibility for the plant – and bearing a certain financial risk for the customer.

“For us, the new operating model meant integrating with the owner’s processes in such a way that we were responsible for controlling pretty much everything that was going on at the site. But, on the other hand, it gave us the freedom to create our own solutions to support the customer and optimise everything we could. It was easy for all of us at the site to see the benefit in trying to be as cost-efficient as possible and keeping everything in good repair because it meant that the money saved could then be used elsewhere.”



“Expertise and a mutually shared vision helps when it comes to finding the ultimate solution and getting things moving forward.”

Flexibility gained by insourcing and developing multi-skilled personnel

The most essential cost-saving factor with the new agreement was the decision to insource maintenance as much as possible. In other words, the work at the site was organised differently and the staff took on more diverse tasks. Instead of bringing in subcontractors and specialists to do the maintenance work, it was agreed that Fortum eNext staff would do as much as possible before buying knowhow from outside. This way, the funds used to pay external service providers could now be used to pay the salaries of own personnel. The insourcing process was possible as the operating times were reduced from 5,500 to 1,000 operating hours.

In the end, nobody was let go. Another significant upside of the decision to insource was that all the knowhow and experience gained over the years stayed in-house.

“We currently employ 36 people at Hamm. The staff is also pleased with the change, as today they have the chance to perform many different tasks as well as to learn new things, even if it has been quite demanding on them,” Mikko Päivärinta describes.

This also resulted in a significant increase in flexibility. With own, dedicated and skilful personnel always available at the site, it is possible to respond to the market demand at the right time. In other words: the plant runs only when it is profitable.

“Flexibility means that we are available to ramp up the production whenever needed. We have also made technical upgrades during the years to become even faster in the changeover between production and preservation. In that way we have been able to run the power plant more hours than expected. We follow the forecasts carefully and are able to react on a very short notice.”

Deep technical knowhow as an asset

Fortum is a trusted operator for power plants. The company has been selling various expert services to power plant asset owners, energy companies and industrial facilities globally for decades. Since the 1990s, Fortum has held over 30 O&M agreements in Europe, Asia and Africa. Competencies in thermal production also cover demanding fuels, such as biomass and waste.

Fortum has a wide range of expertise for power plant operation and maintenance both at the Head Office in Finland as well as at its own facilities. The O&M team on-site also has access to a large pool of resources, including e.g. turbine and generator, emissions, chemistry, lifetime and maintenance experts.



“We pay a lot of attention to environmental issues. Since the start of the commercial operation, there has not been a single leakage of oil or chemicals at the Hamm power plant.”

Experience shows that it is important to have and develop the company's own in-house expertise and knowhow and thus to not be entirely dependent on large OEMs on the market. Fortum eNext, having deep technical knowhow and extensive engineering expertise, has also been able to support the customer in various negotiations with different OEMs and suppliers.

"One of our governing principles is to never take any single supplier's view for granted, but to always think for ourselves what the best solution would be and to strive for the most economical and technically best suitable solution for each case."

Cost of O&M services decreased by 20%

In the end, Fortum eNext and the customer succeeded in creating a cost-efficient O&M strategy where the power plant was able to cut expenses and keep its own, experienced and motivated plant personnel, which makes it possible to run the plant in a flexible way and to continue profitable operations.

After changing the operating model, the cost of operation and maintenance services dropped by roughly 20%. The plant is in very good condition and, in terms of availability and reliability, it is one of the best gas power plants in Germany and is estimated to run up to 2 500 hours in the coming years.

In the future, the Hamm power plant will continue to contribute needed generation capacity to the regional power supply system and provide a flexible and reliable backup power source to accommodate fluctuations of renewable energy sources.

"I wish to extend my sincere thanks to Hamm's skilful and committed staff who made the turnaround possible. It looks like we have many busy and profitable years ahead of us," Mikko Päivärinta concludes.

FAST FACTS

Customer

Trianel Gaskraftwerk Hamm GmbH & Co. KG, owned by 28 German, Austrian and Dutch regional electricity companies.

Construction 2005–2007.
Commercial operation since November 2007.

Site

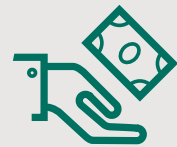
Combined cycle gas turbine (CCGT) power plant in Hamm, Germany, consisting of 2 x 420 MWe single-shaft trains.



Fortum has been responsible for the operation and maintenance of the Hamm CCGT power plant since the start of commercial operation in 2007.



The first three-year change agreement with the current operating model was made for 2015–2018; the agreement was subsequently renewed for the 2019–2021 period.



With the new operating model, the cost of operation and maintenance services was cut by roughly 20%.



If you want to know more about the case or about our full-scope O&M services, please contact:

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