

TE-TO Osijek, Croatia

Reduced CO2 emissions and significant energy savings with variable speed electric drive



The plant

TE-TO Osijek power station is a combined heat and power (CHP) plant in the eastern part of the city of Osijek, one kilometer from the Drava River in Croatia. It is owned by the Hrvatska elektroprivreda d.d. (HEP Group), the national energy company, which has been dealing with generation, retail of heat and power for more than a century. And in the last few decades it has been dealing with retail of heat energy and natural gas to customers.

The TE-TO Osijek CHP plant produces electricity for the electric power system and thermal energy for heating the city and supplying industry with technological steam. It consists of multiple units producing at least 95-megawatts electricity. The different blocks produce either heat, steam for industrial processes or electricity.



**Energy savings of
2,296 MWh
in just 3 heating seasons**

The task

HEP's challenge was to manage three hot water circulation pumps for central heating system in the TE-TO Osijek CHP plant. The technical solution in practice proved to be unreliable with frequent breakdowns and difficult maintenance. Downtime and repairs led to unreliability and unavailability and increased maintenance costs. By using frequency-regulated electric motor drives in thermal power plants, significant energy savings can be achieved at the same time carbon dioxide emissions can be reduced. In addition to the above generally accepted practice of replacing part of unregulated electric drives with regulated ones, there is also a tendency to replace old engines with low energy utilization by high efficient modern engines with a high energy class often classified according to IEC standards. The customer decided to install one frequency-regulated electric motor operation of the circulation pump in the central heating system of the city of Osijek.



TE-TO Osijek, Thermal Power Plant

The solution

In the optimization project Siemens Energy first assessed the theoretical savings potential and conducted a site analysis of TE-TO Osijek's entire drive train. Based on the actual on-site conditions, Siemens Energy drew up a concrete optimization concept. The obsolete and inefficient hardware was replaced, and a high-quality variable speed drive was implemented. We at Siemens Energy ensure smooth replacement, encompassing everything from project planning through to commissioning, and then provide ongoing service support.

“By implementing the variable speed drive from Siemens Energy we could realize enormous energy savings and reduce CO2 emissions.”

Mario Iličić, HEP Proizvodnja d.o.o., TE-TO Osijek



TE-TO Osijek, Variable Speed Drive

The Benefits

- Energy savings of 2,289 MWh in just three heating periods
- Reduced CO2 emissions of 800 - 1200 tones per season of central heating
- Increased operational reliability of the electric drive of the hot water pumps and the entire hot water system
- Return on Investment in just 4 years

Published by and copyright © 2024
Siemens Energy Global GmbH & Co. KG
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91058 Erlangen

For the U.S. published by
Siemens Energy, Inc.
Gas Services
4400 N Alafaya Trail
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