



ELEKTRÁRNÝ OPATOVICE CO-GENERATION PLANT OPTIMIZES SUPPLY AND REDUCES MAINTENANCE COSTS WITH ROSEMOUNT FLOW METERS

Application

High-temperature and high-pressure water flow measurement (170 °C and 25 bar) at heat energy transfer pipeline in a co-generation plant

Customer

Elektrárny Opatovice (EOP)

Challenge

Elektrárny Opatovice, a.s. (EOP), a coal-fired co-generation power plant with achievable electrical output of 363 MWe and a total thermal capacity of 698 MWt, is one of the leading energy suppliers in the Czech Republic. EOP is a part of ENERGETICKÝ A PRŮMYSLOVÝ HOLDING (EPH), a leading Central European energy group operating mainly in the Czech Republic, Slovakia, Germany, and Poland. The EOP Combined Heat & Power (CHP) co-generation plant is a highly efficient, cost-effective, and clean supplier of energy. The plant produces electricity and recovers the heat energy in the form of hot water. The hot water is transported to district heating networks through approximately 290 km of high pressure transfer pipelines. Through these pipelines, EOP supplies thermal energy for about 60,000 households and several hundred commercial, health, and cultural facilities, requiring maximum reliability and continuous service of this essential heat supply system.

The aging part of the pumping system was coming near to the end of its working life. Also, the older DP flow meters lacked diagnostics to help identify pumping issues before they resulted failures and further created a significant pressure drop that affected the efficiency of the lengthy, high pressure pipeline distribution system. To keep reliable and safe performance of the whole system and good service to their customers, EOP decided to replace the old pumps and upgrade the related instrumentation.

Results

- 100% reliability in challenging conditions over two years of operation
- 100% confidence and low uncertainty of performance testing
- Reduction in system electricity consumption and maintenance costs

“Rosemount™ Magnetic Flow meters allowed us to have a high confidence in our primary systems, leading to check accurately the performances of pumps, and avoiding any potential issue related to measurement errors. Emerson service made the difference.”

Jan Tilgner
Maintenance Manager

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Solution

To increase the reliability of this essential heat supply, EOP upgraded the pumping system by installing two new pumps with variable frequency drives that improved pump control and performance across its operational range. To monitor the water flow and pump performance, EOP selected two Rosemount DN300/12-in. magnetic flow meters. EOP is proud of their environmental record, and this plant meets all requirements of European environmental legislation. There was a strict efficiency requirement for the new pumping system, and EOP was required to prove the required efficiency with stringent performance testing. The extreme accuracy and low uncertainty of the Rosemount Magnetic Flow Meters was required to prove efficiency on this project. The remote electronics feature full function advanced diagnostics capabilities and dedicated configuration buttons, providing extremely simple and intuitive installation and maintenance. The compact installation straight pipe requirements (5D upstream and 2D downstream) compared to traditional DP simplified installation into the existing piping, and local Emerson support provided timely assistance during all phases of the installation.

Rosemount magnetic flow meters provided unequalled reliability in this high temperature and pressure application. The all-welded design and liner technology deliver reliable, accurate performance across a very large range of flows and temperatures, and virtually eliminate moisture and contamination related failures. The plant has been in operation for two years and has experienced 100% reliability with no flow meter issues. Rosemount magnetic flow meters also impart virtually no pressure drop on the system, reducing pump demand and lowering energy costs. The confidence in the flow metering has led to accurate ongoing measurement and active management of pump and system performance.



An installed Rosemount DN300/12-in. Magnetic Flow meter to monitor the water flow and pump performance.



“Not a single problem detected from these meters: there is absolutely no need of maintenance, and their performances are so high that we can truly rely on our calculations.”



Radek Jarka
Maintenance Engineer

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00830-2900-4727, Rev AB

