District Heating

mi solutions & CONSULTING GMBH

Background

Large amounts of residual heat always arise during power generation in coal or biomass power plants and other processes based on thermal energy. This residual heat occurs due to physical reasons. In the vicinity of these sites, there is thus the opportunity to use this heat for heating and hot water preparation. The residual heat is transported via water in pipelines. The length of these networks can exceed 100 km, so that numerous pumps and additional heat sources are necessary.

The Case

- To control the heat flow in a district heating network, pumping stations are located at suitable locations
- These pump stations ensure that the required amount of heat is transported in a targeted manner
- In this case coolant leaked due to a puncture at a pump.
- A constant loss or consumption of coolant is normal. If it sinks too quickly, the pump will get damaged
- Just over two weeks before the coolant loss would have become critical, the accelerated coolant drop was detected and corrected

Highlights

- District heating networks fan out root-like, so that the transport of heat to different commercial and residential areas must be precisely regulated
- Accordingly, pumps and other components behave in accordance to specific characteristics
- The signatures generated by the individual components of the district heating network are therefore unique
- The AI of the monitoring algorithms independently learns how different components behave
- This allows early detection of problems during operation, in which the AI indicates deviations from normal behavior

> 14 Days

Warning time before the failure of a critical pump

The failure of pumps and heat generators in district heating networks can lead to significant problems during the heating season, as the failure can only be compensated briefly or not at all in hospitals, nursing and retirement homes and similar facilities.

mi solutions' approach allows to detect signs of malfunctions two weeks or more before a critical situation occurs – and thus to avoid them in most cases.

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About Us

It is our mission to enable customers worldwide to create an impactful value from their data helping them to stand out. Our broad wealth of experience in applying AI sets the basis for this mission.