Investigation and Control of a Regional Steam-Distribution Network under Two-phase Flow Conditions

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Abstract: Measurement and simulation techniques have been developed for a two-phase flow to quantify and qualify a steam network and to determine the flow regime in the network. The development of these techniques makes it possible to create an intelligent monitoring system, which ensures that:

- By the execution of the computational model the different states of the network can be simulated;
- By using the principal of the local dynamic pressure measurement the distribution of the velocity in the cross-section of the pipes near the measurement points can be determined;
- The mass transfer in the condense vessels can be determined in the backbone pipes;
- By using mobile communication the measured data can be transferred immediately to the monitoring system; and
- Algorithms and formulas can be created to determine the quality of the two-phase flow.

Keywords: two-phase flow, identification, modelling, mass transfer network