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**September 3-5, 2006**

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**Tuesday, 5 September 2006**

**Sektion 5 b**

**Heat/cold generation**

**Intra-day forecast and  
what-if scenario analysis**

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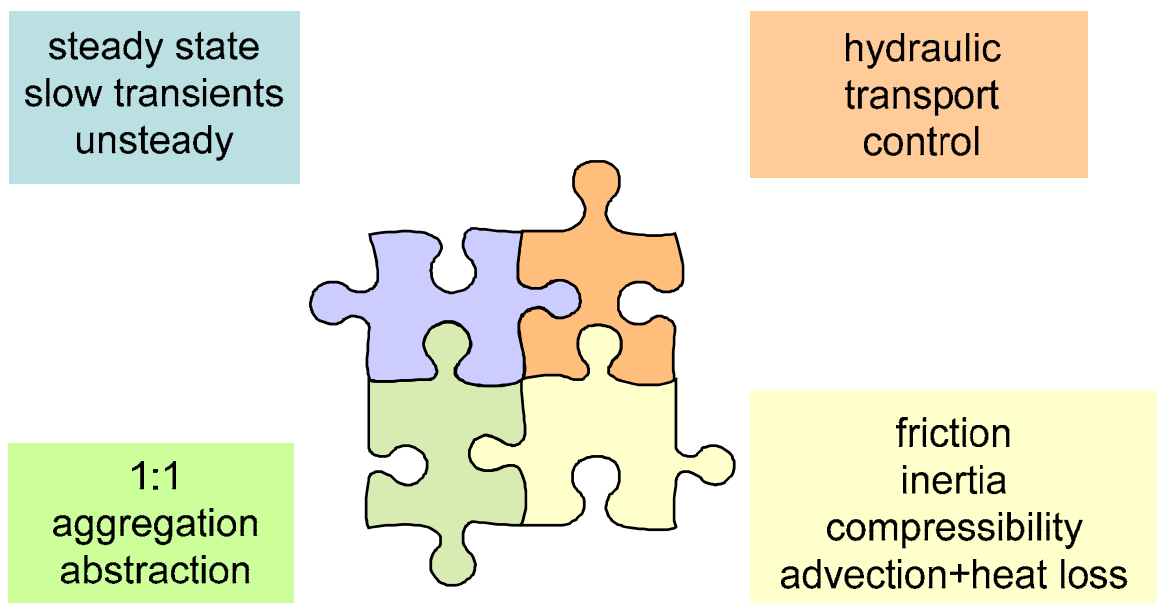
# Intra-Day Forecast and What-If Scenario Analysis

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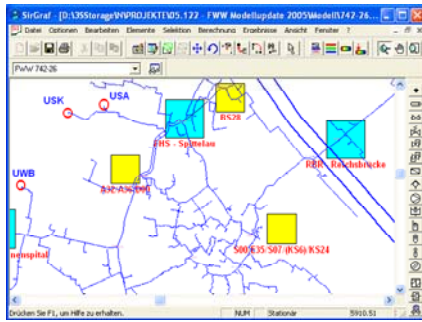
## 1 Abstract and Summary

The benefits and potentials of rolling intra-day forecasts and ad hoc what-if scenario analysis related to the daily operation of district heating distribution systems are presented. Forecasts and scenario analysis are applications based upon the online simulation of district heating systems and piping systems generally. The aspects needed to make real forecasting and to the point scenario analysis possible are explained and discussed: Modelling aspects such as unsteady thermo-hydraulic theory and control theory, IT-aspects such as interfacing to process control systems and business systems and human aspects in an control center environment. Last not least a real world application is introduced.

## 2 Pictures

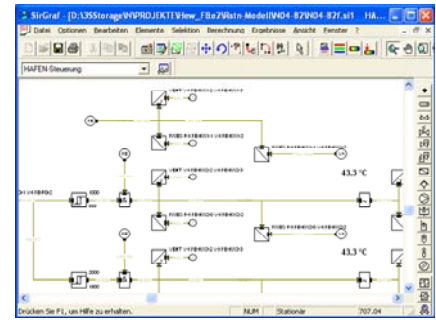
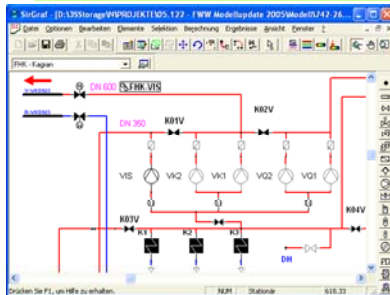


Picture 1: Modelling Aspects I



network + consumer

plants + stations



process control

restrictions

Picture 2: Modelling Aspects II

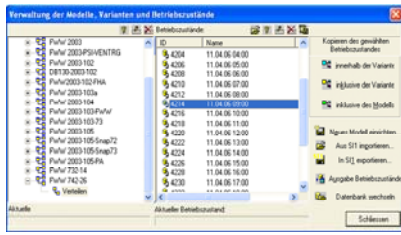
to build, operate,  
maintain and to use  
the system

availability  
accuracy  
precision

interfacing to  
process control,  
GIS, CRM, OLAP

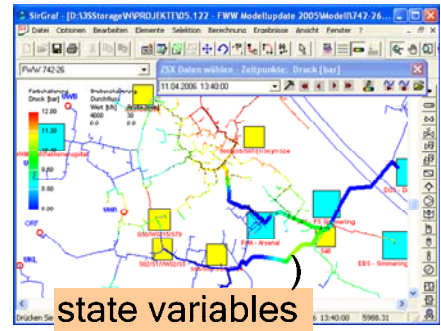
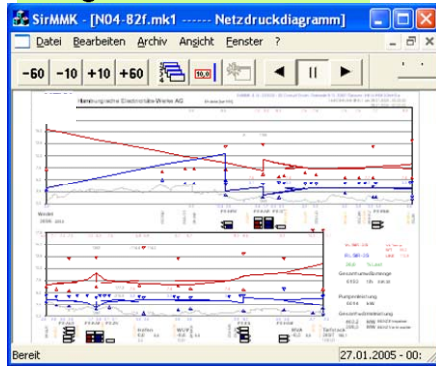
usability  
look&feel  
acceptance

Picture 3: IT Aspects I



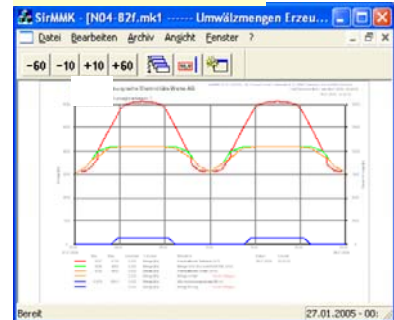
scenario database

longitudinal sections

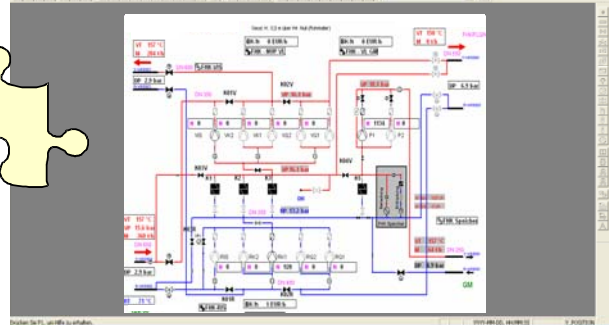
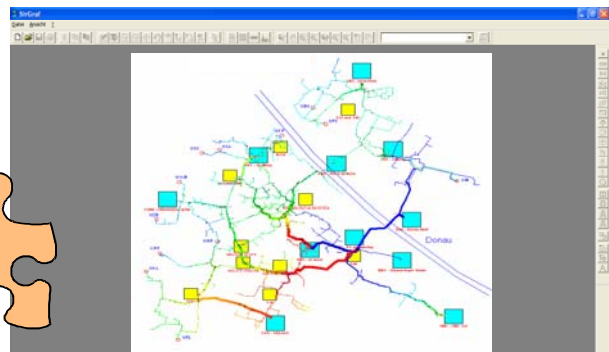
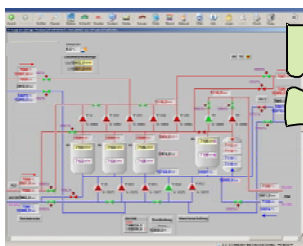
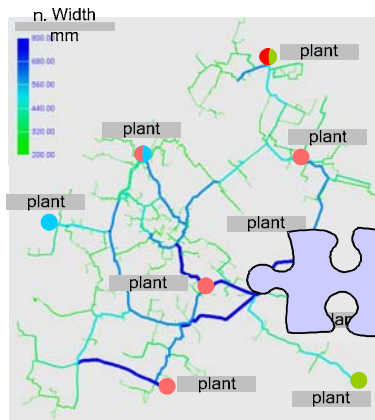


state variables

time curves



Picture 4: IT Aspects II



Picture 5: District Heating Simulation & Management System