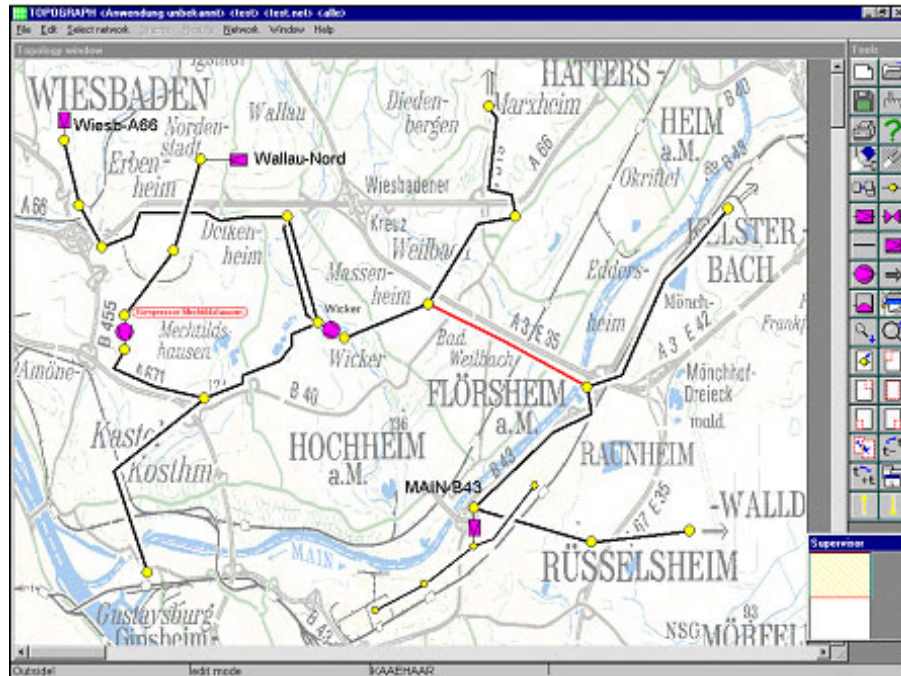


# PSIGanesi Simulation and Reconstruction



The PSIGanesi simulation package utilises the **transient** calculations (**simulation or reconstruction**) of a given gas grid, taking different boundary values and objectives into consideration.

PSIGanesi can be completely integrated with the PSIControl control system, or can be operated as a stand-alone application with an interface to any SCADA-System.

## Simulation Types

PSIGanesi offers three types of simulation, all of which can be used for the cyclic observation of the network. Depending on simulation requirements, all three support situational analysis within the gas grid:

- Real-time simulation (RTSIM).
- Cyclic forecast simulation (CYSIM)
- Forecast simulation including „what – if“ analysis (VOSIM).

Future planned changes in network operation mode can be defined in the look-ahead and cyclic look-ahead simulation with the help of a control plan. The results can then be time-stamped and stored.

An unlimited number of scenarios for typical and atypical situations in the supply area can thus be configured and parameterised as well as analysed with the forecast simulation as required. The simulation of flow activity in the network system is also a prerequisite for integrated gas quality tracking. By tracking gas flow, the

Boundary Values  
Set-point Values  
Armature Control  
Compressor Switch

quality of the transported gas can be calculated at any point along the network using real-time and/or forecast simulation.

### **Integrated Simulation**

Benefits of integrated simulation over stand-alone simulation are:

- The faulty measurement values can be replaced by the simulation results when required.
- Continuous monitoring of network status with event logs and alarms is also possible for network sections without measurement value acquisition.
- All inputs by the dispatcher which are simulation relevant (commands, set-point values, etc.) are also automatically acquired as inputs for simulation. The inherent error risk of stand alone simulation (multiple inputs) is thus nullified.
- All boundary values which are necessary for simulation are provided automatically by the process image or by other components (prognosis, disposition).
- Maximum, error minimising system support of data modelling, in particular with the coupling of SCADA objects with the objects of network topology.
- A uniform user interface for the complete system is available.

### **Integrated Reconstruction**

The integrated reconstruction feature of PSIGanesi acquires exact gas quality billing values for heat quantity billing at any offtake point. PSI's solution meets the **PTB- A 7.64** requirements and has been in productive operation for many years.

The integrated reconstruction feature has the following characteristics:

- Interfaces to other systems for data transfer and data comparison
- Consistent and secure data storage
- Excel interface for visualisation and the export of data results

PSIGanesi is capable of running under all hardware platforms under the operating systems UNIX and Windows.

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