

DIGITAL TWIN: OPTIMAL UTILITIES PLANNING AND OPERATION

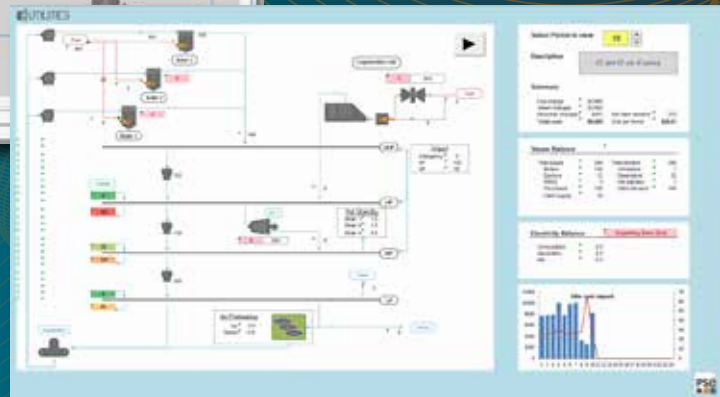
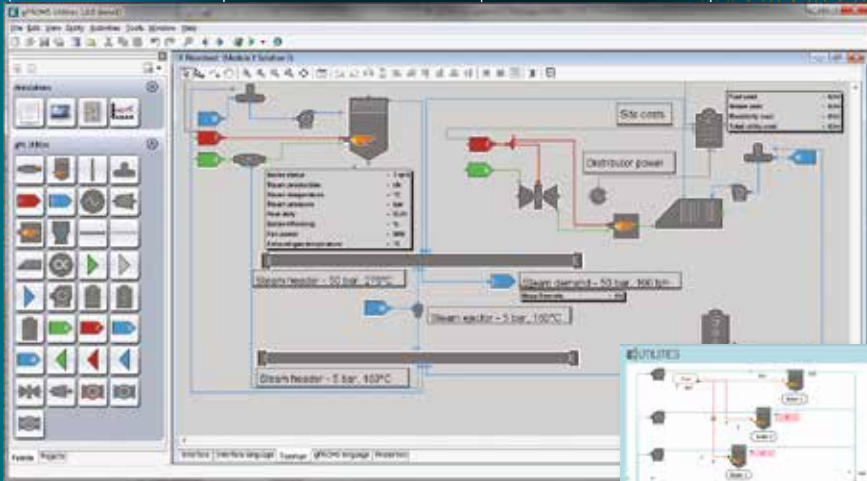
Digital Twin: Utility System Optimisation

Libraries of major devices – gas turbines, boilers, steam turbines

Drag & drop engineering environment

Powerful, fast and robust optimisation framework

- Digital solution framework
- Follows industry 4.0 principles
- Finds better optimum faster than current tools
- Proven energy cost savings of 2-10%
- Uses live plant data to tune the model
- Payback < 9 months
- Presents operators with choice of actions
- Quick deployment: 12-16 weeks



g|UTILITIES

Equation-oriented environment for fast, robust solution

Real-time advice for operators

Customised Planner and Advisor views for easy visualisation

gPROMS Utilities is an advanced digital platform for managing and optimising utilities operation.

It provides a means for refineries and chemical plants to optimise on-site production and distribution of energy to minimise cost and emissions.

It is supplied in 3 forms: Engineering, Planner and Advisor. It's easy to construct utilities system models then use these to plan and operate in the most cost-effective way while meeting all constraints.



Advanced Digital Process Twins

A Siemens Business

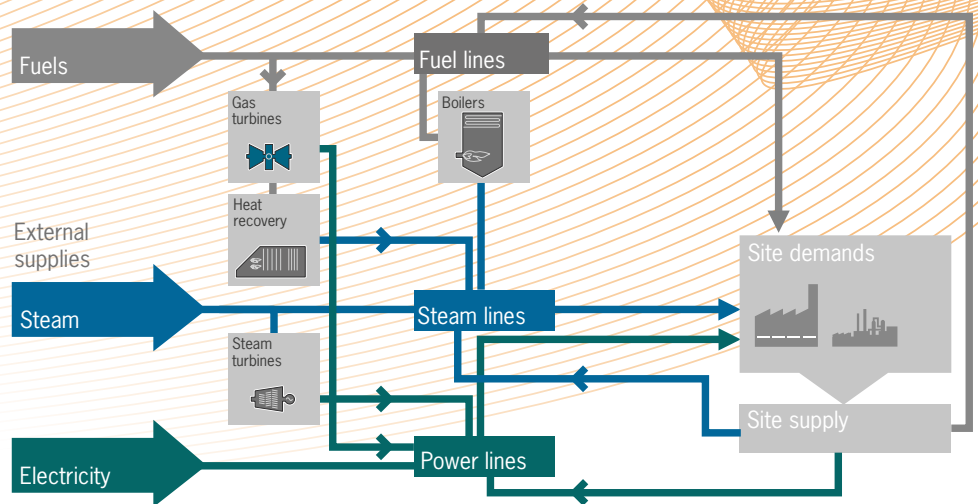
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Operations in UK, USA, Japan, Korea, UAE, China, Taiwan and Thailand.

Head Office
t: +44 20 8563 0888
e: info@psenterprise.com

BETTER, FASTER UTILITIES OPTIMISATION

Plants consume and often generate fuels, steam and electricity. The routing can be complex and the amounts can change regularly. Some utilities may be sold to the grid and prices can vary frequently. Equipment availability may continually change. To optimise such a system requires the latest data validation and optimisation technologies.



g|UTILITIES

gPROMS Utilities finds a way through the maze by applying new digital technologies with advanced, high-fidelity process models of the utility system, taking into account demands, prices and availability, to find the economically optimal operating profile for any situation.

State-of-the-art optimisation algorithms deliver higher cost reductions than current tools, while fast execution speed allows a larger number of scenarios to be considered, increasing the effectiveness of energy management teams.

Offline operation



ENGINEER Create and test models of utility production and distribution within a flowsheet environment; validate models and perform what-if scenario analyses.



PLANNER Plan optimal site management over short, medium and long term horizons, taking into account anticipated demands.

Online, real-time operation



ADVISOR: Continuously validates and reconciles plan measurements. Calculates and displays real-time situation. Gives advice to operators on how to maintain always-optimal operation.

ADVANTAGES & BENEFITS

- **Faster savings**
 - Payback < 9 months with energy cost savings of 2-10% with respect to baseline
- **Flexible deployment**
 - Easily integrates with DCS, SCADA, Data Historians
 - Web- or Excel-based applications

Find out how PSE's digital technologies can help you to optimise utilities planning and operation

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