

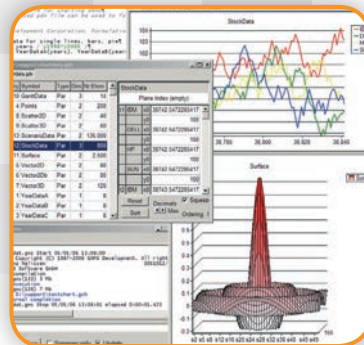
## GENERAL ALGEBRAIC MODELING SYSTEM

### High-Level Modeling

The General Algebraic Modeling System (GAMS) is a high-level modeling system for mathematical programming problems. GAMS is tailored for complex, large-scale modeling applications, and allows you to build large maintainable models that can be adapted quickly to new situations. Models are fully portable from one computer platform to another.

### State-of-the-Art Solvers

GAMS incorporates all major commercial and academic state-of-the-art solution technologies for a broad range of problem types.



GAMS Integrated Developer Environment for editing, debugging, solving models, and viewing data.

### SmartEnergyHub

How can operators of critical infrastructure optimize their energy management in the context of a rapidly changing energy market? The research project SmartEnergyHub deals with this question on the basis of a smart data platform that combines and analyzes sensor data and forecasts for weather and energy prices.

Prospective clients like airports or municipal utilities can work out an innovative and efficient energy management solution using their existing building infrastructure. They can discover energy saving potentials, predict fluctuations and better compensate them, and act as stability anchor in the grid. Fichtner IT Consulting operates as joint venture

leader for the research project, while Stuttgart Airport is the project's application partner. The SmartEnergyHub project is financed by the Federal German Ministry for Economic Affairs.

Modeling and optimization for SmartEnergyHub is done in GAMS. The first part of the project integrates sensor data, process- and control systems, forecasts, and an internal optimization. The second part analyzes real-time optimization of energy consortiums. The core optimization system is comprised of LP and MIP models written in GAMS. The project benefits from the variability of GAMS to compare various open source and commercial solvers with respect to specific applications and market segments.



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