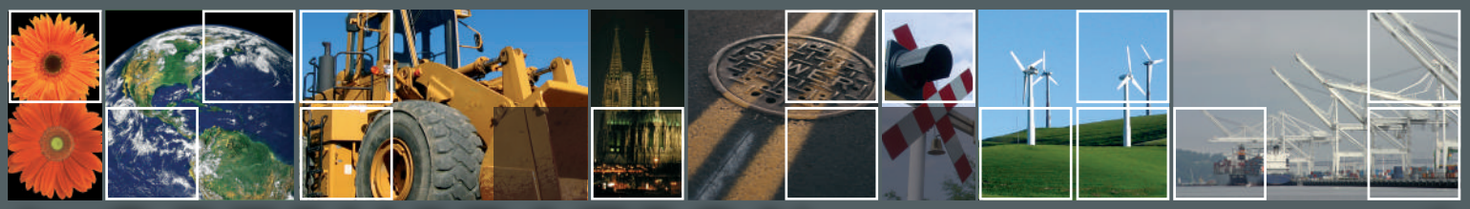


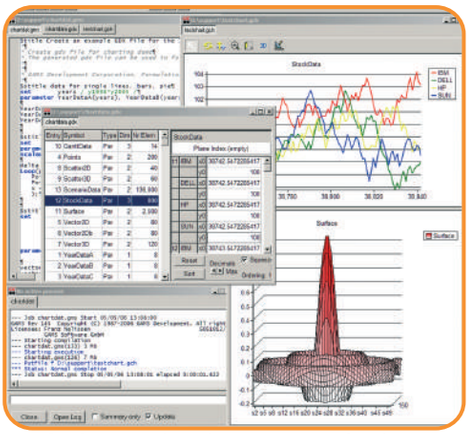
OPTIMIZATION

www.gams.com

GAMS

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.



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

Wide Range of Model Types

GAMS allows the formulation of models in **many different problem classes**, including

- Linear (LP) and Mixed Integer Linear (MIP)
- Quadratic Programming (QCP) and Mixed Integer QCP (MIQCP)
- Nonlinear (NLP) and Mixed Integer NLP (MINLP)
- Constrained Nonlinear Systems (CNS)
- Mixed Complementary (MCP)
- Programs with Equilibrium Constraints (MPEC)
- Conic Programming Problems
- Stochastic Linear Problems

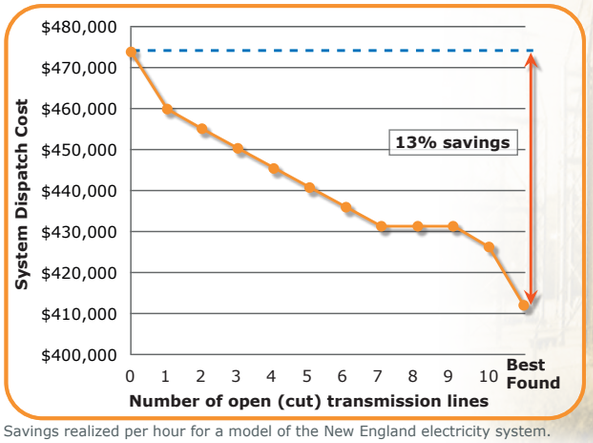
State-of-the-Art Solvers

GAMS incorporates all major commercial and academic state-of-the-art solution technologies for a broad range of problem types, including global nonlinear optimization solvers.

Optimal transmission switching

Researchers and policy makers are looking for ways to make the bulk electricity transmission system more efficient, dynamic and responsive. One way this could be done is by opening and closing transmission lines in response to grid conditions to optimize how generators meet demand for electricity. A team of researchers at the Johns Hopkins University, the University of Wisconsin, the University of California at Berkeley and the Federal Energy Regulatory Commission are exploring the extent of savings possible in real systems.

- Bulk transmission network models contain hundreds of generators and thousands of transmission lines.
- Transmission line status modeled as binary variable in a mixed integer program formulated in GAMS.
- Model is solved with GAMS/CPLEX, using indicator constraints and multithread options.
- For more information please visit **http://www.cs.wisc.edu/~ferris/TransSwitch.html**



Savings realized per hour for a model of the New England electricity system.

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