

Smart Grid Investment Model™

Stand-Alone Software Package



Simplifying Smart Grid Business Case Evaluations

- AMI/Smart Meters
- Distribution Automation
- Volt/VAR Control (Including CVR)
- Customer-Centered Programs
 - Pricing, Demand Response, Programmable Communicating Thermostats, etc.
- Communications
- IT and Meter Data Analytics
- Other Infrastructure Considerations



Smart Grid Investment Model

The only commercially available smart grid business case software tool is now offered to all:

- Electric Cooperatives
- Municipal Utilities
- Other Public Utilities
- Investor-owned Utilities
- Regulatory Agencies
- Equipment Manufacturers
- Vendors

Developed over 2 years and vetted with 15 utility applications.

Applications Areas

The Smart Grid Investment Model includes the following application areas

- AMI/Smart Meters
- Distribution Automation
- Volt/VAR Control (Including CVR)
- Customer Technologies and Programs (Including Demand Response)
- Communications and IT
- Meter Data Analytics

Comprehensive Evaluations

The model provides financial analysis ranging from executive overviews to individual substation/transformer/feeder level distribution automation financial evaluations. Analysis includes all important technology and program analysis areas including customer demand response technologies and programs.

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Manufacturer/Vender Applications

The Smart Grid Investment Model (SGIM) software is available for equipment manufacturer and vendor applications to assist potential clients in evaluating the business case for technologies and applications.

View the Video-Demo: www.smartgridresearchconsortium.org/webcasts.htm

Coop, Muni & Public Utility In-house Applications. The Smart Grid Investment Model (SGIM) is implemented by Consortium staff including incorporation of each utility's current infrastructure, customer and kWh sales data, 8,760 hourly systems load data and monthly customer-class, end-use hourly load forecasting models. Each application includes detailed metering, communications, distribution system and customer engagement options. All important smart grid technologies and programs are evaluated and presented in a final report and utility presentation. Each utility's SGIM is continuously maintained, available for future applications at a fraction of the cost of a new study. Optionally, the SGIM is also available for in-house utility use. This option requires an annual software license fee in addition to the standard project cost.

An Easy-to-Use, Intuitive Evaluation and Planning Tool

The Model's Excel user interface, graphics output and tabular results worksheets have been designed with input from utility staff ensuring ease of use and the ability to answer "what-if" questions.

Each smart grid option can be evaluated by checking the appropriate box on the GATEWAY worksheet. In addition to providing access to all smart grid programs and program parameters, the GATEWAY worksheet provides selected summary cost/benefit analysis results including internal rate of return (IRR), undiscounted breakeven period, discounted breakeven period and net present value (NPV).

Detailed cost/benefit analysis results are presented in the DASHBOARD, C-B Results and other worksheets. Technology and program impacts on system hourly loads are determined with utility-specific monthly customer-class, end-use hourly load forecasting models.

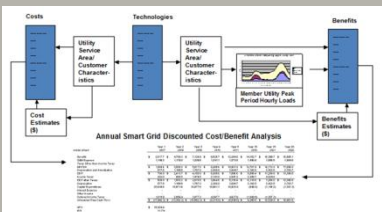


Extended DA Option

Applies financial cost/benefit analysis at the substation/transformer/feeder level. Supports distribution systems upgrade cost/benefit analysis.

Hourly Loads Impact Analysis

Each model includes utility-specific monthly customer-class, end-use hourly load forecasting models to calculate impacts of customer-oriented programs and Volt/VAR control including CVR on system loads. Avoided power costs and avoided capacity costs (generation, transmission and distribution) are calculated using these system load impacts.



Smart Grid Research Consortium

Begun as a research/service project at Texas A&M University in early 2010, the Consortium transitioned to an independent research and consulting firm in January 2011 with headquarters in Orlando.

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Utility Application & Analysis Support Options

Each Smart Grid Investment Model Software package includes a basic model implementation for a single utility service area including incorporation of utility customer and kWh sales data, 8,760 hourly systems load data and monthly customer-class, end-use hourly load forecasting models. Web training sessions and telephone support are provided for model users.

Consortium staff are also available to provide objective, vendor-neutral analysis applying the Smart Grid Investment Model to evaluate technologies, programs, and alternative smart grid development strategies. Support activities can range from assistance conducting a specific technology evaluation to comprehensive turnkey business case analysis.

Manufacturer and Vendor Applications

Vendor inability to present comprehensive business case analysis is an important barrier in utility smart grid investment decisions. Only a comprehensive detailed financial cost/benefit model allows utility decision-makers to view individual technologies and programs in the context of a system-wide investment strategy.

The Smart Grid Investment Model provides an easy way to address client "what-if" questions - a critical input in utility decision-making and risk analysis. Model dashboard displays provide intuitive financial summaries of scenario analysis.

Smart Grid Investment Model software is available for equipment manufacturer and vendor applications to assist potential clients in evaluating the business case for technologies and applications.

A comprehensive approach also identifies synergies that often boost returns on individual investments.

Hourly Loads Data and Impact Analysis

Utility hourly loads play a critical role in determining benefits associated with demand response, customer engagement, and Volt/VAR control including conservation voltage regulation. Avoided power cost and avoided generation, transmission and distribution capacity costs associated with these investments can account for more than 50% of future benefits.

Each utility's hourly loads are determined by its customer characteristics, electric appliance holdings, weather, and other variables.

The Consortium has exclusive access to MAISY (www.maisy.com) Utility Customer Hourly Load Databases and hourly load forecasting models, providing the detailed financial analysis of monthly load impacts.

Extended Distribution System Option

An optional extended-detail distribution system model component includes individual substation, transformer, and feeder-level detail providing additional information on costs and benefits of distribution automation, Volt/VAR control, conservation voltage reduction, customer reliability valuations, cost-minimizing distribution system upgrade strategies and more.

This additional distribution-level detail supports cost/benefit analysis at the substation, transformer and feeder level including peak hour load reduction and customer reliability valuations.

The license fee for this optional component depends on time required to customize this model component to reflect detailed distribution architecture.