

Are Smart Grids a Smart Investment? Analysis of 200 US Utilities

By Jerry Jackson, Ph.D., President, Jackson Associates, June, 2009

Report Description

Jackson Associates' new report, "Are Smart Grids a Smart Investment" is the first utility-detailed nationwide study of smart grid benefits and costs. This study is also the first to apply individual utility customer end-use (e.g., air conditioning, water heating, etc.) hourly electric loads to evaluate smart grid costs and benefits. Data for more than 800,000 residential and commercial utility customers are applied in the study to evaluate utility smart grid potentials at the 200 largest US utilities

Other studies rely on assumptions about elasticities and electricity pricing to estimate changes in broad customer class aggregate hourly loads. In this new groundbreaking analysis, load control and pricing program impacts are applied directly to individual customer end-use loads, providing the first "bottom-up" analysis of smart grid impacts.

Individual utility results include residential and commercial peak demand contributions and potential smart grid peak demand reductions. Results are presented separately for technology-controlled savings and behavioral responses to electricity pricing strategies.

Benefits

This first-of-a-kind report of utility-specific smart grid benefits and costs provides valuable insights on smart grid potentials, programs and markets. The report provides value for a variety of organizations including:

Utilities, Public Service Commissions and Other Government Organizations

- Evaluate utility level smart grid potential benefits and costs as part of smart-grid program assessment, development, deployment and evaluation

Smart Grid Technology and Service Providers

- Identify and prioritize individual utility markets based on smart grid potentials

Investors, Venture Capital Firms

- Evaluate market potential for smart grid technologies and companies at individual utilities

About the Author

This report is authored by Jerry Jackson, president of Jackson Associates and a professor at Texas A&M University. Dr. Jackson is an internationally recognized energy economist with more than thirty years experience addressing energy industry issues. He is also the developer of the MAISY Utility Customer Hourly Load Databases applied in this study.

Dr. Jackson has extensive experience conducting energy impact and market analysis for new energy technologies including:

- Combined heat and power (CHP)
- Cool storage
- Demand side management
- Energy efficiency technologies
- Flywheel technologies
- Fuel cells
- Smart grid technologies
- Solar technologies
- Wind energy
- Other energy-related technologies

His clients include utilities throughout the US and Canada, state agencies, DOE research laboratories and energy technology companies including United Technologies, Carrier, Tiax, Toyota, Ingersoll Rand, Aisin, Bloom, Ice Energy, IdaTech and others.

He has authored more than one hundred client research reports. He also publishes in both academic and industry journals and recently published the book *Energy Budgets at Risk (EbaR): A Risk Management Approach to Energy Purchase and Energy Purchase and Efficiency Choice* (John Wiley and Sons, 2008).

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Standard Utility Detail* (Information Provided for Each Utility)

Residential Customers	Commercial Customers
Number of Customers	Number of Customers
Annual MWh	Annual MWh
Contribution to Peak Demand	Contribution to Peak Demand
MW	MW
KW/Customer	KW/customer
Smart Grid Peak Reductions	Smart Grid Peak Reductions
Direct Load Control	Direct Load Control
MW	MW
KW/Customer	KW/Customer
Dynamic Pricing	Dynamic Pricing
MW	MW
KW/Customer	KW/Customer
Smart Grid Avoided Cost (Benefits)	Smart Grid Avoided Cost (Benefits)
Generation	Generation
Transmission	Transmission
Distribution	Distribution
Smart Grid Costs	Smart Grid Costs
Direct Load Control	Direct Load Control
Dynamic Pricing	Dynamic Pricing
Economic Analysis	Economic Analysis
Direct Load Control	Direct Load Control
Dynamic Pricing	Dynamic Pricing

*Additional analysis detail can be provided in customized reports (see below)

Customized Reports

The Smart Grid Report can be customized to provide any level of desired detailed beyond that included in standard reports including extensions of:

- Utilities beyond the 200 included in the standard report
- Customer segments (e.g., residential customers by income, business types, etc)
- End-use technologies
- Analysis to prioritize detailed utility customer segments by smart grid savings, benefits and costs, and other variables

For smart grid equipment and service providers, reports can be customized to focus on benefits of specific technologies and services for all 200 utilities or for individual utilities to support marketing activities.

For new technology startups, investors and venture capital firms, utility-detailed analysis of market potential, profitability, and other new product analysis can be provided for specific new technologies.

Purchase Price

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