

## Adjusting Forecasting to the Smart Grid Era



### Advanced Forecasting

While most utilities have been successful in looking backward to forecast, there are limitations to what that process can deliver going forward.

Using “experts” to provide their historical wisdom on the how the grid operates, for the primary purpose of making sure that grid problems don’t reoccur, is no longer practical. The landscape is getting too complex because of transmission and distribution (low voltage network) separation, more retail access, more distributed generation, and feeder switching and other active devices out in the grid. Demand management and time-of-use pricing impacts on consumption are also complicating traditional forecasting. Previously, small forecasting mistakes had small impacts on energy consumption planning and generation operations schedules. Now, incorrect forecasting in volatile power markets can have large, detrimental impacts on the larger utility organization.

More ominously, current forecasting models won’t be capable of keeping pace with smart metering and smart grid applications. There will be no choice but to expand forecasting models to deal with asset loading, demand management, switching and

distributed generation. Since most forecasting today is top-down and system wide, the utility will find itself completely out of sorts when data is delivered from the bottom up using devices like smart meters, offering possibilities for granularity as never before imagined. When forecasters are 6-15 percent off real demand at any given 15-minute interval, the opportunities for improvement – using a bottom-up model – are immense. Forecasting, performed in the context of the smart grid, keeps the utility out of the spot markets and away from their exorbitant prices for power, and maintains tight focus on construction money for the real challenges in the distribution grid.

### Making Forecasting Real, in Real-time

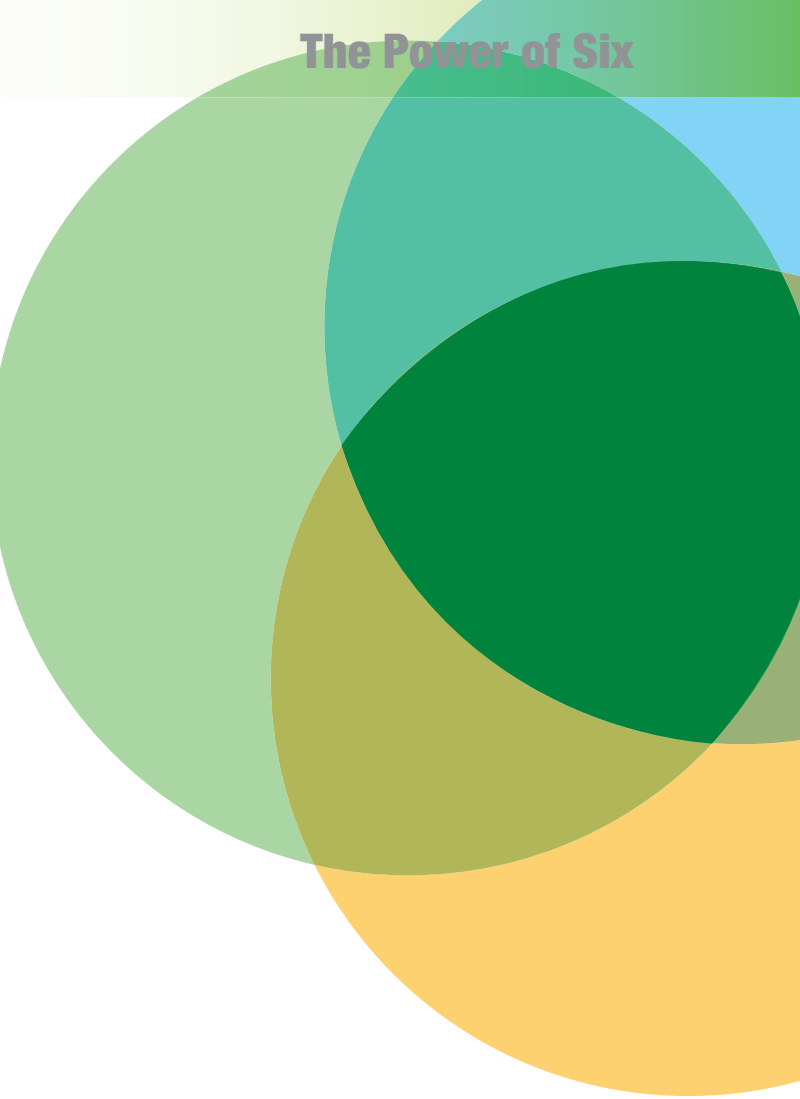
The ultimate goal of the utility should be developing its forecasting capabilities with more data – more accurate data, more real-time data, and more meaningful data. The forecast process needs to support both the data collection and the forecast creation. As the utility evolves and more processes depend on forecasting for business decisions, there are wider arrays of forecast products available. The key question though is whether the solution chosen can adapt to new market changes, as driven by customers and/or regulators.

### Achieving Now

The Smart Energy Alliance™ (SEA™), comprised of six of the world's leading technology companies, was created in 2006 to help utilities turn such forecasting challenges into opportunities to transform the entire utility organization.

The SEA believes that the distribution utility should not be looking backwards to look forward. There are better ways. Forecasting should use all the intelligence that is being deployed to the grid and should utilize that intelligence in order to provide inputs to more real time models, in similar fashion to how the transmission operators manage today. As feeder switches, demand management devices, and other active components become more common, wouldn't it be nice to know which ones should be operated to save the company and the consumers the most money? It is possible, through Advanced Forecasting, a set of bottom up modeling tools already adopted by a number of utility companies around the world for the purpose of taking advantage of the growing intelligence of the grid.

The Smart Energy Alliance has the right mix of deep industry experience coupled with a broad understanding of the technology solutions needed for tomorrow's utility. The members of SEA have the asset optimization, planning and data collection tools to create a futuristic forecasting capability. The SEA has defined processes for engaging with a utility to understand how it is forecasting and how it can become a proactive organization. Using a collaborative process with the utility and the six SEA members – Capgemini, Cisco, GE Energy, HP, Intel, and Oracle Corporation – there is a proven methodology for gaining a forecasting system that makes sense.



For more information please contact a representative of the Smart Energy Alliance member companies listed below:

**Capgemini:** Doug Houseman (doug.houseman@capgemini.com)

**Cisco:** Bob Khorey (rkhorey@cisco.com)

**GE Energy:** Frank Hoss (frank.hoss@ge.com)

**HP:** Cindy Blake (energy@hp.com)

**Intel:** Terry Cutler (terry.c.cutler@intel.com)

**Oracle:** Karen Edge (karen.edge@oracle.com)

Visit us online: <http://www.smart-energy-alliance.com>

The Smart Energy Alliance combines deep industry experience with a broad understanding of technology solutions from Capgemini, Cisco Systems, GE Energy, Hewlett-Packard Company, Intel and Oracle Corporation to accelerate adoption of new technologies in the utility industry worldwide.

For more information on the Smart Energy Alliance, visit <http://www.smart-energy-alliance.com>.

The Smart Energy Alliance from Capgemini, HP, Intel Corporation, GE, Cisco Systems, and Oracle Corporation. © Copyright 2007, Capgemini, HP, Intel Corporation, GE, Cisco Systems, and Oracle Corporation. All rights reserved. The Capgemini logo is a registered trademark of Capgemini. HP and the HP logo are registered trademarks of HP. Intel and the Intel logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. GE and the GE logo are registered trademarks of GE. Cisco Systems and the Cisco Systems logo are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and certain other countries. Oracle and the Oracle logo are registered trademarks of Oracle Corporation. \*Other names and brands may be claimed as the property of others.