

BETTING ON THE STIMULUS DOLLARS IN THE US: THE SMART MONEY IS ON THE SMART GRID

By Edmund P. Finamore, P.E.

Upon receiving what seems like the millionth inquiry concerning the federal stimulus money applications process in the past month, it is now clear to me that US utilities have become laser focused on the prospect of applying for available federal stimulus dollars to augment their smart grid budgets. With the Department of Energy's (DOE) expected publication of the stimulus application rules, many utilities are anxious to get the jump on the application process, and some executives indicate that their smart grid projects are actually being delayed pending the outcome of this application. My message to them: don't wait to get started on your smart grid improvements.

Delaying smart grid implementation is a high stakes game that can only worsen the condition of the electric grid in the US today. Utilities are currently struggling with many priorities from a wide variety of issues such as aging workforce and infrastructure, network security, environmental issues and declining customer satisfaction. It is therefore quite natural that scarce resources will be directed to the highest priority projects that don't necessarily qualify for stimulus dollars. The bet here is that delaying important smart grid projects for the limited prospect of receiving federal stimulus money is counterproductive, and is a high risk proposition that could potentially jeopardise a utility's future electric grid reliability.

Further complicating the situation are a growing number of state laws such as Senate Bill 221 in Ohio and Act 129 in Pennsylvania that impose additional requirements on utilities to implement energy efficiency and demand response programmes. These statutes require utilities to help reduce energy consumption and demand and expand use of renewable energy sources by specific, prescribed amounts. Meeting these mandates will be a tremendous challenge requiring significant investment in smart metering technologies to

achieve, and is not conditioned on whether or not federal stimulus dollars are received. And at the same time, FERC and NERC have begun tightening grid security requirements, and utilities are re-examining their susceptibility and vulnerability to outside security threats as reports of significant outside penetration of utility grid systems continue to increase.

The current economic slowdown has offered utilities a slight respite from the continuing need to meet increasing demands for electric power. However, this temporary moderation of the growth in demand will not last forever. Adding renewable energy requirements will place further strains on the nation's electric grid as it attempts to manage large numbers of distributed energy sources such as wind and solar and prepare for a new generation of plug-in electric vehicles.

SMART GRID IMPLEMENTATION NEEDS NO SPECIAL STIMULUS

In order to meet these increasing demands while at the same time addressing environmental and security concerns, utility electric grids must continue to pursue increased grid efficiency and balance supply side capacity limitations with customer demand without compromising network reliability. This is a tall order. Some analysts estimate that smart grid improvements could cost the industry as much as \$1.5 trillion over the coming years. In the near term, utilities must continue to meet demand with available resources while planning for an uncertain future that could dramatically shift the industry away from all carbon based sources of supply.

Utilities require no special stimulus to take on these difficult challenges. Load shifting and curtailment programmes enabled through smart metering can play a significant role in helping to moderate peak demand while meeting demand response requirements contained in much of the new state sponsored legislation. There is growing sentiment that peak shaving programmes should qualify as renewable energy sources for the purpose of meeting state energy efficiency guidelines, and many believe these programmes should be recognised by regulators when establishing energy efficiency requirements and approving utility integrated resource plans.

And while much attention is being focused on energy supply, utilities will continue to address the countless security and reliability issues. Distribution network automation, outage response and power quality are all requiring more attention and scarce resources as utilities strive to reduce outage times and improve the overall quality of service. Increased network automation and control are among the principal characteristics of the smart grid, and use of distribution management systems to conduct remote switching operations for self healing networks is rapidly becoming the answer to improved network reliability through the automatic rerouting of power. These types of solutions will require significant resources to implement.

Most challenges will not wait while the DOE implements a new process to qualify for a limited amount of federal stimulus dollars. By delaying smart grid plans, utilities are gambling that current network assets and performance are sufficient to meet future requirements until such time as the stimulus landscape becomes more settled and dollars are awarded. This may prove to be a losing hand if lengthy DOE approvals or limited availability of stimulus funds delay projects and continue a utility's exposure to unacceptable security risk and additional aging of network infrastructure. When considering the many implications and risks of deferring important utility grid system upgrades, it appears that for utility executives the smart money is on immediately proceeding with smart grid. ■



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