White Paper

Beyond Meter Reading:
How to Build the Business Case for the Next Wave of Applications

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Is your utility positioned to build a business case for requirements beyond AMI?

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With advanced meters now installed in approximately 33% of U.S. households,[1] many electric utilities are focusing on the next phase of their smart grid objectives. But to secure organizational support and funding for these projects, a new breed of business case is needed — one that is more complicated for utility staff.

Yet, there is no one-size-fits-all approach to building the business case. Each utility has its own vision and objectives for its smart grid future and operates in a unique geographic and regulatory environment. "Each utility's on-ramp to smart grid capabilities has been unique," says Trent Bowers, Vice President of Alliances and Solutions at Landis+Gyr. "Some utilities entered the smart grid environment to get the simple meter read, some were after voltage management, others were looking for operational improvements."

Challenges Ahead for New Business Cases

While many utilities have shown business case benefits such as reduced customer service costs and truck rolls for their initial smart meter investments, it is often a greater challenge to articulate "beyond metering" benefits. It is a difficult task that means exploring each part of the utility's operations to extract value.

"This new business case is more complicated because it's about more than just replacing meters and truck rolls," says Gary High, Vice President, Sales, Landis+Gyr. "As you get farther down the value chain of smart grid, you're looking at benefits like gaining operational efficiency, distribution line management improvements, distributed generation facilitation and many other things not traditionally included in an AMI business case."

According to High, this situation is exacerbated by the need to compete for internal capital dollars against other projects the utility could consider.

For example, it may be necessary to weigh the value of a transmission line upgrade or work at a generating facility against the benefits of a voltage management program obtained through smart grid infrastructure programs such as advanced metering.

"When you move from AMI-specific business cases to smart grid modernization and broader smart grid business cases, they become more involved," High says. "Often, utilities find the need to work across multiple business functions and to assign value to benefits that transcend functional boundaries. You have internal departmental silos to contend with, a more engaged customer base to consider, competing operational objectives and much more."

In addition, the interrelatedness of smart grid projects often constitutes a major stumbling block. Because smart meters impact many internal functions — billing, customer service, operations — internal groups often find themselves at odds when building a case for new functionality and technologies.

Keith Hall is a partner in IBM's energy and utilities strategy and transformation practice, and has served as a systems integrator for major U.S. utilities. "The funding group often tends to think of the new project as 'their' system," he says. "Because these new projects inherently reach into many levels of the operation, multiple groups must take responsibility for their portion of dollars in the business case."

It is also important to realize potential societal benefits of an efficient, smarter system, such as improvements in reliability, upgrades in security, and reduced carbon emissions. Historically, utilities have not easily monetized benefits like these, adding significant challenge to developing a strong cost-benefit analysis.

Common Benefits of Smart Metering Systems

These are just some of the benefits utilities realize after deploying smart metering systems. They should be considered in the course of any business case development effort.

- Reliability improvements
- Revenue assurance
- Voltage optimization
- Energy loss reduction
- Theft indication
- Demand management
- Direct load control
- Time-of-use pricing programs
- Operational efficiencies
- Reduced truck rolls
- Remote service connect/disconnect
- Outage management
- Consumer engagement programs

[1] "One-Third of US Homes Have a Smart Meter," Greentech Media, May 22, 2012

Working with Outside Experts

Ideally, utilities establish a smart grid roadmap as part of building a new business case. That roadmap should consider the portfolio of applications, scalability and internal business function touch points to aid project prioritization and decision-making.

But developing this roadmap from scratch can be labor intensive. Fortunately, many utilities have undertaken this process already, so expert knowledge can be gleaned from other industry sources. The insights and expertise of an outside consultant will save valuable time. In fact, there are so many inherent challenges to a "beyond metering" business case that only outside experts can address them efficiently. Look to a seasoned consultant, systems integrator or trusted smart grid vendor. These specialists deliver based on their wider experience in developing business cases for other utilities.

Hall stresses the importance of the role of the outside consultant. "We have seen some utilities try to do this on their own," he says. "It often takes years, and many mistakes are made. A systems integrator helps a utility avoid these mistakes and, in the end, actually save money."

According to Hall, systems integrators and other consultants are able to help utilities get over the "analysis paralysis" that can stall a project and, ultimately, delay the realization of the benefits. "Because we have access to a lot of data about what we know works — and doesn't work — we can help them make decisions quickly," he says.

Bowers agrees. "The better consultant guides the utility in the best way to extract value from a grid modernization or smart grid project," he says. "They help explain what it means to offset peak demand, for instance."

"The challenge with so many of these business cases is that they must cut across many functional groups," says High. "Yet, some groups are not willing to contribute the effort needed to build a business case that outlines expected benefits and drives project funding. A consultant helps develop a business case across utility silos." In addition to leveraging lessons learned from previous projects to help build a favorable cross-silo business case, a dedicated expert can help assemble a project team for a timely project launch.

The advice of an expert is also invaluable when it comes to defining the cost-benefit ratios. "After all, when we're talking about functionality that may not have been used before, how do you monetize it?" asks Bowers. "We can help utilities crunch the numbers and provide options for calculating these new benefits." In addition, most utilities do this type of analysis only once. By accessing expert advice, utilities benefit from lessons learned by other utilities.

Successful Business Cases

In spite of these complexities, the industry has many success stories. For example, in areas where energy efficiency requirements are mandated by state regulatory commissions, voltage optimization has become a key business case driver — from both a technical and business standpoint.

Even though the voltage optimization concept has been around for more than a decade, effectively leveraging the advanced metering network, the detailed data it provides, and its ability to control devices to double and triple energy efficiencies requires focused effort.

"Utilities can obtain value by more closely regulating their voltage levels," says Todd Headlee, Managing Director, DVI. "Direct energy reductions occur without impacting the quality of service or the need for direct consumer interaction. It is a capital-efficient way of operating the distribution network." For one utility, this led to a voltage reduction of 40 MW and an estimated savings of $1 million in less than six months.[2]

[2] "Load Shedding with Voltage Management: Real Results, Right Now," Future.Ready., July 2012

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Another example of how utilities have obtained tangible benefits is by enhancing outage management. In one case, a large utility identified outage management system (OMS) gaps causing customer service problems, including unknown outages, delayed restoration and lack of timely information to share with consumers. A desire to improve customer satisfaction and system performance indices drove outage management to the forefront of the business case assessment. When integrated with OMS and workforce management systems, the detailed meter data delivered more accurate information about power restoration time, greater efficiency in restoring service and reduced the number of truck rolls. Consider the results of the utility's pilot

program. In just six weeks, the utility received more than 1,400 notifications signaling unusual events at smart meter locations. Of those issues that were outages, more than half were restored before they were reported by customers[3] — making it clear that AMI-OMS integration could yield significant benefits.

Landis+Gyr: Value-Added Consultant

In addition to consultants and systems integrators, leveraging the capabilities of a smart grid vendor is a viable option — one that offers the additional value of a broad industry view and lessons learned from successful deployments.

With experience in working on many successful smart grid deployments,

Landis+Gyr brings a broad industry view and knowledge to the new challenges utilities face today. By engaging a trusted smart grid vendor like Landis+Gyr early in the process, utilities can leverage insights to develop a business case that is qualified and validated.

"We have talked to customers about deployment strategies and smart grid domain on-ramps," says Bowers. "Our portfolio assists across the entire value chain — from distribution automation to AMI to meter deployment to demand response. We address key business case components and tailor solutions to meet each utility's specific smart grid objectives.

However utilities choose to tackle their business cases, it is clear that there is significant work ahead before fully realizing the value of their smart metering infrastructure. Utility managers will need to become adept at working across department silos, developing strong cost-benefit analyses and much more — to ensure a timely and successful implementation plan.

[3] "Mining Meter Data for Business Value," Future.Ready., July 2012