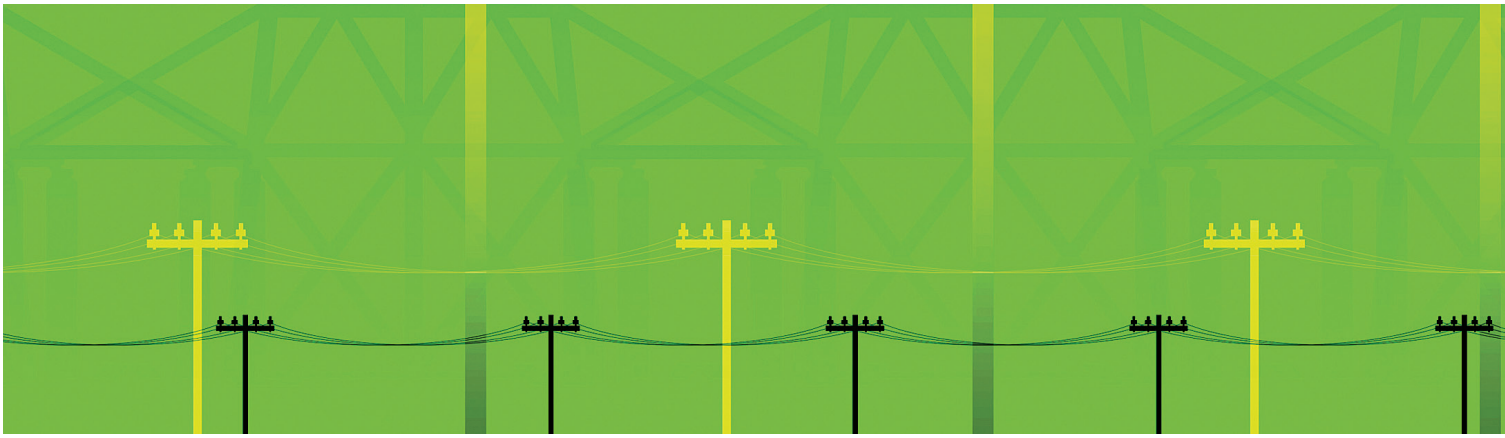

# Maximizing value from smart grids

**Utilities must actively reshape processes, systems and organizational models to capture the most benefits from smart grid deployment.**

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Smart grid deployments worldwide are expected to produce significant economic benefits through improved grid efficiency, operational cost savings, demand-side management, and the integration of distributed generation sources. Utilities able to adapt their processes, systems, and organizations will be better positioned to realize the full value of smart grid technologies; those that do not change their operating models will run the risk of hundreds of millions of dollars in cost overruns and failure of their smart grid projects.

Smart grid applications will be deployed in waves over the next 10 to 15 years, typically starting with an advanced metering infrastructure (AMI) deployment. A utility's approach to capturing the benefit from smart grid technologies will need to be grounded in a thorough understanding of how these technologies will change the way it operates.

## Three steps to success

For utilities to capture the business benefits inherent in a deployed smart grid, they will have to master three critical steps: 1) identify the business process changes needed to maximize the value potential of smart grid deployment; 2) ensure that new systems are in place to support those processes; and 3) manage the impact on people while building new skills in the organization. By demonstrating mastery through those three steps, utilities will also increase the

likelihood of securing regulatory approval for subsequent waves of technology deployment.

### 1. Identify the business process changes needed to maximize smart grid value

*What new business processes will be required? What changes are required to existing business processes?*

Utility leaders driving a smart grid program will need to be business process architects as well as technical engineers. Each benefit identified in the smart grid business case will demand business process changes. The utility will have to define specifically how existing processes will be altered or replaced to capture the opportunities to which it aspires. We have seen a number of utilities insufficiently define how their future operations will work with smart grid technology, leading them to underestimate the investment, overestimate the benefit, or leave themselves unprepared to capture the full value.

To avoid these pitfalls, utilities should adopt the best practice of systematically defininining the future-state processes that will deliver the expected impact. One utility for example identified three major benefits during its evaluation of an AMI system that would enable remote connection and disconnection of service.

- Reduced unbilled energy, by narrowing the gap between a move-out request and actual disconnection
- Fewer costly service truck deployments
- Lower costs in the call center, through provision of more self-service options and fewer billing errors.

This evaluation process helped the utility focus its organizational planning on defining how core processes would evolve to deliver the remote connection capabilities, including changes to the processes for customer moves, customer-generated or utility-generated disconnections, restorations of service, and new connections. Each of these processes was redesigned in light of the additional information and functionality available through smart meter technology.

The planning revealed that the utility had overestimated the net benefits from the smart meter implementation because it had not anticipated how automated disconnection would affect customer experience. Like many utilities, the company had previously used a threshold measured in months for maintaining service after a move request to avoid the cost of a service truck deployment. With remote disconnection, service could be shut off immediately, but analysis revealed that customers reacted negatively, and so the utility decided to reinstitute a threshold of several weeks to allow for new occupants to move in.

### 2. Ensure that new systems support future-state processes

*What new business requirements must systems now fulfill? How will the company manage the transition to new systems?*

Business requirements must be designed to support new processes. Those designs in turn must be detailed enough for the technology provider—software vendor, systems integrator, or in-house IT staff—to use as a foundation for detailed technical design. As part of this process, the business and IT groups must map

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functionality for each step of the process flow and identify the degree of automation appropriate for each step. The optimal software development approach might leave a few process steps without automation at the outset to minimize the risk, complexity, and cost of the initial deployment.

In general, utilities should define "transition states" that allow for increasing automation over time. An ideal future state might, for example, include a remote disconnection system, whereby customer service representatives could disconnect service from their terminals. As a low-risk interim step toward this ideal state, however, the utility might enable disconnections from a smart meter operations center. Such a step would capture the majority of the benefit (by eliminating a truck roll), while giving the utility a chance to test the technology without incurring the cost of integrating the functionality into call center software.

Discipline will be needed to assure that a utility does not become "stuck" in a transitional stage, but overall the need for risk mitigation in such a large and inherently complex combination of technology and process changes demands a staged approach.

### 3. Manage the impact on people and build new skills in the organization

*What will be the impact on employees? What additional skills will be required? How should the change be communicated and prepared for?*

Smart grid technology will have a dramatic impact on how employees perform their jobs and how customers interact with the utility. To capture maximum benefit, utilities will need to change the mindsets and behaviors as well as the skill mix of their workforce.

To address this step utilities must first identify every group affected by smart grid technologies and the magnitude and pace of the change. Then it should charter a group of "change leaders"—well-respected individuals from across the organization, who will support the adoption of the new technology and processes. These leaders should be responsible for explaining how the deployment of smart grid technologies will change different roles as well as for the training and mentoring needed to help employees adapt.

One utility, for example, concluded that its future-state process would require fewer field employees because smart metering would automate meter reading, prevent common billing errors, enable remote service connection, and

## The smart grid call center

A number of utilities have tested the impact of smart meter and other smart grid technologies on call center operations. One utility piloted time-of-use rates coupled with an energy conservation program and in-home displays with residential customers. The pilot yielded significant energy savings and capacity reductions, but it also caused a reappraisal of the expected call center benefits of an AMI program, as well as the skills required from their staff.

Deployment of smart meters should reduce bill-inquiry calls, as well as customer-initiated outage notifications and connection and disconnection calls. At the same time, new rate structures, energy conservation programs and support of in-home technologies will result in new call types, such as rate enrollment, in-home display support, and conservation coaching, all of which are typically more complex than bill-inquiry calls and have higher per-call handle times. In the pilot described in the previous paragraph, conservation-coaching calls on how to reduce energy consumption had average handle times of 8 to 15 minutes and required more highly skilled call center representatives. Taking into account the new call mix and call volumes, an increase of 12 to 15 percent in call minutes over the baseline was estimated for at least the first 3 to 5 years of the program.

Some utilities will also have to change the cost center mindset towards managing call centers. The telecom industry offers a useful analogy. High-performing telecom call centers segment calls by potential value and often set up dedicated "move queues" and "save desks" staffed by specialists to address high-value calls such as moves to a new residence and requests to terminate contracts. These specialists are highly trained in the techniques of product up-selling and cross-selling, and are given greater latitude to provide discounts to retain customers who are considering service cancellation. With the rollout of AMI and time-of-use pricing programs and the increasing importance of energy efficiency and energy conservation programs, utilities will need to evolve their call center operations in a similar fashion to ensure capture of all the benefits that will be out there.

more precisely detect the location of outages. The same company, however, saw that it would have to increase the number of call center employees and invest in upgrading their skills and training (see the box above, "The Smart Grid Call Center").

As a result, the utility planned for the transition of field staff into other roles within the company. This required close collaboration with the union and clear communication with front-line employees about how their jobs would be affected, what alternative roles would be available, and when the shift would occur.

Finally, the utility launched a broad-based communications and training program to inform employees and customers about how smart metering would affect them. For employees, this program involved a mix of "town-hall" style meetings, quarterly newsletters, and targeted training to ease the transition to the new operating model. For customers, the utility launched a broad education campaign to inform them about the installation process and how it will affect them, and also to give detailed information about the benefits of smart meters.

Deploying smart grid technologies requires a major investment of resources, but one that should yield significant returns. Those returns, however, will not meet expectations without careful planning and complete understanding of how the utility will redesign its business processes building on the capabilities of the new technology. The realization of the benefits and the changes for field and back-office personnel must be phased in to ensure a smooth transition to the future state.

Utilities that orchestrate this well will truly transform their operating models and prepare their organization and customers for an informed and interactive future.

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