

Helping Xcel Energy achieve high performance with a revolutionary and sustainable smart grid solution

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Minnesota-based Xcel Energy is a major natural gas and electricity provider in the United States. The company provides energy services to more than 3.3 million electricity customers and 1.8 million natural gas customers in eight Western and Midwestern states. In fiscal 2008, the company reported revenues of \$10 billion.

Business challenge

Accenture's ongoing High Performance Business research and the company's deep and varied experience reveal that top companies distinguish themselves from their peers in several important ways. Most notably, they establish and maintain a robust market focus and position. They develop hard-to-replicate capabilities. And they build a strong performance anatomy, which describes the cultural and organizational mindsets that drive a business to outperform. Recent Accenture research suggests that sustainability is emerging as an important avenue through which companies can create these building blocks of high performance. Specifically, companies that integrate sustainability into their business models and product and service offerings may have an edge over their competitors when it comes to growing revenue, reducing costs, improving efficiencies, managing risks, and enhancing their brands and reputations.

Xcel Energy is an excellent example of a forward-thinking business using sustainability as a driver of high performance. The company has long been committed to finding environmentally friendly ways to meet its customers' growing demands for electricity. This focus on sustainability is reflected in the fact that Xcel Energy has been the United States' leading wind energy provider for three consecutive years. The company is also listed on the Dow Jones Sustainability Index, which tracks the financial performance of the top 10 percent of leading sustainability-driven companies around the world.

Building on its reputation as a sustainability leader, Xcel Energy recently decided to launch an initiative that would address a host of environmental challenges facing the utilities industry and transform the way energy is delivered and managed in the United States.

The cornerstone of this ambitious plan involved developing and implementing a fully integrated "smart grid" power system within a mid-sized city in the utility's service territory. Xcel Energy believed an intelligent, auto-balancing and self-monitoring smart grid solution—which combines traditional with digital technologies, accommodates the increasing residential use of renewable energies, and integrates every aspect of the energy value chain—would make the production and delivery of electricity much more efficient and sustainable. Importantly, the smart grid would also incorporate the values, behaviors and intentions of various consumer segments into its customer-centric strategy. By enabling customers to actively manage their energy consumption by working with Xcel Energy to determine when, where, and how they used electricity, the program would help create brand preference, enhance customer satisfaction and drive high performance.



Xcel Energy recognized that developing and deploying the solution—dubbed SmartGridCity™—would be an extraordinarily complex and expensive undertaking. While other utilities were focused on developing specific components of the smart grid concept, such as smart meters, none had attempted to develop, much less deploy, a comprehensive digital grid solution on a large scale. Xcel Energy knew it would be setting a precedent that might ultimately reshape and redefine the utility marketplace. According to Ray Gogel, chief administrative officer and vice president of Customer and Enterprise Solutions at Xcel Energy, “the analog grid has served its purpose for the last half century, but the future requires an integrated, digital smart grid. SmartGridCity will be the nation’s first community with a fully integrated portfolio of smart grid technologies designed to offer environmental, financial and operational benefits.”

With so much riding on the smart grid solution, Xcel Energy teamed with industry leaders who agreed to not only provide guidance and funding for the project, but also supply the products and services needed to bring the smart grid vision to life. This group, known as the Smart Grid Consortium, included Accenture, Current Group, GridPoint, OSIsoft, Schweitzer Engineering Laboratories, SmartSynch and Ventyx. As part of the consortium, Accenture serves as trusted business advisor to Xcel Energy, capable of overseeing the integration of the SmartGridCity’s many disparate components and helping to drive environmental, financial and operational benefits. Accenture was the logical choice to fill this role. The company offered deep skills in all aspects of systems integration, industry insights and a proven record of helping utility companies—including Xcel Energy—position themselves for long-term success. In addition, Accenture brought world-class strategic capabilities

aimed at helping companies establish not only a corporate direction based on sustainability, but also a growth strategy that would lead to high performance.

How Accenture helped

Accenture assembled a team with expertise in a variety of areas—including management consulting, energy transmission and distribution, information management, customer relationship management, systems integration and technology consulting—to work with other consortium members to create a clear smart grid vision and an approach to deployment within the pilot city of Boulder, Colorado. In this four-month planning phase, Accenture played a major role in helping to define several key solution features, including automated energy distribution and customer interfaces.



Accenture assumed specific responsibility for developing two proof-of-concept solution components that would allow Xcel Energy to coordinate a faster, more effective field crew response and, as a result, reduce its carbon footprint. One of these projects involved building a custom-built outage verification tool that enabled the grid's communications infrastructure to interact remotely with meters and transformers to determine power status within seconds. The second project involved building an enhanced dispatch dashboard that integrated information from existing systems and provided it in a single portal. The two successful and highly innovative projects are now allowing Xcel Energy's dispatch personnel to quickly understand the existence (and cause) of an outage and determine and carry out appropriate actions.

Towards the end of the planning effort, Xcel Energy had an extraordinary opportunity to showcase the SmartGridCity concept at both the Democratic and Republican National Conventions in Denver, Colorado, and St. Paul, Minnesota, respectively. These conventions, which officially nominate the major political parties' candidates for the US presidency, draw huge numbers of local, state and national officials, as well as media from around the world. A cross-functional team consisting of members from Xcel Energy, Accenture and the other consortium partners, created a one-of-a-kind mobile demonstration center, highlighting the concepts and benefits of smart grid in the utilities industry. Housed in an 8-foot by 40-foot moving van, the center contained three sections. The first provided an overview of the current utilities industry. The second displayed all the various hardware components used to bring the smart

grid concept to life. The third section provided an innovative wall display developed by Accenture Technology Labs and based on the Accenture Interactive Network—a new technology that features multi-purpose, interactive displays and fosters collaboration by allowing multiple users to simultaneously manipulate content. Within this section, a state-of-the-art touch-screen environment allowed participants to run various scenarios to understand how smart grid technologies improve energy reliability, help consumers manage their energy dollars, and make it possible for users to tap alternative sources of energy such as wind and solar to meet their energy demands while also protecting the environment.

Today, Xcel Energy's Smart Grid Consortium is implementing the SmartGridCity concept in Boulder, Colorado, a city with a population of approximately 100,000 people. This effort includes



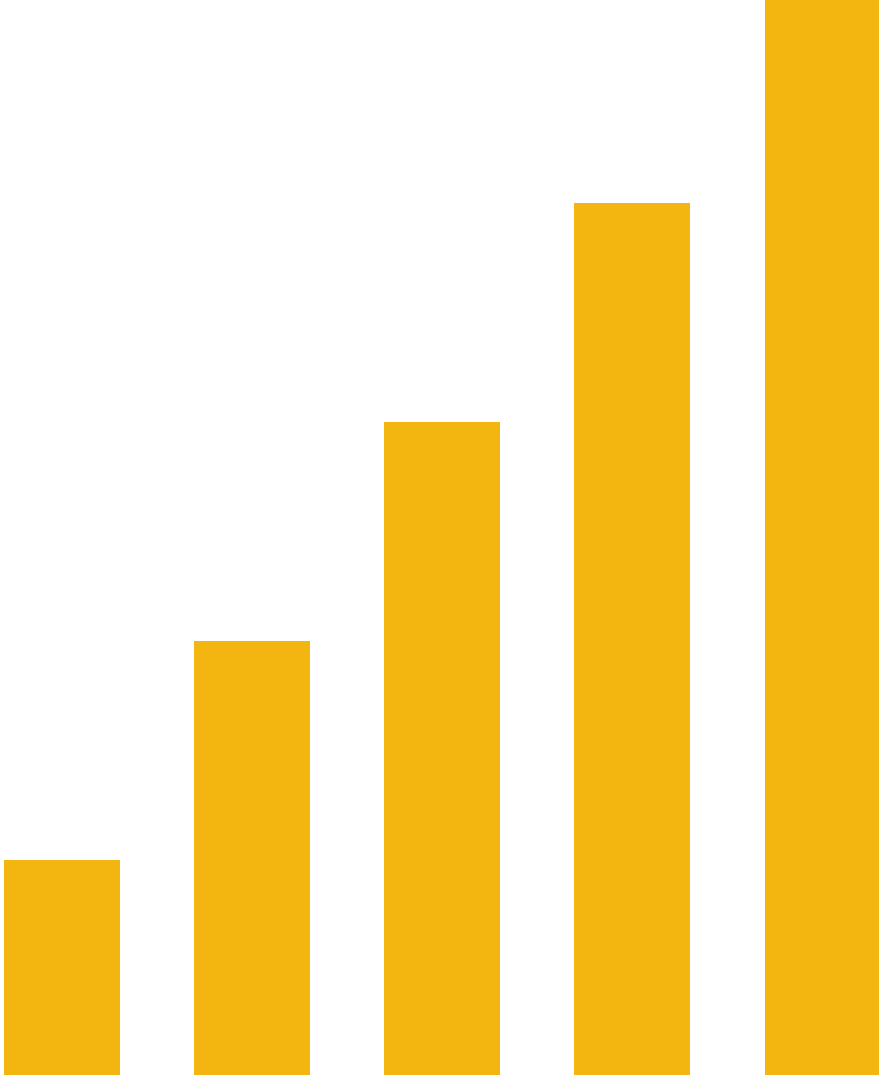
installing the distribution and communications networks, the in-home automation technologies and the smart meters, providing Web portal access to all future customers of SmartGridCity, and launching a program that integrates plug-in hybrid vehicles, solar and wind cogeneration sources onto the smart grid. In this critical phase of work, Accenture is helping define additional requirements for SmartGridCity and is specifically responsible for integrating data flows and grid system analytics that will enhance Xcel Energy's ability to deliver electricity and serve its customers.

The consortium is relying heavily on Accenture assets to create the "intelligence" that powers the SmartGridCity solution. For example, Accenture Delivery Methods is providing a standard approach that allows the

team to deliver a reliable and consistent implementation solution. Even more important is the patent-pending Accenture Intelligent Network Data Enterprise solution set. The first solution of its kind in the utility industry, the Intelligent Network Data Enterprise comprises a number of innovative assets and methods, including comprehensive reference architecture, open standards-based data transport and storage architecture assets, end user transactional analytics, and a process and blueprint for smart grid development. In creating the Intelligent Network Data Enterprise, the Accenture team is tapping the expertise of the Accenture Global Delivery Network and, specifically, the deep technical skills of resources from the Accenture Delivery Center in Bangalore, India.

High performance delivered

With Accenture's participation in the Smart Grid Consortium, Xcel Energy is well on its way to deploying the first SmartGridCity solution in the world. When the ground-breaking infrastructure is unveiled in 2009, it will demonstrate how innovative technologies can come together to provide a range of digital services desired by utility consumers, while also supporting the ever-increasing demand for energy. For example, the smart grid's dynamic communications network and "smart" substations will provide real-time, two-way communication, which will, in turn, enable remote monitoring and optimized system performance. The introduction of thousands of in-home control devices will allow residential consumers to fully automate their energy use. And the integrated smart



grid infrastructure will support a variety of fuel sources, including electric cars, wind turbines and solar panels. These sorts of advances are just the beginning. The smart grid is expected to support additional capabilities in the future that consumers, consortium members, and the industry cannot yet imagine.

A regional finalist in Accenture Management Consulting's global Ken Ernst Innovation Award competition, the SmartGridCity project is expected to deliver significant benefits for:

Xcel Energy

The utility believes the smart grid has the potential to generate improvements in service reliability, substantial reductions in the amount of power lost due to traditional grid inefficiencies, and significant decreases in residential peak electricity demand. By relying on advanced, integrated metering applications, the utility looks forward

to improving its meter reading accuracy and efficiency, its revenue assurance capabilities and its call center performance. Together, these improvements are expected to generate significant operating cost savings each year.

Xcel Energy's consumers

Once the smart grid is operational, Boulder residents will be able to manage their energy consumption more wisely and take greater advantage of energy-saving incentives, renewable energy sources and smart appliances (which slow down or shut down when electricity demands—and costs—are highest). Consumers will have access to online tools for tracking their own energy use and making changes that better fit their lifestyle, environmental philosophy and budget. They will also eventually be able to activate real-time pricing programs that lower the cost of electricity when overall

grid demand is low. Finally, because the grid will be more reliable and self-monitoring, power outages are expected to decrease and—when they do occur—be of shorter duration.

Anyone interested in building a sustainable world

The smart grid will help address the issue of climate change by allowing consumers the ability to conserve energy, tap renewable forms of energy and use energy more wisely. Such actions will ultimately allow Xcel Energy to retire some of its existing power plants. Additionally, if the smart grid solution enables consumers in Boulder to reduce their electricity usage by just 2.5 percent, Xcel Energy will be able to cut its carbon emissions by more than one million tons annually. Decreasing its line losses by 20 percent will eliminate an additional 500,000 tons of carbon dioxide each year.



In short, through its involvement in the development of SmartGridCity, Accenture is helping Xcel Energy firmly establish itself as a utility company committed to making sustainability a cornerstone of its growth strategy and its corporate direction. According to Dick Kelly, chairman, president and chief executive officer of Xcel Energy, "We are on the verge of a significant transformation in an industry that has seen relatively little change during its long history. I'm excited to work with Accenture and all of our consortium partners to reshape and define the future of our marketplace." Accenture, for its part, is equally excited to work with such a visionary company striving to achieve high performance, carbon neutrality, and a secure and sustainable energy future.

