VISION STRATEGY REALITY

Transforming the electric industry

+ GREAT RIVER ENERGY DISCUSSES COOP PROGRESS

By Jim Jones

DESPITE CURRENT ECONOMIC WOES, THE FUTURE OF THE ELECTRIC industry is still filled with optimism. The intelligent utility will benefit the industry and society in many ways. Grid operations will be more efficient, capital investments will be deferred and informed customers will conserve more energy. A transformation of this magnitude will require significant time, funding and effort, which all have to come one step at a time. Electric cooperatives have a good start on making this transformation, but they still face challenges.

EVOLVING TECHNOLOGY WILL DO ITS PART

The intelligent utility will require integration and interoperability across multiple functions and organizations. This includes electric functions of supply and delivery, greater interaction with customers, and participation in power and energy markets, which will no doubt involve much more information, with the input data much more granular than in the past. Of course, digital technologies can help, with communications as the backbone, accessible data repositories and applications providing information and automation.

Several generation and transmission cooperatives have implemented enterprise solutions that meet their own needs and will also help their distribution members prepare for the future. Great River Energy has implemented an IP-based communications network which connects all substations and is also available for member cooperatives. Most members do not have their own supervisory control and data acquisition (SCADA) system, but instead receive real-time telemetry services from Great River Energy. The communications network simplifies those processes and enables advanced applications to enhance system sizing and distribution automation.

Several generation and transmission cooperatives, including Great River Energy, have a load management system that benefits individual member cooperatives and the membership as a whole. The systems help defer capacity needs, reduce high-priced energy purchases and improve load factor. Growing emphasis on energy efficiency, conservation and demand response urges the transition from direct load control programs to more comprehensive demand side management programs.

With increasing numbers of intermittent renewable sources, even the energy supply patterns are changing. There is a widening gap between peak demand and average demand. There is a similar gap between peak prices and average prices. There are strong economics to manage supply and to manage demand. There are incentives for market arbitrage between on-peak and off-peak prices.

INSPIRATION WILL DRIVE FURTHER INNOVATION

But we have to look much further than just technology and inspire transformation on other fronts as well. This is an opportunity to revamp our business objectives and processes.

For example, utilities are transforming their relationships with customers, for the purposes of attaining engagement and more frequent interaction with them. It will no longer be a clean provider-consumer relationship. The relationship will be a business partnership, with utilities playing a new role to help customers understand and control how much electricity they use, when they use it and essentially to help them manage their energy costs. Customers' access to their billing and energy consumption information will be increasingly important.

THIS WILL BE CHALLENGING

These transformations call for a comprehensive undertaking, which can be especially difficult for smaller utilities such as cooperatives. They may not have the financial means, customer base, business process focus or technical resources to acquire and support complex systems, let alone the ability to integrate through all the other business systems they have. This will not be accomplished through one grand project, but rather through several smaller efforts that build upon one another. Even then, coordinating the smart grid initiatives among multiple cooperatives, mitigating risks of technologies and managing the investments needed in a collective manner may be particularly challenging.

COMPANY TRANSFORMATION

The next three articles focus on how utilities are making smart grid/intelligent utility initiatives a company wide effort. Jim Jones discusses the intelligent utility vision from a coop perspective. Roger Gray focuses on strategies for developing a vision and plan. Then Michael Lamb discusses how Xcel Energy got all of its key stakeholders involved in its initiatives.

Jim Jones

COOPERATIVES HAVE A FIRM FOUNDATION

Electric cooperatives have a good start in a couple of important areas. Distribution cooperatives traditionally have strong relationships with their customers. Also, they already collaborate and operate with other organizations for the delivery of electricity. Generation and transmission cooperatives provide wholesale services and interact with markets, while distribution cooperatives provide retail services and interact with customers.

Sharing systems and investments among cooperatives is not a new notion. They have cooperated in both areas in the past with both good and bad results. The Cooperative Research Network has a study under way to look at shared systems among cooperatives and where they may make sense and to provide guidance on the opportunities and risks of acquiring and using shared systems.

ONE THING IS FOR SURE

The future is on its way. The time for us to think big is now. Think big with ambition and optimism to plan for the long-term future. But to manage the enormity of this transformation, start small. Start small with prudence and agility to deliver real results for short-term success.

Jim Jones is a vice president and chief information officer of Great River Energy.

Get involved

+ THE "WHO" OF INTELLIGENT INITIATIVES

By Roger Gray

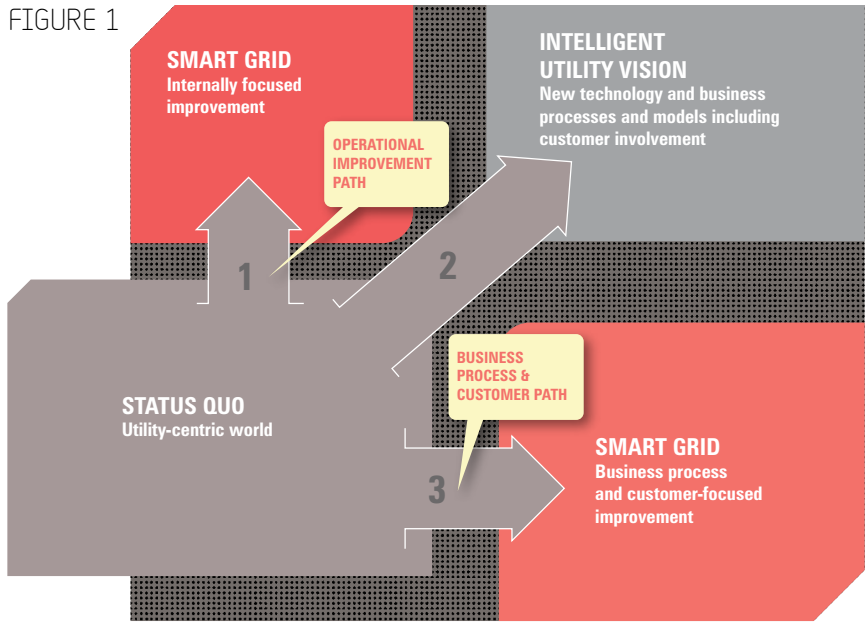
HOW YOU ORGANIZE TO IMPLEMENT YOUR INTELLIGENT UTILITY VISION is more important than the smart grid system you pick. In fact, neither the intelligent utility nor the smart grid are single systems. Rather, intelligent utility is a vision implemented by strategy, business process, and system change. *Figure 1* depicts options for moving from status quo to an intelligent utility. The left-hand side of the diagram (*path #1*) is the operational improvement path that was traditionally a transmission and distribution domain. This is what we've done for the past century—faster, cheaper, better. Each utility organization historically improved its results in a silo fashion. The path from left to right along the bottom (*path #3*) is the path that focuses on changing business processes, planning systems, and adding customer involvement. Intelligent utility is a strategy that coordinates operational improvement paths along with changes to business processes and customer involvement. Without a vision, you risk developing a series of uncoordinated *#1* and *#3* projects and initiatives.

So how do we get on the *path #2* in *Figure 1*? The wrong questions are: Who is in charge of intelligent utility and smart grid? What system do we pick? The right questions are: Who needs to be involved in intelligent utility and smart grid? How do we develop a shared intelligent utility vision and plan?

WHO NEEDS TO BE INVOLVED IN INTELLIGENT UTILITY AND SMART GRID?

Involvement in the intelligent utility effort transcends the utility and goes beyond its walls. Utility departments, such as operations, planning, transmission,

FIGURE 1



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