LYNN ADAMS AND PATTY BIGNER

Adams

Bigner

A "Utility for the 21st Century"—Creating a Path Toward Sustainability

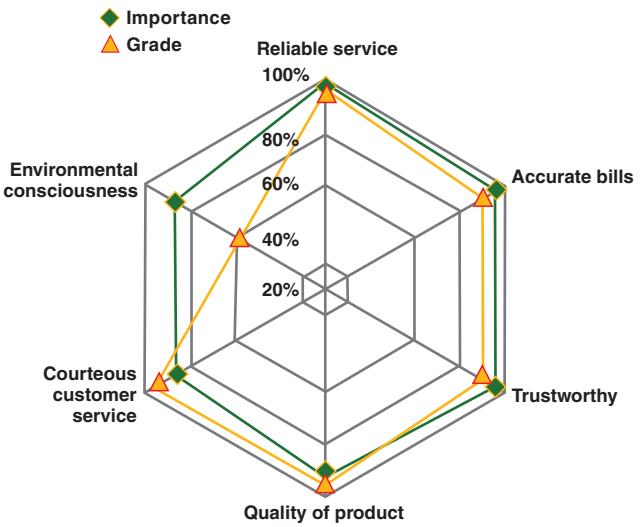
Fort Collins Utilities (FCU), a municipally owned, multiservice provider of water, wastewater, stormwater, and electric services in Fort Collins, Colo., has made a significant goal to transform itself into a "Utility for the 21st Century."

Fort Collins is home to Colorado State University and approximately 137,000 people. Located along the Front Range of the Rocky Mountains, about 60 mi north of Denver, its political and business leaders have long embraced a strong resource and environmental stewardship ethic.

Although FCU has consistently met customer needs while maintaining assets and providing reliable service at a low cost, utility leadership wanted to further build on that foundation. FCU decided to move toward meeting needs in a resource-constrained environment where the drivers—from water conservation to greenhouse gas reduction—were growing stronger. Not only were utility leaders interested in this new focus, but the Fort Collins mayor, city council, and community supported this direction.

The Utility for the 21st Century initiative grew out of this need to continue meeting customer expectations in the context of limited resources, both natural and financial. In keeping with business best practices, FCU's entire effort was data-driven and based on close calibration with internal and external stakeholders. One key element of the utility's plan was incorporating related questions into its biannual customer satisfaction research, which revealed the need for an enhanced focus on sustainability. From that customer data–driven orientation, the next step was alignment with the existing community-at-large direction—for example, the existing city vision, mission, and master plan. Once the overall objective was set, the logistics included establishing a core sustainability team and engaging an advisory panel of external stakeholders to provide perspectives to FCU as well as to become ambassadors to the community. Once the foundation was set, the rest of the strategy elements were developed into a fully actionable plan including such elements as goals, key performance indicators, strategies, and tactics, all of which were based on clear assignments, budget allocations, and timelines to close the accountability loop.

FIGURE 1 The green gap



In 2006, FCU hired the business consulting firm R.W. Beck to conduct an in-depth survey of its customers. A primary finding of this survey was the identification of a "green gap." Research revealed that FCU customers thought the utility was doing more related to environmental consciousness and conservation than was actually the case (Figure 1).

FCU was faced with several challenges—limited resources, increasing costs, new water storage capacity requirements, and growing criticism of coal-based electric generation. To remain true to its mission, FCU needed to balance all of these issues within the context of being a developer of natural resources and a steward of natural resources. To develop a plan that matched the changing times, Fort Collins City Manager Darin Atteberry and General Manager Brian Janonis hand-picked a core sustainability team. This team included 22 employees, managers, and supervisors who worked with senior management, external stakeholders, and R.W. Beck consultants. The team's primary goal was to move away from the intangible concept of sustainability and create a purposeful and well-structured plan to guide FCU into the future.

To guide its decision-making processes, the team created the purpose statement: "Inspiring community leadership through reducing environmental impact while benefiting customers, the economy, and society." This addressed three critical components of the sustainability plan—triple-bottom-line thinking, outward orientation, and a model of leadership that would inspire the community. Triple-bottom-line thinking refers to integrating economic, environmental, and social considerations. Input from the advisory panel encouraged FCU to take on an even stronger leadership role, commensurate with its role in the community; this was reflected in the final purpose statement that was adopted and is guiding the sustainability implementation today.

The baseline audit, which used Global Reporting Initiative (GRI) guidelines for measuring sustainability performance, reviewed all of FCU's service areas and administrative functions. GRI is the global standard and most accepted framework for sustainability reporting. As a registered organizational stakeholder in GRI, R.W. Beck assisted in sorting through the voluminous set of potential measures to find the most appropriate benchmarks for the future. The economic, environmental, and electric utility metrics constituted the standard portions in addition to a supplemental section developed to capture water/wastewater utility metrics. For example, in addition to economic and social metrics that overlap all services areas, 37 water/wastewater-specific utility metrics that contribute to FCU's baseline metric were included. For example:

- daily water use per capita,
- processes and methodologies used to assess existing and future demand and supply;
- long-term planning for securing water resources;
- approaches used for peak management and peak shaving;
- amount of demand or conservation reductions;
- measurement and tracking of system losses and procedures used to minimize losses;
- annual evaporative losses from reservoirs and canals;
- use of automated meter reading technology;
- procedures to ensure all drinking water standards are met;
- use of dual distribution systems for potable and nonpotable supplies;
- commitment and efforts to fully use local water resources before importing water supplies from other areas;
- partnerships with rural communities to develop water resources in a responsible and respectful manner;
- participation in projects of a regional nature;
- amount of electricity required, on average, to deliver 1 mil gal of treated water; and
- water conservation programs and their effectiveness.

Next, the core sustainability team identified four of FCU's most urgent sustainability issues: (1) addressing a cultural transformation that embeds sustainability throughout the organization, (2) educating and motivating stakeholders to support sustainability efforts, (3) incorporating triple-bottom-line business practices, and (4) empowering, engaging, and supporting FCU's employees to achieve sustainability goals.

These issues became the central goals and formed the foundational framework for the entire sustainability plan. In addition, a set of strategies and key performance indicators (KPI) were identified for each goal to measure progress. The KPIs were formulated on the basis of annual GRI measures, showing steady progress against the baseline audit and progress toward meeting internal goals. The KPIs for three of the goals were more data-driven and relied on annual surveys of employees, external stakeholders, and customers. The KPIs for the triple-bottom-line goal were more comprehensive and tried to capture the crux of the sustainability efforts.

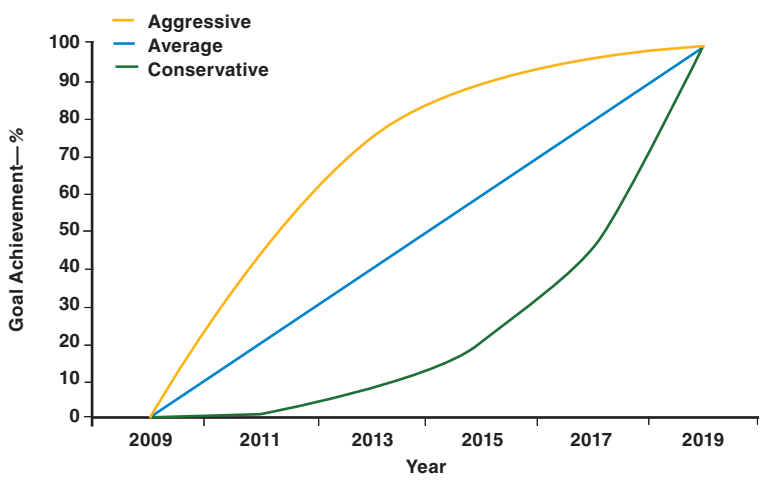
With goals established, the team turned to identifying and prioritizing potential sustainability programs. The team developed a list of all current sustainability-related programs—including water and energy programs—and then developed a list of potential new pro-

What Is the Value of a Robust Optimization Model?

An optimization model carries out a simultaneous evaluation of a variety of factors to yield an optimum solution. In the case of Fort Collins (Colo.) Utilities, the factors fed into the model included sustainability goals in areas such as water conservation, energy efficiency, and renewable portfolio standard requirements as well as a series of boundary conditions, such as limitations on rate increases, initial customer costs, and other constraints. The more robust an optimization model is in its ability to run a variety of scenarios based on varying inputs, the stronger its analysis. Programs can be added or subtracted, parameters and assumptions can be modified, and implementation can be slowed down or sped up to find the new optimum path to meet previously established objectives. One of the key benefits of this type of model is that it creates a tool for dialog and strategy development that can be used in discussions with both staff and governing bodies.

During the analysis the model can highlight the pros and cons associated with each potential scenario—factors that enter into the decision-making process. For example, Figure S1 shows the difference between aggressive and conservative paths.

FIGURE S1 Comparison of aggressive and conservative paths



The aggressive path

- establishes the trend that is most likely to reach the long-term target,
- aligns with more ambitious stakeholder demand and policy direction,
- takes advantage of accelerated schedule requirements required for American Recovery and Reinvestment Act (ARRA) funding, and
- typically results in higher overall costs.

The conservative path

- creates ability to take advantage of future technology developments,
- aligns with more conservative stakeholder demands and policy direction,
- results in a higher likelihood of not achieving long-term goals,
- may not take full advantage of ARRA funding potential, and
- typically results in lower costs across the board.

A robust optimization model provides the technical criteria on which to base decisions—thus taking potential arbitrariness out of the analysis—and provides ongoing insight to evaluate alternatives for meeting goals as well as the optimum rate at which to proceed. Output can also be used to concentrate efforts on the most effective areas to meet goals. Bottom line, such a model provides a tool that can quickly provide solid, repeatable information to support decision-making.

grams that might help FCU meet its goals. By evaluating and quantifying the market potential and cost-effectiveness of each of these programs from a triple-bottom-line perspective, the team narrowed the list down to 20 critical programs. They then used R.W. Beck's proprietary optimization model to run scenarios and identify the most effective programs to resolve the four key issues that were used as a basis for optimization analysis (see the sidebar on page 48). Some of the key programs that emerged from FCU's analysis that had the highest payoff potential include advanced metering infrastructure, commercial and residential water and energy efficiency programs, and green buildings programs. For example, a small hydro-electric project emerged as promising and is being further evaluated for implementation.

Once key programs were selected, the core sustainability team focused on the final development step—building a detailed implementation plan to ensure continuous progress and accountability. Guided by its vision of enterprisewide sustainability, FCU completed a detailed sustainability plan in 2009. The plan established various methods to support implementation, so FCU was primed for success when it launched its first initiatives.

FCU was also the first municipal combined utility to file a sustainability report with the GRI, is an international organization that outlines a rigorous protocol and accountabilities to support worldwide sustainability. FCU is now well into implementation for sustainability and has recently published its second annual GRI report.

The sustainability plan dovetails with a wide variety of other local initiatives, including the climate action plan, the water policy and climate adaptation efforts, the recently adopted energy plan, a commitment by Colorado State University to become carbon-neutral by 2020, and economic development strategies being pursued by the city of Fort Collins.

Looking back on the development process, other utility managers can glean insight on how to succeed with sustainability planning. Decision-makers need to understand that a true enterprise-wide sustainability plan will take significant commitment, but with a dedicated team and the right tools, it can be accomplished in utilities of all sizes. Utility managers must also stay true to their organization's overarching strategic objectives and work to integrate sustainability into the utility's culture. Success to date for the "Utility for the 21st Century" initiative is the result of its basis in strategy and customer market research, conducting technically rigorous analysis, and ending with a detailed, long-term implementation plan. All of this speaks to an organization and leaders with a commitment to true community stewardship.

—Lynn Adams is vice-president at R.W. Beck, where she leads the firm's utility business consulting initiative. She can be reached at ladams@rwbeck.com or (303 299-5200. Patty Bigner is customer and employee relations manager with the Fort Collins Utilities.