

*Commercial/Industrial New Construction
Exemplary Program*

***Energy Design Assistance
Xcel Energy
The Weidt Group***

PROGRAM OVERVIEW

Energy Design Assistance seeks to achieve demand and energy savings by working with owners and design teams to implement cost-effective bundles of energy efficiency strategies. Xcel Energy pays financial incentives based on the peak demand saved by implementation of these design strategies. The savings are achieved through an energy design assistance process. The design assistance consulting is open-ended; strategies are not restricted simply to installation of approved components and technologies.

The program began in 1993 under the name *Energy Assets*. The program has sought to transform “traditional” design team approaches by encouraging a “whole building” or “integrated design” by providing new information to designers and owners early in the design process. This information is primarily in the form of results from DOE2 computer simulations of energy-saving strategies. In addition, the designers, owners, and contractors are provided information of how strategies need to be implemented in the design. Subsequent to the designers’ and owners’ decision to implement a set of strategies, they are guided through the documentation process to ensure that the selected strategies are designed into the building, and after initial occupancy, the verification portion of the program provides information about how far the strategies have been implemented and how well they perform. For each building, approximately 70 alternative strategies are evaluated without compromising the design aesthetics and objectives.

A barrier to this type of design approach has been the extra up-front costs for the additional analysis. Xcel Energy’s program overcomes this barrier by funding the consultant-based analysis and verification processes. The utility also compensates the architectural and engineering team for its participation in the design process. Finally, Xcel Energy provides financial incentives for implementing cost-effective strategies. The incentive amounts are based on the peak kW saved compared to a Minnesota Energy Code level design (the baseline for all new construction).

PROGRAM PERFORMANCE

By early 2001, the program had addressed over 44 million square feet with an average energy savings of 28% compared to the local energy code, yielding an estimated annual savings of \$17 million in operating energy costs and reducing peak demand by 66 MW. These savings were achieved by providing design assistance to 220 buildings during the period 1993–2001. Designers and owners who have participated in the program have implemented an average of ten recommended design strategies in each building project.

The *Energy Assets* process is now standard practice for many design firms, with a steady increase in the number of buildings served by the program. Through repeated interaction with the program, the design and client communities have also improved their baseline design. The program is reaching more than 50% of the market for buildings greater than 80,000 square feet—an average of 8–12 million square feet per year. The design assistance process has evolved around the dominant building types of the 1990s—namely, offices, schools, and labs. The program has worked with more than 80 architect and engineering firms, and 17 of these firms have participated in more than five projects each.

LESSONS LEARNED

The key to the success of this program is the open-ended, flexible consultant process that is able to influence key building design decisions early in the process. The program offsets some of the extra up-front “soft costs” of additional design team time and analysis that yield long-term energy and other cost savings for building operation and maintenance. The program also benefits from its relatively long program life, which has given the program time to grow and mature, as well as given it much needed credibility and trust among the design community of architects, engineers, and contractors. The program acts as a successful catalyst by its strategic intervention early in the design process to work as a key ally and partner to the design team.

PROGRAM AT A GLANCE

Program Name: Energy Design Assistance

Targeted Customer Segments: Commercial and institutional new construction

Program Start Date: 1993

Program Participants: Since its inception in 1993, the program has been involved in 220 building projects, totaling more than 44 million square feet.

Approximate Eligible Population: For the period 1997–2000, the average floor area constructed in Xcel Energy’s service territory served by the program for projects 80,000 square feet and greater was about 16 million square feet.

Participation Rate: The program is reaching more than 50% of projects in its principal target market—more than 8 million square feet per year.

Annual Energy Savings Achieved: Program total to date is estimated to be 174 GWh of electricity and 414, 400 million Btu of natural gas.

Peak Demand (Summer) Savings Achieved: Program total to date is estimated to be 66 MW.

Budget

Year	Utility (Program) Costs
2001	\$4.4 million
2002	\$4.0 million
2003 (projected)	\$6.8 million

Funding Source: *Conservation Improvement Program* funds through customer rates

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