



Business Case Study:

Verizon Communications

Background

- Type of Business: Telecommunications provider
- Location: Throughout California
- Size: 1,078 buildings; 8.1 million square feet; 12,500 employees in California
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Summary

The “California Energy Crisis Team” was created to reduce the energy consumption at Verizon to help prevent rolling blackouts. The goal was to reduce energy use in 2001 by 5 percent compared with 2000 usage. Projects included a statewide delamping program; a retrofit program to upgrade or replace inefficient lighting and air conditioning equipment in 72 major buildings; and a communication program to raise conservation awareness among employees. Verizon California realized an 8 percent reduction in energy in 2001 and a permanent annual reduction of 49.7 million kilowatt-hours (kWh). The reductions not only benefited Verizon, but also supported California and Verizon's ongoing efforts to reduce air pollution.

Referenced in Business Guides:

- #1, “Reduce Energy Use in Commercial Facilities Through Conservation Measures and and Efficiency Improvements”
- #3, “Target Business Employees for Energy Conservation in the Workplace”

Plan

The Corporate Real Estate team gathered building energy usage data for all buildings from an in-house energy-management database. ENERGY STAR® helped Verizon gather data to benchmark Verizon’s administrative facilities at 145 locations in California. ENERGY STAR® provided information about general energy conservation and specific energy conservation measures. ENERGY STAR® also

helped the company develop an internal communication plan, including ENERGY STAR® graphics.

At the beginning of 2001, Verizon asked approximately 200 real estate operations managers to select two to three of their least efficient buildings and target them for a 4 percent overall reduction in energy use.

Based on an analysis of Verizon’s energy usage data, the Departments of Corporate Real Estate and Corporate Public Relations decided to implement no-cost and low-cost projects first, followed by projects with less than a three year payback in reduced energy costs. Corporate Real Estate oversaw the projects.

The goal was to reduce energy use in California by 5 percent and save approximately \$1.5 million. Verizon invested approximately \$4.3 million using operating lease funding.

Verizon also adopted a procurement policy that specified energy-efficient equipment. The Verizon Energy Board of Directors voted in July 2001 that the purchasing team would include energy efficiency as a component in all requests for proposals. In 2001, members of the Energy Board met with numerous telecommunications equipment vendors to begin setting Verizon's requirements for the future manufacture of energy-efficient telecommunications equipment.

Projects were to be implemented as soon as possible and completed by the beginning of the third quarter of 2001. Most were completed in the early summer.

Programs: Conservation

✓ **HVAC:** Raised temperatures of the air conditioning system.

✓ **Lighting:**

- Removed 40,000 lamps in most facilities.
- Installed lighting control sensors in hundreds of facilities.
- Disconnected unnecessary lighting in all facilities.
- Posted signs on light switches reminding employees to turn off lights.

✓ **Office equipment/appliances:** Converted kitchen appliances in the Verizon California headquarters facility from electric to gas. Tuned equipment runtime based on employee work schedules.

✓ **Alternative and/or renewable energy sources:**

- Fuel cells: Verizon was awarded with more than \$4 million in grants from state and federal agencies for fuel cell projects. The company submitted a proposal to the U.S. Department of Defense to install fuel cells at Vandenberg Air Force Base on the central California coast, 50 miles south of San Luis Obispo. The fuel cells will provide clean, highly reliable power for a military installation.
- Power cleansing: Verizon is studying an invention that provides power cleansing in three buildings (outside of California). 2001 was spent gathering detailed data on the unit. A detailed evaluation was expected to be completed in 2002. The device is expected to show overall energy reductions between 5 and 10 percent.
- Thermal energy: Verizon is studying a heat pump system that will extract thermal energy (hot air) from telephone equipment spaces that require air conditioning and use that thermal energy to heat its standby diesel engine blocks. This is expected to save on air conditioning and heating.

Programs: Efficiency

✓ **HVAC and system controls:** Upgraded air conditioning equipment in 16 major buildings, including installation of variable speed drives (VSDs) on air conditioning units and outside air economizers.

✓ **Lighting:**

- Replaced T12s with 51,657 T8s and 20,917 electronic ballasts.
- Installed 1,739 motion sensors that automatically turned off lights when they sensed no movement over a period of time.

✓ **Motors:** Installed a number of energy-efficient motors.

✓ **Weatherization:** Installed revolving doors and applied weather stripping to doors.

Programs: Employee Outreach

✓ **Team work:** Developed a companywide “Energy Champions” program, which asked employees at different locations to take responsibility for educating and motivating co-workers to turn off lights and unused equipment.

There were 12 Energy Champions in California (out of 207 total champions in 135 locations and 25 states).

Energy Champions and real estate operations staff had access to a variety of printable information and signage via Verizon's energy website for use in their employee awareness and education efforts. Real estate building managers received Web-based energy information, frequent e-mails, telephone calls and monthly conference calls to share information and ideas.

Real Estate Team Energy and field operations managers compiled a guidebook on how to evaluate facilities for energy efficiency and communicate the conservation message to employees. The guidebook was sent electronically to building managers.

Verizon's low-cost, all-employee awareness campaign consisted of:

- Frequent updates on conservation progress,
- Energy letters from senior vice presidents,
- An energy website with an interactive discussion forum,
- An energy newsletter,
- “Save Energy” buttons and posters,
- Large billboards with environmental messages and the ENERGY STAR® logo in major population buildings, and
- An energy hotline to gather suggestions and concerns from employees.

Energy Champions were recognized biannually with a certificate and a Verizon Excellence Award (VZ's top award) nomination. Their efforts were also publicized in the “SAVE” newsletter and, when possible, in the corporate newspaper, the “VZ.”

Programs: Public Outreach

✓ **Communications:** Issued press releases, made presentations at conferences and awards ceremonies and worked with the U.S. Telecom Association to promote the benefits of ENERGY STAR®, in an effort to raise awareness of energy issues and the positive results of energy management.

Budget and Finance

Verizon's budget for the 2001 programs was \$4.3 million. Due to a lack of capital, projects were paid for through use of operating lease funding made available from Verizon Credit. Operating lease payment terms were structured so that monthly energy cost savings exceeded lease payments, yielding immediate positive cash flow, extending

through lease term completion. The net cash savings stream will provide positive net present value throughout the estimated useful life of the assets financed. Federal accounting guidelines that define operating lease parameters were strictly adhered to in development and implementation of the lease-funding program. Corporate Real Estate administered the funds.

The following are the costs of each program and the applicable rebates:

- Lighting and A/C upgrades: Cost \$4.3 million; Received \$50,000 LADWP rebate (approximately).
- Delamping: No cost.
- Energy communications/awareness: Less than \$5,000; No rebate.
- Maximized use of landfill gas: No cost; No rebate.

Results

Verizon expanded its energy data management system in 2001 to include 20,000 more energy bills per month (which represented the integration of all energy bills in the former GTE territory). The system provided planning, tracking and forecasting abilities for all energy use except for motor vehicle and generator fuels. Energy managers were able to use the Web-based system to gain valuable data to more effectively manage their locations.

Verizon in California exceeded expectations in 2001: 1,078 buildings realized an 8 percent reduction in energy, \$2.14 million in financial savings and a permanent annual reduction of 49.7 million as a result of their energy projects, energy procurement and communications efforts. The goal was to reduce energy use by 5 percent and save \$1.5 million. Some additional accomplishments in 2001:

- Joined EPA Climate Leaders pilot program and Combined Heat and Power programs.
- Received the 2001 Environmental Protection Agency (EPA) ENERGY STAR® award for excellence in energy management and the 2002 EPA ENERGY STAR® award for Corporate Commitment.
- Received the 2002 EPA Climate Protection Award.
- Received the Financial Times Global Energy Award.
- Received the EPA Wastewise Corporate Partner of the Year Award.
- One Verizon Way, in Thousand Oaks, Calif., received ENERGY STAR® certification in 2001.
- To date, more than 300 energy-savings ideas have been received via the energy hotline.

The estimated annual energy and financial savings were as follows:

- Lighting and A/C upgrades: 44.8 million kWh and \$1.7 million in avoided energy costs.
- Delamping: 4.9 million kWh and \$438,000 in avoided energy costs.
- Energy communications/awareness: 10 million kWh and \$750,000 in avoided energy costs.

Lessons Learned

Communication efforts were difficult to quantify, but it was clear to Verizon that they made a big difference. As employees became more involved and vocal about energy issues, the conservation message spread.