Big Goals Mean Big Success:
Corporate Energy Management at Frito-Lay
A Corporate Energy Management Case Study
Sponsored by the U.S. Department of Energy, Industrial Technologies Program

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OVERVIEW

Frito-Lay's corporate energy management (CEM) features aggressive energy reduction goals with a focus on results. This demands a high degree of monitoring, measurement, and communications. Frito-Lay organized the needed engineering talent as its Resource Conservation Group. While surpassing intermediate targets on the way to even larger savings, Frito-Lay's efficiency initiatives have returned over 30 percent on investment.

FACTS & FIGURES

Frito-Lay: Manufacturers of salty snack foods.

Revenues: Over $8 billion in 2002.

Scope of operations: 44 plants, 200 distribution centers.

Annual energy spend: Over $100 million.

Energy costs relative to total operating expense: Utilities are three to five percent of total expenses but represent over 25 percent of controllable costs. Energy-related capital expenditures are two percent of Frito-Lay's capital budget.

Key energy professional: Rob Schasel, senior group manager, energy & utilities

What was the desired outcome of the CEM effort?

Frito-Lay sought primarily to save money by reducing energy and utilities. Another desired outcome was to protect continuity of operations where water shortages exist, or where there is risk of electricity or natural gas curtailment. Frito-Lay also believes that resource stewardship is beneficial to surrounding communities, especially when conservation efforts alleviate burdens on local utility distribution systems.

Frito-Lay sought to achieve these ends by pursuing aggressive operational targets—"big, hairy, audacious goals" (BHAGs). The "BHAG" is a concept attributable to James C. Collins, author of *Built to Last: Successful Habits of Visionary Companies*. A BHAG is a clear and challenging organizational mandate. It should inspire levels of effort that will sustain momentum even if leadership changes. For Frito-Lay's Energy & Utility Group, such goals meant reductions per pound of product from 1999 baselines for water (50 percent), thermal fuels (30 percent), and electricity (25 percent).

What issues (or symptoms) led to the implementation of CEM?

For Frito-Lay, the spark was its termination of negotiations with a large energy service company (ESCO). The ESCO's proposal gave Frito-Lay a clear indication of the dollar savings potential embedded in utilities management. However, the ESCO proposal proved to be too problematic from a financing standpoint, so it was dropped. The energy savings potential still remained untapped. A spike in natural gas prices in 2001 sent Frito-Lay's Resource Conservation initiative into full gear.

What technical, managerial, and behavioral elements were developed?

Frito-Lay has three tiers of utility management responsibility beneath its group leader for energy & utilities. The first tier consists of managers representing six distinct areas of energy operations. These are: (1) energy risk manager, who performs planning, forecasting, and related energy market management; (2) procurement manager for fuels purchasing and national partner coordination; (3) associate for account management and field assistance; (4) senior engineer for mechanical systems; (5) senior project engineer for mechanical and electrical systems; and (6) senior project engineer for water systems.

The second tier features resource conservation captains, one each for Frito-Lay's east, central, mid-america, and west operating divisions. Under these are site champions for each facility. Annual energy summits allow these professionals to reinforce their knowledge and communications. Annual opportunity audits for each facility cover technical, administrative, and behavioral opportunities for improving resource utilization. Audits are led by staff that includes a division resource conservation captain, a corporate energy representative, and an alternate site champion.

Frito-Lay's Energy & Utilities Group actively appraises new technologies while encouraging internal innovation through process improvement and redesign. Corporate support for utility conservation is evidenced by a dedicated capital improvement budget and a reduced hurdle rate for energy projects. Prior to 2000, the reverse was true, in that energy projects faced a higher hurdle rate relative to process investments.

How are empowerment and accountability addressed?

Facilities are ultimately accountable to a corporate officer who reviews budget-to-actual energy performance. An overall corporate savings target is divided among plants, with each plant given an operating budget with fixed expense targets. Under Frito-Lay's Resource Conservation initiative, energy expenditures are usually budgeted to be under the previous year's, on a per-pound-of-product basis. This target responsibility becomes the driver for identifying and installing energy

solutions. Frito-Lay's corporate energy management team enables solutions by providing evaluation and implementation assistance to plants in need.

What were the barriers to implementation, and how were they overcome?
Barriers to Frito-Lay's efficiency initiatives were usually manifested in a lack of concern or awareness of energy's impact on overall cost of operations. This was overcome through budget accountability. Utility expenses were once considered "uncontrollable costs," and budgets were simply trended to reflect an assumed inflation factor. The "BHAG" approach began to trend energy expenses lower from one year to the next.

A corporate barrier was the lack of capital available for non-process investments. Corporate leaders have a bias for growth projects. Frito-Lay's Energy & Utilities Group argued that energy and utility assets have a lower performance risk relative to process equipment, and therefore utilities demonstrate a higher risk-adjusted rate of return. In addition, utility assets support current and future product platforms, so utility assets display greater flexibility and longevity as capital investments. To sustain growth opportunities, manufacturers need to invest in infrastructure such as energy and utility systems.

How are results monitored and communicated?
Facility scorecards track budget-to-actual energy consumption performance on a weekly basis. Engineering assistance is prioritized in part on the basis of these results. A project execution matrix monitors compliance with targeted performance levels. Progress reports are reviewed by Jim Rich, Frito-Lay's senior vice president for operations.

What are the tangible results to date?
Through 2002, Frito-Lay's Resource Conservation initiative has improved its utility consumption per pound of product from a 1999 baseline as follows: 21 percent reduction in water, 11 percent reduction in fuels, and 12 percent reduction in electricity. Expense savings through 2004 exceed projected totals. The internal rate of return through 2002 topped 30 percent.

Who is the audience for the results?
Corporate decision-makers are primary audience for the Energy & Utilities Group's results. Corporate oversight is provided by Frito-Lay's senior vice president for operations. Seven to eight regional vice presidents are also briefed on progress six times a year. Presentations to corporate observers include financial impacts as well as new technology updates. On occasion, Pepsico (Frito-Lay's parent corporation) includes the Energy & Utility Group's results in presentations to Wall Street analysts.

How do awards and recognition play a part?
Frito-Lay conducts an annual energy summit for the benefit of each facility's key energy staff. Additionally, awards are given to people and plants that have shown the greatest performance impact. The awards are mostly symbolic in value. Achievements in budget and consumption performance as well as innovation are recognized.

In what way have BestPractices and related U.S. Department of Energy resources contributed to energy management?
Frito-Lay distributes the U.S. Department of Energy's BestPractices software at its corporate-wide energy summits and distributes BestPractices email notices through regional energy captains and plant managers. At least one plant uses the DOE Steam System Assessment Tool to model the cost impact of proposed improvements. Some Frito-Lay plant personnel have also attended regional BestPractices workshops.

What are the threats to the durability of the CEM effort, and how are these addressed?
Success in energy management eventually encounters the law of diminishing returns. The first savings are the easiest, but gains in subsequent years are harder to achieve. Also, the Frito-Lay Energy & Utilities Group has only a three-year history, all under one leader to date. Promotion, reorganization, or reassignment can change or eliminate this leadership, and program momentum may be affected.

What remains to be done?
Easy gains are found in tinkering with the current utility infrastructure, but larger opportunities come from process redesign. Frito-Lay's Energy & Utilities Group will put increasing emphasis on process design and operation. In addition, there are opportunities to extend the Resource Conservation initiative to Pepsico's other business units. These units may also share their experience with supply chain vendors, in an effort to reduce purchasing costs while strengthening vendor relationships. Finally, Frito-Lay recognizes the need to "institutionalize" its resource management by archiving procedures and lessons learned.