

Verizon Communications –

Green House Gas

Emission Reduction Initiatives

Verizon consumes nearly five billion kilowatt hours (KWhs) of electricity each year, which translates into an annual energy bill of almost \$500 million. This massive energy consumption produces carbon dioxide emissions of nearly four *million* tons. Consequently, the incentives for implementing a conscientious and conservative energy policy may seem fairly obvious. But until very recently, few telecommunications firms had attempted to do so – that is, until Verizon stepped up to the plate to play a leadership role in stimulating broader action in the fields of energy efficiency and climate change.

In fact, Verizon’s commitment to energy conservation began immediately in 2000, when Verizon was established by merger. Verizon reinforced and strengthened the Energy Board of Directors (EBOD) charged with a very specific mission: To seek out opportunities to reduce the company’s overall power consumption, especially its heavy reliance on high-pollution fossil fuels. The Energy Board includes department heads from all segments in the corporation charged with a common objective to reduce consumption and associated green house gas emissions. Energy bills, with the main focus on electric billings, have been centralized to include a central energy database, tracking costs and consumption nationwide, to assist the EBOD in achieving its objectives. Prior to centralizing energy bills, most departments fully funded energy bill increases, as a fixed expense, with little emphasis on conservation.

Verizon has now expanded the EBOD and it has initiated a wide range of projects aimed at making energy use and climate change top corporate priorities. In making energy—and by extension, climate issues—a priority, Verizon is carving a path toward true business sustainability: a positive mixture of increased capital targeting conservation, a decreased environmental impact, and the kind of social responsibility and progressiveness of which its executives and employees can—and do—brag.

Verizon's comprehensive and ever-expanding commitment to climate action runs the gamut from exploring new technologies, investigating opportunities for energy conservation, and building awareness among its more than 227,000 worldwide employees. The initiatives whose descriptions follow are a sampling of some of the most recent and exciting climate-saving challenges tackled by this telecom giant.

INITIATIVES

Energy Conservation

To achieve beneficial energy/GHG reductions Verizon is faced with a significant challenge. At Verizon, 60 to 70% of its 5 billion KWh's consumed annually is DC power, operating network telecommunications switching equipment- the core business. Verizon's network equipment is manufactured by external vendors for functionality to meet customer requirements. Higher speed data connections, now in demand by Verizon customers, results in much higher energy consumption per square foot in core switching buildings. The switching equipment operates at a constant base load day and night and does not go into a power down mode at night when there is little customer traffic. In 2003 Verizon is launching aggressive initiatives specifically aimed at reducing network power consumption as well as traditional building power. Some of these initiatives are as follows. Please note that these initiatives are now being implemented in 2003 and will not be in full force until 2004 if successful. The KWh's and associated GHG reductions presented below are estimates only:

- **Technology Architecture & Product Selection Committee-EBOD.** In 2003 switching equipment RFP's now include energy requirements as an evaluation variable when analyzing bids. This has delivered a clear message to vendors that the constant base load mode of operation and increased equipment power consumption per square foot is being evaluated.
- **Target Buildings.** To place emphasis on Verizon's high consumption/high cost buildings, Verizon has implemented the "Target Building" program. This program was implemented in the year 2000 and involves each of Verizon's Property Managers. Each year each Property Manager designates 5 highest energy consuming and highest cost facilities to conduct energy audits and initially claim all no cost/low cost energy conservation measures as well as develop future capital expense projects. To date approximately 2000 sites have processed through this program with a goal of reducing consumption by 3%. Since the program began it is estimated that approximately 50 million KWh/year have been saved or approximately 80 million pounds of GHG.
- **Network Advisory.** Verizon has begun to place more emphasis on it's DC Power Plant usage by issuing Network Advisories to Network Supervisors outlining various methodologies and areas where possible energy savings should be investigated. The framework has been put in place and Verizon is hopeful that this effort will save approximately 30 million KWh/year within the first year of implementation in 2004 or 49 million pounds of CO₂.

- **Engine Block Heaters.** Verizon has approximately 3100 standby generators for the purposes of providing network reliability during power outages or other emergencies. These generators are equipped with block heaters to maintain a constant 120 degrees to ensure quicker starting and transfer time. It was determined through engineering, usage and trials, that these temperatures could be reduced safely to 70 degrees with little to no effect on the engine start. This will be a three year effort that will yield an approximate 35 million KWh/year savings or 57 million pounds of CO₂.
- **Capital Energy Projects.** Annually Verizon implements an approximate 7 million-dollar capital improvement program across the country aimed at energy conservation projects. This program began with capturing low/no cost measures and has grown to improving building infrastructure. An estimated 3 % savings in total usage since 1999 or approximately 30 Million KWh/year resulting in 49 million pounds of CO₂ has been curtailed.
- **Energy Champions** In the year 2001, Verizon implemented an employee volunteer program entitled “Energy Champions” Currently there are approximately 300 volunteer employees and the list is growing. The responsibility of these volunteers is to communicate the policies of conservation at their respective workspaces, develop conservation strategies specific to their work areas and to participate on semi-monthly status calls to share their progress with other team members. Energy savings attributable to this initiative varies, but can be estimated at approximately 23 KWh/year per Energy Champion, equating to approximately 37 thousand pounds of CO₂ for each.

New Technologies

Fuel cells have become one of the most promising new energy technologies on the market, and for a simple reason. They offer a versatile and reliable source of high-quality power, they rely on readily available fuels, and they do not pollute. Through a catalytic process, fuel cells chemically combine oxygen and hydrogen to generate heat and electricity. The sole waste product is pure water. Verizon’s Energy Board of Directors is focusing on fuel cell technology because it offers great potential for a broad range of critical applications. The Board’s decision arose from an intensive search for alternatives to continuing reliance on electricity drawn from the transmission grid.

Verizon has become an important participant in the research and development that is bringing fuel cell technology into our lives. For example, in its partnership with Nuvera Fuel Cells, the Massachusetts Technology Collaborative, and other public and private organizations, Verizon plugged into an ultra-clean fuel cell installation for a 500-hour demonstration, that powered the telecommunications facility serving 200 customers in the Woburn, Massachusetts area. The company also worked on a second demonstration project with Plugpower, Inc. in Ronkonkoma, New York and a third study of an Avista fuel cell at Verizon’s Laboratory facility in Waltham, MA. Initiatives like these are important steps toward identifying and deploying real-world applications that use this clean, efficient energy technology.

Other Initiatives

Only 400 buildings across America have been certified so far by EPA's Energy Star program. Verizon owns eight (8) of them and over 150 company facilities have been benchmarked to Energy Star standards. These standards require Verizon to meet a rigorous set of efficiency criteria that are applied to every aspect of a each facility's energy usage.

Right now Verizon is canvassing greenhouse emissions for all of its operations in New Jersey and has announced an agreement with the State of New Jersey to help it reach a GHG reduction of 3.5% by 2005 over 1990 levels. In addition, Verizon is now investigating the possibility of participating in the EPA's Climate Leaders Program and the Business Roundtable Climate Resolve Program.

RESULTS

The success of Verizon's multifaceted energy initiative can be measured in four important ways: financial benefits, environmental benefits, increased reliability and national security, and the intangible but important boost this effort provides to company-wide morale.

Looking at the first benchmark, the financial benefits, Verizon estimates that it saved \$40 million in 2001 and 2002. Included are the savings achieved by upgrading, retrofitting and auditing buildings, and the additional reductions obtained from other initiatives. These savings are not one-shot; they will accrue year after year.

With respect to the environment, Verizon estimates it has decreased its carbon dioxide in the Verizon footprint by 500,000 tons over the past two years – a very significant achievement. Verizon has demonstrated to employees, to customers and to competitors the virtues of energy conservation, and in doing so has further advanced its environmental mission.

Verizon plays an important role in ensuring national security. Besides using less energy, which decreases U.S. dependence on foreign sources of energy, Verizon's fuel cell program seeks to establish energy and telecommunications reliability in the event of a failure to the electric grid.

A final, crucial component of the company's energy efficiency "profits" is measured in prestige – the prestige that arises from strong leadership and healthy morale. Verizon's energy efforts have won many accolades, including a 2002 EPA Energy Star Award for outstanding corporate commitment to energy efficiency; a similar award in 2001 for significant energy reductions; several Energy Star building certifications; a 2001 Association of Energy Engineers Award for excellence in corporate energy management; the International Interior Design Association's Sustainable Design Leadership Award; a Global Energy Award sponsored by the Financial Times (London); and, in 2002, the prestigious EPA Climate Protection Award. These honors have helped Verizon become a role model for the entire telecommunications industry, and beyond.

LESSONS LEARNED

Not surprisingly, being a leader in energy efficiency often means learning by doing. In embracing this challenge, Verizon has found that the company's efforts over the past three years have resulted in improved financial health, a better work environment, and added brand appeal to both customers and shareholders. Some other "lessons learned" include the following:

- An energy data management system is critical to ensure an effective energy management program. Tools for tracking ongoing energy data must be constantly adjusted to allow for input of additional equipment and other factors.
- With so many energy initiatives ongoing, it is essential that all audits and project proposals include figures for initial investment, payback period, and overall effect. Otherwise, different projects cannot be compared in a common capital program.
- An energy conservation program must not only focus on the present, but must always look forward to new technology and innovation.
- Partnering with external agencies, organizations and businesses is important to ensuring that core ideas be communicated to key audiences.

Positive attention given toward past environmental accomplishments can be a key leverage point for keeping the ball rolling. Verizon's participation in a prominent ad campaign published in both the *Wall Street Journal* and *New York Times* (sponsored by the Energy Foundation and the Center for Energy and Climate Solutions) featured the series slogan "Energy Efficiency. It's Money in the Bank" touting the company's leadership on conservation and clean energy technology development.

FUTURE COMMITMENTS AND GOALS

Verizon has established a goal to complete a corporate-wide GHG inventory to be used as a benchmark for setting corporate carbon reduction. Here are some of the highlights:

- Be the first U.S. telecommunications company to build a "Central Office of the Future." In cooperation with the DOE, NYSERDA, EPA, Telcordia, VTO and the State University of New York at Buffalo, Verizon plans a demonstration project that will use fuel cells to provide the direct current-to-direct current power it needs for its equipment.
- Refine an already-proven ability to manage, predict, and shrink its sizable corporate energy budget.
- Motivate all Verizon employees to focus on energy and environmental issues.
- To be a role model for the increasing number of companies seeking to become environmental leaders. Verizon is now considering participation in the EPA Climate Leaders and Business Roundtable Climate Resolve programs.

ORGANIZATIONAL PROFILE

Verizon Communications, (NYSE:VZ), formed by the merger of Bell Atlantic and GTE, is one of the world's leading providers of high-growth communications services. Verizon companies are the largest providers of wire-line and wireless communications in the United States, with nearly 136 million access line equivalents and more than 33 million wireless customers.

Verizon is also the world's largest provider of print and online directory information. A Fortune 10 company with more than 227,000 employees and \$67 billion in 2002 revenues, Verizon's global presence extends to 45 countries in the Americas, Europe, Asia and the Pacific.