



Power performers

Employee ingenuity and dedication are generating big energy savings for Boeing

By Bill Seil

In the late 1970s, Boeing introduced Frugal MacDougall, the energy conservation squirrel who made appearances in *Boeing News* cartoons and in costume at employee events. The campaign encouraged employees to take basic conservation measures, such as turning off lights when not needed.

Today, the company's energy efficiency programs are far more sophisticated and widespread. Energy efficiency is one of five targeted areas for reducing the company's environmental footprint by 2012.

Boeing employees have reduced energy consumption on a revenue-adjusted basis by 32 percent since 2002, and the company is on its way to achieving its 2012 target of reducing energy consumption by 25 percent over a five-year period.

Jeff Nunn, Conservation program manager in Shared Services Group, said energy conservation supports the company's goal of continuous productivity improvement by reducing operating costs, and has the added environmental benefit of reducing greenhouse gas emissions.

"Environmental thinking is incorporated in Lean+ programs throughout the company," Nunn said. "Conservation is a growing part of our culture. Ultimately, we want it to be less of an initiative and more embedded in sustaining operations and processes—just part of the way we do business."

Boeing has strengthened its energy efficiency focus through its affiliation with the ENERGY STAR program, which is administrated by the U.S. Environmental Protection Agency. Boeing's Corporate Offices building in Chicago recently became the third Boeing site to earn the label. It joins Houston's Bay Area Boulevard building and the Douglas Center's Building 800 in Long Beach, Calif., which earned labels in 2008 and 2009, respectively.

Harry Williams, senior manager, Chicago Site Services, said the certification was achieved by

PHOTO: To save energy and cut costs, St. Louis Facilities engineers Kevin Arcynski (left) and Steve Ahrens helped reprogram software used to operate an aging heating, ventilation and air-conditioning system. BOB FERGUSON/BOEING



working with the building's management organization to implement cost-saving and energy-efficiency improvements throughout the 36-floor structure. Boeing occupies 12 floors and leases the remaining floors to tenants.

"Our ENERGY STAR label is the result of a team effort by both management and employees," Williams said.

Improvements focused on lighting, energy management systems, heating, ventilation and air-conditioning systems (HVAC), and automated controls. There was also a campaign to promote energy conservation in employees' day-to-day activities.

"Improving the energy efficiency of commercial buildings is critical to protecting our environment, said Richard Nagle, acting deputy director of the EPA Region 5 Air and Radiation Division, who attended a July event celebrating Chicago's ENERGY STAR achievement. "Organizations like Boeing are leading the way."

Boeing recognizes conservation improvements taking place throughout the enterprise with its annual Conservation Awards. Twenty-seven awards were presented this year, several recognizing innovative energy-efficiency projects.

One such project occurred at the St. Louis site, where facilities engineers Steve Ahrens and Kevin Arcynski rewrote software to get an older HVAC system, using constant airflow, to function more like a modern, energy-efficient, variable airflow system. This change will result in annual savings of more than 13 billion British Thermal Units (BTUs) of energy and an annual cost savings of approximately \$100,000. A BTU is approximately the amount of energy needed to heat 1 pound (0.45 kilograms) of water 1 degree Fahrenheit (0.56 degrees Celsius).

Bryan Kury, a St. Louis Site Services manager, said the improvement can be replicated across the enterprise on existing equipment.

"It's a very creative solution that immediately began to save both energy and money," Kury said.

Another award-winning project took place at Boeing Portland. It involved a furnace that uses gas to heat-treat spare flap tracks for older model 747 jetliners. Bob Faulkenberry, an equipment engineer at the facility, said the furnace had an old carbon dioxide analyzer control that made it very difficult to restart the unit after it was shut down.

"The furnace is a critical piece of equipment, because it's one of a kind," Faulkenberry said. "But today, it's only needed for spares, so we needed a way to operate it on a limited basis."

After researching the problem, they found a modern analyzer control with a digital output that was reliable and available. It took some effort and ingenuity to get the surrounding equipment to recognize the digital signals, but the change was ultimately a success. It has resulted in estimated

PHOTO: Ryan Tapp (left) of Boeing supplier Energy Industries works with Site Services electrical engineer Tom Esbrook to install energy-efficient fluorescent lamps at the F-22 Composite Fabrication and Assembly Center in Seattle. MARIAN LOCKHART/BOEING

PHOTO: Tamara Linton (left) of Boeing Site Services and Paul Libbey of CB Richard Ellis discuss the energy and cost saved by a new equipment monitoring system at the Boeing site in Chicago. BOB FERGUSON/BOEING

annual cost savings of \$600,000 and energy savings of more than 37 billion BTUs.

A lighting project at the Boeing Developmental Center near Seattle involved installing energy-efficient fluorescent lamps and replacing ballasts (which ensure the correct voltage and current for starting and operating the bulb) based on the results of a recent Lean Energy Assessment. Tore Sleveland, a Site Services conservation specialist, said the project provided an example of people leveraging their supplier relationships and experience with the assessment data to secure 2009 Seattle City Light rebate funding. The project, which was financed by the utility, will produce an annual energy savings of 808,000 kilowatt hours—enough energy to heat 73 average-size homes a year in the United States—for an annual cost savings of about \$50,000.

“In addition to having the work completed at no cost, we have lowered our energy expenses and are saving on maintenance costs,” Sleveland said.

Upon completion by year-end of similar projects at other Boeing sites in the Seattle area, teams will have replaced 15,000 fixtures at an annual energy savings of roughly \$250,000.

Diverse energy projects such as these, developed and championed by employees throughout the company, are at the heart of Boeing’s energy conservation success. ■

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