

They Practice What They Preach At Fluke

Written by Rick Carter, Executive Editor
Thursday, 25 October 2012 11:29



This respected maker of test and measurement instruments is operating in accordance with the purpose of its own products to keep its Washington-state headquarters on the cutting edge of energy efficiency.

If you're reading this on the job, look around and you may spot a Fluke test instrument. Its familiar yellow case might indicate a thermal imager, power-quality meter, digital thermometer or other Fluke tool in use or awaiting use. Most are now staples for maintenance professionals everywhere. And by serving those who know how and why routine test and measurement can improve operations, safety and energy efficiency, Fluke has become a market leader. As the company readies for its 65th year in business in 2013, it appears positioned to not only remain a leader, but both grow from and help drive industry's blossoming interest in sustainability.

It would be nearly unthinkable, for example, to imagine Fluke products—a *comprehensive array of tools needed to help manufacturers run efficiently and safely*—made in anything less than world-class facilities. The company's headquarters operation in Everett, WA, is a model of continuously improving efficiency. Its four buildings (three devoted to manufacturing, assembly and plastic injection and one for administration and customer service) encompass approximately 750,000 sq. ft. and date from the mid-1960s (one building) and early 1980s (three buildings).

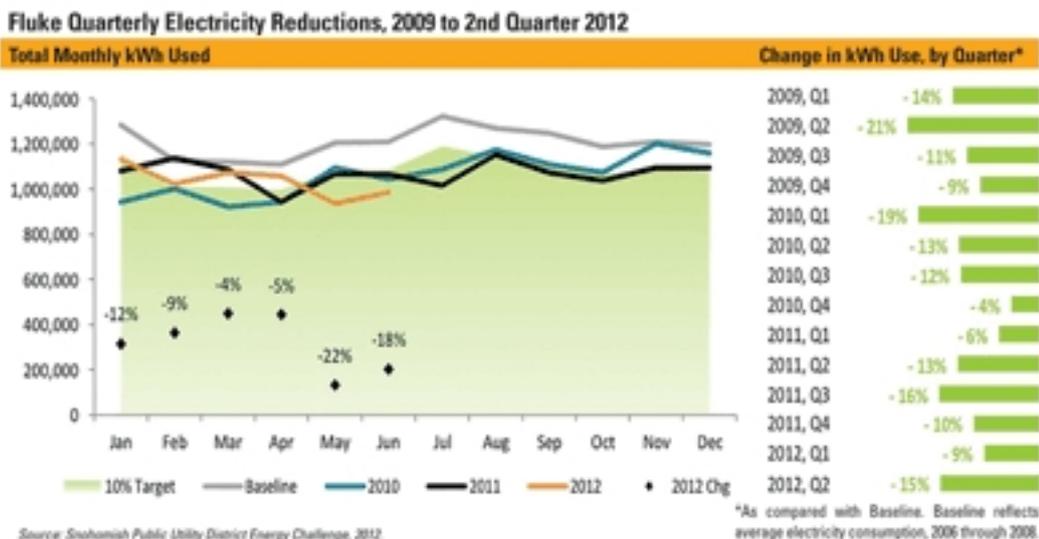
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Despite Fluke's location in a part of the country known for its low-cost, hydro-supplied electricity, energy-saving upgrades have been a priority since it moved into the Everett buildings in 1983. Saving energy was given even greater priority after the company's 1998 acquisition by Danaher Corp. Consider, for example, the following projects that took place in Everett in 2010 and 2011 alone:

- Compressed air dryer upgrade (*annual savings: 278,091 kWh*)
- New VFD chiller (*annual savings: 612,576 kWh*)
- Rooftop air-conditioning-unit upgrade (*annual savings: 11,123 kWh*)
- Standards Lab chiller upgrade (*annual savings: 17,774 kWh*)

Add to these the many other improvements Fluke made before 2010—*lighting upgrades, upgrades to HVAC direct digital control, heat-reclamation projects and cooling tower upgrades, among others*—and it's no surprise the company has reduced its electrical consumption by at least 4% (see chart below) every quarter since 2009, even as its production has increased. Though the area's 6-cents-per-kWh cost for electricity is well below the current national average of 9+ cents, Fluke's energy-saving efforts still bring joy to company accountants.



(Click to enlarge.)

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The Danaher Business System

While sustainability is a priority to Danaher and its operating companies, it is considered one of many components of the company's operating strategy, known as the Danaher Business System (DBS). According to Leah Friberg, Public Relations Manager for Fluke's global operations, adherence to DBS means that "everything we do follows the mantra of quality, on-time delivery, cost and innovation. Efficiency and productivity are ingrained in our culture. We have continuous-flow, not just in the assembly area, but from design to engineering, manufacturing, the assembly team, maintenance and operations. They work cooperatively, share space on the floor and all have a say in product development," she says. "This contributes to a far more efficient and sustainable process."

Fluke's product emphasis on energy savings makes the Everett operation a sustainability leader for the rest of the company. "We recently did a 'Walk the Talk' exercise through all of our Danaher sister companies that was based on the energy-efficiency model developed right here," says Friberg. A main goal was to measure company-wide energy and power consumption to determine periods of top consumption and ways to mitigate loads and costs. Buildings were also audited for integrity of HVAC systems and insulation, among other factors. They identified opportunities for sustainability improvements in several sister-company operations, says Friberg, but the results for Everett were less dramatic. "Our ROI was decent," she notes, "though not spectacular, which really tells you we were running a fairly tight ship to begin with."



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Twenty-seven-year Fluke veteran Tanky Shiu, Facility Engineering Manager, is in charge of engineering design for all Fluke manufacturing facilities.

Guiding sustainability

Credit for Everett's "tight ship" goes to everyone on site, says Friberg, though project guidance is typically handled by two Fluke veterans: Tanky Shiu, Facility Engineering Manager, with Fluke for 27 years, and Grace Giorgio, EHS Manager, with Fluke for five years. Hired as Plant Engineer in 1985, Shiu is in charge of engineering design for all Fluke manufacturing facilities. In addition to those in Everett, these include facilities in the United Kingdom, Asia and The Netherlands.

Shiu recalls being introduced to the Fluke culture of energy efficiency early in his tenure. "One of the biggest projects we've done took place when I joined this company," he says. "At that time, this building, which was built in 1980, still had the old pneumatic HVAC controls. Slowly we converted these to direct digital control [DDC], so that helped all three manufacturing facilities become more advanced. Now, using a computer, I can set all the temperatures, look at different profiles and I can schedule fans on and off, chillers on and off and use other energy-efficient strategies. Because production is so critical, the schedule is tailored to meet production requirements, and the digital controls give us a much better tool to customize our schedule. That was a big project."

It took several years to convert Everett's three production facilities to DDC. And though that job is complete, energy-saving initiatives continue. "We can still make the buildings more efficient," Shiu observes. One step in this direction involves fine-tuning production schedules "so not all the fans come on at the same time and not all the chillers come on at the same time," he says.

Another step involves an ongoing effort to eliminate leaks in compressed air systems. "We have eliminated a lot of those using our ultrasound meter," explains Shiu, but adds that because Fluke operations call for very dry compressed air (minus 40 degrees dewpoint), the system uses a lot of energy (along with a desiccant dryer), which makes leak elimination critical. "We passed this information to our manufacturing engineers so when they design new systems, they make sure all the pipe they buy is airtight," he says. Plans for a new compressor call for it to be equipped with a variable-speed drive, along with energy-efficient motors that are routinely specified for all new equipment and upgrades.

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Lighting has been another focus. “In our plastics building,” Shiu points out, “we changed all the lighting from T12 bulbs to T8, and we put in motion sensors. We also program the lighting so if a building is unoccupied, most of the light is off.” And in summer, when natural light is abundant, the Everett buildings further reduce energy consumption for lighting and cooling by using only two of four fluorescent bulbs in each overhead fixture. When summer light fades, four bulbs return to use. But as Grace Giorgio observes, even then the headquarters building receives a satisfying amount of natural light thanks to its unique “double-W” design that features atriums and plenty of windows. “Pretty much everywhere you are in this building you can see natural light,” she says.

Giorgio sees this as an example not only of the company’s emphasis on sustainability, but its desire to foster a unified culture and positive work environment. All of these elements, she says, impact her role as EHS manager and contact point for all Fluke real-estate and EHS initiatives worldwide. Giorgio and her colleagues form “a very tight group,” she says. “Tanky and I and our maintenance manager talk every day. We also have what we call stand-ups twice a week with all of the teams and we talk about projects and bounce ideas off each other. Continuous improvement is part of our culture,” she adds, noting that it’s understood that “when we say we’re going to look at new lights or new motors, we look at energy-efficient models.” And all Fluke facilities “are pretty much on the same page,” she says. “We review all the facility upgrades and changes to ensure they’re using the best product for the project, that they’re using the one we want.”



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Grace Giorgio, Fluke's EHS Manager, with Safety Coordinator Mac Mallock in their plant's component recycling area. All Fluke-product materials are recyclable except for certain plastics.

The utility effect

Another key player in Fluke's energy-saving successes is its local utility: Public Utility District (PUD) No. 1, of Snohomish County, WA. PUD's three-year old Energy Challenge provides "resources and recommendations" to all of its customers to help them use less electricity. In 2011 alone, the program resulted in an energy savings of more than 18 million kilowatt hours within its district, according to the utility. In Fluke's case, PUD's partial funding of qualified energy-saving initiatives at the Everett facilities has proven vital in the company's efforts to not only reduce energy use, but save valuable time that might have otherwise been needed to green-light projects.

"If we're doing a project such as switching light fixtures, PUD will come in and set a baseline," says Shiu. "Then we'll get pricing from a contractor. The contractor will use PUD's pre-approved light fixtures and PUD will analyze the savings. If they justify the savings, they can provide up to 70% of the project cost. And any energy we save is on top of this, which makes payback fast." In some cases, it's not even necessary to create a baseline. "Just last year, PUD chipped in to buy a digital-controlled chiller," he says. "Of course we always ask only for high-efficiency equipment, and PUD will contribute money for it because they know there is a payback. In this case, they didn't even have to measure the power. They just said, yeah, go ahead."

Other initiatives

Energy-saving is joined by other sustainability efforts in Everett, including recycling, which Giorgio says "has been a part of the culture here, both in the community and in our employee base, for a very long time. I can't remember when we didn't recycle paper, for example." Electronic-waste recycling is also supported locally, meaning Fluke has no difficulty dealing with this often problematic issue.

However, Fluke's Everett operations are not zero-landfill. "Our goal is to recycle 90% of all hazardous material within the next three years," says Giorgio, adding that they're not far from that goal. "Since we increased our recycling of electronics, we now recycle almost everything that goes into our products except for some of the plastic left over from injection molding." Four types of plastic are used for housings and test leads, she says, some of which recycle easily and some of which do not. Solvents are also proving difficult to recycle.

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But the feeling in Everett seems to be that the company's phenomenal track record with energy savings gives it a hard-to-beat edge in sustainability. So far, it's been enough to keep alternative energy sources on the sidelines. "We look at alternative energy all the time," says Shiu, "but it always comes back to our low energy cost, so for many projects like this, the payback is not there." The area's low electricity costs may also soon spawn direct benefits for Fluke workers, such as on-site electric-car charging stations.

The plant may have more far-reaching sustainability goals in mind, but to Shui, the key driver in this area is to "just keep improving what we have." Giorgio clarifies that meeting the ever-changing demands of its customers will always be a top Fluke priority and that this can make other goals "a moving target." She also notes that, due to the age of the Everett facilities, smart retrogrades will be more of a priority than other, perhaps more dramatic, sustainability efforts for several years.

"We're getting ready to celebrate our 65th anniversary," says Giorgio, "and I want to do everything I can to make sure we're here for another 65 years. I'd love my kids to work here," she adds. "So our philosophy is to try and do the right thing every single day." **MT**