Energy Intelligence: Making The Sustainable Choice

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Equipment purchases are one thing, but getting involved with your community, utility providers, and employees may be what makes a bigger impact.

When it comes to the modern sustainable plant, making the energy efficient equipment choice isn't always enough. While it certainly pays to have the latest and greatest—much of which can mean the difference between sips and gulps of energy use—these purchases can only take users so far. For many, it's the behavior of plant personnel, and how this equipment is actually being operated, that tells the real story.

Beyond in-plant behavior, management is also encouraged to look outside the box and integrate energy usage reduction programs that also involve utility providers, and even state and local government programs.

As a prequel to this month's Energy Incentive Guide—a state-by-state breakdown of tax breaks, rebates, and other incentives for companies investing in energy efficient equipment, off peak usage of alternative energies—we posed some questions to the IMPO reader on whether or not these types of programs were being utilized. 55 percent of those responding said their facility was involved with utility providers and local government in order to optimize incentives for responsible and/or alternative energy use.

Of the more commonly available programs, most respondents (72.5 percent) cited "rebates for energy equipment purchases" as an offering being utilized.

For those who answered "Other," when describing programs detailed in the graph,

the specifics ranged from utilizing a free energy survey offered by the local utility to identify potential waste, to load shedding. One respondent said the company utilized power factor correction and emergency energy reduction methods.

Unique Methods

Besides these external opportunities, there are plenty of innovative ways plants have been utilizing internal brain power to ramp up their energy saving programs.

So just how are your peers tackling these issues? Our survey asked respondents to share the unique programs they were utilizing, and the tips they came back with ranged from standard (automatic lighting) to the more inspired: One reader said their facility re-circulates waste heat from compressors/vacuum pumps to heat the building in winter. Other respondents shared the following:

- "Recovery of process hydrogen for use in fuel cells, LPG vehicles, solar technology, solar roofing shingles, and steam surveys to detect leakage..."
- "Insulation of heaters, insulation of hoses, VFDs with real time feedback and response, MotorUp program, water conservation systems, computer control cooling for processes, setback centralized for a/c and heating, water heater timers, modulated fan systems, process heat recovery, reflective window material, ceiling to floor heat recovery for the winter months, motion controls for lighting, high efficiency lighting systems, VFD compressors and heat recovery, and modulated ventiltation..."
- "Energy efficient lighting, including recycling of bulbs, as well as air conditioning adjustments over night and weekends, energy saving computer setups for all employees, and landfill gas use for energy production. Sustainable transportation planning includes subsidized or free bus passes (hybrid buses) for employees to encourage use of mass transit, and organized car-pooling options."
- "We're in the process of reprocessing our soldering operations to a more energy-efficient technology, hoping to minimize the generation & consumption of super-heated nitrogen gas presently utilized."
- "We use our warm furnace water to flash our liquid nitrogen and at the same time it cools the furnace water so it can be recycled (over 5m gallons this year)."

While one reader said their ambitious company has an onsite wind farm and solar panels, the most popular answers were of the low-hanging fruit variety—things like replacing lights with more energy efficient bulbs, or utilizing programmable thermostats.

Behavioral Change

While it's great to take all of these macro level steps, it's important to remember that the facility can really only be as efficient as you and your associates dictate. Much like you'd encourage this type of conscious behavior at home, habits are key. For example, it's one thing to have an Energy Star-rated refrigerator in your kitchen, but it won't do you much good if you and your family are constantly leaving the door open.

While some respondents told us that their energy savings programs were “just common sense,” it bears repeating that common sense energy efficiency isn’t always the same for everyone. Training programs can be an effective way to remind employees to shut of machinery—even computers—and not overuse lighting, waste or leak compressed air, or run machines at half-loads. In fact, only 29 percent of survey respondents said they have a training program and/or signage in place to help remind employees to make more energy efficient choices.

Of those who did utilize this approach, many said that labeling machinery with reminders helped employees to turn equipment off when not in use. For others, turning off machinery was being integrated into SOPs for operating equipment. While some see this as “common sense,” others have taken an extra step to keep the energy savings element top of mind—to the point where it stops being optional.

One respondent assessed the need for their company’s energy management program for its ability to retain staff: “Saving money is an overall incentive in a small company. If we don't pay it out, we can use it to pay (employees).”

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