

A Bright Idea

A Kansas fire department takes a unique approach to reducing its energy consumption. **BY MARIL HAZLETT**

Heroes saving lives — and saving energy and taxpayer dollars, too?

For Chief Mark Bradford of Lawrence-Douglas County (Kan.) Fire-Medical, the concept was worth a shot. He signed off on the “Energy Smackdown” — an energy-efficiency competition between his department’s five stations, which had as its goal the reduction of

electricity use during the peak four months of summer, when air-conditioning bills typically are at their highest.

Like chiefs everywhere, Bradford was looking to cut operating costs. As a 34-year veteran of the fire service, he knew his stations both saw a lot of use and used a lot of energy. The department serves a college town of about 90,000 people, provides emergency medical services to

about 25,000 more in Douglas County (a total area of almost 500 square miles), runs a call volume of approximately 10,000 per year, and maintains 40 uniformed personnel on duty at all times.

When the city and county hired Eileen Horn as its sustainability coordinator, in order to make their operations more energy efficient, Bradford was eager to hear Horn’s ideas.

“With energy efficiency, it can be hard to know where to start,” Bradford said. “Building retrofits are pretty expensive and you’re not always sure they’ll pay off.”

Horn did offer support with energy audits and retrofits. However, she also offered a complementary approach — a contest that would motivate firefighters to reduce energy use while living and working at the stations.

Bradford saw the potential to spark an important departmental change.

“As a chief, I don’t want to go around locking thermostats,” he said. “What I want is to raise awareness, sustain change and establish a culture where people want to save energy. Energy and conservation behavior change aren’t sustainable from the top down. It’s only sustainable if the employee wants to do it.”

However, neither Bradford nor Horn foresaw how the short-term contest would spark new questions about how the fire service can save energy.

Getting Past the Skepticism

Bradford turned the contest over to the department’s Green Team, whose volunteers come from throughout — different ranks, different stations and different shifts. They worked with Horn to integrate the energy-saving competition with the firefighter culture.

Horn’s specialty is developing community-level solutions for saving energy, with experience in commercial, industrial and municipal applications. The Energy Smackdown idea came from her previous success in implementing the award-winning Take Charge com-

petition, which recently was featured as a national best practice by Lawrence Berkeley Labs.

However, this was Horn's first close look at a fire station. Leaving aside the fuel inefficiencies inherent with apparatus — which literally made her shudder — many of the buildings also were problematic.

"My first gut reaction?" Horn said. "Wow, fire stations use a truly incredible amount of energy. Of course, the flip side is they have huge opportunities for energy savings."

Horn did see a serious barrier — the same one she sees in other sectors. "When the building occupant is not the one paying the bills, they don't bear any direct consequence for their energy



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SUSTAINABILITY COORDINATOR

behavior," she said. "And while building and maintenance staff might see opportunities for savings, they often don't have a way to communicate to the building occupants."

But Horn also saw an opportunity.

"Firefighters have a pretty unique training and mentoring culture," Horn said. "They have protocols and a built-in

sense of how to do things, and they're a group used to structure and performance. Actually, if any work culture can successfully adopt energy-saving behaviors, then it's probably firefighters."

At first, though, Lt. Scott Seratte, a Green Team member, was skeptical.

"I was pretty hesitant," he said. "First, firefighters can be very stubborn and they don't like change very much. I also know there are guys who don't have their thermostats set at home like they set it at the fire station. Second, we're there 24/7 — and with three shifts, we're like three different families at one station. Like most families, we all do things a little differently."

Still, Seratte thought there might be hope.

"The idea of a competition really made all the difference," he said. "It was worth a try. And having food as a reward for winning made it even better."

Indeed, food plays a major part in Horn's program-design tips.

"First, find your staff's specific motivation," she said. "Free food? Bragging rights? Paid time off? Donations to a firefighter charity? If you don't have the right prize waiting at the end, then no one will care."

Second, develop clearly understood rules. "Ask the firefighters," Horn said. "What would help keep this fair?"

The Green Team faced a big challenge in this regard: How could it craft the competition's rules to ensure that inefficient buildings weren't penalized? The solution was to compare each station's energy use in 2011 to what it used in 2010; the station with the largest percentage reduction was to be declared the winner.

Education also was important. Horn visited every station to offer information on major behavioral changes — such as turning off lights, treadmills and other appliances; raising thermostats two degrees; and installing smart power strips for office equipment.

Another key was measurement and feedback. "You need clear metrics, so stations know where they stand," Horn

said. She also sent out regular e-mails with updates on contest standings.

Horn tracked the overall results, but Green Team members and other volunteers actually ran the competition at the stations. This meant that the Smackdown occurred outside of the usual command structure.

"It didn't come down from the captains," Seratte said. "If this push had come directly from the administration, I don't think it would have been as successful."

Impressive Results

Even so, competition leaders did encounter some resistance. For example, some firefighters heard about the contest and immediately came up with reasons why they wouldn't succeed. However, others instantly started plotting ways to win.

Team leader Seratte outlined his approach to motivating shift members at his station.

"Set clear goals, point out places where you can do better — and make sure people have the tools and the information they need to actually make a difference," he said. "Firefighters need tools, they get into that. Give them room to experiment, give them accountability, feedback and encouragement, and a reward for getting results. That'll get them on board."

However, Seratte advised that not every firefighter will care about saving energy.

"Saving the world works for some people, not for others," he said. "You're not actually going to get everyone, but you'll get enough to make a difference."

In fact, even one motivated person per station can make a difference, he said. "You don't have to make a big deal. Just go around a couple times of day and make sure things are unplugged. When everyone is in bed, bump the thermostat up a notch or two."

Even in the early stages, the contest provided some unexpected results. Competition did work to motivate firefighters — maybe a little too well.

"I would drive by at night and guys

had turned off every single light in the apparatus bays," Bradford said. "I was worried that if they got up for a call, they'd fall down and knock themselves out. If we'd held this contest in the winter, we'd have had busted pipes."

There also were instances of sabotage — for instance, when the stations that were leading the competition went out on calls, the other stations would sneak over to turn on their lights and lower their thermostats.

On the other hand, the competition caused firefighters to start noticing the energy features and deficiencies of their buildings. For example, Bradford received multiple reports of lights permanently left on due to missing on/off switches, missing window shades or awnings on south-facing windows, HVAC systems not working properly, and so on. A pile of building maintenance requests was the result.

Even with a few bumps in the road, the Energy Smackdown results were impressive:

- Over four months, the five stations reduced energy consumption by more than 10%.
- The winner reduced usage by more than 20% (Station No. 2, led by Seratte), and the second-place winner (Station No. 3, led by Engineer Heath Betherd) reduced usage by 18%.
- All five stations saved a total of 41,720 kw hours of energy, or enough to operate 43 houses for a month.

Merrian Goggio Borgeson, an energy researcher with Lawrence Berkeley Labs, was impressed by the results.

"Since competitions seem to work well for this group, maybe they could take it to the next level — ask the firefighters themselves to compete to come up with more ideas on how to save energy," she said.

Horn also was impressed and added that the Energy Smackdown easily can be replicated. "The nice thing is that you don't even need a sustainability person like me to help with the contest," she said. "It's so simple that anyone can replicate it, at any fire department."

Perhaps most important, the Energy Smackdown successfully raised awareness throughout the department, according to Bradford.

"Top to bottom, the organization started thinking about saving energy," he said. "It was the beginning of a culture change."

Sustainability is a Challenge

Time will tell. Right now it's too early to determine whether the new energy behaviors will stick. Indeed, early follow-up shows that while the winning stations continue to their reduce energy use, usage at losing stations has stayed

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flat or has increased since the competition ended.

"Short competitions are great for raising awareness," Horn said. "The really hard work, though, comes in institutionalizing the changes."

Borgeson agreed. "No one can sustain heroic, extreme acts in saving energy," she said. "It has to become standard operating procedure, a new normal. This kind of culture change is hard and takes a while."

Indeed, over the course of the contest, Seratte noticed potential barriers to further savings.

"No one on any shift at any station has centralized knowledge about the buildings — what energy-efficiency technologies they already have installed, how they operate," he said. "If we had someone like an energy manager, we would have an institutional memory for that stuff, and they would have the technical expertise to answer our questions. Firefighters tend to have a lot of technical questions, and they really need to understand and trust technology before they will use it."

Seratte also pointed to the need for more energy training.

"It would really help to have Eileen come in yearly, give us a rundown on energy use for each station, and where we could save," he said. "Then she needs to be really clear about where the savings go — who or what gets those extra dollars?"

Bradford agreed that training and mentoring would play a big role. "We need constant marketing on this topic from the city coordinator," he said. "We need Eileen reminding us how our actions make a difference, and we need the Green Team for their leadership."

Bradford also started to wonder about other ways to institutionalize energy efficiency into the fire culture.

"Why not make energy efficiency part of our operational goals?" he asked. "Why not add it into our protocols, policies and strategic plans? Why can't we make energy use part of the accredita-

tion process? ... Operations, budget, capital costs, consumable costs, contractual costs — energy decisions are part of all of these."

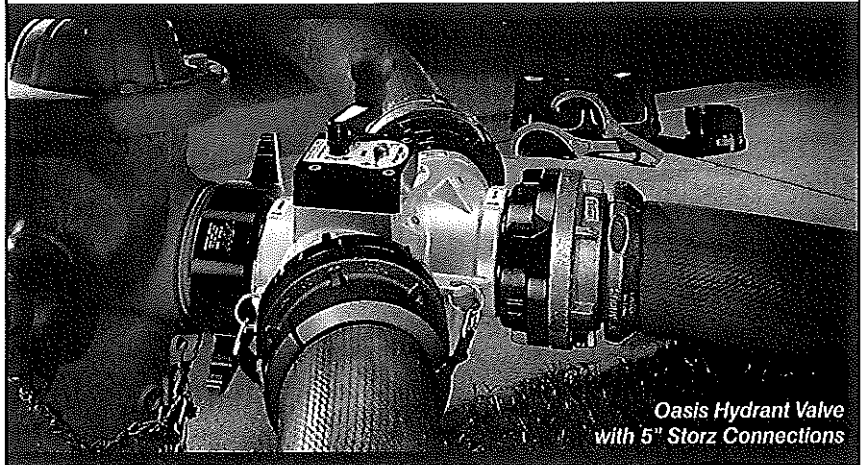
Borgeson suggested another alternative.

"Some cities and other units of government have signed energy pledges, where they promise to reduce energy use

by a certain percentage by a certain date," she said. "Also, a leader in this area is the Department of Defense. In the last few years, the armed services have radically transformed their approach to energy. They would make a great model for the fire service." ■

Maril Hazlett is a freelance writer based in Kansas.

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