Education Opportunity

Energy Management Certification Program Offers Learning and Dollar Savings

Professional energy education can provide more than learning.

It can also bring financial benefits to organizations, as shown by the Energy Management Certification program offered by the Northwest Energy Education Institute.

EMC graduates are creating substantial energy bill savings for their employers, stemming from efficiency projects required for certification as well as from training at EMC workshops. These attributable dollar savings can reach tens of thousands of dollars annually.

Con.WEB interviewed three EMC graduates--all of whom work for public entities in Oregon--about their experiences at the in-residence workshops and ensuing projects at their facilities. All found the program worthwhile and beneficial for themselves and their organizations. They also offered a few suggested improvements. One graduate emphasized the importance of student commitment and employer support for the year-long program, which begins again this summer with a July 28-Aug. 8 workshop at the University of Oregon in Eugene.

"Students who successfully complete the certification requirements join an elite group of can-do energy managers," said NEEI director Roger Ebbage. "They now have a proven track record of energy savings that will carry with them as they move through their careers. Additionally, they have colleagues who have experienced ‘Energy Boot Camp’ and can call on them with questions and/or provide solutions at any time."

Following are profiles of EMC graduates Elin Shepard, who works for the state of Oregon’s Department of Administrative Services, Facilities Division; David Remillard of the city of Portland’s Bureau of Environmental Services; and Ron Osborne of North Santiam School District.

Elin Shepard

Elin Shepard enrolled in the inaugural EMC class, held in spring 2000 at Western Oregon University in Monmouth.

"I was the state recycling manager at the time," she said, but "I had absolutely no knowledge of energy issues at all." Her supervisor at the DAS Facilities Division wanted to expand her role to energy and resource conservation, and EMC seemed a good training opportunity.

After two class weeks she characterized as "really ... intense," with some days running from 8 a.m. to 10 p.m., "The class got me up to speed fast. I was able to function pretty proficiently after the class," said the former French major at Oregon State University. Where she formerly sat in energy meetings and "had no idea what they were talking about, after EMC I sat in the room and I followed everything. It was literally like learning a whole new language."

Shepard said she particularly appreciated learning about the detailed workings of chillers and boilers, along with lighting fundamentals, but was less enthralled with energy-related math formulas: "It wasn't very applicable to what any of us do." She thought the EMC classes--all led by experienced energy professionals--were taught at appropriate levels for different student backgrounds.

She also liked juggling exercises, introduced as a metaphor for the daily work of energy managers.

After the workshop she joined classmate Justin Klure of the Oregon Office on Energy on efficiency projects in two state-owned buildings.

One involved a 13,000-square-foot office facility built in the 1930s as a grocery store and subsequently renovated as a laundromat, bank and finally offices. "It had some real interesting ... system issues," Shepard said. Their project eliminated four hours from the building operation schedule, retrofitted with T-8 lamps and took out unneeded lamps, installed programmable thermostats and occupancy sensors, raised termperature setpoints in cooling season and took out special air-conditioning units for a computer room, according to a project summary.

These combined to save $13,000 annually on electricity and gas bills, or 40 percent of the building's operations costs, she said. Non-energy benefits include better lighting and indoor comfort, longer equipment life and reduced maintenance, the summary reported.

A state print plant had already undergone resource-conserving upgrades, Shepard said, but she and Klure conducted an energy audit and found opportunities for de-lamping and lower temperature setpoints, saving $5,000 annually in energy bills.

The ongoing access to EMC's expert instructors was a "huge benefit" during the year after the class. "I probably sent an e-mail a day to people for about a month," she said. "They always responded back really quickly."

Beyond these projects, EMC has helped Shepard trim state utility bills (electricity, natural gas, water and trash) by an estimated $1.6 million over the past three years. She has, for example, found billing errors (including a recent $42,000 overcharge from Portland General Electric) and discovered excessive energy use, such as fans perpetually on and equipment operating on holidays. "It's the fundamentals of auditing skills I learned in EMC that helped me kind of Sherlock Holmes these things," she said.

Now Shepard even applies her resource-conserving skills away from work. She takes note of overlit parking lots, for example, and at home she and her husband have installed weatherization measures and adjusted setpoints on their programmable thermostat.

"If I had it to do over again, I would do [EMC] again in a heartbeat," she said. "I wouldn't be where I am now if I hadn't taken it … I feel like I've gained some benefit to the state and the money that we paid to send me has more than paid for itself in savings and things that have come out of it. That's the bottom line."

David Remillard

David Remillard
(Courtesy of Northwest Energy Education Instutute)

David Remillard thinks EMC training can benefit anyone involved with energy management, but it requires individual effort and institutional support.

"I do believe the course has something for everybody, if they're willing and have an interest in it," said Remillard, lead electrician for Portland's wastewater treatment facilities. "If they're going to approach it halfheartedly, it's intense enough where they're probably going to get left in the dust. They really need to be going there [thinking], 'This is what I want to accomplish, this is my goal,' and stick with it. It's not a vacation, by any stretch."

He was grateful for his department's backing of his EMC participation, which he considers a vital part of the program's success. "The key to the whole thing is you can send a student down there and do everything you possibly can to get the most out of it, but without their employer's support, not only financially but giving the time, they're not really going to gain that much. The individual will gain, but not the employer."

Remillard's participation has already reaped dividends for Portland. His EMC workplace projects are saving more than $30,000 annually in electric bills, he said. These include reduced energy for air-handling fans, installation of photocells and occupancy sensors, better lighting schedules for T-8s, selected de-lamping, replacement of high intensity discharge fixtures with T-5 lamps in high bays, and improved pump efficiency through addition of a lubricating oil, according to a summary.

"Management has been real good in terms of supporting ideas that come up," Remillard said, for project paybacks ranging from virtually immediate to slightly under four years.

In fact, Remillard said his "energy conscious" supervisor originally approached him about taking EMC. He agreed, and attended the summer 2001 in-residence workshop at UO.

Remillard called the intensive two-week session "quite demanding" on his time, and thus quite different from other professional education he's taken. "A lot of [other trainings] just turn out to be sales pitches," he said, even with "some good information to be gained."

Although the EMC workshop covered some electricity-related topics he already knew, Remillard said he learned quite a bit on other subjects, specifically mentioning HVAC systems and building envelopes. "The whole thing overall, I would say, with the exception of information I already had with my background, was pretty enlightening."

His EMC knowledge increased his awareness of energy-efficient products, and he asks vendors to keep him informed on such opportunities.

Remillard also has become an energy efficiency mentor within the wastewater group. "I kind of feel like I'm the go-to person, which I do appreciate," he said.

He hopes to spend additional work time on efficiency initiatives, as staffing allows.

Ron Osborne

Two schools in the North Santiam School District have better learning environments thanks to EMC projects managed by Ron Osborne.

Asked about the benefits of EMC, Osborne told *Con.WEB*, "The one that really sticks out the most is the quality of the environment in the classroom."

Ron Osborne
(Courtesy of Ron Osborne)

Lighting retrofits at Stayton Elementary School and Stayton Middle School replaced T-12 fluorescent lamps with T-8s and electronic ballasts, which created "an immediate noise reduction in the classrooms," he said. Direct digital controls for HVAC systems--upgraded at the elementary school and installed at the middle school, according to a summary--have helped improve the indoor climate. "We don't have these temperature swings we used to, with people roasting and then all of a sudden freezing," he said.

These and other EMC-related energy-saving ventures are saving the district $21,500 in annual power costs and $12,000 in gas bills, the summary said.

And, these savings are accruing at no additional cost to the district. With funding help from PacifiCorp, Oregon's Business Energy Tax Credit (with Nike as a partner) and state energy loans, "We're running about $1,500 in the black each month right now, with the reduction in energy costs compared to dollars going out in loan repayments," Osborne said. "Looking down the road, we can offer more savings to the district by implementing these measures, therefore offering a better environment for the learning process to occur, increasing the quality of education. That's what schools, in a nutshell, are about."

As the district's maintenance mechanic/energy coordinator, Osborne professed a longtime interest in resource conservation, as a means to improve learning conditions and save dollars. After learning about EMC from his supervisor Tom Hogstad, he arranged for a scholarship from PacifiCorp and an early registration discount to reduce the tuition by half. "I convinced the school board the cost savings associated with this training would more than pay for this experience," he said. He joined the summer 2001 in-residence workshop.

Osborne praised the "wealth of knowledge" he gained from EMC and "the professionalism of the instructors," with their "hands-on, can-do attitude. That was really exciting for me. When I'm around people that are in a trade and have that enthusiasm, I'm impressed and I go the extra mile to push myself." He frequently contacted the instructors for information after the workshop

Learning calculations on energy consumption was particularly useful for Osborne. "That was probably the biggest nut that I really enjoyed cracking." He also liked the class size, and found the juggling exercise a valuable symbol for energy management multitasking.

Soon after finishing the in-residence workshop, Osborne said, he assessed district facilities and found an immediate energy-saving opportunity: PacifiCorp donated VendingMisers to cut power consumption to vending machines, saving the district more than $2,000 annually.

His EMC projects were largely performed by Siemens. "My role ... was to quantify and qualify the measurements taken by Siemens. That's probably where I shined, because of the training I received" from

EMC. He is now developing a districtwide energy conservation program, "to bring staff members on board to develop and monitor a curriculum to help students get involved in energy savings," such as turning off unused computer monitors.

Osborne did suggest some modifications to EMC, including "some form of continuous education" such as short follow-up seminars or on-line opportunities, plus additional curriculum on energy efficiency financial aspects, including funding options. Those, and an outside sprinkler or garden hose to cool off EMC students on hot days during the workshop. --***Mark Ohrenschall***