

# The Benefits of USCO

## *Switch Installation Training*

For more information, contact your Hubbell Power Systems representative, fax 573-682-8714 or e-mail [hpsliterature@hps.hubbell.com](mailto:hpsliterature@hps.hubbell.com).

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# The BENEFITS OF USCO™ Switch Installation TRAINING ARE MANY FOLD

according to

Brian Guenther, Substation Engineer, and

Gene Heiniemi, Substation Electrician Foreman, Xcel Energy, Minneapolis, MN

“Knowing how to properly install a switch improves that switch’s operation and increases its lifetime. The installation can be accomplished more efficiently. The knowledge gained from a training class can also be passed on, internally, to other workers who did not have the opportunity to get the instruction from the manufacturer’s representatives,” says Guenther. Knowing how to properly install a switch improves that switch’s operation and increases its lifetime. Xcel Energy generates, transmits and distributes power in eight mid-western states. It has 3.4 million electricity customers, 1.9 million natural gas customers and annual revenues of \$9 billion.

“At Xcel, we install a lot of switches and feel that training is necessary for a couple of reasons. First, we have a lot of personnel turnover. Second, we often install new switches on old structures, which can be challenging. A new structure is simple—kind of a cookie cutter installation: You have some confidence all the switches will fit. But, when you are working in an older substation, upgrading the switches on existing structures can be tricky. Also, the manufacturers make modifications to the switches, so updated procedures may be necessary,” explains Guenther.

## **Training You Can Use**

South Bend is a small, transmission substation with one 161 to 115kV transformer and one 115 to 69kV transformer. “The 161kV is a rare voltage for Xcel in Minnesota. We use a variety of transmission voltages from 69 to 500kV, but we were installing twelve new switches here, so it was perfect for the training class,” says Heiniemi.

- **The instructor went through not just a hands-on demonstration, but actual installation**

“Before the USCO and Hubbell Power System representatives came out to South Bend, we had already put some disconnects up in the air (since we all understand how to put a switch on the switch structure). Ronnie Mize, from USCO, showed us how USCO puts up the pipes (operating rods) and how to properly attach all the interconnecting rods. The instructor went through not just a hands-on demonstration, but actual installation and showed the crews how to install disconnects.

“We had two days of training classes and Xcel managers let us to bring in about 30 different people from our department. Other Xcel engineers came in, as well. We ran through the installation and adjustment of four



115kV disconnects and we started on a 161kV switch, but time didn't allow us to complete it," says Heiniemi.

The instruction did not stop there. Mize also went to lengths to teach Xcel employees how to adjust the switches and to test their calibration and operation.

- **Everything you wanted to know about switches**

"What I found particularly valuable was the explanations and justifications of certain characteristics of each of the types of switches involved. The instructor talked about their materials and design, their manner of operation and also the installation and adjustment procedures.

"Mize explained when to tighten what and taught us a few adjustment short cuts. He showed us how to make the initial adjustment on a new switch and gave us tips for further down the line when readjustment might be necessary," says Guenther.

- **The right tool for the job**

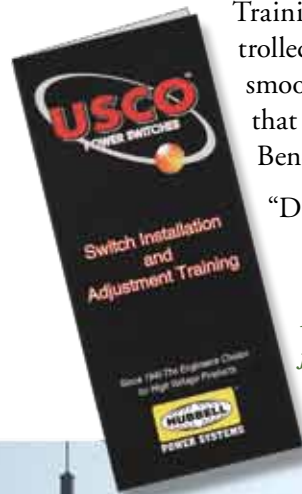
And there were more questions when the group hit the ground.

"We were also able to benefit from the Hubbell representative's knowledge and experience on even general questions about switches--not particular to USCO's brand. What types of switches he felt were best for certain applications: the side break, center side break, the double end break, vertical break and when certain accessories were beneficial, like arcing horns and interrupters. USCO and Hubbell Power System representatives were able to provide information on structure design, the stability of structures (so it doesn't sway when you operate the switch), phase separation and other things of that nature," says Guenther.

- **When it all goes wrong**

Training classes are often held in controlled situations and everything goes smoothly. It does not always work like that in the real world and the South Bend training class was no exception.

"During one part of the training, we



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Twelve new switches are being installed at Xcel Energy's South Bend Substation, near Mankato, Minnesota.





put up two disconnects and, of course, the first one went well. But, we started having problems with the second switch: It wouldn't operate correctly, so the instructor and the crew stayed with it—for a couple of hours—to get that switch properly adjusted. Mize stayed right there and taught the guys all the different ways USCO uses to solve problems. It was good to have both the USCO representative and our engineers see that sometimes things don't always go smoothly in the field," says Heiniemi.

- **Growing Importance of Switches**

Even though there are bigger and more expensive devices in a substation yard, switches are not minor players. They fill a crucial role in proper substation and power system operations. "We rely so much on the substations now, especially since Xcel provides transmission power all over the country. And, substation switches are very important. If the disconnect switch isn't adjusted properly, you could end up with hot spots, which can cause the switch to fail and become a safety concern for the company and the crews who work on them," Heiniemi said.

"Another reason we need the switches to operate correctly is because now days it is much harder to schedule outages. It is very important that the switches open and close correctly and, hopefully, keep operating like that. So, our training committee is trying to increase the number of these training classes. We need to teach our people the proper way to install disconnects. Formal training classes are much better than learning from another worker who maybe hasn't installed a switch for 20 or 30 years," says Heiniemi.

***Now Available on DVD***

"As a supplement to hands on training classes, USCO produced a training DVD that shows how to assemble their switches. It is a very good DVD. We got a bunch of them and handed them out to the foremen at the last departmental meeting," says Heiniemi. ■



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