From its base in Evansville, IN, Vectren Resources, a $2 billion utility, provides electricity or natural gas to nearly two-thirds of Indiana and 16 counties in Ohio, servicing more than 1 million energy users.

On the electric power side of its business, Vectren operates two power plants, which together use five coal-fired units and six gas turbines to produce about 1400 MW of generating capacity. Keeping these plants running continuously and efficiently is vital. Vectren also sells power on the wholesale market where availability has tremendous financial implications.

“We spend a lot of money maintaining our plants to be sure that they are available when the demand calls for it. Our challenge is to reduce our overall operations, maintenance, and capital spending while keeping the availability high,” said Vectren reliability engineer, David Reherman.

Streamlining the maintenance process

To meet this challenge, Vectren management set out to eliminate inefficiencies in scheduling maintenance, ordering parts, and keeping track of completed work. The process of revamping maintenance operations at its electrical power facilities began in mid-1999 with an evaluation of procedures. To complicate matters, data, labor, and parts are managed in two separate locations about 30 miles apart in the Evansville area. The A.B. Brown and F.B. Culley facilities combined have more than 6000 unique assets and 33,000 individual spare parts. Changing the management of these assets and parts impacts the daily work activities for about 225 maintenance personnel.

According to company officials, the evaluation process was driven primarily by the need to streamline maintenance work and equipment processes more than by any explicit requirements for software functionality. “We weren’t necessarily looking to switch from our old software. It was really more a case of asking ourselves how we could develop a maintenance model that would help us drive down the cost of doing unplanned work and allow us to improve the ratio of planned to unplanned work,” said Gary McCarty, maintenance supervisor at the A.B. Brown facility. “At the end of the process, though, it did become clear that a new maintenance software solution was in order. The trick was to find a tool to help us do this without compromising the process.”

New program benefits

After evaluating several offerings, the Vectren management team chose Avantis software and the Avantis InRIM (Industrial Rapid Implementation Methodology) from Invensys Avantis, Burlington, ON. The software provides an enterprise database that enables Vectren to capture and analyze data about current and historical maintenance work. It also helps keep track of the cost of maintaining any piece of equipment, work orders and labor time, and key performance indicators (KPIs) and benchmarks throughout the maintenance operation.

The software also enables maintenance personnel to interface with other key programs—notably Oracle on the financial reporting, procurement, and accounts-payable side, and with the workforce time and resource planning/utilization software that the company uses.

The Windows look and feel of the software was a plus and helped Vectren to implement the rapid acquisition of replacement parts. “Previously, we would buy a part and it would just sort of disappear. Now, using the Purchase Item Catalog feature, it’s easy to find that part, to purchase it if it is not in our stock, and to keep track of it afterward,” said McCarty.

The software also helped the plants achieve a breakthrough in tracking data at the work order level. Previously, separating expenses from information about what planned and unplanned work was performed was the source of considerable frustration.

“Being able to track information about planned and unplanned work was one of the key performance indicators we were trying to improve on,” said Reherman. “Because of the way the software interfaces with the workforce time tracking program, we are able to get to this data more easily.”

Continuous improvement

After nine months of preparation, the system went live in July 2002.

“Using the program, we publish key performance indicators every two months. We look at work task backlog trends. We track the priority of work completed, so we know whether it was emergency, break-in, or scheduled and whether the work was preventive or corrective. We also get the top 10 system costs year to date and top 10 entity costs year to date that help us determine how to spend our operations and maintenance and capital dollars,” said Reherman.

With this type of information, Vectren knows that since July 2002, for example, it completed 12,000 work tasks; 7300 were corrective repairs and 3500 were preventive maintenance work tasks. In addition 250 safety work orders were completed.

“As planners and supervisors, we want to provide to the workforce the means to efficiently perform the task at hand by giving them all of the resources and information needed to do the job. The new software facilitates this and allows us to track what work was done, the costs involved, failure analyses, and even statistical information for us to do this job smarter if it shows up again. As the reliability engineer, I will be looking at and doing failure analyses to improve equipment performance and life expectancy,” said Reherman.

The success at Vectren is strong testimony to the value of approaching asset management solutions methodically with adequate planning, collaboration, and the right software solutions. Vectren has now completely transformed the maintenance operation at its electrical facilities. Its 225 maintenance workers have changed the way they work and are now actively engaged in the process of continuous improvement. They have better information about what work they have done, what needs to be done, and what can be done to make the process better. **MT**

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