

## RAPID Case Study Powering Reliable Electricity Transmission



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— Steve Dobson, Materials Manager

**Organization:** East Kentucky Power Cooperative (EKPC) is an electric generation and transmission (G&T) organization serving a customer population of 1.1 million throughout Kentucky with four power plants. Over 530,000 homes and businesses in 87 Kentucky counties depend on EKPC and its 16 owner-member cooperatives for safe, reliable, affordable electric power.

**Challenge:** In today’s changing electric power-transmission environment, as some types of plants sunset and inventory on the shelves at other plants is no longer available, parts availability is significantly decreasing and lead-times increasing.

**Solution:** Cooper turned to Curtiss-Wright’s Fossil Operations and Maintenance Information Service for energy industry expertise.

**Results:** RAPID’s massive parts database has helped EKPC locate, buy, and sell engineered spare parts and identify solutions to obsolescence issues.

East Kentucky Power Cooperative (EKPC) serves a customer population of 1.1 million people throughout Kentucky with four power plants, 2,852 miles of high-voltage transmission lines, 450 substations, and a generating capacity of 3,243 megawatts and 195 megawatts of renewable energy. More than 530,000 homes and businesses in 87 Kentucky counties depend on EKPC and its 16 owner-member cooperatives for safe, reliable, affordable electric power.

Because part failures in EKPC’s generation and transmission (G&T) equipment can mean a big disruption in service to customers and a serious loss of revenue, the utility depends on a readily available supply of parts to avoid interruptions in power transmission. Curtiss-Wright’s Readily Accessible Parts Information Directory (RAPID) has become a prime resource for EKPC’s engineers, supply

chain professionals, and utility managers.

“Frequently we need to find parts for transmission operations from foreign sources,” says Steve Dobson, materials manager for EKPC. “Inventories continue to be fairly lean and lead-times for many parts have increased significantly. The result is few options for parts in an emergency, particularly if the emergency is a tornado, hurricane, ice storm, or other event where multiple utilities also need parts. RAPID has become a life-line for us when we need to source parts in a hurry.”

### **PROACTIVE SEARCHING, PURCHASING, AND SELLING POWER PLANT COMPONENTS**

RAPID’s powerful search engine functionality and massive database helps utilities locate, buy, and sell engineered spare parts as well as identify solutions to obsolescence

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issues. It pools the inventories of its members to create a virtual warehouse containing millions of parts. Members can search the RAPID database to locate out-of-stock spare parts, reduce surplus stock, and identify replacements for obsolete parts. It helps utilities avoid outages and de-rates caused by out-of-stock parts. It can also automate many procurement processes and reduce inventory investments.

While there are other parts communications methods in the industry and within the rural electric sector, they are not as robust, comprehensive, or easy to use as RAPID. A user simply enters the part description, manufacturer, and part numbers needed. RAPID sends the request to the entire RAPID community, which includes more than 6,700 people at hundreds of power plants, across the country and around the world.

“The scale of RAPID, the support by members and the RAPID staff, and the information sharing via the annual conference and ongoing member relationships is very unique,” adds Dobson. “Participating in RAPID is very easy.”

Getting up and running requires a data transfer of the member company’s inventory master file to RAPID’s industry-wide database. After that, automatic daily updates keep the data in sync. Designating one or more company contacts is also necessary to field inquiries from other utility members. “RAPID has excellent training opportunities, and the system is very intuitive,” Dobson says. “There was an initial setup by our IT department that took a couple of hours. Our inventory data refreshes nightly. The system is really quite simple to use. If you can conduct an internet search you can use RAPID.”

**WHEN RELIABILITY IS ESSENTIAL** EKPC stakeholders have adopted a continuous improvement culture, which means they are constantly looking for better ways to predict industry challenges and foresee future needs. Based on the shrinking nationwide coal and nuclear fleets, feedback from industry suppliers, and EKPC’s own experiences, Dobson predicts that parts availability will significantly decrease and lead-times increase in the years ahead. “To ensure reliability, this challenging future has resulted in our need to reassess how we do

business, particularly within our supply chain. RAPID certainly has its place in our strategic toolbox for addressing these challenges. It has proven to be an absolute necessity for reliability assurance at our company. The primary reason we became a RAPID member was to take advantage of the opportunity to leverage the knowledge and parts inventory information of our industry peers as well as to share knowledge with them.”

For example, operators at EKPC’s Smith Station turned to RAPID when they experienced a bushing failure on a Generator Step-Up (GSU) transformer, causing a short circuit. Dobson was well aware of the potential severity of the situation: According to industry sources, up to 35 percent of large power transformer failures are attributed to bushing insulation failures, and about half of these bushing failures result in an explosion and fire. “The GSU increases voltage from the generation source to eliminate losses in the transmission of energy,” he explains. “When the bushing failed, we did not have a spare for that transformer.”

The team used RAPID’s Emergency Parts Request feature to instant-

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ly broadcast their need to other members. “We received the part in about 29 hours from the Nebraska Public Power District and were back on line,” he continues. “Without RAPID’s support we were facing an outage, would have needed to purchase power, and suffer the resulting penalties.”

EKPC used RAPID again during a cold Kentucky winter when transmission engineers reported that several transformer bushings needed to be changed to avoid a pending failure. The bushings had uncommon specifications and had a long lead-time from the manufacturer. The team had exhausted all traditional sources of supply, including suppliers that were usually able to provide parts. “Searching the RAPID member inventories showed the exact bushings listed in several inventories, and Arizona Public Service released what we needed,” Dobson says. “The bushings were shipped that night, and we had them the next afternoon.”

### **GENERATING UNDISPUTED SAVINGS**

On average, EKPC experiences eight to twelve emergencies per year where RAPID saves the day. The cooperative can also use the

system to sell inventory on request and can identify potential buyers of surplus inventory for investment recovery purposes. Using RAPID to determine which utilities use certain parts is an efficient way to identify potential customers for EKPC’s surplus and obsolete inventory. According to Dobson, it’s a valuable resource for improving the inventory item master file because RAPID automatically populates missing data components within EKPC’s master file. Supplier data becomes a resource for identifying alternate sources of parts by reviewing the prime and alternate suppliers among multiple utility companies.

Membership in the RAPID program offers additional benefits such as sharing industry information and establishing relationships with peers. “RAPID’s conferences are excellent opportunities to gain information and establish important relationships,” Dobson states. “At one of them we mentioned that we were taking on a transmission storm recovery inventory initiative and were seeking information. Ameren Transmission Company members invited us to their facility, where the team provided a tour and

information on their transmission storm trailers, storm layout, and warehouses. For our part, we have hosted utilities to view our operations and processes. The relationships and information-sharing among members is invaluable.”

In today’s rapidly evolving energy industry, as coal plants are retired and inventory on the shelves at other plants is no longer available, Dobson believes RAPID is a necessity. He says it is in the best interest of utility members to expand natural gas plant inventories, and he encourages other utilities to adopt RAPID membership. “The success stories are numerous,” he concludes. “Our cost of doing business would be higher without RAPID as a tool. Our first transaction on RAPID achieved an immediate ROI, and RAPID continues to yield measurable savings each year. Few industries have the kind of inventory information available that our industry offers through RAPID.”

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