Kansas City Power & Light [USA]

Energizing life – a commitment that goes beyond reliability

Kansas City Power & Light (KCP&L), Kansas City, Mo., is a leading regulated provider of energy-related products and services in the Kansas City metropolitan area. This integrated utility serves over 500,000 customers in 24 counties of western Missouri and eastern Kansas, USA. Operating eight power stations with 25 generating units providing power to customers and selling into the wholesale market. KCP&L has more than 4,000 megawatts of efficient generation assets.

In national comparisons KCP&L ranks among those utilities offering the lowest average prices for all customer segments and the least number of power interruptions due to outages. To provide an even better service to customers, the utility has been a leader in using state-of-the-art technologies. For this reason KCP&L chose Barco to provide a large rear-projection display solution for its Transmission Control Center and Emergency Operations Center in its headquarters in Kansas City.

KCP&L currently operates one of the most reliable networks in the country. Infrastructure improvements to strengthen the overall reliability of the system and network, are part of KCP&Ls current and future plans.
Delivering power for the Kansas City metropolitan area requires KCP&L's system to have 1,700 miles of transmission lines, more than 12,200 miles of overhead distribution lines, and approximately 5,500 miles of underground distribution lines.

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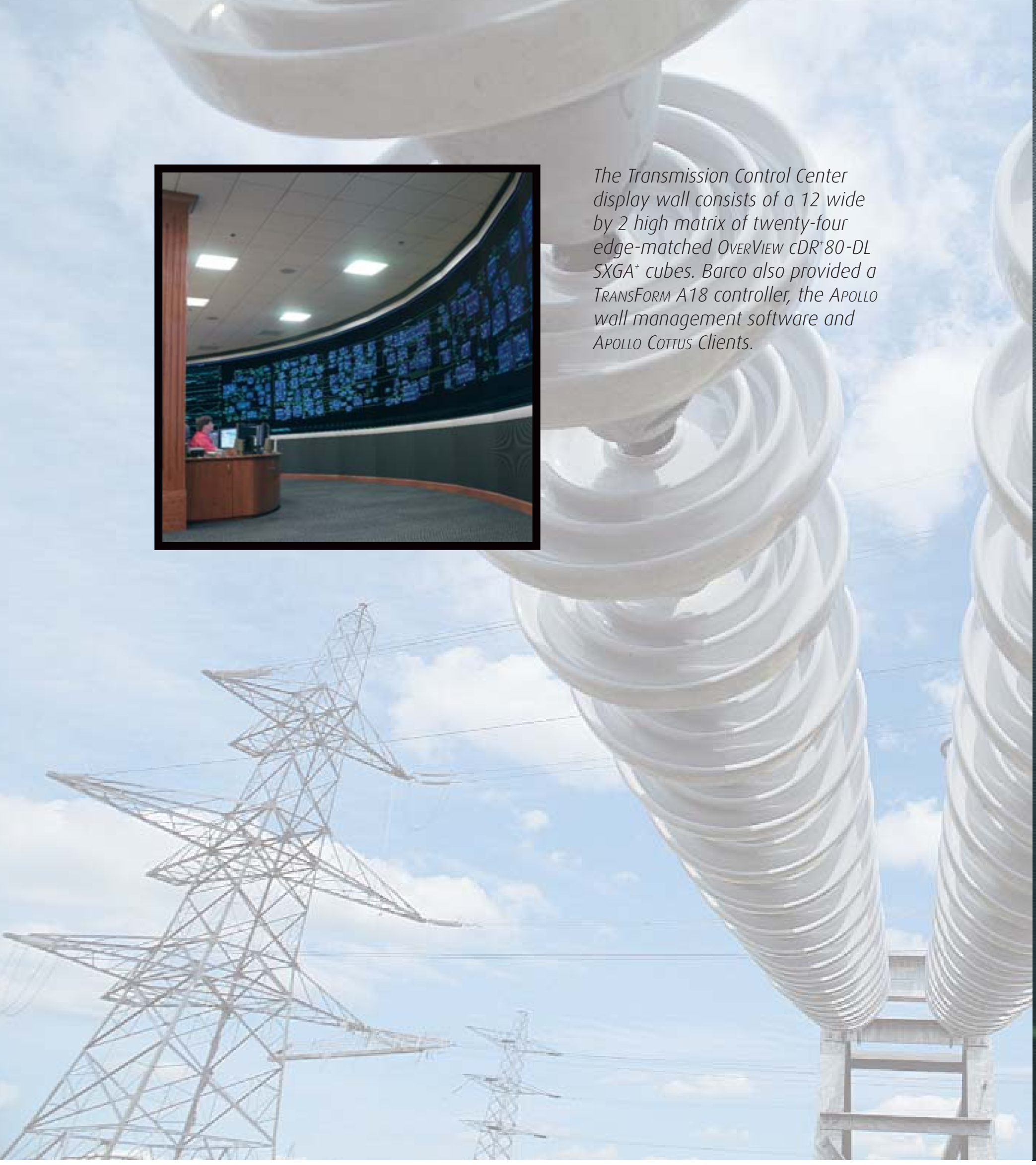

The Transmission Control Center display wall consists of a 12 wide by 2 high matrix of twenty-four edge-matched OverView cDR^{+}80-DL SXGA^{+} cubes. Barco also provided a TransForm A18 controller, the Apollo wall management software and Apollo Cottus Clients.

Increased flexibility
In 1991, KCP&L replaced their static mapboard with a front projection solution in its **Transmission Control Center**. Having been in place for over fourteen years, the front projection mapboard equipment was aging and the control center needed to be modernized to meet the changing business needs. That's why in 2005, KCP&L opted for a rear-projection system after seeing Barco's quality at Distributech 2005. After extensive research and discussions with different vendors, Barco was chosen to provide the equipment for the new mapboard. Barco's solution allowed for the Transmission Control Center mapboard to be roughly the same vertical height and horizontal width as the existing front screen system while providing significantly higher resolution and exceptional image quality through the use of a black bead screen with extremely wide viewing angles.

Barco's unique seamless stitched screen system permits no geometrical loss of any SCADA information on vertical or horizontal cube borders.

The TCC display wall consists of a 12 wide by 2 high matrix of twenty-four edge-matched OverView-cDR^{+}80-DL SXGA^{+} cubes providing a canvas of 16800 x 2100 discrete pixels. Barco's OverView D series integrates cutting edge DLP™ technology into the 80" display wall system that is designed and optimized for use in a 24/7 mission critical environment. The 80" modules include a redundant lamp system allowing KCP&L to rely 100% on the Barco display wall. The rear-projection system is very flexible and its overall maintenance is much easier than that of a mosaic board or front projection system. No more working from tall ladders to maintain the older style systems.

Barco's TransForm A18 graphic controller generates a 16800H x 2100V Windows XP desktop across the entire display wall. EMS software is loaded on the controller to take full advantage of the offered resolution. Multiple EMS application windows may be opened anywhere in any size on the display wall without regard to individual screen borders.

The Apollo wall management software is installed on selected operator workstations to permit real-time keyboard/mouse control of all EMS applications and video windows displayed on the wall. Operators are also able to create wall layouts which can be launched from their desktops or through the Touch Panel Remote Control.

The Apollo Cottus Clients are installed on five networked operator workstations. Cottus permits

simultaneous real-time display of the five workstations as scalable windows on the TCC display wall. Keyboard/mouse control of these five workstations is also possible with the correct permissions. This software allows 100% digital connection between operator workstation monitor and TCC display wall (through LAN) assuring highest quality of image. Additional networked operator workstations can be "screen-scraped" to the TCC display wall for very little add-on cost simply by purchasing more Apollo Cottus Clients.

A touch panel remote control system provides complete functional control of the supplied VCR/DVD player, CATV channels, audio amplifier and lighting system.

Stephen Diebold, Manager Real-time Systems, KCP&L, says, "The whole project was completed successfully within 12 weeks and Barco's equipment was installed and operational in less than 2 weeks. The remodelled TCC has been operational since May 2006. Barco was very professional and organized from the first time we met them. Barco's advanced technology convinced us to make them our partner for this project."

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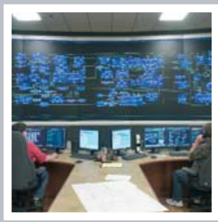
Real time benefits
The Transmission Control Center uses a one-line representation for the KCP&L transmission system. The transmission system is monitored in real time. That is to say the display wall is no more than 4 seconds behind real time! Knowing the connectivity and health of the transmission system on a real-time basis is critical for reliable power system operations. Power transmission systems generate tons of data, but unfortunately that data is over whelming to the system operator who needs to make operational decisions. A key component of what this system does is render the data into useful information and present it to the right people in real-time for them to make the most informed decision.



Service reliability

At KCP&L service reliability is taken very seriously. That's why they've made a significant investment in their new **Emergency Operations Center** (EOC). This state-of-the-art center brings together information from a multitude of sources to help them keep Kansas City energized and operating efficiently.

Using real-time data and video monitors on the Barco display wall, the EOC serves as the command center for restoring service during major outages. High quality and fast information leads to equally high quality and fast decisions by the management team. The goal is to get the power back on quickly, and with the aid of the EOC, KCP&L is better positioned to meet its service reliability goals.

Entering the EOC takes your breath away – especially when you first peek at the panoramic Barco wall of 50-inch units that stretch nearly 17 feet across. The EOC display wall consists of 5x3 OverView mDR$^+$50-DL rear-projection cubes with SXGA$^+$ resolution with a TransForm A18 graphic controller & the Apollo software.
Any Windows application (i.e. EMS, OMS, ORS) can be loaded on Barco's controller to take full advantage of the expanded 7,000H x 3,150V desktop. Two Quad Video Cards permit eight simultaneous video windows (Tuner 1-2-3, DVD Player, VCR, Video Conference Far and Video Conference Near, Aux) to be positioned & sized anywhere across the entire 5x3 display wall in any size.

The EOC was designed to support and facilitate KCP&L's Storm Evaluation and Restoration Plan (SERP), and will be used to improve their response to major storms such as the 2002 ice storm.

The January 30, 2002 ice storm was the worst in KCP&L's history. Ultimately, 305,000 of the company's total load of 450,000 customers lost their electric service. Despite the extensive damage, 67 percent of KCP&L's customers had electric power restored within two days, 95 percent within seven days, and every customer within nine days.

Technology part of improvement plans

Getting the lights back on quickly is never a matter of good fortune. It takes great planning, communication, execution, and perhaps above all, commitment by employees working on the front lines. Since the time of the first electric lines, electric utilities have created contingency plans for responding to the disasters brought on by Mother Nature. Over the last few years, new resources, technologies, and training methods have helped companies across the country improve communication and speed in restoring service, even in the most disruptive cases. Barco's innovative technologies are an important part of these improvements.

Barco Control Rooms - Belgium
Noordlaan 5, 8520 Kuurne
Phone (32) (56) 36-8211
E-mail sales.controlrooms@barco.com

Germany Phone (49) (721) 6201-0
USA Phone (1) (678) 475-8000
Brazil Phone (55) (11) 3842-1656
Japan Phone (81) (3) 5762-8720
Hong Kong Phone (852) 2397-0752

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