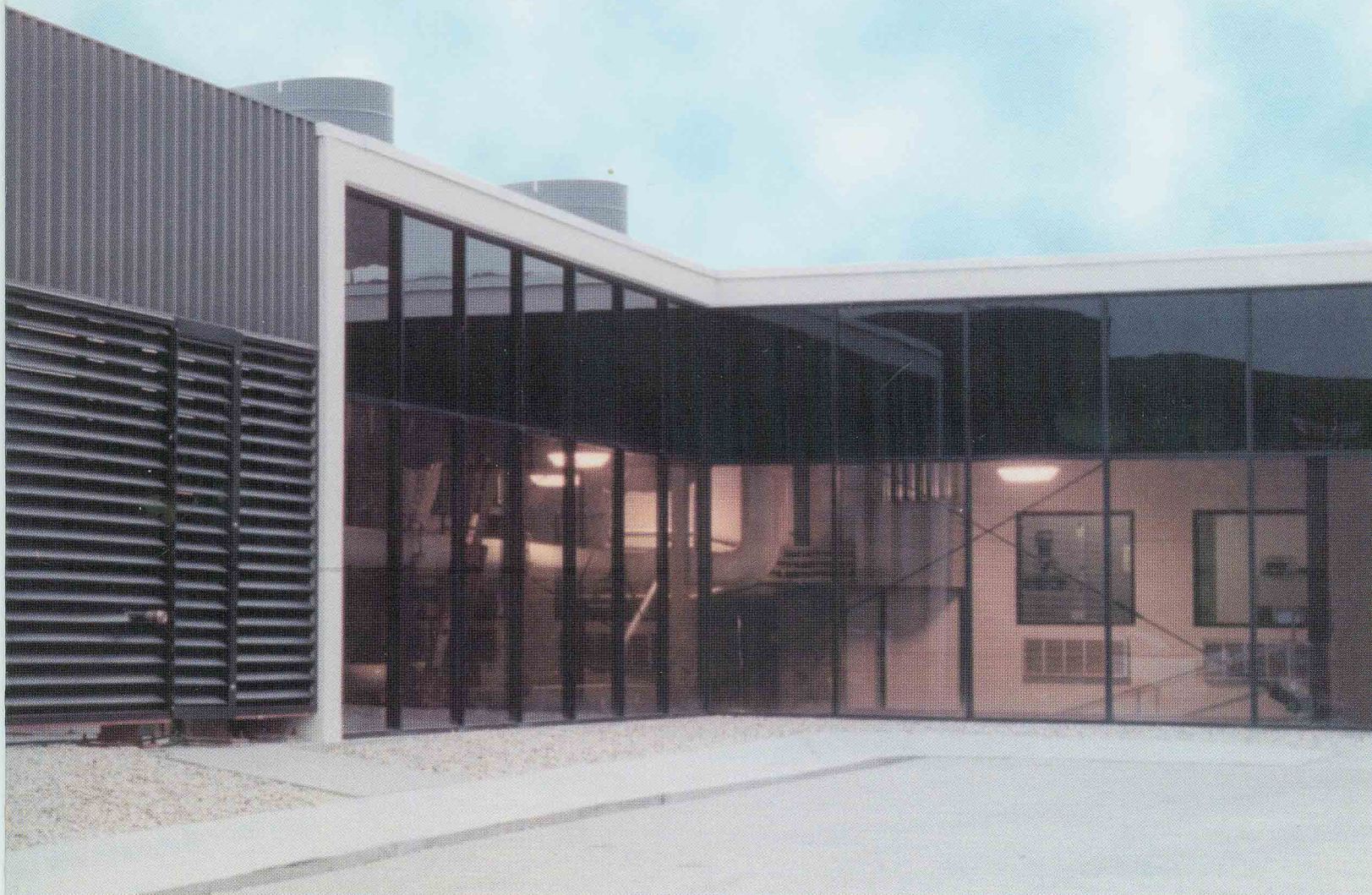
Beloit Memorial Hospital Cogeneration Facility



Faced with the need to upgrade its electrical distribution system and address other energy capacity issues, Beloit Memorial Hospital in Beloit, Wisconsin, U.S.A. chose two Fairbanks Morse-powered generator sets as it planned for peak shaving and emergency power improvements. The new facility began commercial operation in June of 2000.

The Hospital needed to modernize its electrical distribution system, plus it needed additional air conditioning capacity to meet its expanding demand.

December 1999. Two forklifts and cr engines onto their foundations.

July 1999. (L-R) Messrs, Bill Harvey, Gregory Britton, and Warren Martin, break ground for the new cogeneration facility.

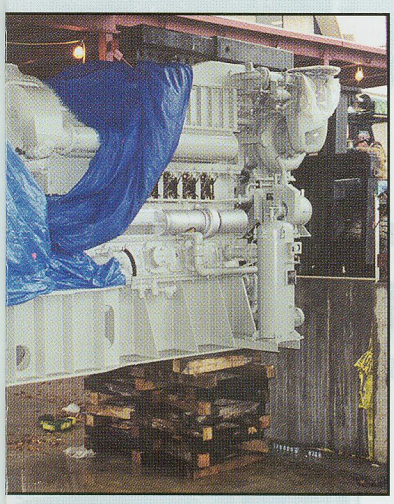
In addition to upgrading existing electrical systems, re tion of electricity in Wisconsin were also incentives in p to insure a long-term, reliable and cost effective energ consumers in California have experienced serious and issues related to deregulation. Consumers that plan eff generation facility can reduce energy costs and signific

The hospital's 3000 kilowatt (kW) cogeneration facility is designed around two six-cylinder Enviro-Design® Opposed Piston dual-fuel engines. Each engine produces 2100 horsepower (hp) (1566 kW) at 900 revolutions per minute (rpm) and drives a 480-volt generator with an output of 1510 kW.

August 1999. Excavation is well underway for the building's foundation.

September 1999. The foundation is ready for building construction.

One of the things the hospital liked best about the Fairbanks Morse engines was the ease of switching to natural gas when the engines operate in the dual-fuel mode. Transferring over to natural gas is a simple matter of turning a switch on the control panel. Since the hospital is an interruptible natural gas customer, the engine's capability to automatically switch to diesel-fueled operation in the event of interruption of the natural gas supply is one of the biggest advantages of this Fairbanks Morse powered facility.



bing timbers were utilized to lower the

ail competition and eventual deregula-
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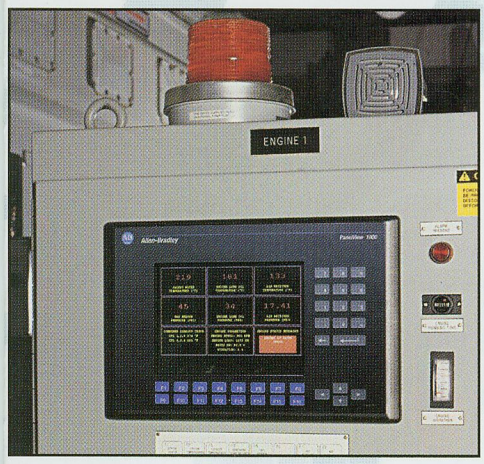
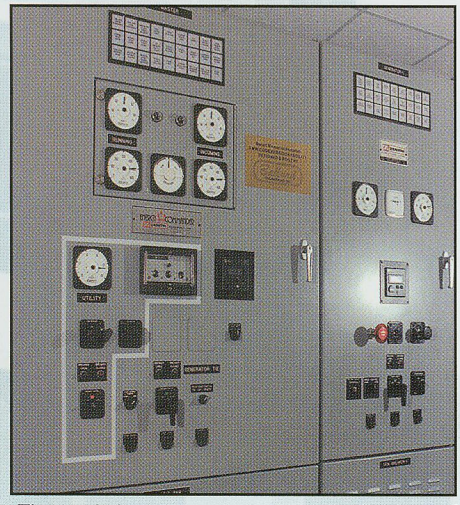
ntly reduce the risk of power outages.

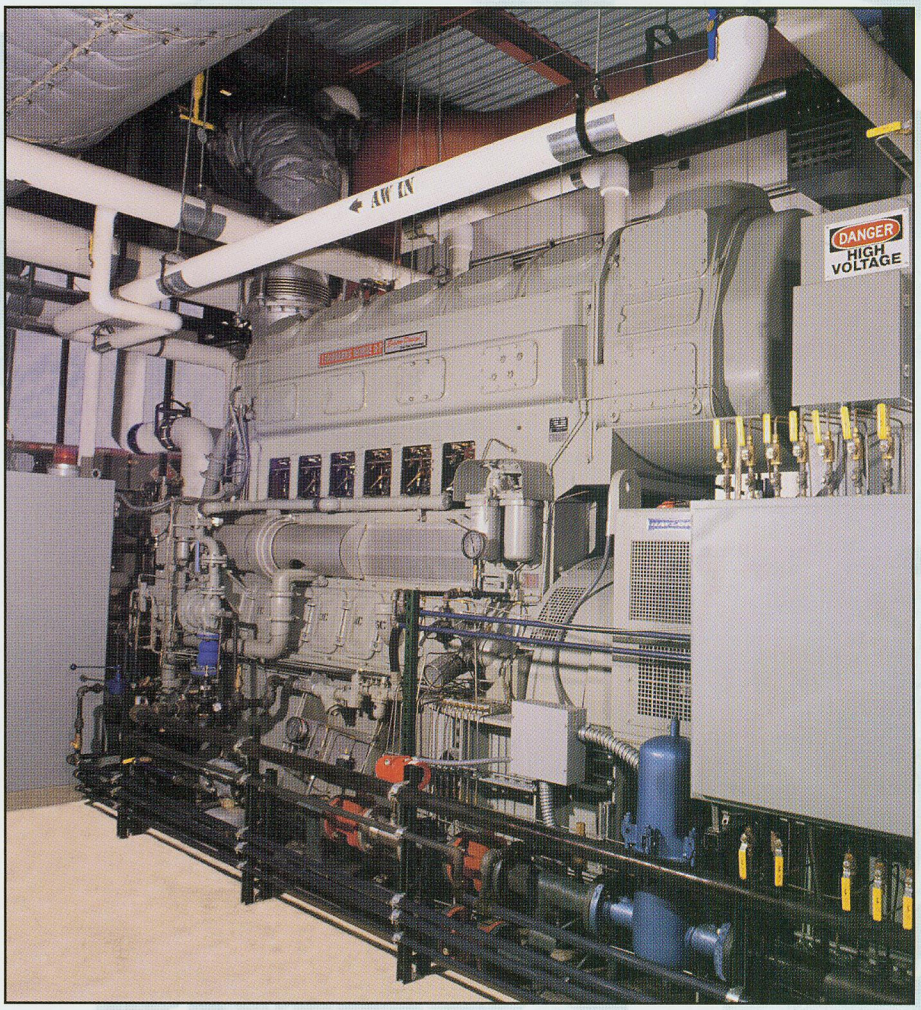


PLC-based engine control panel.



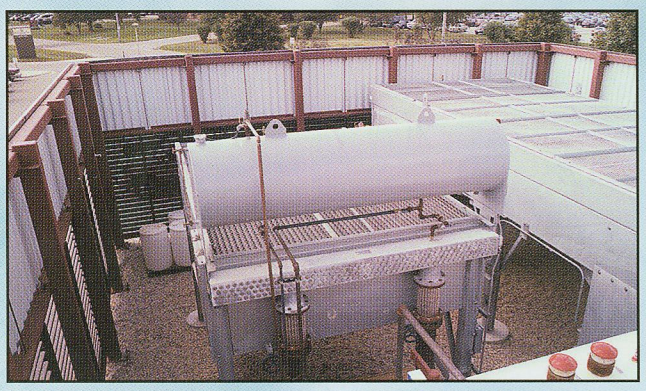
The switchgear controls the distribution of electricity from the engine generators to the hospital and the utility, Alliant Energy.

The Fairbanks Morse engines serve as both peaking and emergency power sources for Beloit Memorial Hospital. The hospital is also able to sell electricity, roughly 1400 kW, back to the local electric utility, Alliant Energy. In addition to the electricity production, the Fairbanks Morse engines provide energy to the hospital's air conditioning system in the summer months and perimeter heating system in the winter months. The facility produces domestic hot water for use throughout the hospital year round. The facility can produce 434 tons of air conditioning, which is over half of the hospital's needs.



June 2000. Two Fairbanks Morse engine generator sets produce a combined output of over 3000 kW of electricity.

The electrical contractor supplied paralleling switchgear for the installation designed to parallel with the local electric utility, Alliant Energy, for peak shaving capability. This peak shaving capability allows the hospital to save money by taking advantage of the lower electric rates that Alliant Energy charges to commercial customers that agree to being on interruptible power. Additionally, the system is designed for automatic standby capability when the hospital's units are required to operate during a power outage. In the emergency standby mode, the system automatically operates under two scenarios. The system first supplies emergency electricity to the highest priority hospital systems such as surgical room and life support equipment. After electricity is supplied to those highly critical areas, then power is supplied to the remainder of the hospital.



Adjacent to the cogeneration facility is a fenced area containing horizontal radiators for engine cooling.

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A Partnership Between...

BELOIT MEMORIAL HOSPITAL

GOODRICH

Fairbanks Morse Engine

ALLIANT ENERGY™