



Medical Facility Energy Efficiency

Best Practices

Hospitals will inevitably use more energy than almost any other building in a community owing to their round-the-clock operations and complex equipment needs. While newly constructed hospitals are often designed to use the latest SMART technology to conserve energy, older buildings often struggle to improve efficiency. But the ability to conserve energy is not limited to new construction; existing hospitals can apply measures to reduce energy usage.

Best Practices include:

- Install combined heat and power (CHP) systems.
- Reduce use of HVAC systems when spaces are unoccupied.
- Replace lighting with LED or other energy-saving light bulbs.
- Turn off or dim lighting in unoccupied areas.
- Swap out older hospital equipment for energy-efficient models.
- Seal ductwork on HVAC systems.
- Add to insufficient or replace damaged insulation.

Cogeneration Increases Efficiency Reduces A Hospitals Energy Costs

Installing a combined heat and power (CHP) or cogeneration system gives a hospital the capability of simultaneously producing two or more forms of energy from a single fuel source. Instead of wasting energy with conventional methods that use only 50% of all energy produced, through cogeneration that number increases to 60-80%, making it incredibly efficient.

A cogeneration system does it by recovering the heat that is normally lost during power generation and uses it for heating and cooling. Benefits it delivers to a hospital include:

- **Resiliency in times of crisis**
Power outages can leave hospitals vulnerable and limited in the care that they are able to provide. Cogeneration provides the flexibility and resiliency hospitals require in adding the capability of generate their own power onsite and use automation to scale up or down based on needs.
- **Adaptability in facility management**
Crises like pandemics illuminated the importance of adaptability in our hospital systems. Hospitals need buildings they can alter and used for multiple functions. But shifting how they use space requires the capability of controlling airflow throughout a building. With cogeneration air flow can be altered to suit changing needs. For example, a hospital can successfully quarantine and treat patients with different care requirements.

Here is a Cummins Power Generation health system example of using a cogeneration system.

- Facility:* Our Lady of the Lake Regional Medical Center, Louisiana, USA
- Challenge:* Design and install new generators, digital controls, paralleling switchgear and transfer switches for life-safety and supplemental power
- Solution:* Cummins installed one 1750 kW diesel generator and five 1750 kW lean-burn gas generators equipped with PowerCommand® digital controls, paralleling switchgear, and transfer switches. In addition, Cummins provided design, installation, technical support, installation reviews and commissioning services.

Results: Lady of the Lake Regional Medical Center is now equipped with a reliable standby power system onsite. It can operate without any power interruptions 24/7 despite threats like blackouts caused by hurricanes.

During the cities peak demand times when power prices are highest the hospitals can lower their power demand and energy costs by using the generator sets for peak-shaving.



Further energy savings come from the facility using the cogeneration system to create hot water from engine reject heat.

Cummins Power Generation is the only company that designs and manufactures all parts of a complete power generation system. It is 'The Power of One'— a fully integrated system with all components designed to work in unison, efficiently, and reliably. System components include PowerCommand® master control, digital paralleling, power transfer, and switchgear systems. Plus, lean-burn natural gas and diesel generator sets.

