

CASE STUDY

Our Lady of Lourdes Regional Medical Center
Lafayette, LA

Facility Description

Our Lady of Lourdes Regional Medical Center, located in Lafayette, LA, is a market share leader for Cardiology, Oncology/Cancer Care and general medical services. Named to the 100 Top Hospitals in America for Cardiovascular Services, the 100 Top Hospitals in America for Orthopedic Services and to the U.S. News & World Report Top 50 Hospitals in America for Rheumatology and Respiratory Services; Our Lady of Lourdes prides itself as a caring, healing facility marked by medical excellence.



Challenge

In 2009, the design phase of the Our Lady of Lourdes Regional Medical Center's new 414,000 sq. ft., 192-bed acute care replacement hospital was completed. Less than two months after construction began, the engineer of record began having concerns about whether the new electrical distribution system was going to be compatible with the vast array of electronic loads that would be connected to the system. The concerns arose because the engineer had recently read several IEEE papers, standards and technical publications that discussed the negative impact that electronic load generated harmonic currents can have on individual loads and electrical distribution systems as a whole. The engineer did not want to burden his customer with the same power quality problems and inefficiencies that plague other hospitals.

Solution

The engineer's initial focus was placed on the facility's eighty-five VFDs which controlled motors totaling 1650



HP. After ensuring that all VFDs would be supplied with minimum 3% input reactors, it was determined that harmonic currents generated by the VFDs would be reduced to acceptable levels. The engineer then focused on the one hundred fourteen low voltage, 480V to 208/120V, distribution transformers totaling 6900 kVA. The engineer acknowledged that transformers had not previously been considered as a component of the system that could actually reduce the effects of harmonic currents. It wasn't until after several months of research had been completed that the engineer realized that there was a tremendous opportunity to provide the hospital with a highly efficient power distribution system that was virtually free of power quality related problems.

Impact

PQI engineered a custom energy efficiency and power quality solution based on its industry leading transformer technologies that would (i) assure a power quality solution (i.e. IEEE Std.519 compliance), (ii) reduce the 'penalty losses' that are generated by harmonic currents, and (iii) improve system and load efficiencies while producing significant financial benefits and reducing power quality related operational problems. Our Lady of Lourdes Regional Medical Center gave approval to the engineer to seek a credit for one hundred fourteen of its competitor's previously submitted transformers and authorized substitution with PQI ultra efficient and harmonic mitigating transformers. The engineering change resulted in a projected annual energy savings of \$34,800 and a savings of \$870,120 over a 25-Year period. With a 4-year, 4-month payback and 23% return on investment (ROI), Our Lady of Lourdes made a solid investment to ensure long term power quality and energy efficiency in their new facility.