

CASE STUDY

Horizon Blue Cross Blue Shield of New Jersey Newark, New Jersey

Facility Description

Horizon Blue Cross Blue Shield of New Jersey is the state's oldest and largest health insurer, formed in 1932. Horizon BCBSNJ was one of the first health insurance companies in the nation and one of the first Blue Cross plans. Today, Horizon BCBSNJ serves more than 3.6 million members. In 2010, the company processed more than 57.6 million claims totaling more than \$13 billion for its members. The company has more than 4,800 employees and is headquartered in Newark with offices in Harrison, Wall Township, Mt. Laurel, and West Trenton.



Challenge

The 16-story corporate headquarters building, vintage mid-1970's, was constructed like most high rises in the last century - two risers per floor, with two low-voltage distribution transformers per floor. With a greater dependence on information technology as well as integration of controls, an ever-expanding data processing center and call center, the decision was made to retro-fit this 24-7 corporate facility so that the connected loads were 100% compatible with the low voltage distribution system. After numerous coordinated discussions with the client managed by Stillwell-Hansen, our local PQI Representative, it was agreed that PQI would get the opportunity to confirm their suspicions that an opportunity for power system optimization existed. After extensive building surveys, it was confirmed that the average transformer loading was less than 12% of its full load rating and the average efficiency of the existing transformers was 92%.

Solution

To reduce nonlinear load-generated 'penalty losses', increase system and load efficiencies, improve power factor and reduce voltage distortion at the 480- and 120-volt loads, PQI designed a harmonic mitigation plan that effectively canceled the 5th, 7th, 11th, 13th, 17th, 19th, 23rd and 25th harmonic currents at the transformers' common 480-volt risers. PQI then met with New Jersey SmartStart Buildings engineers to defend their proposal, calculations and system design for an energy efficiency rebate. After extensive review and scrutiny, a rebate of approximately \$49,000, nearly 25% of the entire project cost, was issued to Horizon BCBSNJ. The utility has subsequently adopted the PQI Calculator™ as an accurate method for determining transformer replacement outcomes.

PQI's Power System Optimization Plan was authorized and implemented. All 112.5kVA pre-NEMA TP-1 transformers were replaced with ultra-efficient DOE CSL 3 45kVA harmonic mitigating transformers to create 24-pulse risers.

Impact

The application of ultra-efficient harmonic mitigating transformers in the reconfigured distribution system increased average loading to 23%. PQI's Power System Optimization Plan reduced Horizon BCBSNJ annual energy costs by more than \$64,000.

Power Quality International is the industry leader in the development, design and manufacturing of ultra-efficient harmonic mitigating transformers. With a passion for solving problems, PQI delivers cost-effective solutions that ensure power quality and energy efficiency for the life of their customers' facilities.