



## PowerLogic™ in Buildings

### Modern power management for a historic university

#### Application:

- Allocate energy costs to departments or processes
- Measure efficiency, reveal opportunities and verify savings
- Leverage existing infrastructure capacity and avoid over-building
- Reduce peak demand surcharges
- Strengthen rate negotiation with energy suppliers
- Identify billing discrepancies
- Improve response to power quality-related problems

#### PowerLogic System:

PowerLogic ION Enterprise™  
PowerLogic ION7550 and  
PowerLogic ION7330 meters

At almost 400 years old, the University of Santo Tomas is the oldest existing university in Asia and the largest Catholic university in the world located on a single campus, with more than 30,000 students. Over the course of its illustrious history, it has grown from a simple seminary to a world-class educational institution with 18 buildings on campus housing a medical centre, medical, science and engineering research facilities, and other educational structures.

Electricity became a major element in its operation in the 20th century, and this historic institution has successfully combined the old with the new by employing modern technologies to manage the reliability and cost of its power.

Between 1995 and 2000, power requirements for the university increased dramatically with the university's steady expansion of campus utilities and related infrastructures, such as new computer networks, a medical centre, data centres, and environmental control systems.

The constantly increasing demand for power put a great deal of strain on the university's old substation. The substation, owned by Meralco, the University's energy supplier, acted as the university's main power distribution facility for over 20 years.

However, after suffering a major transformer failure, infrared analysis showed critical system deterioration in the main oil circuit breaker that could lead to a catastrophic power failure for the entire University of Santo Tomas campus. The University's Building and Grounds Office, which looks after campus maintenance, had to come up with a solution quickly.

## A new substation for lower costs, better reliability

After substantial discussions with Meralco about what was possible, it was decided that the university would build its own new substation to service the entire campus, repatriating its power management functions and allowing the university to obtain substantial discounts from Meralco. In exchange for the expected benefits of the new substation, including improved power reliability and security, Meralco offered the University both the primary and secondary discounts amounting to an average of USD \$5,000 per month.

Besides managing the 34 KV primary line feed from Meralco, the new substation had to address requirements such as higher power quality (especially reduced downtime), more accurate cost allocation and billing, simplified maintenance and improved monitoring and control of the overall electrical system. To achieve these goals and after much research and a comprehensive return-on-investment analysis, the Building and Maintenance group chose to integrate a PowerLogic ION energy and power management system into the new substation.

## Comprehensive energy management

The new fully automated monitoring and control system uses the combined capabilities of its PowerLogic software and hardware for power and energy usage metering, alarm monitoring, breaker status and control, and transformer temperature monitoring. The information gathered is also used to schedule and conduct preventive maintenance of equipment and to explain and correct transient conditions and anomalies.

The PowerLogic energy and power management system is comprised of 23 ION meters in the main substation to monitor and control transformers and circuit breakers, and an additional 24 to monitor distribution points in medical, research and education buildings. Each substation meter is connected via Ethernet to a central workstation, where all information is funneled into PowerLogic ION Enterprise software.

## Quick emergency response

The system offers Building and Maintenance staff remote management options, enabling quick response to emergency situations such as power outages and weather-related incidents. For the University, quick response is essential; unscheduled and unpredicted interruptions can carry extremely high costs, both financially through lost data in the research and education facilities, and potentially in lost lives at the medical centre.

## Centralised billing

Centralised billing is another advantage of the system that is saving the University time and money. Using the 24 meters that are located in various facilities across the campus, the Building & Grounds Office can accurately track the usage of each location, then translate this information into a bill to the appropriate department for the power used. And because the meters communicate over Ethernet and all data is gathered into PowerLogic ION Enterprise software, staff members no longer have to physically go out to the sub-metering locations to gather readings. The system has been so successful that the University hopes to expand its sub-metering capabilities to encompass all buildings and facilities on the campus.

## Teamwork

The relationship between the University and its power supplier, Meralco has benefited from the PowerLogic system, too. The accurate and reliable data it gathers on power usage and events on campus have improved teamwork between the two organizations when it comes to solving problems. It has also made it possible for the university to pay less for its power because all billing information can now be easily verified. And it has enabled proactive troubleshooting on the part of the Building and Grounds Office because they have power quality data to provide insight into their system or any system problems.

## Continuing innovations

The bottom line? This old and veritable institution has enjoyed substantial service improvements as well as cost savings by employing this new-age technology, enabling new technologies and modern facilities on its campus. And by its forward-thinking approach, the University of Santo Tomas has ensured that it will keep adding new accomplishments to its already long and illustrious history.



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