



## **388 George St Green Building Market Report Case Study**

### **Project Data**

**Client:**  
ING & Brookfield Multiplex

**Asset Manager:**  
Brookfield Multiplex

**Project Address:**  
388 George St, Sydney.

**Metered Points:**  
45 meters across 28 floors, 100 meters will be required for stage 2 of the project.

**Application:**  
Tenancy metering  
NABERS (ABGR) Compliance

### **Sustainability Features**

- Energy Monitoring System (EMS)
- Electrical sub-metering
- Tenancy sub-metering
- Annual, seasonal, quarterly reporting.

388 George St is in the process of undergoing a green makeover and is upgrading works with the aim of achieving a Green Star rating of 5 and an AGBR rating of 4.5 stars.

Stage 1 of the project involved the installation of a sub metering system of 41 smart meters to monitor loads at the following points in the electrical infrastructure:

- At all Tenant Distribution Boards (Mezzanine to Level 29)
- At all Retail Tenancies
- At two Data Centres

The project involved the provision of a head end computer and SCADA software system to collect and manage the consumption information. The implementation of the system has allowed for an existing baseline power consumption model to be established so that strategies can be implemented in a targeted fashion to reduce overall power consumption. Using easy to read graphs and bar charts, ongoing compliance can easily be monitored. A facility has also been provided to allow for remote monitoring of the system, with back up UPS power also incorporated into the design.

Future stages of the project involve the expansion of the metering capabilities to monitor mechanical loads, gas consumption, water consumption as well as lighting and power infrastructure upgrades.

Stowe Australia chose the NHP Nemo 72 three phase power meter for this project as it was the most appropriate unit to record the ABGR consumption information. In conjunction with NHP, Stowe designed custom meter enclosure panels that were manufactured in the NHP manufacturing facility in Melbourne. The panels were distributed throughout the site, typically located adjacent to the tenant distribution boards. Given the varying site conditions, there were three variations to the design. There was a single meter unit with internal CT's, a multiple meter unit with internal CT's and a third design that catered for externally mounted CT units.

The electrical distribution system in 388 George St comprises of a busduct network which runs vertically in the electrical distribution riser. The existing tenant distribution boards directly connect to this busduct via a fused tee-off in each riser cupboard. In most cases, Stowe Australia located the new meter enclosure adjacent to the existing tenant distribution board. The typical method of connection involved re-routing the submain to the tenant distribution board via the new NHP metering enclosure and then connecting it back into the existing tenant board. In a few cases (Optus, Coles, L8 & L10 computer rooms), external CT units have directly connected to existing busbars.

A backbone communications bus was installed to network the distributed meters back to a head end PC. The vertical section of the backbone cabling was based on an Ethernet platform. This vertical cabling is category 5e and links the head end PC to a distributed network of Wago Field Bus controllers (FBC). Each FBC is responsible for a group of Nemo meters (typically 8 meters) and connects to them via a RS 485 cable. The communications backbone has been grouped into logical zones and each zone communicates to the head end PC via its FBC.

The Nemo meters are configured to record the following parameters:

- Voltage
- Current
- Power
- Maximum Demand
- Power Factor

The system head end comprises of a Bernecker + Rainer Industrial PC located in the BMCS Room. The PC is loaded with an Adroit 750 SI SCADA program. Stowe Australia was responsible for implementing the SCADA software and for handing over a fully integrated system including reporting functions.