

## Sofitel Legend Metropole Hotel Prestigious Hotel in Hanoi, Vietnam, Uses Woodward Controller as Backup Power Application



### Background

Located in the heart of Hanoi, the award-winning Sofitel Legend Metropole Hotel has a long history as one of Vietnam's most luxurious hotels since 1901. The hotel has 364 rooms and suites and a wide range of facilities including function rooms, a swimming pool, a spa and a fitness center.

The hotel is separated into two wings: the Metropole Wing and the Opera Wing. Power to both wings used to be provided by the state electric utility. This power supply was unfortunately very unstable, causing frequent power blackouts, a common occurrence in developing countries where demand for electric power usually exceeds supply.

### Challenge

The unstable grid caused blackouts to the hotel on a regular basis, which resulted in many inconveniences for the hotel guests. To prevent this, Sofitel decided to automate its emergency generator backup power supply.

Therefore, Sofitel's engineering team purchased two Caterpillar 3516 engines to provide emergency back-up power to the Opera Wing. The team also decided to retrofit the Metropole Wing's old and manually operated emergency backup system, consisting of two generator sets by Renault and SDMO.

### Solutions

- EasYgen 3200 synchronizing panels
- Automatic Transfer Switch (ATS) panels
  - Woodward DSTC-200 ATS controller
  - Socomec ATS switch

### Results

- Availability of backup power for the hotel's Metropole and Opera Wing.
- Minimization of the duration of the power black-out, ensuring higher customer satisfaction rates.



The hotel selected PM Control as its preferred supplier for this power management project, which included supplying power management systems for the two new Caterpillar engines in the Opera Wing and upgrading the existing power management systems in the metropole wing.

The Metropole Wing's Renault engine had a mechanical governor, which had to be retrofitted to a digital control system to fully integrate it into the new system. However, due to budget constraints, the existing governor was retained and as a result automatic synchronizing of the Renault generator to the bus would not be possible. Additionally, due to this mechanical governor on the Renault engine, the Renault and SDMO generator sets could not operate in isochronous load sharing.

The SDMO generator set, on the other hand, was capable of synchronizing into the existing bus as the electronic governor on the SDMO engine could easily interface with a new Woodward EasYgen 3200.

Because of this setup between the Renault and SDMO governing systems, it was challenging to determine which generator set should go online first if the state utility failed. When both generators would be online at the same time, the challenge would be to obtain the load balance.

### Solution

PM Control's scope of work consisted of supplying the following solutions for the existing and new generator sets of the hotel's Metropole and Opera Wing:

- EasYgen 3200 synchronizing panels
- Automatic Transfer Switch (ATS) panels
- Woodward DSTC-200 ATS controller
- Socomec ATS switch

After careful deliberation of the Renault and SDMO governing systems in the Metropole Wing, logics were implemented to the Renault fitted EasYgen 3200 to enable the engine to start and close the generator circuit breaker on dead-bus first upon a utility power failure. With the Renault engine supplying power to the bus first, the SDMO generator could now easily synchronize to the energized bus. After both units were online, the EasYgen 3200 droop setting on each generator set provided the solution for proper load balance.

Prior to the installation, the new power management system was tested in PM Control's workshop, which allowed for a very smooth commissioning.

The ATS controller (Woodward DSTC-200) and ATS switch (Socomec) were successfully commissioned, resulting in a system in which the EasYgen 3200 immediately starts the generator sets once the ATS controller detects power loss of the utility. Consecutively, the engines were synchronized to the bus, resulting in a reliable power supply for the hotel.



Hotel Exterior



Hotel Interior



Hotel Interior

Furthermore, the Caterpillar engines were easily interfaced with the EasYgen speed control and Automatic Voltage Regulator (AVR) functions. The analog interface between the EasYgen and the generator AVR provided a very good power factor response, adding to the quality of the supplied power.

### Installation & Commissioning

Sofitel's engineering contractor, Vientien Engineering, carried out all installation and wiring works. PM Control was responsible for overseeing the second phase of the installation and conducted pre-commissioning checks. Commissioning itself was a success and Sofitel and Vientien were very pleased with the EasYgen 3200 performance.

Extensive testing was completed on the generator sets, switchboards and ATS Panels. To prevent major disruption to the hotel's operations during the commissioning, these tests were done during the off peak period when the hotel had the lowest occupancy rate of the year.

During testing, the ATS motor fuses were blown a couple of times; the cause was identified quickly and the motor power was re-routed to Uninterrupted Power Supply (UPS), supplied by Sofitel.

Tests involving the state utility company were much harder to schedule. Through precise coordination between Sofitel and the state utility, a suitable time slot was allocated to run the utility blackout and tie-in tests. Safety measures were undertaken to make sure critical power consumers were not used when testing was in progress.

### Results

- Availability of backup power for the hotel's Metropole and Opera Wing
- Minimization of the duration of the power blackout, ensuring higher customer satisfaction rates.

The Sofitel Legend Metropole Hotel now has a reliable backup power supply in both its wings. This minimizes the duration of blackouts, which ensures higher customer satisfaction rates among guests of this prestigious hotel.

Sofitel was very pleased with the products and services provided by PM Control. The Director of Renovation even recommended PM Control to another Sofitel Group project.

### About PM Control

PM Control delivers energy optimisation solutions that increase efficiency while lowering emissions. Serving the energy, process and transportation markets, PM Control is the appointed distributor and recognized retrofit partner for Woodward Inc., Regional Technical Center for ABB Switzerland



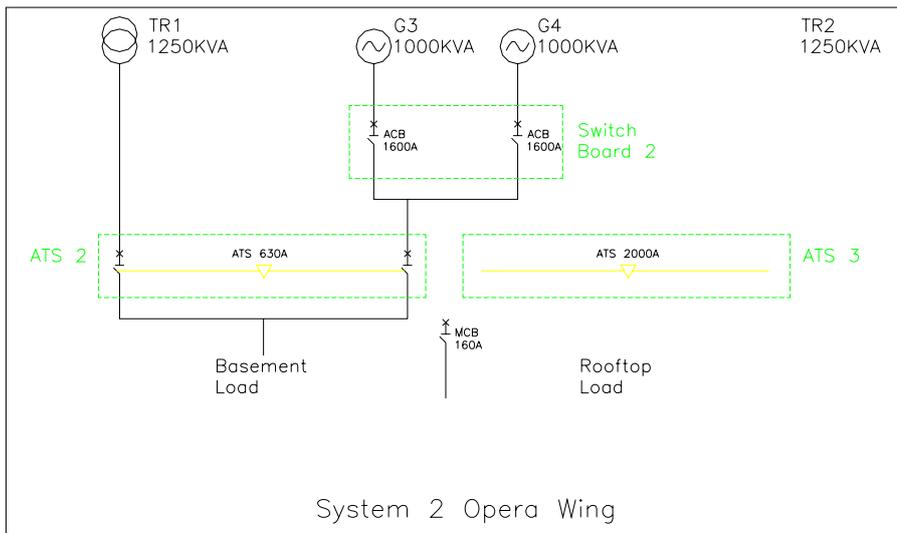
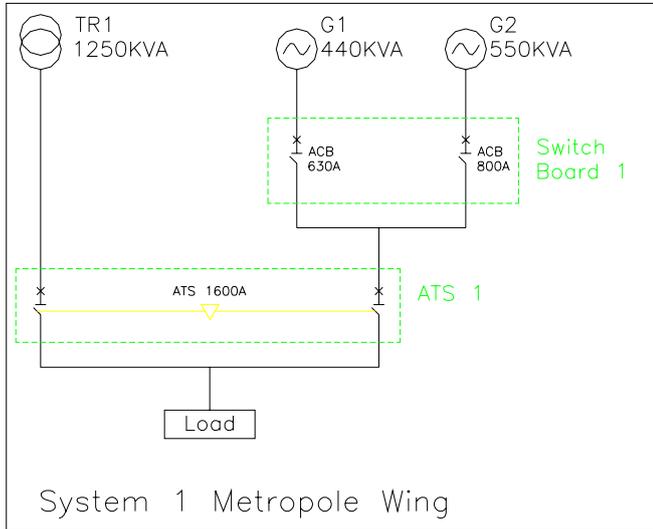
Switch Board and ATS Panels  
- Metropole Wing



Woodward EasYgen

and Value Added Reseller for L&S Electric. Through our activities PM Control is having a positive impact on the lives of people across SE Asia, Australasia, India and beyond.

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