

ARTICLE

Chatrium hotel's dramatic results

Steady power, fuel savings, and emission reduction courtesy of a PCS100 AVC



01 Chatrium hotel

The Chatrium Hotel in Yangon, Myanmar now uses PCS100 AVC's to provide guests a stable power supply, which has also dramatically reduced the hotel's reliance on generator power.

Background

Two PCS100 AVC's were installed into the hotel in January 2016. The entire hotel is now protected from frequent voltage fluctuations, sags and swells that are common in Myanmar. These events on the power supply grid would otherwise cause interruptions and damages to the hotel's electrical systems, guest's electronic equipment, and it would require frequent use of the hotel's two 1250 kVA generator plants.

The Problem

The Chatrium hotel in Yangon had mechanical voltage regulators installed. But the mechanical voltage regulators could not provide sufficient

correction fast enough to manage the fluctuating power supply causing continual interruptions to the operations and facilities. This included lifts, air conditioning, kitchen, restaurant, and bar services creating a high degree of guest inconvenience, and deterioration of the properties control systems. The backup generators support was triggered nearly every day which resulted in the consumption of nearly 500,000 liters of diesel fuel and over 41,000 kg of greenhouse CO2 emissions every year.

ABB's solution

Two 1500 kVA PCS100 AVC units were installed over four days with little interruption to the hotel and commissioned in January 2016. In October 2016, a factory representative took the opportunity to speak with the Deputy Chief Engineer of the Chatrium Hotel, Mr. Chit Min, and view the AVC installation in Myanmar.

Mr. Chit Min said, “The old regulator was large with lots of mechanical parts. It was difficult and expensive to maintain. Since installation nearly a year ago, the AVC has not faulted and we have not had to do any maintenance at all.

The Results

The AVC internal event log revealed that 400 events had occurred on each system and been corrected well within the operating specification. During this period there have been 40 power blackout periods recorded where the generators are then used to supply power to the hotel.

The PCS100 AVC’s have had an immediate effect reducing the average generator runtime from three hours per day to one hour per week each. This is due to the voltage correction performance of the PCS100 AVC, events are now corrected to a level where the generator controller no longer needs to command a generator start. Both fuel consumption and greenhouse gas emissions have reduced by more than 95% totaling savings of over US \$200,000 in fuel and a reduction of 39,000 kg per year of harmful emissions.

Mr. Chit Min and the hotel staff are excited about the performance of the AVC, with the stability of the power supply, the environmental consequence, and the cost savings results. The Chatrium hotel is justifiably proud that the experience they are now able to offer guests fits the luxurious style of the hotel.

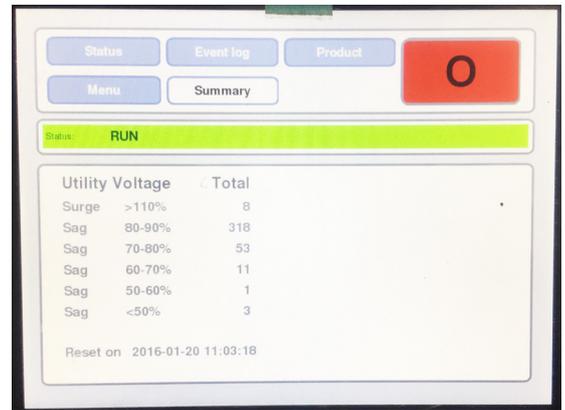
“There is such a huge improvement that we do not notice any power fluctuations at all, and our guest experience is the best in Myanmar,” said Mr. Chit Min.

PCS100 AVC

ABB’s PCS100 AVC is an inverter based system that protects sensitive industrial and commercial loads from voltage disturbances. Providing fast, accurate voltage sag and surge correction as well as continuous voltage regulation and load voltage compensation, the PCS100 AVC has been optimally designed to give required equipment immunity.

To find out more about ABB’s power protection solutions:

Web: www.abb.com/ups
 Email: powerconditioning@abb.com



Generators:	2 x 1250 kVA 32L Diesel
Average run hours:	Before AVC = ~2200/year After AVC = ~120/year
Fuel Consumption:	213.4 L/Hr @ 75% load 272.1 L/Hr @ 100% load Before AVC = ~468,000/year After AVC = ~25,000/year
Diesel cost:	US\$0.46/L at Oct 2016
Generator Emissions:	Before AVC = ~41,400 kg/year After AVC = ~1,950 kg/year

Figures are based on average results from the site.

Emissions have been calculated using Emission Estimation for Combustion Engines published by Department of the Environment, Water, Heritage and the Arts, Canberra, ACT

**Recommended model for Hospitality application
 PCS100 AVC-20**

Utility - Input	
Power Range	250 – 3000 kVA
Maximum Continuous Supply Voltage	
Nominal supply frequency	50 Hz or 60 Hz
Power system	3 phase + Neutral (4-Wire) Centre ground referenced (TN-S)
Outage – control ride through	> 600 ms
Performance	
Efficiency	Typically > 99%
Voltage variation detection time	< 250 μs
Voltage regulation time	< 20 ms for any voltage deviation within the specification
Voltage regulation accuracy	±1% typical, ±2% max.

For full specifications refer to technical catalogue