

## Fiji Sugar Corporation - Lautoka Mill (Fiji)

# Powerhouse Control System Upgrade

### Project Overview

i. Power Solutions were awarded a contract by Fiji Sugar Corporation to design, construct, supply and commission a complete new powerhouse control system for Lautoka Mill. The system included new turbo-generator and diesel-generator governing and voltage regulating equipment, new mill/grid interconnector controls and the steam reducing station controls all operating on an Schneider Quantum PLC and Citect SCADA platform.

### Description of Works

The i. Power Solutions offer included a Control panel, Diesel generator regulators, Battery chargers, PLC equipment and a Citect SCADA system.

The decision by FSC to upgrade the powerhouse control system was due to ongoing problems with power quality. Extensive tests and power studies indicated that for the mill not to trip during grid instability, better fault discrimination and control equipment was required.

#### Control System

The new system is designed to interface to the existing 6.6 kV circuit breaker equipment, 12 MW turbo-generator equipment, 880 kW diesel generators and synchronising controls. The Quantum PLC program is used both as monitoring and control PLC and interfaces directly to the new Si-TEC X-Tend modules on a Modbus RS485 network. A separate dedicated Si-TEC X-Tend RS485 network is used to communicate between the two GSM modules and three CGC modules.

The scope of work included the complete removal of an existing

Cummins diesel generator control panel and the replacement thereof with the new Si-TEC x-Tend CGC modules and voltage regulators. In addition to the diesel generator modifications, the 12 MW turbo-generator governing and control system was upgraded to a Si-TEC CGC module and PLC control.

Additional loop controls will be commissioned on the steam reducing station to allow better control of exhaust steam and maximise export power.

The new control system will enable the powerhouse operator to "dial-in" the required MW export set point and with additional protection features, ensure power is maintained in the mill at all times.

Commissioning of the new system with personnel from i. Power Solutions Pty Ltd and Dawson Technology Pty Ltd will take place before the start of the 2003 cane-crushing season.