



Power Management with Import/ Export Controls, 2 x Grid Incomers, Bus Couplers & Multiple Steam Turbines

CASE STUDY

Customer Profile

Belgaum Sugars Pvt. Ltd. is a leading sugar and cogeneration company located at Hudali village, Belagavi district, Karnataka. The company operates as a 100% subsidiary of Satish Sugars Ltd. and is engaged in the manufacturing of sugar and generation of power through a bagasse-based cogeneration system. The plant has an installed sugar crushing capacity of 10,000 TCD and a cogeneration capacity of 38.3 MW. With its integrated sugar production unit and cogeneration facility, Belgaum Sugars Pvt. Ltd. efficiently utilizes sugarcane by-products for renewable power generation, supporting reliable plant operations and sustainable energy production.



Existing System

The plant had a complex power distribution and generation arrangement consisting of two grid incomers, two steam turbine generators, and bus coupler control. The turbine generators were required to operate in coordination with the grid for reliable plant power supply, load sharing, import/export control, and power factor management. The existing system required stable synchronization between the turbine generators and grid incomers. However, due to grid disturbances and voltage fluctuations, the turbine operation was getting affected, resulting in reliability issues during plant operation.



Problem

The major problem reported at Belgaum Sugars Pvt. Ltd. was turbine tripping during grid failure and voltage fluctuations. Whenever there was a disturbance in grid supply, the turbine generators were unable to maintain stable operation, resulting in nuisance tripping.

This issue directly affected the crushing cycle and overall power plant operation. Since sugar plants depend heavily on continuous process operation, turbine tripping created major interruptions in production and power generation.

Customer Impact

Due to turbine tripping and unstable power management, the customer faced the following operational impacts:

- **Interruption in the sugar crushing cycle**
- **Loss of sugar production**
- **Loss of power generation**
- **Reduced reliability of plant power supply**
- **Equipment stress and possible equipment failure due to sudden disturbances**
- **Dependency on manual intervention during grid fluctuations**
- **Difficulty in maintaining stable import/export power control**
- **Reduced operational efficiency of the cogeneration plant**

These issues created a requirement for a reliable, automated, and integrated power management system.

Benefits Achieved

After successful commissioning of the Woodward ILMS Panel, Belgaum Sugars Pvt. Ltd. achieved the following benefits:

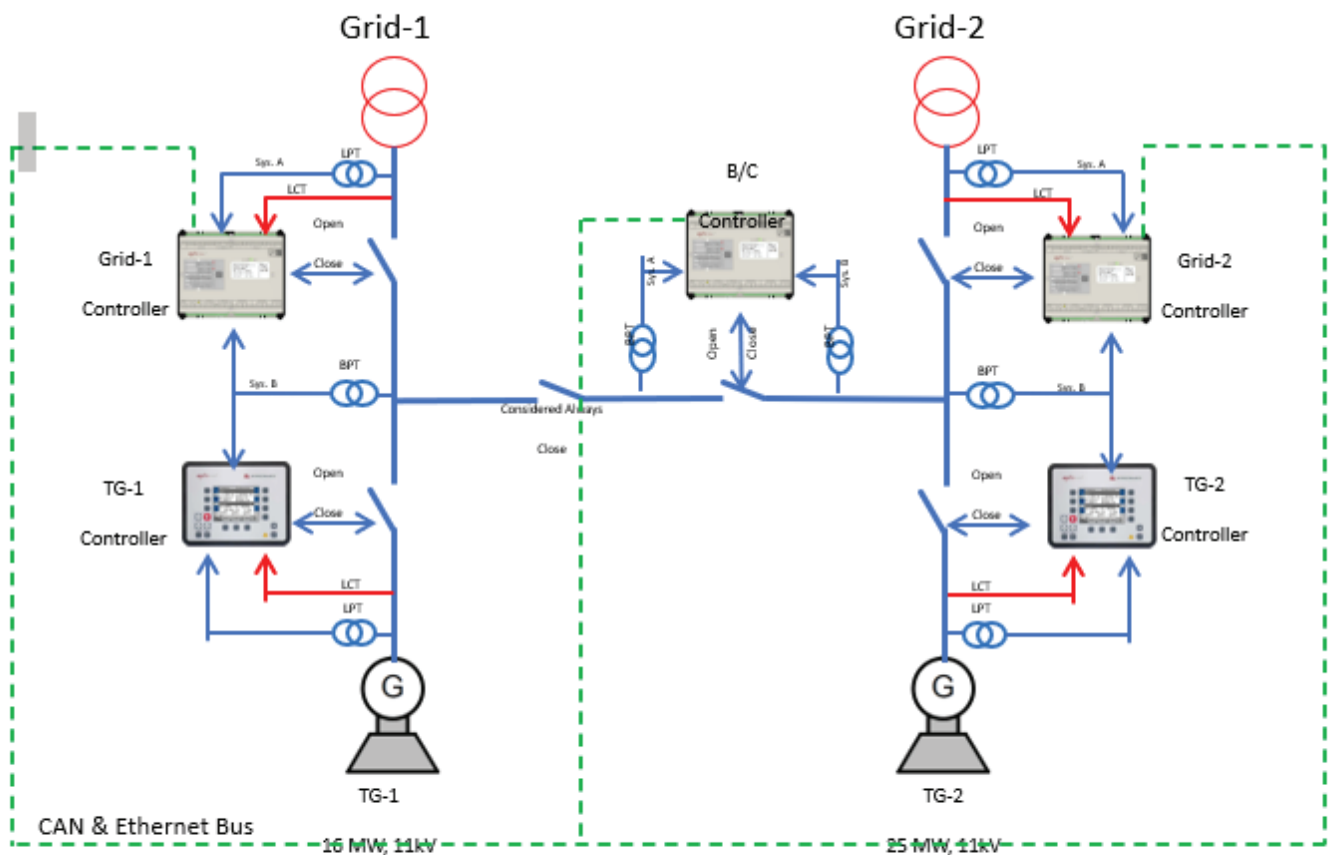
- **Improved plant reliability by preventing nuisance turbine tripping during grid disturbances**
- **Stable operation during grid failure and voltage fluctuations**
- **Efficient load management between turbine generators and grid incomers**
- **Improved synchronization of turbine generators, grid incomers, and bus couplers**
- **Better power import/export control for cogeneration plant operation**
- **Improved power factor control**
- **Increased power generation stability**
- **Reduced production interruption during crushing operation**
- **Reduced risk of equipment failure due to unstable electrical conditions**
- **Smooth and reliable operation of the sugar cogeneration plant**

Overall, the system helped BSPL improve power plant reliability, reduce operational disturbances, and ensure more stable sugar and cogeneration plant operation.

Solution Provided by Asian Power Controls Pvt. Ltd

- Automatic synchronization of turbine generators, grid incomers, and bus couplers
- Load management between turbine generators and grid supply
- Import/export power control for stable grid interaction
- Power factor improvement for better electrical efficiency
- Tripping prevention during grid failure and voltage fluctuations
- Stable power supply for continuous sugar plant operation
- Improved export power control to optimize power generation benefits

The Woodward ILMS ensured that the plant could operate with better stability, reliability, and coordination between the grid and cogeneration units.



Solution Supplied by Asian Power Controls

- Woodward Integrated Load Management System (ILMS) Panel
- Turbine Load Controller
- Grid Breaker Controller
- Grid Breaker Controller



Asian Power Controls Pvt. Ltd.

Asian Power Controls Pvt. Ltd. is a Pune-based company engaged in power generation, distribution, automation, and power management solutions. The company delivers customized industrial solutions in:

- Load Management Systems
- Load Shedding for critical applications
- Power Import / Export Controls for power plants
- Retrofit of electronic governors on STGs and large DG sets
- Power Quality Solutions, Energy Audit, and Facility Management

