



SHREENATH MHASKOBA SAKHAR KARKHANA LTD.

Electronic Governor Upgradation on 3 MW STG & Synch, Parallel Operation & Power Import/ Export on Cogeneration Plant

Customer: Shreenath Mhaskoba Sakhar Karkhana Ltd.

CASE STUDY

Profile

Has been working for the development of sugarcane cultivators since 1999. The company regularly sponsors farmers' visits to State, National, and international level agriculture fairs and organizes seminars and workshops on improved methods of sugarcane cultivation. It also supports free training on scientific farming for children and encourages students with special talent in the fields of education, culture, and sports.

The plant has a sugar crushing capacity of 4500 TCD. The plant system includes a 10 MW HT turbine, a 3 MW LT turbine, multiple breakers and bus-coupler arrangement. The supplied SLD shows the 10 MW TG at 11 kV, the 3 MW TG at 0.415 kV, 11 kV and 0.415 kV buses, transformers, synchronization breakers, TG control



Existing System

Shreenath Mhaskoba has two turbines: a 10 MW STG synchronized with the grid, allowing import/export and base-load modes, and a 3 MW STG operating in isolated mode. The 3 MW STG was manually operated with a maximum taken load of 1.5 MW. Despite available steam, the 3 MW STG was unable to operate beyond home-load mode. The plant has a sugar crushing capacity of 4500 TCD.

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Old System



New System



Problem

SMSKL reported that due to the existing mechanical governor, the plant was unable to Synchronise with Existing 11 KV STG control load properly during shifts and additional manpower was engaged. The 3 MW turbine was running individually in isolated mode by putting home load only. Synchronization time for the 10 MW STG and grid breaker was high.

- Mechanical governor limitation in load control
- Additional manpower requirement for operation
- 3 MW turbine running individually in isolated mode
- 3 MW turbine limited to home-load operation
- High synchronization time for the 10 MW STG and grid breaker
- Under utilization of available steam
- Inability of the 3 MW STG to participate in import/export mode
- Missed opportunity for additional revenue

Customer Impact

The above limitations affected the customer's power plant operation because the 3 MW STG could not be fully utilized although steam was available. Manual operation and isolated running increased operational dependency, while non-participation in import/export mode restricted revenue generation and operational flexibility.

- Reduced utilization of the 3 MW STG
- Underutilization of available steam
- Higher manual operation and manpower dependency
- No import/export contribution from the 3 MW STG before ILMS implementation
- Missed revenue from possible power export
- Delayed synchronization operation

Benefit

After implementation of the Woodward actuator retrofit and ILMS, the supplied case material reports the following benefits and results:

- Reduced man-oriented operation
- Easier and more accurate control by system operators
- Increased total system efficiency and steam saving
- 3 MW (415 V) turbine synchronization with 11/0.415 kV transformer
- Increased export power by 1.5 MW
- Up to 1.5 MW of power exported to the grid for 5 months
- Return on Investment (ROI) covered within first Crushing season
- Improved steam utilization by efficient use of available steam
- Enhanced operational flexibility in import/export mode
- Tripping problem resolved
- Bus-coupler synchronization completed



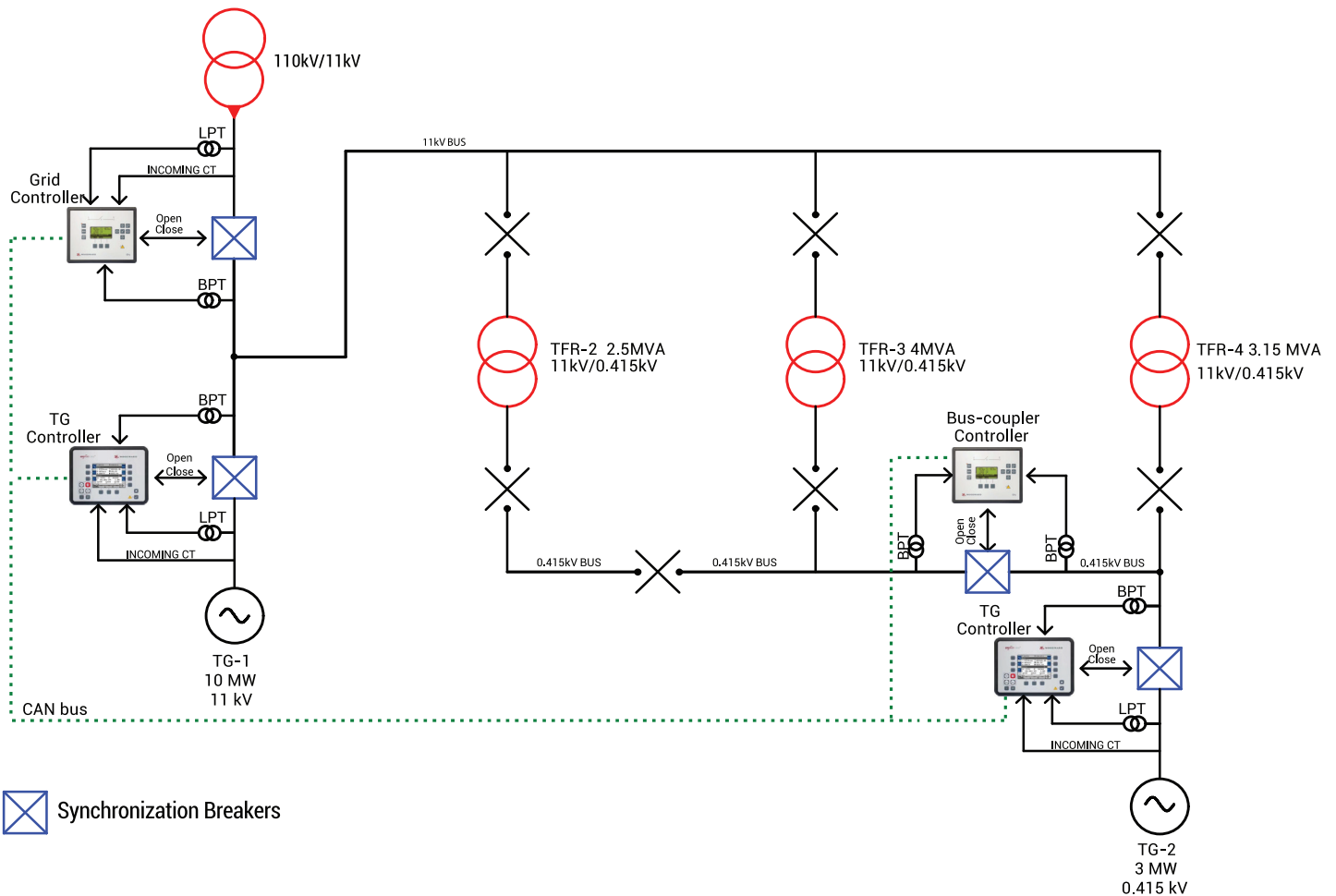
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Solution Provided by Asian Power Controls Pvt. Ltd





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System Supplied by Asian Power Controls Pvt Ltd

- Woodward Actuator
- Turbine Controller Woodward Digital 505 Governor
- Turbine Load Controller Woodward easYgen Series
- Bus & Grid Controller Woodward LS Series
- Woodward Integrated Load Management System Panel (ILMS) .
- MPU's



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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

