Industrial^{IT} Power Management System
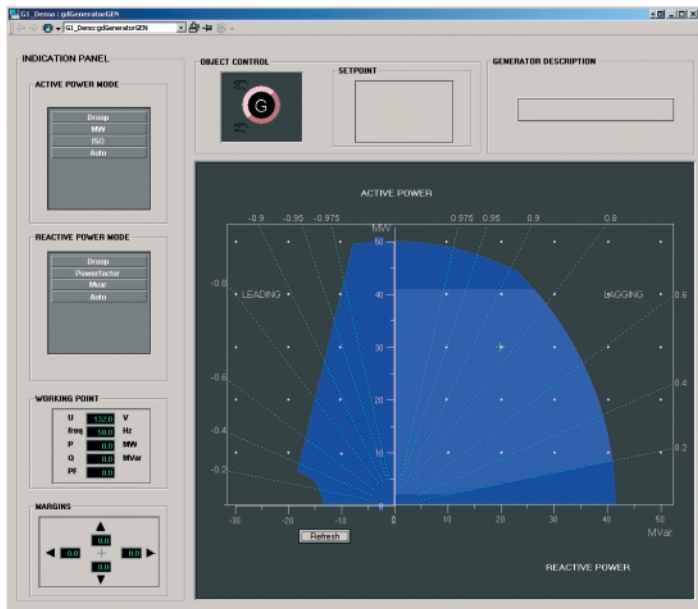
ABB's Industrial^{IT} Power Management System (PMS) ensures reliable and stable energy supply for energy-intensive industries operating in high-demanding, hazardous or extreme environments - such as the oil & gas, petro-chemical, metals, pulp & paper and other industries. The Industrial^{IT} PMS balances energy requirements with the available energy supply, and thus prevents disturbances of operations, or even blackouts. Furthermore, the PMS enables a better control of energy costs, enhanced safety and the mitigation of environmental impacts.

Capabilities of the Industrial^{IT} Power Management System

- Fast Load Shedding at loss of power supply sources.
- Slow Load Shedding in case of overload (Peak Shaving).
- Active and Reactive Power Control.
- Power Sharing.
- Synchronization.
- Re-acceleration and re-starting.
- Mode Control.
- Generator and Turbine Control with integration of Excitation and Governor Controller.
- Transformer and Tapchanger Control.
- Circuitbreaker Control with integration of protection relays.
- Motor Control with integration of Motor Control Centers.

- SCADA functionality including:
  - Time Tagged Events (1 ms accuracy).
  - Intelligent Alarm Filtering.
  - Consistency Analysis.
  - Disturbance Data Analysis.

Industrial^{IT} Power Management System helps you to:

Avoid Black-outs
In case of a lack of power, Load Shedding secures the electrical power to critical loads by switching off non-critical loads according to dynamic priority tables.

Reduce Energy Costs / Peak Shaving
When all on-site power generation is maximized and the power demand still tends to exceed the contracted maximum electricity import, the system will automatically shed some of the low priority loads.

Enhanced Operator Support
At sites where electricity is produced by several generators, the demands with respect to control activities by operators are much higher. Advanced functions such as intelligent alarm filtering,

consistency analysis, operator guidance, and a well-organized single-window interface support the operator and prevent incorrect interventions.

Achieve Stable Operation

The Power Control function shares the active and reactive power between the different generators and tie-lines in such a way that the working points of the machines are as far as possible away from the border of the individual PQ-capability diagrams so that the plant can withstand bigger disturbances.

Optimize Network Design

Because the setpoints for the generators, turbines and transformers are calculated in such a way that no component will be overloaded and the electrical network can be used up to its limits, over-dimensioning of the network is no longer needed.

Minimize Cabling and Engineering

All the signals and information which are available in protection/control relays, governor/excitation controllers and other microprocessor based equipment can be easily transmitted to the Industrial^{IT} PMS via serial communication links. This avoids marshalling cubicles, interposing relays, cable ducts, spaghetti wiring, cabling engineering and provides extra functionality such as parameter setting/reading, stored events, disturbance data analysis and a single window to all electrical related data.

Integrated System Solutions

ABB provides a common automation architecture for integrated system solutions that include safety, instrumentation, electrical and analytic systems.
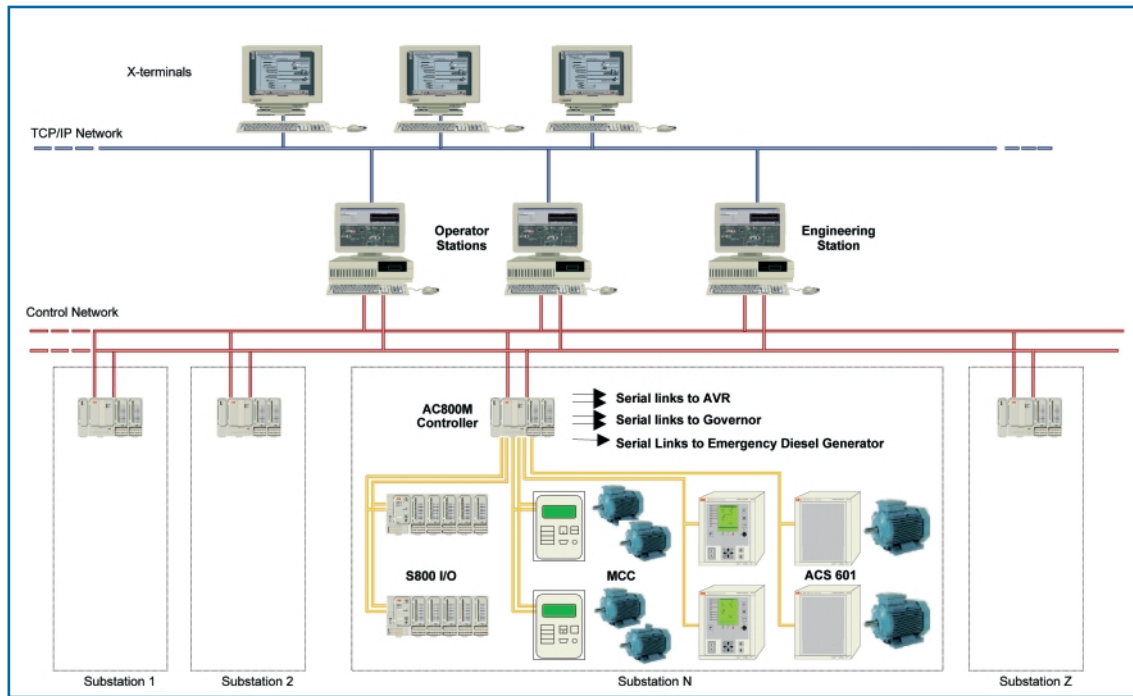
Configuration example of Industrial^{IT} PMS integrated with protection relays, Motor Control Centres, Governor Controllers and Process DCS.