Performance enhancement for
gas turbines

A changing market
In a rapidly changing market driven by deregulation and globalization, more and more customers are looking into cost-efficient upgrades for increasing the lifecycle of their capital equipment and meeting more challenging requirements in terms of performance, manoeuvrability and availability.

ABB’s solution, our customers’ benefits
The Egaturn concept for retrofitting power plants is a tailor-made solution, utilizing electrical and mechanical components as well as products of the ABB control system. It ensures a state-of-the-art turbine control system seamlessly integrated into the overall plant.

Situation
Due to the phasing out of I&C equipment or the wear on mechanical parts, older combustion turbosets often show a lack of reliability and availability, whilst the major turbine and generator components are still offering a substantial remaining lifetime. Often, obsolete control and protection systems make it impossible to meet the stringent demands for quality and proper operation within the power network. Old combustion turbines accordingly run on base load for low prices, but with overproportionally high costs for operation and maintenance.

ABB can offer the complete range of services and equipment for retrofit jobs:

- Installation of a new Egaturn turbine control, operating and monitoring system, including automatic start-up and shutdown sequences
- Replacement of old and obsolete control equipment by an electronic speed governor offering fully automatic operation of the turbine
- Replacement of mechanical / hydraulic protection systems
- Implementation of electronic governor protection, for temperature, load and frequency
- Implementation of state-of-the-art machinery supervision system with diagnostic capabilities
- Implementation of dual fuel capabilities
- Renewing of electrical devices like Generator Protection, Automatic Voltage Regulator, synchronizing device etc.
- Installation of a unit control system.
- Complete services: site assessment including feasibility studies, design, engineering, installation and commissioning.

With the Egaturn gas turbine control & protection system, ABB has developed a modular package that can be combined to create any tailor-made solution reflecting the status of the current equipment and the required performance of the gas turbine:

- Handle peak load demands
- Handle primary frequency control
- Fast loading / unloading transients
- Island operation
- Minimized start-up time

State-of-the-art turbine control system
To achieve maximum availability and reliability, the turbine control makes use of a redundant, fault tolerant and fail-safe architecture with a master/slave configuration for closed-loop control and up to two-out-of-three voting for turbine protection.

Competence in mechanics and hydraulics
The ambient conditions inside gas turbines entail stringent demands on the surrounding equipment. We accordingly supply our customers only with field-proven devices improving the reliability of the system.

Our solutions, whether electrical servodrive, low pressure hydraulic or high pressure hydraulic with their own oil supply up to 200 bar, can be integrated in almost all mechanical systems.
Integration as a major task in system configuration

- Multiple available ABB hardware platforms allow optimized integration into existing or future installations of the overall plant DCS (common modules, common tools, common operator station, common spare parts, ...).
- ABB - ONE partner for all your needs, gives you the assurance that all interfaces, either for the mechanics or electronics will be seamlessly integrated and fit together as one - with no extra efforts for our customers.

Increase profitability

Considering the advantages obtained by retrofitting, there is no need to wait until the first malfunction occurs due to obsolete equipment:

- Meet requirements for the UCTE-market
- Produce power for the spot market
- Sell your power for the best price
- Reduce maintenance workload
- Enhance reliability and availability
- Lengthen the lifetime cycle of the turbine to a maximum
- Enable smooth and efficient operation of the turbine under different operating conditions
- Avoid major and expensive damages of the system

Reducing the mechanical work on a minimum is not only a matter of investment costs. The main advantage of this solution will be short installation times and good return on investment (ROI). This means our customers have an opportunity to deliver energy at higher quality and lower costs in an surprisingly short time-frame.

Based on experience

ABB can draw on more than 40 years of experience in developing, manufacturing, supplying and managing control systems for turbines and power plants, with more than 1200 turbine control installations worldwide.

Around the turbine

Solutions for turbines and generators

- Instrumentation and actuators
- Electro-hydraulic solutions
- Control and protection systems
- Auxiliary controls
- Supervision and monitoring systems
- Unit control systems
- Plant management and optimization solutions
- Excitations systems
- Synchronization
- Generator and unit protection
- High current equipment
- Installation and commissioning
- Service and maintenance
- Technical consulting and studies
- Training simulators

ABB – One partner for all your needs
Contact us

ABB AG
Power Systems Division
P.O. Box 10 03 51
68128 Mannheim, Germany
Phone: +49 (0) 621 381 30 00
Fax: +49 (0) 621 381 26 45
Email: powertech@de.abb.com
www.abb.de

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