Gas turbine power plants
Excellence in thermal power
ABB has a longstanding tradition and extensive experience in erecting gas turbine plants and applying gas turbine technology. The 4 MW, Emergency Power Plant built by BBC for the Swiss town of Neuchâtel in 1938 is generally considered a milestone in the commercial use of gas turbines for power generation.

Since that time, gas turbine technology has developed rapidly and has become more flexible in terms of its utilization in power generation. ABB has erected numerous gas turbine units, making use of its longstanding expertise and knowledge in the area of gas turbine technology. Today, tailored solutions fitting to the needs of fast and demand-oriented power generation are of paramount importance to both investors and plant owners. Extremely short installation times, low investment costs and an enormously growing volatility in the electrical distribution have been the primary driving forces in applying this technology in order to achieve higher levels of reliability in the power grid.

Current studies and analyses carried out by recognized professional associations unanimously emphasize the significance of a reliable minimum of power output from the conventional power plant fleet in order to assure stability in transmission grids that are increasingly fed through the power generated from renewable decentralized energy sources.
Tight schedule
The ambitious goal of investors and plant owners is to minimize the implementation times of the projects and to start commercial operation of the plants as soon as possible. This is especially the case with simple cycle power plants, since they are primarily used for covering strategic demands, as in the event of power shortages or for peak load demands. On the customer side, a number of prerequisites need to be fulfilled, for instance: provision of primary energy, along with the specification data, and the availability of water resources, e.g. for fire fighting purposes.

Of similar importance are ecologically safe waste-water treatment facilities and an adequate power purchase agreement. Thanks to its global presence and its local partners all over the world, ABB’s global ‘Footprint’ can help to set up the jobsites quickly and implement the projects successfully and on schedule.

Standards
ABB can draw on many decades of practical experience in erecting such reference power plants and can use its standards, both in the technical and in the administrative fields, to create the necessary basic and prerequisite conditions. The best standards and tools, however, are worthless if you do not have the experts and experienced engineers who can handle them. In addition to its full-scale plant solutions, ABB can offer solutions for the various BoP systems (Balance of Plant) designed to extend and upgrade existing gas turbine systems. Such solutions can comprise involving all disciplines, i.e. civil engineering, mechanical and electrical engineering, as well as the necessary automation competencies.

Expertise
Process expertise and overall plant expertise are the key to a successful development of gas turbine projects. Already in the offering stage, it is important for the customers to know that high-quality consulting support based on coherent and cost-effective concepts are available. Specialized expertise is vitally important in all technical disciplines (construction, process engineering, mechanical engineering, electrical engineering and automation engineering) throughout the entire value-added chain – from sales to project management and engineering up to the installation and commissioning of the plant, including the site management activities.

Special attention has to be paid to a consistently high level of quality and a professional concept in order comply with the high requirements of the provision of occupational health & safety and the environmental requirements applicable to the construction sites. The entire offer capability is complemented by a field-proven service portfolio, thus providing optimal protection of the investments made and a high level of operational availability for the plant, and last but not least, thanks also to tool-based maintenance concepts, stock-keeping of essential spare parts, and customized service agreements.

Solutions
Besides the gas turbine, which is the main component of the gas turbine power plant, a number of auxiliary and ancillary systems are essential for the function of the plant, for example:

- Automation systems
- Electrical systems for energy output and substations
- Emergency power systems
- Fire protection and fire-fighting systems, including hydrants and supply lines
- Fuel supply systems
- Lighting systems
- Lightning protection and earthing systems
- Water supply and treatment systems

ABB can offer proven and tailored solutions for all of these components and systems. By seamlessly integrating the numerous individual components and systems, a safe and high availability of the overall plant is implemented and also defined operating properties which can satisfy the expectations of investors and final plant operators.
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