

Retrofitting the CCGT unit with a 312-MW unit

## Gas Turbine Upgrade Improves Efficiency



**Location**

China



**Client**

Large Power Utility



**Expertise**

Combined Cycle Gas Turbine, Gas Turbine, Compressor, Efficiency, NOx Emission, Thermodynamic Cycle, Combustion System, Project Manager, Operation Engineer, Process Engineer, Rotation Equipment, QA/QC, Plant Retrofits

### Our Services



- Owner's Consultant
- Technical Advisor Gas Turbine Upgrade
- Thermodynamic modelling of a CCGT single unit
- Assistance in contractual issues
- Engineering support in FEED studies, design reviews, expert opinions
- Preparation of HazOp review meetings
- Facilitation of HazOp review meetings

## Project description

A major Power Utility in Asia contracted RWE to assist with consultancy on a proposed Gas Turbine Upgrade Project a single CCGT unit (312.5 MW) to further improve thermal efficiency and reduce nitrogen oxides (NOx) emissions from the CCGT. RWE had experience of a similar upgrade carried out at Little Barford Power Station (UK) targeting an improved thermal efficiency and reduced nitrogen oxides (NOx) emission from the CCGT.

The main scope of the project included the complete replacement of the gas turbine and compressor, hot gas path components, combustion system, etc., and the associated modifications to other major components including the heat recovery steam generator (HRSG) and generator transformer in the same single-shaft configuration that are necessary to cope with the changes in operating conditions from the gas turbine.



Our owner's consultancy services included technical and contractual project advice, engineering support in FEED studies, design reviews and expert opinions through RWE offices in Europe. We also delivered the thermodynamic modelling of the single unit as well as preparation and facilitation of HAZOP (Hazard and Operability) review meetings.

The result: Besides the performance improvements, the project could also reduce maintenance costs and contribute to the reliability of the units in the longer term. The project has been successfully implemented in one of the CCGT generating unit in a safe manner, slightly ahead of original schedule and with good machine performance results after upgrade. Hence upgrading existing CCGT generating units provides a feasible and sustainable way to upgrade thermal and emission performance of an entire CCGT fleet.

## Middle East & APAC

