



Efficiency at the highest level. From the very beginning.

Comprehensive services for the planning and operation of power plants.



TÜV Rheinland employs many specialists. For every sector and worldwide.

We help you to save energy. Even in the planning phase.

In the face of increasing energy demands, an ongoing restructuring of energy sources and environmental protection concerns, the need to construct and operate highly energy efficient power plants has long been a foregone conclusion.

Energy efficiency requires the modernization, renewal and replacement of old technology by more efficient and more environmentally friendly technologies. Ensuring maximum safety, functionality, and trouble-free operations of your power plants and systems is also essential. In the event of damage, downtime or loss of production, significant costs can arise. With our integrated service packages, we support all project stakeholders such as investors, owners and operators, engineering procurement and construction (EPC) contractors and manufacturers throughout the entire plant's life cycle. Right from the beginning we help to optimize investments and ensure safety, quality and reliability of your installation. Whether for nuclear, coal or gas-fired, wind, solar thermal or photovoltaic power generation projects, we provide a wide variety of services to assist every type. Our services include project monitoring and supervision, technical assistance, site assessment, quality assurance and quality control, expert studies and analyses, in addition to the regulatory compliance certification we are renowned for.

Our experts are drawn from a broad spectrum of professional backgrounds, possessing a diversity of experience and we work in multidisciplinary teams to find the right solution for a range of industrial sectors in diverse geographical regions. This may involve the management of the whole project or just require one of the services we offer.

Our broad coverage of the energy sector.

From initial design concept to final operation – we offer many specialized services for:

- Conventional power generation (coal, gas, lignite)
- Nuclear power plants and facilities
- Onshore and offshore wind farms
- Solar thermal and photovoltaic power plants
- Other renewable energy generation (biomass, geothermal, hydro)
- Oil and gas installations and pipelines

The breadth of our experience and capacity results in direct benefits to you:

- We are among the best in supporting you in staff selection and coaching
- Worldwide network of branches
- Decades of experience in a wide range of technologies
- Scope of applicable accreditations as Certification Body in several regions and countries
- Monitoring the market for new technologies / research and development
- Integrated services covering the whole project life cycle

Design & Construction

Design and qualification:

- Licensing support
- Qualification / certification of structures, systems and components
- Qualification/certification of manufacturers and constructors
- Conformity assessment of the design and manufacturing specifications of component
- Design approval of pressurized equipment as the Notified Body for a range of standards
- Stress and lifetime analysis of structures, systems and components
- Acceptance of the specified materials and welding processes
- Approval of new materials and welding processes
- Design and static / dynamic loading proofs
- Static load proofs for pipelines
- Assessment of feasibility and static loading for civil engineering and steel structures
- Consultancy on concrete technology
- Earthworks planning, concepts for ground improvements
- Qualification and certification of Continuous Emission Monitoring (CEMS)
- Assessment of emission and process gas measurement location

Manufacturing:

- Risk assessment – considering the qualification / suitability of the manufacturers / suppliers for planned tasks and processes
- Quality assurance and quality control for the supply chain
- Expediting
- Assessment of manufacturing specifications and methods
- Welding certification
- Manufacturing supervision / inspection – including documentation and reporting
- Non-destructive testing and examinations (NDT/NDE)
- Deviation reports on quality assurance and schedule adherence
- Notified Body services for approvals according to the Pressure Equipment Directive (PED), American Society of Mechanical Engineers (ASME) and other codes for special markets for example Russia, Japan or India
- Concrete technology consultancy
- Quality assurance and laboratory services for civil components
- Certification of corrosion protection measures
- Qualification of emission measurement equipment

Construction:

- Supervision / inspection – including documentation review and reporting
- Non-destructive testing and examination (NDT/NDE)
- Analysis of all potential risks at a construction site
- Implementation of management processes and administrative measures
- Proof of the effectiveness of safety features
- Notified Body for approvals according to Pressure Equipment Directive (PED), American Society of Mechanical Engineers (ASME) and other codes for special markets (e.g. GOST, Japan / Indian boilers)
- Certification of instrumentation and control systems; safety integrity level (SIL) and functional safety assessments
- QA/QC for civil structures, infrastructure, excavations and foundations, earthworks and site improvements such as:
 - Subsoil investigations
 - Soil chemistry analyses
 - Hydrological and hydraulic measurements
 - Loading tests on pilings
 - Evidence of load-bearing capacity of soil replacement
 - Subsidence monitoring
- On-site health, safety and environment services
- Civil design approvals

Operation

Commissioning:

- Commissioning tests
- Plant performance measurements
- In-service inspections
- Steam boiler approvals as an accredited Supervision Body
- Explosion protection – ATEX certification
- Testing and certification of instrumentation and control systems on functional safety
- Functional safety – SIL
- On-site health, safety and environment (HSE) services
- Emission measurement
- Assessment of clean air development strategies

Operation and maintenance:

- Compliance with the legal regulations and standards during operation
- Check of compliance with procedures and specifications for recurrent testing
- Stress and strength measurement of critical components
- Emission ambient air and odor measurements
- Early detection of damage
- Advanced and special non-destructive testing (NDT)
- Documentation and data compilation
- Maintenance optimization (e.g. risk-informed maintenance)
- Life time extension
- Demolition management
- Calibration of continuous measurements systems (QAL2, AST)

As a result you benefit from:

- [Conformity to legal requirements](#)
- [Fulfillment of your quality and reliability obligations](#)
- [Maximization of component lifetimes](#)
- [Optimization of investments in accordance with safety and availability aspects](#)
- [Lean-cost maintenance concepts](#)

Our accreditations cover all aspects of power plants:

- Pressure equipment / pressure vessels
- Elevators, machines
- Explosion protection
- Civil engineering structures
- Electrical devices
- Instrumentation and control systems
- Functional safety of control systems
- Quality, safety and environmental management systems
- Health and safety
- Hazard analysis and critical control point (HACCP) system

Our experts regularly participate on the standards bodies and committees that are responsible for setting new standards and norms. When you work with us, you can be sure to receive the most up-to-date information, enabling you to react quickly to market demands and regulatory changes before your competitors do.

Integrated services for the entire life cycle of power plants.

With a wide-range of service offers, we are your comprehensive and capable partner for all stages of your project; worldwide.

We support you by ensuring both safety and profitability during the planning, construction, operation, maintenance and even for the decommissioning of your facilities.



Just around the corner.
And 500 locations worldwide.



In the branch offices of TÜV Rheinland, you are sure to find just the right contact nearby. Regardless of how complicated your questions and requirements may be, we offer you the complete service portfolio from a single source.

Incidentally, that also applies when you require the solutions for multiple locations.



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