

## 我们的服务

### 项目认证

独立认证和检验机构，例如德国莱茵TÜV，是维护您风场项目的质量和效益、保护您的投资并降低您的风险所必不可少的帮手。我们为风电项目提供一整套完整的项目认证服务，涵盖开发设计阶段到建造运行阶段。无论您面临来自本地或者全球的挑战，我们遍布世界各地的服务网络能够为您提供及时有效的服务。

## Our services

### Project certification

To safeguard the quality and productivity of your wind farm projects, protect your investments and minimise risks, an independent and well-respected certification and inspection body such as TÜV Rheinland is essential. We offer a comprehensive array of project certification services for wind projects - ranging from the development and design phase through to construction and operation. We are your local contact, but are backed up by the international expertise you need. We understand the local, national and global challenges you face in your industry.



### 电网联接

德国莱茵TÜV和德国电力系统与电力经济研究联合会（FGH）共同提供以下服务

- 评估和认证是否符合电网标准
- 验证发电机的仿真模型
- 咨询和研究风电场规划
- 定制和计划中高电压设备

### Grid connection

TÜV Rheinland provides the following services in conjunction with FGH

- Assessment and certification of grid code compliance
- Validated simulation models for power generation
- Consulting and research on wind farm planning and systems
- Customised and compact setups for medium- and high-voltage equipment

### 项目规划服务

德国莱茵TÜV和EuroWind\*提供一整套完整的服务

- 为投资人提供合理的收益评估
- 支持陆上项目的正式验收
- 支持海上项目的正式验收

\* EuroWind是许多银行与投资者眼中的优质风力能源评估专家。

### Project planning services

TÜV Rheinland and EuroWind\* provide a comprehensive package of services

- Preparation of yield assessments suitable for investors
- Support in obtaining official consent for onshore projects
- Support in obtaining official consent for offshore projects

\* EuroWind has been the specialist for high-value wind energy assessments, for numerous banks and investors.

### 产品认证

随着全球风能市场制造商的稳定增长，在全球范围内，风力发电机及其部件的认证既有非常高的需求也体现了先进技术的发展。相互协调标准和要求的认证推动了产品出口的潜力，因此，制造商、风场主、银行和保险商应用和要求各种可行的认证类型是非常重要的。我们风力发电机及其部件的认证服务是基于国际标准IEC 61400系列，并服从各个国家的标准和各种指导指南，例如DIBt和GL。

### Product certification

The steadily growing number of manufacturers competing in the global market for wind energy has increased demand for the certification of wind turbines and wind turbine components and the development of state-of-the-art wind farm certification technology. Certification to harmonised standards and requirements boosts the export potential of these products, and it is therefore essential that manufacturers, owners, banks and insurers insist upon the various types of certification available. Our certification services for wind turbines and wind turbine components are based on the IEC 61400 series international standard and also provide compliance with such national standards and guidelines as DIBt and GL.

产品认证 Product certification	我们的服务 Our services
强制模块 Mandatory modules	<ul style="list-style-type: none"><li>■ 设计基础评估 Design basis evaluation</li><li>■ 风力发电机组设计评估 Wind turbine design evaluation</li><li>■ 型式试验 Type testing</li><li>■ 生产评估 Manufacturing evaluation</li><li>■ 最终评估 Final evaluation</li></ul>
可选模块 Optional modules	<ul style="list-style-type: none"><li>■ 塔基础的设计评估 Foundation design evaluation</li><li>■ 塔基础的制造评估 Foundation manufacturing evaluation</li><li>■ 型式测试 Type characteristic measurements</li></ul>

### 健康和安全管理

为了维护工人特别是海上风场工人的身体和精神上的健康，定期检查他们的工作条件和预先调查他们所承受的工作强度是必需的。

### Health & safety surveys

To maintain the physical and mental health of workers, especially those in offshore wind farms, it is necessary to carry out regular checks of working conditions and workforce evaluations at predetermined intervals.

### 尽职调查

无论您的风场是在规划阶段还是运行阶段，尽职调查服务可以保护您的投资，确保风场的质量。完整的尽职调查服务可运用于海上及陆上的客户。我们的业务包括项目过程状态审查，从检查详细的设计文件到检验单个部件和整个风电场的技术条件。

### Due diligence

Our due diligence services protect your wind farm investment and assure its quality, whether it is still in the planning stages or already in operation. We serve clients in both the onshore and offshore wind farm business by providing a complete range of due diligence services, including project status and progress audits, detailed design document review and inspections of the technical conditions of wind farms or their individual components.

### 制造过程见证

由于我们拥有全球化的网络，我们能够为客户提供独立的制造过程中的第三方见证服务，服务范围包括风力发电机（塔筒，叶片，齿轮箱等）、支撑结构、塔基础、测风塔、变电站和电缆。

### Manufacturing surveillance

Our global network allows us to serve clients worldwide through the provision of independent manufacturing surveillance services for wind turbines (including the tower, blades and gearbox), support structures and foundations, met masts, substations and cables.

### 专家报告

- 风场评估
- 噪声辐射报告
- 风险评估——海上风场

### Expert reports

- Site assessments
- Noise emission reports
- Risk assessments — offshore wind farms

### 周期性检验

由于我们在风电场和各种设备上的周期性检验方面具有丰富的经验，无论是陆地还是海上，我们专家都能利用其独立的专业知识去检查与核实风电场的技术条件，以保证其质量和安全。通过独立的周期性检验，相关部件的各种失效能够及时被检查出来，以便客户维护并更换，从而避免不必要的故障。

周期性检验项目包括

- 安全，效率和控制系统
- 机舱，叶片，电气和液压系统
- 主轴，轴承，齿轮箱和发电机
- 塔筒，子结构，基础和钢结构
- 变电站

### 海事担保调查

海事担保调查（MWS）是为了客户的利益和根据保险人的利益进行海上作业的监督，客户如能源公司和安装承包商。我们的海洋担保调查人员评估操作风险和工作方法的可行性，并进行技术审查和海上作业的现场视察。

海上风力发电项目海上作业包括

- 装载，运送
- 起重，升降
- 拖车，海运
- 海上安装
- 电缆铺设
- 海底作业

### 其他服务

- 培训
- 管理系统认证

### Periodic inspections

Our extensive experience in the periodic inspection of wind farms and various technical facilities allows us to serve clients by ensuring the quality and security of their onshore and offshore wind farms by independently checking and verifying their technical conditions. These independent periodic inspections permit component defects to be detected in a timely fashion, thereby facilitating prompt maintenance or replacement and preventing unnecessary downtime.

Periodic inspections include

- Safety, efficiency and control systems
- Nacelle, blade, electrical and hydraulic systems
- Main shafts, bearings, gearboxes and generators
- Towers, substructures, foundations and secondary steel
- Substations

### Marine warranty surveys

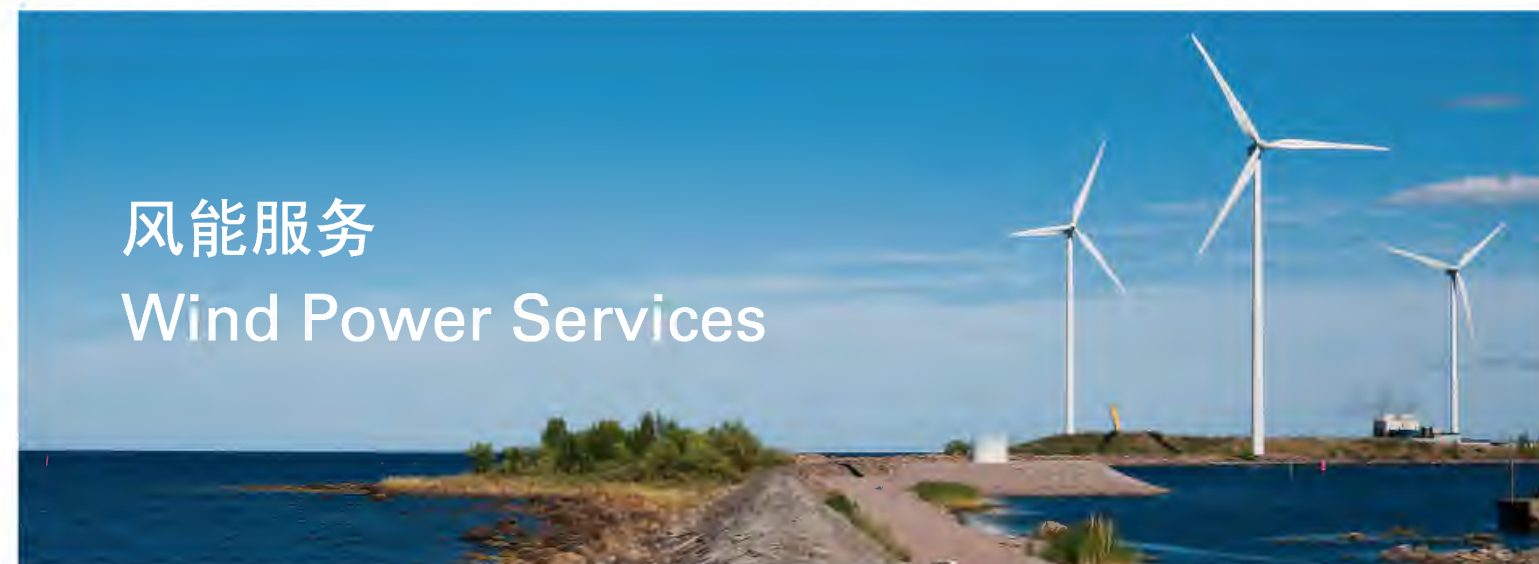
A Marine Warranty Survey constitutes the supervision of marine operations on behalf of such clients as energy companies and installation contractors according to insurers' requirements. Our Marine Warranty Surveyors evaluate operational risks and assess the feasibility of working practices by performing technical reviews and on-site inspections of marine operations.

The marine operations of offshore wind projects include

- Load out, float out
- Lifting, lift off
- Towing, sea transport
- Offshore installation
- Cable laying
- Sub-sea operations

### Other services

- Training
- Management system certification



### 风能服务维护您的风场项目

随着传统化石能源的储量日益减少，经济发展越来越受制于能源的开发利用。同时，传统化石能源对环境产生的问题越来越严重。新能源作为一种可再生的替代能源，未来将极大地减少我们对传统能源的依赖性，促进经济可持续发展的同时为我们解决环境问题提供可选择的道路。风能与其他能源相比，具有明显的优势，它蕴藏量大，分布广泛，永不枯竭，对交通不便、远离主干电网的岛屿及边远地区尤为重要。目前风能最常见的利用形式为风力发电。

为了确保您的风场项目顺利运行，我们提供一整套服务来支持您项目周期中的每个阶段——从风场址的选择、设计和制造，直到贯穿整个运行阶段。

### Safeguarding your wind farm project

Given that energy from traditional fossil fuels is unsustainable, economic development is increasingly subject to alternative energy development and utilisation. At the same time, traditional fossil fuels have resulted in serious environmental problems. The development of new and renewable sources of energy can greatly ease energy demand in future, promote the sustainable development of the economy and resolve environmental problems. Relative to other energy resources, wind energy has obvious advantages. For example, it has large reserves and is widely distributed and inexhaustible. Such energy is thus of particular importance to inaccessible islands and remote areas far from the main grid. At present, wind energy most commonly takes the form of wind power.

To ensure the success of your wind farm project, we provide a wide range of services that will support you during every phase of the project lifecycle – from site selection to design, manufacture and operation.

### 德国莱茵TÜV，您值得信赖的合作伙伴

- 我们拥有强大的专家团队，包括机械工程师、电气工程师、材料工程师、无损检测工程师、焊接工程师、工厂审核师以及工厂设施和设备组件专家
- 凭借卓越的技术实力和全球化信息网络，我们能够在第一时间掌握世界各地最新的贸易和产品标准
- 从检测技术方面着手，我们能及时为国内客户提供相应的服务项目，从而帮助企业在国际贸易中有效降低风险、跨越贸易壁垒，顺利获得进入国际市场的通行证
- 凭借从全球超过61个国家的国际项目中所获得的丰富经验，我们会是您的最佳伙伴，支持您开展全球业务
- 凭借综合的服务能力和专业技术，为您在全球贸易挑战中提供量身定制的解决方案

### TÜV Rheinland is your reliable partner

- We employ a range of expert professionals, including mechanical engineers, electrical engineers, material engineers, non-destructive examination (NDE) engineers, welding engineers, factory auditors and plant facility and equipment experts
- Our superior technology and global information network allows TÜV Rheinland to master the latest international trade and product standards and testing technology to respond to Chinese customers with appropriate services faster than our competitors
- We help to boost the international trade of Chinese enterprises by reducing the risk of trade barriers, thereby allowing a smooth pathway to international markets
- Due to our extensive experience gained in more than 61 countries, we are the right partner to support and assist you in your global business
- With our large portfolio of services and know-how, we deliver tailored solutions to your business challenges