



Choose certainty.
Add value.

Grid services

Optimise electrical interconnection
of your power plants.

Your challenges

Conventional power plants, wind farms and solar power plants need to be connected to the transmission and distribution of national grid systems in line with the interconnecting utility's regulations and requirements. Connection to the grid is critical for the delivery of reliable, high-quality electrical power, which in turn determines the revenue, profitability and viability of power plant projects. Investors, developers and operators face challenging decisions on how and where to join the electrical connection system to the grid, as well as how to assess potential impact on the electrical transmission network. They need in-depth technical expertise to help them find the optimal grid connection options to ensure a financially viable project.

What are grid services?

In addition to providing the necessary electrical infrastructure for all kinds of power plants (conventional, wind, solar), grid services ensure that the power

generated reaches substations on land and is fed into the transmission network.

Why are these services important for your business?

Grid services help to optimise grid connections of power plant projects, creating robust and cost-effective electrical systems. These systems are essential to successful power gathering and export to the grid system.

How can we help you?

TÜV SÜD provides detailed analysis of your grid connection situations and power systems, helping you to optimise your power plant's electrical infrastructure and maximise return on investment. We add value to your project by ensuring that your systems comply with the interconnecting utility's regulations and requirements.

TÜV SÜD's grid services

▪ Analysis of grid connection conditions

TÜV SÜD supports your power plant with network connection feasibility, design review of cable systems, optimal choice of connection circuit route, voltage level, estimation of connection costs as well as other technical challenges and solutions.

▪ Grid connection application

We ensure that your connection application is submitted with the required technical information and coordinate the grid connection with your network operator or utility company.

▪ Technical requirements for grid connection

Our experts identify and collate all technical requirements to obtain a clear basis for the project design and review technical aspects of the connection agreement and any power purchase agreement.

▪ Device grid compatibility

We evaluate devices for compliance with relevant codes and requirements, and propose technical solutions if additional facilities are required.

▪ Verification of compliance with the applicable network ratings

TÜV SÜD checks for any factors that could affect compliance, including load capacity of cables and transformers, voltage fluctuations of any kind, increase in short-circuit rating and short-circuit current, rapid voltage fluctuations causing flicker (long-term flicker), harmonics and sub-harmonics, and interference with audio frequency ripple control systems.

▪ Analysis of load-flow, short-circuit current and selectivity

Our experts provide load-flow analysis for the design of electrical equipment, calculation of short-circuit current to verify compliance with protective measures, review/preparation of protection plans, adjustment recommendations for power plant cable systems, selectivity analysis to minimise downtime in the event of failures, calculation of the harmonic load flow, analysis of impedance-frequency response to prevent resonance, and power quality calculations.

▪ Analysis of power loss, cable sizing and installation method, optimisation

TÜV SÜD helps you identify the energy loss for each individual network component or cable run based on load-flow analysis and calculates electrical losses within the site. We perform economic assessment of power cable sizes and power losses during the project lifecycle. Our specialists provide expertise on

load capacity and minimum cross section, power loss minimisation/reduction, cable installation, transformer selection and improvement of cost-effectiveness.

Your business benefits

- **Minimise risk** – by performing a detailed analysis and ensuring compliance from the onset for maximum predictability of returns on investment.
- **Gain certainty** – through power loss identification to guarantee cost-efficient performance.
- **Benefit from an expert partnership** – by realising your power plant project with the combined know-how of our expert teams in providing an ideal infrastructure.
- **Strengthen your competitive edge** – by partnering with a globally renowned third-party service provider that has a strong reputation for quality and safety.

Why choose TÜV SÜD?

TÜV SÜD is widely known as an independent third-party provider of impartial and unbiased inspection and assessment services with the utmost confidentiality. Our specialists come from a variety of different engineering backgrounds, with decades of accumulated experience. We provide world-class expertise including extensive familiarity with international directives and regulations. Our global presence allows us to work in all major economic regions on your behalf, delivering services locally while maintaining a premium level of quality.

Choose certainty. Add value.

TÜV SÜD is a premium quality, safety and sustainability solutions provider that specialises in testing, inspection, auditing, certification, training and assessment services. Represented in over 800 locations worldwide, we hold accreditations in Europe, the Americas, the Middle East, Asia and Africa. By delivering objective solutions to our customers, we add tangible value to businesses, consumers and the environment.

Related services

TÜV SÜD provides the following related services:

- Licensing, consenting and environment
- Project development
- Project delivery for renewable energy markets
- Owner's engineer services for industrial plants
- Compliance certification
- Due diligence