

M.O.E.

MOELLER OPERATING ENGINEERING



CERTIFICATION • MEASUREMENT • INSPECTION

M.O.E.'S MISSION STATEMENT

The **energy revolution** is indispensable in times of scarce resources and incalculable risks of other technologies and entails great responsibility for present and future generations.

Decentralized power generation systems are a challenge for energy supply networks and need to participate in securing grid stability. We are doing our part by reviewing the electrical and mechanical properties of power generating units and systems as well as other relevant components aiming at the highest possible security and quality.

Our main business segments are the accredited fields of **certification, measurement and inspection**. We have been accompanying the implementation of the certification guidelines for power generation systems as to grid integration since their introduction.

M.O.E. has established itself by its broad range of services as a highly qualified **competency center at home and abroad** and acquired the necessary accreditations, permits and recommendations in all fields.

FACTS

Foundation

2009

Registered office

Itzehoe

Further locations

Hamburg and Kiel



Managing director

Jochen Möller

Company size

over 70 qualified employees

Accredited according to

DIN EN ISO/IEC 17020 (inspection body)

DIN EN ISO/IEC 17025 (test laboratory)

DIN EN ISO/IEC 17065 (certification body)

Measurement body according to

§ 29b German Federal Immission Control Act

CERTIFICATION

M.O.E. was accredited as a certification body in the field of grid integration and system services and offers comprehensive expertise and quality in the fields of unit, system and component certification.

System certification

The system certificate is a confirmation to the system operator and the grid operator stating that a grid-compliant operation of the system is possible; this is a prerequisite to receive the grid connection. Upon completion of the certification process, M.O.E. issues the PGS Declaration of Conformity certifying the accurate implementation of the planning documents. M.O.E. also offers a system certification via individual verification.

Unit certification

Checks of power generation units such as wind turbines, solar inverters, cogeneration plants and storages are made in representation for the relevant series and form the basis of the system certification and grid connection.

Component certification

A component certificate can be issued for any essential component used in a power generating unit or system, allowing the manufacturer to prove the properties and function of a component. This proof of quality gives manufacturers a competitive advantage and significantly facilitates the unit and system certification.

MEASUREMENT

Performance curve

Meaningful performance curves are required to calculate yields of wind turbines. Such curves are measured by M.O.E. according to current guidelines.

Load measurement

The stress on components must be determined to dimension the turbine. M.O.E. performs load measurements at the relevant components for that purpose.

Acoustic measurements

The German Federal Immission Control Act (BImSchG) stipulated limits for noise emissions and immissions to protect the environment which the relevant systems such as wind turbines are required to comply with. M.O.E. is an accredited test laboratory for emission and immission measurements at wind turbines and was further appointed as a measurement body according to Art. 29b BImSchG.

Measurement of electrical properties

A review of electrical properties of power generating units and systems can be performed by an on-site measurement such as harmonics. Such measurements provide the required data and proofs for certification.

INSPECTION

Electrical components

Proof of perfect functioning of electrical equipment must be provided on a regular basis with respect to personal and machine safety. M.O.E. is an accredited inspection body for safety tests and offers performance of checks according to the German Social Accident Insurance (DGUV V3) as well as repeat inspections from a single source.

Mechanical components

M.O.E. performs checks on the support structure, the machine and rotor blades with respect to the stability of a wind turbine and in order to confirm compliance with the stipulations from the construction permit or warranty inspections. The experts of M.O.E. are recognized by the German Wind Energy Association (BWE).





REFERENCES

- **more than 30,000 inspections** with respect to grid conformity of wind turbines, solar inverters, combustion engines and further decentralized power generation units
- **more than 1,000 inspections** with respect to grid conformity of transfer stations and substations
- **more than 1,000 system certifications** of wind turbines and solar parks as well as combustion engines
- **more than 150 unit and component certifications** for wind turbines, PV inverters, combustion engines, storages and components such as generators and controllers, etc.
- **more than 3,000 safety tests** on power generating units
- **more than 200 safety tests** on grid connection points
- **more than 100 repeat inspections** of wind turbines and checks according to DGUV V3
- **more than 100 acoustic measurements** of wind turbines

FIELDS OF COMPETENCE

- **Unit certification, component certification, system certification** for any decentralized power generating unit or system (BDEW Medium Voltage Directive 2008, TC2007/VDE-AR-N-4105, 4110 and 4120, FGW TR 3, 4 and 8)
- covering the fields of **wind energy, photo-voltaics, combustion engines, storage systems and water power**
- **measurement** of electrical properties, load measurements, performance curves, acoustics (IEC, MEASNET, FGW, BImSchG)
- **inspections, repeat inspections, warranty inspections, issuance of Declarations of Conformity** (DGUV V3, DIN EN 50110)
- **mains protection tests** of power generating units, transfer stations and substations
- **research projects** in the field of grid integration of decentralized power generating units
- **work on guidelines** at national and international levels, such as: FGW, VDE, FNN, DKE, IEC, IEC RE and CENELEC
- **transport and construction monitoring** for wind turbines

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