Agenda

1. The Association
2. vgbe energy | Wind Power
3. vgbe Committees
4. Technical Programmes
5. General Activities
6. Contact
1 The association
VGB PowerTech e.V. (vgbe energy)

VGB PowerTech e.V. (vgbe energy) is the European technical association for electricity and heat generation with head office located in Essen (Germany). Currently vgbe energy has 437 members, comprising operators, manufacturers, and institutions connected with energy engineering. The members come from 33 countries and represent an installed power generation capacity of 302,000 MW.
vgbe energy | Wind Power

Reduction of installation and operational costs and increase of operational safety of wind power plants require coordinated and joint analysis of operational experience.

Leading wind power plant operators bundled their interests under the umbrella of vgbe energy | Wind Power. In addition to the exchange of information and experience, the companies are mainly interested in cooperation to push forward standardisation (best practice) and to represent operator interest in the different user groups.

Strategic requirements on the utilisation of wind power from the viewpoint of operators are discussed and corresponding measures are launched by the different committees of vgbe energy | Wind Power.

Our slogan for our common work is:

*Success through Exchange of Experience*
Vision

“The utilisation of wind power is playing an important role in order to meet the targets of the European Union within the Climate and Energy Framework by 2030. Wind power will be the main pillar in transforming the global energy supply structure towards a sustainable energy future.”

Mission

“vgbe energy | Wind Power is the first address for all operators of wind power plants regarding technical, environmental as well as strategic issues and it acts as hub for the wind energy sector in Europe.”
Objectives

➢ Supporting our members in operation, maintenance and plant optimisation as well as in technical, environmentally relevant and strategic challenges
  ▪ improving of the availability, reliability and plant safety for wind power plants
  ▪ supporting a cost-effective durability and environmental management of wind power plants
  ▪ developing new concepts to improve operation and maintenance
  ▪ establishing safety standards
  ▪ extending the exchange of experience in engineering and operation

➢ Technical lobbying
  ▪ representation of the operator’s interests
  ▪ strengthening the operator’s position towards the suppliers
Objectives

➢ Coordinated performing as the collective European voice of the wind power sector
  ▪ editing and providing of facts regarding positions and references
  ▪ inserting positions into European and national regulatory frameworks

➢ Generating technical and operational standards
  ▪ compiling practice-oriented vgbe-Standards considering experience of operators
  ▪ co-creating international technical standards
Objectives

- **Initiating and coordinating national and international research projects**
  - establishing and exchanging know-how
  - saving expenses by joint research projects
  - having access to international grants

- **Organising events**
  - presentation of the state of technology
  - exchange of operational experience
Technical Competence Center “Wind Power”

Steering Forum “Wind Power”

General Activities

- vgbe-Standards
- Research projects
- Position papers
- Publications
- Conferences and workshops
- Participation in other organisations

vgbe Committees

- Exchange of experiences and information
- TC Wind Power
- WG Wind “User Group Vestas”
- WG Wind “User Group Enercon” *)
- WG Wind “User Group Siemens Gamesa” *)

Technical Programmes

- Implementing the EU Taxonomy in the energy industry
- Wind Database: Wind Power Performance Data Exchange (WiPPeX)
- Digitalisation barometer for wind power operators

Individual success through exchange of experience within vgbe energy | Wind Power

TC ... Technical Committee, WG ... Working Group

*) if required
Comprehensive experience transfer and exchange in vgbe energy | Wind Power committees

Main Purposes
Steering of the strategic activities of vgbe energy | Wind Power

Steering Forum
Wind Power

Technical
Lobbying and EU focus

Exchange of information

TC Wind Energy
Main purposes
Technical, operational and environmental issues and steering of subgroups

WG Wind User Groups
Main Purposes
Dealing with specific technical issues of different wind power plant types – from the foundation to the rotor blade

Technical guidelines (vgbe-Standards)
Technical programmes
R&D projects
Databases
Position papers
Technical services
Conferences and workshops

Individual success through exchange of experience within vgbe members
3 vgbbe Committees
vgbe Committees – Objectives

Objectives

- Supporting our members in operation, maintenance and plant optimisation as well as in technical, environmentally relevant and strategic challenges
  - Ongoing improvements in availability, reliability and plant safety of wind power plants
  - Promotion of cost-optimised life cycle and environmental management
  - Development of concepts to improve operation and maintenance
  - Creation of practice-oriented vgbe-Standards, taking into account operator experience
  - Definition of operational safety standards
  - Expansion of the exchange of experience in technology and operations

- Performing as the collective European information platform for the wind power community
  - Preparation and provision of facts on positions and recommendations
  - Introduction of positions in European and national regulations
vgbe Committees – Tasks and works

Tasks and works
- Coordination of exchange of information/experiences
- Development and revision of Technical Standards
- Elaboration of position papers
- Regular updates of reports
- Participation in other associations or programs
- Organisation of events

Participation
- vgbe members only

- Coordination of exchange of information/experiences
  vgbe committees provide an intensive exchange of experts with practical experience.

- Development and revision of Technical Standards
  vgbe-Standards represent the current best practice for the generation and storage of power.

- Elaboration of position papers
  Position papers can be used to underpin points of view and lead to an increase in awareness.

- Regular updates of reports
  These reports serve on the one hand to provide an overview in the wind power sector and on the other hand to increase the awareness.

- Participation in other associations or programs
  An expansion of the network and the acquisition of information are possible through participation and cooperation with other organisations.

- Organisation of events
  Events enable an in-depth exchange of information with up-to-date topics and trends.
Steering requirements on the utilisation of wind power from the viewpoint of operators are discussed on management level and corresponding measures are launched by the SF “Wind Power”. The companies are focusing their interests in cooperation to push forward standardisation (vgbe-Standards) and to represent operator interests in the different User Groups.

Technical lobbying from the operator’s point of view is one of the most important tasks of the SF “Wind Power” member companies.

Tasks

- *Increaseament of Health & Safety management*
- *Representation and “one voice” of the operator’s interests*
- *Strengthening the operator’s position towards the suppliers*
- *Establishing and learning from best practice*
- *Establishing industry wide standards (vgbe-Standards)*
The TC “Wind Energy” deals with all technical, operational and environmental issues with respect to the use of wind energy. The committee members are mainly part of the technical management in their companies and have a wide range overview about the technical and environmental requirements.

Tasks / Benefits for members

- Coordination of operator interests towards manufacturers, authorities, and standardisation bodies
  *Representation and “one voice” of the operator’s interests*

- Initiation and update of vgbe-Standards
  *Optimisation of the life cycle profit*

- Sharing and joint analysis of operational experience
  *Reduction of the operational costs*

- Initiation, coordination and evaluation of research projects
  *Cost-savings and build-up of know-how*

- Organisation of events and workshops
  *Direct exchange of experience with external experts*
The User Groups are dealing with specific technical issues of different wind power plant types – from the foundation to the rotor blade. The main aim of the committee members is to exchange operational experience and to work on best practices. Improvement proposals jointly prepared are subsequently discussed with manufacturers.

**Tasks / Benefits for members**

- Coordination of operator interests towards the manufacturers
  *Representation and “one voice” of the operator’s interests*
- Sharing and joint analysis of operational experience
  *Reduction of operational costs*
- Development of databases containing key technical parameters of wind power plants
  *Direct exchange of information between the committee members*
- Organisation of subject specific workshops
  *Newest information on state of technology*
Technical Programmes
Objectives

vgbe energy with its leading role in understanding about good and best practices in operation of wind power plants and development launches different Technical Programmes in cooperation with its members.

These programmes are part of the comprehensive activities of vgbe energy for the wind power sector to support the daily work in operation, maintenance and plant optimisation as well as in techno-economic, environmental and strategic challenges. Therefore, the programmes are open for vgbe members as well as vgbe non-members.

The programmes can be carried out as:

- Platform
- Database
- Project
- Workshop
Technical Programmes – Tasks and works

Tasks and works

- Elaboration of studies and reports
- Management of research projects
- Implementation of databases
- Joint industry projects

Participation

- vgbe members and vgbe non-members

- Elaboration of studies on topics of common interest
  vgbe prepares and coordinates studies on topics of common interest.

- Management of research projects
  vgbe initiates, coordinates and/or conducts research projects in cooperation with its members as well as with research institutes, associations or laboratories.

- Implementation of databases
  vgbe develops databases or IT-based tools to support the optimisation of operation and maintenance.

- Joint industry projects
  Implementation of a structured experience exchange on overarching issues covering more than two technologies from which additional services might be launched.
A platform that enables participants to exchange and discuss approaches, experience and expectations related to the EU Taxonomy (focus: Climate Delegated Act) and to align ways of fulfilment and documentation.

Objective

The EU Taxonomy Regulation (2020/852) establishes a classification system of environmentally sustainable economic activities. As detailed technical criteria have to be fulfilled and documented, vgbe energy supports the energy industry (utilities, manufacturers, etc.) in assessing their environmentally sustainable activities, applying the Climate Delegated Act of the EU Taxonomy.

Activity-specific workshops will enable participants to exchange and discuss approaches, to share their experience and expectations related to the EU Taxonomy as well as to align ways of fulfilment and documentation.

Some benefits

- Explanation of the EU Taxonomy criteria and possible ways of fulfilment and documentation
- A platform to exchange and discuss approaches, experience and expectations
- Documentation templates (Excel) for the specific economic activities (Technical Screening Criteria and Do No Significant Harm Criteria) to proof the conformity with the Climate Delegated Act of the EU Taxonomy Regulation
- …
Share data with other operators to optimise your own wind power plants. Your benefit: Users have direct access to the processed operational anonymised data in order to create their own benchmark.

- vgbe energy | Wind Power and its members have created a new database that supports operators to jointly optimise the operation of their wind power plants.
- The database provides different turbine platforms of various manufacturers (e.g. Enercon, Siemens, Vestas, Nordex, GE).
- Only companies providing operational wind power plant data can download raw and unfiltered data of the individually booked database platforms in order to create their own benchmark.
- The time series SCADA-based data are continuously supplied every 10 minutes.
- High data anonymity and compliance to confidentiality are ensured.
- vgbe and its members are currently extending the database to create a failure statistic of the main wind power plant components.

- Project
- Start: Spring 2021
In a first step, the data to analyse and compare the Performance of Wind Power Plants are used. Needed data are, e.g.:

- Wind Speed / Wind Direction
- Nacelle Direction / Pitch Angle
- Active Power / Reactive Power
- ….

The needed SCADA data are be supplied as 10-min values on a monthly basis.

In further steps, the list of data will be extended for maintenance planning & strategy optimisation:

- Some anonymised “Error Codes” grouped for the main components will be included within the databases
- Implementation of a failure statistic.
Objective

Apart from decarbonisation and decentralisation, digitalisation is one of the driving forces of the energy transition. Digitalisation is also a key challenge for wind power operators, especially in the context of increased pressure on costs, risk-based and preventive maintenance strategies and increasing flexibility requirements. Therefore, companies are more or less intensively involved in a variety of digitalisation issues and are facing different challenges:

To actively support wind power operators in advancing and achieving digital transformation, vgbe energy Ι Wind Power and its members have developed a digitalisation check, the “Digitalisation barometer for wind power operators”.

Some benefits

The “Digitalisation barometer for wind power operators” allows companies to evaluate

▪ their current status of digitalisation and
▪ their intended target status in digitalisation in three years in comparison to the sector average.

Thus, the companies can gain a comprehensive insight into their digitalisation degree.
Main fields of actions

The digitalisation barometer for wind power operators consists of 5 main fields and 25 sub-action fields.

A) Digital Orientation of the Company
- Organisation
- Communication management
- Digitisation strategy
- Digitisation budget
- Co-operation
- Agile project management

B) Operation of Wind Power Plants
- Acquisition of process data
- Use of optimisation approaches
- Implementation of forecast data
- Benchmark of wind turbine platforms
- Visualisation of operational data / Control room

C) Maintenance of Wind Power Plants
- Analysation of SCADA data
- Analysation of CMS data
- Development of predictive maintenance strategies
- Implementation of machine learning systems
- Use of drones for inspections
- Digital image processing

D) Documentation
- Digital documents
- Reporting of operating results
- Reporting of maintenance tasks
- Digital spare parts management
- Designation of the components
- RDS-PP VGB-S-823-32

E) Electricity Market
- Forecasting systems
- Automatic trading systems
- Artificial intelligence methods
General Activities – Tasks and works

- **vgbe-Standards**
  vgbe energy prepares best practice guidelines.

- **Research projects**
  vgbe energy initiates, coordinates and/or conducts research projects.

- **Position papers**
  vgbe energy develops positions papers to topic-specific issues.

- **Publications**
  vgbe energy and our wind power network produces a range of publications on wind power’s role, new trends and developments in the sector.

- **Conferences and workshops**
  vgbe energy organises topic-specific events for the direct exchange of experience with experts as well as for obtaining the latest information.

- **Social Workspace – Supplementary Package Wind Power**
  Ordinary members and sponsoring members with extended status of vgbe have access to the closed user group eNet “Supplementary Package Wind Power”.

- **Cooperation with other organisations**
  vgbe energy cooperates with international and national partner associations to exchange information and coordinate technical, environmental and political positions.
Ordinary members of vgbe energy have free access to xxx vgbe-Standards in electronic format (ebook). Special conditions are offered to affiliated and sponsoring vgbe energy members.

https://www.vgbe.energy/shop/

- **Completed**
  - DE/EN Provision of technical documentation (Technical Plant Data, Documents) for installation in the energy supply
  - DE/EN Reference Designation System for Power Plants (RDS-PP®), Part 32: Wind Power Plants
  - DE/EN Definitions and indicators
  - DE/EN Fire protection in Onshore Wind Power Plants

- **In progress**
  - DE/EN Corrosion protection of offshore wind farm structures (partly published)
  - DE/EN Life cycle management of the foundation and tower of onshore wind turbines
  - DE/EN Oil monitoring for wind power plants
  - DE/EN Disposal of rotor blades
  - DE/EN Fire protection in Offshore Wind Farms
White Papers, Position Papers, Studies, Brochures

Coordinated and joint positions strengthen our effect. As an international technical association for generation and storage of power and heat

- 2020 Use of RDS-PP® as a harmonised designation system for wind power plants – Position paper from the owner’s point of view
- 2016 vgbe White Paper “Strategies and Activities of the vgbe Committees in the Field of Wind Energy”
- 2015 Levelised Costs of Electricity
- 2013 vgbe Position Paper “Improving the relationship between manufacturers and owners of wind turbines – Position paper from the owner’s point of view”
- 2007 Role of Electricity (eurelectric)
Events and Workshops

Contact with experts on subject-specific events and workshops. Direct exchange of experience with experts and subject-specific events as well as newest information on state of technology. Reduced participation fee for vgbe members.

- 2005 - 2021 Annual Conference “Maintenance of Wind Power Plants”
- 2019 / 2021 Conference “Operation of Wind Power Plants in Cold Climate”
- 2019 Conference “Digitalisation in the Wind Industry”
- 2010 – 2021 Conference “Offshore Wind Power Plants - Occupational Health and Safety” (German Only)
- 2018 IT-Security in the Wind Industry (internal vgbe workshop)
- 2015 / 2017 Oil Workshop for Wind Power Plants
- 2011 Health, Safety, Environment at Offshore Wind Parks
Research Projects

International collaboration in joint R&D activities and improved access to public funds. Benefit from an international collaboration to improve access to public funds and from cost-savings, build-up and sharing of know-how.

- **Completed, e.g.**
  - Increased fatigue service life and inspection intervals of welded offshore foundations
  - Condition Monitoring – Best practice Part (I)
  - Wind Turbine SCADA-based Condition Monitoring – Best practice Part (II)
  - Evaluation of ice detection systems for wind turbines (Part I)
  - Ice Detection Systems for Wind Turbines, Part II: Field test and benchmark

- **Ongoing, e.g.**
  - DigiWind: The digital twin of a wind turbine
  - Smart Operation of Wind Power Plants in Cold Climate
Since 2002 more than 100 reports dealing with wind energy have been published in VGB PowerTech Journal. All vgbe articles are available on DVD or CD.
Visit our vgbe energy | Wind Power website

The following information is available at our website.
https://www.vgbe.energy/en/wind-power/

- vgbe energy | Wind Power – Committee Structure
- vgbe energy | Wind Power – Infosheet (list of our offers and your benefits)
- vgbe energy | Wind Power – General Presentation (strategies, main topics, current activities)
- vgbe energy | Wind Power – Media Catalogue (list of our vgbe-Standards and wind energy articles)
- vgbe energy | Wind Power – Publications
- vgbe energy | Wind Power – BAW-Standard: “Corrosion protection of offshore wind farm structure (in EN and DE, free of charge)
- vgbe energy | Wind Power – Standard: “Wind Power – Definitions and Indicators” (in EN, DE and FR, free of charge)
Benefit from our expertise – Get in touch with us

be energised
be inspired
be connected
be informed

Your contact
Ulrich Langnickel
Senior Expert Wind Energy and Distributed Generation
Ulrich.Langnickel@vgbe.energy

VGB PowerTech e.V.
Placeholder address
T +49 201 8128-0
F +49 201 8128-350
E info@vgbe.energy
I www.vgbe.energy
vgbe energy | Wind Power

Being the first address for all operators of wind power plants regarding technical, environmental as well as strategic issues.

Performing as the collective European platform and key representant for the wind energy community.