Being part of VGB PowerTech
- Being part of a powerful operators’ network

July 2018
Overview

VGB at a glance

- Who we are
- What we want
- How we work
- What we do
- Our structure
Who we are (1/2)

- We have **478 members in 33 countries**, over 90 % European based.
- We represent an installed capacity of **466 GW** based on a wide energy mix and covering all sources for electricity and heat production:

VGB is the International Technical Association for Generation and Storage of Power and Heat.
Who we are (2/2): Our main areas of activities

In our five competence areas we are dealing with all questions regarding power and heat generation as well as their storage:

- Nuclear Power Plants
- Power Plant Technologies
- Renewables, Distributed Generation
- Environmental Technology, Chemistry, Safety and Health
- Technical Services

Since its foundation in 1920, VGB has become the technical center of competence for the operators. The membership is open for companies and institutions active in the energy business.
What we want (1/2) – our missions

Our missions are...

...to support our members in their operational business.

...to support our members in strategic challenges.

...to be a key contact for international energy stakeholders.

VGB is the voice of the power plant operators facilitating knowledge management and exchange of experiences in heat and power generation:

Exchanging Knowledge ➤ Generating Solutions
What we want (2/2) – our objectives

Our objectives are...

- To keep a high standard of operational and plant safety.
- To ensure high availability and reliability of power plants.
- To ensure environmental compatibility of power plants.
- To implement modern energy technologies.
- To ensure occupational health and safety.
- To ensure a cost-effective power plant life cycle.

VGB activities are focused on optimized building, operating and maintaining of power plants.
How we work (1/2) – our values

- We have an international perspective.
- We are committed to compliance rules.
- We act on the basis of technology expertise.
- We communicate openly and transparently.
- We are proud to manage an international network of experts.

VGB is an association with a strong technical focus supporting its members in a very changing business environment.
How we work (2/2) – our network

Over 1,700 experts are active in the VGB network.

VGB facilitates the exchange of experiences between the experts and document and disseminate the results for the benefit of all members:

Our efforts are your benefit!
What we do (1/3) – Support of operational business by:

- **Exchange of experiences** across all technologies via:
  - Committees (1,700 experts in more than 70 bodies)
  - Conferences, Workshops, Meetings
  - > 3200 participants and ~ 360 exhibitors in 29 VGB-events in 2016

- **Industry Guidelines and Standards**
  ~ 300 VGB standards/guidelines available in German, thereof **>100** in English

- **Data Bases** compiling essential operating experiences, e.g. KISSY (Power Plant Information System)

- **Technical Services** – Consulting, Training, Laboratory services, Quality assurance

VGB’s activities are on the pulse of the daily generation business and offer practical value for the members.
Publications

VGB-Standards: The VGB-Standards and Codes are permanently being extended and updated.

What we do (2/3) - Support of strategic challenges by VGB drives important topics of the power sector and provides experts’ opinion on technical and regulatory aspects.

- **Initiation and coordination of strategic projects** – e.g. Reference Power Plant NRW, T24 Task Force, System Stability roadmap
- **Coordination of joint research**
  - ~ 40 ongoing projects with special focus on materials, system flexibility and efficiency
  - VGB-Award for young researchers
- **Experts’ opinion** on various technical issues, e.g. position papers
- **Co-operation and joint initiatives** with other associations (e.g. BDEW, Eurelectric, EWEA, FDBR, VDMA)
How we foster innovation – R&D co-ordination

- VGB offers a neutral platform for joint research of the member companies.
- R&D-projects are steered by the experts organised in the VGB Committees.
- VGB Committees define the need for research in the respective areas of activity and supervise the projects and the transfer of results.
How we foster innovation at European level – R&D co-ordination

- Analysis of the latest 100 projects showed that 90% of the R&D projects are relevant for all European member companies.
- All R&D-projects are announced by qualified abstracts in the English language.
- Results are available for all ordinary member companies.
- European participation in steering groups of R&D-projects should be further improved by stronger participation in the VGB Committee work.
- European comprised committees are encouraged to initiate more own R&D-projects of common interest.
- New projects in preparation of the committees can be monitored via the Technical Advisory Board.

Innovative and ecological approach for dam restoration for implementation of the EU Water Framework Directive (WFD)

Project Number 396

The banks of most water bodies used for HPP with dams are covered with wave breakers made of concrete not providing an ecological habitat. In the course of dam restoration old concrete surface is usually exchanged by new concrete elements without improving the environment for flora and fauna. When dams have to be elevated, the dam becomes broader on the landside, which increases land consumption and has an impact on the floodplain forests (usually Flora-Fauna-Habitat under FFH directive). The related approval procedures are time-consuming and cost for restoration and elevation of dams is high.

The core of the project approach is the implementation of eco-berms at the water side, which are matching the needs of dam stability, provide the basis for dam elevation and improve the ecological situation of the river banks. This approach shall be demonstrated at two HPP sites of the BEW Bayrische Elektrizitätswerke GmbH, Augsburg, Germany. At the water storage area in Offingen the new restoration approach will be implemented in a length of more than 500m.
What we do (3/3) - Key contact for international energy stakeholders

- Services and Training worldwide projects ongoing in India, Turkey and South Africa
- Information Pooling of power generation data, e.g. LCOE, capacities
- Co-operation with international institutions, e.g. GIZ and IEA
- Interface to politics – e.g. EU Commission, bilateral energy co-operation of the Federal Ministry of Economics

VGB represents the view of heat and power generators on a global level and acts as a reliable source of information.
Our structure (1/7) – Organisation

- General Assembly
- Scientific Advisory Board
- Board
- Technical Advisory Board

Competence Areas:
- Nuclear Power Plants
- Power Plant Technologies
- Renewables and Distributed Generation
- Environmental Technology, Chemistry, Safety and Health
- Technical Services

VGB Committees
The Competence Area “Nuclear Power Plants” provides expert knowledge on all aspects of nuclear technology and operation, covering all intrinsic disciplines such as plant security, materials, electrical and I&C technology, decommissioning, interim storage and disposal.

EXPERT KNOWLEDGE ON:

- Safety cases
- Plant security
- Component integrity
- Reactor core layout
- Robustness of civil structures
- Mechanical and process engineering
- Electrical and I&C technology
- Practical radiation protection
- Management systems
- Event analysis
- Decommissioning and disposal

Contact:
Dr. Ludger Mohrbach
Phone: +49 201 8128-221
Fax: +49 201 8128-364
Email: ludger.mohrbach@vgb.org
The VGB Competence Area “Power Plant Technologies” is the platform for all questions concerning the technology and operation of all power plant types, and covers all technical areas from boilers and turbines to I&C systems.

The focus is on both short-term issues relating to daily operation and long-term, strategically oriented topics.

EXPERT KNOWLEDGE ON:

- Steam generators
- Materials and quality assurance
- Power plant operation
- Power plant design
- Machinery
- Electrical, I&C and IT systems
- Civil engineering
- Maintenance management

Contact:
Dr. Thomas Eck
Phone:  +49 201 8128-209
Fax:  +49 201 8128-321
Email:  thomas.eck@vgb.org
VGB PowerTech accompanies and supports you on the way to using renewable energy sources sustainably and efficiently. The committees in the Competence Area “Renewables and Distributed Generation” deal with the technical and economic issues and with the integration of renewable energy sources into the existing and future energy supply structures.

EXPERT KNOWLEDGE ON:

- Exchange of information and experience
- Assessment of technical developments
- Identification of optimum technical solutions
- Compilation of VGB-Standards
- Publication of position papers
- Representation to authorities and commissions
- Communication with national and international associations
- Evaluation and initiation of research projects

Contact:
Dr. Mario Bachhiesl
Phone: +49 201 8128-270
Fax: +49 201 8128-364
Email: mario.bachhiesl@vgb.org
The Competence Area “Environmental Technology, Chemistry, Safety and Health” creates an independent, international platform for discussion and exchange of ideas on all questions of environmental compatibility. VGB, with its concerted know-how, contributes to the resolution of these complex issues and to defining the state of the art in the environmental sector, and is also actively involved in research and development in this field.

EXPERT KNOWLEDGE ON:

- Emissions/immissions and noise control
- Water management in plants
- Chemistry in power plant operation
- Climate- and environmental protection
- Biomass ash, Power plant by-products/by-products of waste incineration plants
- Occupational health and safety, and fire protection

Contact:
Dr. Mario Bachhiesl
Phone: +49 201 8128-270
Fax: +49 201 8128-364
Email: mario.bachhiesl@vgb.org

Contact:
Dr. Thomas Eck
Phone: +49 201 8128-209
Fax: +49 201 8128-321
Email: thomas.eck@vgb.org
Our structure (7/7) - Competence Area “Technical Services”

TECHNICAL SERVICES FROM VGB PowerTech e.V.

Technical services are an integral part of VGB PowerTech’s work. They are to be regarded as an enhancement to the services for our members and cover all aspects of engineering, operation and maintenance in power plants.

The technical services comprise

- Materials Laboratory
- Water Chemistry
- Construction and Installation Supervision
- Engineering Consultancy

Contact details

Materials Laboratory and Water Chemistry

Dipl.-Ing. Christian Ullrich
Head of Technical Services, Materials Laboratory, Water Chemistry
Phone: +49 201 8128-260/261
Fax: +49 201 8128-286
Email: christian.ullrich@vgb.org

Construction and Installation Supervision

Engineering Consultancy

Dr. Thomas Eck
Head of Power Plant Technologies
Phone: +49 201 8128-209
Fax: +49 201 8128-321
thomas.eck@vgb.org
The VGB Group

VGB PowerTech e.V.

is the International Technical Association for Generation and Storage of Power and Heat.

VGB Research Foundation

⇒ Organisation and administration of R&D projects
⇒ Fund raising of national and European subsidies

VGB PowerTech Service GmbH

It publishes the:
⇒ VGB PowerTech Journal
⇒ VGB-Standards
⇒ Instruction sheets
⇒ VGB books and brochures etc.
## Membership fees and additional benefits

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<tr>
<th>Membership fees (owners and operators):</th>
<th>Additional benefits for all members</th>
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<tbody>
<tr>
<td><strong>Coal, Gas, Biomass, Oil, Waste</strong></td>
<td>- Up to 30 % discount on all other VGB publications</td>
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<tr>
<td>Nuclear, OCGT/CCGT</td>
<td>- Ordinary members: Free access to standards, available as e-books</td>
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<tr>
<td>Heating Plants</td>
<td>- Complimentary issues of our well-known and highly renowned monthly VGB PowerTech magazine</td>
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<td>Plants with CHP, (for heat part)</td>
<td>- Up to 30 % discount on all VGB conferences and workshops</td>
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<td>Geothermal Plants</td>
<td>- Up to 25 % discount on our technical and engineering services</td>
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<td>Run-of-River Power Plants</td>
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<td>Storage and Pumped Storage Plants</td>
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<td>Wind Power Plant</td>
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<td>Photovoltaic (PV)</td>
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<td>Thermal solar plants (CSP)</td>
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<td>Caps for Renewables</td>
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<td>Plants with sites in non German-speaking countries</td>
<td>18 €/MWel</td>
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<td>Under construction</td>
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<tr>
<td>Maximum for the base package for companies registered office in German-speaking country</td>
<td>475,000 €/year</td>
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<tr>
<td>Maximum for the base package for companies registered office in non German-speaking country</td>
<td>237,500 €/year</td>
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<td>Minimum fee ordinary members</td>
<td>2,200 €/year</td>
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### Affiliated members (authorities, institutes, associations)
1,800 EUR/year

### Sponsoring members (suppliers, manufacturers, consultants)
2,250 – 9,000 EUR/year (depending on staff number)
Training of power plant operators for coal-, gas- and hydro power as well as waste incineration plants

- Simulator training
- 217 member companies from 10 countries
- more than 200 guest lecturers
- more than 460 courses/ ~ 5,000 participants per year

KRAFTWERKSSCHULE E.V. - ZUKUNFT AUSBILDEN

- Nuclear plant simulator training
- Human Performance Optimization (HPO)
- Simulator and Control
- Room specification
- Training for 17 German and European nuclear power plants
- 500 courses / ~ 1,000 participants per year

Energy Campus Deilbachtal in Essen: More than VGB PowerTech ....
For more information please visit: www.vgb.org
Thank you for your attention!

Contact:

Executive Management:
Dr. Oliver Then
Deilbachtal 173
45257 Essen / Germany
Phone: +49 201 8128 250
Mobile: +49 160 8444450
oliver.then@vgb.org

Renewables and Distributed Generation, Health & Safety:
Dr. Mario Bachhiesl
Deilbachtal 173
45257 Essen / Germany
Phone: +49 201 8128 270
Mobile: +49 151 18248023
mario.bachhiesl@vgb.org

Nuclear Power Plants:
Dr. Ludger Mohrbach
Deilbachtal 173
45257 Essen / Germany
Phone: +49 201 8128 221
Mobile: +49 173 5678438
ludger.mohrbach@vgb.org

Power Plant and Environmental Technologies:
Dr. Thomas Eck
Deilbachtal 173
45257 Essen / Germany
Phone: +49 201 8128 209
Mobile: +49 151 18248012
thomas.eck@vgb.org

Materials Laboratory and Water Chemistry:
Construction and Installation Supervision:
Christian Ullrich
Deilbachtal 199
45257 Essen / Germany
Phone: +49 201 8128 260/261
Mobile: +49 151 18248065
christian.ullrich@vgb.org