



**Preventive training for the Wind Power Sector –
International and European Promotion of
BZEE Qualification standards
and the EU-Initiative “Windskill”**

Nils Peters



Key data of the Educational Centre for Renewable Energies - Bildungszentrum für erneuerbare Energien - BZEE e.V.

initiated in 2000 by the German Wind Energy Association (BWE), the Chamber of Industry and Commerce (IHK) and local enterprises

BZEE Consult GmbH

service contract with BZEE e.V.

Co-operation BZEE Consult and BWE



BZEE members (1)

- **Vestas Deutschland GmbH**
- **REpower Systems AG**
- **Siemens Wind Power GmbH**
- **Nordex Energy GmbH**
- **GE Wind Energie GmbH**
- **Gamesa Wind GmbH**
- **EU Energy GmbH (DeWind)**
- **Conergy Wind GmbH**
- **Reetec GmbH**
- **WEST GmbH**
- **BS Rotor Technic**
- **Enertrag Service GmbH**
- **Anlagen-Termin Montage Hartmann GmbH**
- **TDI – technische Dienstleistungen und Industriemontagen GmbH**
- **ALLCon Service & Dienstleistungs GmbH**
- **DIS AG**
- **DAL Zeitarbeit GmbH**
- **Manpower GmbH & Co. KG Personaldienstleistungen**
- **Kelly Services GmbH u. Co OHG**
- **Ikarus solutions**
- **Rehnelt Zeitarbeit GmbH**



BZEE members (2)

- **Vedior Personaldienstleistungen GmbH**
- **Bindan GmbH & Co KG**
- **Heli Service International GmbH**
- **OSC Offshore Safety Consult**
- **Prokon Unternehmensgruppe**
- **Windtest Kaiser-Wilhelm-Koog GmbH**
- **Triowind GbR**
- **Skylotec GmbH**
- **Bundesverband Windenergie e.V.**
- **BZEE Consult GmbH**
- **Industrie- und Handelskammer zu Flensburg**
- **Industrie- und Handelskammer für den Elbe-Weser-Raum**
- **Unternehmensverband Unterelbe-Westküste e.V.**
- **Stadt Husum**
- **BGZ Beteiligungsgesellschaft Zukunftsenergien AG**
- **Kreishandwerkerschaft Nordfriesland-Süd**
- **Wirtschaftsförderungsgesellschaft Nordfriesland**
- **Netzwerkagentur Windcomm Schleswig-Holstein**
- **WAB Windagentur Bremerhaven/Bremen e.V.**
- **Thomsen Foundation for a Sustainable Future**



BZEE members (3)

- **AMO Sprachdienste**
- **FPJ – Development GmbH & Co KG**
- **ENM Energie Manufaktur Nord**
- **artefact gGmbH**
- **Husumer Wirtschaftsgesellschaft mbH u. Co KG**
- **Theodor-Schäfer Berufsbildungswerk**
- **Wirtschaftsakademie Schleswig-Holstein GmbH**
- **Berufsbildungswerk des DGB GmbH (bfw)**
- **WEQUA, Wirtschaftsentwicklungs-und Qualifizierungsgesellschaft mbH**
- **Handwerkskammer Hamburg**
- **Handwerkskammer Köln**
- **Verkehrsinstitut Nord**
- **Bildungsforum Nord GmbH**
- **TÜV Rheinland Consulting GmbH**
- **Lycee Polyvalent „Francois Bazin“**
- **Lycee Technologique Dhuoda**
- **Groupe Collegia Cegep de Gaspé**
- **Lethbridge College**



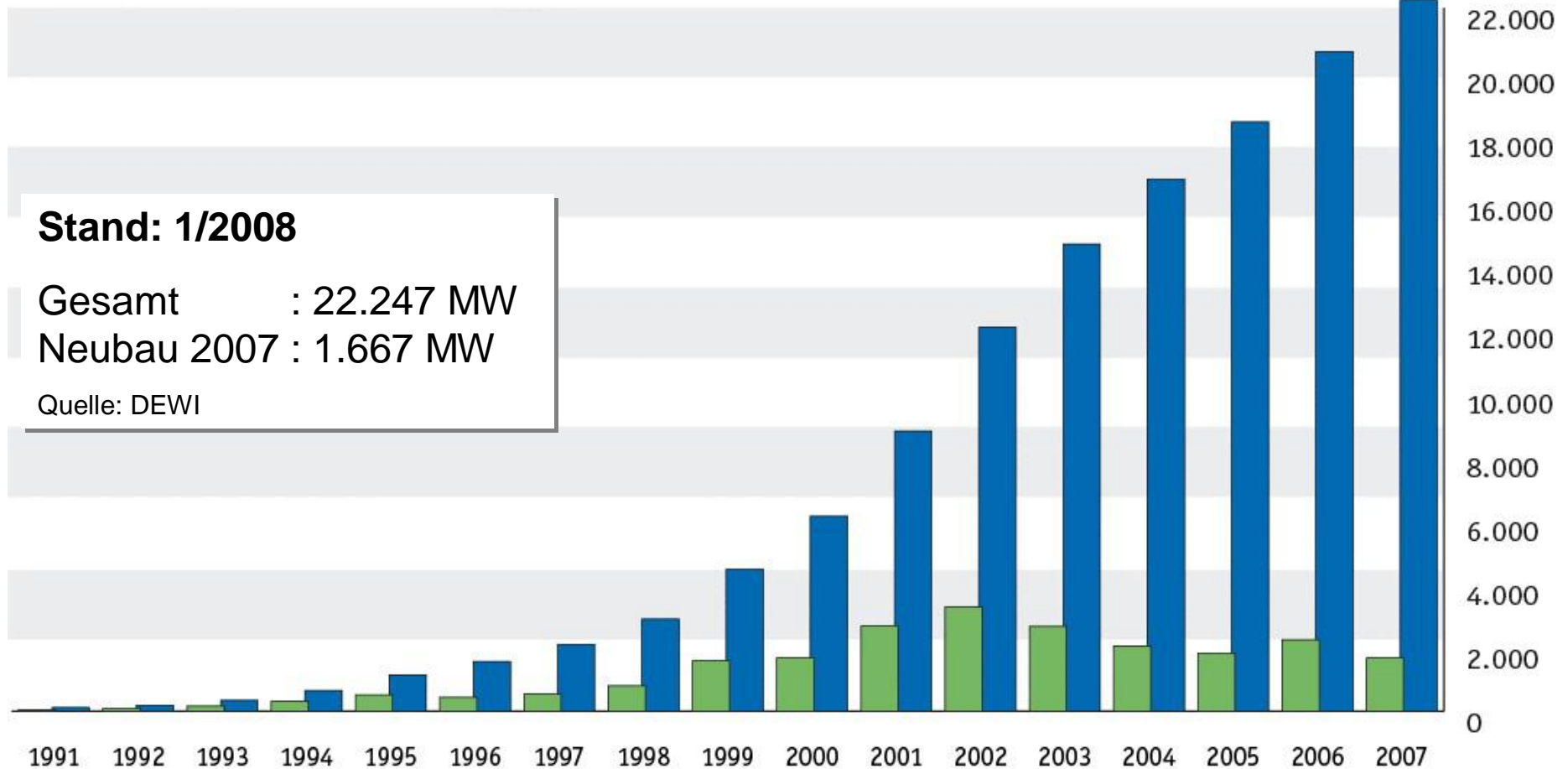
Focal activities of BZEE Consult:

- Further development and assurance of of BZEE quality criteria for the BZEE quality label
- Development of practice-orientated training measures, for the industry by the industry
- Organisation and management of training courses
- Organisation of internships with wind energy companies
- Compliance auditing of the defined BZEE quality standards
- Sole agency for the issue of BZEE certificates
- Maintenance of BZEE Register of Certificates incl. numbers of certificates and timely notification of additional training requirements
- Administration of the BZEE association
- Organisation and management of wind energy events



installed Windpower in Germany

- Gesamte installierte Leistung in Megawatt
- Neu installierte Leistung in Megawatt



Stand: 1/2008

Gesamt : 22.247 MW
Neubau 2007 : 1.667 MW

Quelle: DEWI



Main focus of BZEE:

Good maintained Turbines avoid errors and high costs for repairs

High level work safety on turbines avoid accidents

Requirement of the BZEE member companies:

High level skilled wind service technicians



How the high quality standards are developed by the industry for the industry

- **An advisory board formed by the member enterprises of the BZEE has defined qualification needs for employees since 2000.**
- **BZEE Consult GmbH develops the course contents and, together with selected enterprises, the concepts are again discussed and approved by the advisory board of the BZEE member enterprises.**
- **The training courses undergo a “test run“ as pilot courses attended by the members and adjusted, if necessary.**
- **Following this test, the training courses are offered to all enterprises in the industry.**
- **In cooperation with the member enterprises, the training courses are continuously adjusted to new requirements and needs.**



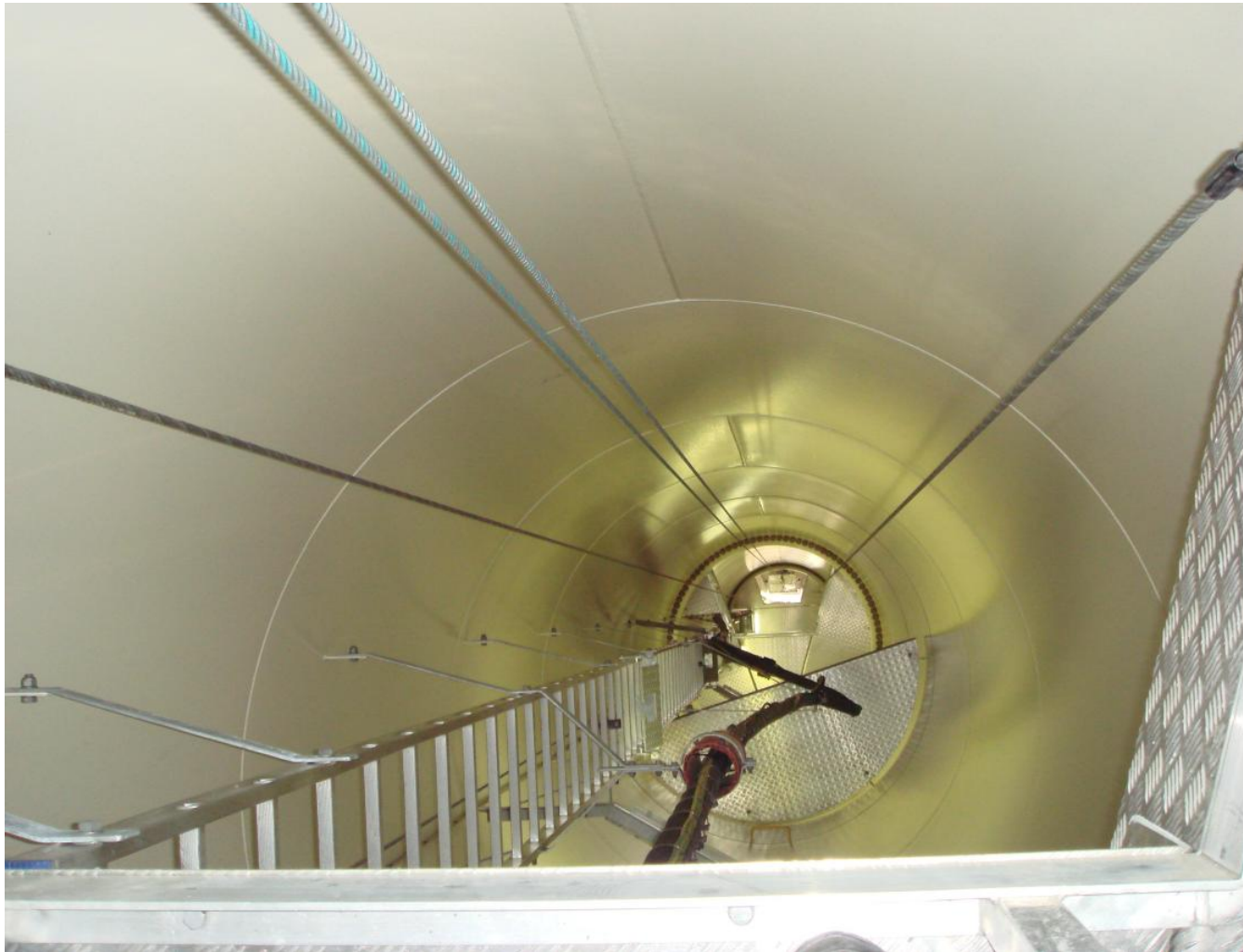
Since 2000:
Service technician training programme
for wind energy turbines

- half year training-programm
- 6-week internship and practical training on the job
- final theoretical and practical examination



Prerequisites for the service technician

- **vocational training in electrical engineering or mechanical engineering**
- **good state of health (G20, G25, G26.2, G41)**
- **ability to work at great heights**
- **high mobility**
- **ability to work in a team**
- **knowledge of the English language**
- **ideally not older than 35 years**
- **driver's license**



Test for
high-work
with every
participant
before the
course



Test for
high-work
with every
participant
before the
course



Test for
high-work
with every
participant
before the
course



Test for
high-work
with every
participant
before the
course



Interview
with every
participant
before the
course



Wind specific contents of the training course

Mechanics

Electrical engineering

Hydraulics

Rotor blade repair and maintenance

Materials testing

Assembly and disassembly

Installation and testing of hardware and software components

PPE (personal protective equipment) training

Industry-related technical English

Work safety incl. first-aid course

Electronic data processing, documentation



Number of training courses for service technicians

Husum site:

Since 2000: 19 training courses, course 20 underway since April 2008

Bremen / Bremerhaven site:

Since 2002: 14 training courses, course 15 underway since April 2008

Lauchhammer site:

Since 2003: 5 training courses, course 6 underway November 2007

Hamburg site:

2 course, course 3 underway since April 2008

Köln site

Start September 2008

800 new qualified employees for the German wind industry !



Working
with real
components
at the
training site





erection of
the training
tower



training tower



International implementation of contents of training courses for “Service technicians for wind energy turbines “

Partner: Lycee Polivalent “Francois Bazin”, Charleville-Mezieres

**Teacher Training April/May 2006
first course Sept. 2006 – May 2007
course 2 and 3 Sept. 2007 – May 2008
course 4 and 5 start September 2008**

Partner: Lycee Dhuoda, Nimes (Languedoc-Roussillon)

**Teacher Training May/June 2008
first course start September 2008**



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International implementation of contents of training courses for “Service technicians for wind energy plants”

- **Support and preparation of service technician qualification projects in Canada, start 2007**
Partner:
 - **Lethbridge College, Alberta (leading BZEE college)**
 - **St. Lawrence College, Kingston, Ontario**
 - **Groupe Collegia – cegep de Gaspé, Gaspé, Quebec**
 - **Assiniboine College, Brandon, Manitoba**
 - **Northern Lights College, Dawson Creek, British Columbia**

Teacher Training April/May 2007

first courses underway since September 2008



International implementation of contents of training courses for “Service technicians for wind energy plants “

- **Support and preparation of a service technician qualification in Italy, start 2008**
Partner: Instituta Pilota, Potenza
- **Support and preparation of service technician qualification projects in China, start 2008**
Partner: Zilang Technical College Nantong



Skillt Worker for Production of Windenergy-Turbines / Nacelles

- 3-month course
- 3-weeks internship in Companies
- BZEE-certified examination

Husum and Bremerhaven



Staff training modules

Manufacturers, operators, suppliers

**PPE – Personal protective equipment
Safety training and instructions**

Basic course: 2-day concept

Refresher course: 1-day concept

Focal points:

- **Using PPE**
- **Environment, Health & Safety at a wind energy turbine**
- **Instructions on evacuation with abseiling/rappelling and rescuing from the ladder**





Additional staff training modules

Manufacturers, operators, suppliers

- **Instructed person, electricians**
- **Skilled person for specified electrical assignments**
- **36 kV operating permission**
- **Hydraulics**
- **Mechanics**
- **Rotor blade repairs**
- **Fiberglass-work, lamination**
- **Safety driving with service truck**
- **Fire fighting at turbine**
- **dealing with dangerous goods**
- **Industry-related technical English**



Consortium Apprenticeship Programme: Wind Energy Mechatronics

- modularized curriculum
- implementation through company consortium
- 2 Chamber of Commerce certificates: mechatronics + wind energy

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International and European promotion of high qualification standards via “Windskill“, a European Union project

Joint venture with the German Wind Energy Association



2006-2009



WINDSKILL consortium

Formal partners

- DE** Bundesverband WindEnergie BWE
Bildungszentrum erneuerbarer Energien BZEE
- FR** Comité de liaison Energies Renouvelables CLER
- IT** Associazione Produttori di Energia da Fonti Rinnovabili APER
- NL** Delft University of Technology TUD

supported by national stakeholder networks

Advisory partners

- UK** British Wind Energy Association BWEA
- DK** Danish Wind Energy Association DWIA
- SP**
- EU** European Wind Energy Association EWEA

WINDSKILL

Intelligent Energy

Europe

European Wind Energy Skills Network



WINDSKILL key steps

Build

European Wind Education Network

Assess

Qualification requirements

Develop

European Qualification Profile

Structure

Modularized training concept

Implement

Pilot training programmes

Win

European recognition of education profile

WINDSKILL

Intelligent Energy

Europe

European Wind Energy Skills Network

= *the full circle*



Job profile matrix

Level I Process stages

1

Production

2

Transport

Level II Key assignments

3

Installation

Level III Job-specific profiles

4

Commissioning



5

Plant operation

6

**Maintenance and
trouble-shooting**



Job-specific profiles



Process stage					
Assignment	<i>Description</i>				
Demand Profile	<i>Knowledge</i>	<i>Skills</i>	<i>Competences</i>	<i>EQF-level</i>	<i>NQF Reference</i>

BZEE Consult



more informations:

www.bzee.de

www.windskill.eu