

## Curriculum Vitae



**Name:** Georg Böhmeke

Date of birth: 18<sup>th</sup> December 1954  
Place of birth: Hannover, Germany  
Marital Status: divorced, two children, age 22 and 26  
Nationalities: German and Finnish  
Residence: Helsinki, Finland  
Homepage: [www.futurepower.fi](http://www.futurepower.fi)  
Mail: [georg.bohmeke@futurepower.fi](mailto:georg.bohmeke@futurepower.fi)

## Career Experience

### **March 2014 - onwards FUTUREPOWER OY**

Consulting, design, commissioning, due diligence. Work for customers in Germany, China and Estonia.

From December 2015 to March 2018 exclusive work for Ming Yang Wind Power in China as General Technical Advisor and know-how-lecturer. Over 1000 pages of educational material generated. Time contract.

From March 2018 onwards in a part-time retirement status. Living again in Helsinki.

### **March 2011-March 2014 SAMSUNG HEAVY INDUSTRIES, Wind turbine division.**

General Technical Advisor. Project- and design leader for the development of the SHI 7MW-172m offshore wind turbine. Windpower educational program, building up engineering know-how. Support of the prototype commissioning. Time contract.

### **December 2009 – March 2011 FUTUREPOWER OY, consulting company**

Consulting for a Chinese-German cooperation project. Detail design of a hydraulic pitch system. Due diligence statements on damages in Finland. Consulting in Estonia. Three months exclusive work for Samsung Heavy Industries, mostly training of engineers.

## **March 1999 – December 2009 PVOE / WINWIND OY, Finland**

Technical Director of WINWIND OY. Establishment of a design department and development of the product platforms WWD1 and WWD3 under very unfavourable conditions. Initiator and leader of a retrofit program (starting 2006) to clean up the turbines from all the quality- and design deficiencies of the inexperienced Finnish staff. I left, after the company was insolvent and sold to an investor (now bankrupt and closed down).

March 1999 to 2001 PVO-Engineering, Helsinki

Cooperation with SIEMENS on their 750kW direct-drive generator. Comparative design of several wind energy converters for finding the best concept for a machine for the Finnish market. Consulting of a Finnish company regarding blade manufacture. Complete design of the wind energy converter WWD1 as a basis for the foundation of WINWIND OY (spin-off from PVOE.) I was one of the persons behind these activities and a minority shareholder.

## **Dec.93 - March 99 aerodyn GmbH, Rendsburg, Germany**

Design team leader, responsibility for the following projects:

Development of the mechanical part of the direct drive 750 kW wind turbine JEUMONT J48 in a French/German cooperation. Project leader, organisation. Mechanical design of rotor bearing, hub and mainframe, stress and strain calculations. Evaluation and specification of the active stall control algorithms (variable speed fixed pitch!), simulation models.

Comparative study concerning direct drive trains, geared drive trains and an intermediate solution, presentation of the results 1997 on the EWEC fair in Dublin. The slow-speed solution was registered as MULTIBRID and patented, in which I am mentioned as co-inventor. During the commercial phase I worked out solutions for this machine concept in cooperation with Lloyds Dynamowerke and Flender. The machine became later the AREVA-MULTIBRID.

Responsible for the electrical equipment including control software and safety concept for the 1.5 MW wind energy converter PROTEC MD (later REPOWER). Specification, design, development management of operation control computer, pitch system, generator and inverter system, electrical cabinets and cabling. Commissioning and refinements.

Evaluation of the operation control and safety system of a wind energy converter of 600 kW rated power. Design of the pitch control mechanics and electrics, commissioning of the prototype. Layout and optimisation of the active stall control criteria. Troubleshooting, cost analysis. Modifications for passive stall, intensive work on noise and vibration. Analysis and solutions for the stall-induced vibration phenomenon of rotor blades. The machine was marketed as BWU-750 later.

Management of the development of a 1.2 MW twobladed wind power plant commissioned for AUTOFLUG ENERGIETECHNIK. Structural design, calculation, project organisation, supervision of production and installation, commissioning the prototype.

Technical and organisational management of design and calculation tasks ordered by TACKE at aerodyn GmbH. Supervision of the TW600 blade manufacture in Brazil.

**Dec.91 - Dec. 93 Tacke Windtechnik, Rheine and Salzbergen, Germany  
(later ENRON-Wind, now belonging to GE-Wind)**

Head of the design and development department.

Calculation and design of wind power plants. Establishment, technical and organisational management of the design department of up to 6 employees in the mechanical engineering and electrical engineering sectors. Design of the TW600 and TW 80, redesign of the TW500, development work on the TW 1.5 Notice handed in during a time of severe economic difficulties, later followed by bankruptcy.

**Sept. 90 -Dec. 91 Technical Research Centre of Finland**

Research projects on icing of wind power plant and concomitant measurement of wind parks. Corporate consultancy, publications, lectures at Helsinki University. Complete cancellation of my projects during the 1991/92 Finnish depression, caused by the collapse of the Soviet Union.

**Dec. 88 - Sept. 90 aerodyn GmbH, Damendorf**

Design and calculation of the 100 kW wind turbine VENTIS 20-100 on behalf of the customer. Support of installation and commissioning. Basic design and simulation models of the hydraulic pitch system of the HSW750. Supervision of a diploma thesis on pitch control. On expiry of the project, move to Finland because of marriage.

**June 86 - Dec. 88 Messerschmitt-Bölkow-Blohm,  
Energy and Process Engineering Department:**

Project manager for the experimental prototype "Monopteros 15 pitch". Project organisation, commissioning of the prototype, extensive measurements, analysis and reporting.

No responsibility for any series production!

In 1988 management's decision to close the department. The single-bladed had no chance on the market.

**Oct. 84 - June 86 Norton-Christensen, Celle, Research and Development department:**

Structural design, calculation and production supervision of permanently excited synchronous generators for use in deep drilling strings. Involvement in the corresponding power electronics. In June 1986 bankruptcy of the company due to sudden oil market changes (Iran/Iraq war).

In parallel member of the board of chairmen of the German Wind Energy Association DGW. Publications, consultations of companies and organisation of a measurement project.

**March 83 - Oct. 84 German Windpower Association DGW**

Survey and report concerning the technical status of commercial and self-made wind turbines in whole Germany, followed by measurement at 12 selected wind energy converters. On expiry of the fixed-term contract, 6 months' freelance work on the follow-up project "HAWIAN", performing measurements and evaluations

## **Nov. 81 - March 83**

Lecturer for wind engineering courses in the "Volkshochschule".

At first occasional, later continuous work on the wind power test ship of Dr. Wagner GmbH in List /Sylt. Measurements, design, construction, marketing etc. Notice handed in due to the special circumstances of the company (please browse the internet for Dr. Wagner and Hanseatische Aktiengesellschaft).

## **1977-1981 activities during my study times**

Own construction of small wind turbines for home use, and for getting practical experience. Studying windpower on basis of the existing literature in addition to my normal studies.

Promoting windpower by presentations.

Solar power projects, construction of solar water heaters and of power electronics for photovoltaic solar systems. Design of a stand-alone solar-powered refrigerator, including own inverter design.

## **University:**

- 1973 - 74    Electrical Engineering,  
University of Hannover  
Pre-diploma "Vordiplom", then change of course
- 1974 - 81    Mechanical Engineering, Degree: "Diplom-Ingenieur"  
(corresponds to Master of Engineering) Overall grade: "good"

## **School Education:**

- 1960 - 73    Primary and grammar school, General Certificate of Education

## **Additional Education:**

- 1986        Heinz-Piest Institute, Evening courses on electronics,  
certificate IV-A power electronics.  
(passing tests absolved also for courses I to III = general electronics)
- 1998        ACAD / Mechanical Desktop three days course on technical drawings in 3D

## **Language skills**

- |         |                                |
|---------|--------------------------------|
| German  | native                         |
| English | fluently                       |
| Finnish | fluently (16 years in Finland) |
| Swedish | reading and some understanding |
- (some more European languages on tourist level or for understanding written text)