

## **How I came to Wind Power**

Already as a little boy I was fascinated by whatsoever mechanics and electronics. In the age of 10 I built my first radio, with 14 a small steam engine. RC model airplanes, tube radios, motorcycles, a guitar amplifier etc followed. This learning by doing gave me a certain base qualification for my later studies.

1973 came the oil crisis, mostly self-made by the oil multitis to press up the prices. The own goal in the game was, that people recognized during the car-free weekends, how nice a Sunday afternoon can be without the exhaust fumes and all-around car noise. Many discovered cycling as an alternative and the newspapers were full of discussions about energy, fuel, dependencies, life quality.

Popular Mechanics published a building instruction for a small wind generator.

About 1977 the Eco-movement came up. People's initiatives, then joint movement of an initiative for environmental protection (BBU). From this the Grüne Liste Umweltschutz originated, which became later the political party die Grünen (the Greens). The summit of this movement with millions of members was probably around 1981.

At that time I studied mechanical engineering, and of course we had also lessons in energy techniques, turbo machinery, fluid- and aerodynamics. This was a good basis to understand also wind power. The subject was not available as lecture, as the established scientific world classified it as "nonsense of crazy ecofreaks".

For me personally, 5 factors came together: Aerodynamics/model airplanes, oil crisis, windmill building instruction in the bookshelf, eco-movement, engineer.

I built the wind generator of POPULAR MECHANICS. It run for a while and then disintegrated in the rain, because of non-waterproof glue joints. I had used propeller glue, water resistant according to B3, and this is NOT waterproof! Ok, I had learnt a lesson and made it better.

I organized all available books on the subject, among them classics such as Betz, Bilau, Honnef, also the dissertation of Ulrich Hütter. The most important book was probably the one from Jens-Peter Molly. In this time 1977 -1982 I have basically studied double. Normally in the University, but in the evening I worked myself through the whole wind-power literature. On the weekend I made wind generators and solar collectors. I decided to become an engineer for regenerative energies.

By the end of my study time, I came to know Christian Kuhtz, living in Kiel. We often met to construct recumbent bikes or solar collectors. We made wood stoves, double-glazing windows, and of course wind generators and the connected electronics. Also generator bicycles were built and presented on the market place of Kiel.

1982 I started my first job as a wind power engineer on the rotor ship of Dr. Wagner and carried out a measurement campaign based on strain gauges and telemetry. In early 1983 I signed another contract in Eckernförde. Over 100 self-made wind energy converters had to be visited, classified, and photographed. With 12 of them I carried out measurements, such as power curve or noise.

Through this project I came into contact with the wind power scene. The then following 30 years are summarized in my CV.