

## **VDI trade conference on gearless wind turbine generator systems – PCS reports on converter concepts**

23. - 24.11.2010 – As part of its Knowledge Forum, the Association of German Engineers (VDI) invited visitors to a conference on the topic of “Gearless wind turbine generator systems”. This was the first time that experts and others interested in the wind power sector had met to discuss this particular topic.

At a specialist lecture PCS informed the audience on the subject of “Design concepts for converters in gearless wind turbine generator systems”, explaining the special features of full-power converters and what was needed of the converter design. In using gearless drive concepts for their units, manufacturers hope to improve the energy yield and achieve more effective part-load operation, lower maintenance and greater reliability; these demands also apply to the converter. During product development for our PCS Green Line family we faced up to precisely these challenges, placing great importance on the converter design being modular, the output being adjustable and its functions being extended to include grid support. The modular design of our converter means it can be operated at part load and its output is extremely flexible, with individual power modules being combined as parallel connections. This ensures that it is ready for operation at any time and the components in the power converter are subject to equal loads, which considerably cuts maintenance needs and extends the unit’s lifetime. The full-power converter concept means that specific features required in the gearless generator (cos  $\phi$ , electrical frequency) can be implemented ideally, while grid-related requirements (fault ride-through and grid support) are also met.

The aim of the VDI conference was to draw attention to various concepts, challenges and key factors for successful gearless drive technology in wind turbine generator systems. The two days were filled with interesting lectures and an excellent combination of speakers and attendees, meaning that discussion was extremely constructive. It will come as no surprise that the conference attendees included some gear manufacturers and advocates of the double-fed asynchronous alternator (previously the established technology), there not only to follow developments in drive train systems but also to put forward their own advances. There will never be one single ideal answer to this discussion, as the two principles – geared and gearless drive concepts – will continue to develop, both with their advantages and disadvantages. PCS will be equipped for both drive systems when it comes to wind power!

Please consult our website for further information on the Green Line product family for wind turbine generator systems or contact us to make an appointment in person.