In September of last year, the DERlab network partners founded the association DERlab as an independent, world-class laboratory for grid integration of distributed power generation. Although the network was already in place for cooperation on an EU research project, the partners wanted to formalize their continued cooperation after completion of this project. Now, some seven months after DERlab got off to a flying start, it seems like a good time to ask Peter Vaessen, KEMA's DERLAB representative, about KEMA's role as a network partner in this project.

Text **Peter van Slingerland** Photography **Fotostudio Alain Baars**

World-class laboratory

Center of excellence

The European power system, serving some 430 million people and accounting for approx. 2,500 TWh a year, is in transition. Co-generation by private generators using renewable sources like wind energy and solar power is a rapidly increasing trend; this power needs to be fed back into the grid at a low-voltage or medium-voltage level, but harmonized quality and reliability standards, or interconnection requirements, are as yet lacking. Since the EU member states feel a shared responsibility for power quality and reliability of their interconnected grid, they encouraged the set-up of DERlab, the European Distributed Energy Resources Laboratories Association, as a center of excellence, to fill this void.

"At first, there were no standards whatsoever," says Peter Vaessen, "For example, solar power inverters were developed according to different standards by each manufacturer. Obviously, something needed to be done."

"Innovation is 1 percent creativity and 99 percent hard work"

Besides developing harmonization standards, DERlab also performs compliance tests of electrical equipment used in distributed energy resources, like wind turbines, solar power plants and storage systems. Each DERLAB partner has its own specialization. For KEMA, this is heavy power electronics equipment with power ratings up to 1 MVA and at medium-voltage up to 24 kV, which is tested in the Flex Power Grid laboratory (FPGL).

A dream come true

Peter Vaessen is one of the principal initiators of KEMA's involvement in DERlab. He had been feeling the need for – and lack of – a power electronics laboratory at KEMA for years, and was the first to see the DERlab network for the opportunity it really was. "For me, it was like a dream come true," he recalls, "I had realized a long time ago that power electronics is our future, and as a network partner we could work on our vision to build and operate our own test facility with national and European support."

However, Vaessen's enthusiasm didn't mean that his dream would be fulfilled right away. Writing the required program and finding the right people to start creating a shared vision didn't take very long, but the process to really get things running proved to be a more challenging task at the time, because timing

was very important. “But when KEMA’s Hans Overbeek and our CEO Pier Nabuurs became actively involved, and ‘Smart Grids’ became a buzzword, it worked miracles. That was the start of the FPGL as we know it today,” Vaessen reminisces.

Competitive intelligence

DERlab’s main objective is long-term cooperation between its partners, through professional development of its staff, and exchange of knowledge and services among its members. As a commercial partner in this network, however, KEMA also clearly has a marketing objective of increasing visibility and reputation building. “When we started with DERlab, there were more commercial partners, but now we’re the only one left,” Peter Vaessen explains, “and the EU likes our commercial focus, since with our activities in the Far East and other markets worldwide, we bring in a lot of valuable competitive intelligence they can use to reinforce Europe’s position globally.”

Smart grid demo center

When asked how he sees the future for KEMA in the DERlab network, Vaessen replies: “I see the FPGL as a phase in our realization of a smart grid development, test and demonstration center – a real systems lab. Right now we can test power electronics equipment up to 1 MVA, but the market is already asking for testing capabilities at higher power levels. If a Real-Time Digital Simulator were connected to our lab facilities, we could actually imitate an electrical distribution network or an entire residential area and study the interaction and control of the connected power electronics equipment.”

This may be wishful thinking, but it makes sense to move with the tide, which appears to be going towards smart grids. **<<**

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