

High Light

2 Winds of change blow through the FPGLab

FPGLab facilitates grid inverter certification and gears up towards model verification. Grid inverters form one of the main areas of interest for the Flex Power Grid Lab (FPGLab), both in terms of research and in testing, and lately, in collaboration with partner KEMA divisions, also certification.

3 KEMA Conference 2009 – Change the World of Energy

On October 15, KEMA organized the conference “Change the World of Energy”. Over 150 executive level delegates from all over the World attended this conference to discuss the topic “Implementing the 3rd Industrial Revolution”.

4 KEMA’s new High Voltage Lab is now officially open!

The new KEMA High Voltage Laboratory has officially been opened in conjunction with the KEMA Conference on Change the World of Energy.

6 Highlights in brief

- Generator overhaul is key element of investment strategy
- KEMA expands its Inspection activities in China
- MEE 2010 in Dubai

7 Testing activities

- Wintrack Project on behalf of TenneT
- ILJIN
- AREVA T&D ITALY S.p.a.
- Phelps Dodge International Corporation

8

- AREVA T&D Canada Inc.
- LS Cable
- Saudi Transformers Co. Ltd



Winds of change blow through the FPGLab

FPGLab facilitates grid inverter certification and gears up towards model verification

Grid inverters form one of the main areas of interest for the Flex Power Grid Lab (FPGLab), both in terms of research and in testing, and lately, in collaboration with partner KEMA divisions, also certification. Examples hereof are the harmonic emission validation performed on large-scale PV-inverters and more recently the interface protection validation according to the NEN-EN 50438 standard of a small-scale urban-wind inverter (see photograph). Beyond the physical prototype validation, yet another validation requirement is slowly but surely emerging, one of (simulation) model verification.

The German distribution-grid code is leading as far as requirements in terms of model validation/verification where distributed energy resources (DER) are concerned, having already included requirements since the 1st of January 2009. However, it is expected that other countries are soon to follow the German example, ultimately leading to inclusion hereof in international standards. In short, it requires a large-scale (simulation) model to be validated by an independent testing body, in parallel with a (scaled-down) physical prototype, in order to receive a so

called "DER plant certificate", entitling the holder to integrate the connected DER equipment into the actual grid.

These advances in standardization and legislation strengthen the ties between digital simulation (PC based) and physical emulation (laboratory based) as both are now required to safely integrate the increasingly intelligent components required to transform the (electrical) energy supply chain. Testing laboratories, therefore need to embrace the world of (digital) simulation in order to deliver the services required of them.

The FPGLabs position in the market is already such that it can foster both the intellectual advancement through research and the commercialization of market-ready products by testing and certification. It is therefore a logical choice that the FPGLab service offered will be extended with model verification in the near future. Combining these services delivers not only a pass/fail criteria on products but enhances the laboratory experience by providing physical feedback information regarding the (simulation) models, shortening developing time of both simulation/prediction tool and in the long run, product-to-market time. <<

Column

Synergy

Recently we celebrated the opening of our new High Voltage Laboratory and have been led to conclude that the enhanced capability of our new lab really has answered market demand. The laboratory has gradually become fully occupied and feedback has shown that the customer accommodation offered is highly valued.

Now that this laboratory has moved to the same area as the High Power Laboratory and the Flexible Power Grid Laboratory in the Rosandepolder, it is time to profit from potential synergies between the three laboratories.

The aim is to service you, our customers, better: to provide you with easy and uniform access to the testing facilities and the KEMA experts.

To start with, we created one physical entrance point at the reception in the main building of R11. The KEMA staff at this reception will inform (new) clients about the facilities, the working and the safety procedures and guide them to their allocated working areas. Meeting facilities with the proper equipment to inform our clients and visitors via video/DVD and other documentary material are available.

One MidOffice will support operations from generating quotations to the issuing of invoices, working together narrowly to answer clients' questions that may be related to more than one laboratory.

KEMA TDT has also decided that one central department will produce and issue the reports resulting from testing. Since our Certificates and Reports are our end-product this department will watch over the quality, the delivery times and the uniform presentation of Certificates and Reports.

Many actions have been put in place and many will follow so that the service we provide our clients improves continuously and we strive to create an organization as transparent as possible. We wish to give our clients, whom visit from all over the world, a place where they can work in a comfortable and most optimal way.

Of course we aim to keep improving our service and we would like to invite you to give your respected feedback in this process. With your input and

comments we will be able to further streamline our operations and services.

Thank you

Peter Bus
T&D Testing Services





CEO Pier Nabuurs (Photography: Fotostudio Alain Baars)

On October 15, KEMA organized the conference “Change the World of Energy”. Over 150 executive level delegates from all over the World attended this conference to discuss the topic “Implementing of the 3rd Industrial Revolution”. Keynote speakers Jeremy Rifkin (President of the Foundation on Economic Trend) and Pier Nabuurs (CEO of KEMA) challenged the delegates to discuss the changes the electric power sector will face in the near future.

KEMA Conference 2009 – Change the World of Energy

The plenary sessions was followed by three parallel sessions:

- Grids, the next big change
- Implementing future energy systems
- Testing for the future

Testing for the future?

In this session, three specialists were invited to give challenging and inspiring views on the future of testing.

Prof.dr. Claus Neumann from Amprion, the largest German TSO, emphasized the need for ‘hard’ grids in the foreseeable future. Studies of a new German ‘overlay grid’ (AC 750 kV or DC 500 kV), possibly underground, are underway. Such energy highways are unavoidable to transport energy both from renewable and conventional sources. With regards to testing, he sees a clear need for more severe test requirements of components in

such grids. Higher fault current levels and more severe operational stresses are to be expected, and labs should prepare for this. Prof. Neumann rejected the exclusive use of the word ‘smart’ for (future distribution) grids by underlining the embedded intelligence in every modern transmission grid on various levels of protection, operation and control.

Dr. Martin Kriegel from ABB HV Products (Switzerland) introduced his topic of discussion under the title “Laptop or Toplab”. In this, he evaluated the role of modeling and simulation as complementary and maybe even as a replacement for real-life testing. His message was that for the ultimate proof of stress withstand, laboratory testing could not be expected to be replaced by computer simulation. Among other things, this resulted from a benchmark study of dielectric stress

and withstand by all major manufacturers, conducted by CIGRE. Modeling, however, remains a very strong tool for prediction of stresses. His suggestion for laboratories is to prepare for a more direct role of computer simulation in testing: “more laptop in toplab”.

Dr. Erik de Jong demonstrated the efforts KEMA (together with Dutch technical universities and ECN) is undertaking in testing components for future ‘smart’ networks. He demonstrated how KEMA’s FlexPowerGrid lab is pioneering in testing an intelligent substation. Having limited power at present (1 MW), KEMA will review the possibility to upgrade facilities for ‘dirty grid’ testing in the future, if needed. <<

Details of the Conference can be found at www.kema.com/kemaconference



KEMA's new High Voltage Lab



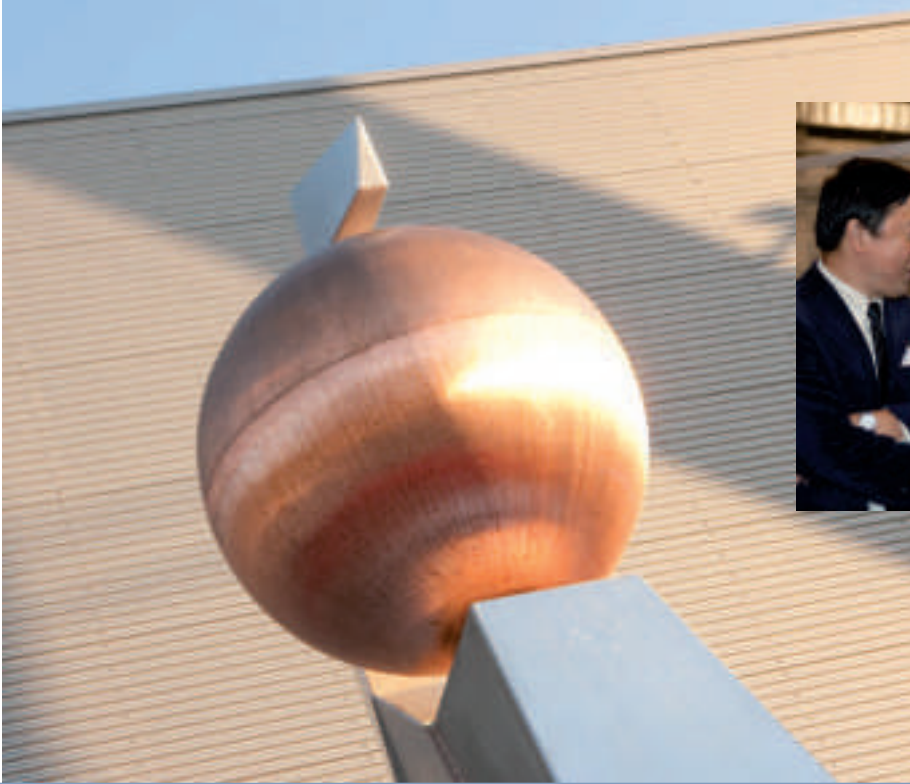
Mr. Clemens Cornielje and Mr. Pier Nabuurs had the honour of cutting the ribbon on the statue "The Guardian – Contentio", a statue that holds a copper ball that was used in the old laboratory for the calibration of high-voltage tests. With this statue we connect the experience we gained over more than 80 years in the field of testing high-voltage components.



The new KEMA High Voltage Laboratory has officially been opened in conjunction with the KEMA Conference on Change the World of Energy.

Many lively conversations were held between our guests to discuss the future ahead.





With this new laboratory KEMA demonstrates its capability in anticipating the challenges the World of Transmission and Distribution Companies face in the coming decades.

is now officially open!



The opening ceremony was followed by an entertaining networking event for our guests and a seated diner inside the main test area; "A more than impressive venue" was the reaction of our guests.



Generator overhaul is key element of investment strategy

With a view to assuring system availability and making sure that we remain capable of testing the products that our clients develop in the future, T&D Testing Services is constantly investing in new technology. Along with process improvements, business developments and energy-saving projects, reinvestment in existing equipment is a key element of our investment strategy. Our clients expect and deserve nothing less.

One particularly important reinvestment project is the overhaul of our generators. The four generators that produce the power needed for short-circuit testing at the High Power Lab require comprehensive servicing to ensure that they continue to function smoothly in the years ahead.

Following the first generator's successful overhaul in fall 2007, it is now time for the second to receive attention. The maintenance work will be carried out on site, so as to minimize the time that the generator is out of service. Steps are also being taken to make sure that there is no significant adverse impact on our test activities, which of course continue as usual for the months that the overhaul is in progress. As a result, most of our clients will not be affected in any way at all. Appropriate arrangements have been made with the small number whose tests require four generators. By performing this essential work now, we are making sure that our clients can depend on our services going forward. <<

KEMA expands its Inspection activities in China

In recent years, KEMA TDT has profited from a good and ever growing business in China for the testing of medium and high-voltage equipment for the High Power Laboratory,



High Voltage Laboratory and the Inspections department. As a result of this, a KEMA Representative Office in Shanghai, headed up by Luo Yansong, was opened in August 2009. In order to extend the Inspection business for the testing of MV and HV equipment, René Blokhuis (see picture) joined this office on 1 October. As a senior inspector and

having worked for KEMA over 7 years, he has wide experience in executing Inspections in China. Mostly these inspections took place in specialized laboratories utilized to perform type tests on MV/HV products. His occupation in Shanghai will be that of a Business Development Manager where his role will be to extend the Inspection business with the use of marketing and sales activities. Also, the office will employ highly skilled local people and will train them in order to become Inspectors on MV and HV equipment. By doing things this way, KEMA will be able to act with more flexibility and efficiency in responding to an increasing market. <<

MEE 2010 in Dubai

KEMA will attend the Middle East Electricity Exhibition 2010 in Dubai from 9 to 11 February 2010. This exhibition is one of the largest and best exhibitions in the world for the electric power industry. We will be presenting our

services in the field of Consultancy, Technical & Operational Services, and Testing & Certification. We welcome you to visit our stand 4C30 in hall 4. <<



Wintrack Project on behalf of TenneT

Wintrack is a new type of high-voltage pylon, which is not only slimmer than a conventional lattice pylon, but also has a narrower magnetic field. The narrow field is of particular importance, because it means buildings can be sited closer to the high-voltage line.

A two-phase test set-up was used, with the phases at an angle of 120 degrees. This approach was adopted with a view to simulating field conditions as closely as possible and verifying that the compact line design behaved as previously modeled by Consulting.

TenneT hopes to be able to use the new-design pylons next year on the southern section of Randstad 380. <<



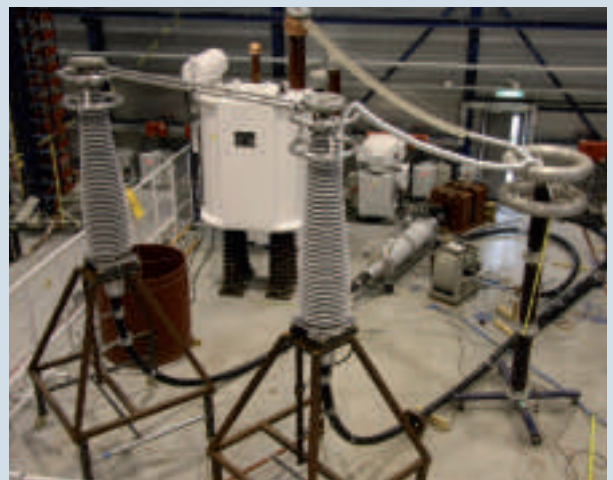
ILJIN

The type test of the 400 kV cable system from ILJIN was successfully completed at KEMA. This type test was the first 400 kV type test in the new KEMA High Voltage Laboratory. The type test is followed by a Prequalification test in the new PQ test field. The test includes a composite and porcelain as well as joints and SF₆ sealing ends. The test will be ready at the end of 2010. <<



AREVA T&D ITALY S.p.a.

Last July 2009 AREVA T&D ITALY S.p.a. has successfully tested a disconnector, a Knee-Type and a pantograph all rated 550 kV, 63 kA. Certificates according IEC 62271-102 for short-circuit performance will be issued. <<



Phelps Dodge International Corporation

Cable manufacturer Phelps Dodge International Corporation in Thailand, part of the General Cable Group, successfully completed a type test on a 220 kV cable system. The system included cable accessories from Silec Cable (also a member of the General Cable Group in France). <<



AREVA T&D Canada Inc.

AREVA T&D Canada Inc. successfully tested their 345 kV, 4000 A vertical break New generation disconnector switch at KEMA-Powertest laboratory in Chalfont, PA – USA in July 2009. AREVA's switch withstood 210 kA peak short circuit current for 170 ms and also withstood 66k kA short circuit current for 4.7 seconds. <<



LS Cable

At the LS Cable location in Gumi, Korea, a 500 kV test set up was installed, including 2 types of outdoor termination, 2 types of GIS termination and an insulated joint with coffin box. The first part of the type test, which was witnessed by KEMA, was successfully performed. <<



Saudi Transformers Co. Ltd.

The Saudi Transformers Co. Ltd. from Saudi Arabia successfully tested 6 transformers last September in the High Power Laboratory. The transformers were rated 11 kV up to 22 kV and 500 kVA up to 1500 kVA. Certificates according to IEC 60076-5 for short-circuit performance will be issued. <<

HighLight 42 - December 2009

KEMA T&D Testing Services

Utrechtseweg 310
P.O. Box 9035
6800 ET Arnhem
The Netherlands

Photography

Fotostudio Alain Baars and KEMA

For more information on all subjects or for a free subscription, please contact:

Angela de Geest
T +31 26 356 23 08
F +31 26 351 14 68

highlight@kema.com
www.kema.com