



“This workshop was a good chance to learn the basic concept of IEC 61850. As a leader in IEC 61850, DNV GL (formerly DNV KEMA) demonstrated the testing direction of 2nd edition standard.”

DNV GL workshop participant

Client: Korea Electrotechnology Research Institute (KERI)
 Project: IEC 61850 workshop – latest changes

CHALLENGE

Each day experts at DNV GL (formerly DNV KEMA) enable business to develop. In Korea, utilities and world leading manufacturers of power equipment are eager to stay ahead of international competition. Therefore being up to date with the latest trends and developments in the standardization body is crucial. For a reliable, secure, and interoperable critical infrastructure based on open standards IEC 61850 is the international standard used for electrical grid data communication and electrical substation modeling. It is optimized for efficient and reliable transfer of process data and commands within and between Intelligent Electronic Devices (IEDs) and substations.

To make sure the Korean industry and utilities have their IEC 61850 knowledge updated with latest trends and developments, including security trends, Korea Electrotechnology Research Institute (KERI) asked DNV GL to organize a workshop for approximately 130 members from Korea (manufacturers and utilities) and teach the latest changes in the field of IEC 61850 and the application to electrical grid data communication and electrical substation modeling.

KERI AND DNV GL

KERI is Korea’s Electro Technology Research Institute and has been carrying out R&Ds on electro technology and testing and certification business on power apparatus as a government-sponsored institute as well as internationally accredited testing and certification body. As an independent party DNV GL is recognized—also by the Korean workshop participants—as the world leader in electrical grid data communication and electrical substation modeling.

In 2005, the first version of IEC 61850 was introduced. Utilities in particular were, as end users, the driving force behind the creation of this data communication standard for the computerization of substations. If there is no standard, miscommunication between the devices lurks around the corner,

particularly when it concerns equipment produced by different manufacturers. That is why the utilities, united in the UCA, have developed a special worldwide recognized UCA certificate. DNV GL has extensive knowledge and experience when it comes to the development of test protocols in accordance with IEC 61850.

DEVELOPMENT

DNV GL experts recently visited KERI in Korea and held a workshop focused on the basics of IEC 61850, and explained how to approach the implementation and testing of IEC 61850 devices and enabled the participants to study testing direction of second edition standard.

DNV GL's Protocol Competence and Test Center has focused on the development of a test protocol in accordance with the IEC 61850 from the outset. Since 2005, over 300 devices have been tested, which corresponds to around 95% of total available devices. With the introduction of edition two of the standard new test cases have been added to complete the conformance test, and to improve the level of interoperability between the different manufacturers in the world.

COMMUNICATION STANDARDS

For substation automation, the international standard for data communication between metering, protection, control, transformer, and switching devices within substations is IEC 61850. IEC 61850 is being extended towards communication between substations, decentralized energy resources, and hydropower plants, thus becoming increasingly important. A language to engineer and configure the substation automation system is also an important feature of IEC 61850.

Utilities require manufacturers to certify their IEC 61850 products to reduce non-interoperability risks between products developed by different manufacturers as much as possible. With IEC 61850, compliance of data communication to interact in the smart grid can be ensured. And this contributes to the reliability of delivery. In addition, Korean utilities and manufacturers that joined the workshop wanted to know more about DNV GL's IEC 61850 Edition 2 testing (the development of [UniGrid test tool](#)) and security (extension to be implemented in DNV GL's test tools) regarding IEC 61850 in general.

DNV GL's next presentation will be at the [IEC 61850 Europe 2014](#), from May 21-22, 2014, in Prague, where the conference will be focused on "Achieving Multi-Vendor Interoperability in the Implementation of IEC 61850." Let's meet in Prague!

Do you want to know more about IEC 61850 or data communication? Contact DNV GL at +31 (0) 26 356 2371 or send us an [email](#). We are more than happy to answer your questions. More information on Intelligent Networks & Communications can be found on [our website](#).