

## The Future is Now

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The electric power industry has been moving in the direction towards a Smart Grid since the end of the last century due to the significant changes of computer and communication technologies and because of the increasing requirements for improvements in safety, reliability, security and efficiency. These requirements cannot be met without the development and implementation of international standards that can ensure the interoperability between devices manufactured by global suppliers, while at the same time supporting an efficient engineering, installation, commissioning and maintenance process. This resulted in the development of IEC 61850 – the international standard for power utility automation.

IEC 61850 is a multi-dimensional standard that is not only the dominant communications protocol recognized as one of the cornerstone technologies for the Smart Grid that brings significant benefits to the industry and allows the more efficient integration of devices of different types into systems. IEC 61850 is already a well-established technology supported by all major protection, automation and control manufacturers and successfully running in thousands of substations. In more than ten years of experience by utilities, manufacturers and consultants, based on the many benefits that it provides it became clear that this is the technology for the grid of the future.

The biggest benefit of switching to IEC 61850 is achieved in what we call **Digital Substations** - the ones where all interfaces between the sensors, IEDs and other devices performing protection, automation, control, measurements, monitoring, recording, etc. are based on digital communications, using IEC 61850. The only hardwired interfaces are the power supply and the interfaces with the primary equipment – for example circuit breakers and switches, power and instrument transformers. A more advanced version of digital substations are the ones with non-conventional instrument transformers. This practically eliminates wiring and leads to improvements in safety (due to the replacement of current circuits with optical fiber) and the replacement of conventional instrument transformers with optical or low power sensors. Another significant benefit is the reduced substation footprint, number of panels and size of the substation control house.

The maintenance testing is also dramatically reduced, and if necessary it can be performed remotely from the convenience of the office, thus reducing the duration of outages and eliminating the need for the testing team to travel to the substation, especially to remote locations and dangerous weather conditions.

So, if we ask the question “Why should we switch to IEC 61850?”, the answer is to be able to meet the challenges of today’s continuously changing grid with high penetration of distributed energy resources that requires the use of the most advanced technology available. And this is not a future technology, but the technology of today.

To learn more about IEC 61850, plan to attend the 3<sup>rd</sup> Annual IEC 61850 Tutorial and Workshop on May 19-21, 2020. For more information visit: [www.omicronenergy.com/na-iectw](http://www.omicronenergy.com/na-iectw)