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experiences.**

I wish to take the opportunity presented by the front cover of the summer 2009 issue of PAC World to express my concern over how several in the 61850 community have been interpreting "interoperability". This cover shows a person trying to use an electrical appliance equipped with a North American style plug with a European style receptacle, and is captioned "p18. IEC61850 Interoperability Principles and Benefits".

Some interpret "interoperability" as a requirement for among other things, that the devices directly mate, i.e. be plug compatible. These will see the cover illustration as an example of non-interoperable systems.

**This is not so.**

Demonstrating this is the interoperability I recently experienced with the North American appliances I took with me to an IEC meeting in Spain. With an \$8.99 adaptor, the computer, phone charger and hair dryer operated correctly. Only the shaver was

non-interoperable - it could not accept the higher voltage. The plug compatibility issue had no relationship to the interoperability issue.

As stated by the cover referenced article, the goal of IEC 61850 is to ensure interoperability - i.e. the ability of two or more IEDs from the same vendor, or from different vendors, to exchange information and use that information for correct execution of specified functions. This does not require the IEDs to plug directly into each other. In fact, the standard assumes that between the IEDs there is a switched Ethernet communications network. The standard does recommend the IED communications interface use ST connectors, but in order to support innovation and flexibility, it specifically provides that future technology could be used.

**The point is:** interoperable devices may need some engineering of the interconnection to get them actually interoperating. This could include an

adaptor, a communications network, and/or custom settings. Plug compatibility is not essential.

*David McGinn, P. Eng.*

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**PAC World:** Dear Mr. McGinn, the cover is an artistic representation of the issue of interoperability, not just the issue of the connectors. To anyone that travels it is clear that it is not just the difference in the plug, but also the frequency and voltage that are different. And any time when we need to use an adaptor, this is not interoperability anymore. If you extend the concept of using a physical adaptor to plug a US device in a European outlet (and even not all European outlets are the same) to communications, then you may say that there is interoperability between a Modbus and an IEC 61850 device if you use a gateway. But if two devices are interoperable, they don't need a gateway.

To cut the discussion short, the main idea of IEC 61850 is to ensure that devices can connect to each other without the need of any adaptors.

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