

# Smart grid panel agrees on standards and guidelines for wireless communication, meter upgrades

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The governing board of the public-private Smart Grid Interoperability Panel (SGIP) has voted in favor of a new standard and a set of guidelines important for making the long-planned “smart” electricity grid a reality. The documents address the need for wireless communications among grid-connected devices as well as the ability to upgrade household electricity meters as the Smart Grid evolves.

The SGIP identified “Guidelines for Assessing Wireless Communications for Smart Grid Applications” and “Meter Upgradeability Standard” as critical needs for realizing an energy-efficient, modern power grid with seamlessly interoperable parts. They are now among 17 other [standards](#) development projects called “Priority Action Plans,” or PAPs.

The National Institute of Standards and Technology (NIST) created the SGIP, a group of public and private organizations, to coordinate the development of consensus-based Smart Grid standards. According to SGIP Administrator Erich Gunther, the two new PAPs are important for ensuring real-time communication, which will be a hallmark of the new grid.

“The standards and guidelines resulting from PAP 0 and PAP 2 are crucial to ensuring that metering devices can be upgraded remotely and reliably, and that the sort of fast, efficient wireless communications

typical today with cell phones becomes a part of the future electricity grid,” Gunther said.

Almost every house has an electricity meter, and the PAP 0 standard is designed to ensure that the new generation of smart electricity meters does not quickly become obsolete. According to Paul Molitor, Industry Director for Smart Grid at the National Electrical Manufacturers Association, PAP 0 aims to “future-proof” these meters.

“More than 50 million houses across the country will need new meters for the Smart Grid to function, and PAP 0 will ensure that this substantial upfront investment of time and money is protected,” Molitor said. “Some state utilities have considered halting the deployment of the new meters because of uncertainty about upgrading the meters. PAP 0 addresses their concerns by making it possible to upgrade any meter as the standards evolve, and to do so remotely to boot.”

PAP 2 is a guideline that recommends the standards that will be necessary for [wireless communications](#) between all devices connected to the Smart Grid – not just the meters on your house, but the wide range of components in power plants, substations and transmission systems necessary to keep energy flowing among the many points on the grid.

“Technologies like Wi-Fi and Bluetooth were not designed with Smart Grid in mind,” said NIST’s Nada Golmie. “What PAP 2 does is ensure that any technologies that we use – whether off-the-shelf or not – will provide the features the grid needs.”

Golmie says that – to give one example – there can be far less tolerance of delays between transmission and reception or interruption of signals among grid devices than there is among general data communication devices, such as cell phones. PAP 2’s goal is to specify wireless technology performance that is grid-worthy.

“We would like vendors and standard-setting organizations to become aware of the features a grid-worthy technology will have,” she said. “We’re trying to help facilitate a conversation between technology developers and grid operators, to ensure they are all on the same page. It’s hard to do that without hard numbers about how devices must perform, and PAP 2 provides these numbers.”

The PAPs, originally 15 in number, have expanded to 18 and are numbered 0 through 17, with additional PAPs under development. Of the dozens of groups of standards that will be necessary to ensure the interoperability of Smart Grid devices, the SGIP identified the PAPs to address the most important standards needed for the Smart Grid to function properly. The vote on PAPs 0 and 2 brings the total number of PAPs that have passed muster with the SGIP governing board to five, along with the previously approved PAPs 1, 10 and 11.

NIST created the SGIP in 2009 to support its coordination of Smart Grid standards development. While the SGIP does not develop or write these standards directly, it works with existing standards organizations to coordinate and accelerate the development of standards that respond to needs critical to achieving a nationwide [Smart Grid](#). This vote by the SGIP governing board signifies that its leadership has agreed to recommend the standard as relevant and needed.

**More information:** A summary of the standards coordination and development process for PAP 0 can be found at [collaborate.nist.gov/twiki-sgg ... 00MeterUpgradability](#) , and for PAP 2 at [collaborate.nist.gov/twiki-sgg ... rtGrid/PAP02Wireless](#) . The full standards are available from the North American Energy Standards Board through their website at [www.naesb.org](#) .

Provided by National Institute of Standards and Technology

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