

Smart Grid Communications Vision for 2015, 2020, and 2030

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The Smart Grid envisions an interconnected communications and power distribution network that is intended to streamline power generation, transmission, distribution, monitoring, and control. The power grid is a very wide-ranging and complex system incorporating distributed generation, fault detection isolation and recovery, energy storage, demand response, automatic metering infrastructure, active and reactive power control, flexible ac transmission control, high power solid state electronics among many, many other components.

This panel projects 15 years into the future as current technologies evolve and mature and tries to layout the vision of the smart grid in the year 2030 when communications and power electronics will also have advanced significantly. New technologies that are on the horizon now will become commodities, for example, the solid state transformer, wireless power transmission, quantum key distribution, as well as new forms of small scale power generation. Advances in communication coupled with advances in power systems will enable entirely new power systems applications.

Thus, we need to carefully evaluate the infrastructure needs 15 years into the future based upon several key factors, including bandwidth, latency, security, and reliability and discuss the technology challenges. Can we ensure Smart Grid's robustness and resilience? How would we control of the grid of the future using the communications of the future? Should it be self-

organized or externally controlled? Should communication occur over existing power infrastructure or will parallel networks be required? How will we ensure that inevitable anomalies in the grid will be corrected or isolated quickly? This panel of experts will show a glimpse into a crystal ball painting a vision for the future of Smart Grid. The panel will also review the findings of the Smart Grid Vision Project being sponsored by the IEEE Standards Association that is working to create a vision of the Smart Grid for the year 2030.

If you have specific questions for the panel you can send them ahead of time to goel [at] albany [dot] edu (goel [at] albany [dot] edu) and we will address them in the panel. Obviously, we will take additional questions during the panel session itself.

Moderator:

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Panelists:

Stephen F. Bush, GE Global Research
Alexander Gelman, CTO, NETovations

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