10 REASONS WHY FIBER IS THE RIGHT CHOICE FOR A SMART GRID NETWORK
“Smart Grid,” simply put, is the modernization of electrical grids to allow for real-time monitoring and control of power usage to avert the risks of system overload during periods of peak consumption. No one wants to live under threat of the brownouts and blackouts that can bring daily life to a screeching halt with the literal abruptness of flicking a switch.

This “modernization” entails the deployment of advanced communication networks that allow energy providers to proactively monitor and manage power usage and even automate much of the process. But once this kind of network is in place between the power station and the end user – be it a residence, a business or a public sector institution – the utility has a ripe opportunity to expand into providing a host of other services that can yield new streams of revenue and allow it to play an even more integral role in support of its community – provided that this network has been built using the right infrastructure.

Public utilities have a number of options when it comes to deploying an advanced communication network for smart grid, each with its own distinct characteristics and considerations – powerlines, wireless or cellular, copper, or fiber. When comparing these four infrastructure options, fiber often emerges as the top contender. Larger power companies have been using fiber communications to connect their generation network with their network control facilities for years. While the upfront costs of deploying fiber can be significantly higher than the other options, it nonetheless offers advantages that, in the majority of cases, trump the short-term hurdle of that capital expense:

1) Information at the speed of light. Communication in both directions on a fiber network is instantaneous – allowing electric distributors to efficiently manage and monitor their power demand in “real-time”.

2) The more responsive, the more cost effective: The more easily and efficiently power usage can be monitored and managed, the more cost savings can be realized. The strain on overtaxed and aging power generation facilities is reduced, prolonging their life without costly investments in repairs, upgrades and replacements of equipment.

3) Ultimate reliability and performance. Fiber optic cables, whether buried or overhead, offer improved reliability and can transport vast amounts of information through a single fiber strand.

4) Self-healing: A fiber-based system can be designed with redundant pathways to ensure a continuous flow of information in the event of an interruption to the primary route.
5) **Feeding the grid:** “Green” residential developments are already taking hold across the U.S., in which homes generate their own power with a renewable source such as solar. A fiber-based smart grid allows for much more efficient management of the supply of power by these micro-producers back to the grid.

6) **Future proof.** Once a fiber pipe is in place it has almost limitless capability to handle more bandwidth and scale up to deliver more advanced services. The fiber itself will not need to be upgraded or replaced to increase bandwidth, only the electronics at either end.

7) **Why stop at power management?** That big fiber pipe allows a public utility to branch out into new broadband services that create new revenue opportunities, such as the triple play of ultra-fast Internet, HD and IP television, and telephone, with lighting fast connection speeds of up to 100 mbps.

8) **Underserved and over charged.** In many communities, incumbent telecommunications providers without wireline competition will “milk” their legacy copper networks, delivering substandard service at often times higher rates. The expansion by a public utility into fiber-based triple-play services will introduce real marketplace competition, breeding innovation, improved customer service and better pricing for both commercial and residential customers. Public utilities are local, have significant infrastructure experience, and the right “mission” to serve their community.

9) **Stimulating the local economy.** Fiber optic networks provide tremendous communications capabilities to enable existing small, medium and large businesses to operate more efficiently, while positioning the community to attract new industry and skilled workers. Much like the interstate highway system 50 years ago, fiber optic networks open businesses up to expanded markets, across the U.S. and abroad.

10) **Obama’s broadband boost.** The American Recovery and Reinvestment Act has provisioned billions for power infrastructure updating, with $4.4 billion specifically earmarked for smart grid projects and another $7.2 billion for broadband infrastructure. This is a golden opportunity to forge ahead with truly next-generation networks that are ready for whatever the future has in store.