

LEVERAGING THE SUPPLY ZONE TO Enable Broadband Deployment



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There's no doubt that our world is undergoing continuous transformation and progress, and this is particularly evident in the energy sector's efforts to upgrade the electrical power grid. The rising demand for resilient, reliable, and modernized grids requires a robust broadband network. Vital to this transformation is a robust, low-latency communication network that enables real-time data transmission, monitoring, and control of grid components. Consequently, utility companies are compelled to optimize their operations to meet these evolving demands.

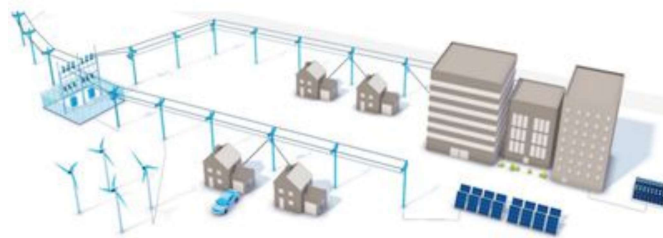


Figure 1: Fiber-Through-The-Grid (FTT-Grid™)

By leveraging existing Fiber to the "x" (FTTx) buildouts and harnessing the benefits of All-Dielectric Self-Supporting (ADSS) fiber optic cable technology, electric cooperatives, and other utility companies can enhance their grid communication infrastructure. This enhancement helps facilitate seamless data exchange and coordination among various grid elements, aligning with the ongoing pursuit of a robust and adaptable energy landscape.

In recent years, electric cooperatives have actively participated in the buildout of FTTx networks for their members. As member-owned and not-for-profit organizations, electric cooperatives have embraced FTTx deployments to deliver high-speed internet, telecommunication, and smart grid services to their rural communities, empowering their members with

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modern communication technologies. These FTTx networks have not only improved connectivity but also paved the way for leveraging existing infrastructure for comprehensive grid modernization efforts.

The surplus capacity of the additional network infrastructure inherent in FTTx buildouts offers a great deal of opportunities for grid modernization. By overbuilding networks to accommodate future growth and strategically deploying multiport terminals, utility providers can utilize excess fiber connectivity to revolutionize grid operations, thereby elevating resiliency, reliability, and sustainability to new

heights. By harnessing these resources, utilities can seamlessly integrate crucial components such as Advanced Metering Infrastructure (AMI) and Distributed Energy Resources (DERs) into the electricity grid.

In the evolution of FTTx deployments, the integration of ADSS fiber optic technology emerges as a cornerstone of this advancement, given its inherent self-supporting capabilities, reliability, and cost-effectiveness. Characterized by their dielectric construction, ADSS fiber optic cables offer certain advantages over traditional lashed cables and self-support flat drop cables. ADSS cables eliminate the need for a separate messenger wire when deploying seamless pole-to-pole spans, making them an integral component of FTTx buildouts. This innovative design mitigates concerns about induced charges from overhead lines, thereby enhancing safety measures without requiring

additional grounding. Additionally, when comparing ADSS and lashed cable installations in new builds where messengers are not available, it's apparent that the two-pass installation process of lashed cables, coupled with bonding and grounding requirements, introduces complexity, and can extend installation times by 30-35% on average.

While flat drop cables also possess self-support capabilities, ADSS cables stand out for their robustness, enabling longer spans of over 1,500 feet between poles, depending on the cable's specific design. By leveraging the unique advantages of ADSS technology within FTTx deployments, utility companies position themselves to create a dynamic energy ecosystem.

As utility companies navigate an evolving energy landscape, the synergy between FTTx buildouts and ADSS technology offers a transformative pathway for utility companies to fulfill their grid modernization aspirations. By utilizing surplus fiber resources and incorporating fiber optic communication networks, particularly ADSS technology, into grid modernization strategies, electric

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cooperatives and utility providers can chart a course toward a sustainable energy future. This integration promises a future-proof solution where grids stand strong, adaptive, and poised to meet the needs of communities and industries with unwavering efficiency and reliability.

[Click here](#) to read the complete white paper, which includes the following topics:

1. Utility Fiber Optic Cable Solutions
2. Leveraging Existing FTTx Buildouts
3. Advantages Over Cellular or Radio Communication ■

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