



SureReach Application: "Live-Saver" Network Line Power for FTTH

Service providers are building **Fiber-to-the-Premises (FTTP)** networks, offering "triple play" video, data, and voice services to residential subscribers, including primary line phone service. Recent FCC rulings mandate eight-hour emergency back-up for critical outside plant telecom "assets". *SureReach* offers a simple reliable way to power **Optical Network Terminals (ONT)** on fiber optic networks, without expensive batteries or complex maintenance, and provide a reliable "life-saver" primary line service.

Challenges: Cost, Diligence, and Replacement

Replacing copper with fiber increases bandwidth, but it comes with a challenge: fiber cannot carry power. Thus power must be locally supplied and maintained even in the event of AC power outages. This is not merely a matter of adding batteries to local equipment using some form of Uninterrupted Power Supply (**UPS**) powered off AC mains. In addition to the high per-customer cost of UPS equipment, periodic proactive maintenance is required or the equipment will fail when it is needed most. Some FTTH solutions require an unlikely level of homeowner diligence, while outdoor solutions require expensive batteries, installing expensive outdoor AC outlets, and proactive maintenance by the service provider.

Solution: *SureReach*

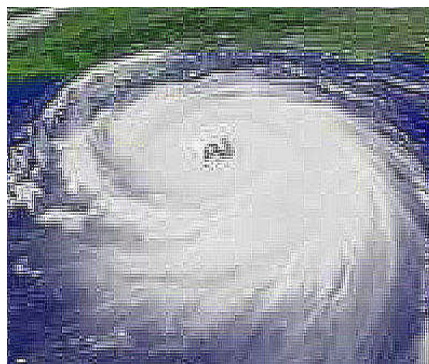
SureReach uses the existing copper line network to provide reliable power while meeting FCC mandates and exceeding customer expectations. Packaged as a small wall mountable enclosure, it delivers reliable network line power to an ONT. With *SureReach* there is no need to rely on homeowner proactive maintenance, local AC power, or outdoor batteries to provide life-saver services to the subscriber.

For the Phone Company: Revenue and Reuse

SureReach gives phone companies a competitive edge against Cable. A *SureReach* unit can power the ONTs in a FTTH network without a local UPS in the home or mounted outside, thus lowering the per subscriber cost. It reuses existing infrastructure and copper plant: CO battery and generators are well maintained in ideal environments, and already provide low cost reliable power for "life-saver" phone service. Cable companies are now at a major competitive disadvantage, since without a UPS, cable modems will fail when power fails. Reliability becomes a major market advantage, and a source of monthly recurring revenue when billed as a service.

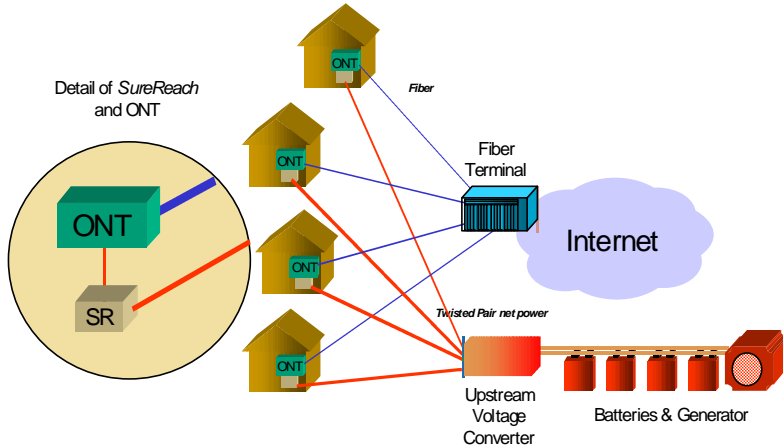
For the Customer: Reliable and Transparent

When utility power fails, the first thing people do is pick up a phone. With *SureReach* powering field and residential equipment, power survives grid failure: emergency phone service is available when you need it the most. The homeowner is spared diligent maintenance, the cost of periodic battery replacement, disposal of toxic batteries, and the scheduling of provider visits, yet can expect the same reliability and ease of use as with the current wired phone network.



SureReach provides a competitive advantage in cost, hassle-free maintenance and user expectation of service availability even in emergencies. And it may just save lives.

SureReach Supporting FTTH Networks with Network Line Power



SureReach residential DC/DC converters support FTTH by providing reliable power to various types of network termination devices. Central Office DC power is derived from AC utility power, using AC to 48 VDC converters and rectifiers and parallel lines of lead-acid batteries backed by a generator; these batteries are well maintained, operate under ideal conditions and provide reliable and economical power from a central location. One or more copper twisted pair lines radiate out from the CO to *SureReach* nodes mounted in residential locations. In FTTH networks fiber optic cable is also "home run" to an optical network terminal (ONT) mounted next

to *SureReach* on the outside of the home. To power the ONT, each *SureReach* field node converts high voltage network line power from a "upstream" central office voltage converter to 12 VDC, and supplies it to the ONT device. This eliminates the need for residential or neighborhood batteries and UPSs of any kind, either indoors and maintained by the homeowner, or outdoors on the side of buildings, or outdoors on pole mounted and metered neighborhood battery boxes maintained by the service provider. Indoor UPS solutions are customer invasive, and may require adding electrical outlets. While all UPSs require management diligence, alarm surveillance, and periodic maintenance, outdoor versions additionally require batteries with wide temperature and extreme weather tolerance with NEMA 4 compliance, filtering and surge protection, maintenance bypass capability, wide AC voltage input windows, automatic voltage regulation and back-up times of a FCC mandated eight hours. Periodically, expensive toxic batteries must be purchased, replaced, and disposed of according to Environmental Protection Agency (EPA) regulations. By using the existing CO batteries and copper network, these difficulties are avoided.

FCC 07-177 Oct 4, 2007 ORDER ON RECONSIDERATION *In the Matter of Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks.* "[This Order] requires that certain local exchange carriers (LECs), including incumbent LECs (ILECs) and competitive LECs (CLECs), and commercial mobile radio service (CMRS) providers have an emergency backup power source for all assets that are normally powered from local AC commercial power." When the hurricane, tornado, flood, or ice storm hits, when the dam or levy breaks, when power fails, the phone becomes the life-saving service. *SureReach* provides a key element for primary line services that meets the need of public safety when you need it the most.

For More Information

www.generonix.com or 1-866-464-4693

This document is for informational purposes only. All information is subject to change without notice. GENERONIX MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS SUMMARY.

© 2008 Generonix Inc. All rights reserved. Generonix, SureReach are either registered trademarks or trademarks of Generonix, Inc. in the United States

GENERONIX