

# Implementing Prepaid Utility Programs Without Full AMI Implementation: Four Advantages of Using Cellular Spot Deployment

A White Paper by Itron and Exceleron Software





AMI and prepaid services consume only minimal bandwidth, meaning that there are virtually no limits on the number of smart meters that can be supported through cellular solutions.

When paired with an effective software-based prepaid account management system, the spot deployment solution requires no additional in-home or network equipment. The end result is a graceful deployment with minimal risk for the utility. For example, if full AMI deployment is desired in the future, the meters already installed for prepayment can be utilized, thereby avoiding additional hardware expenses. In addition, with cellular solutions there is no requirement for additional capital investment in equipment in order to obtain greater bandwidth as may be required with some AMI solutions.

### **CELLULAR REACHES WHERE MESH CANNOT**

In many cases, deploying private networks for low-density rural and remote areas is very costly. Most mesh technologies have limited coverage and often require repeaters, which increase hops and decrease reliability and network speed. Using a pre-existing network, such as a cellular network, provides a more effective network with significantly greater coverage areas (up to ten miles from a tower).

Cellular networks provide a cost-effective use case (with one-to-many or one-to-a-few coverage) that has a high return on investment for low-density population areas, as they require no network infrastructure other than a cellular-capable meter. Cellular networks are also a compelling alternative where wireless mesh solutions are not well-suited technology, such as in cities with many concrete buildings, or in vertical cities where most residents live on the upper floors.

In addition, cellular networks are redundant in that a device often can “hear” two towers, but uses the tower with the strongest signal strength. Cellular data services can operate at lower signal levels than those required for voice.

Public cellular networks used in wireless AMI technology make it possible for utilities to cost-effectively spot deploy high-value prepaid account services to any geographically diverse customer base almost immediately. The spot deployment solution gives utilities a cost-effective approach to initiating prepaid service programs while leveraging an existing robust network for their AMI endpoints in select geographical areas as needed.

Using cellular as a sole technology or as part of a hybrid communications solution (mesh and cellular) can provide many advantages. Cellular technology provides an “instant network” that requires little or no maintenance and has minimal physical equipment requirements to increase bandwidth; however, it does have monetary requirements to increase bandwidth. It does have monetary requirements to increase bandwidth. Cellular is best used where it can be most cost-effective and improve operational costs in a utility (areas such as hard-to-reach, outlier meters; low-density areas; storm locations; and selective locations, such as solar or prepaid). In some cases, it makes sense for a utility to select cellular as a complete AMI solution, because it allows the utility to focus on delivery of power and not communications, without worrying about communications support. It can also decrease the cost of training as line technicians don’t need to be trained to deal with NAN devices mounted on power poles.

### **CELLULAR IS COST-EFFECTIVE**

When a full deployment of AMI metering is not undertaken by a utility or a geographic region does not easily support a mesh network, spot deployment using cellular networks is a cost-effective solution that minimizes the utility service provider’s investment. The costs associated with a full mesh network are avoided while the benefits of AMI are realized at a comparable per-meter cost basis. At the same time, spot deployment can enhance operational costs related to the collection of meter-related data, demand response, and conservation voltage reduction.

Cellular spot deployments reduce meter reading and scheduling costs for large utilities that have multiple meters scattered across a large service territory, but require all those meters to be read on the same day. It can reduce operational costs in servicing demand response customers that are dispersed within a utility service territory where cellular metering enables selective use of demand response for reduction of load on selected feeders or substations.

Cellular metering can be used for monitoring feeder lines in the case of conservation voltage reduction, where select meters can use “bellwether meters” that represent key load locations on a feeder. With cellular metering, “bellwether meters” can be dynamically moved to match seasonal changes in feeder loads. Well-planned spot deployments of cellular metering can reduce meter reading costs, truck rolls, the workforce costs of feeder monitoring and maintenance, power quality issues and many other associated costs.

Paired with a prepayment solution, AMI spot deployment using cellular solutions cost-effectively empowers the utility service provider to achieve business goals related to bad debt, write-off and collections cost reduction while offering enhanced customer service and cost-saving opportunities to customers.

Cellular AMI spot deployment also prepares a utility service provider for the future. If a full AMI deployment is planned, cellular meters that are spot-deployed for prepayment can be rolled into the mesh network solution as it is established.

### **CELLULAR WORKS WITH PREPAID ACCOUNT MANAGEMENT SYSTEMS**

Utilities across the country are beginning to take note of the benefits of combining prepaid account management software with cellular solutions for transmitting usage data and disconnect/reconnect commands.

Jefferson Energy Cooperative of Wrens, Georgia uses Excleron Software’s MyUsage Prepaid to offer prepaid accounts to its members. The hosted, web-based solution gives consumers greater control over the frequency and amount of their payments. Because members pay for electricity before they use it, they avoid deposits, late fees and disconnections. At the same time, Jefferson is able to reduce its write-offs and bad debt while encouraging energy conservation.

Jefferson Energy Cooperative began working with Itron’s Cellular Solutions group in 2012. Previously, Jefferson had experienced difficulties in obtaining accurate meter reads over the power line carrier in certain rural areas. In addition, while the power line carrier was a good option in densely populated service areas, Jefferson had identified other, more rural service areas where deploying AMI at 100% would not be cost-effective.

Jefferson turned to Itron and conducted a 200-point test using locations throughout its service territory. Remarkably, the three-month test yielded a 100% success rate.

Jefferson had found a way to obtain all the meter reads and signals that would be needed for remote disconnection and reconnection, and the cooperative elected to proceed with cellular solutions to complement the spot deployment strategy of its prepaid program.

Full integration was completed in January 2013. As of June 2013, more than 1,000 of Jefferson's 30,000 members had prepaid accounts managed through MyUsage Prepaid, and 185 of those accounts were relying on Itron's cellular solutions. Additional information about Jefferson's experience is available in a case study, Jefferson Energy Cooperative's Prepaid Program: Using Cellular Solutions for Spot Deployment, available online at [www.exceleron.com](http://www.exceleron.com) and [www.itron.com](http://www.itron.com).

## ABOUT THE AUTHORS

Itron and Exceleron Software have partnered to help utility service providers launch and manage prepaid programs through AMI and cellular spot deployment.

### Co-authored by prepayment solutions partner:

Exceleron Software's patented MyUsage Prepaid is a straightforward, turnkey solution for creating and managing prepaid accounts for utility services. The web-based, hosted application is fully integrated with utilities' existing IT systems and payment vendors, with no requirements for additional hardware or in-home display units. As of mid-2013, more than 80 utility service providers have selected MyUsage to launch and manage their prepaid programs. For more information about MyUsage and its benefits for utilities and consumers, visit [www.exceleron.com](http://www.exceleron.com).

5440 Harvest Hill Road, Suite 233  
Dallas, TX 75230  
[sales@exceleron.com](mailto:sales@exceleron.com)  
972.852.2711



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### CORPORATE HEADQUARTERS

2111 N Molter Road  
Liberty Lake, WA 99019  
USA

**Phone:** 1.800.635.5461

**Fax:** 1.509.891.3355