

LOW-TECH AMR VS. HIGH-TECH ADVANCED METERING TECHNOLOGIES

By Carolyn Kinsman

Manual meter reading represents a huge cost to large utilities (in many cases more than \$1 million per month is budgeted and expended for metering by utilities serving densely populated northeastern US states). But the cost of Automatic Meter Reading (AMR) and Advanced Metering (AMT) Technology has been declining by about eight per cent to nine per cent per year. It is now becoming more economically feasible to replace the monthly meter read. Utilities now have to determine if it is more prudent to upgrade to high tech AMT, and simply by-pass the option of replacing a monthly meter read altogether, as they strive to integrate more enterprise-wide system solutions.

Van Drive-By AMR And Other Low-Tech AMT Are Replacing Monthly Meter Reads

AMT started out as AMR and in some cases is referred to as Mobile Automatic Meter Reading (MAMR). In the past, this system solution netted the most device sales compared to any of the real AMT options available today. However, the justification gets easier every year as cost of the device and system continues to decrease and manual meter reading costs continue to increase. MAMR replaces a monthly meter read with a van that drives by the home and wakes up the meter to acquire a meter read. No other data, other than usage interruptions that are not date or time stamped, are acquired.

Utilities select the Low-Tech AMR option for a number of reasons: defer AMT decision for up to five years; address one segment of their customer base; and anticipate that an easy cost effective migration can occur by changing out specific meter.

Fundamental AMT: Acquiring Daily Meter Reads

As the cost of AMT continues to decrease and functionality of the systems continue to increase, the cross-over in

LOW-TECH AMR

AMT Functions

1. Billable monthly electric meter reads
2. Virtually no estimated reads
3. 100% AMR installation at all metering points
4. Possible migration capabilities

MID-TECH AMR

AMT Functions

1. Billable monthly electric meter reads
2. Daily Electric Meter Reads
3. 100% AMR installation at all metering points
4. Tamper and theft reporting
5. Outage trending/reporting
6. Programming and reporting through vendor software
7. Migration capabilities

PLUS

8. Outage Notification
9. Remote Connect/Disconnect

cost of systems that provide a monthly read and those that offer a daily read continue to converge. Daily reads can be acquired from a number of AMT technologies with the most prevalent being: Powerline Carrier (PLC) one way narrow band transmissions that provides a daily read every 24 hours; and Fixed Radio Frequency acquiring several reads per day to a local data collector.

Utilities that classically select the Mid-Tech AMT systems are rural electric cooperatives that have no easy access to alternate options other than PLC for most of their customer base, or municipal customers, primarily water with infrastructure to install data collectors.

Outage Notification

Outage notification is often expected to be "a given" when it comes to AMT benefits. As most utilities come to realize, outage can be provided in a

number of ways, and with varying levels of accuracy. For true real time outage notification the AMT device must have access to power in order to send the signal that the unit is out. For utilities to include this on their cost benefit analysis they must recognize the type of outage functionality that is available based on the AMT technology they have selected.

Remote Connect/Disconnect

Remote Connect/Disconnect has recognized monetary benefits to any utility. However, prior to including this system feature as a necessary AMT requirement, it is important to recognize that it opens up customer issues dealing with liabilities in instituting a remote reconnect.

In addition, some commissions view this option as discriminatory and

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many "poor paying" customers will not lease apartments where this additional equipment has been installed. Often landlords will request its removal if they are unable to rent apartment units.

True AMT

It is with 15-minute reads that the traditional spreadsheet and benefit analogy changes for the utility. For this to be possible, the AMT unit must be connected to a robust communications infrastructure managed with very flexible data collection software and a robust hardware platform. In addition, sufficient memory must be present in the AMT unit to store and forward the reads to the utility in a timely manner. In this way, on request reads, data usage profiles, incentive based and time dependent rates can now be offered.

AMT that is able to deliver 15 minute or more frequent reads, enables electric utilities to address demand-related initiatives within their business. It also means they now have the ability to offer value added services (VAS) to their customer base.

AMT that offers this type and amount of data on a timely basis is generally delivered using varying

degrees of high speed bandwidth telecommunications options such as: Radio Frequency (RF) Public Networks, telephone (inbound systems), and advanced Powerline Carrier (PLC) - two-way PLC using the 60 Hz wave form along with upgrades to current narrowband technology.

The Alternative to Building Capacity

Policy makers have, perhaps, inadvertently given electric utilities no incentives to invest in AMT as more power plants and higher energy sales have always lead to higher revenues and overall profits. Today the cost of new capacity, the diminishing time to bring new generation on-line, clogged transmission arteries, and lower technology costs make the economics more compelling for electric utilities to assess the merits of addressing demand using new AMT system solutions.

This article is an information excerpt from recent client AMT business strategies as well as a new CEA AMT research report written by Carolyn M. Kinsman, Automated Communication Links Inc., Oakville, Ontario.

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HIGH-TECH AMT

All the features available in Mid-tech AMT + Higher Frequency Meter Reads

AMT Feature

15 minute electric meter usage data from approximately 40% of the residential and small commercial base.
(approximation based on the most profitable high use customers)

Benefit

Value Added Services and New Revenue Opportunities

Demand Response to Load Management

Rates to offer customers choice and better control over their electricity bills