

AMI + H₂O = ARB.®

AMI: A Definition Utilities Can Use – “About My Individual” Needs

YOU CAN'T JUST PLUG IN ELECTRIC SOLUTIONS TO WATER

The term “AMI,” or “Advanced Metering Infrastructure,” can mean different things to different people. Maybe even more important, it *does* mean very different things for different types of utilities.

For instance, there is an agreed-upon definition of “advanced metering” for the electric industry. According to the Demand Response & Advanced Metering (DRAM) coalition, “[Advance metering involves] a system that collects time-differentiated energy usage from advanced meters via a fixed network system, preferably two-way, on either an on-request or defined schedule basis. The system is capable of providing usage information to electricity customers, utilities and other parties on at least a daily basis and enables them to participate in and/or provide demand response products, services and programs. The system also supports additional features and functionality related to system operation and customer service, e.g., outage management, connect/disconnect, etc.” [Source: Demand Response & Advanced Metering Coalition, © 2008, website: <http://www.dramcoalition.org/id19.htm>.]

This definition sounds as though it would apply to the water industry, too – but does it? Electric utilities, unlike water utilities, are primarily concerned with “shaving” peak loads. *When* the energy is used during the day is very important.

That’s because electricity is generated shortly before consumption, and cannot be stored easily for use later, as with a water tower, tank, or reservoir. Electricity generation and distribution systems need to be built to address these peak usage periods. A successful electric AMI program therefore provides consumers with the time-of-use consumption data and time-based pricing to motivate them to change their usage habits, reducing peak demand. This in turn helps reduce the utility’s required infrastructure.

Since water can be stored more readily than electricity, water utilities have a very different set of needs. Because water distribution systems are built to meet maximum consumption plus fire protection, resources can be pumped into storage when the demand is lower (typically at night). And because water is readily available upon demand, the *volume* used is more important than time of day that it is used.

CUSTOM OFFERS THE BEST FIT

From the differences between the electric and water industries, it’s easy to see that however an AMI system is defined, it should be based on the needs of a particular utility. Water utilities shouldn’t feel pressured to use existing “AMI” products designed for the electric market. Instead, they should demand a system that provides customized solutions for their own unique needs.

Many metering companies have pushed the idea that only fixed base systems are truly “AMI.” However, a mobile system such as Neptune’s ARB® Mobile™ offers added AMI functionality such as data logging and leak detection. In addition, many hybrid systems, consisting of a mix of primarily mobile and targeted fixed base components, serve equally well – if not better – than some fixed base systems, depending on the needs of the user.

Systems that combine a solid-state absolute encoder, a radio frequency transmitter, and data collectors with WiFi or GPRS backhaul capability can offer the benefits utilities think of with “AMI”: more frequent meter reads; increased meter reading accuracy; leak, tamper, and reverse flow detection; data logging; the potential for daily or hourly reads; and greater efficiency with fewer personnel. And in some cases, a hybrid system may also offer greater versatility than a “pure” fixed base AMI solution.

For instance, Neptune’s R900® WiFi Gateway and R900® GPRS Gateway can offer utilities the best of both mobile and fixed base worlds. Utilities using these AMI systems know that even if a storm knocks out the data collector(s), the R900® can also be read using a mobile system. An even greater advantage of Neptune’s ARB® Hybrid™ System is its migratability. Eighty to ninety percent of a system’s cost is the customer premise equipment – what goes on a house or a meter. So when a utility can avoid replacing much of that infrastructure, it can save a great deal of time and money. Providing systems that maximize backward as well as forward compatibility, Neptune eases the burden on water utilities by minimizing stranded assets.

AMI: “About My Individual” Needs

When Neptune meets with a utility, it asks questions to determine needs. What percentage of meters will have to be read daily? What are you looking for from your data? What geographic/infrastructure challenges do you face? Through this consultative process, the utility is free to discover an AMI system based on the best value.

Those utilities serving smaller or more rural areas, and that need accurate reads once a month, may decide that an all-mobile system works best, while still offering features such as leak detection. A utility that serves residential suburban neighborhoods as well as more concentrated areas downtown may opt for a hybrid system. A hybrid system also works well in targeting hard-to-reach industrial, commercial, and institutional (ICI) meters, meters in vaults, or at high security locations such as airports. ICI customers can represent massive amounts of water flowing through each meter. The faster a utility can read these meters, the better the value provided.

Still another ideal scenario for a hybrid system is university or other housing where there is large and frequent turnover among the residents; having R900 WiFi or GPRS Gateways in place can help reduce the cost of special reads including move-ins and move-outs.

And, for those water utilities that are ready to implement a full-scale fixed base system, Neptune offers ARB® FixedBase™, a System that employs advanced R450™ RF technology and data collectors strategically positioned to maximize meter reading efficiency. Neptune’s ARB FixedBase System provides time-synchronized midnight meter reading; i.e., all meters are read a midnight. This facilitates Non-Revenue Water programs (daily water produced/purchased versus daily metered consumption for the entire system or specific district metering zones).

In short, the definition of AMI or Advanced Metering Infrastructure needs to be left up to the water utility. Various options are available and they can be tailored to address your needs. ☺

References:

- Demand Response & Advanced Metering Coalition, © 2008, website: <http://www.dramcoalition.org/id19.htm>.
- Schlenger, Don and Hughes, David, © 2008, “AWWARF Project on AMI Best Practices” (in progress, unpublished).