



**Itron White Paper**  
*Carribbean*

## **Optimizing the AMR Business Case**

*Mark Henry  
Account Executive, Carribbean  
Itron, Inc.*

**Itron**





Introduction	4
A Process Approach to AMR	4
Quality AMR Savings	4
Customer Service Counts	5
The Distribution Side	6
New Products and Services	6
Benefit-Optimized Deployment	7
A Few Words About Taxes	7
Conclusion	8

## **Introduction**

AMR can provide strategic importance to a utility; however, utilities must present a compelling economic business case to support its mass deployment. What has proven most difficult in establishing a strong AMR business case has been articulating and quantifying the full value of AMR beyond just meter reading services. By taking a quantifiable process view, this industry report provides a broader analysis of AMR benefits that will enable project managers, executives and consultants to present a much more compelling and thorough AMR business case to stakeholders in the decision making process.

## **A Process Approach to AMR**

Traditionally, meter reading expense was viewed as a tactical line item associated with placing meter readers in the field to obtain a monthly consumption read. By taking this narrow view, many utilities reported that their total cost of meter reading was only \$0.40 - \$0.60 per meter per month.

Today, utilities are beginning to realize that AMR technologies deliver operational improvements and cost savings throughout a utility's core service processes. In addition to meter reading services, the benefits of advanced data collection extend throughout a utility's operations to deliver quantifiable improvements and savings in revenue assurance, customer service, field service operations, distribution system reliability and efficiency, marketing and business development, and regulatory compliance. The economic value of AMR technology doesn't end with meter reading services. That's where it begins.

## **Quality AMR Savings**

Managing revenue cycle services at a utility consists of four major activities: recording usage information, customer billing, collecting money and managing revenue.

Recording customer usage represents the most expensive of the utility process activities. Potential AMR savings in this area include reduction of labor, supervision, and overhead by eliminating manual meter reading activity. Other related reductions include fleet/vehicle expenses, handheld (EMR) system capital and expense, accidents, property claims, workers' compensation, and the cost to estimate unread accounts. Typical AMR-related savings for these areas is \$6 to \$15 per meter per year, depending upon utility size, geography, labor rates and meter accessibility.

However, there are interrelationships between meter reading and other utility operations. For example, a utility in the Southern United States estimated that its AMR-related meter reading savings was only \$7 per meter per year due to the utility's use of lower-wage contract meter readers. When the AMR analysis was expanded, an additional \$2 per meter per year in savings was identified due to the poor accuracy of contract meter reading and a resultant increase in special read activity.

There are other ways that AMR implementation improves the recording process. First, AMR-related tamper information increases revenue protection. Across the United States, it has been estimated that energy theft represents 1 percent to 3 percent of total revenues. This means that eliminating energy theft or fraud represents a \$3 billion to \$9 billion opportunity nationwide. For example, Philadelphia Gas Works (PGW) in the U.S. was able to obtain more than \$9 per meter per year savings (\$3.2 million in total) by detecting more than 3,434 cases of meter tampering using its AMR system [AMRA News, Volume 9, Number 12]. In fact, PGW's savings do not even reflect savings as a result of customer deterrence brought on by awareness of their tamper reporting capability.

Secondly, implementing an AMR system enables a utility to improve the accuracy of its entire meter population. More often than not, meters (gas, electric and water), slow down as time passes and, therefore, under-record actual usage. AMR deployment provides utilities with an ideal opportunity to visit every meter site in their service territories, enabling installation crews to

inspect, and, if necessary, recalibrate or change out antiquated or inaccurate meters, resulting in improved metering accuracy and increased revenue.

One gas and electric utility that implemented an AMR system found that for a 175,000-customer segment, utility revenues increased by \$2 million per year (160 kWh/customer/year) after the AMR system was implemented. Stated another way, a one-half of 1 percent system improvement in meter measurement accuracy would result in \$4 per meter per year in AMR benefits, or \$2 million per year for a 500,000-meter AMR system with an average annual per customer revenue of \$800.

AMR deployments also reduce working capital requirements in two ways: First, by reducing the meter read-to-bill window, and second, by reducing accounts receivable. At many utilities, it takes two to five days, or more, from the time a meter is read to the time the read is processed and billed. For a utility with \$500 million in annual revenue, one day of receivables is worth \$1.4 million. In addition, high bill complaints, estimated reads, and other metering-related inquiries can cause 10 to 45 days of delay in receiving payment.

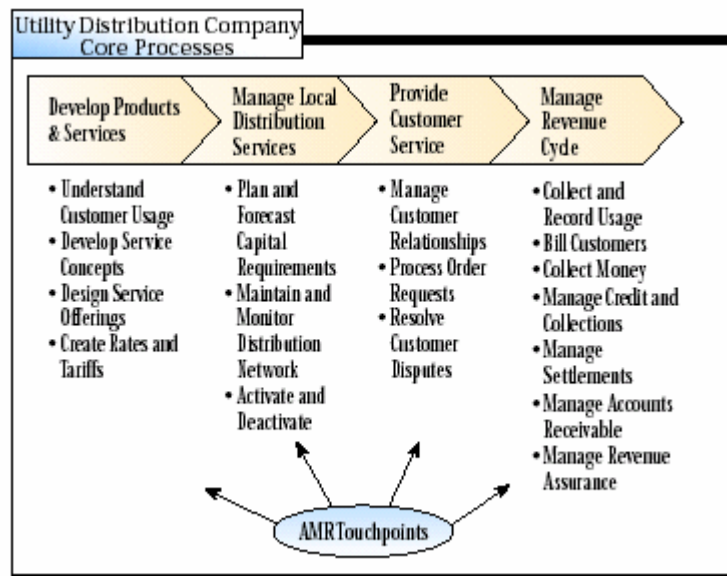
### Customer Service Counts

Mobile AMR and network AMR can significantly improve customer service by increasing meter reading effectiveness and shortening the customer contact-to-resolution process. As a result, utilities can generate operational capital (call center, information technology equipment, and associated facilities) and savings.

Many utilities have a difficult time quantifying AMR savings in the customer service areas. One helpful approach is to look at the underlying customer service activities and to identify eliminations and reductions. For example, a utility in the Eastern United States tracked the calls that were handled by its call center. The utility discovered that 20 percent of customer inquiries were billing and metering related. Furthermore, these calls were typically longer than the utility’s average call duration. Since 20 percent of the call center labor represented approximately 10 full-time equivalents (FTEs), the utility used a reduction of 10 FTEs in the AMR business case.

Please note that the utility did not plan on eliminating those positions. Instead, the 10 FTE savings would be used to reduce the call center’s average call hold time — which had been increasing — to improve customer service.

**Key Observation:** To optimize the AMR business case, it is critically important to treat avoided investments and expenses as incremental cash flows to the business case, just as budgeted cost reductions are included.



## **The Distribution Side**

AMR can also achieve significant operational improvement in three primary areas of a utility's distribution operations. First, by implementing AMR, utility planners have access to consumption and load profile data down to the individual and neighborhood level. This enables utility planners to improve capital forecasting.

The capital savings in this area can be dramatic. If a utility operates on a \$100 million capital budget for a distribution plant, and it can reduce or defer just 2 percent of its capital thanks to more granular distribution and feeder usage information, the utility could save (pretax and depreciation) \$2 million per year. Accurate data, collected regularly by an AMR system, also enables a utility to significantly increase the accuracy of its load forecasting to protect gross margins.

Secondly, the utility distribution company (UDC) is responsible for maintaining a high-reliability local distribution system. AMR deployment can generate savings in this area in three ways: (1) by increasing the network availability and, consequently, increasing customer usage through improved outage detection; (2) by reducing outage restoration crew labor and overtime due primarily to large-scale outages; and (3) by reducing customer service labor costs due to reduced call center traffic.

AMR has also yielded substantial savings for utilities in field service and work order management labor required to activate and deactivate customers (e.g., turn ons/turn offs, move ins/move outs). On average, between 15 percent and 25 percent of a utility's customer base will move each year, at an average field service cost of \$5 to \$25 per activity. This process is traditionally very labor intensive. For example, a gas utility in the Eastern United States has reduced its cost-per-field service activity by 70 percent by using its mobile AMR system to record move ins/move outs. For a utility with 500,000 meters, the potential savings is over \$1 million per year. In addition, AMR enables utilities to more efficiently manage highly seasonal, special read activities such as incoming and outgoing college students in the fall and spring.

## **New Products and Services**

The major core process of a UDC is to develop and deliver products and services. AMR can improve this process by interpreting customer usage patterns in much greater detail (e.g., load profile) than manual meter reading. UDCs can develop service offerings and create tariffs that are tailored to meet the needs of individual or segmented customer groups.

Additionally, AMR enables opportunities to offer consumption and metering information to electricity service providers (ESP) and other third parties in an open-market environment. This "infomediary" concept enables a UDC or a non-regulated subsidiary to offer metering services such as direct-access service requests, customer load profiles, summary billing, customer moves and changes, and traditional meter reading on a monthly, daily or interval basis. These types of services can be offered much more cost-effectively through an AMR platform.

Furthermore, utilities have used AMR technology for additional revenue-generating opportunities. More and more utilities are using AMR technology to offer outage notification services at upwards of \$5 per month per customer, with supporting studies indicating a potential market penetration rate approaching 40 percent. Utilities can also offer meter reading services to other utilities and generate a \$0.15 to \$0.50 margin per meter per month.

## Benefit-Optimized Deployment

Itron's Benefit-Optimized Deployment™ approach is a formal, structured, and quantitative approach of relating a customer connection strategy to a utility's corporate strategy. Since different AMR technologies enable different savings opportunities, and the costs for implementing these technologies vary by type and geography, it is critical to optimize AMR technology solutions to the specific requirements of a utility. The potential savings will vary according to the technology. As a result, a utility's strategic initiatives have a significant impact on a utility's technology selection. For example, a utility that is primarily focused on distribution reliability may look to telephone AMR with power quality monitoring capability. Other utilities that are focused on operational cost reductions may migrate toward a mobile AMR system. Finally, a third set of utilities focused on reducing field service and customer service issues may migrate to a fixed network. Of course, the previous observations assume that a utility has only a single primary initiative and a homogeneous service territory. The reality is that utilities undertake multiple initiatives and have diverse geography, costs and customer segments.

In these circumstances, optimizing multiple technologies across a service territory is critical. For example, Utility "A" has two major initiatives: (1) reduce operating expenses and (2) improve distribution system reliability. In this situation, deploying a fixed network for the entire service territory would improve distribution reliability, but might be too costly. Instead, Utility A can deploy a mobile AMR system to reduce operating expenses and, in addition, telephone AMR can be selectively deployed at 10 percent to 15 percent of the utility's customers to provide distribution, power quality, customer load profiles and outage information. This AMR solution could be implemented for roughly 65 percent of the cost of a fixed network, while enabling a future option of deploying a fixed network over the existing mobile AMR customers if Utility A's strategic initiatives or economics change.

Rating Process/Operational Savings by AMR Technology			
Process/Operational Savings Area	Mobile AMR	Radio Network AMR	Telephone AMR
Revenue Cycle Management			
• Metering Services	Best	Best	Best
• Credit/Collections	Good	Better	Better
• Revenue Protection/Energy Diversion	Better	Best	Better
• Meter Recalibration	Better	Better	Better
• Management of Settlements	Good	Better	Better
• Management of Accounts Receivable	Good	Better	Better
• Management of Customer Billing	Good	Better	Better
Customer Service			
• Call Center	Good	Better	Better
• Customer Accounting/Billing	Good	Better	Better
Distribution Services Management			
• Field Services	Better	Best	Better
• Outage Detection	----	Better	Best
• Outage Restoration	Good	Better	Best
• Distribution/Feeder Information	Good	Better	Better
• Power Quality Monitoring	----	----	Best
• Energy Trading Management	Good	Best	Best
New Products/Services			
• Tariff Design/Load Research	----	Best	Best
• Load Profiling	Good	Best	Best
• Interval Metering	----	Best	Best
• Direct Access Service Requests	Better	Best	Best
• Flexible Billing Schedules	Good	Best	Best

## A Few Words About Taxes

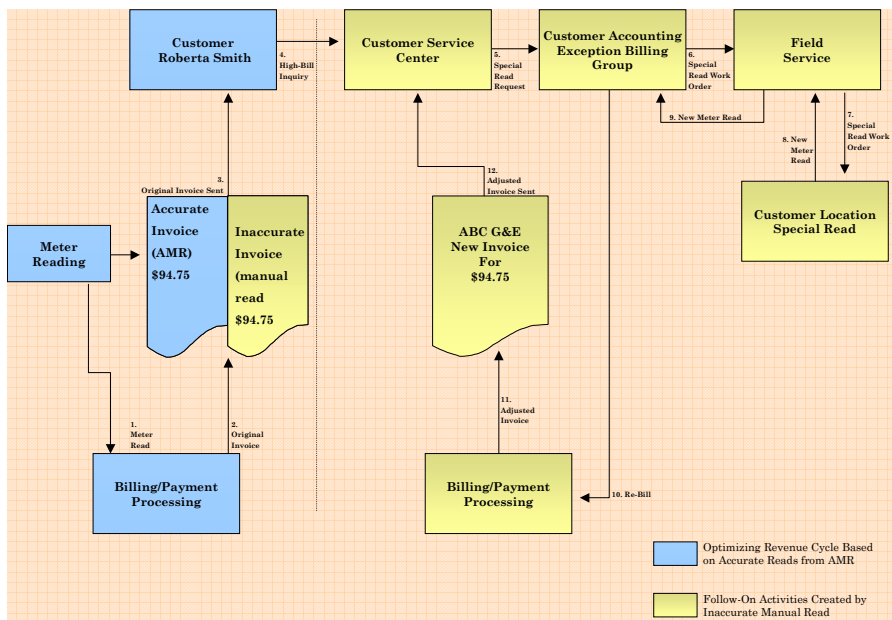
Thus far, this report has analyzed savings on a pre-tax basis. However, project investment analysis should be done on an after-tax basis in order to measure accurately the value of the project to the corporation as a whole. Here are a few observations specific to the U.S. market that may also be worth consideration in other markets:

- Use Marginal Tax Rates — AMR investment analysis should reflect a utility's marginal federal, state and local tax rate (~39 percent in the U.S.). Since the project is incremental business, the tax rate used should be the marginal tax rate, not a utility's effective tax rate.

- Apply Appropriate Sales and Property Taxes — Most utilities have to pay property taxes for installed plant and equipment. Rates typically range from .5 percent to 1.5 percent of the book value of the property, and typically have a minimum of 10 percent to 25 percent of the gross value in later years.
- Understand Book Versus Tax Depreciation Implications — Many utilities mistakenly assume that the book life and tax life for AMR systems are the same. As a result, some utilities do not take advantage of tax laws that allow AMR equipment to be depreciated over a faster period than the book depreciation period (typically 15 to 25 years). The present value of the accelerated tax deductions represents about 33 percent of the cost of the AMR system.

## Conclusion

AMR systems enable real improvement and cost reductions across all of a utility’s core processes, not just meter reading. As the billing example below demonstrates, inaccurate, untimely or estimated meter reads bring with them a high cost of quality that reveals itself throughout a utility’s core business operations. In addition to eliminating the business costs associated with Roberta Smith’s inaccurate bill, AMR technology delivers quantifiable cost savings in many areas of a utility’s operations, including tamper detection and theft deterrence; meter service and change-out; optimization of the revenue cycle; call center traffic reduction; improved distribution system reliability; improved load forecasting accuracy; improved field service operations; and customer segmentation and targeting for new value-added services.



### AMR and the Customer: Contact-to-Resolution Process

When viewed in this wider context, the economic benefits of large-scale AMR deployment not only become more compelling, there’s a persuasive argument to be made that AMR technology is indispensable to cost-conscious utilities preparing to do business in the 21<sup>st</sup> century.



**Itron Inc.**

Itron is a leading technology provider and critical source of knowledge to the global energy and water industries. Nearly 3,000 utilities worldwide rely on Itron technology to deliver the knowledge they require to optimize the delivery and use of energy and water. Itron delivers value to its clients by providing industry-leading solutions for electricity metering; meter data collection; energy information management; demand response; load forecasting, analysis and consulting services; distribution system design and optimization; web-based workforce automation; and enterprise and residential energy management.

To know more, start here: [www.itron.com](http://www.itron.com)

**Itron Inc.**

**Corporate Headquarters**

2111 N Molter Road  
Liberty Lake, Washington 99019  
U.S.A.  
Tel.: 1.800.635.5461  
Fax: 1.509.891.3355

Due to continuous research, product improvement and enhancements, Itron reserves the right to change product or system specifications without notice. Itron is a registered trademark of Itron Inc. All other trademarks belong to their respective owners. © 2006, Itron Inc.