Prepaid Metering in North America

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Introduction

Prepaid metering systems have been around for many years. Utilities implement prepaid metering systems to reduce collection expense, better manage cash flow and to lower bad debt. In markets such as South Africa, prepayment enables utilities to provide service in remote areas where the cost of capital expansion and the credit risk associated with that expansion would otherwise not be justified.

In areas where prepayment is available, there is also a trend of customers volunteering for prepaid service over the traditional post-paid service. To date, these systems have been "thick meter" based systems—solutions with a meter that stores and manages the payment balance and then initiates its own disconnect and reconnect when the balance is eliminated or refreshed. Many of these systems rely on tokens or smart cards to interface with the meter to credit its balance. Generally, the available balance is calculated on the meter itself, and the meter serves as the medium to communicate with the consumer.

Prepaid Metering in North America

In North America, the deployment of prepaid metering systems has been limited, with an adoption rate of less than 1%.[1]

The two biggest barriers to prepaid metering cited in the North America market have been cost and consumer regulatory opposition. The price for a thick meter solution ranges as high as $225-$400 per participant.[2] Due to cost constraints, utilities that have deployed a prepayment system have surgically done so to improve revenue collection from customers with a history of non-payment or in areas of high turnover. This deployment strategy, while most cost effective, can be viewed as economic discrimination in terms of racial, social or cultural profiling. Most utility commissions allow for prepaid metering, provided it can be universally applied to all customers.

Prepaid metering does have many benefits, including:
- A reduction in working capital assets.
- A reduction in uncollectible revenue.
- Improved customer service–providing more control in the hands of the consumer.
- Proven capabilities to reduce energy usage. Industry average quotes prepay customers use 15-20% less energy than those with conventional meters.[3] Salt River Project has quoted a 12% reduction in usage by customers who adopted prepayment.[4]
- Additional business case justification for advanced metering infrastructure (AMI).
- When positioned as a broader customer benefit, the utility may be able to recoup investment in rates.

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[1] "Prepaid Metering Report 2007, 4th Edition", Chartwell
[2] "Prepaid Metering Report 2007, 4th Edition", Chartwell
[3] "Prepaid Metering Report 2007, 4th Edition", Chartwell
[4] Carolyn Johnson, presentation on Prepayment at Salt River Project, Chartwell Webinar 2008

Advanced Networks and Prepaid Metering

With the onset of AMI and meter data management (MDM), a renewed opportunity for prepaid metering has arrived. A "thin meter" prepayment solution utilizes an advanced meter with a remote connect and disconnect switch. Because existing utility software systems apply rules to manage the credit and collections process, they may be utilized to activate the switch based upon the balance on the meter. Using an in-home display, utility Web portal or other utility payment venues, consumers are able to view their energy usage and payment balance. In addition to AMI meters equipped with a remote connect/disconnect switch, a thin meter solution requires a highly reliable two-way AMI network; a robust meter data management solution to manage the events and track usage data; and a prepayment software application interfaced with a customer information system (CIS) to manage the business logic and rules around when to alert, connect and disconnect a consumer's service.

A combined deployment of AMI and a MDM system provides most, but not all, of the infrastructure required to enable a prepayment solution. These systems, in cooperation with a prepayment application, introduce the ability to alleviate the key hurdles with prepayment adoption experienced in the past. The AMI system provides the metering infrastructure, while the MDM system provides the platform to extend the software business logic. Meter data management systems provide the mechanism to manage the usage information and the two-way brokering required to enable the prepayment system.

In addition to the AMI and MDM systems, a custom prepaid metering application will also be required. This application will manage the traditional "back office" processes, either by itself or through careful integration with in-house processes. These processes include calculating the available balance, generating alerts and initiating the disconnect and reconnect of service. Customer interactions such as payment processing and notification are also handled through this application.

Itron's OpenWay™ AMI solution provides the integrated remote connect/disconnect switch and two-way connectivity required to not only disconnect and reconnect, but also verify successful connectivity with a meter. In addition, the reliability of the AMI network offers the utility reassurance of the network's performance.

Itron Enterprise Edition™ (IEE) provides an integrated enterprise platform inclusive of the MDM system that provides the system of record for all historic usage information, understanding of the connectivity (which AMI system) for every meter, and will broker the required two-way communications to every meter.

There are a variety of third party software vendors that provide prepayment applications. Functionally, a prepayment application should provide:

- Tight integration with CIS, payment transactions and MDM system.
- Detailed account balances, calculated daily.
- The ability to edit rules for and implement auto-disconnect orders. This allows auto-disconnects to be initiated and executed either manually or automatically based on your business processes.
- Triggers from external systems to reinstate service.
- Balance notifications and alerts.
- Communications about balances and usage intended for an in-home display, delivered through the AMI network.

An example of a prepaid metering solution is shown below.

Prepayment in North America with AMI Metering
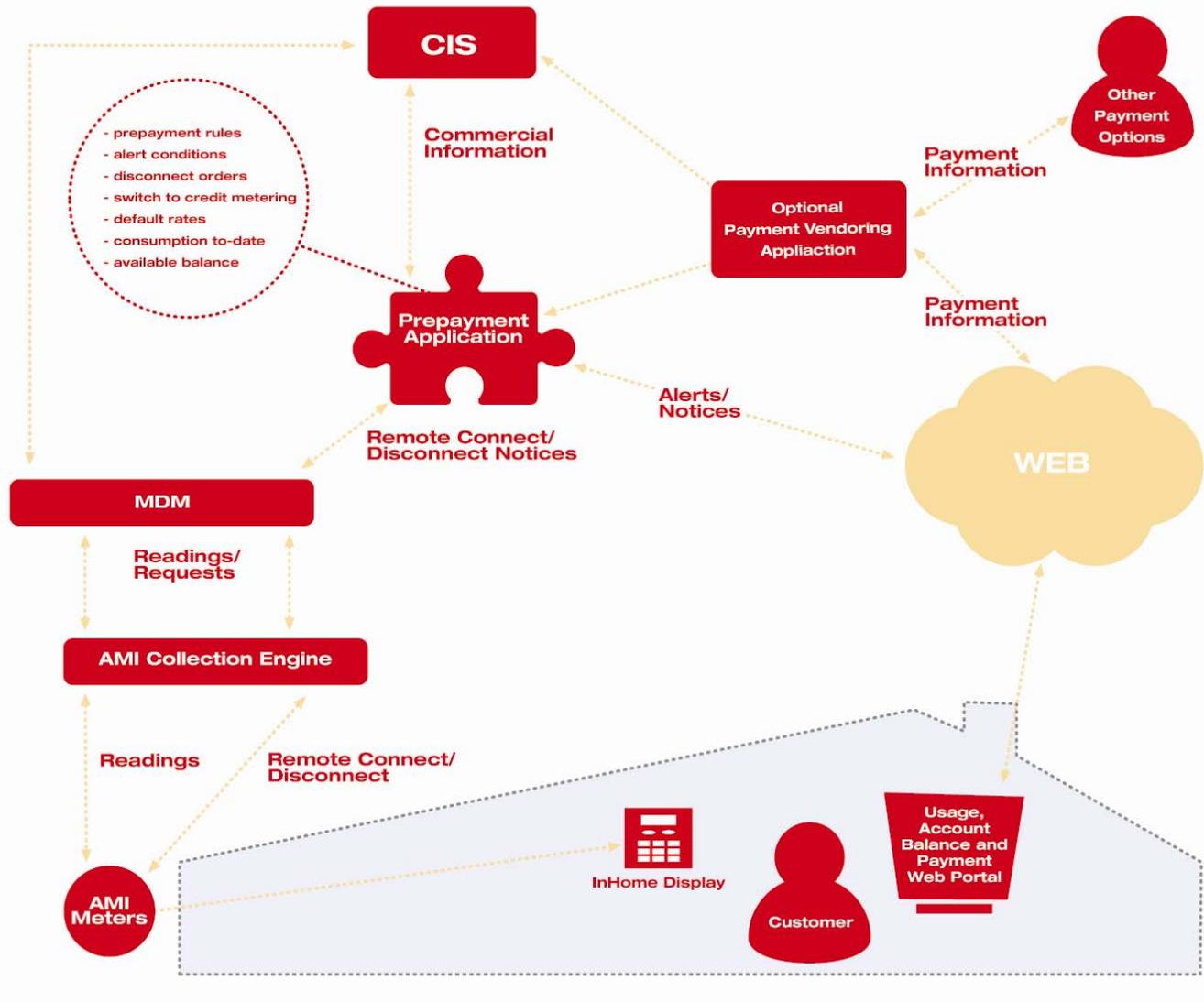
Additional Considerations for Prepaid Metering

A prepaid metering solution can enable on-site service vendoring by leveraging a third-party payment transaction system. This system must be able to accept payments and update the prepayment system in near real-time; when a consumer buys additional service, they are more than likely expecting to use it immediately. In many cases, traditional processes from pay stations or online services batch information and process several payments once at night. Today's existing pay-agent batch processes must be modified if they are to support the real-time nature of prepayment and the service connect/disconnect process.

Another consideration for prepaid metering is appropriate rate setting. When evaluating a prepaid system, consider the complications of how and when to charge taxes, franchise fees and fuel charges to a given account. Also consider the type of rate the customer will be on—the most common rate used is a simple flat KWh rate. Some utilities are evaluating how to layer time-of-use (TOU) rates into a prepayment system.

All of these points need to be evaluated when considering the overall complexity of a prepayment solution.

Itron's Commitment to Prepaid Metering

Itron pledges continuing support to our IEE MDM and OpenWay customers who are interested in developing a prepayment thin meter solution. Our efforts in 2009 will focus on further researching the viability of a commercial off-the-shelf prepayment product, utilizing the IEE software platform.

Itron's prepaid metering strategy for North America will leverage the expertise gained from our deployments in other parts of the world, along with our expertise in AMI and MDM. We will continue to evaluate:

- Whether this could be a standalone application or an optional application available to IEE MDM customers,

- Whether this application could operate without an AMI-system in the background.

Itron will investigate existing third-party prepayment and vendoring solutions to determine if there is a way to modularize the solution components and provide additional deployment options. Itron is working with key industry experts who may provide prepayment-specific in-home displays and prepayment project management expertise. Finally, we intend to define the most likely integration points that customers would need in order to utilize in-house credit and collections processes.

Conclusion

Prepaid metering can be a successful win/win proposition for the utility, the regulators and the customer. With the adoption of AMI systems and the increased need for MDM systems, additional avenues for prepaid metering solutions will continue to be developed, and Itron will work closely with our customers to tailor a system to meet their needs.

To Know More

For questions or more information on Itron's prepayment strategy please contact:

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About Itron

Itron Inc. is a leading technology provider to the global energy and water industries. Itron Inc. consists of Itron in North America and Actaris outside of North America. Our company is the world's leading provider of metering, data collection and utility software solutions, with nearly 8,000 utilities worldwide relying on our technology to optimize the delivery and use of energy and water. Our products include electricity, gas and water meters, data collection and communication systems, including automated meter reading (AMR) and advanced metering infrastructure (AMI); meter data management and related software applications; as well as project management, installation, and consulting services.

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