

MANAGING CUSTOMER BEHAVIOR BY COMBINING MDM, BILLING

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Energy supply has been a fundamental challenge of energy providers in recent years. Compounded with the rising cost of fuel, heightened environmental concerns, and an ever increasing global population, managing the balance between our energy supply and our energy demand has become increasingly complex. In an attempt to counter some of the current industry challenges, some markets have resorted to creative means in order to curb our energy appetite.

According to a recent report by Energy Insights, an IDC company, the US Energy Policy Act of 2005 contains multiple provisions dealing with time-based rates, smart metering and demand response. It requires that utilities and retail energy providers offer and provide all customers, upon customer request, with time-based rates within 18 months of enactment. Additionally, utilities and energy retailers must provide a time-based meter to any customer requesting such a rate. The section also requires State public utility commissions to conduct an investigation into time-based metering and communications and issue a decision on whether or not it is appropriate for electric utilities to provide and install time-based meters and communications devices for each of their customers.

This, coupled with other provisions that direct the FERC and the Department of Energy (DOE) to conduct studies related to demand response, will most likely result in a number of States adopting mandatory requirements for smart metering. Energy Insights expects these provisions to significantly accelerate the deployment of smart metering systems

which include solid-state meters, two-way communications networks, and meter data management applications.

Further complicating the issue is the amount of energy we consume these days. At the same time that generation plant construction dwindled due to emission concerns, our energy consumption requirements increased. As a society, we consume much more than our parents

periods when demand is lower. This, hopefully, also promotes a more conservative consumer. When consumers understand how they use energy and when it is more cost effective to do so, they will ideally use their energy when financially motivated. If enough of us change our behavior, lower efficiency and higher cost generation plants will not have to come on-line as often in order to satisfy the demand.

The optimal way utilities will be able to work within these market trends or mandates is a system that integrates MDM (Meter Data Management) with billing. Such a system can quickly apply hourly or sub-hourly prices to usage and accurately calculate bills. (A classic billing solution is too simplistic to be able to manage the hourly data with different price points.) When prices begin to rise during the day, an integrated system can apply these prices to the consumer's forecasted usage and signal consumers of a possible impending excessive energy bill. Such a system can also be used to detect possible revenue protection violations due to energy theft. Complex filters may be installed to identify and alert users when these revenue violations are suspicious or even absolute. It can also analyze consumption patterns and warn users of possible revenue violations. Revenue protection functionality protects the company from revenue violations or theft by allowing utilities to analyze consumption patterns and flag those who are outside of defined tolerances.

Currently, many industrial customers and large commercial customers use advanced interval meters to support real-time optimization of energy usage and complex billing contracts related to demand response. Also, interval metering samples of all customer types have been used for 25 years to develop fair and equitable energy prices based on actual cost-to-serve each customer type. However in North America, most residential and commercial meters do not



did. We have larger homes, bigger televisions, and more appliances, for example, to make our lives easier. The growth in population multiplies the already increased energy consumption. What's more, many of the same people demanding legislation of energy production, own many of the same "necessities" as everyone else.

One way to balance the energy scale is by enticing consumers to get smarter and more responsible about using power through managing their own consumption. There are initiatives in the marketplace that suggest – or even mandate – to measure and price consumer's usage at an hourly or even sub-hourly level. Different prices throughout the day mean that not only do we pay for the energy that we used, but we also pay for when we used that energy. The goal is to alter consumer's energy usage behavior by shifting their high-energy activities to

measure usage on an hourly basis, although discussions about smart metering are underway in California and Illinois. Once smart meters are installed, and much more data is being measured, the next step will be pricing the energy on an hourly basis. Although an exciting and promising solution to the energy supply concerns, the influx of data and complexity of pricing and billing present a challenge to utilities that is daunting.

And let us not forget about the Sarbanes Oxley Act and its requirements as it relates to data management. It requires accountability in changes to meter data. More specifically, software housing meter data needs to include auditing features to document the who/what/when of all changes. Utilities should include this functionality as part of their requirements.

And foremost, with the constant change in market rules, the system must be flexible enough to adapt to these changes without upsetting the balance already in place. Software with hard coded rules will prove to be inflexible and not as cost effective as a flexible solution that is easily adapted to the changing and future market rules.

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Utilities need the flexibility to add reports and processes at any time. Likewise, a system that is not scalable or is incapable of keeping up with the pace of the rising amount of data, will also prove to be a burden. With a scalable and flexible system, utilities will avoid costly reinvestments.

The technology should not limit the number of interval meters, customers or complexity of validations. The system should easily integrate with other systems, leveraging the investments that are already made. Overall, utilities should require the infrastructure that supports their business needs as they exist now and as they evolve over time.

Aside from these basic functions, utilities should require other specific functions in an integrated MDM/Billing system. First, the ideal system must be designed from the start to manage high volumes of data. After a few months or years in operation, improperly designed systems will begin to exhibit poor performance. The market will dictate multi-years of data to be available on-line so that customers have access to the same information, and in case any disputes arise. Utilities must be prepared for this.

Once designed to manage the data, the system must have the ability to store and process the high volume of data required. Not as easy as it sounds since as the volume of data increases exponentially, so does the volume of errors. It becomes clear, then, that the validation process is critical. The industry enforces standard validation rules, for all meter data, and the ideal system must adhere to these rules. The system must be able to quickly identify and apply market rules to the data to either automatically cleanse the data or raise an exception. It is essential that the system minimize human intervention to these exceptions. Humans are prone to making more errors. We are also increasingly reminded of the concept of “doing more with less”. This validation process identifies potential lost revenues, provides more accurate data with audit ability, and provides viewing and presentment capabilities. The system must manage and resolve exceptions associated with anomalies and usage data to proactively identify areas of lost revenues and to provide decision support to capitalize on revenue opportunities.

In a decentralized market, consumers have more choices

from whom to buy their energy, therefore accurate information becomes a lot more critical. Utilities can't afford not to have accurate and clean data that can be used for revenue protection and billing calculations. The benefits for such a system are abundant:

- Elimination of manual billing processes – delivering invoice ready data for billing, and internal users and external customers will be provided with enhanced meter/cost data web presentment tools

- Minimized project risk as utilities become capable of embracing and implementing new requirements within specified timeframes

- Maximized return on investment
- Lowered total cost of system ownership
- Increased sales opportunities
- More accurate forecasts
- Reduced market risk
- Accelerated revenue
- Reduced customer service costs.

The advantages of such a system spill over into other areas, as well. For example, utilities can use the vast data warehouse to mine the information for future initiatives not yet defined. They can forecast how much energy they will require in using historical information and analyzing trends in geography and population growth. They will also be able to use this information for distribution planning purposes, thus enabling energy companies to plan for future equipment needs within the distribution network. This type of planning could save companies millions in equipment purchases by extending the service life of equipment and at the same time improving the efficiency and reliability of their network.

MDM AT WORK

One of the leading energy distributors in North America – we'll call them Acme Energy – has an intrinsic understanding of the importance of meter data management (MDM) and is therefore positioned to support the market like no other service provider. It has more than 2 million meters serving residential, commercial and industrial (C&I) customers. The company manages the lifecycle of meters and instruments, and it also processes interval data (15-minute interval) for approximately 3,000 of its commercial and industrial customers, in order to generate billing determinants to an interfacing legacy billing system.

In an effort to reduce energy costs and reduce the number of power plants needed, one of Acme's key markets is implementing a large scale automated meter reading (AMR) system that will be fully in place by 2010. This means that 4.5 million meters need to be replaced with smart meters by then. In order to comply with this mandate, electric utilities need to either buy or build their own meter data management solution to work with these new meters. This new solution must be able to work with dramatic increases in data volume in conjunction with decreased delivery times to users of that data to enable effective demand response.

Even before this mandate, though, Acme implemented its own meter data management system for its own internal requirements. The company had been using three legacy systems that served meter data management and meter management business areas on a 30 year old mainframe. So not only did Acme have to contend with working with large data sets, but the cost of operating this mainframe when the company had only a small number of applications residing in it became too burdensome for the IT organization at the time. To reduce this

cost, the energy provider sought to migrate the three legacy systems from the mainframe.

At the same time, Acme aspired to improve business processes such as reporting and data access capabilities. The company needed to conduct billing for 8,000 industrial and commercial customers, 3,000 of which are interval meters, produce reports and implement custom processes for servicing meters. For example, inventory needed to be tracked for the 2 million meters that it operates. Finally, Acme wanted a system that was easy to use, scalable and could adapt to any market changes.

RESULTS AND ADDED BENEFITS

Since Acme has completely migrated all of the legacy systems that used to reside in the mainframe, it will experience not only reduced operating costs going forward, but also better access to data than it had in the mainframe – thereby enhancing revenue reporting and monitoring capability.

An added benefit to having better access to data and easier-to-use tools is that users are enabled and don't have to rely so much on IT – especially for ad-hoc reports and mass data updates. Acme is strategically positioned in the market and will offer the MDM solution as an ASP to other electric, water or gas distribution companies in key markets. This move provides Acme with a revenue stream and additional shareholder value. They will be able to expand into other business areas to serve additional customer segments, additional geographic areas and additional commodities.

As for the market, other distribution companies will view Acme as well-positioned to provide these services compared to their competitors.

SUMMARY

The energy industry transition to hourly usage information, dynamic pricing and consequently customer-controlled demand responses is a natural transition to open and competitive markets. As has been experienced in all prior monopolistic industries, increased innovative customer options will come with a more efficient market, which in time, has proven to lead to reduced costs.

Joven Luspo brings more than 20 years of experience in the energy industry to LODESTAR.



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