EXECUTIVE SUMMARY:
Prepaid Electric Metering
Hardware, Software, and Services for Prepaid Metering:
Opportunities, Challenges, the Competitive Landscape,
and Global Market Forecasts

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Marianne Hedin, Ph.D.
Senior Analyst

Neil Strother
Senior Analyst
Section 1

EXECUTIVE SUMMARY

1.1 Introduction to the Worldwide Prepaid Electric Meter Market

Prepayment – being able to pay in advance for a service – is a concept that is widely understood and accepted by individuals and households throughout the world. Mobile phone users take advantage of prepaid plans from their service provider and many motorists pay their highway tolls in advance via a transponder in their car. Similarly, prepaid electricity programs have long been offered by utilities in numerous countries, such as the United Kingdom, Ireland, South Africa, New Zealand, India, Argentina, and many developing nations. In these countries, prepaid electricity is widely used and considered a very basic and standard utility service. However, although it has existed in the United States for over 20 years, only a handful of jurisdictions in the country support it today. But with the advent of new metering technology, communications solutions, and pressures for improved customer service, this is likely to change in the coming years. Indeed, U.S. utilities are indicating a growing interest in offering prepaid electric services.

Since they can pay any amount at any time, consumers find that prepayment allows them more flexibility and control over their utility budget. For example, they can make payments weekly or bi-weekly, which may be more compatible with their lifestyle and income than having to pay an electric bill on a monthly basis. Prepaid electric services have been typically offered to or selected by lower-income households, such as individuals on welfare benefits, single parents, the elderly, transients like college or university students, or those with no bank account. As one prepay customer put it: “It is easier to pay $25 on a weekly basis than to pay $100 at the end of each month.”

While a prepay system can be most valuable to a financially-strapped consumer, it provides benefits to all electric utility customers. Certainly, in this new demand economy, offering more choices for consumers has become a key business priority. In the utility industry, improved customer service has become a major focus. A prepaid option is progressively being viewed as an attractive choice for customers, especially as part of an advanced metering infrastructure (AMI) and smart meter installation. Prepaid programs are increasingly being offered as a standard offering on top of an AMI deployment. Eventually, the bulk of prepaid metering will represent a key component of AMI and smart meter installations. We are essentially entering the era of smart prepaid services.

1.2 Market Opportunities

Over the years, the global growth of prepaid electricity services and meters has been steady and gradual. But with the increasing adoption of smart grid technology with smart meters across the world, the prepaid metering market is now poised to take off. Hardware, software, and service vendors are seeing increasing opportunities, as utilities worldwide are preparing to launch new prepaid programs or expand their existing prepaid services to a larger customer base.
This Pike Research report examines the prepaid electric metering market from the perspective of prepaid meter hardware, software, and services. Pike Research estimates that there were over 20 million prepaid electric meters in the world in 2011. This figure is expected to grow to more than 23 million in 2012. With a relatively modest CAGR of 9.1% from 2010 to 2017, the total prepaid electric meter device market will represent about 33.7 million in 2017 on a global basis. Although the lion’s share of this market will be accounted for by conventional prepaid meters in the early years of the forecast, smart prepaid meters will lead in terms of market share in the later years. By 2017, smart prepaid meters will account for almost 63% of the total prepaid meter device market.

**Chart 1.1 Prepaid Electric Meters by Type, World Markets: 2010-2017**

From a revenue perspective, Pike Research forecasts the worldwide prepaid meter device market will reach about $1.2 billion in 2012, but will drop somewhat over time, starting in 2013, as prices decrease and utilities are less likely to use the more expensive prepaid meters with a disconnect collar. Instead of using these older types of prepaid meters, utilities will increasingly rely on smart meters with embedded prepay functionality. By 2017, utilities around the world are expected to spend about $743 million, representing a negative 2010-2017 CAGR of -4.7%.

Software and various services provided by vendors to utilities to support their prepaid metering programs represent another market opportunity. Software vendors are expected to generate about $210 million for their software solutions during 2012. Service vendors can expect to earn $263 million in revenue from their service offerings in the same year, primarily from consulting and implementation services.
1.3 Market Forces

There are a number of market forces that contribute to a growing demand for prepaid electric services across the globe. Although they vary somewhat by geography, the common drivers are:

- Increased recognition of the significant benefits of prepaid programs to consumers and utilities
- Improved energy efficiency
- Technology advances, especially with the advent of smart grid technology and the rollout of AMI and smart meters across the globe

Note that the economic recession in many parts of the world is actually having a positive impact on the adoption of prepaid systems. This is because consumers are looking for ways to reduce their electricity consumption and thus cost.

There are also inhibiting market factors that have a dampening effect on the prepaid metering market. Among the most serious market inhibitors has been the lack of support and even objections from consumer advocate groups and regulatory agencies. However, this resistance is slowly changing in most parts of the world, especially in the United States. The cost of installing prepaid meters has also been a barrier for some utilities in deploying prepaid programs.

1.4 Competitive Landscape

Although prepaid electric services have been offered by utilities for many decades, some aspects of the market are still in an early stage of maturation, as utilities are adapting to a new era of advanced technology developments. These changes are opening up opportunities for a growing and diverse number of vendors in this marketplace. Each is trying to stake out a competitive position from their own vantage point – be it hardware, software, or services or even a combination of all three.

While the market consists of large, global meter providers like Itron, Landis+Gyr, Elster, and Echelon, it is also represented by a large and growing group of software vendors (some of which are also leading meter vendors). Examples of some of the more prominent vendors that offer prepaid metering solutions are Siemens (thanks to its acquisition of eMeter), Exceleron, Aclara, PayGo Electric, Calico Energy Services, Convergys, and the leading enterprise software players like Oracle and SAP. Among the service vendors, KEMA, PwC, UISOL, and the Indian providers like HCL Technologies and Wipro stand out. Prepaid Energy Solutions is another but somewhat different service player as a niche payment transaction service provider in the U.S. prepaid electricity market. Finally, vendors with customer information system (CIS) expertise will be able to strengthen their competitive position in this market by helping utilities to provide a robust and reliable prepaid billing system that can be tightly integrated with their CIS.
There are many different ways of winning in this maturing market, but Pike Research has found that the following factors can make a difference in winning a contract:

- Ability to articulate the business case for prepaid electric services and how investments in related technology and service offerings can result in a win-win for both utilities and their customers.

- Ability to address the various integration issues faced by utilities when implementing prepaid electric services. The integration of the prepaid billing system and CIS is key because right now they often operate as two separate systems.

- Ability to provide data analytics to gain insights into the impact of prepaid programs on, for example, energy use behavior, revenue loss/recovery, customer satisfaction levels, customer retention and attrition rates by different customer segments, and much more.
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SCOPe OF STUDY

9.1 Overview

This report examines the prepaid electric metering market in five major regions, presenting a 7-year forecast and market sizing from 2010 through 2017. The regions include:

- North America
- Latin America
- Europe
- Asia Pacific
- Middle East/Africa

In addition to a total view of the prepaid metering market, Pike Research provides separate market sizing and forecasts for each of the three discrete hardware, software, and service markets. This study also looks at the competitive landscape of prepaid electric metering demand response services to identify and highlight the key players in this market. Pike Research interviewed 17 vendors and two utilities with a mix of prepaid metering capabilities and presents a profile of each company.

9.2 Data Collection

The forecasts provided in this study represent Pike Research’s best estimates and projections for 2011 to 2017, where the base year is 2010. It is based on primary and secondary information obtained from October 2011 through December 2011. During these 3 months, interviews were conducted with 19 major market players with a focus on prepaid electric metering.

Secondary research information was collected from a wide range of sources, including metering.com, Ofgem, FierceEnergy, FierceSmartGrid, MeterPedia.com, Electric Power Research Institute, The Brattle Group, ABS Energy Research, Chartwell, Allen Consulting Group, and R.W. Beck. Information was also gathered from utility and vendor websites, press releases, and Pike Research prepaid metering-related research reports.
9.3 Defining Prepaid Electric Metering and its Offerings

A prepaid metering device is a meter with the additional capability to enable electricity consumption based on the amount of advance payment made by the consumer for the electricity to be consumed. In other words, this type of metering device performs the regular measuring functions of other electric meters, but it is also used to measure and control the power consumption in an electrical network. These devices can be installed on the premises of residential and business consumers.

9.3.1 Consulting

- Business strategy advice on prepaid electricity programs and demand response programs
- Process improvement relevant to prepaid electric metering demand response
- Operations assessment, an assessment of how effectively an organization uses resources and how well operating units perform
- Benchmarking
- Needs assessment
- Change management (includes communications and education plans)
- IT strategy advice
- IT design
- Capacity and maintenance planning (future support requirements for IT)
- Supplier analysis

In the early years of the forecast period, demand for consulting assistance will primarily be generated by clients' need to understand their business case for a prepaid program.

9.3.2 Implementation

Implementation services focus on executing the business vision or strategy that has been set forth with respect to a prepaid program. It often entails the following:

- Installing and configuring the software
- Testing the software and the quality of the data
- Integration of multiple systems and applications

9.3.3 Outsourcing

IT and business process outsourcing involves the contracting out — on an ongoing basis for several years — of technology (applications, IT, and network infrastructure), an entire function, such as the IT department, or a particular business process within an organization to an external provider. Managing a client's entire prepaid program on an ongoing basis, for example, presents a business process outsourcing (BPO) opportunity for service vendors.
**SOURCES AND METHODOLOGY**

Pike Research’s industry analysts utilize a variety of research sources in preparing Research Reports. The key component of Pike Research’s analysis is primary research gained from phone and in-person interviews with industry leaders, including executives, engineers, and marketing professionals. Analysts are diligent in ensuring that they speak with representatives from every part of the value chain, including but not limited to technology companies, utilities and other service providers, industry associations, government agencies, and the investment community.

Additional analysis includes secondary research conducted by Pike Research’s analysts and the firm’s staff of research assistants. Where applicable, all secondary research sources are appropriately cited within this report.

These primary and secondary research sources, combined with the analyst’s industry expertise, are synthesized into the qualitative and quantitative analysis presented in Pike Research’s reports. Great care is taken in making sure that all analysis is well-supported by facts, but where the facts are unknown and assumptions must be made, analysts document their assumptions and are prepared to explain their methodology, both within the body of a report and in direct conversations with clients.

Pike Research is an independent market research firm whose goal is to present an objective, unbiased view of market opportunities within its coverage areas. The firm is not beholden to any special interests and is thus able to offer clear, actionable advice to help clients succeed in the industry, unfettered by technology hype, political agendas, or emotional factors that are inherent in clean-tech markets.

**NOTES**

CAGR refers to compound average annual growth rate, using the formula:

\[
\text{CAGR} = \left( \frac{\text{End Year Value}}{\text{Start Year Value}} \right)^{\left(\frac{1}{\text{steps}}\right)} - 1.
\]

CAGRs presented in the tables are for the entire timeframe in the title. Where data for fewer years are given, the CAGR is for the range presented. Where relevant, CAGRs for shorter timeframes may be given as well.

Figures are based on the best estimates available at the time of calculation. Annual revenues, shipments, and sales are based on end-of-year figures unless otherwise noted. All values are expressed in year 2012 U.S. dollars unless otherwise noted. Percentages may not add up to 100 due to rounding.