EXECUTIVE SUMMARY:
Energy Management Systems for Industrial Markets
Market Forces, Competitive Landscape, and Market Forecasts for Industrial Energy Management Software and Services in the United States

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Section 1

EXECUTIVE SUMMARY

1.1 Overview

Energy management has been applied in the industrial and manufacturing sector for quite some time, but the industry is now entering a dynamic period of renewal and innovation. New technologies available today are allowing greater insight into energy procurement, energy use, and the management of energy as an input to the industrial process. In addition, there are a variety of assistance programs, as well as new standards and certifications that are helping to drive energy performance initiatives into the organizational cultures of companies wishing to gain efficiencies in their industrial processes. Meanwhile, outside influences from customers, the general public, investors, shareholders, the supply chain, and other stakeholders are significantly influencing how the competitive landscape in the industrial sector will play out in the medium to long term. There is a definite shift taking place in the way industrial companies view energy procurement and use internally, and how its management and use is perceived externally by the company’s clients, customers, and supply chain.

However, spending on new technologies and services for energy management has been highly dependent on overall economic conditions for U.S. industrial and manufacturing companies. The prevailing attitude has been that during good times, it is not essential, and during difficult times, energy management is not affordable or of the highest priority. Yet, the industrial sector of the U.S. economy consumes almost one-third of all the energy that we use in this country on an annual basis. With dwindling supplies of some fuel sources and high price volatility, it is critical that energy becomes a high priority. Both human and financial resources need to be applied toward better understanding and improvement of the efficiency of industrial energy consumption.

Also, note that the industrial and manufacturing sector is an important component of U.S. gross domestic product (GDP). Although it has been decreasing in percentage relative to the services sector of the U.S. economy, over time, its overall output and dollar contribution to GDP continues to grow. The U.S. industries must take measures to ensure they remain cost-competitive on a global scale. The efficient use of energy is one area that U.S. industrial companies can improve upon to facilitate a more competitive positioning.

1.2 Market Opportunities

The U.S. energy management market offers significant prospects for both software and service vendors. There is a strong and growing need for assistance in putting programs in place to understand and manage an industrial facility’s energy consumption patterns. Pike Research projects demand for these products and services will increase rapidly in the coming years. Energy management software and services spending in the industrial sector is forecast to reach $960 million in 2011 and over $5.5 billion in 2020. We estimate that the compound annual growth rate (CAGR) from 2011 to 2020 will be over 21%, with growth in the early years of the forecast period being significantly higher.
The U.S. industrial companies, which signify a high energy intensity sector, already have high adoption rates for energy management initiatives. Out of necessity, these companies have had to understand energy use since it is such a critical input to their industrial processes. They continue to spend on energy management products and services for new innovations, but only modest overall growth will be seen in this sector when compared to other manufacturing and industrial sectors. The main areas of growth for energy management software and services will be seen in the mid to large size non-energy-intensive industrial companies and manufacturers. Companies are beginning to understand that they will lose substantial competitive positioning if energy management programs are not initiated in the near-term future.

Small manufacturing companies, which significantly outnumber all other types of industrial and manufacturing companies in the United States, will remain an underserved market segment for years to come. This category generally consists of low energy users and has limited human and financial resources to spend on energy management initiatives. Without much expertise in energy use issues, these companies are somewhat stuck with regard to improving energy performance. Service providers do not see much opportunity in targeting this area, as it would mean dealing with a diverse and widespread market sector for little potential return.

1.3 Market Forces

The industrial and manufacturing sector in the United States has had a difficult period since the recession of 2008 and 2009. When the economy struggles, industrial companies retrench and generally limit spending and capital investment to things that drive top-line growth versus bottom-line cost savings. Energy management programs fit into the latter category, and therefore are considered of less importance than other types of spending and investment during these periods.
A number of economic and market forces, however, seem to be changing the climate for investment and spending on energy management systems (EMS). As the economy recovers, capital spending by industrial and manufacturing companies is rising, as is capacity utilization. Although not quite to pre-recession levels, these numbers reflect willingness by industry to look to the future with regard to plant refits, and systems and equipment upgrades in order to prepare for future growth opportunities. This is a very opportune time for product and service providers in the energy management market. These periods of capital spending and plant upgrades are more ideal for implementation of energy management programs compared to the normal maintenance cycle.

Outside market forces are also driving change. Increasingly, the supply chain, consumers, shareholders, and other stakeholders are taking note of a business’ initiatives with regard to sustainability. Brand image and revenue is at stake, and those that do not take note and make appropriate changes will be left behind. Just as quality was a major competitive issue in the 1980s and 1990s, so is energy management today.

Even with these market forces demanding change, industrial companies are facing challenges. Internal energy management initiatives sometimes flounder because they are judged against other internal investments that have a more favorable return or a shorter payback period. The implementation of energy management programs tends to encompass a fragmented approach that serves to defeat the true potential of these programs. Many companies that initially embark on energy projects do realize impressive savings, but these projects can be considered “low hanging fruit” and are less complex than the next level of projects that will need to be considered. As projects become more complex, internal resources and a limited knowledge base on how to take the next step severely hamper the success potential. Other factors that hinder energy management program adoption and success rates include less than complete backing by senior management and the lack of an organizational approach to energy performance issues within an enterprise.

1.4 The Competitive Landscape

In the energy management market, the vendor landscape is very fragmented, with numerous software and service providers of different backgrounds and capabilities. There are also relatively high barriers to entry, as the manufacturing and industrial landscape requires a very specific knowledge base. Pike Research has identified the major groupings of players in this market as the full service providers, hardware vendors, software/application vendors, energy service companies (ESCOs), and energy/power engineering consulting companies.

It is difficult to find an energy management market participant that does not offer a software package either as a standalone product or as part of a more comprehensive product/service offering. Pike Research projects that many of the standalone software/application companies will have a more difficult time penetrating this market or gaining market share against some of the more experienced players and longtime participants. The beneficiaries of the ever-increasing complexity of energy-related projects and organizational initiatives will be the full service providers, energy engineering and consulting companies, and ESCOs that are familiar with the industrial landscape and have a sizable existing client base. Hardware vendors that supply metering and other types of industrial equipment will benefit from the increased need for measurement equipment that feeds the software applications. Energy standards consultants and energy performance program certifiers will also find gainful business opportunities as these new programs gain wider acceptance and become the norm for participation in a competitive landscape that requires an environmentally aware and sustainable business.
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SCOPE OF STUDY

This report examines the energy management software and services markets in the industrial and manufacturing sector of the United States. Pike Research presents a nine-year forecast and market sizing for energy management software and services as defined below. In addition to total market size, Pike Research also provides separate market sizing and forecasts for the software market segment and the services market segment.

Note that Pike Research looks at the entire energy management services market, including services that are provided as “standalone” (discrete or energy management-specific services) offerings and those that are embedded in other types of service offerings. Some service vendors primarily offer energy management-related services as part of another services engagement, such as in a supply chain management or strategy consulting project.

This study also examines the energy management software and services competitive landscape to identify the key players. Pike Research interviewed a mix of software and service vendors, as well as manufacturing companies, to understand the competitive landscape from both the buy and sell side.

The report’s purpose is not to provide an exhaustive technical assessment of the technologies covered, but rather, a strategic examination from an overall tactical business perspective. Pike Research strives to identify and examine new market segments to aid readers in the development of their business models.

10.1 Data Collection

The forecasts provided in this study represent Pike Research’s best estimates and projections for 2011-2020, where the base year is 2011. They are based on primary and secondary information obtained in 3Q 2011. During these months, interviews were conducted with 20 industry participants, including software vendors, energy service providers, government agencies, and national laboratories.

Secondary research information was collected from a wide range of sources, including the U.S. Energy Information Administration (EIA), U.S. Department of Energy (DOE), Lawrence Berkeley National Laboratory (LBNL), and numerous press releases from vendors and end users.

10.2 Definitions

For the purpose of this report, the definition of “industries” includes business entities that, for the most part, participate in the manufacturing sector, including heavy industry, metals, chemicals, refining, food processing, and general manufacturing. As defined by the EIA, the industrial sector consists of “all facilities and equipment used for producing, processing, or assembling goods, and encompasses manufacturing, agriculture, forestry, fishing and hunting, mining (including oil and gas extraction), and construction.” Some of these industries are more energy-intensive than others, but they all consume energy for the production of goods. The industrial sector expends energy for a variety of manufacturing activities, including materials processing, assembly, heating, ventilation, cooling, and lighting. Energy sources are also consumed as fuel and non-fuel (feedstock) inputs.

The LBNL website defines energy intensity as “energy use per physical unit of output.” Some examples of energy intensity measures include BTU/lb, kWh/gallon, or kWh/unit.

As defined on the U.S. DOE Energy Efficiency and Renewable Energy (EERE) Industrial Technologies Program (ITP) website, corporate energy management (CEM) “refers to sets of actions that move accountability for energy outcomes to upper levels of the firm.”
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 cleantech 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 2011 U.S. dollars unless otherwise noted. Percentages may not add up to 100 due to rounding.