Smart Meters

Industry Study with Forecasts for 2016 & 2021

Study #2844 | February 2012 | $4900 | 257 pages

The Freedonia Group

www.freedoniagroup.com
# Table of Contents

## COMPANY PROFILES

(continued from previous page)

International Business Machines ........................................ 212
Itron Incorporated .............................................................. 214
Mueller Water Products ....................................................... 220
Oracle Corporation ............................................................. 222
OSIsoft LLC ............................................................................ 224
Roper Industries ................................................................. 225
Schneider Electric ................................................................. 228
Sensus USA .............................................................................. 230
Siemens AG .............................................................................. 233
Silver Spring Networks .......................................................... 235
SmartSynch Incorporated ..................................................... 238
Tantalus Systems ..................................................................... 240
Toshiba Corporation .............................................................. 242
Other Smart Meter Companies .............................................. 247

## List of Tables

### EXECUTIVE SUMMARY

1. Summary Table ................................................................. 3

### MARKET ENVIRONMENT

1. Macroeconomic Indicators ............................................... 8
2. Nonresidential Fixed Investment ........................................ 11
3. Construction Expenditures ................................................. 14
4. Electricity Generation by Generator & Fuel Type .................. 18
5. Electric Generating Capacity .............................................. 20
6. Electricity Demand by End User ........................................ 22
7. Natural Gas Outlook .......................................................... 25
8. Water Withdrawal & Use .................................................... 28
9. Water & Sewer Construction Expenditures .......................... 30

### REGULATIONS & TECHNOLOGY

1. Overview of State Renewable Energy Portfolio Standards ....... 46
2. Overview of State Energy Efficiency Resource Standards for Electricity .............. 53

### PRODUCTS

1. Smart Meter Product & Service Demand ............................. 72
2. Smart Meter Demand by Type .......................................... 75
3. Smart Meters in Use by Type ............................................. 78
4. AMI Meter Demand by Type ............................................. 81
5. AMR Meter Demand by Type ............................................. 84
6. Smart Meter Part & Accessory Demand .............................. 87
7. Smart Meter System Installation & Integration Demand ........... 94

### MARKETS

1. Smart Meter Product & Service Demand by Market & Application ........................................ 96
2. Electric Utility Indicators .................................................. 100
3. Smart Electric Meter Penetration ......................................... 101
4. Electric Utility Demand for Smart Meters ........................... 104
5. Water Utility Indicators ..................................................... 110
6. Smart Water Meter Penetration .......................................... 112
7. Water Utility Demand for Smart Meters ............................. 114
8. Natural Gas Utility Indicators ............................................ 119
9. Smart Natural Gas Meter Penetration .................................. 121
10. Natural Gas Utility Demand for Smart Meters ..................... 123

### REGIONAL

1. Population by Region ....................................................... 131
2. Gross Domestic Product by Region .................................. 133
3. Construction Expenditures by Region ................................. 135
4. US Smart Meter Product & Service Demand by Region ......... 137
5. Northeast Smart Meter Product & Service Demand ............... 139

6. Midwest Smart Meter Product & Service Demand ............... 144
7. South Smart Meter Product & Service Demand .................. 149
8. West Smart Meter Product & Service Demand .................... 156

### INDUSTRY STRUCTURE

1. US Smart Meter Product & Service Sales by Company, 2011 .... 164
2. Selected Cooperative Agreements ....................................... 174
3. Selected Acquisitions & Divestitures ................................. 184

### List of Charts


### REGULATIONS & TECHNOLOGY

1. Smart Meter Demand by Type, 2001-2021 .......................... 76
2. Smart Meter Penetration Rates, 2001-2021 ........................ 79
3. Smart Meter Market Share, 2011 ................................. 86

### MARKETS

1. Smart Meter Demand by Market, 2001-2021 ...................... 97

### REGIONAL

1. US Smart Meter Product & Service Demand by Region ......... 137

### INDUSTRY STRUCTURE

1. Smart Meter Product & Service Market Share, 2011 ............. 166
Advances will be driven by the rising share of smart meters in use, particularly advanced metering infrastructure (AMI) products, and by the greater number of smart meters to service.

US demand to see double-digit gains through 2016

Smart meter product and service demand in the US is projected to increase more than eleven percent annually to $4.4 billion in 2016. Advances will be driven by the rising penetration of smart meters, particularly advanced metering infrastructure (AMI) products. In addition, the rising share of smart meters in use means that there are a greater number of meters to service, which will support demand for parts and services. The rising number of AMI meters will also generate demand for related products such as meter data management software. As mainly early generations of advanced meter reading (AMR) products, reach the end of their service lives, utilities will begin to replace these products.

In 2011, there were approximately 325 million electric, water and natural gas meters installed in the US, and 45 percent were smart meters. Through 2016, the penetration rate for smart meters is expected to continue to grow rapidly, rising to 63 percent of all meters installed. Following this strong growth, the penetration rate for smart meters is expected to continue to rise at a healthy, albeit slower pace, as several segments of the market begin to mature. By 2021, there will be approximately 285 million smart meters in use, nearing 80 percent of all meters installed. The highest penetration rate is forecast in electric meters, with smart meters representing over 90 percent of electric meters in use by 2021.

AMI meters to rise rapidly

Demand for smart meters will rise more than twelve percent annually to $3 billion in 2016. Growth will be supported by continued efforts by electric utilities to increase the intelligence of the electric grid. Both the gas and water segments are also expected to see rapid growth in the use of AMI meters, albeit from a smaller base than the electric segment. In these markets, the added capabilities of AMI vis-à-vis AMR meters are less valuable to utilities. Still, the greater visibility provided by AMI meters and the declining cost difference between AMR and AMI products is supporting growth in the gas and water segments.

Northeast, Midwest to see fastest regional growth

Through 2016, demand for smart meters will grow most rapidly in the Northeast and Midwest regions, primarily because they are rising from a smaller base than the South and West regions. Utilities in the Northeast and Midwest have been slower to roll out large-scale smart meter installations, particularly installations of AMI meters in the electric market. In contrast, demand in the West region will decline from an elevated level as several large electric meter rollouts were completed in this region in 2011.
MARKETS

Smart Meter Demand

Electric utilities are the largest market for smart meter products, and in 2011 accounted for 64 percent of total demand. The size of this market reflects the large total number of electric meters in use, the relatively high penetration rate of smart meters in electric applications, and the high share of smart electric meters that use AMI technology. Electric meters are more prevalent than natural gas or water meters because nearly all US households and businesses have electric service, while a portion do not have natural gas service and a number utilize well water, rather than a municipal water service, and therefore do not require gas or water meters of any type. Furthermore, because of the complexity of the electric grid and the need to constantly balance supply and demand to prevent problems in the grid, the electric market has been the earliest to adopt smart meters, particularly AMI products. In addition, AMI meters allow for demand response, time-of-use and variable pricing features that are especially important in the electric market to increase grid stability.

Through 2016, demand for smart meter products in the electric market will continue to rise sharply, rising twelve percent annually to $2.9 billion. Growth will be driven by the strong increases in smart meter penetration, particularly AMI penetration, from even the relatively high 2011 levels. Smart meters will continue to be critical in utility efforts to increase the intelligence of the electric grid in order to improve the efficiency and reduce energy consumption, especially at peak periods. The electric market is expected to see the fastest growth of any smart meter market through 2016, although this pace will be a deceleration from the 2006 to 2011 pace, which was bolstered by several large-scale electric meter rollouts and stimulus funds from the ARRA of 2009.

Over the longer term, demand is expected to slow sharply between 2016 and 2021, rising just 1.9 percent annually, primarily due to:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Meters in Use</td>
<td>290.9</td>
<td>312.4</td>
<td>324.1</td>
<td>344.0</td>
<td>367.0</td>
</tr>
<tr>
<td>Electric</td>
<td>137.2</td>
<td>146.7</td>
<td>151.8</td>
<td>162.0</td>
<td>172.5</td>
</tr>
<tr>
<td>Water</td>
<td>88.2</td>
<td>96.1</td>
<td>100.2</td>
<td>105.5</td>
<td>113.0</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>65.5</td>
<td>69.6</td>
<td>72.1</td>
<td>76.5</td>
<td>81.5</td>
</tr>
<tr>
<td>Smart Penetration Rate (% total meters)</td>
<td>23.4</td>
<td>30.0</td>
<td>45.1</td>
<td>63.1</td>
<td>77.8</td>
</tr>
<tr>
<td>Electric</td>
<td>25.7</td>
<td>32.3</td>
<td>51.0</td>
<td>75.0</td>
<td>93.0</td>
</tr>
<tr>
<td>Water</td>
<td>20.5</td>
<td>27.5</td>
<td>38.6</td>
<td>51.2</td>
<td>62.8</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>22.4</td>
<td>28.4</td>
<td>41.7</td>
<td>54.2</td>
<td>66.3</td>
</tr>
<tr>
<td>Smart Meters in Use</td>
<td>68.1</td>
<td>93.6</td>
<td>146.2</td>
<td>217.0</td>
<td>285.5</td>
</tr>
<tr>
<td>Electric</td>
<td>35.3</td>
<td>47.4</td>
<td>77.4</td>
<td>121.5</td>
<td>160.5</td>
</tr>
<tr>
<td>Water</td>
<td>18.1</td>
<td>26.4</td>
<td>38.7</td>
<td>54.0</td>
<td>71.0</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>14.7</td>
<td>19.8</td>
<td>30.1</td>
<td>41.5</td>
<td>54.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MARKET LEADERS</th>
<th>2011</th>
</tr>
</thead>
</table>
| GE                   | 45.8%
| Stibira              | 9.6%
| Toshiba              | 8.5%
| ABB                  | 5.4%
| Siemens              | 5.2%
| Johnson Controls     | 4.2%
| Others               | 45.8%
DATAMATIC LIMITED

Datamatic Limited
3600 K Avenue
Plano, TX 75074
972-234-5000
http://www.datamatic.com

Annual Sales: $30 million (verified by company, 1/12)
Employment: 80 (verified by company, 1/12)

Key Products: automatic meter reading systems, meter interface units, handheld computers and mobile automatic meter reading receivers

Datamatic is a producer of automatic meter reading (AMR) and field data collection systems for electric, gas and water utilities. The privately held company conducts manufacturing and other operations at its headquarters facility in Plano, Texas.

The Company’s AMR systems are available under the MOSAIC, FIREFLY and ROUTESTAR MVP brand names. The MOSAIC system enables the combination of mobile, walk-by radio frequency and full mesh network reading capabilities in a single system. Among the components of the MOSAIC system are FIREFLY meter interface units (MIUs), which store 240 days of usage profile data and can be utilized with virtually any utility meter. Datamatic’s FIREFLY AMR system employs FIREFLY MIUs and features the PROFILEPLUS usage profiling capability, which provides data to help resolve billing disputes, identify leaks, prevent tampering, enable time-of-use billing and perform load studies, among other functions. The Company’s ROUTESTAR MVP AMR offering is an enterprise route management meter reading system that supports the FIREFLY AMR system, has a scalable architecture and features an intuitive graphical user interface.

“Smart meter demand in the South is forecast to rise 5.7 percent annually to $1.3 billion in 2016, below the national average but with significant subregional variations. Advances will accelerate through 2021 as penetration rates for smart meters rise in the region. Smart meter demand will be aided by above-average economic activity and population growth, which will support above-average increases in building activity and thus in the total potential market for smart meters.” --Section VI, pg. 147-8
Corporate Use License

Now every decision maker in your organization can act on the key intelligence found in all Freedonia studies. For an additional $2600, companies receive unlimited use of an electronic version (PDF) of the study. Place it on your intranet, e-mail it to coworkers around the world, or print it as many times as you like.

Click here to learn more about the Corporate Use License

ORDER FORM

Smart Meters ....................................................................... $4900

☐ Corporate Use License (add to study price) *

☐ Additional Print Copies @ $600 each *

☐ Enclosed is my check (5% discount) drawn on a US bank and payable to The Freedonia Group, Inc., in US funds (Ohio residents add 7.75% sales tax)

☐ Bill my company ☐ American Express ☐ MasterCard ☐ Visa

Name ____________________________________________

Title __________________________________________

Company _____________________________________

Division ______________________________________

Street _________________________________________

City/State/Zip ____________________________

Country ______________________________________

Phone __________________________ Fax ____________

Email __________________________

Signature ______________________________________

* Please check appropriate option and sign below to order an electronic version of the study.

☐ Individual Use License Agreement

The undersigned hereby represents that the above captioned study will be used by only __ individual(s) who are employees of the company and that the study will not be loaded on a network for multiple users. In the event that usage of the study changes, the Company will promptly notify Freedonia of such change and will pay to Freedonia the appropriate fee based on Freedonia’s standard fee schedule then in effect. Note: Entire company corporate use license, add $2600; one additional user, add $600; two additional users, add $1200; three additional users, add $1800.

Signature ______________________________________

☐ Corporate Use License Agreement

The above captioned study may be stored on the company’s intranet or shared directory, available to company employees. Copies of the study may be made, but the undersigned represents that distribution of the study will be limited to employees of the company.

Signature ______________________________________
**About The Freedonia Group**

The Freedonia Group, Inc., is a leading international industry market research company that provides its clients with information and analysis needed to make informed strategic decisions for their businesses. Studies help clients identify business opportunities, develop strategies, make investment decisions and evaluate opportunities and threats. Freedonia research is designed to deliver unbiased views and reliable outlooks to assist clients in making the right decisions. Freedonia capitalizes on the resources of its proprietary in-house research team of experienced economists, professional analysts, industry researchers and editorial groups. Freedonia covers a diverse group of industries throughout the United States, the emerging China market, and other world markets. Industries analyzed by Freedonia include:

- Chemicals • Plastics • Life Sciences • Packaging • Building Materials • Security & Electronics • Industrial Components & Equipment • Automotive & Transportation Equipment • Household Goods • Energy/Power Equipment

**Freedonia Custom Research**

Freedonia Custom Research delivers the same high quality, thorough and unbiased assessment of an industry or market as an industry study. Since the research initiative is based upon a company’s specific needs, companies harness Freedonia’s research capabilities and resources to answer unique questions. When you leverage the results of a Freedonia Custom Research engagement, you are able to obtain important answers to specific questions and issues associated with: mergers and acquisitions, new product launches/development, geographic expansion, entry into new markets, strategic business planning, and investment and funding decisions.

Freedonia Custom Research is ideal for companies seeking to make a strategic difference in the status quo and focus on future business growth. Working side by side with clients, Freedonia’s team is able to define a research project that is custom-tailored to answer specific questions and provide the basis from which a company can make informed business decisions.