

Insights on Utilities: EMEA Edition, 3Q08

European Utilities IT Opportunities and Strategies
European Renewable Energy Strategies

UPDATE

#EIOS57Q

Roberta Bigliani
Nadav Enbar

Gaia Gallotti

IN THIS UPDATE

Welcome to the third issue of Insights on Utilities EMEA Edition. Every quarter, we publish this update offering analysis and opinions on key trends in the utilities industry. Please forward this newsletter to colleagues or others who you think might find it relevant. In addition, we welcome your feedback, so please email us with any commentary.

In this issue, we will feature photovoltaic technology, a summary of industry initiatives, and key findings of some of our recent research, covering the following items in particular:

- The promise of building integrated photovoltaics: The expanding market for next-generation modules and materials
- ICT for energy efficiency: The Ad-Hoc Advisory Group to EU DG-Information Society and Media
- Intelligent grid: From talk to action. A report from the Third Annual Assembly of the Smart Grids Technology Platform
- Is IT spending still growing for Western European utilities industry?
- Who are the top 10 EMEA IT vendors in the utilities market?

The Promise of Building Integrated Photovoltaics

The Competitive Landscape

Building integrated photovoltaics (BIPV) represent a potential game-changing technology and deployment approach capable of achieving PV cost parity vis-à-vis conventional energy resources. Comprised of solar modules embedded into varying facets of the building envelope, BIPV is able to functionally satisfy conventional building applications while simultaneously generating power.

Though currently hampered by prices higher than standard flat-plate PVs, BIPV systems are gradually gaining visibility as European, Asian, and North American manufacturers develop and deploy next-generation products. The result: an increasing number of demonstration and commercial projects that are exploiting BIPV's multifunctional, aesthetically-pleasing characteristics. Energy Insights believes that additional BIPV product functionality and, in turn, commercial deployment, will broaden in the next decade.

BIPV is currently a niche solar technology that embeds photovoltaic materials directly into various elements of a building's structure, including its roof, façade and fenestration, and skylight. Though the technology approach has existed for several decades, an emerging collection of next-generation products, based on flexible laminates, is expanding the range of applications that BIPV can satisfy and improving BIPV systems' economics.

To stimulate further commercial development, governments are providing support policies and RD&D funding, while project developers are exploring novel finance approaches to help accelerate BIPV system investment payback. Utility buy-down and net metering programs are also helping to grow the BIPV market, as is BIPV adoption by an increasing number of residential builders, which is catalyzing economy-of-scale cost benefits.

Thin-film PV technology advances are helping to stimulate market growth, while established building industry vendors, homebuilders, and architects are gradually developing a rising level of technical expertise that is driving project design and implementation.

Existing Challenges

As an emerging technology, BIPV faces many challenges to its greater adoption. The most pressing include:

- **Economic issues.** BIPV systems are far from achieving economic parity with conventional forms of delivered electricity generation. Subsidies and tax incentives are stimulating sales, which should reduce costs, but prices remain high as global demand for PV at large continues to outstrip supply.
- **Financing issues.** Financing BIPV systems, which typically won't result in a positive ROI for many years, is more complicated than financing standard PV installations. Most builders are more concerned with minimizing upfront investments than life-cycle return on investments.
- **Aesthetics.** Arbitrary aesthetic sensitivities, particularly those held by homeowner associations, remain stubbornly in place in some locales regardless of advances in PV integration.
- **Value chain disconnect.** Cooperation at the design stage between architects and manufacturers, essential for optimal integration of PV into the building stock, is improving, though still lagging.
- **Product standards issues.** BIPV-specific building codes and standards have not yet been widely established.
- **Product maintainability.** Greater attention to failure detection, perhaps through automation, and ease of maintenance procedures are of paramount importance to building owners and operators.

The Market Players

The huge market potential for BIPV is attracting an increasing number of new and established companies into the field. A new report published by Energy Insights profiles eight manufacturers that are developing and deploying next-generation BIPV products — potentially game-changing technologies that are capable of accelerating production and installation cost reductions and, in turn, greater market adoption. BIPV manufacturers covered include Atlantis Energy Systems, BP Solar, Open Energy Corporation, Schüco, Sharp Electronics, Solar Integrated, SunPower, and Suntech Power Holdings.

Future Outlook

Energy Insights is optimistic about the prospects of BIPV over the next decade and beyond. Though the technology is currently hindered by high prices and a still largely inchoate sales and distribution network, a growing number of government mandates and incentives are stimulating solar markets and investments, which are leading to an improving cost competitiveness of conventional PV, and, by extension, BIPV. BIPV is already leading to increased property values as well as spurring home sales in the EU. Aided by technology innovation, partnerships between BIPV manufacturers and installers (the dealer network) and their greater collaboration with architectural firms are likely to multiply with increasing commercial deployment. Full incorporation of BIPV into the construction industry value chain will take some time, but BIPV product, installation, and maintenance know-how will gradually diffuse as the technology's comparative advantage is progressively realized.

ICT for Energy Efficiency: The Ad-Hoc Advisory Group to DG-Information Society and Media

Information and communication technology plays a fundamental role in achieving European targets in energy efficiency, emissions reduction, and contribution of renewable energy as primary sources.

As an industry, the ICT sector itself can introduce more sustainable practices to reduce its carbon footprint. But more important is the role of ICT as an enabler of greater efficiency and emissions reduction for other industries, including businesses and society as a whole.

On May 13, 2008, the European Commission adopted the communication "Addressing the Challenge of Energy Efficiency Through Information and Communication Technologies" (COM(2008)241). The communication called for a consultation and partnership process on ICT for energy efficiency.

DG-Information Society and Media initiated the consultation process in May 2008. It took the form of an open online public consultation, (May 20 to July 21) and the convening of an ad hoc advisory group during June to September 2008. Six consultation groups assisted the advisory group in addressing specific themes: smart grids, buildings, road transport, lighting and photonics, manufacturing, and structural change.

Energy Insights joined leading specialists from the European technology, communications, and IT community in the first of these consultation groups, namely "ICT for Smart Distribution Networks."

At the end of September, the group provided its findings and recommendations to the ad hoc advisory group and an integrated final report is expected to be approved in early November. The document will then be presented to the i2010 High Level Group, followed by a conference in the spring of 2009.

Results of the Smart Grids Consultation Group in Brief

The approach that was adopted by the consultation group was to investigate the ICT impact across the whole energy value chain, from generation to retail and end consumers, leading to the identification of an exhaustive portfolio of five ICT areas contributing to energy savings:

- ICT for smart energy consumption processes
- ICT for smart small and medium user behavior management
- ICT for smart large user behavior management
- ICT for generation and grid infrastructure readiness
- ICT for breakthrough industry transformation

The clustering and prioritization of the ICT recommendations for the five areas above led to the development of six priorities for ICT investments to be leveraged:

- Further investments in ICT studies, business cases, surveys, project best practices, and go-to-market based on what has worked well in other countries or regions.
- Investments in automated customer communications (smart metering) to reach 100% smart metering penetration in Europe by 2015 (time-of-use to become mandatory).
- Investments in demand-side management, demand response management, and real-time pricing as key processes for peak load shaving and energy efficiency.
- Investments in home energy control boxes (Internet box-like, which could be linked to smart meters or directly to the distributor or retailer), which will collect real-time energy consumption from smart household appliances and will advise consumers automatically to consume energy smarter.
- Investments in "losses free" and readiness of infrastructure networks to connect a large scale of distributed generation and renewable energy sources (20% share by 2020).
- Investments in ICT readiness for "mobile electricity consumers" (e.g., plug-in hybrid electrical vehicles, PHEVs).

By implementing these recommendations, the consultation group estimates that significant benefits could be achieved, depending on the level of development of each EU country and on the success in combining smart processes (like demand response) and smart technologies (like smart meters):

- Peak load shaving: up to 50%
- Consumer energy consumption reduction: up to 25%
- Network loss reduction: up to 50%

Intelligent Grid: From Talk to Action. A Report From the Third Annual Assembly of the Smart Grids Technology Platform

In November 2007, Energy Insights' report *Intelligent Utilities: The Future of Electric Grids* highlighted that the evolution towards smart grids is not a question of *whether* but rather of *when* and *how* it will take place. The Strategic Deployment Document (SDD), presented in draft by the Smart Grids European Technology Platform (ETS) at its Third Annual Assembly, suggests approaches to answer the questions *how* and *when*.

But what is a smart grid? According to the most recent SDD definition, "a smart grid is an electricity network that can intelligently integrate the actions of all users connected to it — generators, consumers, and those that do both — in order to efficiently deliver sustainable, economic, and secure electricity supplies."

A smart grid, according to the SDD definition, employs innovative products and services together with intelligent monitoring, control, communication, and self-healing technologies to:

- Better facilitate the connection and operation of generators of all sizes and technologies
- Allow consumers to play a part in optimizing the operation of the system
- Provide consumers with greater information and choice of supply
- Significantly reduce the environmental impact of the whole electricity supply system
- Deliver enhanced levels of reliability and security of supply

Let's take a step back and go to the beginning of the story. ETS' smart grids work was started in 2005. Its first aim was to formulate and promote a vision for the development of the European electricity network, for 2020 and beyond. After the publication of "*Vision and Strategy of the Smart Grids of the Future*" (April 2006), the platform specified the areas of research required. At the beginning of 2007, the Strategic Research Agenda (SRA) was released, including

contributions from four working groups representing more than 200 professionals from research institutes, universities, industry, regulators, and utilities. EU Member State governments have also provided valuable advice and comment through the Mirror Group. The SRA was intended to be a reference document consolidating the views of stakeholders on research priorities that addressed the key elements of the Vision document. The purpose of the SRA was to provide a resource for European and national programs, and it identified five areas of research:

- Smart distribution infrastructure (small customers and network design)
- Smart operation, energy flows, and customer adaptation (small customers and networks)
- Smart grid assets and asset management (transmission and distribution)
- European interoperability of smart grids (transmission and distribution)
- Smart grid cross-cutting issues and catalysts

A number of lighthouse projects and activities were identified to help develop the EU Framework 7 in the area of transmission and distribution networks.

What's New?

Having provided the two building blocks, described above, a plan for deployment in order to make the vision a reality was finally required. The SDD provides a clear timeline of actions, suggestions, and recommendations to move from debate to action. The SDD draft identifies six deployment priorities:

- Optimizing grid operation and usage
- Optimizing grid infrastructure
- Integrating large-scale intermittent generation
- Information and communication technology
- Active distribution networks
- New market places, users, and energy efficiency

Each priority is described in the SDD document in terms of key elements and priority components; roles, responsibilities, and stakeholders; the prime movers to make it happen and the beneficiaries; risks and opportunities; and technical architecture, regulatory framework, benefits, and environmental and societal impacts (see www.smartgrids.eu).

What's Next?

With the finalization of the SDD document, the smart grids platform is seeking to move strongly towards implementation, creating an additional "tool" to promote and accelerate deployment. This is why a discussion around the possibility of launching a pan-European association was initiated during the assembly.

The mission of the association will be to lead, create, and facilitate the cooperation among those who share the vision of smart grids, in order to make it real in the most effective, timely, and economic way. Members will not just be utilities, but all stakeholders including universities, research centers, technology manufactures, and ICT providers. Some months will be needed to put the association in place, but the basics seem to be defined already.

Energy Insights strongly believes that in order to achieve the energy security and environmental sustainability targets, and more specifically the 20/20/20 objectives, adoption of smart grids is not an option, but a necessity.

A Quick Glance at the Latest Energy Insights' EMEA Reports

Is IT Spending Still Growing for the Western European Utilities Industry?

The financial crisis that originated in the U.S. and is now a global phenomenon is not only shaking the core of the financial sector, but is also creating a general credit crunch in the rest of the economy. However, the problems are not the same across geographies and across sectors. Generally, utilities are usually able to weather such storms without too much adverse impact. Nonetheless, the recent case of Constellation Energy Group in the U.S. and other merchant utilities is proving that nothing should be taken for granted.

Overall utilities in Western Europe, especially in the continental area, are still in a good financial position, despite the general reduction in their market value, as seen in the Dow Jones EURO STOXX TMI Utilities index. Despite the economic slowdown, utilities still seem to have no problems with liquidity and the ability to raise capital, as seen in the ongoing M&A activities.

So, are Western European utilities' CFOs cutting IT budgets for 2009?

Energy Insights checked with some utilities in Western Europe and it appears that no significant actions have been made or are going to be made in this direction. Generally, IT budgets are expected to be stable or will even increase in order to cope with the need for regulatory compliance and to support the ICT side of the increased spending in renewable energy, distributed energy, smart metering, smart grid, and related technologies.

Even if IT budgets are not decreasing, some CIOs have been told to slow down external spending in the fourth quarter and reschedule it for the coming year.

So what about IT spending in the market for 2008 and beyond? Overall it already reflects the general economic slowdown, and growth rates have been reevaluated across all industry sectors. In September, Energy Insights published its study *Western Europe, Utilities Industry, IT Spending Forecast, 2007–2012*. Utilities are showing better growth than other industries in the region. In 2008, the majority of IT spending is being dedicated to IT services. Energy Insights forecasts Western European utilities' IT spending to grow at an estimated 2007–2012 CAGR of 4.1%.

Software spending will grow the quickest, with a 2007–2012 CAGR of 7.6%. IT services also has a positive outlook, with growth expected to be 4.6% — above the 4.1% average — while the hardware sector will cut its spending by 1.1% between 2007 and 2012.

Who are the Top 10 EMEA IT Vendors in the Utilities Market?

Energy Insights recently concluded an analysis of major IT vendors (hardware, software, and IT service) in the utilities field in EMEA, and published a report on the top 10 vendors. Energy Insights ranked EMEA utilities and detailed their share of revenues for these major players. The study also explores how these vendors are positioned for the future, based on their "utilities industry alignment" and "ability to gain market share." This part of the study offers more analysis of the capabilities of each company, and provides more insight than the simple revenue analysis can offer.

The Ranking

Based on estimated revenues for calendar year 2007, the top 10 IT vendors for the EMEA utilities industry, in order of revenues, are IBM, HP, Accenture, Microsoft, Capgemini, Dell, Logica, SAP, Cisco Systems, and Oracle.

The leading software vendors, in order of highest revenues from software, are Microsoft, IBM, SAP, and Oracle.

The leading IT service providers, in order of highest revenues from IT services, are IBM, Accenture, Capgemini, and Logica.

LEARN MORE

Related Research

To learn more, please refer to the following Energy Insights documents:

- *A Competitive Analysis of the 2008 Top 10 EMEA IT Vendors in the Utilities Market* (IDC #EIOS04Q, September 2008)
- *The Promise of Building Integrated Photovoltaics: The Expanding Market for Next-Generation Modules and Materials* (IDC #EIRS03Q, September 2008)
- *Western Europe, Utilities Industry, IT Spending Forecast, 2007–2012* (IDC #EIOS03Q, September 2008)
- *EMEA, Utilities Industry Quarterly Update: April to June 2008* (IDC #EIOS55Q, July 2008)
- *EMEA Renewable Energy Quarterly Update: April to June 2008* (IDC #EIRS55Q, July 2008)
- *Iberdrola's Control Center for Renewable Energy (CORE): A Model for Grid Integration of Renewable Energy* (IDC #EIRS54Q, June 2008)
- *Energy Trading and Risk Management for the Utility Industry — Going Steady* (IDC #EI212680, June 2008)
- *What Path are PHEVs Taking in Europe?* (IDC #EIRS02Q, May 2008)
- *Creating the Intelligent Utility of Tomorrow: Accenture's Perspective* (IDC #EIOS53Q, May 2008)
- *Oracle Showcases "Power of the Portfolio" in EMEA* (IDC #LC58Q, May 2008)
- *Utility Remote Wind Power Management: EdP Bets on Logica's IT Solution* (IDC #EIRS53Q, April 2008)
- *EMEA, Utilities Industry Quarterly Update: January to March 2008* (IDC #EIOS52Q, April 2008)
- *Western Europe, Utilities Industry, IT Solutions and Technologies: IDC 2007 Survey* (IDC #EIOS02Q, March 2008)

- *Western and Eastern European Utilities: IT Budget Allocation Overview* (IDC #EIOS51Q, February 2008)
- *Western Europe, Utilities Industry, IT Budget Distribution and Channel Selection: IDC 2007 Survey* (IDC #EIOS03P, January 2008)
- *European Utility Industry 2008 Top 10 Predictions* (IDC #EIOS01Q, January 2008)

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