

Insights on Utilities: EMEA Edition 2Q08

European Utilities IT Opportunities and Strategies
European Renewable Energy Strategies

UPDATE #EIOS54Q

Roberta Bigliani Gaia Gallotti
 Nadav Enbar

IN THIS UPDATE

Welcome to the second issue of Insights on Utilities EMEA Edition. Every quarter, we publish this report 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 on our newsletter; so please [email us](#) with any commentary.

In this update, we will feature a summary of key findings of some of our recent research and comments on industry news, covering in particular, the following items:

- Utilities IT budget allocation in Western and Eastern Europe
 - Plug-in hybrid electric vehicles (PHEV) and their potential in the future evolution of intelligent grids in Europe
 - Silicon shortage likely to end in 2009; oversupply, market shakeout to follow?
 - Eurelectric Annual Conference, Barcelona, June 16–17
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From East to West: How are IS Budgets Being Allocated Among European Utilities?

The all-encompassing European utilities industry has undergone some significant changes in the recent past, especially with the EU's market liberalization on July 1, 2007. Besides the 20-20-20 by 2020 regulation of the European Commission, other factors are morphing the old continent's utilities industry, for example the struggle to drive competition by limiting the power of the incumbent market players. The EU is also trying to obtain a balance in energy mix by summing up all the countries' particulars. For example, France is a primary nuclear energy supplier, Germany has the most extensive coal supplies in the EU, and the U.K. is an oil and natural gas producer with its North Sea reserves; contrastingly the Visegrad countries, Czech Republic, Hungary, Poland, and Slovakia, are heavily dependant on oil imports from Russia, use coal as a dominant source of energy and had to increase their consumptions of natural gas in order to reach standards to become admitted into the European Union. This opening

up of markets to cross-border mergers and acquisitions, and organizational and functional restructuring resulting from unbundling will drive IT spending by European utilities in the coming years.

IT Budget Allocation

When looking at IT spending between internal staff and external spending including hardware, software, and IT services, we can observe that there are two distinct trends between Western and Eastern European utilities. In effect, we found that Western European utilities indicated their spending to be evenly split between the two, which can be justified by the generally larger capacity of their IT departments. Contrastingly, as would be expected by the high percentage of very small IT departments among Eastern utilities, the share of external IT spending is higher, with around $\frac{3}{5}$ of total respondents indicating the use of external advisors.

Urgent Improvements

With the liberalization of the market, unbundling, and mergers and acquisitions, companies have become increasingly concerned about the security of their data and information systems. In effect, across Europe, utilities highlight the need to improve the security of their information systems as their number one priority. Another urgent need in both regions is lowering, or at least, better controlling IT costs. However, survey results revealed this to be of greater importance to Eastern utilities than to Western European utilities, which already experienced significant pressure on IT optimization and are more likely to be in a more advanced stage of IT cost management and control. With the current global struggle to become as ecofriendly as possible, utilities have come under pressure from the EU commission to cut their CO₂ emissions and to create a more balanced mix of energy sources. There is a general need for utilities, in countries in or wishing to become a part of the EU, to become faster at achieving regulatory compliance. This specific need is equally important for Western and Eastern European utilities as both regions ranked the need to become regulatory complaint in third place. Finally, utilities from east to west are requiring that their applications better fit their business processes.

2008 IT Budgets to Increase Across Europe

Stability is sweeping across Western European utility organizations, which expect to either increase their IT budgets or keep them unchanged. A very high 41% of utility firms expects their IT budgets to positively change over the next 12 months, followed by an even higher 45.2% that expects their IS budgets to stay the same during that period.

A very similar picture is evident among Eastern European utilities, where there is an even greater stability and little change expected over the next 12 months. Almost 50% of respondents indicated their IT spending would likely stay the same, followed by 34.8% with plans to increase their IT spending. IT services spending is expected to benefit

from the highest increments in IT spending, followed by software spending, hardware spending, and finally spending for outsourcing.

Among Western European utilities we found that electric companies are seen as leaders in increasing their IS budgets, with a very high 60.2% of respondents. Gas companies are in second place for plans to increase, but in first place to decrease IS budgets, above the industry average.

Solutions of Interest to Western and Eastern European Utilities

In the near term, utilities in Europe will be seeking to enhance their customer service capabilities as respondents for Western European utilities identified "customer care" as their number one solution to invest in, and Eastern European utilities identified "customer service systems" as their number one solution to invest in. With the recent liberalization of the energy markets, customers are able to make their own selection concerning electricity, gas, and water suppliers. Since costs are not the only factor taken into consideration when selecting a utilities provider, and customer service is gaining more and more of an edge, utilities have decided to focus their IT spending efforts on this solution area.

For Western European utilities we also find "billing and advanced billing" and "network automation and control" as two solutions with the high percentages of respondents indicating investments over the next 12 months.

Eastern European utilities identified "field workforce management" as the second most important IT solution to invest in. ETRM and "emission management" also gained a significant percentage of respondents currently investing in them. It should be highlighted that ETRM was among the solutions with lowest plans of investment by Western European utilities.

For more information on the topic please refer to the following reports:

- *Western and Eastern European Utilities: IT Budget Allocation Overview* (Doc #EIOS51Q, February 2008)
- *Western Europe, Utilities Industry, IT Budget Distribution and Channel Selection: IDC 2007 Survey* (Doc #EIOS03P, January 2008)
- *Western Europe, Utilities Industry, IT Solutions and Technologies: IDC 2007 Survey* (Doc# EIOS02Q, March 2008)
- *Central Europe Utilities Survey and IT Spending Forecast 2007–2011 — Special Study* (Doc #ESP3P, December 2007)

Plug-in Hybrid Electric Vehicles Have Great Potential in the Evolution of Intelligent Grids in Europe

Plug-in hybrid electric vehicles (PHEVs) offer both an opportunity and a challenge to the electric power system. PHEVs, which are similar to today's hybrid cars, but include larger batteries that can be charged directly from an electrical outlet, could be an attractive new source of revenue for utilities, particularly if the batteries are recharged during off-peak periods. Thanks to that onboard battery capacity, PHEVs also conceivably could provide that holy grail of the electric power system: significant energy storage. They could power the electrical grid in times of high demand or, more likely, could function as reserves or other ancillary services — a concept commonly referred to as vehicle to grid (V2G). This opportunity, however, also comes with challenges, as it raises issues of interconnection and feeding power back onto the distribution grid from dispersed locations.

PHEVs Moving Forward in Europe With the Help of Utilities

Over the past year, there have been interesting developments in the EU for PHEVs, particularly the activities of Electricite de France (EdF) and Vattenfall's recent involvement in Sweden.

In September 2007, EdF formed a technology partnership with Toyota to evaluate PHEVs in Europe. Their objective is to develop practical solutions for the commercialization of Toyota's prototype vehicle technology, which can further reduce the environmental impact of vehicles, especially in urban areas. Under the joint agreement, a small number of PHEVs were integrated into EdF's vehicle fleet to be tested on public roads in France under typical driving conditions. Road trials of the PHEV commenced in France in the fall of 2007 and may expand to other European countries.

Saab and Volvo will also collaborate on a pilot project around plug-in hybrid vehicles. The two car manufacturers will test ten Volvo PHEVs on Sweden's public roads next year. Swedish energy company Vattenfall and battery manufacturer ETC Battery and Fuel Cells Sweden are also partners in the new project. Vattenfall will develop and provide efficient battery chargers, and ETC Battery will contribute lithium-ion batteries.

Danish utility, DONG Energy has also jumped on the wagon in the testing and development of an electric vehicle fleet that can plug-in into the grid. The firm signed a letter of intent with California-based Project Better Place at the end of 1Q 2008 aimed at reducing CO2 emissions from the Danish car fleet. DONG's aspiration is to achieve a new way of storing the unstable electricity output from wind turbines, as EVs are typically charged during the night, when the exploitation of power generation is low and considering DONG's strong developments in the wind energy arena.

Automakers Coming on Board

After stalling acceptance of PHEVs as an alternative and enhanced HEV in early 2006, six months later, Toyota and other car companies were reversing their positions toward PHEVs. Factors including high price of gasoline over the past year, which is shifting consumer demand toward vehicles with greater fuel efficiency, and the growing potential for governmental action on greenhouse gas emissions persuaded automakers in Europe to push forward their efforts.

Following Toyota's lead, other automakers have warmed to PHEVs, in Europe — most notably General Motors, which reportedly plans to launch the Opel Flextrime (European version of the Chevrolet Volt) by 2010–2011.

PHEV Conversion Systems Serve as Battery Test Beds

For those unwilling to wait for PHEVs to reach the mass market, a small but growing number of companies have taken matters into their own hands and are already putting PHEVs on the road by converting HEVs. While there are several groups, who have successfully completed conversions to PHEV, there are at least 4 companies in Europe providing PHEV conversion kits on a regular basis.

The overall conversion market is unlikely to expand much, given high costs and the fact that, so far, independent conversions of HEVs to PHEVs void automaker warranties. The larger significance of these activities is that they stir interest in PHEVs and provide PHEV vehicles that are test units for both the technology and potential market acceptance. Many of the companies providing conversions have their eyes on the prize of having their proprietary battery systems selected by automakers for use in their future PHEV models.

Opportunities and Challenges for Electric Utilities

For electric utilities, the enormous implications of widespread adoption of PHEVs can be summed up as presenting two main opportunities:

- An outlet for off-peak power, whether from base-load coal and nuclear or intermittent renewable sources such as wind energy
- Distributed energy storage that can be called upon for providing ancillary services to the grid and, potentially, a source of capacity during demand response events

What Does Europe's Future Hold for PHEVs?

Based on this history, Energy Insights expects that PHEVs will become commercially available on a widespread basis around 2017 at the earliest. The bottom line is that, despite the efforts of numerous groups working to develop safe, durable, and reasonably priced batteries, there is no commercially viable PHEV battery ready to go to market. The expectation that battery technology will continue to improve and that a lighter (NiMH and/or Li-ion) battery with a

lifespan of 10 years or more will become available might not become a reality in the timeframe automotive players and others are counting on. Indeed, the recent delays announced by Toyota in deploying a new generation of HEVs using advanced Li-ion batteries might portend what the industry will face.

Even when PHEVs become truly available commercially, it will take a long time for manufacturers to tool up, and for consumers to buy significant numbers of them. Assuming PHEV sales growth will be similar to the pattern seen, thus far with hybrid electric vehicles, PHEVs will have less than 5% of the market after being commercially available for 10 years.

Still, the possible impact of PHEVs on the electric sector – and beyond – is well worth monitoring. Utilities should consider following the lead of EDF and Vattenfall, which have initiated research projects to explore the potential of PHEVs as an off-peak consumer of energy and for V2G applications.

In terms of rethinking the grid, it's not too early for distribution system owners to begin to do so. Given various trends, including growth in distributed photovoltaic markets, demand response opportunities, and the potential for other distributed energy and storage technologies to interconnect to the grid in the next decade and beyond, planners should begin sooner, rather than later, to start building the distribution system of the future.

For more information on the topic please refer to the following report:

- *What Path are PHEVs Taking in Europe?* (Doc #EIRS02Q, March 2008)

Silicon Shortage Likely to End in 2009; Oversupply, Market Shakeout to Follow?

The latest silicon production numbers lend further credence to forecasts that predict an end to the silicon shortage by 2009. Yet it remains far from certain whether silicon-based photovoltaic (PV) demand will keep pace with supply post-2009, or whether, as an increasing chorus of analysts posit, increased silicon stocks will lead to a glut. This glut, in turn, could collapse module prices, and accelerate industry consolidation. Energy Insights' take: an easing of module prices, due in part to a greater abundance of raw silicon feedstock, will, in fact, occur by 2010, and help transition the industry's orientation from a seller's market to a buyer-driven market. However, a subsequent movement toward vertical integration, driven by a reduction in profit margins, will signal the industry's maturation, not its collapse.

High demand for PV has largely been generated by worldwide government subsidies over the past decade, resulting in the current shortage of processed silicon. Since the start of the shortage in 2005, silicon prices have been driven up from \$40/kg to upwards of \$450/kg.

Meanwhile, solar power module prices have shot up from roughly \$3.75/W to above \$4.80/W.

However, new silicon production capacity is now coming online after 2–3 years of development, and available silicon feedstock capacity is expected to quadruple from 30,000 tons in 2007 to 125,000 tons in 2012. The upshot could be a dramatic reduction in PV module prices, from an average of about \$3.75/W in 2007 to potentially as low as \$2.50/W in 2010 for silicon-based solar panels, and from roughly \$3/W in 2007 to perhaps under \$2/W in 2010 for thin-films, according to the Prometheus Institute. (However, much of the projected price reduction of thin-films, which use little if any silicon, is based on economy-of-scale benefits generated by evolving manufacturing efficiencies and ramping production, and less so on an easing of silicon supply constraints.) That's expected to translate to a jump in worldwide production capacity for silicon and thin-film panels to between 12 and 26GW in 2010, depending on who you ask, from roughly 4GW in 2007.

Industry Cassandras expects that lower prices for PVs will be countered by regulatory uncertainty and limits to growth imposed under subsidy markets, leading to a decline in demand for PV products. Some observers foresee a 60% oversupply of solar panels in late-2009, and for supplies to be as much as twice that of demand in 2010. To be sure, ambiguity surrounding the renewal and/or modification of supportive subsidies, like the federal Investment Tax Credit (ITC) in the United States and feed-in tariffs (FITs) in Germany and Spain, will help to determine whether demand will respond to lower prices. In early June 2008, for instance, the German Bundestag appeared set to reduce the country's generous FIT for PVs, but, nowhere near as much as industry boosters feared.

It is our view that rising grid prices, low long-term interest rates (though this could change with sustained commodity inflation), and expanding political and popular support will help to sustain demand for PV panels in response to greater silicon availability and lowering price points. Nevertheless, we also expect industry merger and acquisition (M&A) activity to accelerate as companies move to vertically integrate upstream and downstream services and achieve faster cost reductions, new supply contracts at lower prices, and greater technical innovation.

The stakes are high for the PV industry. Increased silicon capacity could help spur price reductions for PV modules by as much as 50% from 2008 to 2010. In areas with high solar insolation, that translates to electricity costs of about \$0.10/kWh.

Meeting the Industry Leaders at the Eurelectric Annual Conference

This June, Eurelectric succeeded once again at gathering in Barcelona the leaders of Electricity industry, attracting more than 550 delegates. The annual convention theme was: "*Electrifying the Future: Building a Sustainable Energy Market*" and, as the CEO of Endesa and outgoing Eurelectric President Rafael Miranda said "came at a very timely moment, when the European Commission's proposals set out in the *third liberalization* and *energy-climate* packages are going through the legislative process."

At this time of "volatility" in the energy field, "there is no deviation in EU policy, we know what we have to do and the triple goals of supply security, competitiveness and sustainability are even more valid than ever," said EU Energy Commissioner Andris Piebalgs in his keynote speech.

During the conference about 40 speakers and panelists discussed key issues facing the industry, including: How can the ambitious 20-20-20 targets be met without hurting competitiveness? How to make energy markets work for all European countries? How can the necessary investments to ensure we can meet the targets be guaranteed in the currently unstable regulatory environment? How can the ambitions and expectations of customers and investors be met? How to electrify Europe's future in an energy-efficient manner?

The conference concluded with a panel debate featuring the top managers from some of Europe's most prestigious electricity companies: Rafael Miranda, CEO of Endesa, Lars Josefsson, president and CEO of Vattenfall and newly-elected Eurelectric president; Fulvio Conti, CEO and general manager of ENEL and new vice-president of Eurelectric, Wulf Bernotat, chairman of the management board and CEO of E.ON, Pdraig McManus CEO of ESB, Ian Marchant, chief executive of Scottish and Southern Energy, and Pedro Lopez Jimenez, chairman of Union Fenosa.

During the conference the first-ever Eurelectric Electricity Award, created to recognize a pioneering contributor towards revolutionizing the operations, processes, technologies or products of the electricity industry, was assigned to Toyota for its work with plug-in hybrid vehicle technology. This recognition is particularly welcome in our opinion and we hope that Eurelectric activities around PHEVs will contribute to faster development and accelerate automakers to come on board more rapidly and utilities to start building the distribution system of the future.

Concluding this brief summary of the conference, we would like to emphasize some key results of the queries gathered through the electronic voting system. In our view, the conference audience was so qualified that results need to be taken into serious consideration:

- 50% of the audience expressed the view that the 20-20-20 targets do in fact make sense in spite of the apparent conflicts, but that they are not likely to be reached.
- Half of all delegates present said that the CO₂ target should be the main focus, while 20% thought that we need all targets, and another 20% would prefer to concentrate solely on energy efficiency.
- A third of the audience sees the EU reaching the RES target by 2025, the greatest obstacle being a lack of a coherent policy.
- The audience was almost equally divided as to whether the 20-20-20 targets would jeopardize supply security and was strongly divided as to whether they are compatible with competition and liberalization.
- Almost two-thirds of the delegates were of the opinion that the EU ETS does not provide sufficient predictability for long-term investment decisions, although this demonstrated greater confidence in emissions trading than at last year's annual conference, when practically three-quarters of the voters expressed a negative view.
- Looking at the trend in the global climate change regulatory framework for the next ten years, the audience saw growing convergence in policies, although trust in international negotiations is still low.
- A majority of respondents identified climate change as one of the key issues for long-term investments, although the audience was split over whether decarbonizing should be seen as an asset or a liability.
- Delegates also largely saw uncertainty and/or incoherence in energy policies and regulation as the most serious investment challenge for the ten years ahead.

LEARN MORE

Related Research

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

- *Iberdrola's Control Center for Renewable Energy (CORE): A Model for Grid Integration of Renewable Energy* (Doc# EIRS54Q, June 2008)
- *Energy Trading and Risk Management for the Utility Industry - Going Steady* (Doc# EI212680, June 2008)
- *What Path are PHEVs Taking in Europe?* (Doc# EIRS02Q, May 2008)
- *Western and Eastern European Utilities: IT Budget Allocation Overview* (Doc# EIOS51Q, February 2008)
- *Creating the Intelligent Utility of Tomorrow: Accenture's Perspective* (Doc# EIOS53Q, May 2008)
- *Utility Remote Wind Power Management: EdP Bets on Logica's IT Solution* (Doc# EIRS53Q, April 2008)
- *EMEA, Utilities Industry Quarterly Update: January to March 2008* (Doc# EIOS52Q, April 2008)
- *EMEA Renewable Energy Quarterly Update: January to March 2008* (Doc# EIRS52Q, April 2008)
- *Western Europe, Utilities Industry, IT Solutions and Technologies: IDC 2007 Survey* (Doc# EIOS02Q, March 2008)
- *European Offshore Wind: Poised for Growth?* (Doc# EIRS01Q, February 2008)
- *Western Europe, Utilities Industry, IT Budget Distribution and Channel Selection: IDC 2007 Survey* (Doc# EIOS03P, January 2008)
- *European Utility Industry 2008 Top 10 Predictions* (Doc# EIOS01Q, January 2008)
- *Insights on Utilities — Special European Predictions Edition* (Doc# EIRS51Q, February 2008)
- *Intelligent Utilities: The Future of Electric Grids* (Doc# EIOS01P, November 2007)

Forthcoming documents:

- *Top EMEA IT Vendors for Utilities Market*
- *Western Europe Utilities Industry, IT Spending Forecast, 2007-2012*

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