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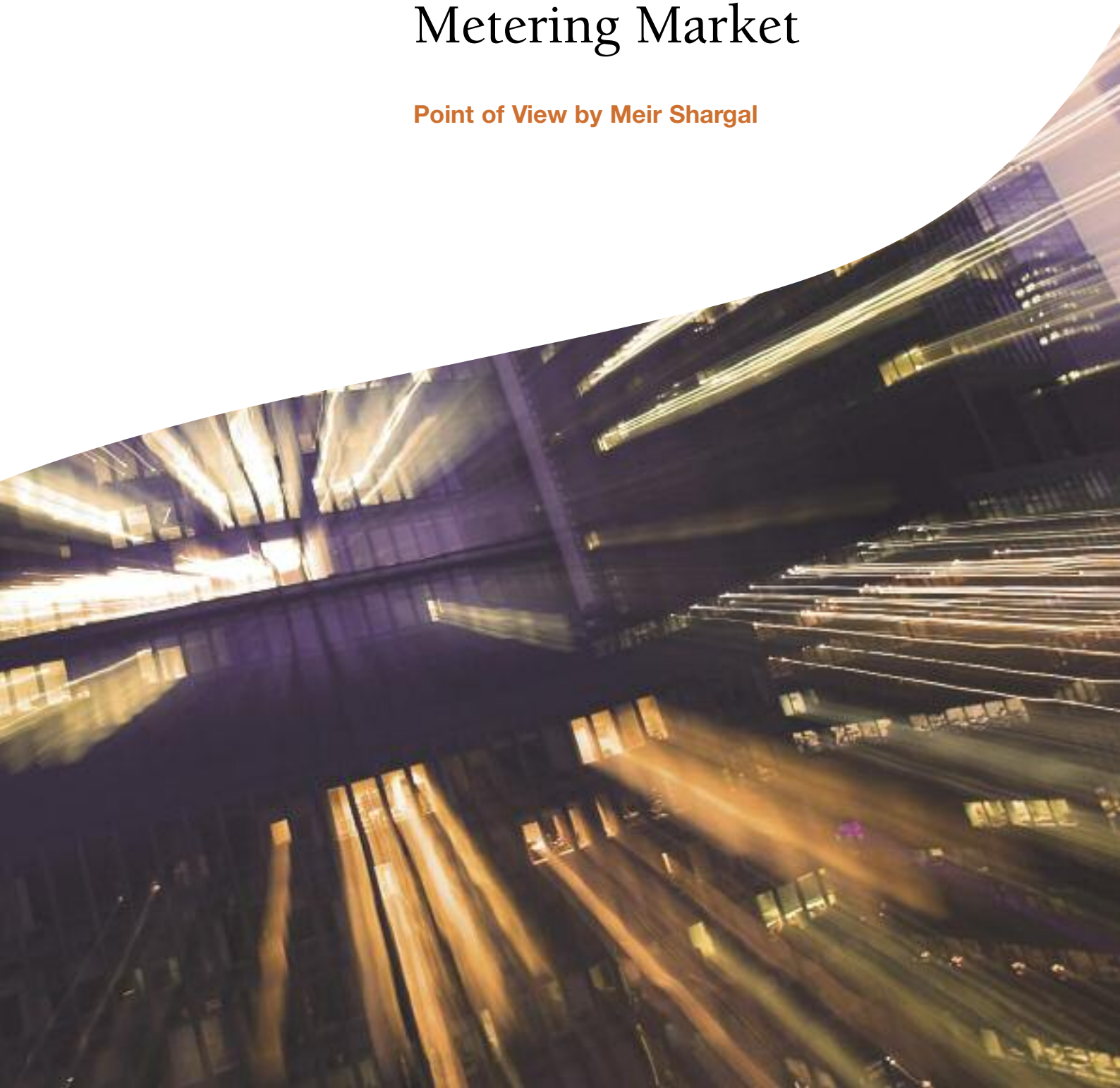
From Policy to Implementation: The Status of Europe's Smart Metering Market

Point of View by Meir Shargal



The European electricity market went through a significant transformation during the 1990s. It transformed from a monopoly structure to a structurally unbundled market with the related changes to company configurations. Although this transformation started in the United Kingdom it has been adopted, with country specific variations, across Europe. In 1996, the European Parliament and Council issued the Internal Electricity Market Directive 96/92/EC that set goals for a gradual opening of national electricity markets and rules for transmission access in the 15 member states at that time.

In the last five years there has been a major policy shift from keeping the electricity price as low as possible in a free and competitive market to reducing carbon emissions. This shift has also resulted in decisions to look at the deployment of smart meters to help customers understand when they use electricity and to help them plan savings. Today, smart metering and smart grid initiatives are forcing another major transformation in the utility industry. Many utilities are rethinking their business models and business processes as a result of the shift in the way energy is generated, delivered and consumed.

The state of the regulation and implementation of smart metering varies across Europe on a country by country basis. This results in wide a difference as to which is leading the smart meters rollout – the government or the industry. The variance leads to different players taking the initiative - regulatory pull to utilities push. Two recent European Directives, one on Energy End-use Efficiency and Energy Services (ESD)[1] and another on Measuring Instruments Directive (MID)[2], stress the importance of installing metering and billing systems that allows consumers to regulate and manage their consumption.

The shift to smart metering is not just a European phenomenon where more recently there have been several Advanced Meter Infrastructure (AMI) project announcements. In January 2009, the new President Obama administration in the United States has introduced a huge economic stimulus plan, which includes massive investments in a smart grid. Just two months earlier, the State Power Grid Corp. of China decided to replace all electromechanical meters with smart meters within five years. From an industry perspective, the focus has swung from talking about smart metering to the challenges of executing and delivering on the promises and expectations that smart metering and smart grid will revolutionize energy management and grid reliability across the globe.

1 EU directive on Energy End-use Efficiency and Energy Services – This directive obligate the EU countries to make national energy efficiency action plans. The plans shall describe how the countries will realize a 9% reduction in final energy consumption compared with business as usual until 2016.

2 EU directive on Measuring Instruments Directive aimed at creating a single market for measuring instruments across the EU. The fundamental principle being that meters which receive a MID approval can be used in any other EU country irrespective of where in the EU that approval was granted. The MID covers 10 instrument types including gas, electricity and water meters.

The European Smart Metering Industry Group (ESMIG) believes that only through the widespread deployment of smart metering will the European Union be able to meet its 20/20/20 goals by 2020 (cut greenhouse gas emissions by 20% from 1990 levels, increase renewable energy usage by 20%, and cut energy consumption through improved energy efficiency by 20%). Based on current and future projects, Capgemini believes that by 2012 between 25 and 40% of homes in Europe will be equipped with smart meters, compared to 6% currently. One of the main challenges to the fast-track implementation of smart meters is the lack of standards for a common architecture and interoperability of the various communication technologies. This has been compounded by the large deployment of proprietary technologies in several regions. But the landscape is changing fast. Currently there are more than 30 groups around the world working on the issues of standards and interoperability.

In the United States US$10 million has been set aside for the National Institute of Standards and Technology (NIST) to develop new smart grid open standards. In Europe the International Energy Agency has set up more than a dozen tasks around standards and interoperability for smart meters and demand management. Ibedrola, together with several metering vendors, is working on a set of open standards based around technology they have developed. EDF has a set of standards for interoperability and the Netherlands will release a set in 2009. These different initiatives are promoting the transformation of the power grid into a smart grid complete with the latest open standards technologies.

Across the European Union, countries are actively moving toward advanced metering systems both as they look for ways to reduce their costs while increasing service quality and in response to various European Union energy-related directives. The following table summarizes the state of the regulation and implementation for all of the European Union countries and in addition Norway, Switzerland, and selected post Soviet Union countries.

Country	Regulation Status	Implementation Status
EUROPEAN UNION		
Austria	• The Eco-electricity Act, which was announced on August 2002 and fully came into effect in January 2003. • The European Union Electricity Directive was implemented through federal electricity law published in 1998 ("ElWOG 1998"). • On October 1, 2001 the Austrian electricity market became fully liberalized. • The regulator is in favor of smart metering and today's framework allows for this. Smart meters must meet minimum requirements and data access must be guaranteed.	• Linz Storm: Plan to install 75,000 Echelon Networked Energy Services (NES) meters, with an option for a further 75,000. • Feldkirch, Austria: Echelon installing 3,000 of Utilities Solution for the municipal electricity network. • Energie AG: Electricity Utility in Upper Austria, Low volume trials throughout 2007, was expanded to 10,000 meters during 2008. Intention is to deploy higher specified meters for all customers from 2009.
Belgium	• Developing plans to introduce smart metering funded by an increase in distribution tariffs.	• Plans to install smart meters for four million customers in Belgium at a cost of €1.3 million, funded through increases in the distribution tariff.
Bulgaria	• 100% of the market is open with a regulated quota for household consumers and small enterprises according to the Energy Law. • No smart metering requirements.	• No known activity
Cyprus	• Cyprus is in the process of deregulating to comply with European Union directives. • No smart metering requirements.	• Electricity Authority of Cyprus (EAC) is planning a 15,000 meter pilot with smart metering. Although the project was postponed a number of times, current expectation is that it will start Q2 2009.
Czech Republic	• The Czech Republic is in the process of privatization. All major energy enterprises have been converted to joint stock companies but many are still state owned. • The ultimate mix of private and state ownership in the energy sector is not yet clear. • The focus is on harmonizing Czech energy sector standards with those in the EU. • As of 2006 all Czech electric customers can choose their suppliers. • No smart metering requirements	• CEZ: Czech Electricity Provider undertaking a technology evaluation pilot exercise with Schrack Tecknik of Bratislava and Goerlitz of Austria. 400 Powerline Echelon Meters and 350 RF EMH meters will be managed through a Goerlitz system. • E.ON Czech Republic: Ongoing pilot exercise started in 2006 to investigate technical issues and capabilities. Project includes 4,000 meters from four different manufacturers.
Denmark	• Hourly metering (consumption > 200,000 kWh/year) was mandatory from January 2003. After January 2005 the limit changed to 100,000 kWh/year. • Mandatory requirements are under evaluation. The first step might be to lower the requirement for hourly metering to all customers consuming > 25.000 kWh/year. • The Danish Climate & Energy Minister has set up an expert group which will develop a smart meter system specification report by June 1, 2009. • It is reasonable to believe that a mandatory rollout of smart meters could soon be a reality in Denmark (as the case is in Sweden and Norway). Denmark has a politically backed up ambition to be at the forefront of the developments of intelligent grids. • Denmark publicly announced that they would like to be a 'play ground' for electric car developers (E.g. Renault and BYD).	• Smart metering is being introduced on a large scale. Eight utilities have decided to invest in automated meter reading systems, corresponding to approximately 33% of the total number of meters. • Syd Energi: Electric Company that serves approximately 250,000 households in SW Denmark is installing the L+G AMI solution (started in 2004 and due to complete in 2009). • Elro Net: Installing Echelon NES based electricity meters to approximately 50,000 homes (started Q4 07 and due to complete in 2010). • EnergyMidt: Installing Echelon NES to approximately 150,000 customers. Shipments started Q4 08 through to 2010. • NRGi: Danish utility installing approximately 50,000 Echelon meters. • SEAS NVE: Danish utility installing approximately 350,000 Echelon meters. • Energi Fyn: Danish utility installing approximately 160,000 Enermet meters. • TRE-FOR: Danish utility installing approximately 13,000 L+G meters. • Roskilde Hillerød: Danish utility installing approximately 60,000 Kampstrup meters.

Country	Regulation Status	Implementation Status
	EUROPEAN UNION	
Estonia	• Privatization of large scale enterprises, such as energy, is in progress. • Power production, transmission, distribution and sales are legally separated and third party access is regulated. • The Estonian Government is giving high priority to its energy sector in its ongoing economic reform program. • Actual management of energy infrastructure is to decentralize to the local municipal level where possible, the energy regulatory functions carried out by mostly autonomous agencies, especially in cases where monopolies continue to exist. • In January 2001, new electricity tariffs were established that allows customers to choose their electricity supplier. • No smart metering requirements	• Estonia Energy floated a Request for Proposal for smart metering in November 2007.
Finland	• In June 1995, Finland's Electricity Market Act came into effect and since 1997 all customers are covered. • Energy strategy includes promoting a competitive market, diversifying energy supplies, energy efficiency, use of renewable, and reduction of carbon dioxide emissions. • In 1990, Finland became the first country in the world to institute a carbon tax. • In February 2009, government regulation is expected to become law in Finland, requires that utilities install smart meters for 80% of Finnish homes by the end of 2013.	• Utilities move quickly to meet government mandates. • 20% already have a smart meter installed. • Vattenfall, Fortum and Vantaa Energy - the three largest utility operators - are all involved in voluntary full-scale installations. • Vattenfall Verkko Oy: Currently 35,000 customers using L+G AIM solution based on PLC to GSM concentrators. • Fortum Espoo Oy: Installed 63,000 L+G AIM meters using PLC and GPRS and completed in 2007. • Satapirkan Sähkö Oy: Investing €10 million in a Landis+Gyr electricity smart meter solution. The 70,000 meters will be supplied by two meter manufacturers and managed by a Landis+Gyr system. Technology will include GPRS and PLC in urban areas, and GPRS in rural areas. Installation began in 2008 and complete in 2012.
France	• Dominated by the wholly state-owned utility company, Electricité de France (EdF), which produces, transports, and distributes over 95% of electricity in France. • There has been partial liberalization of some aspects of France's electricity sector. • In 2007 Commission de régulation de l'énergie (CRE) benchmark Automated Meter Management/Automated Meter Reading (AMM/AMR) projects through seven states in the United States and Europe, with the objective to build a compelling business case to transform French low voltage meters fleet into smart meters. • On June 6, 2007, CRE outlined the policy to be followed for electricity metering at installations connected to low voltage public distribution grids for a power level of 36 kVA or less.	• Most French electricity distributors have been waiting for EdF subsidiary Electricité Réseau Distribution France (ERDF) to set standards for smart meters. • In July 2008, ERDF – the French electricity network business of EDF - announced the first phase of a nationwide rollout of 33 million smart meters.
Germany	• Considered one of Europe's leading market reformers. • Power market seems to be competitive. There are 900 energy companies that operate in the German electricity market, but 80% of electricity generation is still controlled by only four large companies: RWE AG, E.ON Energy AG, Vattenfall Europe AG, and Energie Baden-Württemberg Aktiengesellschaft (EnBW). Churn rates are still moderate. • In 1998, with the adoption of the Energy Industry Act of April 1998, the electricity sector was completely liberalized. • The Federal Network Agency (Bundesnetzagentur) ensures liberalization and deregulation of the energy markets through non-discriminatory access and efficient use-of-system charges. • The New German Energy Industry Act (EnWG) in July 2005 opened the metering market to competition. • The expectation is that the players in the market will make an active contribution to defining standards in the power metering market. • The smart metering for private customers is in its infancy, there is no specific legislation. In 2010 time-of-use and load depending tariffs will be available.	• RWE Pilot in Mülheim an der Ruhr, 100,000 electricity smart meter project. • Yello Strom: Trial with 1,000 customers throughout 2008 to test a web-based smart meter solution for electricity. • EnBW: Ongoing trial with 1,000 customers to test smart meters and customer interfaces. • Stadtwerk Haßfurt: German utility installing 10,000 electricity meters over the next three years (to be completed by 2012). • EWE: 400 meters pilot in Westerstede & Cloppenburg, run from October 2008 to October 2009. Includes Electronic Meter Reading for electricity and gas as well as online visualization of consumption via radio based Display, Monthly Analysis of consumption and a personal Website. • TWK Kaiserslautern & EVB: Pilot exercise started in 2007 using 1008 EVB METERUS meters, based on Echelon NES PLC system. • Stadtwerke Bochum & EVB: Pilot exercise started in 2008 using 500 EVB METERUS meters, based on Echelon NES PLC system. • Mainova: Installing up to 1,000 smart meters in the north of Frankfurt, 730 in Griesheim and 270 in the new town district Riedberg in Riedberg.

Country	Regulation Status	Implementation Status
EUROPEAN UNION		
Greece	• No smart metering requirements	• No known activity
Hungary	• At present, the Hungarian power market is not competitive. • A draft Bill aiming to introduce competition according to the provisions of the European Union Electricity Directive is currently under discussion. • The progress that Hungary has made is impressive, given the very difficult starting position of a fully vertically integrated state monopoly that imported record amounts of electricity from the former Soviet Union. • No specific regulation around smart metering	• Elektrovojvodina D.O.O. Power distributor: Running two AMR pilots. Each includes around 1,500 meters, and uses PLC connection to data concentrators in substations that use GSM/GPRS to reach the server. • Plans in place to expand to 30,000 meters by 2010, and then to cover the whole of the Vojvodina province (830,000 meters) within ten years.
Ireland	• The Electricity Regulation Act 1999 called for the liberalization of the market in order to encourage the entry of competition and new investment. • In February 2005 the retail electricity market opened fully to competition and independent companies now supply almost half of electricity consumed in Ireland. • The Department of Communications, Energy and Natural Resources (CER) has indicated its support for the CER's plans to implement smart metering in Ireland starting with the roll out of a pilot project in 2008. • The Commission formed several working groups that are undertaking investigations and studies into all aspects that could be associated with the technology, technical feasibility, supporting systems and customer behavior, in order to justify the appropriate approach to adopt, and assist implementation. • Smart meters for every home were announced November 2007 with planned completion within five years.	• In 2008 the Commission focused on a pilot project of 25,000 meters in cooperation and support of ESB Networks (Distribution System Operator). Initial findings were delivered on March 2008 • Northern Ireland Electricity: Implementing two way communications for prepayment customers. Installation completed for 175,000 customers. Roll out of enhanced features announced in May 2008, including the ability to purchase credit online and also online energy consumption information down to half hour intervals.
Italy	• Digital smart meters have been compulsory for all electricity providers since 2006. The government's timetable is for 65% of customers of the approximately 100 electricity companies to be on smart meters by 2009, 90% by 2010 and 95% by 2011. • The regulator, government or other market parties have had no influence on requirements Enel had to fulfill. • The Italian regulatory authority established minimum functional requirements and introduced incentives for the adoption of advanced metering features related to quality of supply.	• Enel: Replaced 27 million standalone electricity meters with communicating solid-state meters networked via a hybrid wireless/ANSI 709 power line. Started in 2001 and completed in 2006. • A2A in Milan is extending smart meters to its gas network. • Acea Distribuzione: Municipal utility with 1.5 million electricity customers in Rome - and 8 million water customers across Italy, implemented an AMM solution with Landis+Gyr for one million customers. All 1.5 million customers will be covered by the end of 2009.
Latvia	• Electricity Market Law was adopted by Parliament on May 2005. • Unbundling process was completed in 2007, deregulation is in transition • No requirements for mandatory hourly metering.	• No known activity
Lithuania	• No smart metering requirements	• No known activity
Luxembourg	• No smart metering requirements	• No known activity
Malta	• The electricity regulator was set up through the Malta Resources Authority Act of 2000. • No smart metering requirements or date was announced. • Malta government is planning to introduce a carbon offsetting program.	• November 2008, Enemalta announced that it will be changing all its electricity meters starting 2009 in order to ensure that energy consumption is adequately metered and to discourage tampering. Pilot due to start in March 2009.

Country	Regulation Status	Implementation Status
	EUROPEAN UNION	
Netherlands	• A draft bill amending the Electricity Act of 1998 and the Gas Act of 2000 announced in the summer of 2007. The bill specifies the terms of conversion of low-voltage meters. • The government has announced its intent to require smart metering and replace all 7.5 million electric meters and 7 million gas meters in the country by the end of 2017. • The amendments to the Electricity Act 1998 will lead to a new market model for metering. Metering will become the responsibility of the grid operators. Grid operators are regulated separated from suppliers and producers. • A partial roll-out (new buildings, renovation and on customer request) will probably start July 2009 (amendments to the regulations still have to be approved by the Senate). • Mass roll out of smart metering will probably start around the end of 2011.	• Alliander (formerly named Continuon), a leading Dutch grid operator, has run various advanced metering trials starting in 2002 and more recently they have undertaken a 35,000 meter deployment based on the NES system. • Oxxio, a new supplier in the Dutch market (i.e. not a subsidiary of a traditional utility company) started a metering company to handle their own customers' metering. Current status is that around 100,000 addressed were equipped with electricity and gas meters.
Poland	• Liberalization of electricity prices has been planned in two stages. Phase one, from January 2008 (industrial customers) and Phase 2, from January 2009 for household customers. • Since 1998 the power market has been gradually deregulating, it is still in transition. • Poland has been gradually deregulating its power market since 1998. • Equal access to the customers' meter readings data is crucial for the liberalization process, smart metering is needed to address this problem. • No smart metering requirements or date was announced.	• Smart meters are entering the market in Poland but on a voluntary basis only. • Adequate equipment, remote control and measuring system can be installed only when the client (especially this with annual consumption over 100.000 kWh) wishes this, but it has to participate in the cost of installation of the system and necessary devices.
Portugal	• In the end of 2006, change of suppliers is allowed to all customers and the power market is unbundled. • Considering introducing smart metering systems throughout the country.	• No known activity
Romania	• No smart metering requirements	• No known activity
Slovakia	• No smart metering requirements	• No known activity
Slovenia	• As of July 1, 2007 electric and gas markets have been fully opened. • No smart metering requirements	• No known activity
Spain	• Privatization process began in 1994 with the LOSEN Electricity Act then the Electricity Act 54 in 1997, and last the Hydrocarbons Act 34 in 1998. • Spain is in compliance with EU Directives, which require EU members to privatize their electricity and natural gas markets. • Spanish regulator forced Distribution companies to implement smart metering projects in a specific time frame, establishing also a set of minimum functionalities that the implemented solution must cover. The ORDEN ITC/3860/2007 law established the obligation for DNOs to implement smart metering solution replacing all the meters before 2018.	• Endesa and Iberdrola each plan to deploy 10 million smart meters each to comply with new regulations. • Lberian Smart Grid, Energias de Portugal (EDP), Iberdrola, and Union Fenosa potentially working together to deliver a smart grid. • Iberdrola has announced a new PLC standards group and is working with several manufacturers on an open standard based on the work done by ADD Group for Iberdrola.

Country	Regulation Status	Implementation Status
EUROPEAN UNION		
Sweden	• The first studies into smart metering were carried out in 2001. • In 2003 the government passed a bill obligating the grid companies to a monthly meter reading for all electricity users by 2009.	• Sweden will become the first county to achieve 100% penetration in July 2009 when monthly collection meter values become mandatory. • Vattenfall is in middle of rolling out 600,000 advanced meters based on Echelon's Networked Energy Services (NES) system. • E.ON is in the early stages of rolling out 370,000 advanced Echelon NES meters
United Kingdom	• All aspects of utility metering have been unbundled and opened to competition. • The supplier is responsible for metering and is required to contract with a meter asset provider, a meter operator and a data collector. • In May 2007 the government set in train the requirement for energy suppliers to install smart meters in most businesses by 2012. • In 2008 the government announced that it will require all households to have smart meters installed over the next 10 years. • The regulator anticipates a period of around two years to resolve the issues and to design the full detail of a domestic roll-out. The aim is to ensure that the subsequent roll-out happens over a period of 10 years (by 2020).	• Centrica, Scottish and Southern Energy, British Gas and EDF have been testing smart metering technology in homes for several years. • Because distribution of electricity and gas is controlled by a single company within each identified area in the United Kingdom, implementation is likely to happen very fast.

Country	Regulation Status	Implementation Status
OTHER COUNTRIES		
Norway	• Regulation about mandatory hourly metering for all final customers with annual consumption over 100.000 kWh was introduced on the Jan 1st 2005 • Any customer can require hourly metering of the electricity consumption from its local DSO if he covers the costs. • In June 2007 the energy authority recommended legislation requiring smart meters to be installed by 2013. • The intention is to pass charges of €5 per year onto all customers and complete the implementation by 2013. • The Norwegian Electricity Industry Association is working on voluntarily functional requirements with several DSOs.	• Approximately 10 DSOs have already built smart metering voluntarily for all their customers, while several big DSOs have already budgeted full-scale implementation of smart metering within the next five years.
Switzerland	• No smart metering requirements	• No known activity
Armenia	• No smart metering requirements	• No known activity
Georgia	• No smart metering requirements	• No known activity
Kazakhstan	• No smart metering requirements	• No known activity
Kyrgyzstan	• No smart metering requirements	• No known activity
Russia	• No smart metering requirements	• Energoauditcontrol - Russian service provider to install 90,000 to 375,000 Echelon NES PLC based smart meters.
Ukraine	• No smart metering requirements	• No known activity

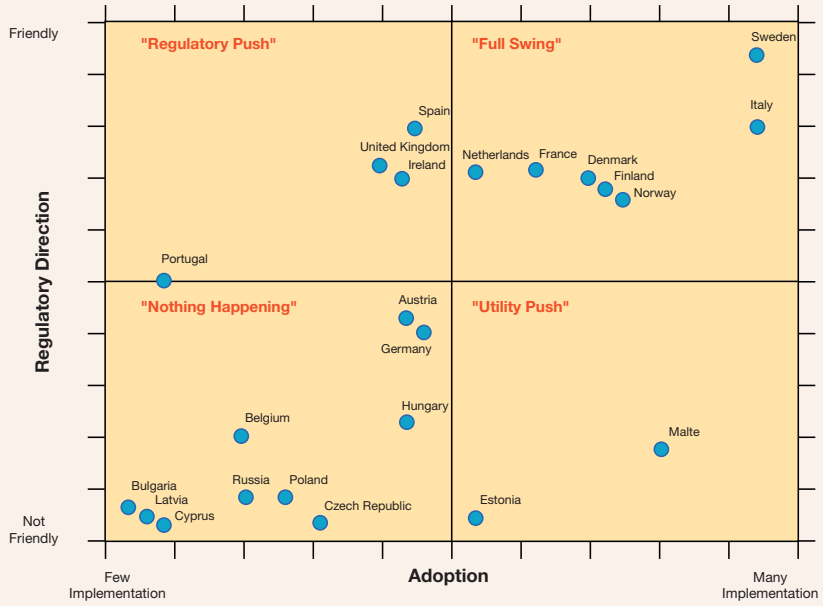
Analysis

Using the information in the previous table we place each of the countries we had information on the regulatory process and some implementation activity in a four quadrant matrix. The "Y Axis" represented the regulation activity and the "X Axis" represented the implementation activities by the utilities. For the regulatory activity the range was from 0 regulator is not friendly to smart metering to 10 where regulator is extremely friendly and is pulling smart metering. Similarly for the implementation activities the range was from 0 where there is no activity to 10 where penetration is close to 100%.

To make the process less subjective we created criteria for the regulatory direction.

1. Mandate to complete rollout: Regulator set a fixed end date when all meters need to be converted
2. Incentive to invest: Regulator supports the recovery of the cost for the deployment for the company deploying the meters
3. Pilot incentive: Regulator set aside R&D money to test technologies without penalty
4. Communications Support: Regulations providing frequency space or special tariffs to support the movement of data from the meters to the central office
5. Ownership rules: Regulations defined clear rules on who owns the meter and the meter data with clear indication of who can do what with the data collected
6. Data exchange rules: Regulations defined clear rules on who has to share what data with whom in what time period and what the charges, if any can be

Regulation vs. Implementation



Source: Capgemini

The countries fall into four categories as shown on the graph.

- **Regulatory Push:** Regulatory organizations are very supportive of smart metering, but the market has not picked up yet, or the utilities are not seeing the value and not willing to invest.
- **Nothing Happening:** Regulatory environment is not friendly and the utilities are not pushing.
- **Utility Push:** Utilities are very active in implementation and deployment of smart metering without regulatory support.
- **Full Swing:** Smart metering market is very active – regulation is pushing and the utilities are reacting and trying to comply with the regulation.

Although some countries in Europe are making a significant progress deploying smart meters those are mostly to address the meter reading aspect without long-term vision of a smarter operational grid. The fact that Sweden and Italy has a very high position on the analysis chart speaks to the fact that they are getting close to 100% rollout but those are mostly for monthly remote meter reading. Those early adopters are now trying to figure out what other benefits they can squeeze out of this large investment. Gathering monthly billing information to create accurate bills is a good step forward but most meters can give you a lot more data once you get this data you need to create a platform that will allow you to analyze and forecast (some will have to be in real-time or near real-time), and monitor, manage, and act on triggers generated base on the analysis. In the case of most of the Swedish meters, they can be read daily and provide hourly readings.

Summary

To a large extent the adoption of smart metering in Europe is driven by regulation. National concerns over the future energy situation and European initiatives such as EU energy Efficiency have led several countries to define mandatory requirements for the deployment of smart metering within a set timeframe. But the reality is that the compliance-based industry in which utilities operate doesn't offer enough incentive for consumers, regulators or utilities to take the difficult steps necessary to make electrical energy markets operate efficiently. Despite this fact, currently final dates for when smart metering should be in place had been set in France, Ireland, United Kingdom, Italy, the Netherlands, Norway, Denmark, Finland, Spain, and Sweden.

Many countries are at a different stage of smart metering deployment for residential electricity customers. Italy was the first to adopt the technology as Enel deployed more than 27 million PLC meters in the first half of this decade. By 2011, all 36 million Italian electricity customers will be covered by smart metering. Enel was able to justify this deployment without regulatory support – most savings where obtained by the ability to perform various functions remotely, instead of having a service technician visit the customer site, and respond more effectively to customers. Enel estimates that it will make 6 million fewer field visits each year and respond to 98 percent of customer requests within 24 hours. In addition, the system has provided improved network planning and load balancing, while increasing fraud detection.

Sweden will however become the first county to achieve 100% penetration in July 2009 when monthly collection meter values become mandatory. Currently 71 out of 164 DNOs are reported to be done with the deployment. While the requirement is to deploy equipment for monthly reading a few large DNOs are actually going beyond that. Sweden's mandate is accelerating the deployments in Denmark, Finland and Norway, where installations are steadily growing. Energy conservation is driving similar reform in the Netherlands, which legislated Smart Metering deployment in mid-2007. Austria and Portugal – which have concluded that Smart Metering will increase profitability – are considering introducing smart metering systems throughout the country as well.

Lately the focus is shifting to France and Spain where EDF, Endesa and Iberdeola have announced massive projects covering more than 50 million metering points. In July 2008 ERDF, the French electricity network business of EDF, announced the first phase of a nationwide rollout of 33 million smart meters. Endesa and Iberdrola each plan to deploy 10 million smart meters each to comply with new regulations in Spain. The Western Europe market is moving slower, but energy end-use efficiency and growing public interest in energy conservation has set the Smart Metering market in motion.

The present situation and the implementation plans for smart metering differ

significantly from country to country. Clearly, it is a result of different national factors, including climate, consumption patterns, deregulation path etc. Even in the Nordic countries, where national electricity sectors are in many ways very similar and cooperate closely, there are quite different requirements and plans for implementation of Smart Metering. It is unlikely that these differences will diminish in the close future, considering that Energy Services Directive does not provide very concrete definitions and implementation requirements.

One question that remains in the balance is what is the minimum functionality that will be required to support the energy efficiency initiatives and the carbon reduction goals? The equipment already deployed varies widely in capabilities and the supporting communications infrastructure also varies widely. Additional value may be driven by operational uses of the information, but that increases the functionality requirements and the need for communications bandwidth and low latency networks to more the data to a central location.

If Europe is to meet its 20-20-20 targets (increasing energy efficiency and share of renewable energy by 20% and reducing greenhouse gas emissions by 20%) within 12 years, it must modernize and liberalize an ageing electricity grid, create economies of scale for renewable energy and promote consumer efficiency. On average deployment of smart meters from initial tender to operation is 7 years, everyone needs to keep this in mind when considering timelines for rolling out meters. Smart Grid can take up to 20 years to rollout – and only one utility globally – Tokyo Electric Power has completed a rollout of smart grid. If both of these efforts are important to national, European and Global goals, we will need the support of the governments, the industry players and equipment vendors to do it right.

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