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- **360-degree** overview of next generation standards for PLC and RF smart grid communication.
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Installed base of smart meters to reach 155 million in Europe by 2017

EU27+2 has 277 million metered electricity customers and the annual demand for electricity meters for new installations and replacements is in the range of 12–17 million units. Penetration for smart meters, providing more comprehensive functionality than basic meter data collections, was 18 percent at the end of 2011. By 2017, Berg Insight projects that the rate will increase to 56 percent, driven by large rollouts in Spain, France and the UK, in combination with nationwide rollouts in several smaller countries. The installed base of smart electricity meters is forecasted to grow at a compound annual growth rate of 20.5 percent between 2011 and 2017 to reach 154.7 million units at the end of the period. The high growth rate will be sustained until the end of the decade as nationwide rollouts are completed in France, the UK and several other countries. A decision by Germany to introduce smart metering would extend the strong momentum for smart meters in Europe into the 2020s.

At the end of Q3-2012, eleven European countries had developed regulatory roadmaps for the full-scale introduction of smart meters. The latest new country to adopt this policy was Austria in April 2012. Sweden and Italy completed deployments at the end of 2009 and 2011, respectively and Finland will be ready by the end of 2013, followed by Estonia and Norway in 2017. France and Spain have set target dates in 2018, while Austria, Ireland, the Netherlands and the UK aim for nationwide rollouts to be completed during 2019/2020. Furthermore, the governments in Denmark and Malta have put their countries on track for full coverage of smart meters before the end of this decade by supporting rollouts by state-controlled electricity companies. Cyprus, Poland, Portugal and Romania are additional countries leaning towards regulation-driven smart meter rollouts. Germany currently prefers that rollouts should be industry-driven and considers only minor requirements for household customers with high electricity consumption. A cost benefit analysis of the business case for smart metering in Germany due in 2013 may however change this policy. Government attitudes towards smart metering in other European countries ranges from keen interest expressed through active support for large pilot projects to virtual indifference.

As a result of the massive replacements, smart meters will come to dominate the European electricity metering market, accounting for over 95 percent of the total volume. After reaching a low point of 2.6 million units in 2009, demand for smart meters recovered in 2011 as massive installations began in Spain. In 2014 the market is expected to reach an inflection point as mass rollouts begin in France, the UK, the Netherlands and several other countries. During the second half of the 2010s, Berg Insight expects that annual shipments of smart electricity meters will be in the range of 25–30 million units. The aggregate investment cost for the deployment of 110 million smart electricity meters in Europe between 2011 and 2017 is projected to around € 15.8 billion. Based on industry data the capital expenditure for a smart metering project in Western Europe can vary in the span of € 140–240 per metering point. In Central Eastern Europe the projected cost is around € 100–150 per metering point, due to lower labour costs.

Next generation powerline communication (PLC) technologies are a key enabler for the new wave of smart meter rollouts in Europe. PLC is the dominant last-mile communication technology for smart meters on the European market with a market share of around 85 percent. The G3-PLC and PRIME initiatives, launched by ERDF and Iberdrola respectively in the late 2000s have now evolved into complete standards, supported by commercially available chipsets from leading semiconductor vendors. Both standards have been approved by the ITU and the industry associations created to promote them are now cooperating around the new more comprehensive G.hnem PLC standard. In addition, the IEEE has launched a widely supported PLC standards initiative. Berg Insight has the opinion that a certain degree of competition between PLC standards is a healthy driver for innovation that will do little harm by fragmenting the market. All standards largely use the same underlying technology, which enables semiconductor vendors to use the same core platforms to create many different types of PLC chipsets. Regional variations will always be inevitable due to the different characteristics of electricity networks around the world. When it comes to large-scale deployments, the balance between cost and desired performance will decide the choice between basic or more advanced PLC standards.
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About the Authors

Tobias Ryberg is co-founder and principal analyst responsible for the M2M research series. He is an experienced analyst and author of numerous articles and reports about telecom and IT for leading Swedish and international publishers. The European Smart Metering market has been his major research area for the past 10 years.

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