

Smart Metering in Europe

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- **360-degree overview** of next generation PLC, RF and cellular standards for smart grid communications.
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- **New detailed forecast** for smart electricity and gas meters in 30 countries until 2023.
- **Summary** of the latest developments in the European energy industry.

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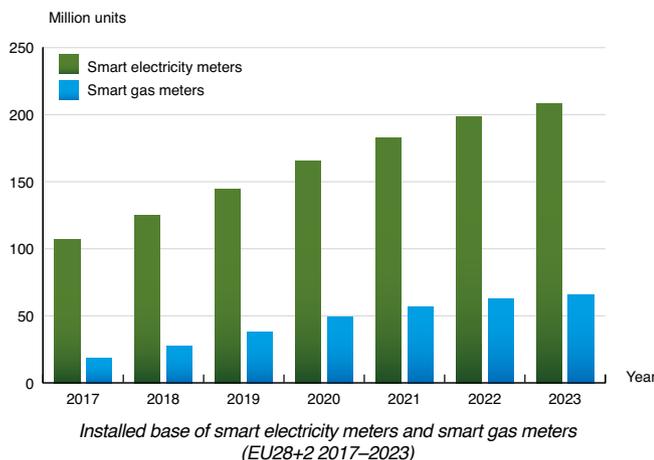


DSOs look to NB-IoT and mesh radio for next generation smart meter deployments

Smart meters accounted for around 87 percent of the total electricity meter shipments in 2018. France overtook Spain as the largest market by volume with yearly shipments of more than 8 million units, as the nationwide rollout ramped up to volume. Italy and the UK were other major geographic markets with shipments of 3–4 million units each. Approximately 44 percent of the electricity customers in EU28+2 had a smart meter at the end of 2018 and the penetration rate is expected to reach 71 percent by 2023. As a consequence, annual shipments of smart electricity meters will reach a peak of around 25 million units per year in the early 2020s. The majority of the new installations will take place in France and the UK, with significant contribution also coming from countries like Austria and the Netherlands. In the meantime, adoption in Germany is held back by protracted standardisation efforts and modest deployment targets set by the regulator. The outlook for Central Eastern Europe is mixed. Romania is seemingly moving towards a full-scale rollout and Poland is headed in the same direction even though there are delays in the regulatory process. Lithuania became the latest country to launch a nationwide rollout in 2018.

Italy and Sweden were the first European countries to embark on nationwide deployments of smart meters in the last decade. As the systems deployed in both countries reach their end-of-life, the DSOs are launching a second wave of rollouts. In Italy, Enel's distribution arm e-distribuzione is leading the way with plans to install 13 million second generation meters by 2019 and another 28 million in the following decade. Sweden adopted a new regulatory framework for second generation smart electricity meters in June 2018. The regulations will take effect in January 2025 and most DSOs have already launched the procurement of second generation systems that fulfil the new requirements.

The rapid development of new technologies for industrial Internet of Things has a major impact on the smart metering market in Europe. DSOs planning for new smart grid projects and rollouts in the 2020s have a wide range of increasingly sophisticated wireless technologies to choose from as networking platforms. Wireless technologies have major advantages compared to PLC technologies which dominated the first wave of smart electricity deployments in Europe. ►



► Radio based networks can offer more bandwidth, shorter response times and improved security, combined with excellent coverage, even in difficult locations like cellars and rural areas. Supported by massive R&D investments in the mobile communications industry, the latest of cellular technologies optimized for cost-sensitive and mission-critical IoT applications is gaining traction in the utilities space. Berg Insight believes ESO's choice of NB-IoT as the networking platform for its upcoming nationwide rollout in Lithuania was a significant milestone in the adoption of cellular IoT technology in the industry. Even if some of the functional requirements for the project are challenging from a technical perspective, any issues will eventually be resolved through incremental updates of the NB-IoT standard.

Next to NB-IoT there is also room for the next generation of advanced mesh radio technologies in the European market. Updated radio frequency regulations are opening up new spectrum in the sub-GHz band in a growing number of countries. Norway and Sweden enabled the deployment of mesh radio technology for smart metering by setting aside spectrum in the 870–876 MHz band for smart grid applications. Similar regulatory changes are also considered in other European countries. Mesh radio technology can be combined with cellular technology to create highly cost-efficient networks optimised for performance and security.

Adoption of smart metering is also growing fast in the European gas distribution market. Berg Insight projects that annual shipments of smart gas meters in EU28+2 reached 9.1 million units in 2018. Demand will remain stable until 2020, before dropping as nationwide rollouts are completed. Italy was the largest market in 2018 with yearly shipments of 4.2 million units. France launched the mass rollout in 2017, which will ramp up to a rate of around 2.0 million units per year by 2019. The UK market accelerated in 2016 and should ramp up to more than 4.0 million units per year in the early 2020s. The Netherlands will see volumes of more than 1.0 million units per year for the rest of the decade. Ireland, Lithuania and Luxembourg will contribute with smaller volumes, presumably followed by Austria and possibly some other countries in the early 2020s.

This report answers the following questions:

- Which are the major trends shaping the European smart metering market?
- What are the differences between projects in Western Europe and Eastern Europe?
- What is the status of the UK smart metering program?
- Which European countries are next in line for large-scale rollouts?
- Why did Lithuania select NB-IoT as its networking platform for smart meters?
- How can changes in radio frequency regulations enable more widespread adoption of mesh radio technology in Europe?
- Which are the leading suppliers of smart metering solutions for the European market?
- Which countries lead the adoption of smart gas meters?

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About the Author



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 15 years.

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