



SMART ENERGY USE CASE

LoRa® AND THE LoRaWAN® STANDARD



Ensuring Reliable Gas Supply and Increasing Infrastructure Safety

VESTITEL DEPLOYING 100,000 SMART GAS METERS ACROSS BULGARIA



TRANSFORMING GAS UTILITIES WITH SMART METERING

With the demand for natural gas on the rise and millions of miles of aging distribution infrastructure needing to be maintained, utilities are looking to the Internet of Things (IoT) to digitally transform the industry. Smart metering technology, combined with sensors for smart valves, gas pressure and gas leak detectors on the same network, are allowing gas utilities to improve overall efficiency and enhance safety.

According to a recent survey by Report Ocean, the global smart gas meter market is expected to reach \$5.99 billion by 2027 – up from \$3.71 billion in 2019¹. This rapid transition from conventional manual reading to smart meters allows utility companies to remotely collect accurate customer usage measurements. The evolution to Advanced Metering Infrastructure (AMI) initiatives is producing accurate and timely invoicing, improving customer satisfaction and encouraging waste reduction by consumers.

Additionally, real-time and historical data from smart gas meters enable gas utility companies to efficiently manage their operations, including energy production, distribution and delivery, while reducing costs and optimizing resource allocation.

To support and expand AMI, gas utilities are deploying low-power wide-area networks (LPWANs) as a connectivity backbone for the meters and sensors. With LPWAN technology, such as Semtech's LoRa® devices and the LoRaWAN® standard, utility companies can more effectively measure usage data and trends wirelessly and without manual intervention in urban environments, rural areas, indoors and even underground. These networks are built with abundant capacity and establish a foundation that can be utilized for a variety of other municipal IoT applications.

BULGARIA GOES ALL IN ON SMART METERING

Overgas is Bulgaria's largest private natural gas company, delivering service to 80,000 households and 3,000 business customers through its 2,500 kilometers of pipeline. Vestitel, a subsidiary of Overgas, provides a wide range of high-quality connectivity services to international and regional telecom operators, business customers and end users throughout Bulgaria and Greece.

In 2019, Overgas gave Vestitel the opportunity to develop and manage a comprehensive project called Doverie. The translation of doverie from Bulgarian to English is trust. The objective of the project is to upgrade Overgas' gas delivery and billing systems, including the replacement of its entire fleet of analog gas meters with smart meters.

Vestitel oversees all aspects of Overgas' digital transformation such as choosing sensor and metering vendors, establishing a nationwide LoRaWAN network, supervisory control and data acquisition (SCADA) software applications, and the implementation of a new billing system.

“Our topline goals are to increase the reliability of natural gas supply and ensure the safe operation of the gas distribution network. By incorporating a high level of automation and control mechanisms, we will be able to measure and optimize every part of Overgas' system.”

-Valentin Velichkov, CEO at Vestitel

¹ Global Smart Gas Meter Market, Report Ocean, November 2022

LoRa® Use Case

IoT Challenge

- Remotely monitor gas meters across 40 cities
- Replace over 100,000 analog gas meters with smart technology
- Increase infrastructure safety

LoRa Technology Used

- LoRa delivers low-power wireless technology
- Nationwide LoRaWAN network coverage
- Wirelessly connected sensors communicate data to the Cloud

Business Value

- Increase visibility of energy systems and improve quality of service
- Reduce household energy consumption
- Battery life up to 10 years

For More Information

About Semtech's LoRa devices for utility applications, go to semtech.com/LoRa

About Vestitel
vestitel.bg

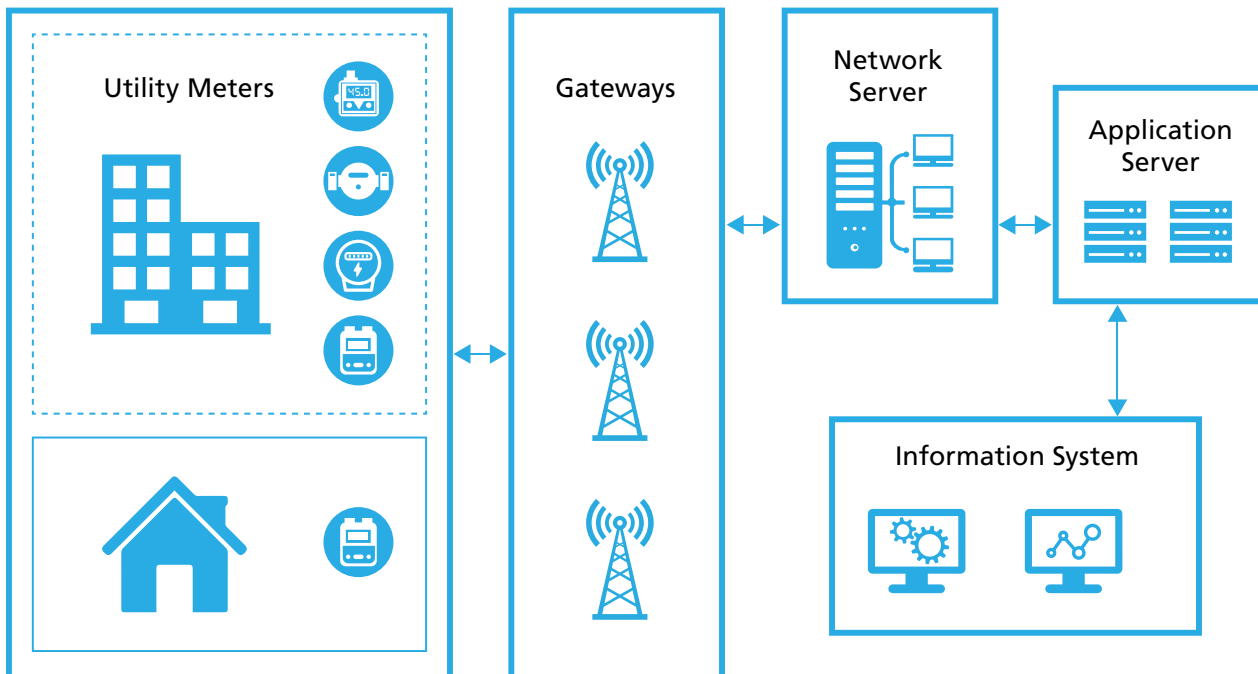
To begin, Vestitel researched different connectivity options and selected Semtech's LoRa devices and the LoRaWAN® standard.

“We chose LoRa® because it is a proven technology that has emerged as the global standard for LPWAN connectivity. The long range performance and low power consumption of LoRaWAN and amazing battery life of LoRa-enabled devices are ideal for smart metering and smart infrastructure applications.”

-Valentin Velichkov, CEO at Vestitel

Devices integrated with LoRa and the LoRaWAN standard are differentiated by an open ecosystem, strong security specifications, bidirectional communication, optimization for mobility, and scalability for capacity. The architecture of the LoRaWAN standard is a fault tolerant and redundant platform designed to connect hundreds of thousands of low cost, battery-operated sensors over long distances and harsh environments that have been too challenging or cost prohibitive for cellular or local area network (LAN) technologies.

HOW IT WORKS:



The success of LoRa in LPWAN-based IoT applications speaks for itself: IoT networks based on the LoRaWAN standard are currently deployed in 173 countries with an ecosystem supported by hundreds of contributing members of the LoRa Alliance®, an open, nonprofit association with the mission to support and promote the global adoption of the LoRaWAN standard.

A FOUNDATION FOR THE FUTURE

Vestitel leveraged members of the LoRa Alliance to build its state-of-the-art LoRaWAN network, supporting M-Bus and DLMS metering standards, across the entire territory of Bulgaria and Greece. A strategic partnership with OrbiWise, a leading provider of advanced technologies for the IoT industry, is responsible for connecting and deploying several hundred gateways and 100,000 gas meters manufactured by GoldCard Smart Group Co. through the end of 2025.

Vestitel has already deployed smart metering in Sofia, the capital of the Balkan nation of Bulgaria with a population 1.7 million, and six other cities across Bulgaria and Greece, including Thessaloniki, the second largest city in Greece. The use case will serve as the blueprint for the Balkan region. In addition to smart metering, LoRa is providing critical measurements for gas pressure and temperature throughout Sofia, as well as leak detection and malfunction notifications. When an anomaly appears, Overgas can shut off valves remotely then send technicians to evaluate and repair equipment.

“The real-time data provided by our new network allows us to adjust prediction models to better determine a balanced supply and demand of the gas infrastructure for Overgas. If the utility orders more than real consumption, they pay penalties to regulators. Fines are also incurred when the utility orders less than the amount of gas required for its customers.”

-Valentin Velichkov, CEO at Vestitel

The Overgas rollout is being expanded to over 40 cities across Bulgaria and Greece. At the same time, Vestitel is piloting projects for other operators and service providers such as water metering, smart lighting, smart manhole covers, and smart parking to leverage its shared LoRaWAN® network.



Semtech's LoRa® Platform

A globally adopted long range, low power solution for Internet of Things (IoT) applications, enabling the rapid development and deployment of long range, ultra-low power and cost efficient IoT networks, gateways, sensors, module products, and IoT services worldwide. Semtech's LoRa technology provides the communication layer for the LoRaWAN® standard, which is maintained by the LoRa Alliance®, an open IoT alliance for Low Power Wide Area Network (LPWAN) applications that has been used to deploy IoT networks in over 173 countries. Semtech is a founding member of the LoRa Alliance. With the proliferation of LoRa devices and the LoRaWAN standard, the [LoRa Developer Portal](#) is a technical support platform for IoT innovators to learn, connect, collaborate, and find resources to help accelerate product development efforts and expedite time to market. To learn more about how LoRa enables IoT and creates a more sustainable and smarter planet, visit Semtech's LoRa site.

To learn more about how LoRa enables IoT, visit semtech.com/LoRa

Semtech Corporation

A high-performance semiconductor, IoT systems and Cloud connectivity service provider dedicated to delivering high quality technology solutions that enable a smarter, more connected and sustainable planet. Our global teams are dedicated to empowering solution architects and application developers to develop breakthrough products for the infrastructure, industrial and consumer markets. Publicly traded since 1967, Semtech is listed on the NASDAQ Global Select Market under the symbol SMTC.

For more information, visit semtech.com

LoRa Alliance®

An open, nonprofit association that has become one of the largest and fastest-growing alliances in the technology sector since its inception in 2015. Its members closely collaborate and share expertise to develop and promote the LoRaWAN® standard, which is the de facto global standard for secure, carrier-grade IoT LPWAN connectivity. LoRaWAN has the technical flexibility to address a broad range of IoT applications, both fixed and mobile, and a robust LoRaWAN Certification program to guarantee that devices perform as specified. The LoRaWAN standard has been deployed by more than 170 major mobile network operators globally, with connectivity available worldwide.

For more information, visit LoRa-Alliance.org



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