HEITLAND
INNOVATION ZÄHLT ...

case study

How NB-IoT Metering Strengthened Operations at Bernkastel-Kues Utility in Germany

About The Project

The Bernkastel-Kues utility deployed NB-IoT ultrasonic water meters integrated with the Mainlink's data analytics platform and the SURU mobile application. **The goal was to achieve continuous visibility across the network, reduce non-revenue water, and improve both operational efficiency and customer transparency.**

Challenge

Prior to the upgrade, the utility relied on wM-Bus meters, which supported annual billing but offered little insight into daily consumption patterns, leak events, or overall system performance.

As a result:

- Non-revenue water often remained undetected for extended periods
- Billing cycles required significant manual effort
- Investigating customer queries or suspected leaks was time-consuming
- End users had no access to their own consumption data
- Digital interaction between the utility and its customers was limited

In addition, **evolving EU data regulations require utilities to provide accessible historical consumption data** to end users - something the existing system could not support.

Solution

The utility implemented a fully integrated NB-IoT smart metering system, combining:

- **1500** Axioma NB-IoT ultrasonic meters installed (~4,000 planned by the end of 2026)
- **Mainlink data management platform**
- **SURU** mobile application

Delivered by Heitland as a complete solution, the system simplified deployment - requiring only meter installation, with automatic activation and connectivity.

This architecture enables continuous remote monitoring without reliance on walk-by readings or local radio networks. It is particularly suited to the Mosel region, where challenging terrain limits LoRaWAN performance. NB-IoT also provides more reliable communication in flood-prone environments, where meters may be partially or fully submerged - a scenario in which previous wM-Bus systems struggled. Installation time per unit is approximately 10-15 minutes, with no additional configuration tools required.

Why the utility chose an advanced metering solution

The decision to deploy Heitland water meters with integrated NB-IoT communication was driven **by the need to eliminate manual processes and enable fully digital operations.**

Unlike the previously used wM-Bus OMS meters, the new system removes the need for physical meter reading. Consumption data is transmitted automatically to the Mainlink platform on a daily basis, providing the utility with continuous insight into network performance rather than a single annual snapshot.

This shift from annual to daily data availability enables earlier detection of irregular consumption patterns and supports more proactive management of the water network.

Thanks to leak alerts and potential leak reports in the data management system, the **utility has already been able to help residents detect plumbing issues in their homes** at an early stage, preventing more extensive damage. The utility was also promptly notified of a major leak in a utility-owned facility in a remote area, enabling immediate action to minimize further losses.

In addition, providing customers with access to their data through the water monitoring app encourages more responsible water use. Real-time alerts for continuous or unusually high consumption help prevent damage and reduce the risk of unexpected costs at the end of the billing period.

Results

Following implementation, the utility has already seen clear operational improvements:

- **More efficient and streamlined billing** processes
- **Early detection of leaks,** particularly in public buildings, enabling timely repairs
- **Faster and more accurate responses** to customer enquiries
- **Improved transparency** for residents through access to detailed consumption, billing, and insurance data
- **Compliance with EU** data regulations