

Deploying remote meter reading and a hydraulic modelling tool



Case study of SUEZ smart metering and AQUADVANCED® Water Networks

Le Mans Métropole is an urban community, located in the Pays de la Loire region. They serve 20 municipalities, via a 1388km drinking water network and 38 configured sectors.



Client issue

Le Mans Métropole initially deployed AMR. Siderm, which was responsible for drinking water until 2018, had deployed remote reading within its perimeter. When the authority was transferred to Le Mans Métropole, it was decided to standardise the fleet of meters and therefore to deploy remote reading on a massive scale. At the same time, Siderm had undertaken a hydraulic sectorisation study, so the need for a hydraulic monitoring tool was obvious.

Solution implemented

Le Mans Métropole chose to continue deploying remote meter reading with SUEZ in order to provide the same quality of service to all its residents, providing them with precise information on their water consumption, and even alerts in the case of leaks or over-consumption. These are value-added services that were not possible with manual meter reading and the two meter readings per year that comes with AMR.

In one sector alone, the daily night flow rate reduced by 30m³/h, equivalent to a gain of 250,000 m³ per year and €125,000 saved

Leaks were a real problem for some users, who saw their bills rise sharply, but also for the water department, which had to deal with numerous requests for rebates.

To optimise its hydraulic network, the authority also opted for the AQUADVANCED® Water Networks real-time hydraulic management system.

Results

Leakage reduction

The introduction of smart metering and the AQUADVANCED® hypervision solution for the water network has increased the efficiency and responsiveness of the utility's operators, making it possible to avoid excessive water losses.

In one sector, the Mulsanne commune, there has been a reduction in the night-time flow by 30m³/h, which is equivalent to a saving of 250,000 m³ per year and €125,000 saved.

Billing

By avoiding excessive water losses much more quickly the authorities have been able to avoid excessive bills. They have also seen a drastic reduction in the number of requests for rebates and a significant improvement in water yield.

Operational efficiencies

In addition to the gains in network efficiency and the improved quality of service for water service customers, the introduction of these



solutions has prompted the operations department to transform its organisation and change its working methods to achieve ever greater efficiency in day-to-day operations, with the creation of a unit dedicated to leak detection, which analyses the data from remote reading and AQUADVANCED® on a daily basis.

Implementation

SUEZ managed the installation, integration and operations of:

- Diehl meters
- Wize network
- ON'connect™
- AQUADVANCED® Water Networks.



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How it works

SUEZ metering is an integrated remote water meter reading solution that is installed and operated by SUEZ.

It enables a utility:

- To automate the reading of meters remotely and in real time
- To monitor, control and influence consumption on a daily basis
- To receive alerts in case of breakage, peak or anomaly
- To invoice on the basis of actual consumption
- To identify leaks on the network as well as on the end-customer side
- To adapt services to changes in the environment and usage.

The smart metering system has four parts:

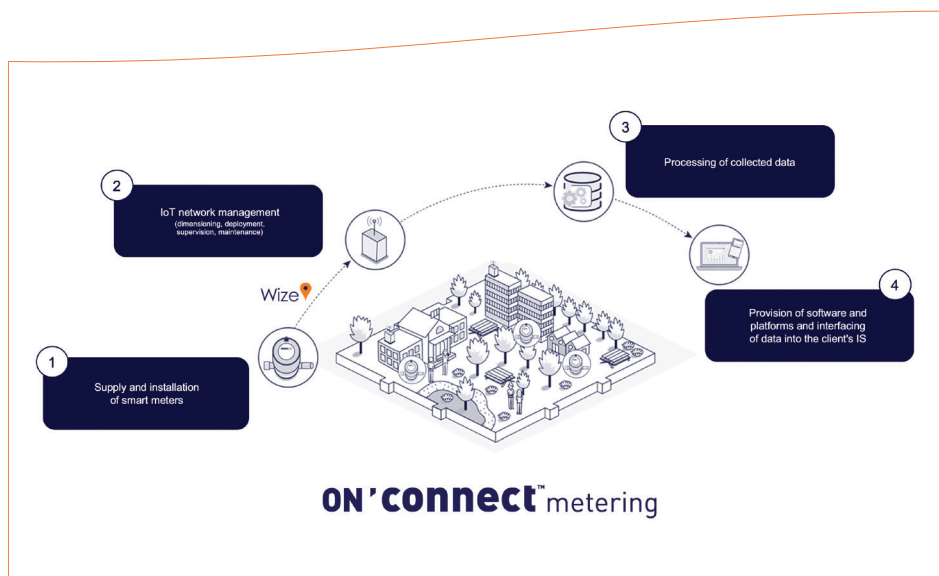
1. The supply and installation of smart meters
2. IoT network management
3. Management of the collected data
4. Provision of software and platforms that interface with the utility's IT systems.

Data is measured and then emitted by the smart water meter. The data is transmitted via a concentrator that collects the data locally and sends it to the servers. The data is deduplicated, decrypted and refined. The data processing is completed by algorithms pre-established by our SUEZ teams. Defined as key indicators, this data is made available to various actors through digital solutions: software supervision portal, online customer space, mobile applications, etc.

The metering systems consist of:

- Market leading meters supplied by manufacturers such as DIEHL Metering, Itron, Sensus, Honeywell etc.
- Specified according to the Wize protocol by the SUEZ teams to communicate with a fixed receiver (concentrator) or mobile receiver
- Collecting up to 24 indexes/day in compliance with the regulation on personal data protection
- Designed for daily transmissions: 1, 4 or 8 /day
- Compact for easy installation in tight spaces
- Waterproof and durable with a 15 years life span
- Bidirectional, providing remote diagnosis and problem solving, software updates, setting, etc.

The network is sized according to the specificities of the territory to be covered to optimise radio performance. The



ON'connect™ metering – support along the entire value chain

concentrators are specified to receive data from meters connected with Wize technology and transmit it to the remote reading computer systems. The concentrators are fixed and installed on strategic high points and they are waterproof and durable with a lifespan of 15 years.

Wize technology operates at 169 MHz, an open and freely available frequency band in Europe. It is long-range and thus impacted less by obstacles and ideal for underground meters. Typical battery life is 15 years. It complies to EN13757 standard and AFNOR guidelines.

The ON'connect™ remote reading information system is:

- Dedicated to the business or remote, automatic and frequent meter reading
- Processes over 600 million data messages each day
- Designed to create new services for territories, whatever their configuration
- Built from open-source components to benefit from the latest technological innovations.

Enriched with a multitude of algorithms formulated by SUEZ data scientists to provide relevant indicators.

The AQUADVANCED® Water Networks tool, dedicated to operators, makes it possible to collect a large amount of qualified data on the network and a precise grid, for a better understanding of the network. With

the installation of acoustic sensors at several points on the network, once leaks have been precisely detected and located with AQUADVANCED, operators can find the leaks they need to treat within minutes and considerably improve their operational performance.

“ Since we implemented [smart metering and] AQUADVANCED®, we clearly have a better understanding of our assets. Even our staff, who know the network very well, are still learning things thanks to the tool. People have a very good knowledge of the network, but the tool provides us with essential data and enables us to detect invisible leaks.

With this technology, we know the consumption of subscribers in a sector, the inlet and outlet flow rates and we can therefore identify and monitor the linear loss index, which enables us to optimise hydraulic performance considerably.”

– Geoffrey Dubost, Head of Drinking Water and Wastewater Network Operations, Le Mans Métropole