EMASA Empresa Municipal Aguas de Málaga

Customer Success Story

Building **sustainable** and **resilient** public infrastructure

EMASA & 1NCE: Smart Water Management in Málaga

1NCE®

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Executive **Summary**

The infrastructure of Malaga, a thriving city on Spain's Costa del Sol, is under pressure due to a confluence of environmental and economic factors, including:

A constantly growing population:
from 534,000 in 1991 to almost 600,000 inhabitants today.

An extraordinary tourism boom:
it is the fastest-growing urban destination in Spain in the last decade, with a growth of 127%.

Climate change raising temperatures and altering rainfall patterns:
Málaga is warming faster than the rest of the world and has experienced a temperature increase of 1°C above the global average over the past 50 years, according to the Chair of Climate Change at the University of Málaga.

As a result, **water management has become a critical priority.**

For Empresa Municipal de Aguas de Málaga (EMASA), the public entity in charge of water supply and sanitation, ensuring a sustainable and reliable water management system is not just an operational function, it is the foundation of the region's stability.

This report details how EMASA and 1NCE have collaborated to enhance service to citizens and strengthen the water resilience of the entire region. EMASA's experience represents a replicable model for other public entities seeking to optimize their resource management through smart technology.

Water Management in a **Climate-Stressed Region**

600.000

EMASA serves 600,000 **residents** of the city of Málaga and nearby municipalities

20,500

In 2023, more than 20,500 **cubic meters** of water were wasted daily

74

The leaks took place in 74 of 103 **municipalities** across the province

The Challenge

Málaga's water resources are under increasing pressure. While the rains in March 2025 temporarily raised reservoir levels to almost 45% of their capacity (273.39 million liters), authorities had implemented significant restrictive measures only a few months earlier due to the severe and recurring drought. Furthermore, climate models for the Mediterranean region predict less rainfall and higher temperatures, increasing the risk of prolonged droughts and depleted reservoirs.

EMASA, which serves approximately 600,000 residents of the city of Málaga and nearby municipalities, must ensure efficient water supply, sanitation, and wastewater treatment. However, its previous metering infrastructure presented the following key obstacles:

Undetected Water Loss and Revenue Deficit

Like many utilities, EMASA faces the challenge of non-revenue water (NRW), i.e., water lost due to leaks or unbilled consumption. In 2023, more than 20,500 cubic meters of water were wasted daily due to leaks in 74 municipalities across the province. Without reliable and widespread connectivity, quickly identifying and addressing these losses proved more difficult.

Communication Disruptions

EMASA sought to minimize communications disruptions and ensure consistent data transmission via a multi-network solution. This specifically targeted network coverage in basements, remote areas, and densely populated urban areas. The low signal strength in these environments led to unreliable or delayed readings, limiting the effectiveness of the smart metering infrastructure.

High Operating Costs and Field Labor Demand

EMASA needed to deploy smart meters quickly everywhere without having to test network coverage at each location before installation. This limitation slowed the deployment speed and increased project costs.
To overcome these barriers, EMASA needed a solution that could operate reliably in diverse environments, eliminate the need for pre-installation signal verification, and support flexible, large-scale deployments.

Why Opt for **Smart Metering**?

Smart meters drastically reduce water consumption through leak detection. Specifically, smart metering allows for **savings of up to 46%,** according to a study on smart metering by the Global Infrastructure Centre, an organization associated with the World Bank.

IoT in Water Management

Smart metering, support other areas, such as electricity and gas, and also results in enormous efficiency in the case of water: management, control, and conservation of water resources; monitoring of water quality (pH, chlorine, and turbidity levels); pressure management to prevent damage to infrastructure; accurate billing of customers, etc. In all these areas, smart metering helps save water consumption.

Recurring Drought in Spain

Almost every region of Spain suffers from drought episodes, particularly in the hottest months, and in some areas, throughout the year. In this context, the significant growth in the installation of smart water meters is due precisely to concerns about water scarcity, which leads to high consumption, water losses, and the leakage problems.

Another key factor is the ability of these meters to monitor and diagnose water consumption patterns inresidential, commercial, and industrial settings, while also providing detailed tracking of water management costs.

Finally, to put the importance of these devices in context, it is worth noting that by 2030, approximately 700 million smart water meters will be installed worldwide.

The Solution

1NCE's NB-IoT for Smarter Metering

In October 2024, EMASA installed its first 1,200 metering devices in Málaga and the surrounding areas, which had 1NCE's technology already integrated. EMASA and 1NCE expect this number to reach 170,000 meters in 2025. This will be made possible by installing 11,400 metering modules in batteries and for large consumers. This new approach removed the limitations of their previous provider, allowing for a more seamless integration of meters and data transmission.

Learn more about Smart Metering

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Why 1NCE?

Reliable Coverage in All Locations

Each meter automatically connects to the strongest available network signal, whether installed underground, in remote locations, or in dense urban areas. 1NCE provides access to all three major Spanish mobile networks, improving coverage and ensuring consistent data transmission.

No Pre-Deployment Signal Testing Required

EMASA no longer needs to perform local network checks before installation. Once the meters arrive and pass internal quality tests, they can be deployed immediately. This eliminates a major implementation bottleneck and reduces installation costs.

Flexible and Always Compatible

1NCE SIM cards are independent of smart meter vendors and compatible with most modules, not locked into a single mobile network. This gives EMASA the freedom to choose the hardware that best suits its needs, reduces long-term procurement costs, and allows for future upgrades. NB- IoT 's low power consumption also contributes to longer battery life and lower maintenance.

The Impact

The switch to 1NCE's NB-IoT connectivity has had a measurable impact on EMASA's operations and service delivery:

20% savings
on equipment costs

+10% device
lifetime extension

High **precision** and fast
leak detection

Over 20% Savings on Equipment Costs

By avoiding vendor lock-in and choosing a scalable, multi-network IoT solution, EMASA reduced its smart meter hardware expenses by 20%.

Smarter Network Management

EMASA now has a clearer understanding of when, where and how water is being used. High-demand areas like the southwestern coast, which consumes nearly 90 million liters per year due to tourism and large estates, can now be managed with greater precision.

Faster Leak Detection

Real-time consumption data allows EMASA to detect anomalies and quickly respond to leaks, an essential capability in a region facing water scarcity and aging infrastructure.

Extended Device Lifespan

Thanks to NB-IoT's low energy usage, smart meter batteries last approximately 10% longer than expected, resulting in reduced maintenance and more reliable operation.

Conclusion: **A New IoT Model** for the Public Sector

EMASA's smart meter upgrade demonstrates how utilities can modernize their infrastructure to meet today's challenges.

With 1NCE's support, they achieved faster deployment, reduced costs, and improved performance, without the complications they previously faced.

As Málaga continues to grow and confront climate challenges, EMASA's smart water network stands as a blueprint for building sustainable and resilient infrastructure in the public sector.

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