

SUCCESS CASE 27.2025

iLOQ Project

MANAGING PHYSICAL ACCESS TO FACILITIES WITH WIRELESS TECHNOLOGY



THE CHALLENGE

The ecosystem of the Portuguese DSO E-REDES installations includes, among other assets, 71'165 transformer stations and 436 substations. Physical access to these units involves the **use of thousands of keys by field teams**. Situations involving swapped or lost keys, forgetfulness, and lock changes complicate the operations of field personnel. The costs, time loss, and inefficiency caused by these logistics justified the search for alternative **solutions capable of ensuring greater security, reliability, and flexibility in managing physical access to the DSO facilities**.

THE SOLUTION

In mid-2023, E-REDES decided to test a wireless access solution from [iLOQ](#). The use of **near-field communication (NFC) technology** employed by the solution allows secure wireless information exchange between locks and nearby compatible devices. These devices can be mobile phones, tablets, or any device equipped with an NFC chip, while the operation resembles that of contactless payment systems. The locks **do not require batteries or external power sources** as they are powered by NFC induction, similar to the case of Radio Frequency Identification (RFID) tags, simplifying and reducing the costs of installation and maintenance of the locks. Another feature offered by the solution is the **flexibility in managing both keys and access**, as permissions are managed over-the-air (OTA) via web browser from a back-office position operated by coordinators. These coordinators send digital keys to the teams' mobile phones and are able to assign or withdraw their access rights in real-time, avoiding the purchase and replication of physical keys or cards.

The proof of concept (POC) of the solution, conducted between March and May 2024, involved the installation of this technology in six substations located in Verdinho, Amieira, Ruivães,

Entroncamento, Parque, and Beja. It involved about 550 internal users from operational areas, [EDP Labelec](#), and external service providers, and the training of both coordinators and technicians. The training focused on using the iLOQ back-office platform to manage the access of participating teams and the activation of the electronic keys and locks. The project was driven by several internal units (e.g. Asset Technology, Safety & Security, Engineering, Maintenance and Construction, etc.).

THE RESULTS

Data from a survey conducted after the POC revealed a **high adoption rate of the solution by potential users**, as well as the correct functioning of the system: 92% of employees installed the iLOQ application; 70% had the opportunity to use it, and, out of these, 96% were able to open and close the locks without problems. Moreover, based on the estimates and budgets determined from the proof of concept, the solutions allow for an **80% cost reduction compared to a conventional solution using electronic cards or keypads** for access. The system, as well as the locks and application, worked without any notable issues and with a **100% system operation success rate** in terms of unlock attempts with assigned permission.

NEXT STEPS

Following the positive results shown by the iLOQ technology in the POC and the approval of the Integrated Cyber-Physical Security Programme for Substations, **the new Access Control Solution using iLOQ technology will be implemented in 2025 and 2026**. Thanks to the lower costs than originally foreseen, this programme will expand from the initially planned 122 substations to **all 436 E-REDES substations**. The possibility of integrating the iLOQ solution into the information systems serving E-REDES, such as the Video Management System (VMS Milestone), as well as into other corporate systems or locally installed security systems, leaves further room for optimised and efficient physical security operation.