

SUCCESS CASE 20.2026

SMI&DMS integration

USING SMART METER DATA TO GIVE DISPATCHERS VISIBILITY INTO THE LOW-VOLTAGE NETWORK



THE CHALLENGE

As part of ESO's SMART program roll-out, the latest-generation SMART meters were installed across the entire low-voltage (LV) network. In total, 1.4 million SMART meters were deployed out of ESO's 1.9 million installed meters. All SMART meters have always-on IoT connectivity and all of them are equipped with Last Gasp and First Breath real time notification alarms. Also, they have on-demand instantaneous reading (Poll) function.

To improve low-voltage network visibility and management in the Distribution Management System (DMS), an integration was developed between the SMART Metering Information System (SMI) and the DMS. It was critical to deliver SMART meters alarms to the DMS in near real time and to avoid any impact on the performance of the business-critical DMS. Therefore, an intermediate system (IMPS) was implemented between the SMI and the DMS. The main functions of IMPS were to collect alarms, quickly and reliably detect faults on LV distribution lines and forward only the necessary alarms to DMS.

The solution has proven successful. Based on SMART meters alarms, network operators can estimate the probable fault location and the outage scope. Operators can also use Poll function to check outage or ensure the restored network status after switching or repair actions.

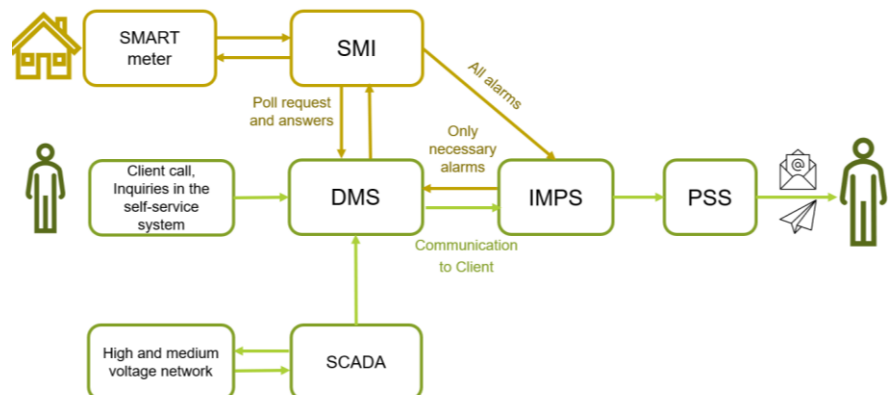
THE SOLUTION

Implemented DMS Smart Meters module.

Developed integration between DMS&SMI to receive alarms sent by SMART meters and to send Poll requests to SMART meters.

Developed IMPS (for aggregation/filtering of SMART alarms).

Updated existing integration interfaces with AM, PSS (customers notification system), GIS systems.



MAIN ACHIEVEMENTS

- Achieved near real-time outage detection by using alarms sent by SMART meters.
- Enabled proactive customer notifications about identified outages, reducing the need for customers to call the DSO.
- Improved response and restoration times by detecting voltage outages earlier and initiating field actions sooner.
- Implemented LV network monitoring after restoration and after planned works using on-demand instantaneous SMART meter polls.
- Implemented an integration between the Call Center and SMART meters, giving operators access to meter data and status while registering a customer call.

KEY SUCCESS FACTORS

- A highly competent, high-performing project team consisting of network engineers and OT/IT team members.
- The ESO IT team developed the SMART meter alarm aggregation and filtering integration unique solution in close cooperation with business teams.
- The DMS-side solution was designed by DMS product experts.

WAY FORWARD

Enhance the IMPS system's SMART alarm processing logic that could identify internal power faults in multi-apartment buildings and prevent SMART meter alarms from being forwarded to the DMS in such cases.