



Case study • Oil & Gas

Alcatel • Lucent 

OMV, AUSTRIA

OPTIMIZING OIL PRODUCTION AT THE WELLHEAD



OMV, Central Europe's largest oil and gas company, wanted to optimize production at the wellhead and significantly reduce operational costs. So it called on Alcatel-Lucent to implement a turnkey integrated communications solution.

OMV's Perspective

CHALLENGES

OMV wanted to modernize its production in Europe's largest oil field, the Matzen field in Austria. Key business drivers were to:

- Improve oil production: Under the existing system, OMV technicians had to manually check each oil well daily. When technical problems occurred, wells could be out of service for days. Implementing real-time notification of irregularities (e.g., in conveyor line pressure) and faults (e.g., facility outage, loss of power, leakage, etc.) would dramatically reduce downtime.
- Reduce operational costs: The project's main goal was to reduce the need for physical inspections and optimize the maintenance process. This meant providing remote control for field devices (e.g., power on/off, scheduled pump-offs, etc.), which could be handled automatically or through human intervention.

SOLUTION

Alcatel-Lucent delivered a turnkey integrated communications solution for local and remote monitoring and control of 305 wellheads (equipped with rod pumps). The solution has three components:

- A backhaul transmission network.
- Control cabinets located at wellhead sites to monitor operations, transmitting alarms/data from single wellheads and clusters to the OMV Operations Control Center.
- A Supervisory Control & Data Acquisition (SCADA) system located at the OMV Operations Control Center, which supervises and controls 305 wellheads spread across 500 km².

BENEFITS

Alcatel-Lucent's turnkey integrated communications solution has substantially improved OMV's operational performance through continuous, real-time supervision of the company's industrial processes. All technical problems are now automatically relayed to the Operations Control Center in Gänserndorf near Vienna, and corrective action is taken online by OMV engineers.

ABOUT OMV

- OMV is the largest oil and gas group in Central Europe.
- Active in four sectors, OMV's Exploration and Production segment maintains operations in 20 countries on five continents, while its Refining and Marketing segment operates in 13 countries.
- Its other sectors of activity include gas, chemicals and plastics, as well as renewable energy.



"Alcatel-Lucent's integrated solution for remote monitoring and control of production at the wellhead has sharply boosted our efficiency, reduced downtime and cut operations costs."

Stefan Baumgarthuber, Head of Oil Production, OMV

NEXT STEPS

- Integration of additional pump types with the new SCADA system, for a total of more than 30 varieties, including water injection and Electrical Submersible Pumps (ESP).





Alcatel-Lucent's Perspective

CUSTOMER REQUIREMENTS

OMV wanted a real-time, integrated communications solution for the automated operation and supervision of 305 wellheads in Austria. The solution had to minimize rod-pump downtime, enabling OMV to maximize revenue from increasing oil prices. The solution moreover had to sharply reduce the need for human intervention at the wellhead, slashing operational costs.

OUR METHODOLOGY

To efficiently coordinate all needed resources (including manpower and material), we implemented the project in four phases:

- 1 Planning phase, including assembly of a prototype.
- 2 Control cabinet system rollout: digging works, erection of the framework, installation, commissioning and integration.
- 3 Rollout of SCADA and transmission pick-up points (PUPs).
- 4 Acceptance procedure, in accordance with customer requirements.

To enhance project management, we organized the project team into three sub-teams, each of which was responsible for one component of the solution (the SCADA system, control cabinets or transmission network).

DELIVERY CHALLENGES

➤ **Health, safety and environmental constraints:** Oilfield safety rules are very strict. To work in this highly volatile environment, Alcatel-Lucent teams and subcontractors had to be trained to meet Austrian and international safety standards. Everyone involved in the project was certified SCC (Security Certificate Contractor). Likewise, all equipment used onsite had to comply with oilfield safety standards. The result was a perfect safety record: for 15,000 manpower hours, there were zero accidents, zero injuries.

➤ **Project schedule compliance:** One of our main constraints was to minimize rod pump downtime in the Work Breakdown Structure. Digging and installation work in intrinsically safe areas was therefore carefully scheduled and efficiently handled. As a result, the project was completed on schedule.

➤ **Communication:** To facilitate communication with OMV and third-party stakeholders, Alcatel-Lucent named as its sole interface a General Project Manager who was responsible for consolidating all customer questions and comments, and for communicating internally with Alcatel-Lucent personnel.

THE ADDED VALUE

Alcatel-Lucent's unique SCADA solution provides a robust, flexible and scalable automation system that meets the requirements of the existing WLAN infrastructure while withstanding harsh environmental conditions, including a temperature range of between -25°C and +55°C. The solution provides fully automated central software release and configuration management for hundreds of distributed controllers. With its highly flexible and scalable system architecture, new facilities are easy to add through simple configuration tasks.



Bernd Schwaiger
Alcatel-Lucent
General Project Manager

"Our solution supported OMV in its efforts to optimize production and reduce costs, further cementing our leading role in providing complex, state-of-the-art network solutions to the oil industry."





The Solution at a Glance

THE BUSINESS SOLUTION

Alcatel-Lucent delivered OMV a turnkey integrated communications solution for the automated operation and supervision of 305 wellheads in Austria.

THE TECHNICAL SOLUTION

- Reliable, secure backhaul transmission network consisting of 45 km of fiber optic cable and 55 km of copper cable. WLAN is used for the last mile to connect 90% of the RTUs (remote terminal units) to the existing network; the remaining RTUs are connected via copper and a fiber optic modem.
- Control cabinets containing the wireless and fixed-line (copper and fiber optic) transmission equipment, remote terminal units, switching amplifiers and power supply. RTU features include:
 - Wide operating temperature range (-25°C to +55°C)
 - Event-driven communications to minimize network load
 - Data storage on flash disk (resistant to power failures)
 - Integrated Web server, enabling easy onsite and remote access via Ethernet
 - Automated central software release and configuration management
 - Cluster of up to 3 wellheads controlled by a single RTU
- SCADA (Supervisory Control & Data Acquisition) system, including:
 - Complete supervision and control of 305 wellheads spread across a 500 km² area
 - Scalable and flexible architecture for future extensions, including new types of facilities



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