

# Iberdrola-Elektro

Building a more reliable power grid  
in Brazil with private LTE connectivity

NOVA



# South America's first private LTE network for power grid automation



In pursuit of its commitment to being a “utility of the future,” Spain-based Iberdrola is bringing sustainable, affordable electricity to millions of people around the world. Its Brazilian subsidiary, Elektro, is working to realize that vision by increasing the reliability and efficiency of the electrical grid in the city of Atibaia and surrounding areas in the state of Sao Paulo.

Elektro originally sought a solution based on non-licensed wireless frequencies to manage its entire electricity infrastructure throughout the region. Nokia recommended an alternative: South America's first private LTE (P-LTE) network. Beyond improving the performance of Elektro's grid, P-LTE offered greater investment protection and future-proofing as an internationally regulated standard (overseen by 3GPP). The new network will also enable faster problem-solving and network evolution, providing connectivity and managing smart gauges, circuit reclosers, keychains and other IoT services beyond those an unlicensed Wi-Fi network can usually manage. Elektro continues to run Wisun and PRIME networks to connect gauges to concentrators (last mile).

## Reliable, high-performance connectivity

Nokia deployed a state-of-the-art P-LTE network in the 400 MHz (NB network) and 3.5 GHz frequency band, providing the wireless connectivity to enable the seamless exchange of real-time data between Elektro's operations center and the company's smart meters, substations, energy generation sources and other equipment distributed throughout Sao Paulo. Nokia's solution also provides flexibility for the future: the P-LTE network can adapt to 5G or other frequencies as required.

In the first phase of this pilot project, Nokia deployed a proof-of-concept P-LTE network serving 75,000 homes and businesses across Sao Paulo, providing connectivity for 78,000 smart meters, 1,300 load balancers and 850 concentrators. Once the initial deployment has proven successful, Elektro will expand the P-LTE network to cover the rest of its service area, eventually ramping up to full smart grid deployment.

## Better service through grid automation

The P-LTE network deployed by Nokia is expected to significantly improve service delivery in Sao Paulo. One of the unique features of the Nokia solution is that all meters, substations and load balancers on the network can be managed through a single dashboard, streamlining daily processes and making operations more efficient. Enhanced automation enables Elektro to spot faults, troubleshoot and respond to problems faster, improving service reliability by as much as 50%.

The P-LTE network also provides greater visibility into how the power grid is being used. By identifying areas where the grid is losing power — for example, due to weaknesses in the grid or unauthorized people accessing power illegally — Elektro expects to reduce commercial losses by up to 80%.

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## Challenge

- An unreliable power grid made it difficult for customers to access the electricity they needed
- Limited availability of bandwidth frequency

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## Solution

- The first private LTE network of its kind in South America
- System automation, management and monitoring from a single platform
- Solution deployed in the 400 MHz (NB network) and 3.5 GHz frequency band
- Initial deployment supports 75,000 Elektro customers
- Nokia provided network design, deployment, integration, assisted operation, maintenance, construction and training

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## Benefits

- Simplified grid management, fault detection and troubleshooting with a single dashboard to view all managed devices
  - Improvement in grid reliability of up to 50%
  - Reduction in commercial losses of up to 80%
  - Flexibility to move to 5G or other frequencies as required
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