



## WIRELESS M2M SOLUTIONS CASE STUDY

# China National Petroleum Company

## Peruvian Energy Company Optimizes Communications Network with Secure and Reliable Wireless M2M Solutions

Talara, Peru – China National Petroleum Company (CNPC) is the sixth largest energy company in the world. It has been in business for more than 55 years, with nearly 75,000 employees worldwide and presence in 28 countries. In Peru, CNPC began its operations in 1996 and holds stakes in exploratory assets in Northern and Southern Peru in four different basins: Marañón, Huallaga, Madre de Dios, and Ucayali.

### FreeWave Usage and Applications

In late 2009, CNPC started a pilot test using a wireless M2M communication solution made by a competitor of FreeWave Technologies. CNPC has numerous oil fields in Northern Peru (El Alto), and it had plans to test the new equipment in a coastal environment near the ocean in Piura, Peru. Close to the equator, the average temperature there is 35 degrees Celsius (95 degrees Fahrenheit), and this particular zone has small rivers and large amounts of rain in the summer. The goal was to have several test sites reporting to a gateway and then into a SCADA system to monitor several pumping devices and equipment including: Pump of Controller (POC), Pump Cavity Progressive (PCP), Balance Oil Recovery System (BORS) and plunger lift.

For the pilot, distances between links were not

long. However, the challenge was to communicate to sites that were located in depressions, canyons or small streams and did not have clear line-of-site (LOS). Engineers at CNPC attempted to get the pilot M2M network working for several weeks, but the competing communication solutions caused a lot of ambient noise and failed to establish reliable or consistent links. Without working links, the pilot would be a failure. In order to be successful, the engineering team looked to FreeWave Technologies to help reconfigure the competing solutions to ensure they had adequate separation between antennas on the tower. For the links that did not have LOS, they used FreeWave's FGR09CSUs in slave/repeater mode. The FreeWave wireless M2M communication devices demonstrated better performance and versatility in the applications with no LOS.

### Outcomes

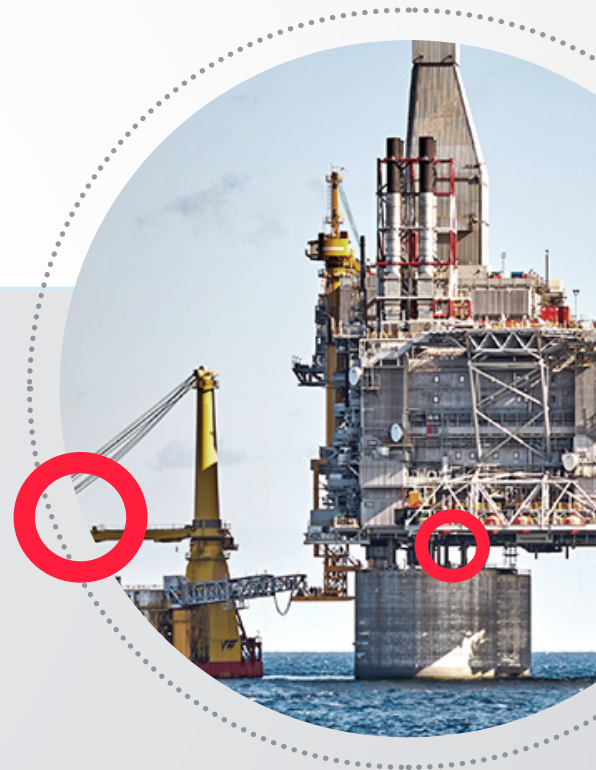
Within 30 minutes, the new M2M communication devices were installed. Although slightly more time was dedicated toward the selection of the repeater sites, the entire system seamlessly integrated into their SCADA system. Almost immediately upon deployment, FreeWave was able to establish a link, which was something CNPC had not accomplished with the competing solutions.

The engineers were impressed with FreeWave's ease of installation, and the entire process proved to be effective, low cost and timely, especially when compared to the difficulties with the competitor's solutions. During the entire three-month pilot, the FreeWave M2M solutions did not lose communication or the ability to send data to the SCADA system.

Altogether, CNPC is currently operating more than several hundred FreeWave wireless M2M communication devices, and the network continues to grow. CNPC is using these solutions at oil collection sites, treatment plants, water ejection sites and compression stations.

## HIGHLIGHTS

- > Almost immediately upon deployment, FreeWave was able to establish a link, something CNPC had not accomplished with competing solutions, even after several weeks of attempts.
- > FreeWave M2M solutions are built for challenging weather and other environmental factors, and successfully operate in locations where LOS is not always possible.
- > CNPC's engineers were impressed with FreeWave's ease of installation, and the entire process proved to be effective, low cost and timely.



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