

# Electricité de Djibouti

Harsh conditions and limited resources form the backdrop for a streamlined and cost-effective grid

Electricité de Djibouti (EDD) has long term goals to improve power supply to its customers, which have to be achieved in a very harsh environment. The North East African utility has to measure and manage its grid on the most basic of infrastructures and with limited resources.

In June 2013 The Republic of Djibouti announced a modernisation of its electrical grid, to be funded by the World Bank. The infrastructure for grid communications was chosen to be powerline communications; using the grid itself to carry the data.

In an environment where wireless coverage is negligible and fibre optic connections are costly, powerline-based solutions were the obvious choice for the bulk of the data communications.

PPC's Broadband Powerline (BPL) bridges the gap between the low voltage and medium voltage networks via a backbone to the utility.

PPC's BPL communications is used to carry load data from the data concentrator to the substation using the power lines, without the need for any GSM/GPRS radio network. The result is a 100 percent reliable two-way



Image courtesy of EDD

600,000 EDD customers will benefit from Smart Meters

communications infrastructure for meter management, which is being rolled out to 41,000 delivery points.

*"PPC's BPL solution proved to be 100 percent reliable at delivering two-way data communications and performs well in the very tough environment we have to deal with in Djibouti."* said a spokesperson for EDD.

## Achieving Djibouti's goals

Djibouti's long-term project of development and diversification in the energy sector aims to increase the population's access to energy and improve distribution services, especially by refurbishing the electrical grid and installing smart meters.

In partnership with the World Bank, the authorities of Djibouti opted for a smart electric grid allowing EDD and its clients a streamlined access to distribution, efficient commercial management, and easy new sources of supply integration.

### Project Summary

<b>Customer</b>	<b>Electricité de Djibouti (EDD)</b>
<b>Situation</b>	Modernisation of the electrical grid
<b>Solution</b>	Smart grid based on powerline communication (PRIME + Broadband Powerline (BPL))
<b>ROI / Customer Benefits</b>	Substantial savings on installation and running costs (no GPRS licences)

# Technical Details

The smart metering solution is enabling EDD to improve the efficiency of its grid and service to its customers, while making savings, particularly in the cost of data communications. Two-way communications ensure that EDD now benefits from a powerful system to both optimise its electrical grid and manage its subscribers.

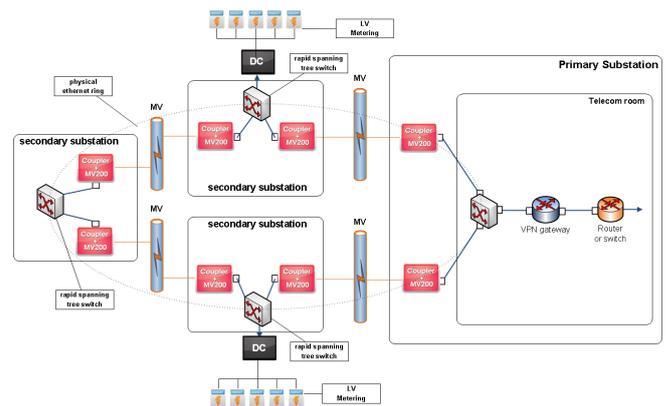
Sagemcom was selected to implement its turnkey OFDM powerline solution including meters (single and three-phase), data concentrators and management platform complemented and the central data management software, MDM-meter data management.

PPC's BPL system is used to communicate over the medium voltage power lines (20kV) from the prime data concentrator up to the fibre optic switchport in two main Secondary Stations.

From those two Secondary Stations the fibre optic backbone terminates at EDD's IT department where an MDM data server of is installed.

A trial installation of 3,500 meters was used to test the feasibility of the system, which will be rolled out to 41,000 metering points when fully implemented, serving a population of over 600,000.

Rigorous testing of the BPL in the medium voltage grid showed 100% reliability in getting the data from the meters to the management platform.



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## Harsh conditions

In summer temperatures regularly reach 42°C and even on winter nights they do not fall below 21°C.

There are barely any days in the year without sunshine and rainfall is just 13cm a year on average. As an additional technical challenge, some substations are occasionally inundated by the sea.

PPC's Rugged BPL modems operate in temperatures of up to 75°C, and work in concert with PPC capacitive couplers (operating up to temperatures of 60°C) to enable broadband data transmission on low and medium voltage power grids.



Medium Voltage Coupler BPL 24CC

## Technical Summary

<b>Products</b>	BPL in the Medium Voltage Grid BPL Modems, BPL 24CC capacitive couplers
<b>Situation</b>	Modernisation of the electrical grid
<b>Solution</b>	Smart metering solution based on powerline communication