

LEBANON'S DISTRIBUTION SERVICE PROVIDER PROJECT

By Mounir Yehia, NEEDS

Briefly put:

Lebanon's EDL is changing the way the grid in that country operates through the rollout of complete system overhaul. This includes an extensive metering programme as the first part of a smart grid transformation.

Lebanon upgrades distribution services in \$400 million project

The state utility of Lebanon, Electricité Du Liban (EDL), will roll out 1.2 million smart meters from June 2014, as part of a \$400 million programme to re-engineer and expand the network, improve customer services and reverse the company's revenue losses. The 'distribution service provider'

The industrial consortium was appointed early in 2012 for a four-year contract. The project started in April 2012.

The metering is the heart of the DSP project. From 800mV feeder meters, to 14 000 transformer meters and 1.2 million customer meters to balance the kWh vs Lebanese pound flow.

pilot tests (due for completion in June).

Itron, Echelon, Sagem, ZIV and El Sewedy have commissioned around 4 000 meters across 25 sites of the Middle Eastern country since August 2013 as part of the pilot.

Parameters of the programme:

- Pilot projects will be part of the overall AMR implementation: Most of the countries are currently developing pilot projects before moving to tendering the AMR implementation. Although this is causing a delay in full implementation, the pilot is needed for the client, manufacturer and contractors. Results of pilots are used to fine-tune the project before the mass production of meters, taking into considerations the specifications and the customer constraints.
- Building smart grids will be linked to network upgrades: Network status affects the proper operation of the AMR solution in terms of network structure, data communication and processing. Smartness cannot be developed on a 'poorly' operating grid.
- Pilot testing will take place on the basis of a detailed and transparent platform: The manufacturing companies are still dealing with the pilot as ways of testing the metering rollout, whereas the utilities are interested in the overall

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project, a unique programme in Lebanon, aims to outsource electricity utility distribution services to the private sector.

It includes building the first large-scale smart grid by rolling out 1.2 million smart meters integrated with the reengineering of distribution networks. This will be done alongside the introduction of a comprehensive benchmarking platform to better control collection management and customer services, energy balancing and financial flows.

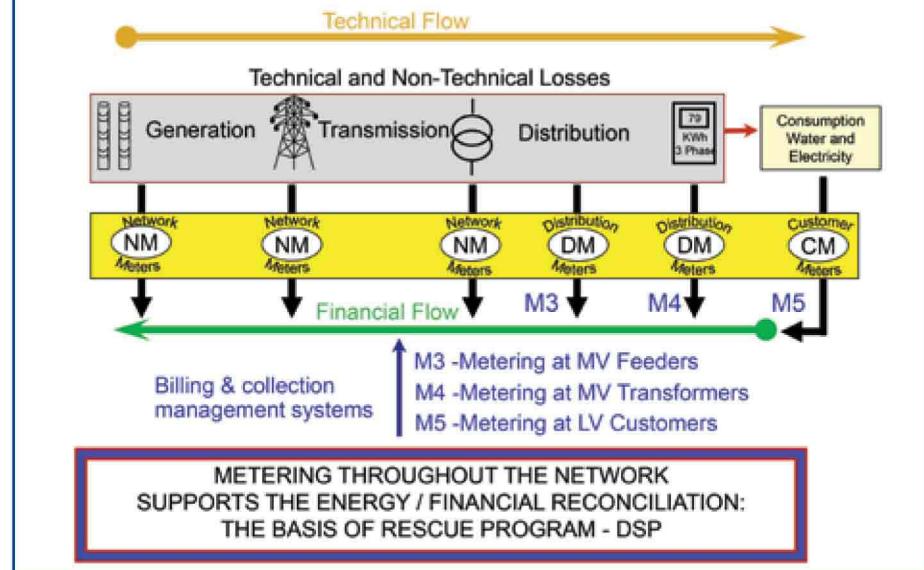
Before moving to implementation on a national scale, a pilot project with 25 sites was implemented and tested. The project had two major components – commercial and technical – and 10 focus areas: mobilisation, survey, planning, operation, investment expansion, smart metering, meter reading, billing and collection, customer services and overall management of distribution activities – based on key performance Indicators covering technical and financial performance, and quality of services

EDL has selected three distribution service providers (DSP), which are made up of local Lebanese contractors (BUS, NEUC and KVA) along with international energy companies such as France's ErDF, Telvent, STEG, and metering suppliers, including Itron, Echelon, Sagem, ZIV and El Sewedy metering.

In this concept, the network reengineering and expansion, and the smart metering deployment are contractually in the same hand. Building the smartness has to be integrated with "cleaning the network"

The programme includes deploying an average of 400 000 smart meters by each DSP consortia on successful completion of

The Metering: Product/ Money Flow Balance



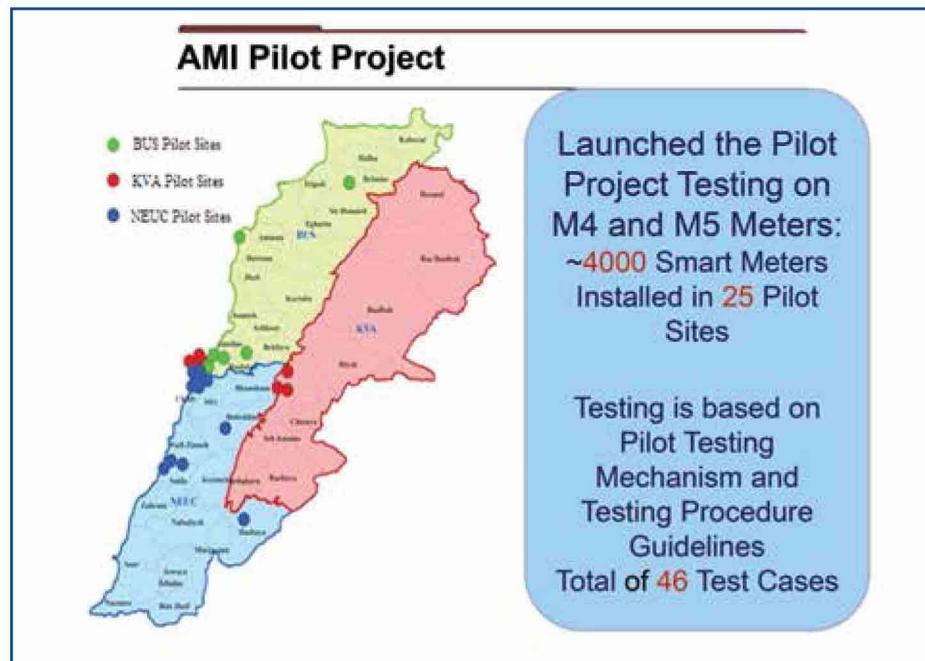
AMR solution. Pilot testing is more than 'laboratory' testing. Field-testing is of importance to ensure project success.

- Open architecture and interoperability are more than concepts: Substantial effort is still needed from all parties (utilities and manufacturers) to ensure common understanding of these terminologies
- The pilot design and scale shall be done with a good understanding of the utility business and network structure: The Lebanese pilot covered urban, semi-urban and rural areas. Moreover, the transformer DCU was part of the testing process to ensure energy correlation as a core business requirement of the project across all types of customers.
- The pilot execution is the key input into the overall project implementation: The constraints and difficulties occurring over the pilot implementation provides substantial input to adjusting the approach, schedule, and commissioning of the overall project.

The project will lead to savings of more than \$1 billion in four years, according to NEEDS.

The saving shall be part of reducing the financial debt of the utility which constitutes 52% of the government budget debt in 2014, and 32% of total governmental debt.

Comprehensive rollout plans were completed from pilot to full deployment and pilot testing was undertaken in July 2014. Additional work undertaken during the initial project phase:

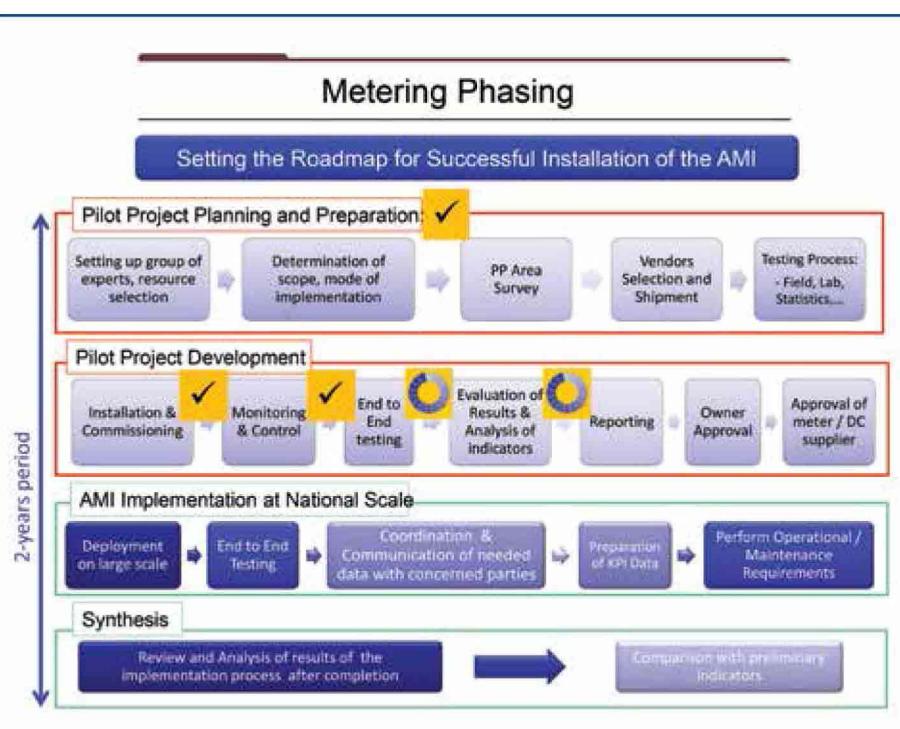


- Refurbishing, modernising and reequipping 40 regional offices with new vehicles and modern equipment to recover the deficiencies of the last twenty years. More than 65 000 customer applications were accumulated but delayed due to EDL financial and resources constraints. This will now change with the additional resources.
- A survey of mV and LV networks at GIS platform has been completed to consolidate EDL assets in the absence of a digital recording of network facilities (transformers, cables, overhead lines, and others). Such a survey will support the government's final decision on the

privatisation model upon programme completion.

- More than \$200 million of network upgrades are planned as part of the complete project, of which \$20 million have already been spent to resolve critical network bottlenecks. A substantial internal rate of return was noticed after the elimination of the high overload of the existing network, improvement of voltage drop in rural areas, and minimisation of network losses.
- M3 meters at MV Feeders are installed and under final commissioning.
- An advanced SAP platform has been built for performance assessment and assurance of data information flow from the three DSPs to EDL and the programme manager for proper project management

The 'distribution service provider' project outsources the electricity utility distribution services for a radical transition to intelligence of the digital age. It includes building a large-scale smart grid integrated with the networks reengineering, introducing a benchmarking platform for a breakthrough in customer services and balancing of energy and financial flows. The foundation phase of the project has now been completed and the project is moving to full implementation. MI



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