Linky
The smart metering project of ERDF

IDRI Taipei, August 2011
Linky, an ambitious pilot...

III 3 main targets

- Check the roll-out processes
- Build the Linky IS
- Confirm financial hypothesis

III 300,000 customers & 2 regions

- **III Touraine**
  - 100,000 customers
  - Mainly rural
  - 33 inh / km²

- **III Lyon**
  - 200,000 customers
  - Urban
  - 1.750 inh / km²

III A 24 months pilot

<table>
<thead>
<tr>
<th>2009 march</th>
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<td>Substations preparation</td>
<td>Data concentrators installation</td>
<td>Meters installation</td>
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Elongé, un ambitieux pilote...  

III 3 objectifs principaux

- Vérifier les procédures de déploiement
- Construire l'application Linky IS
- Confirmer l'hypothèse financière

III 300 000 clients & 2 régions

- **III Touraine**
  - 100 000 clients
  - Principalement ruraux
  - 33 habitants / km²

- **III Lyon**
  - 200 000 clients
  - Urbain
  - 1 750 habitants / km²

III Action pendant 24 mois pilote

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<td>Installation des concentrateurs de données</td>
<td>Installation des compteurs</td>
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... and a successful one!

March 31st, 2011: end of field operations. Main results

- **4,600** DC installed (99%)
- **250,000** meters changed (90%)
- **92%** of the meters communicate
- **98%** of tele-operations are achieved in less than 48 hours
- **30 mn** (average) to replace a meter
- **1,500** meters changed per day (average)
- Less than **1%** claims
The end of the massive roll-out expected in 2018

III Share our lessons learnt
with the public authorities in order to obtain their GO as soon as possible

III Start our generalised roll-out (2013)
   III Work with industrials ready to start quickly
   III Use the PLC « G1 »

III Prepare the future (2015)
   III Confirm PLC « G3 » possibilities through a specific pilot
   III Develop the smart grids network functionalities for the system
   III Take part to the development of DSM services
   III Include Linky technologies into ERDF international offers
Linky, of course is an electric meter...

- Designed from “CBE” functionalities
- In the same volume as this,
- With 5 main supplementary attributes
- Responding to customer expectations.
... but first of all, it’s a system

### INTEROPERABLE
(interchangeable equipments, standard communication protocols)

### 2-WAY
(communication in both directions)

### UPGRADABLE
(scalable system and components, step by step)
ERDF industrial policies

- 2 different contracts for building the whole system
- 1 call for tender for the Pilot project: turn key contract trusted to Atos
- 1 (or 2) call for tender for the generalization: n contracts (1 by supplier)

- Open specifications
- Detailed specifications for the meter, the concentrator & PLC
- A third party checked the specifications by building a PLC modem

- Interoperability
- 3 manufacturers of meters (L&G, Itron & Iskraemeco)
- 2 manufacturers of concentrators (L&G & Itron)

- Unique software for all data concentrators
- Ensure the same functionalities everywhere
- Possibility to have other manufacturers.
New advantages for the client, today...

**Without Linky**

- Invoices bases on estimations
- Be at home for the reading
- Be at home for interventions
- Time between a demand and an intervention

**Linky’s benefits**

- Daily remote readings
- 70% of work done remotely
- 24h vs. 5 days
  - 7 Days a week
... and tomorrow!

Consumption management thanks to
① Better information

Through the Linky system

By wire or radio

On the web

On an IHD (In Home Display)

② Equipments control

8 interfaces
Linky is also an essential building block for the Demand Side Management

- Information to the customer facilitating demand control
- A range of tariffs and incentives, offered by the suppliers
- Indirect load shedding, to reduce peak demand

- Making consumption data and associated services available
- Advanced tariff scheme for suppliers
- Control of remote devices and associated services
For ERDF, Linky can be considered as the 1st building block for smart grids

Remote control via AMM

Managing the local balance production / consumption

Linky concentrators IS

Remote reading and operation system

consumers producers

Collection system (Linky) and data management

Risk management and preventive maintenance

balancing of LV network phases

A faster intervention time on networks

Optimizing network investment & technical losses
Defining the benefits for ERDF

3 main domains benefit from Linky

- Reduction of non-technical losses: 40 to 45%
- Performance of interventions: 40 to 45%
- Better asset management: 15 to 20%

% of each benefit brought by the project
On the cost side, our pilot project has confirmed our assumptions.

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- Installation: ~50%
- Purchase: ~40%
- Other: ~10%

~ 4 billions €
Conclusion: a viable business case

Linky « straight »
ERDF business

Benefits for the society
(EV, renewables, services, …)

IS & others

purchase

installation

asset management

performance of interventions

non technical losses

Benefits for the society
(EV, renewables, services, …)
The main characteristics of the Meters

- 3 meter suppliers for the Linky pilot
- Open specifications (COSEM)
- Standard Linky functionalities (load curve, breaker...)
- French electric specifications
- 20 years lifetime; 0.5% annual failure rate
- Local read/write interface via Euridis2 protocol
- Cable output to provide metering data to an in-home display/device
- Upgradeable firmware
- Capable to initiate the communication to send an alarm
The main characteristics of PLC

- 1 open protocol
- Cenelec A frequency range
- SFSK modulation
- Based on DLMS/COSEM
- Guarantees interoperability between meters and data concentrators from different suppliers
  - Bandwidth of 2400 bps
  - Data volume optimization
The main characteristics of the data concentrator

- 2 data concentrator suppliers for the Linky pilot
- Open specifications
- 20 years lifetime; 1% annual failure rate
- A unique operating system (OS), a unique software
- Local I/O to connect with network equipments, heading to Smart Grid
- Upgradeable software
The characteristics Wide Area Network (WAN)

- Mainly GPRS
- Evolutive to support other technologies (BPL, 3G, Wimax…)

Linky
Central
IS
The main characteristics of the central Information System (IS)

- Scalable up to 35 Million meters
- Based on existing softwares
- Evolutive to manage C&I meters
- Metering Asset Management
- Monitoring tools for the entire system (meter – PLC – Data concentrator – WAN – IS)