Approaches to Pilots: Smart Metering, Smart Grid

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Pilots and roll-outs across Asia Pacific
Pilots: Purpose

• For utilities to –

Innovate in a low risk environment
Gather data for business case validation
Field test new technologies
Generate capabilities and insights
Prepare for internal business transformation
Find a strategic and experienced partner

>> with the vision to support ...
  a successful full-scale rollout of Smart Meters ...
  ... towards Smart Grid Implementation
Pilots: Case Studies

A review of significant pilots that have successfully incorporated smart grid objectives with smart metering rollout:

- The LINKY Project, ERDF, France
- Smart Grid Smart City Trial, Ausgrid, Australia
- Smart Grid Pilot System, ACEA, Italy
- HQ Pilot Projects, Hydro Quebec, Canada
• **Technology**
  
  ➢ 300,000 Linky smart metering meters
  
  ➢ 2 way PLC communications
  
  ➢ S-FSK interoperable
  
  ➢ 7,000 data concentrators
  
  ➢ Interoperability with different types of metering devices

• **Build smart metering system to enable ‘true’ smart grid implementation**

• **Improved network monitoring incl. power quality and network status**

• **Improved customer service**
  
  ➢ Online access
  
  ➢ Billing on actual consumption

• **Internal process efficiency**

• **Benefit was realised immediately**
• **Technology**
  - 25,000 modular smart meters
  - Advanced communications including WiMAX, ZigBee, HomePlug AV
  - Integration to utility back end system
  - Grid-side applications and measures
    - Distributed Storage
    - Distributed Generation
  - Enabling of consumer applications

• **Commercial-scale rollout to test the business case for smart grid**

• **Public and corporate awareness**

• **Robust information and data to inform broader industry adoption**

• **Investigate synergies with other infrastructure**
  - Multi Utility
  - National Broadband Network (NBN)

• **Results due October 2013**

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Smart Grid Pilot System - ACEA Italy
One of the largest, successfully completed energy efficiency trials – Euro €5m

- **Technology**
  - Full deployment of smart meters (1.4 million)
  - PV System
  - Voltage management
  - Energy Storage
  - EV Charges
  - μEMS

- **Smart grid measures**
  - Control of network
  - Selectivity of the protection system
  - Management of the voltage profile
  - Handling of generators

- **Ensure continuity of electricity service**
  - Minimisation of energy losses
  - Management of re-charging of EV

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**Smart Grid Pilot System - ACEA Italy**

*Eighty million households across Italy*
HQ Pilot Projects – Hydro Quebec, Canada
From three pilots of 20,000 smart meters to a full deployment of 3.83 million smart meters

3 representative sites for pilots

- Diversity: urban area, semi-urban, rural/residential and industrial customers/inside and outside meters

Boucherville
Starting: June 20, 2011
- Mostly outside meters (64%)
- Mostly single-family homes
- Commercial and industrial buildings (4-storey max.)
- Absent to moderate vegetation

- # meters: 5,735
- # collectors: 1
- # routers: 12

MRC Memphrémagog
Starting: August 8, 2011
- Mostly outside meters (84%)
- Family homes, vacation cottages, farms
- Some commercial and industrial buildings

- # meters: 1,762
- # collectors: 1
- # routers: 119

Montreal - Villeray
Starting: August 20, 2011
- Mostly inside meter (86%)
- Dense multi-family dwellings
- Commercial and industrial buildings (8-storey max)
- Almost no vegetation

- # meters: 12,501
- # collectors: 2
- # routers: 16
Technology

- ~3.8m Smart Meters with RF Mesh Communication
- 15-minute load profile data for residential meters
- 5-minute data for C&I delivered hourly
- 100% of meters covered
- 99.4% daily read success (consumption profile plus register reads)
- Service disconnect and on all residential meters
- HAN capability on all meters
- Advanced security capability (already installed)
- Dual energy rate with external temperature sensor on 125,000 meters

<table>
<thead>
<tr>
<th>Benefits</th>
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<tbody>
<tr>
<td>Sustainability of meter assets</td>
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<td>Improvement in operational efficiency</td>
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<td>Remote connect/disconnect option</td>
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<td>Opportunity to offer new services to customers</td>
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As observed, pilots can be

- Large
- Complex
- Costly
- Resource-intensive

If done right, pilots can be successful and yield enormous learnings:

- Technical feasibility of vendor systems
- Identify measures and evaluation criteria for technology
- Test ‘uncertain components’ of business case incl. installation, failure rates, system integration, operation and maintenance
- Validate assumption about costs & benefits
- Set regulatory expectations of actual benefits (value) for full deployment
- Assess knowledge base and quality of vendors/partners
Pilots and Full Smart Meter roll-outs: **Mitigate the risks**

1. Lobby for supportive regulatory framework
2. Plan for future requirements
3. Prepare for internal business transformation
4. Define technical decision drivers
5. Solid consumer engagement
6. Select experienced and reliable vendors with broad international experience
Landis+Gyr and Toshiba
Global Leaders in Smart Metering and Smart Grid

Leader in Smart Metering

• 2012 global leader in electricity metering and Smart Metering*
• More than 27 million smart meter points deployed or contracted
• Managed services for more than 20 companies representing over 14 million end points
• More than 1,000 R&D engineers
• Leading global brand with 100+ year history
• Local presence in over 30 countries
• Over 3,500 utility relationships worldwide

*Source: Frost and Sullivan

Global technology giant

• Major multinational technology brand established in 1875
• World's 10th largest electronics manufacturer
• Net sales of US$77 billion
• 203,000 employees worldwide
• Offers a total solution to optimize control of electricity, water, transport, logistics and information
• 27 smart community projects now underway worldwide
Please join tomorrow’s round table discussion on:

Communications Technologies
“The Last Mile”
Smart Metering, Smart Grids

Hosted by Steve Jeston, CEO Australia, New Zealand and SEA, Landis+Gyr
Thank YOU!