



Workshop Smart Grid  
Standardisation  
May 16th 2013



# PRIME Alliance and Technology

Session 2: Smart Metering

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## AGENDA



Introduction

PRIME Technology and Future Developments

PRIME Certification and Standardization Status

PRIME Field Results





PRIME IN BRIEF



## **PRIME = PowerLine Intelligent Metering Evolution**

Interoperable Standard for  
Advanced Metering Reading and Smart Grids

- A Power Line Communication (PLC) Technology
- Originally defined OSI layers 1 & 2
- Open, license free, multi-vendor interoperable PLC system
- Multiple Certified PRIME Products
- Approved as Standard by International SDO
- Millions of PRIME smart meter installations by major Utilities





## PRIME CONTRIBUTORS



### Utility



### Semiconductor



### Meter Manufacturer



### IT/Smart Grid



### Research



Note: There may be additional PRIME members whose logo's have not yet been added to this presentation



## MILESTONES



- 2009 PRIME Alliance established - 8 founding companies
- 2010 first interoperable systems installed
- 2011 Iberdrola first Spanish pilot deployment: 100k meters
- 2011 Gas Natural Fenosa rolling out PRIME and building a PRIME research + test laboratory in Madrid
- 2012 PRIME Alliance registered as a Belgian non-profit association
- 2012 EDP Portugal first installation: 90k meters (InovGrid Project)
- 2012 first pilot installation outside Europe (Energex, Australia)
- 2013 Energa-Operator, Poland 310k deployment



2'000'000+  
Meters Deployed Worldwide





## PRIME ENABLING SMART GRIDS



PRIME provides a forum for the definition, maintenance and support of an open and comprehensive standard for narrowband power line communication for Smart Grid products and services.



### ADVANCED METERING

PRIME PLC Dataconcentrators  
PRIME PLC Meter Devices

### GRID CONTROL

Control and Automation along the  
Distribution Network

### ASSET MONITORING

DG such as Solar – micro-wind  
integration, Monitoring of Assets

### CORE INFRASTRUCTURE

1/3-phase underground and overhead powerlines  
1/3-phase underground and overhead transformers



## TECHNOLOGY ROADMAP



### Regional Expansion Features

- Robust Mode finalized by June 2013
- Extension to 500 kHz finalized by June 2013

### Advanced Security Features

- Additional Security Profile for MAC layer June - December 2013
- White Paper on PRIME Security published by September 2013





## STANDARDISATION STATUS



- PRIME is already an approved International standard
  - Protocol specs published as Recommendation ITU-T G.9904
  - Power Spectral Density masks published as Recommendation ITU-T G.9901



- PRIME is Normative Annex of IEEE P1901.2 standard



- Powerline carrier comms technology defined today within CENELEC Band A



- PRIME is about to be adopted as European CENELEC Technical Specification CLC TS-50567-1







## CERTIFICATION



### Compliance Assurance

Neutral Conformance Labs now certifying vendor technologies assuring compliance with PRIME Alliance requirements

### Conformance Testing

Renowned third party certification groups, **DNV KEMA** and **LABEIN Tecnia**, are providing such conformance testing in accordance with PRIME Alliance Standards

### Base Node Certification

Certification Process for PRIME Base Nodes implemented, with definition of suite of test cases, certification software toolkit and definition of standardized interfaces between the toolkit and tested devices





## MEMBER CERTIFIED PRODUCTS



Atmel

ADDM2102  
Modem Board



CIRCUTOR

CIRWATT B200RCP  
CIRWATT BB41RCP



elster

AS300  
Single Phase Meter



FUJITSU

PRIME Chipset  
MB87S2080



GE Energy

SGM1100 IEC  
Smart Meter



Itron

EM410i Meter



JANZ

C380 PRIME



Landis  
Gyr+  
manage energy better

E450 PRIME



ORBITIS  
energia intelligente

DOMOTAX  
TeLeGeST PRIME



RENESAS

uPD809504



SAGEMCOM

CX1000-6ES & PCX1000-6  
Single Phase Meters

CX2000-9 & CX2500-9  
Three Phase Smart Meters



Sogecam  
Energy

SOG-WAVE  
SOG-WAVE-3F



ST  
life.augmented

EVALST7590T-2



TEXAS  
INSTRUMENTS

TMDSPCLKIT-V3



ZIV

Single-Phase Meter 5CTM  
Poly-Phase Meter 5CTD





## IBERDROLA ROLL-OUT FIELD RESULTS



March 20, 2013

Smart meters installed

Number of meters: **1.131.620**

Data concentrators installed

Number of DCs: **5.155**

Feb 28, 2013

Number of invoices based on remote meter readings

**3.208.847** invoices

Success rates (KPIs)

**96% to 99%**

Feb 28, 2013

Remote operations

On-demand remote readings: 57.173

Disconnections: 20.033

Reconnections: 14.626

Power programming: 707.436

31 dec 2007

31 dec 2014

31 dec 2016

100% meters replaced

31 dec 2018

35 %

35 %

30 %

3 Courtesy of IBERDROLA





## CONCLUSIONS



PRIME is an open, royalty free worldwide standard suitable for “last mile” Smart Metering and Smart Grid applications

PRIME is a stable and future proof **OFDM PLC technology**, specified and maintained by the PRIME Alliance, made by leading industrial players

PRIME does have a clear **independent certification** process

PRIME **ensures true interoperability** among equipment and systems from several different manufacturers

PRIME **is field proven in high volumes** and is being deployed now worldwide

PRIME is open to include **additional requirements for new markets**





# THANK YOU

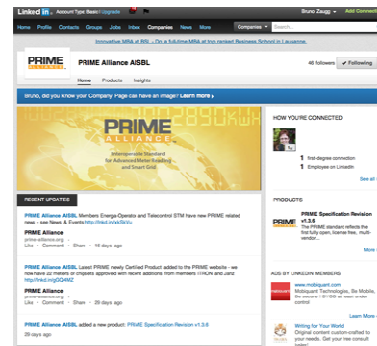
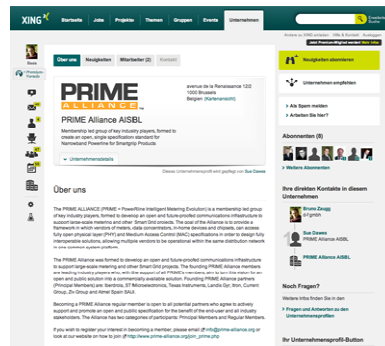


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