



Opportunities with CDMA450 in a fast changing utilities industry

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Smart in Metering

Xemex is a provider of smart metering communication hubs. The company is leading innovator in its industry and is market leader in the Benelux area with an installed base of over a quarter million units in the field. Xemex's customers are meter manufacturers, service providers and utilities in Europe. Xemex provides multi utility telemetry communication modules based on national standards. Enabling AMI, prepaid services and demand response. Xemex products are based on a modular concept and open standards. www.xemex.eu



Company profile

Xemex has been working with utilities, meter vendors and telco's for over 15 years.



Has proven technology > 1/3 Million in the field and > 100 years of experience, with a multitude of open standards..

Has an active roll in the green tech industry and develops front running technology.

Portfolio

Residential Metering Gateways

Communication hubs for use
with modular residential Electricity
Gas, Heat or Water meters



Business Metering Gateways

Standalone communication
hubs for industrial usage.



End User Metering Gateways

Communication hubs for
standalone usage at consumers.





Value and propositions with CDMA450 for Utilities



CDMA-450 A Telecom Solution for Utilities

*Alliander, Gilles Robichon, Product Manager Telecom
CDG CDMA-450 SIG, London – 14th June 2012*



Telecommunication need for utilities

Production



Electricity Grid



Smart Meter



Sync of production and usage of energy



Smart grid: (near) real-time communication to control the grid.

Smart meter: secure communication, data collection and control of energy endpoints.



This brings high demands for the telecom infrastructure.

1. Future proof > 15 to 20 years.
2. High security
3. High availability
4. Superior indoor coverage
5. Interoperability of hardware
6. International standards
7. Low TCO

| PLC | | |
|---|--|---|
| Issue | Impact | Status |
| Limited and unreliable communication | Performance barely meets prescribed requirements and does not meet future requirements | Opportunities for research on performance improvement |
| Weak legal position in case of transmission failure | High probability of re-visit of sites per address to repair problems. | European initiatives have been launched to improve EMS regulation for PLC |
| Network coverage/penetration variable and unpredictable | Relatively high rollout costs and administrative expenses | Improvement uncertain |
| High maintenance/management | Relatively high management effort | Improvement uncertain |

| GPRS | | |
|--|---|--|
| Issue | Impact | Status |
| The maintenance of GPRS as a national service is very uncertain. The required term of 15 years will probably not be met | Early replacement of the entire amount of GPRS modules in the field | Final decision is not expected for 2013 |
| Technical lifespan of crucial components of GPRS does not meet the requirements | High risk for re-visit within life-span for repair/maintenance issues | Improvement uncertain |
| Communication performance will probably not be sufficient for increasing bandwidth and communication needs during lifespan | High risk for re-visit within life-span | Performance improvement not possible (higher bandwidth not possible) |

CDMA450 seems a good alternative

| Comparison of Alternatives | | PLC | GPRS | CDMA | All-IP |
|----------------------------|------------------------------------|------------|------------|-------------|------------|
| Bus. case | Maintenance & Failures (Stability) | Sufficient | Good | Very good | Good |
| | Lifespan network | > 20 years | Limited | > 20 years | > 20 years |
| | Smart Grid ready technology | No | Yes | Yes | Yes |
| Technology | Data security / privacy | Sufficient | Strong | Very strong | Reasonable |
| | Technology maturity | Moderate | Very good | Very good | Very good |
| | Coverage (Permeability) | Good | Good | Very good | Good |
| | Coverage (Geographical) | Good | Good | Very good | Reasonable |
| External | Piggyback on other applications | Moderate | Reasonable | Very good | Moderate |
| | Degree of influence on the network | Very good | Moderate | Very good | Moderate |
| | Consumer acceptance | Risk | Good | Good | Good |

Promise of CDMA450 for Smart Grids

1. Futureproof (in certain countries)

- License to 2020 < (County dependent)
- Can be deployed nationally or in parallel with metering rollout

2. High degree of protection (by closed network with closed usergroups):

- Extra security for network and connection possible
- Dedicated network for metering and select business users

3. High degree of availability

- Network availability fixed in SLA's
- Licensed frequency, so no interference with other wireless-technologies
- Monitor connectivity -> act quickly on failures

4. Superior indoor coverage

- The low frequency band has a high penetrating radio connection leading to excellent reception indoors
- Indoor coverage upgradable if necessary in compliance with roll-out schedule

5. Hardware interoperability

- Smart meters based on this technology are available in the market from different vendors
- Network components are readily available in the market from different vendors

6. Global standards

- Technology based on global standard. While huge Chinese market is putting pressure on equipment prices
- Proven Technology

Benefits of CDMA 450 for Utilities

- CDMA450 fills in the gaps of GPRS, UMTS and PLC or even cover the covers all communication needs.
- With CDMA450 the technical benefits are
 1. Existing coverage to outdoor cabins (In forests, near the shore)
 2. Very good indoor penetration of the radio signals
 3. No failing sim cards (non needed)
 4. No failing connection at emergencies
- Business benefits
 1. Lower costs in operation
 2. Less fillin technologies
 3. Less dependencies of massmarket communication trends.



4 CDMA 450 propositions for utilities

Smart Metering



- High numbers
- Low ARPU
- Low datarate

Field Force



- Low Numbers
- High ARPU
- Voice + Data

Mid voltage stations



- Low numbers
- High demand
- High datarate
- Multi network

EV and Smart Lighting



- High numbers
- Low ARPU
- Low datarate

Smart Metering



- Based on EU Directive 80% homes in Europe by 2020 equipped with SmartMetering.
- Low datarates
- Indoor, specific standards and integration.

Key figures

- < 512 kb per month of traffic
- < 1 Eur per month in revenu
- Proven in pilots in NL, DE and NO

Ecosystem

- Metersuppliers ; Landis + Gyr etc
- Metering Module vendors; Xemex etc
- EV Charging stations

Telecom partners with experience

- KPN
- Inquam
- Net1

Field Force



- Low Numbers
- High ARPU
- Voice + Data
- Proven technology

Key figures

- 1.000 units per 1 Mln households
- High arpu in a subscription model
- Voice ~ 400 Minutes a month
- Data ~ 20 Mb per month

Ecosystem

- Ruggedised phone manufactures

Telecom partners with experience

- Net1



Mid voltage stations



- Low numbers
- High demand
- High datarate
- Multi coverage

Key figures

- > 1 GB of traffic per month
- High arpu
- Heavy dependency

Ecosystem

- Router suppliers : Digi,
- RTU suppliers (non CDMA)

Telecom partners

- KPN
- Net1

EV and Smart Lighting



- High numbers
- Low ARPU
- Low datarate
- New technology

Key figures

- MIns of devices
- Low arpu (comparable with Metering)

Ecosystem

- Router providers : Digi etc
- Direct Lighting or EV modules : Xemex etc

Telecom partners with experience

- KPN

Concluding



1. Major opportunities
2. Real demand throughout Europe
3. Creativity in business models is required
4. Ecosystem is available
5. Cooperation / Partnership with other Telco's can help
6. Xemex can support you with finding the right partners based on experience in western Europe.

The logo for XEMEX, featuring the word "XEMEX" in a white, sans-serif font. The letter "E" is stylized with a small, curved line underneath it. The logo is positioned in the upper left corner of the image.

XEMEX

Thanks

