Electricity Social Dialogue Committee meeting

Automated Meter Management Roll-out

Enel Distribuzione’s experience

Bruxelles - June 23th, 2010

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Head of
Grid Planning & Support
Enel Distribuzione spa
Enel Distribuzione in the Electricity Sector Positioning

Results achieved
Enel Operational Excellence

✓ Network remote control and automation
✓ Investment and network development optimization
✓ Automated Meter Management
✓ Process reengineering
✓ Automated Work Force Management

![Graph showing OPEX (€/customer) vs. Quality of service (minutes interruption/year) from 2001 to 2008.]

- 2001 (128 min; 80 €/Customer)
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008 (50 min; 49 €/Customer)
Operational Excellence and Regulation

What Regulation asked Network Operators

\[
COR_{08} = \left[ COE_{06} \times \frac{Q_{07}}{Q_{06}} + 0.5 \times \max(COR_{06} - COE_{06};0) \right] \times (1 + RPI_{07} - X) \times (1 + RPI_{08} - \overline{X})
\]

- **Profit sharing**: If the operator outperforms (red line) the efficiency required (blue line) during a regulatory period, the benefits are equally shared between customers and operators;
- **Price cap**: tariff component related to operating cost is reduced accordingly in real term, the decrease is partially compensated by volumes increase;

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50% of outperformance given back to the customers through a tariff reduction.
Telegestore is fully operational on > 32 Mln Customers
- Leading Technology
- Excellence in operation

Benefits are targeting Enel and the Italian Electricity System

Italian Authority AEEG has published the resolution 292/06: all Italian electricity customers will be equipped with AMMS (Automatic Meter Management System) by 2011
AMM Roll-Out
Drivers

✓ Improving the efficiency of customer relationship processes

✓ Innovating the customer relationship

✓ Laying the foundation of Smart Grids
Telegestore Deployment plan
Road map

1999→2001
- Kick-off (1999)
- Prototype (2000-2001)
- Industrial pre-series (2000-2001)
- Strategic Agreements
- Stipulation
- Trial start with new meters
- Start Installation plan of single phase digital meters and LV concentrators

2002
- Start Installation Plan of Multiphase Digital Meters
- LV concentrators Commissioning
- Massive installation (700,000/month)

2004
- Remote Management of Commercial Work Order
- Remote Management of Technical Work Order
- PDA application for commercial and technical Work Order
- Remote Meter Reading
- Periodic (bi-monthly) Meter Reading and advanced Billing Tariff schemes
- Remote Management of fraudulent Customers

2005
- Evolution to Meter Data Management System, monthly Remote Reading Consumption Profiles
- Start deployment of New Generation Meters and LVC with ST PLC chipset

2006...
- Advanced Management of Distribution Network
- Demand and Energy Procurement
- Multi metering
- Bidirectional Meter for Micro Generation Management
- Integration with WFM System for Real-time Work Orders Assignment and Optimization
- Meter & LVC Problem Manager Sub-System
- Mass installation completed

2008...
- Trial start with Actaris Meters
- First release of Measures Management Module: acquisition, validation, storage, ...

Medium and Large Business Customers
- Commercial and Technical Agreements with Meters Manufacturers to support AMR System development
- Completed Measures Management
- Remote Management of Commercial and Technical Work Order
- Measures Pre-billing Sub-System implementation

Residential and Small Business Customers
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- Commercial and Technical Agreements with Meters Manufacturers to support AMR System development

>30 Millions meters replaced and put in operation in 5 years
Telegestore Project
Main Figures

- 127 Enel Distribuzione Zones
- 500 Enel.si agencies
- > 3,500 third-party installers
- 8,500 Palmtops
- 120 ICT Project technicians

One High Availability System
Operating Telegestore
Remote management readings and operations

READINGS
600,000/day
Successful remote readings 99.9%*

Montly-bimontly 204,700,000
Spot readings 5,000,000
Total 209,700,000
Load profile 46,000,000

OPERATIONS
50,000/day
PEAKS of 300,000
Successful remote operations 98%*

Activations 845,000
Contract management 15,263,000
Contract termination 759,000
Bad payers management 2,958,000
Total 19,825,000

*Yearly Data
S.Mi.L.E.: Integrating AMM in Enel’s existing systems

Network Management Systems

Commercial Systems

From a front end system...

Commercial System (CRM)
Centralised Remote Management System
Interface Communication Software

Data Communication Centre

Public Communication Network

Online

Concentrator

Meters

PLC 2,5 Kbps

Total: 30 Millions

Intranet

PDA/Tablet

GME

Control Centres

Field force and Control Room (http://tgs.enel)

Dashboards

Total: 350,000

Online

Analysis service and Reporting

Online

SMILE

to a fully integrated system

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to a fully integrated system

From a front end system...
Functionalities:

• Navigation on standard Route Maps and on SiGraf Maps (Enel MV-LV Cartography)
• SiGraf Map consultation
• E-meters Management
• Customers Transactions
• Bad Payers Management
• Remote control equipment Management
• Technical diaries (Time and Materials spent)
• MV mobile maintenance plans
• HV mobile maintenance plans

• LV Fault Ticketing
• E-mail via LAN or GPRS
• SAP HR Diaries
• Safety Tips
• Work-plans
• Documentation availability
• Microsoft Office Suite (Excel, Word, Acrobat Reader)
• Access to Enel Intranet
Increase Cost Efficiency: Telegestore Business Case
Investment and savings areas

INVESTMENTS AREAS

- **R&D COSTS**
- **PRODUCTION AND INSTALLATION OF ELECTRONIC METERS**
- **PRODUCTION AND INSTALLATION OF CONCENTRATORS**
- **IT SYSTEM DEVELOPMENT**

**Revenue Protection**
- Thefts and Failures
- Self Consumption

**Customer Service**
- Checks on Meters
- Customer Service
- Invoicing

**Purchasing and Logistics**
- Purchasing
- Revision
- Warehouses
- Internal Transportation

**Field Operations**
- Installation and Recovery
- Interventions on Failures
- Replacement
- Activation Deactivation
- Failed Accesses
- Readings

The investment and savings areas help increase cost efficiency in the Telegestore business case.
Improve Customer Satisfaction

Benefits

FOR CUSTOMERS and other electrical system operators

- INVOICES ON REAL CONSUMPTION
- REMOTE CONTRACT MANAGEMENT
- TAILORED TARIFFS
- SAVINGS IN BILLING
- PRE-PAYMENT
- EASIER FREE MARKET DEVELOPMENT AND MANAGEMENT

FOR ELECTRIC SYSTEM & SOCIETY as a WHOLE

- PEAK SHAVING
- ENERGY EFFICIENCY AND CO₂ REDUCTION
- REDUCTION OF COMMERCIAL AND TECHNICAL LOSSES

FOR DSOs

- CUSTOMER SATISFACTION
- EXCELLENCE IN COMMERCIAL AND TECHNICAL QUALITY
- OPERATING COST SAVINGS
- LEADERSHIP IN INNOVATION

FOR DSOs
Support the Market and Promote Energy Efficiency

Shared Benefits

Tailored tariffs

Switching (ml)

Energy Balance

Efficient and competitive market

Success rate of meter verification from 5% to 60%
Thanks for your attention!