

CEER workshop on Meter Data Management

Case studies: AMR and MDM concept of a Electricity Distribution System Operator

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1. LNI Verkko and Finland

LNI Verkko (DSO)

- **Customers** 400 000
- **Network length** 60 000 km
- **Length per customer** 160 m
- **Market share** 12 % (2nd largest)
- **AMR metered** 397 000
- **Daily hourly values** over 9 M

Finland

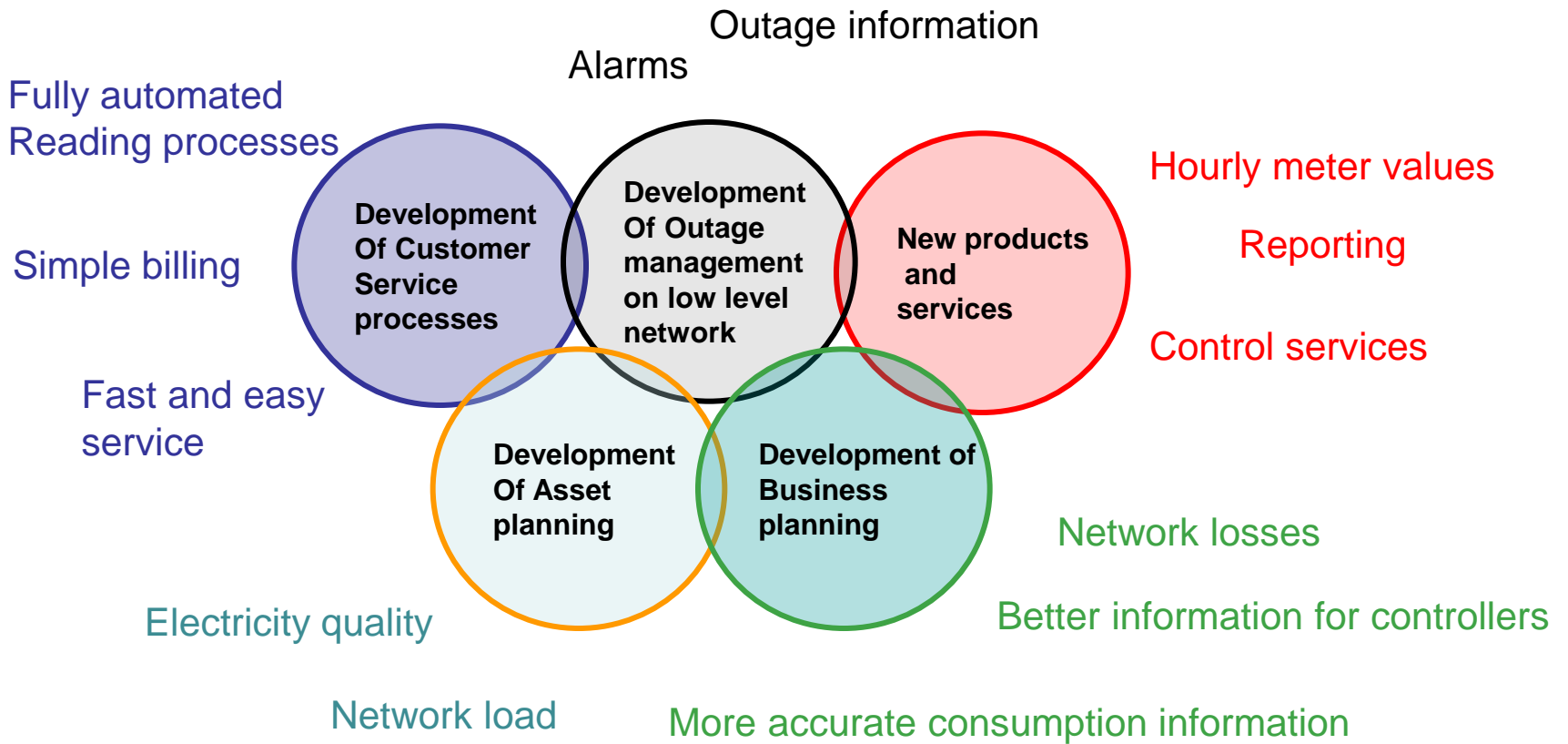
- **Customers** 3,3 M
- **AMR metered premises** 1,6 M
- **Amount of DSOs** 87
- **TSO** Fingrid
- **Supplier switching** ~ 10 %
- **Active Suppliers** ~ 100



2. DSOs responsibilities regarding meter data in Finland

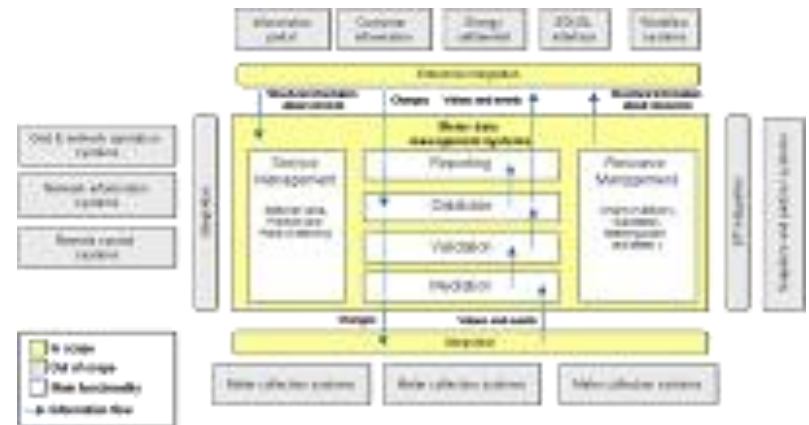
- DSO owns the meters and is responsible for the collection and validation of the energy data
- It is DSOs responsibility to relay the energy data to the customer and the supplier with a contract with the customer
- DSO is also required to deliver the hourly sum (balance settlement) of each suppliers energy consumption within the network area for TSO
- In 2009 it was set in Finlands legislation that all the industrial customers and 80 % of the retail customers must be hourly metered by the end of 2013
- In LNI Verkko pilot project for changing all the retail customer meters to AMR meters started during 2002 and the final project ended 2008

3. Utilisation of AMR in LNI Verkkko



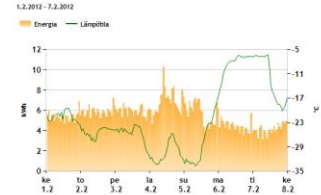
4. MDM systems main functions

- Supervision of received data
- Control of validation and estimation
- Control of fuse size and connection demands
- Network loss calculation and reporting
- Data quality monitoring
- Service requests
- Self control (event logs)
- Balance Settlement
- Data aggregation
- Interval data reporting (internal/external)

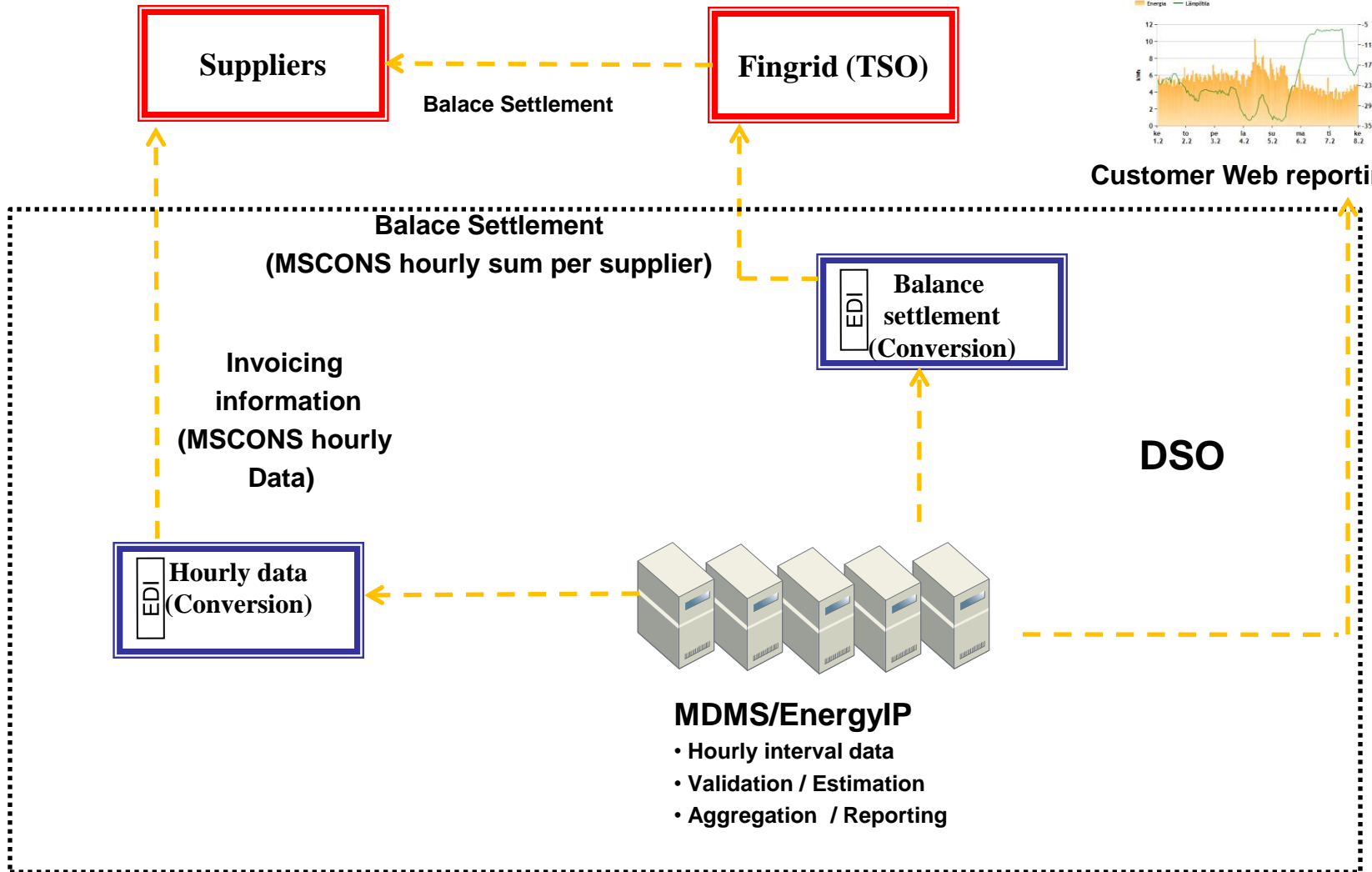


5. Energy data reporting from DSO

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Customer Web reporting



6. Experiences from AMR

- **Improved customer service** (invoicing, move in / move out, Web reporting, supplier changes etc.)
- Increased data quality
- Faster response to outage situations and network monitoring
- Business efficiency

Challenges

- Significant increase of information
- Resources for data quality surveillance

Future Prospects

- Demand response
- New network tariffs
- Micro-production



Thank you!

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Benefits of AMR and Customer reporting

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- **Utilization of meter data management system and hourly measurements:**

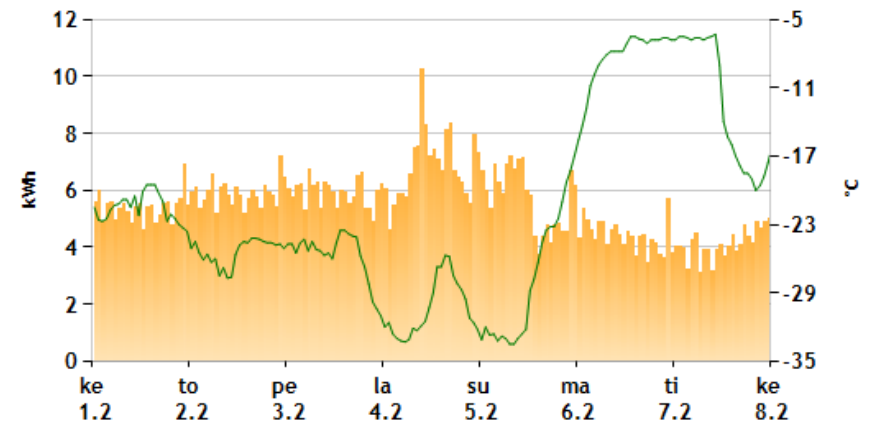
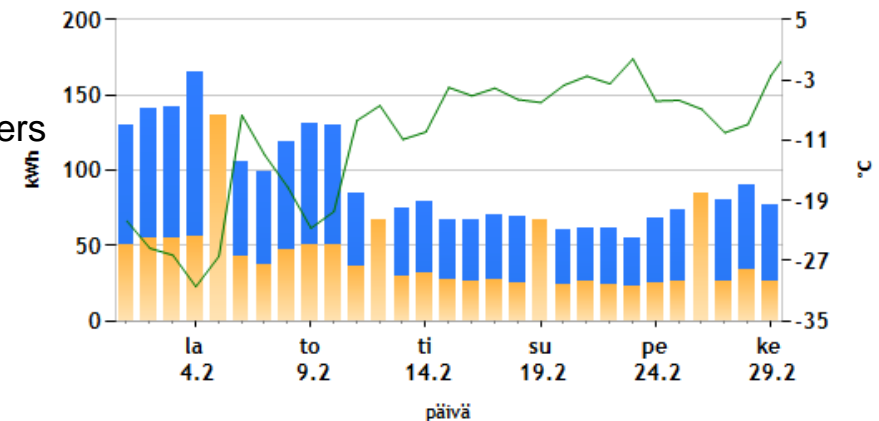
- Hourly level consumption reports to customers in the Internet
- Measure distribution losses
- Enable spot-price products for retail customers

- **Customer web reporting**

- Estimated consumption
- Alarms
- Energy diary
- Energy saving tool

1.2.2012 - 29.2.2012

— Lämpötila — Talviarkipäiväsiirto — Muun ajan siirto



AMR and low voltage network monitoring

- Number of customer trouble calls reduced
- Faster fault repairing and shorter interruptions
- Reduced amount of trouble shooting and unnecessary customer visits
- Security: real-time information of zero conductor faults and voltage level
- Accurate and extended reporting and statistics

