



Enterprise Software Solutions

Quality assurance and use of metered data

Klaus Livik
Business Development Manager
Powel

klaus.livik@powel.no

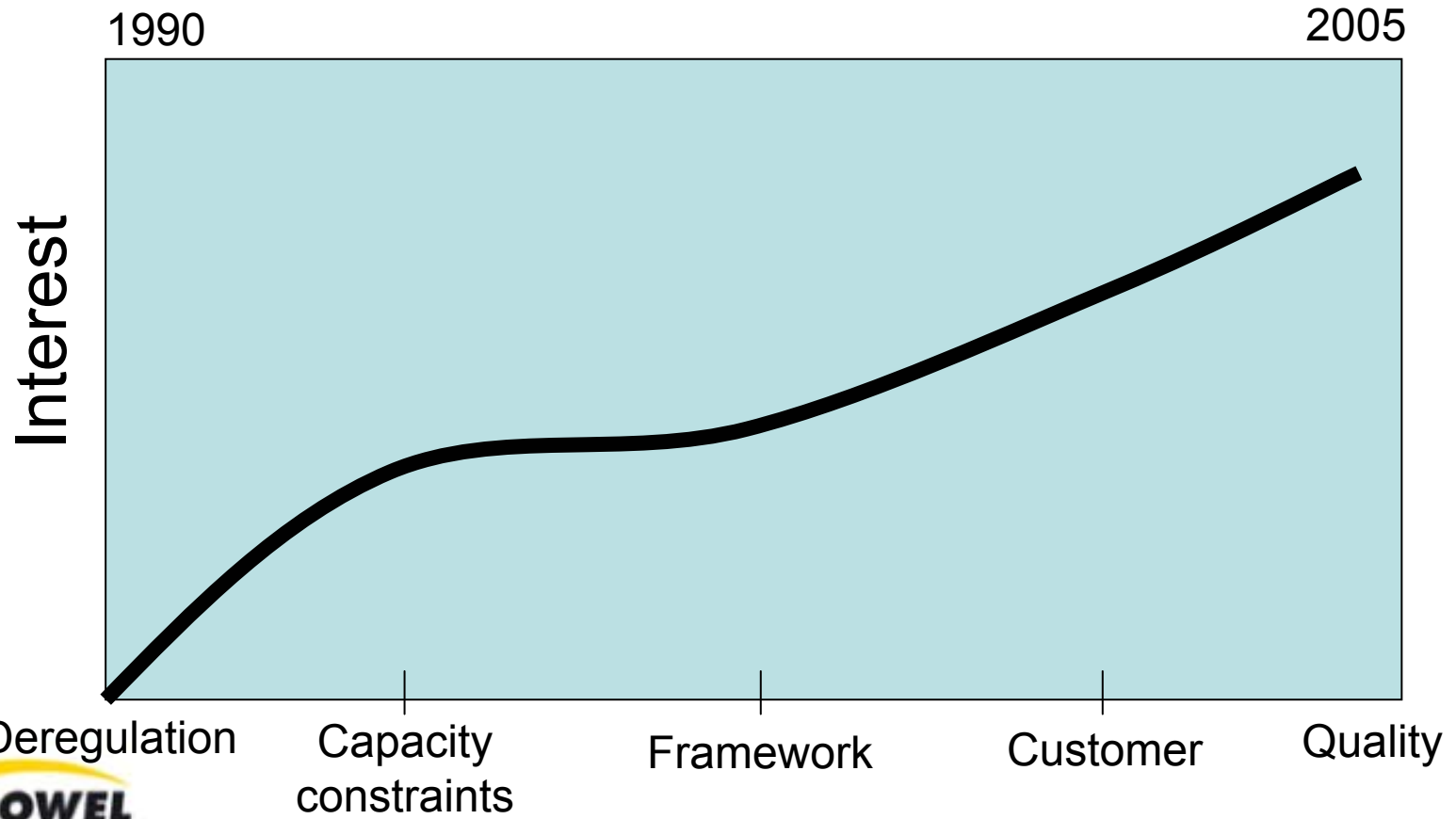
Energy Demand-Side Workshop
Trondheim, April 14th



Metered data – a key for commercial products

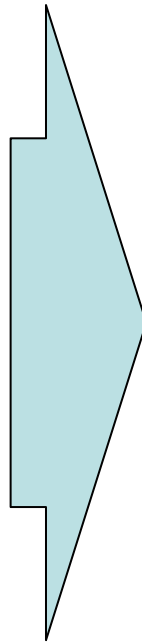
- Meter read once a year by utility - good old days
- Meter read by customer quarterly - reality in Norway
- Meter read by customer quarterly - mainly a vision
- Meter read by customer monthly - a vision
- Remote read monthly - discussed in Sweden
- Remote read daily - Vattenfall!
- Remote read hourly - increasing

New products – driving forces - utilities perspective



Metered data a prerequisite

- Billing
- Settlement
- Load profiling
- Bidding
- Balance accounting



Efficient retail wheeling

Powel MDMS

- one solution - several software products

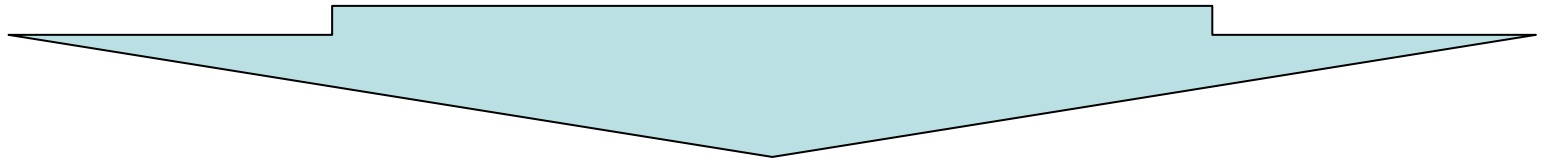
Examples

- a) Powel MDMS - metering
- b) Trade Organizer – management of trade and settlement
- c) Powel Demand – short term demand forecast
- d) Powel Device Manager – logistics and work order
- e) Time series calculator – the generic toolbox for time series



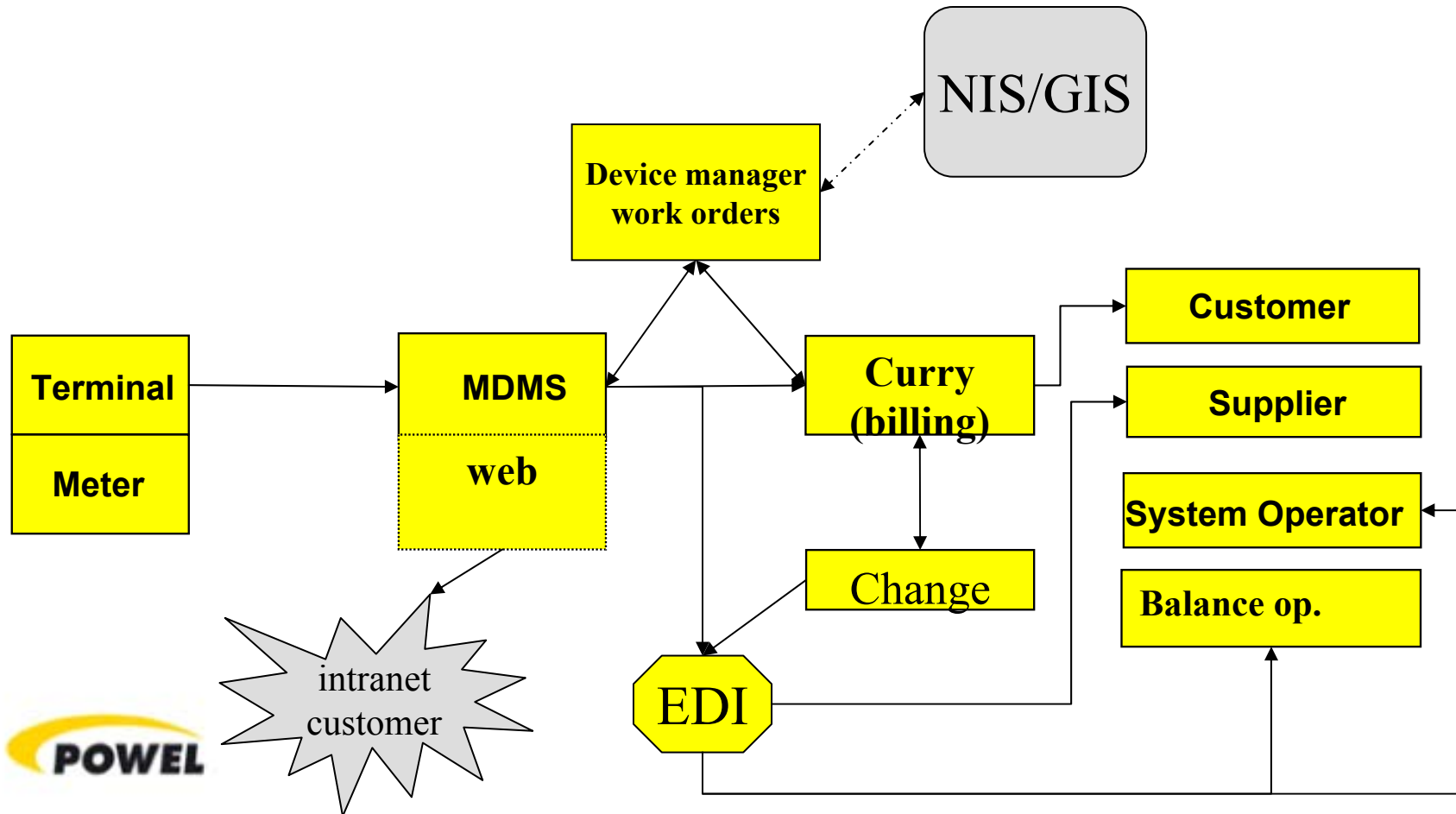
a) Powel MDMS for metering businesses

- Collect metered data from "all" type of FrontEnd.
- Management of "all" kind of metered data (multi utility...).
- Sophisticated routines for control and correction.
- Reports for quality and logging of events.
- Web-reports
- Calculations and management of data
- Interfaces with billing engines and third parties
- Exchange of EDI-messages



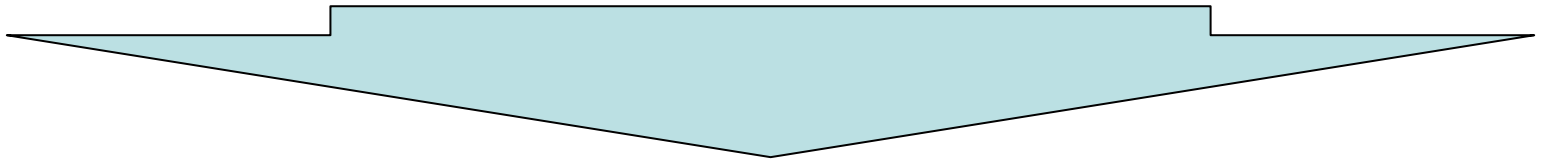
Main market target is distribution companies

Case: Vattenfall



b) Powel Trade Organiser- background and benefit

- Main challenge in power market: Keep track of all information
- Routines and content of information depends of market movements and company role.
- Product code – balance responsibility – metering – supply obligations
- Most routines operated manually – in conflict with company strategy.



Prevents chaos!



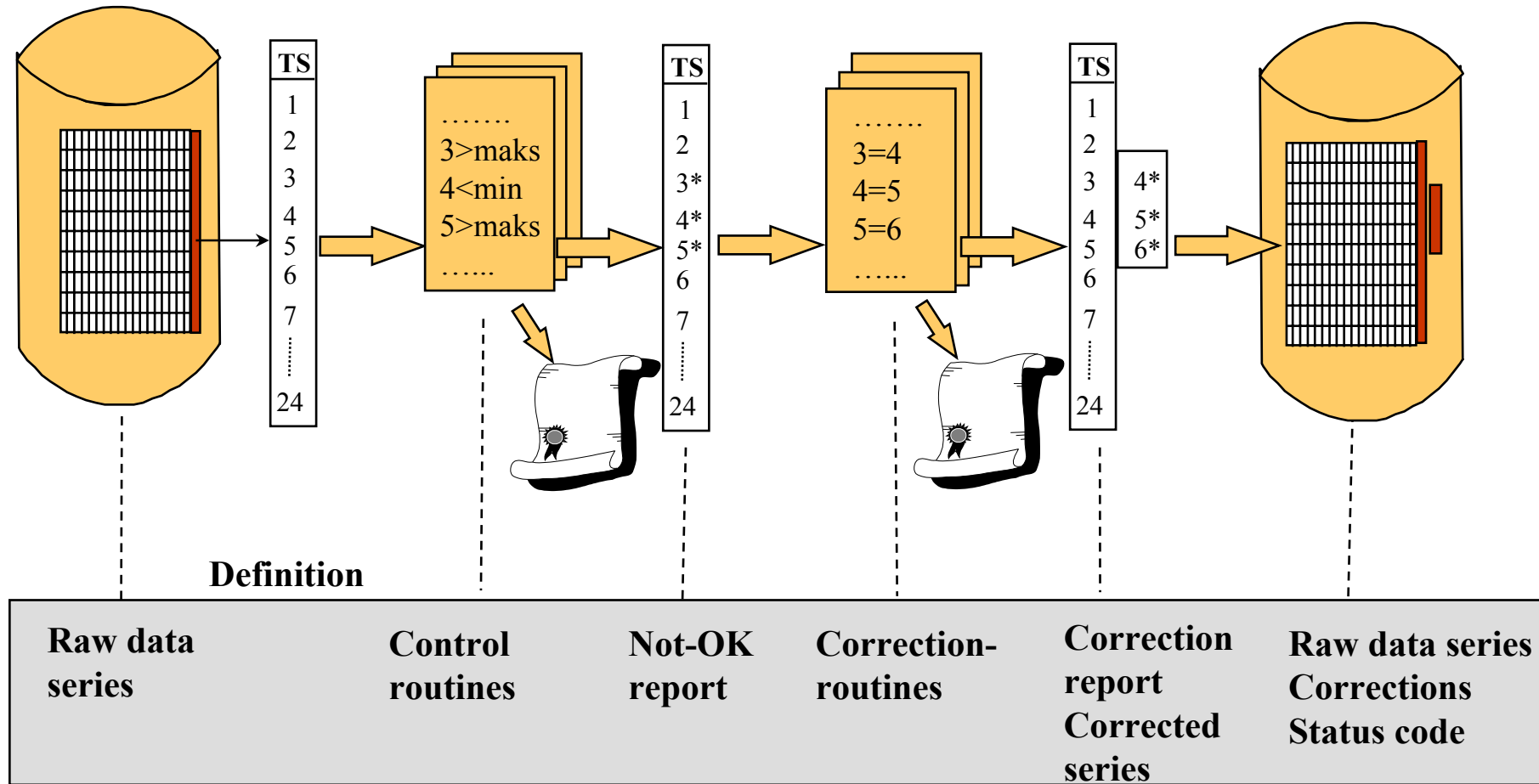
Validation of metered values

– Some methods applied by MDMS

- Methods for control:
 - Test on specific values
 - Test on changes from last value
 - Test on number of repeated values
 - Test on consumption during i.e. last week
 - Test based on comparison with time series from back-up meter
 - Test based on value from manual read meter

- Methods for correcting values with error code as status:
 - Value replaced of constant value
 - Value replaced with last correct metered value
 - Value based on interpolation
 - Value based on extrapolation
 - Value based on mean values from other time series
 - Value estimated based on deviation from manual read meter

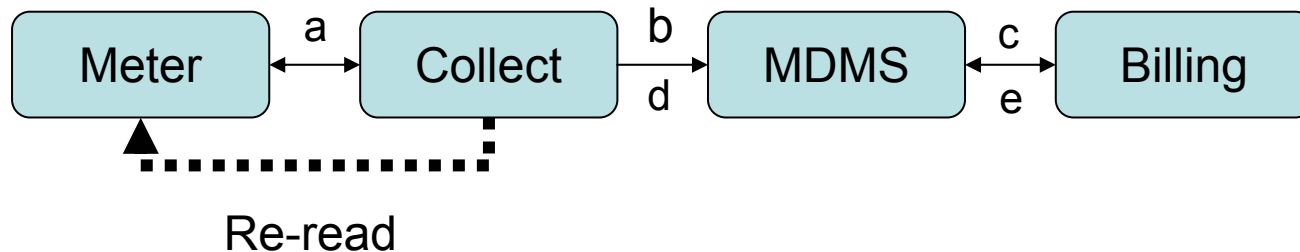




Validation without overwriting original values – traceability of all changes!



Correction of correction – a challenge!



- a) metered data collected – value missing
- b) missing value “corrected”
- c) validated data for billing
- d) re-read meter values – no value missing
- e) difference between corrected and re-read value for billing

Observed challenges

- Logistics and work orders
 - Change of meters, audits, terminating....
- Reduce rate of errors in communication
 - No contact, no data, wrong value...
- Efficient management of large amount of metered values
 - Import, export, store, validation, analysis...
- System integration
 - Read, collect, management, billing, services, web....



Quality of metered values – what is the situation?

- Some results from 115 distribution companies in Norway in 2001....

- Errors caused by installation of meters
 - **Manual read meters: 0,84% with observed error**
 - **Remote read meters: 1,9% with observed error**

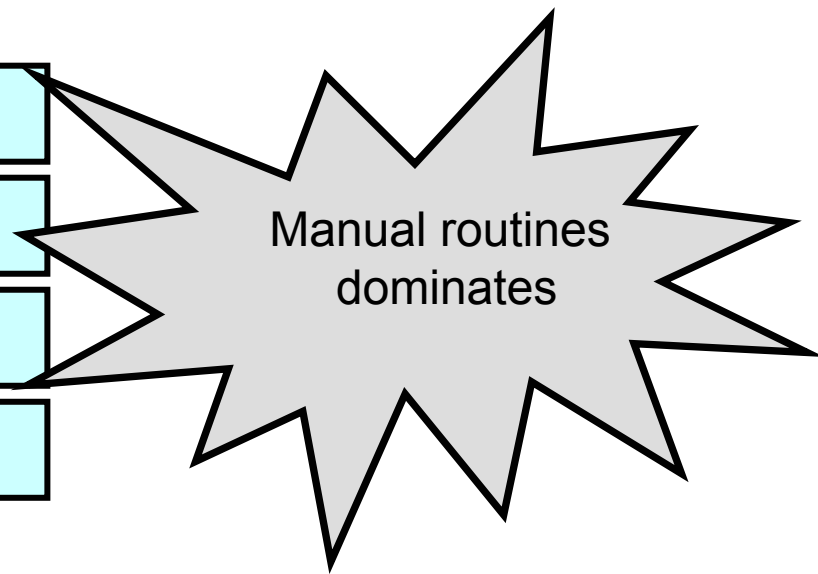
Remote read meters:

Wrong parameters, lack of communication, wrong installation are the most common reasons for errors

How do you correct errors?

Estimates value
Value from last week
Value from terminal
Value from meter registry

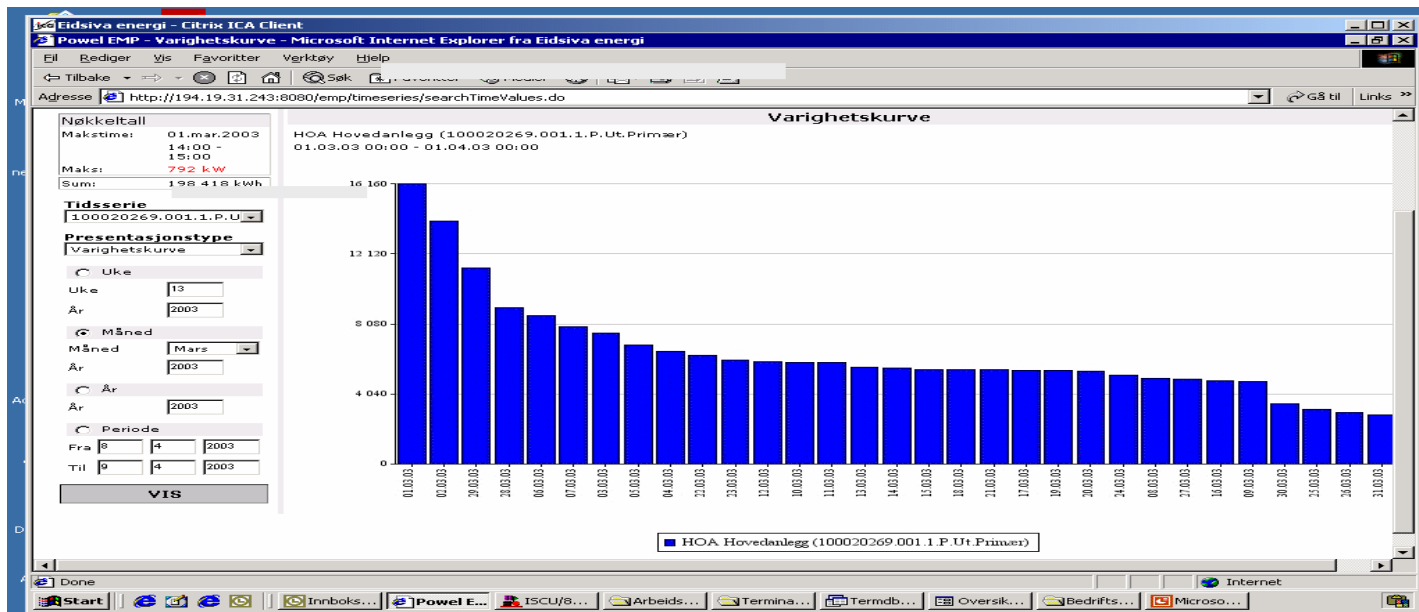
20%
55%
25%
50%



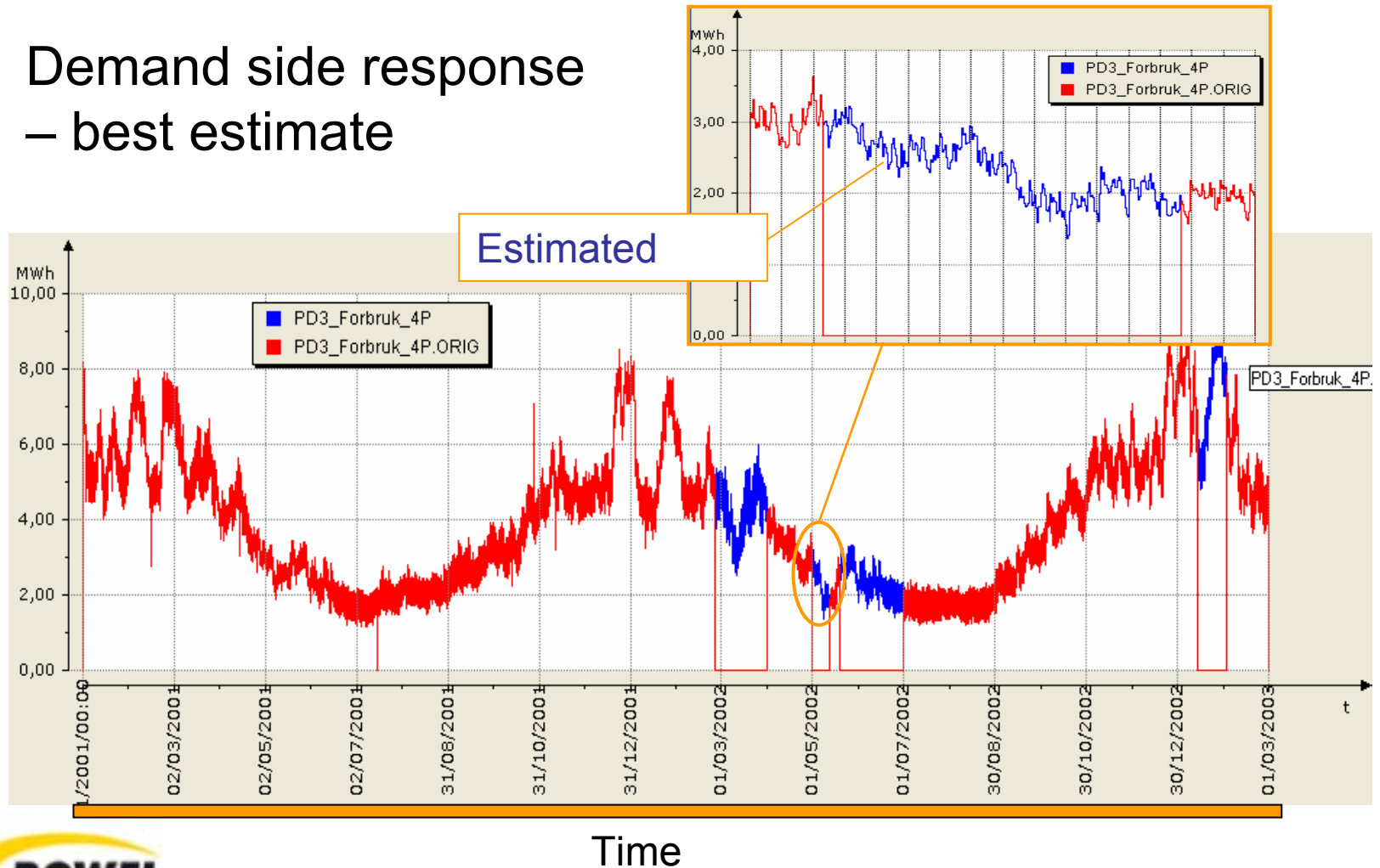
Manual routines
dominates

Load Duration curve

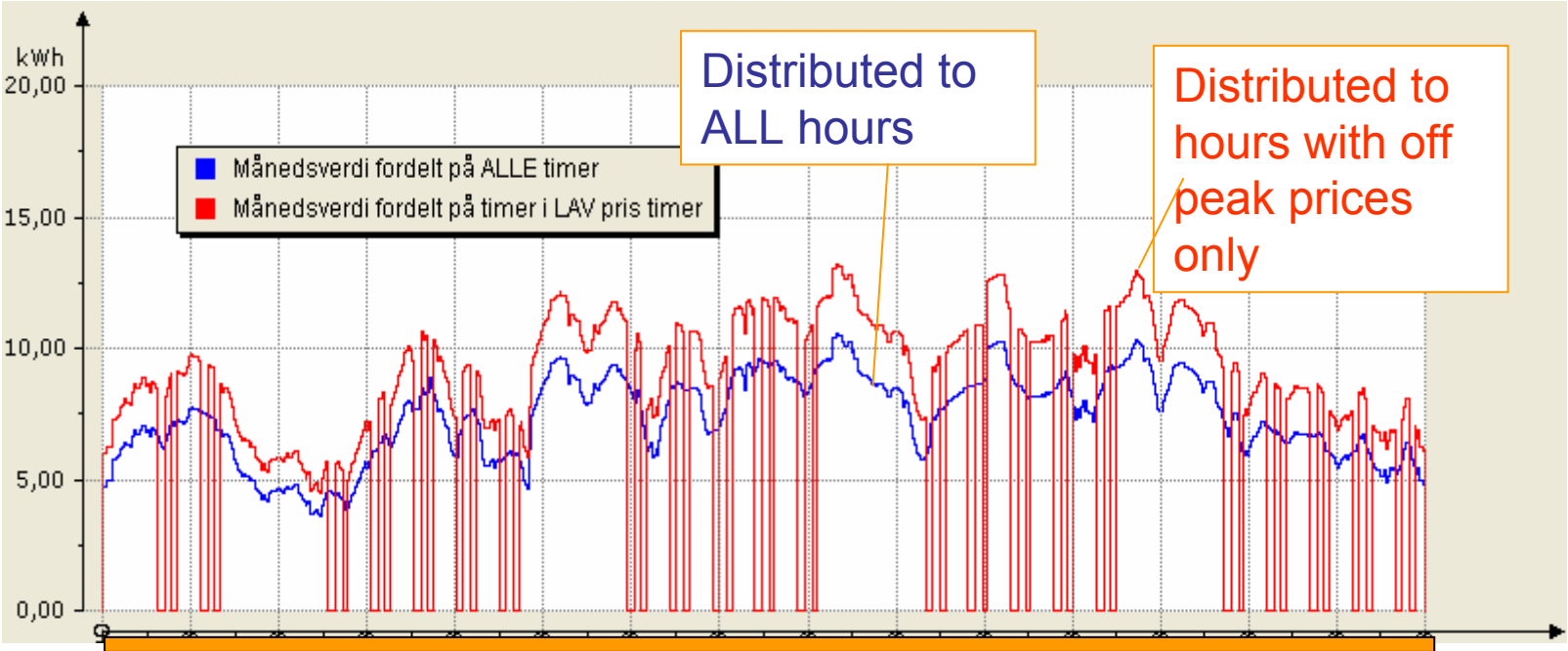
Display from highest consumption



Demand side response – best estimate



Distribution of monthly read consumption to predefined profiles



January 2003, consumption of 5500 kWh

Summary

- Validated metered data – the starting point for demand side products!
- Utility industry in a process to digitalize from meter and cash.
- Powel MDMS – a system well fit for demand side response products.
- Products regarding demand side response and quality – moving closer each other.
- Web reports with “fresh” data – increasing interest.
- The metering process – driven by market or regulatory framework???



Norway

Sweden

