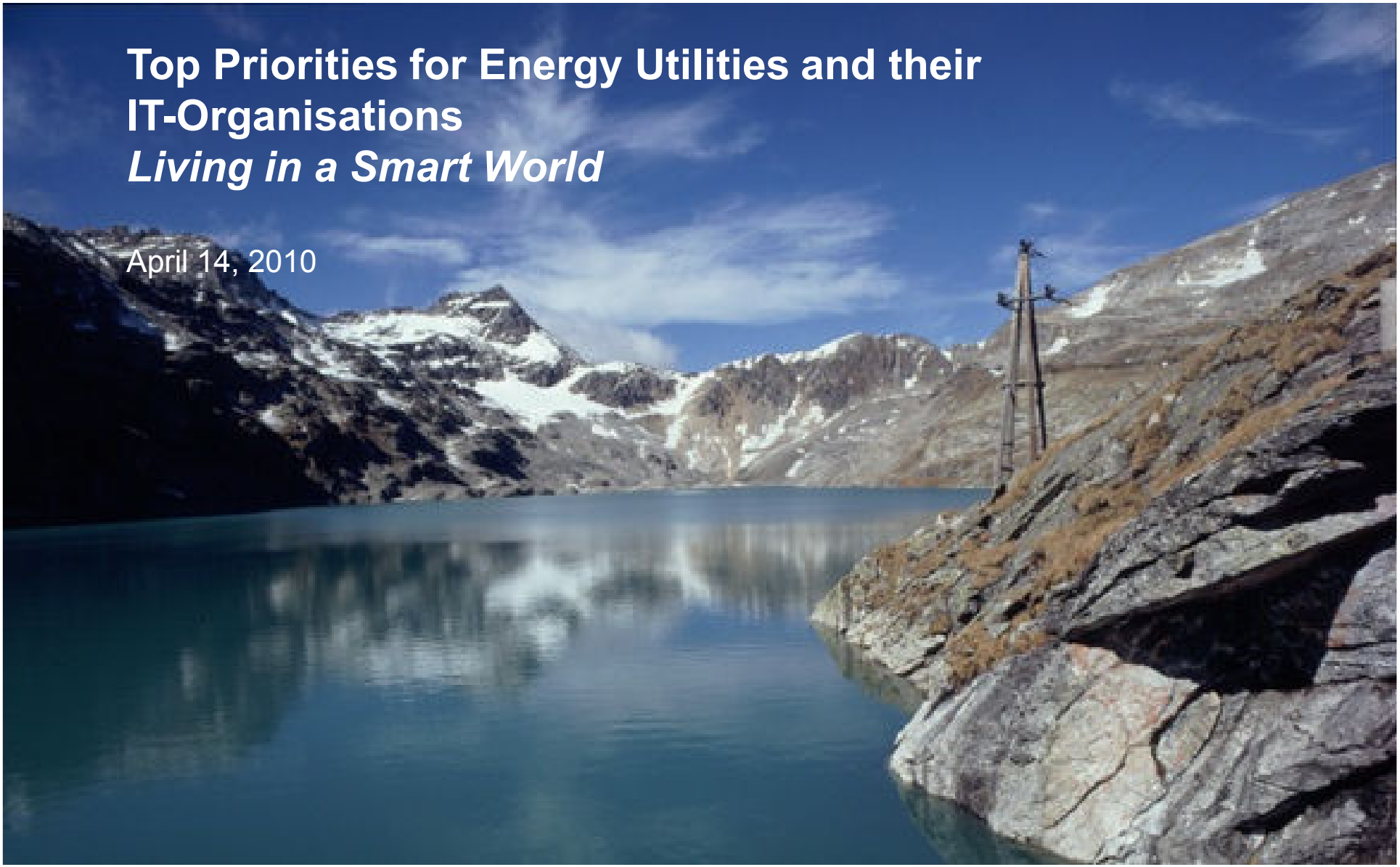
Top Priorities for Energy Utilities and their IT-Organisations

Living in a Smart World

April 14, 2010



Agenda

- Introduction Kelag – Kärntner Elektrizitäts-AG
- Smart Metering in Austria - background
- AMI Integration
- *Living in a Smart World*
- Discussion

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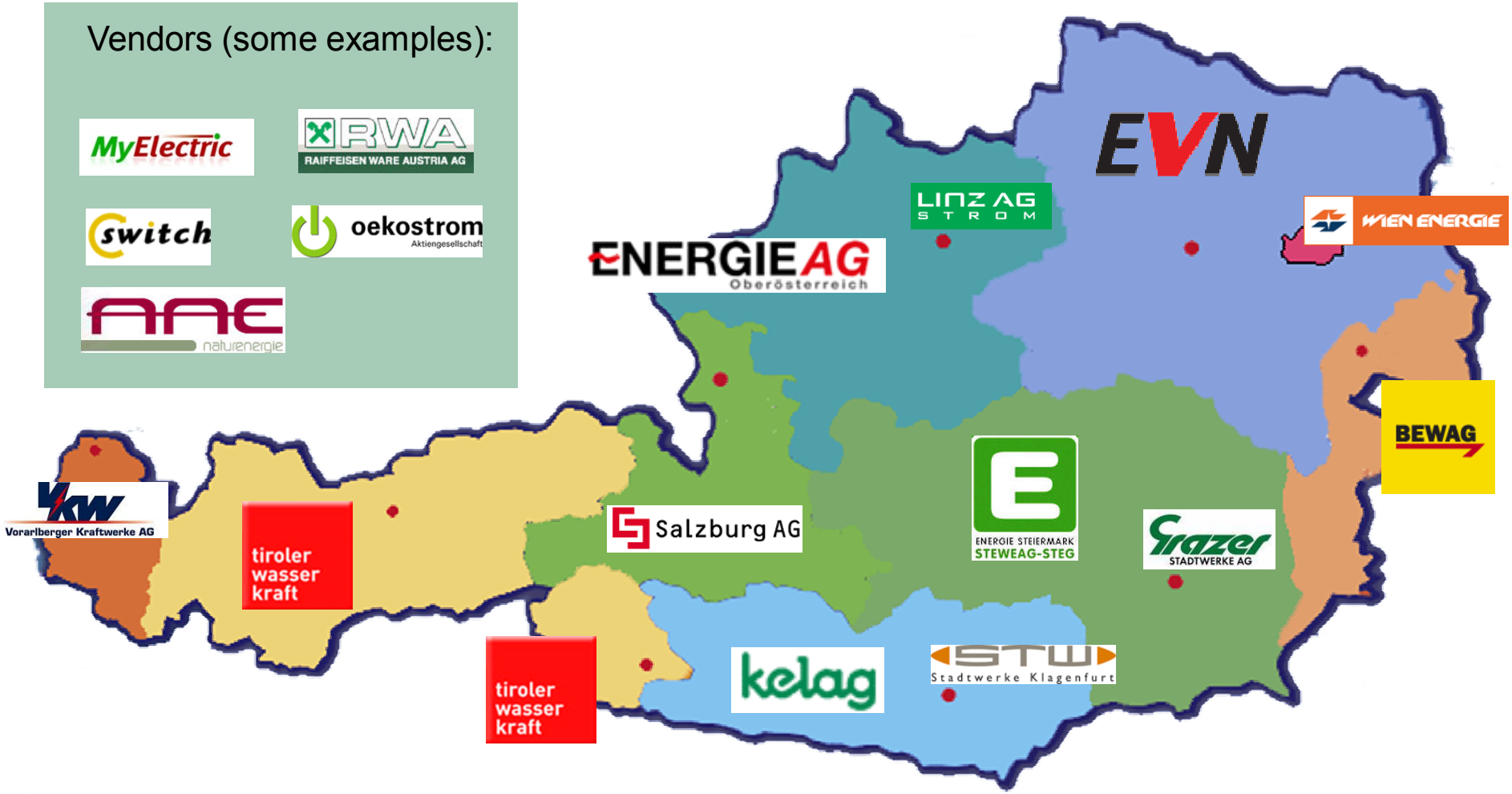
Kelag – Kärntner Elektrizitäts-AG

Austrian Energy Market

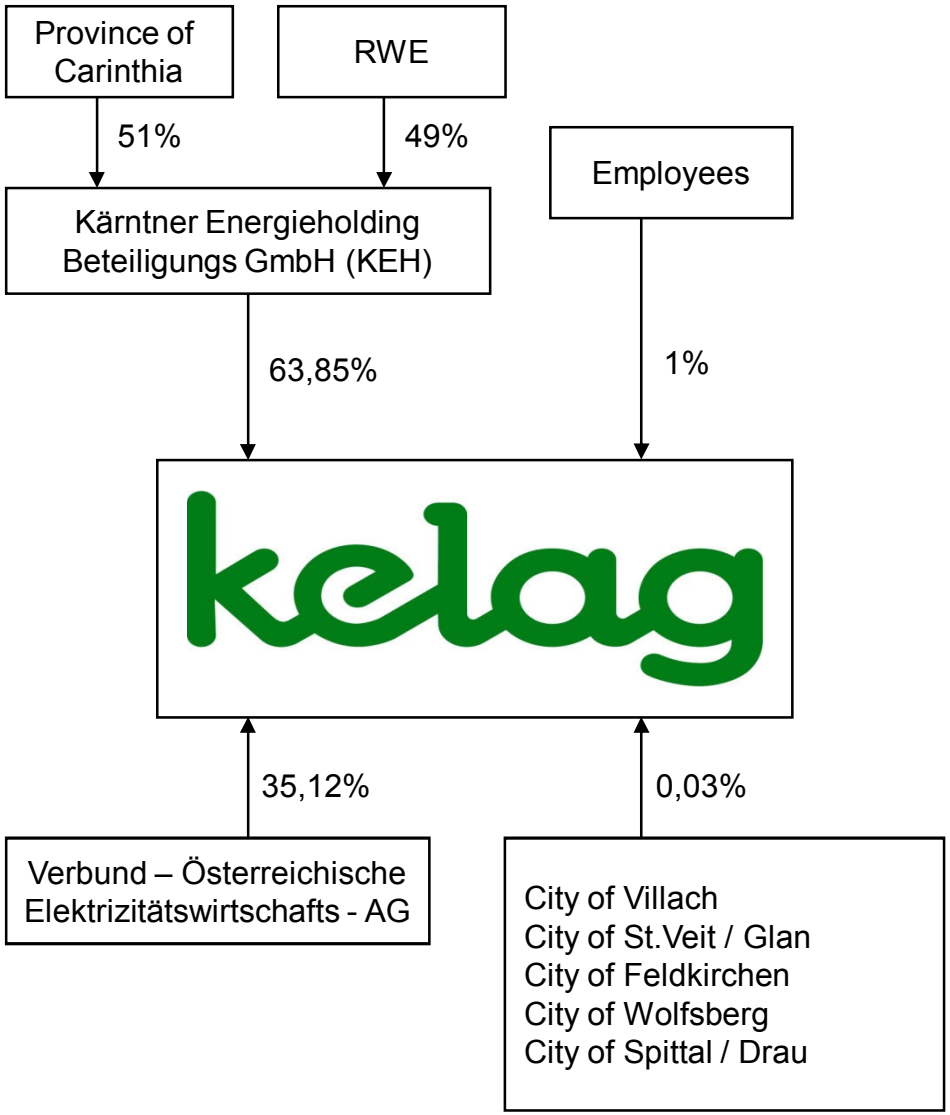
Vendors (some examples):

MyElectric
RWA RAIFFEISEN WARE AUSTRIA AG
switch
oekostrom Aktiengesellschaft
AAE naturenergie

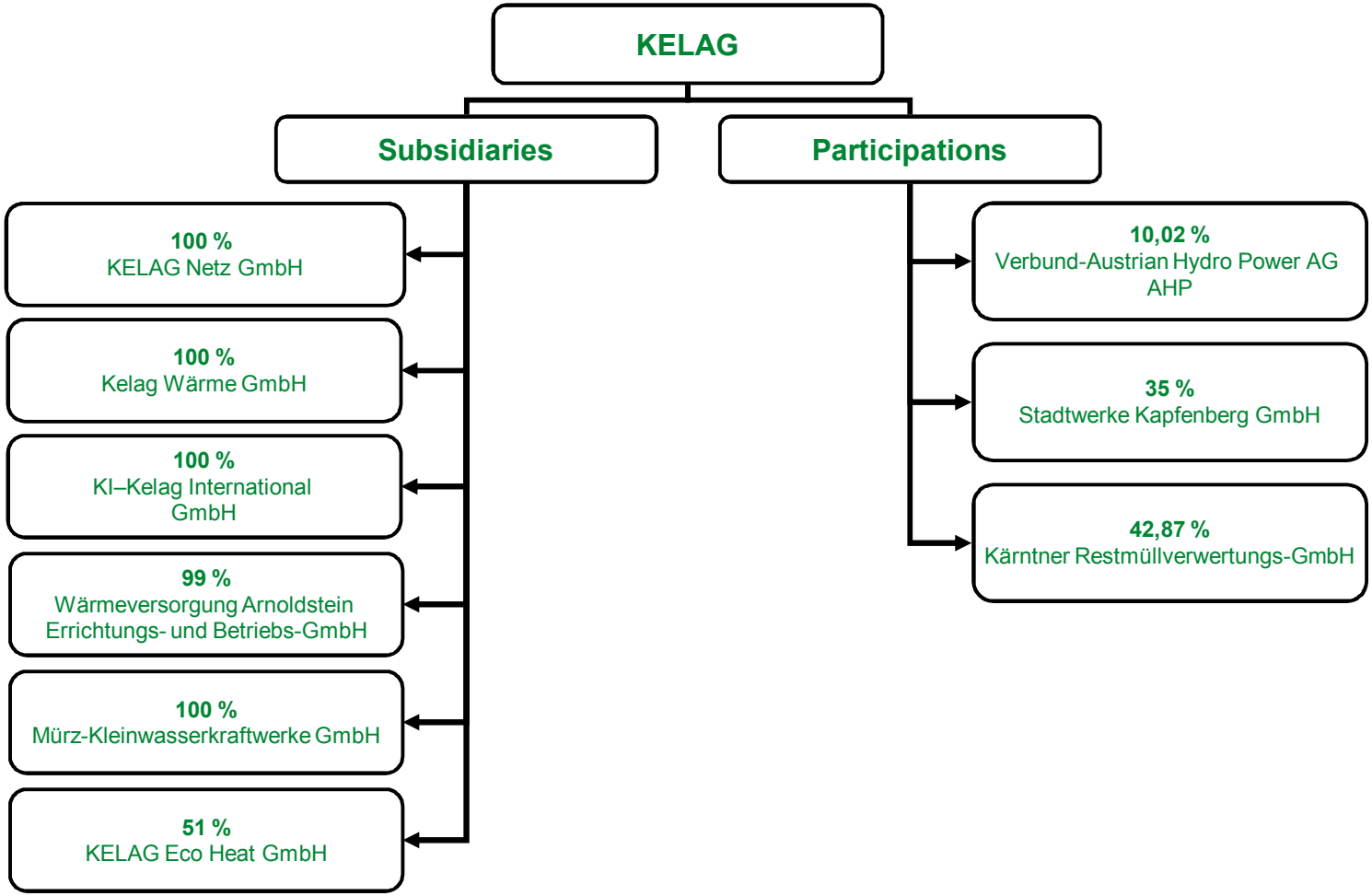


Kelag – Kärntner Elektrizitäts-AG

Shareholders



Subsidiaries and Participations



At a glance - Business Data 2008

Capital stock	**108 Mio €**
Sales revenues	**1.182 Mio €**
Balance sheet totals	**1.156 Mio €**
Investments in tangible assets	**113 Mio €**
Profit before tax	**95 Mio €**
Profit per share	**8,7 €**
Member of staff incl. apprentices	**1.387**

Kelag – Kärntner Elektrizitäts-AG

Business Segments

Hydro-Electricity

Electricity sales	14.056 GWh

62 power plants
470 MW bottleneck capacity
967 GWh average annual production

Heat

Heat sales	2.195 GWh

78 district heat networks
8 block heating stations
About 1.000 district heat stations

Gas

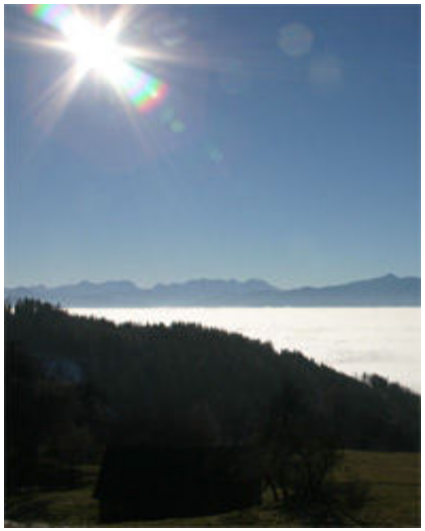
Natural gas sales	3.092 GWh

Customers

Electricity	215.000
Gas	18.400
Heat	6.100

Customer and Business Strategy

- Kelag´s customer strategy is based on **customer life time value, loyalty and value added services.**
- **Energy Management Services** are an important part of this strategy, **sustainability** is in the focus of our efforts.
- The KELAG concern pursues a **value oriented and innovative strategy of growth *based on renewable energy*** in Austria and in foreign countries.



- The goals of **climate protection** of the European Union are integral and of utmost importance in our company's policy.
- We invest our comprehensive know-how in the production of **electricity by *water power*** and the production of **heat and ecological electricity by bio mass** and other ***renewable sources of energy***, and in the use of industrial waste heat.

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Smart Metering in Austria - background

ElWOG – Elektrizitätswirtschafts- und Organisationsgesetz

- 18.08.1998: **ElWOG 1998**
- 01.12.2000: **ElWOG 2000** → „Energieliberalisierungsgesetz“
  - *Total opening of Electricity Market for alle customers* (01.10.2001)
  - *Independent Regulation Authority* (E-Control GmbH, E-Control Commission)
  - Austria with 3 control areas, independent operators for each control area
  - Independent clearing centers
  - Labeling
  - New methods for the promotion of renewable energy
- 26.06.2003: **EC domestic market directive 2003/54/EG**
- 21.06.2004: **ElWOG amendmend 2004** → „Legal Unbundling“
  - *≥ 100.000 customers* (Electricity)
  - Legal validity of „Legal Unbundling“ (01.01.2006)

Smart Metering in Austria - background

Directive 2006/32/EG of the European Parliament – Article 13

- (1) Member States shall ensure that, in so far as it is technically possible, financially reasonable and proportionate in relation to the potential energy savings, final customers for electricity, natural gas, district heating and/or cooling and domestic hot water are **provided with competitively priced individual meters that *accurately reflect the final customer's actual energy consumption* and that *provide information on actual time of use*.**

- (2) Member States shall ensure that, where appropriate, billing performed by energy distributors, distribution system operators and retail energy sales companies is based on actual energy consumption, and is presented in clear and understandable terms. Appropriate information shall be made available with the bill to provide final customers with a comprehensive account of current energy costs. **Billing on the basis of actual consumption shall be performed frequently enough to *enable customers to regulate their own energy consumption*.**

- (3) …

Smart Metering in Austria - background

What´s going on in Austria - pilot projects

- **Energie AG** (Upper Austria)
  - 10.000 meters, integration in SAP
  - Siemens – AMIS
- **Linz AG** (Upper Austria)
  - 45.000 meters
  - Ubitronix
- **TIWAG** (Tyrol)
  - 3.600 meters
  - Landis&Gyr
- **KELAG** (Carinthia)
  - 600 meters, integration in SAP
  - Siemens – AMIS
- **……**

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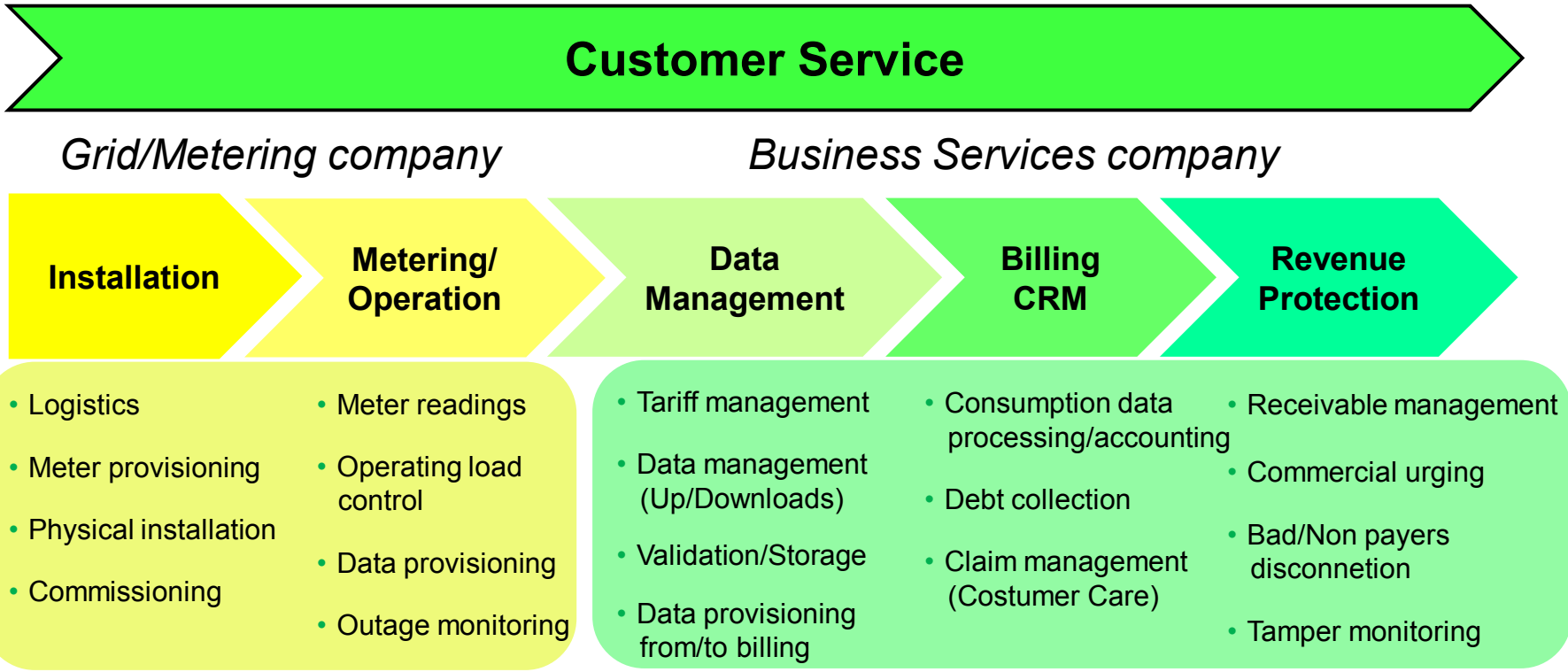
AMI – Advanced Metering Infrastructure

- Measure electricity, record consumption and meter event information electronically
- Remote connection and disconnection
- Tamper and Outage detection
- Quality of supply monitoring
- Demand response / limiting
- Communications interface of devices like
  - In-property display
  - Direct load control equipment
  - Link to a computer

Business Impact

AMI has an impact on the entire meter-to-cash business processes



AND: AMI has an impact on all other business processes within a utility

Business Impact – a Change for Utility´s Marketing

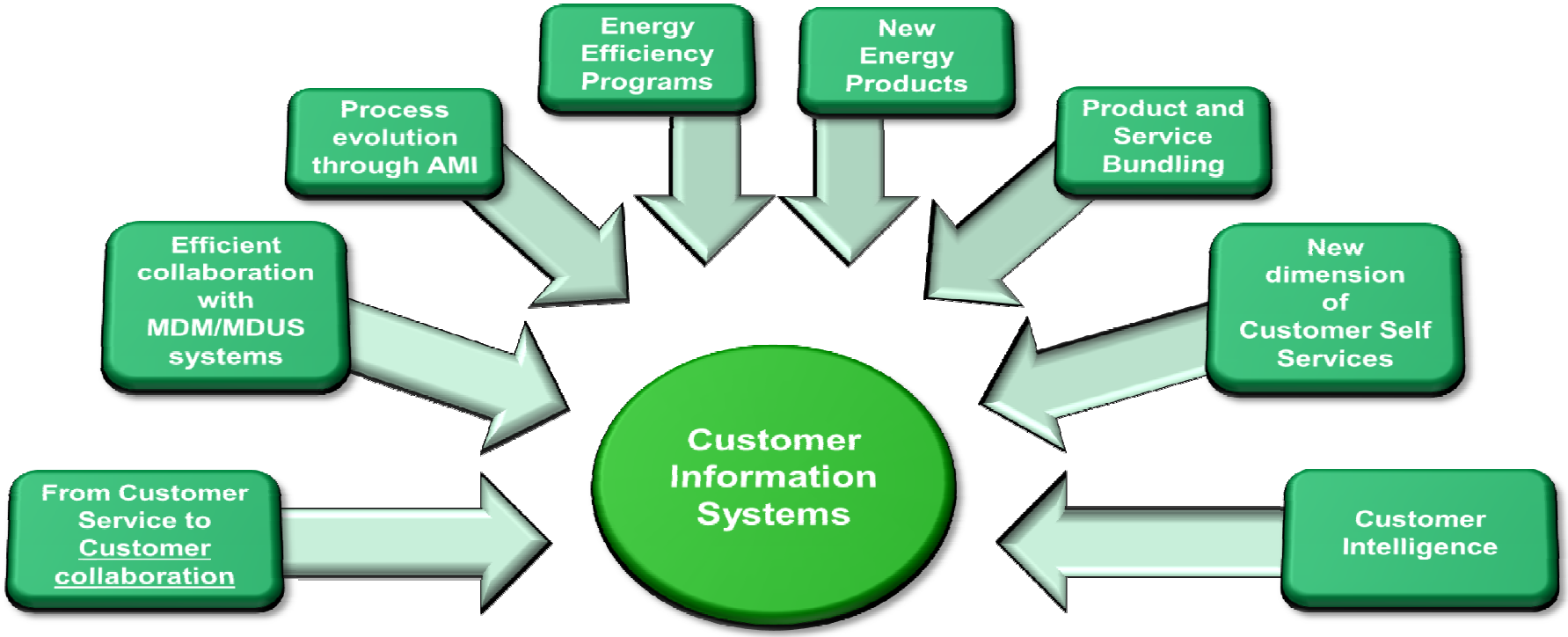
- **Systems and data**
  - Ability to evaluate and use increased data flow (for marketing, service and payments/dept management)
  - Data management – customer/event/usage
  - Real-time marketing to match real-time metering
- **Staff knowledge and skills**
  - Marketing, service, CRM, analysis etc.
- **Strategies**
  - Attack and defence through data analysis and customer involvement
  - Takes optimisation of customer management to a new deal
  - Segmentation approach: e.g. the desire of customers for either economic generation of energy or green/renewable energy sources
  - Enforce Internet Self Services

Business Impact – a Change for Utility´s IT

- **Systems and data**
  - Ability to manage increased data flow: maybe 35.000fold increase in customer data
  - Higher frequency of data flow
  - Standardise data flow
  - Business intelligence
  - Web integration
- **Staff knowledge and skills**
  - Process Integration of IT-Systems: ERP, Billing, CRM, BI, GIS, SCADA, WFM, …
  - Web-Clients
  - Analysis tools
  - Cost optimization, ressource planning

AMI Integration

New Requirements for Customer Information Systems



Key Conclusions for Utilities

- **The Utilities Relationship to the Customer has to be redefined!**
- **Focus on the Customer**
  - It´s primarily a project of Customer Services, not of metering and data transmission
  - Technical issues are necessary, but utility´s success evolves from customers loyalty and advantage
  - Optimize business processes and ressources
  - CRM re-evaluation might be required
    - Match the technical and customer change
    - New approaches of segmentation
    - Customer experience management
- **Technical Issues**
  - Systems linkages require significant work: AMI, BI, CRM, …
  - Process Integration
  - Mass data management

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AMI – The Evolution of Metering

- **Customers optimization**
  - Knowing more about the tariffs for heating or cooling their houses in different ways at different times may help consumers deciding where best to use energy
  - Using it more or less – customers will react differently:
    - A freak might decide to stay awake when the world is asleep (load shifting), and go to bed and stay warm without heating a peak times (load reducing)
    - A prosperous person might find that there are cheaper ways of maintaining and heating a swimming pool, and use it more

- **Company´s optimization**
  - Research and observation of customers behaviour
  - Customers are open to suggestions – methods for an enhancement of the customers loyalty

What will Change for Customers?

- **Higher involvement**
  - Improved management of consumption
  - Individual vs. household/family behaviour
  - Getting used to In-home display unit and Home Area Networks, Smart appliances
- **Move to self-service/on-line**
  - Acceptance of remote management – by self and supplier
  - Use of different devices to monitore e. g. mobile
- **Improved understanding of prices and payments**
  - Understanding the new (customised/optional/modular) tariffing
  - Change to pre-payment methods (mobile, Internet etc.)

A sustainable Evolutionary Process for Customers

- **Today and tomorrow**
  - Internet Self-Service processes
  - Get in touch with Smart Metering technology
  - Learn usage, different payment patterns
- **2013** *(the year after Maya-apocalypse 2012?)*
  - Customers control usage, also by remote-control
  - Innovations for power users occure
- **2016** *(the next date for apocalypse?)*
  - Usage of smart control for individual applications
  - Regulation authorities support entrepreneurial initiatives
- **2020**
  - Use of AMI for home area networks, home control systems (home energy management)
  - Overall and specific applications: electromobility, smart thermostats, etc.

Electromobility – an Innovation for Energy Companies

- **Change of primary energy carrier: more renewables and zero emission**
  - Climate protection by lower emissions and higher efficiencies
  - Zero-emission in urban centres
  - Kinetic energy recovery systems (KERS)
  - Higher efficiencies using electric powertrains

- **Products and tariffs**
  - Charging at home with special day/night tariff
  - Charging at home with dynamic tariffs (e.g. related to energy exchange market)
  - Provision of balancing power and -energy

- **Additional technical options**
  - Public charging infrastructure
  - Fast charging
  - Battery exchange systems

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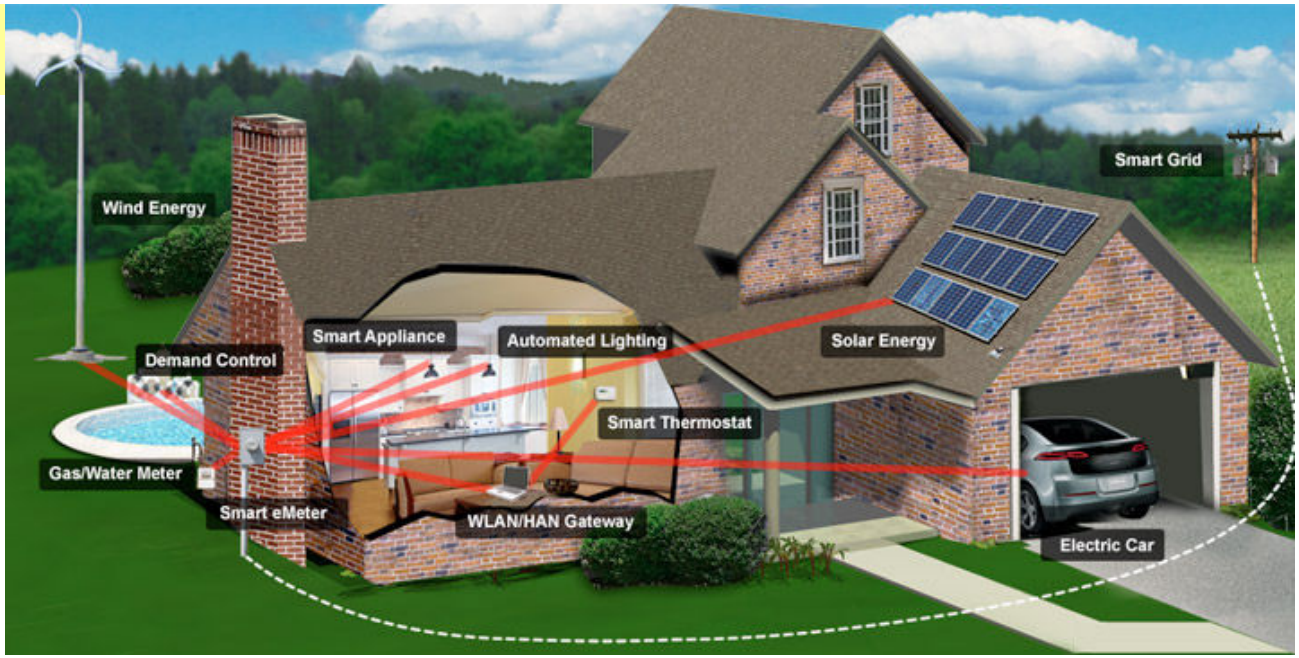

Information

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