„Exploring aspects of synergy in energy data management“

CEDEC Smart Grids Workshop

Brussels, 6th of November 2013

EWE NETZ

EWE – Group key figures

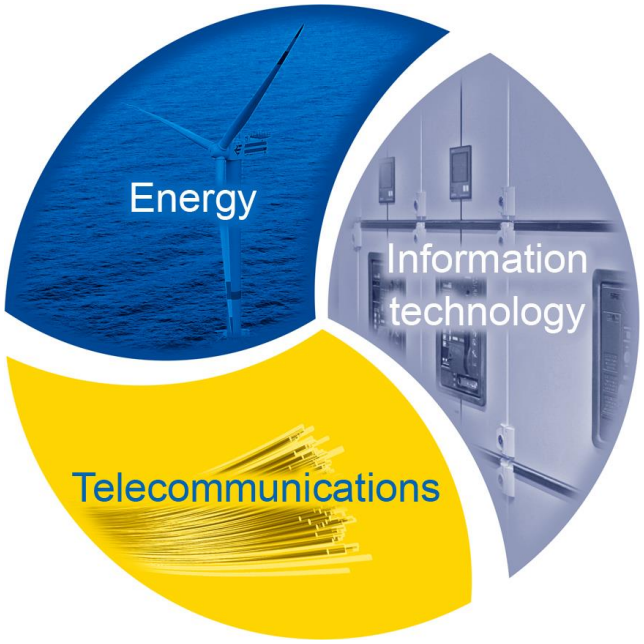
Figures for 2012

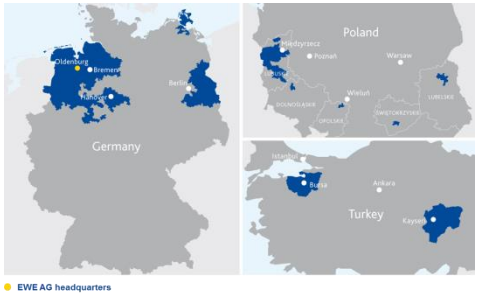
	Electricity	Natural gas	TC
Clients	1.4 million	1.6 million	670,000 (incl. htp clients)
Sales	19.0 billion kWh	59.4 billion kWh	–
Network	92,000 km	69,000 km	35,000 km

EWE Group (2012)

- 9,049 employees (average for the year)
- €8.2 billion sales
- €138.8 million consolidated net profit for the period
- €674.5 million capital expenditure

EWE Group: the future of energy from a single source

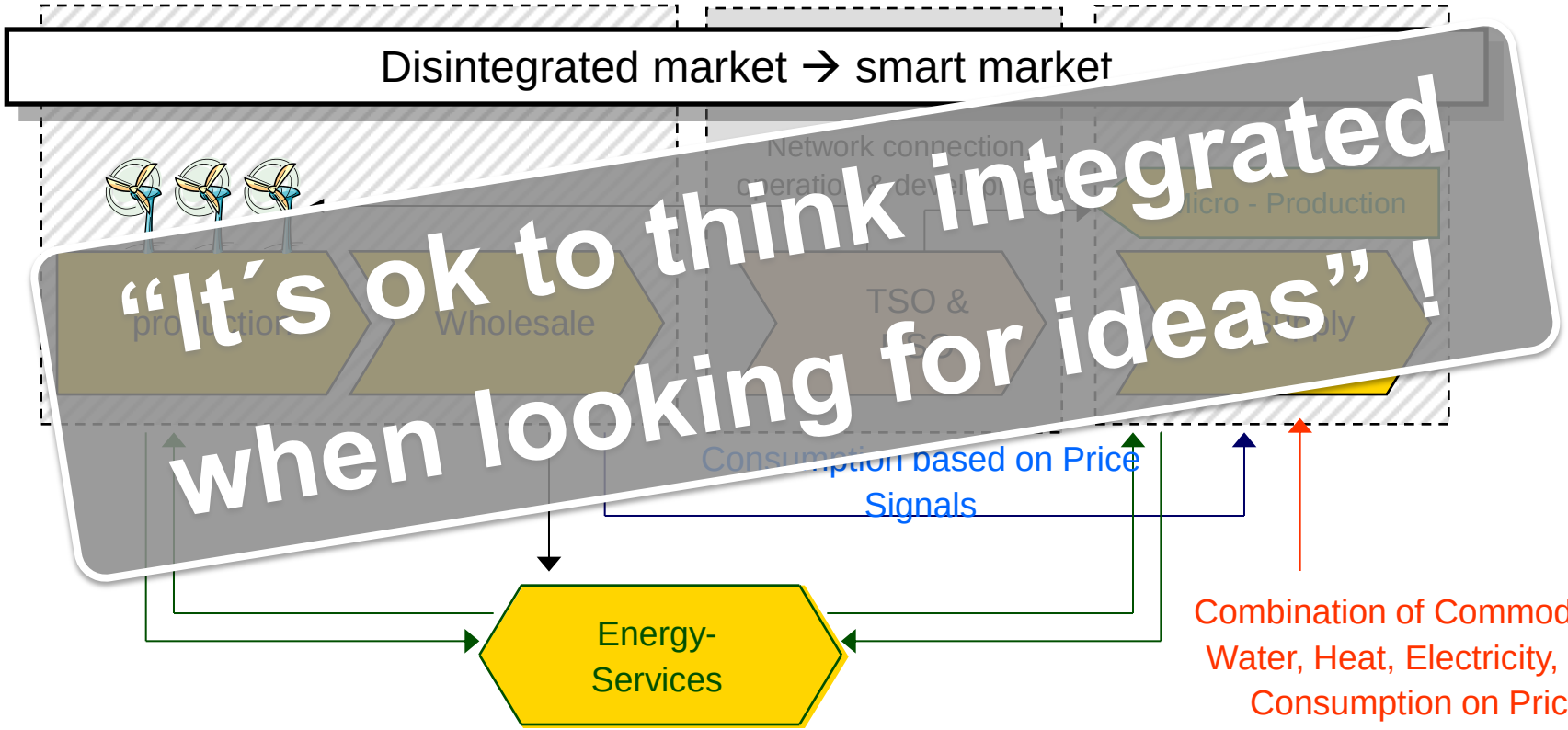




- EWE brings together energy, telecommunications and information technology and therefore has all the **key competencies for sustainable, intelligent energy supply systems** at its disposal
- This means that the company can develop and operate modern energy supply systems – from power generation to network management and from storage to energy use – entirely in-house
- An energy industry pioneer: innovativeness and the focus on integrated infrastructure are the key to EWE's success
- Strong regional roots: customer proximity and a knowledge of the region's infrastructure drive local energy solutions for local people

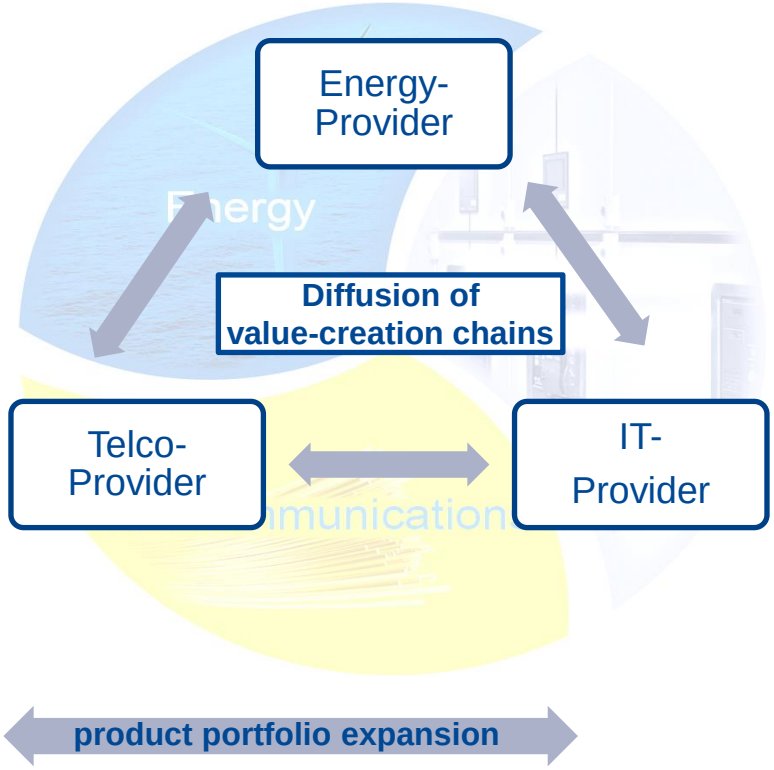
Roles and responsibilities in a Smart Market from a Regulatory perspective in Germany

Business Models have to function disintegrated along lines of roles and responsibilities in the European framework. Who bears the risk? Who has to carry the cost? What does the consumer really want?



"It´s ok to think integrated when looking for ideas" !

Product portfolio expansion and shifts are embedded in an ongoing synergy discussion across sectors



General drivers for synergy

- **business models** and cross-sector **growth opportunities**
- **economies of scale and scope** to achieve competetive advantages
- **optimization of benefits (i.e. consumer benefits)**
- **strategic alliances between sectors**
- **legislative and regulatory framework**

… at the core talking about synergy means exploring the diffusion of value-creation chains and the respective product portfolio expansion of sectors within a given legislative and regulatory framework

Facing the new energy system…

Source: E-Energy

There is no greenfield approach!

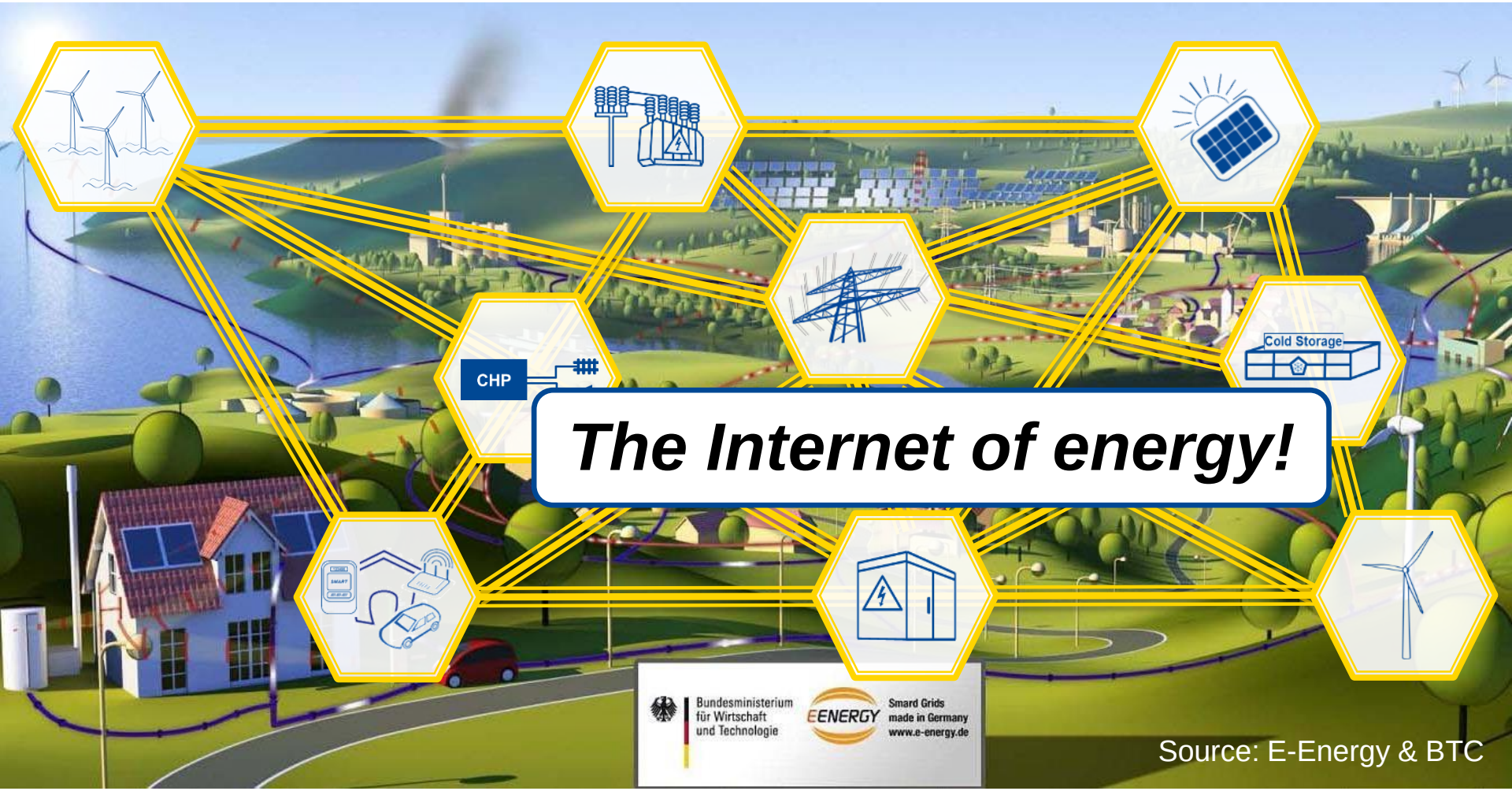
Facing the new energy system…

Source: E-Energy & BTC

Facing the new energy system…

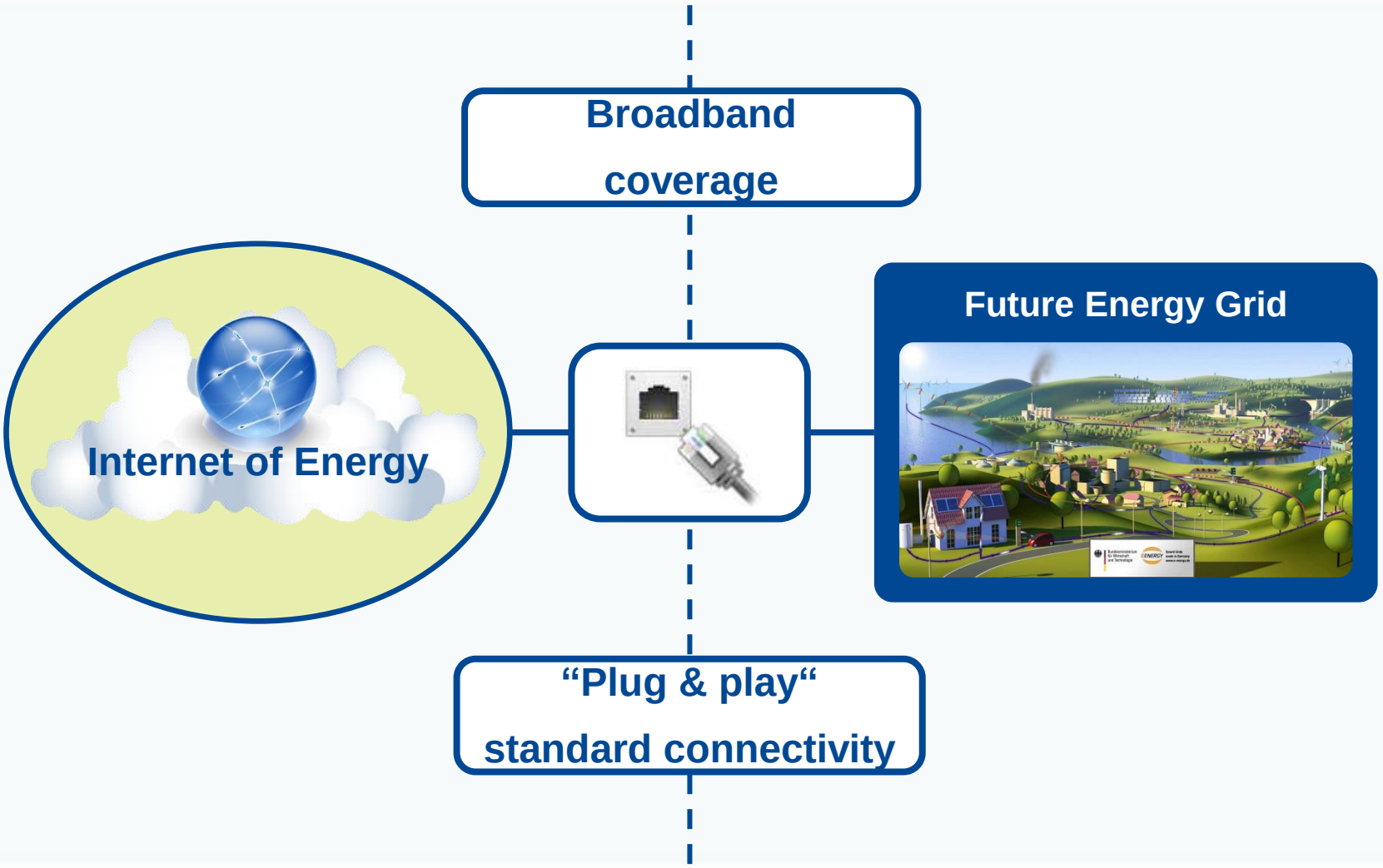
Source: E-Energy

New energy system + ICT = Internet of energy

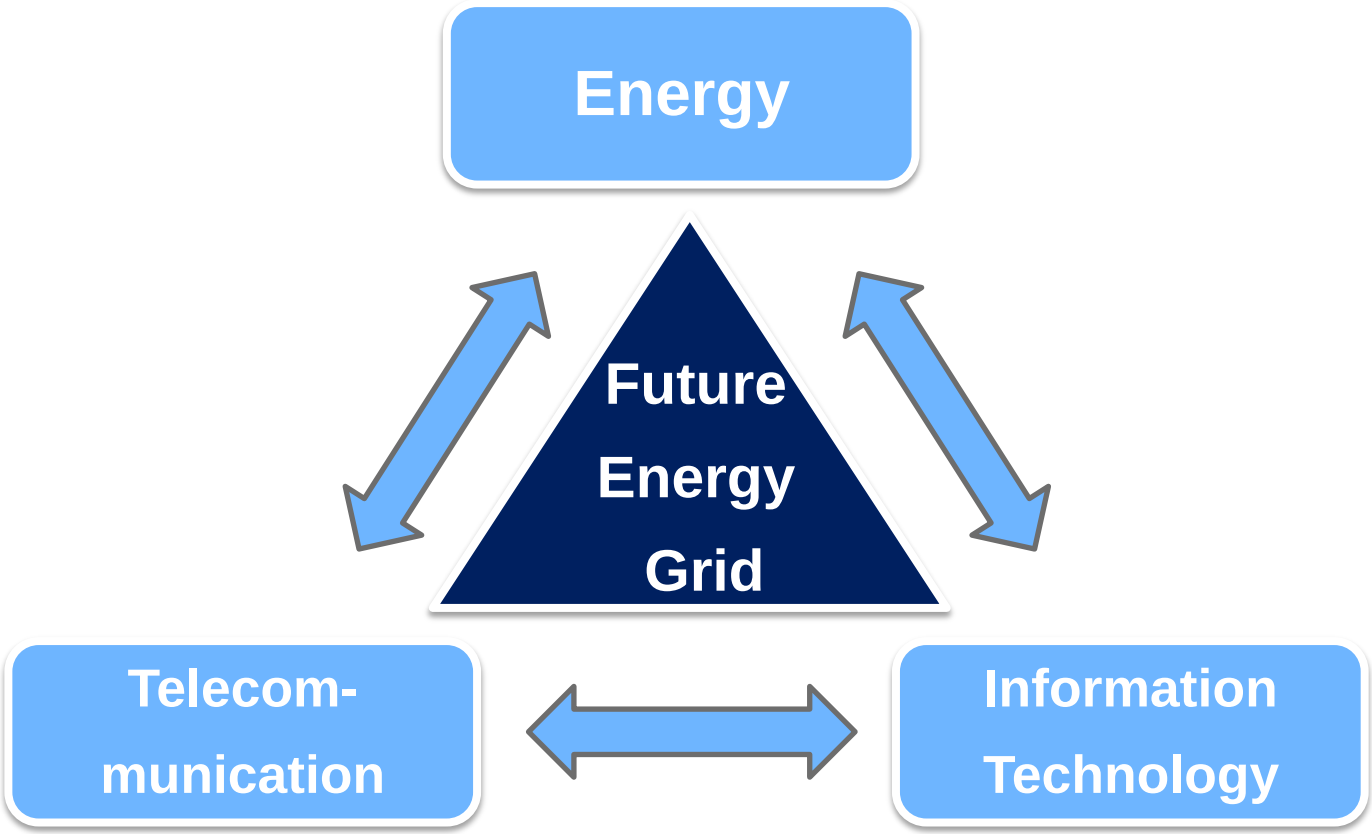


The Internet of energy…

Need for connectivity and standardisation



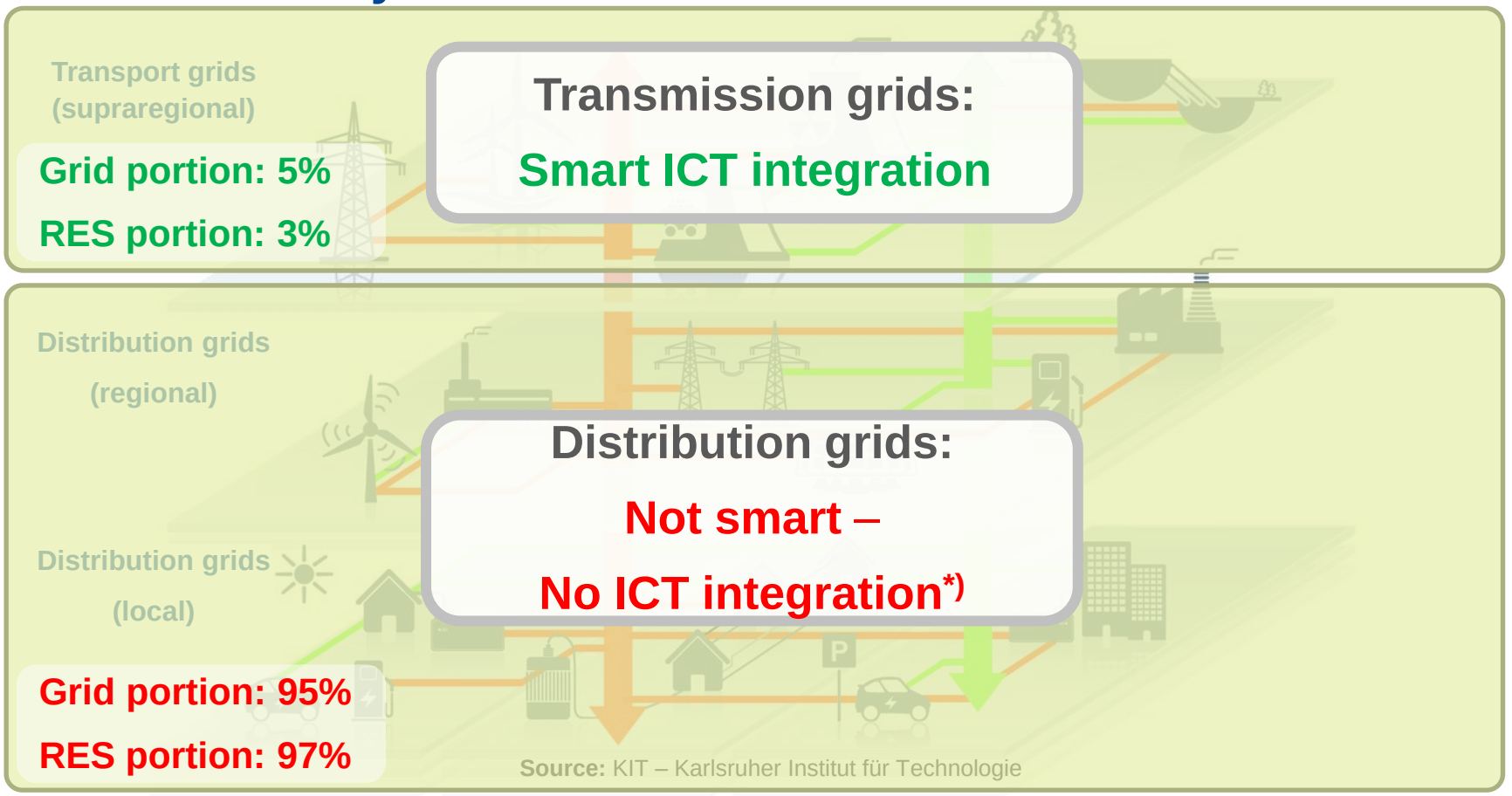
The future energy grid needs a successful integration of energy and ICT



Where we stand…to utilize synergies

ICT roadmap?	✓
Broadband coverage?	↗
Standardisation & connectivity?	↗
Distribution grids ready for RES?	✗
Regional information hubs?	✗

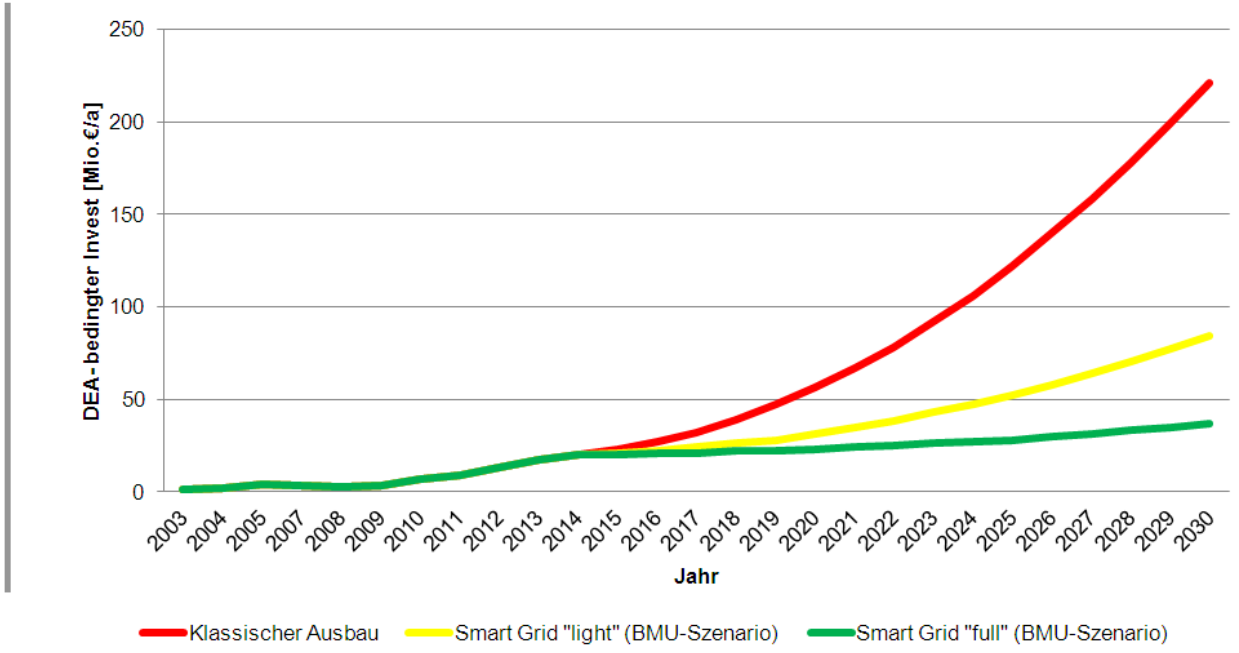
Distribution grids ready for RES?
Power grid – ICT integration today
Case: Germany



*) first pilot installations available

Electricity
Communication

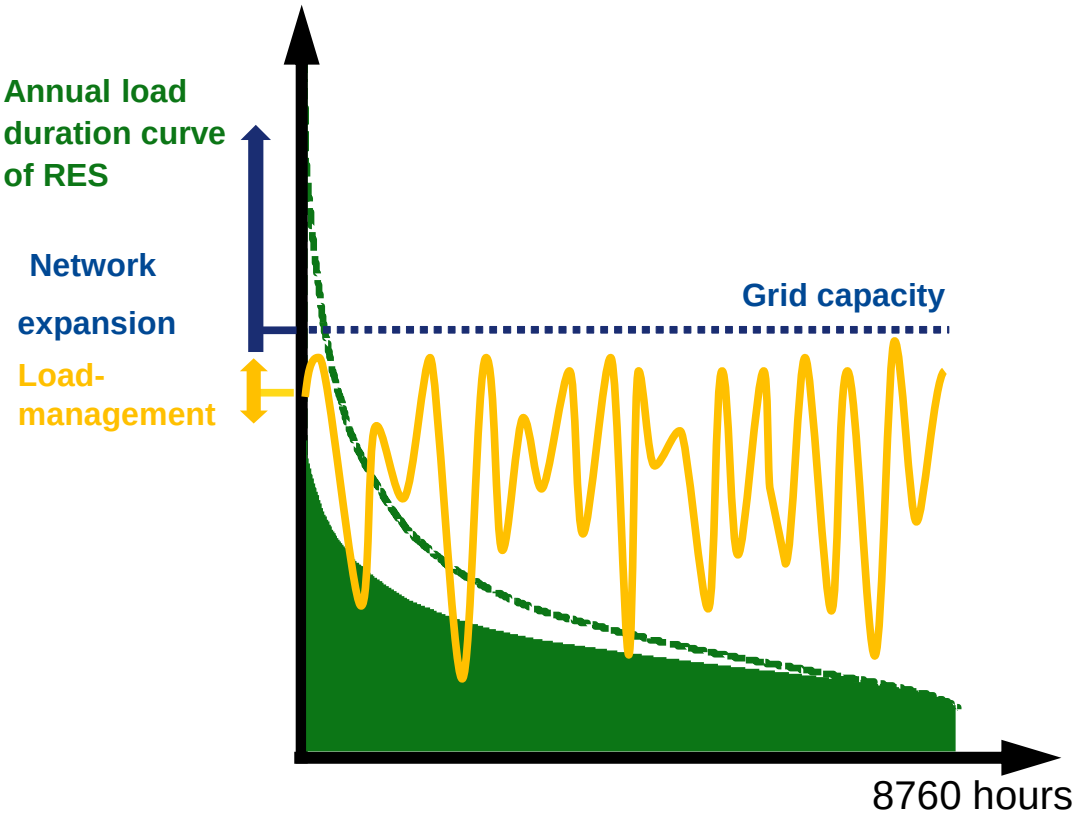
Example 1: CAPEX projection on DSO level Copper and iron approach is by far the most expensive solution in high penetrated RES areas



Synergy solution

› Copper and iron strategies and frameworks are not suffient to provide cost-efficient smart grids of the future.

Options to handle overcapacity from RES and prevent grid expansion



Options to prevent grid expansion:

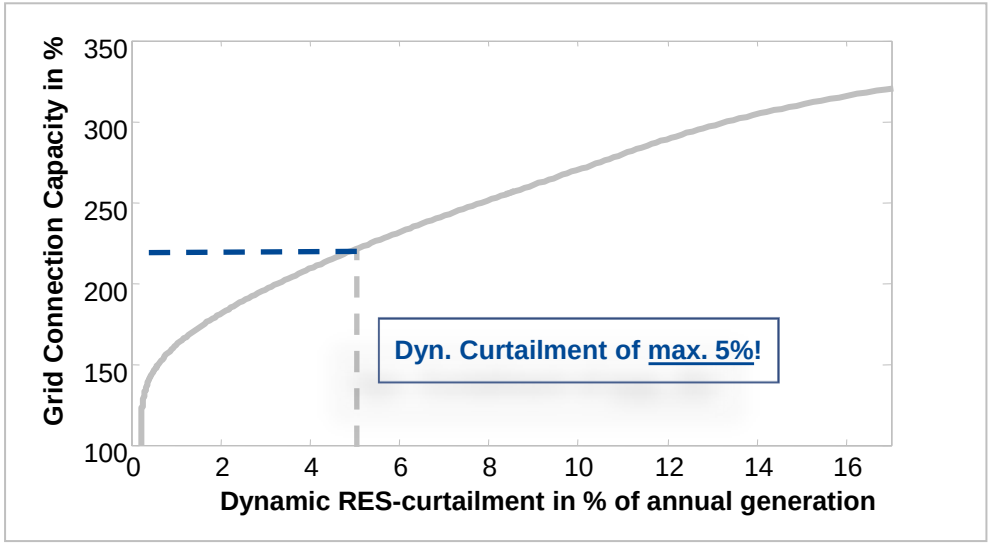
- RES delivers anxillary services
- Load mangement
- Usage of storage (Batteries … Power 2 Gas)
- curtailment

Quelle: DVGW 2011, EWE

Example 2: Grid connection capacity for RES on DSO level could be doubled by using 5% DG-flexibility

Targets of EWE NETZ:

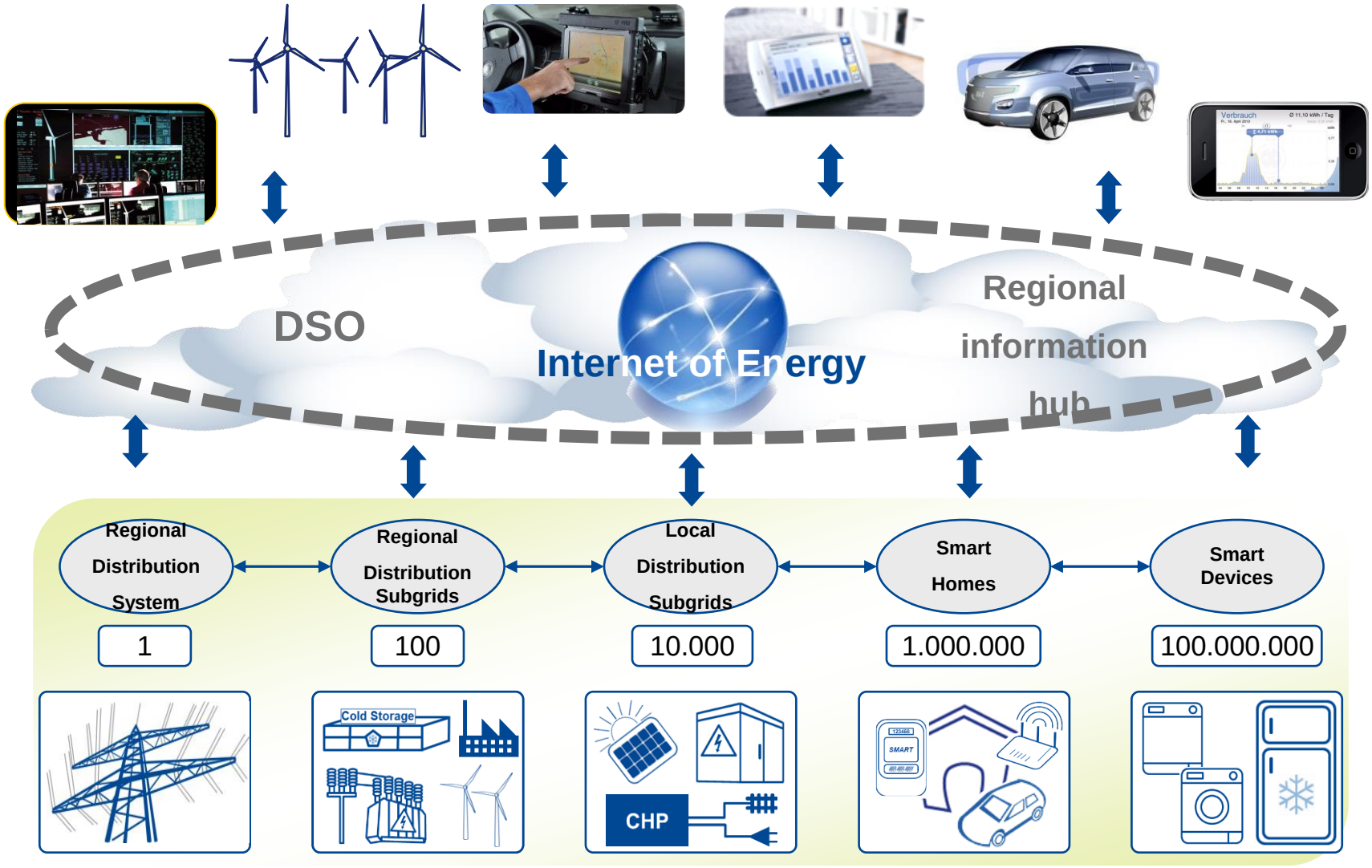
- Fast & secure connection/ integration of RES on DSO level
- Cost reduction on DSO level due to reduced need for network expansion



Synergy Solution

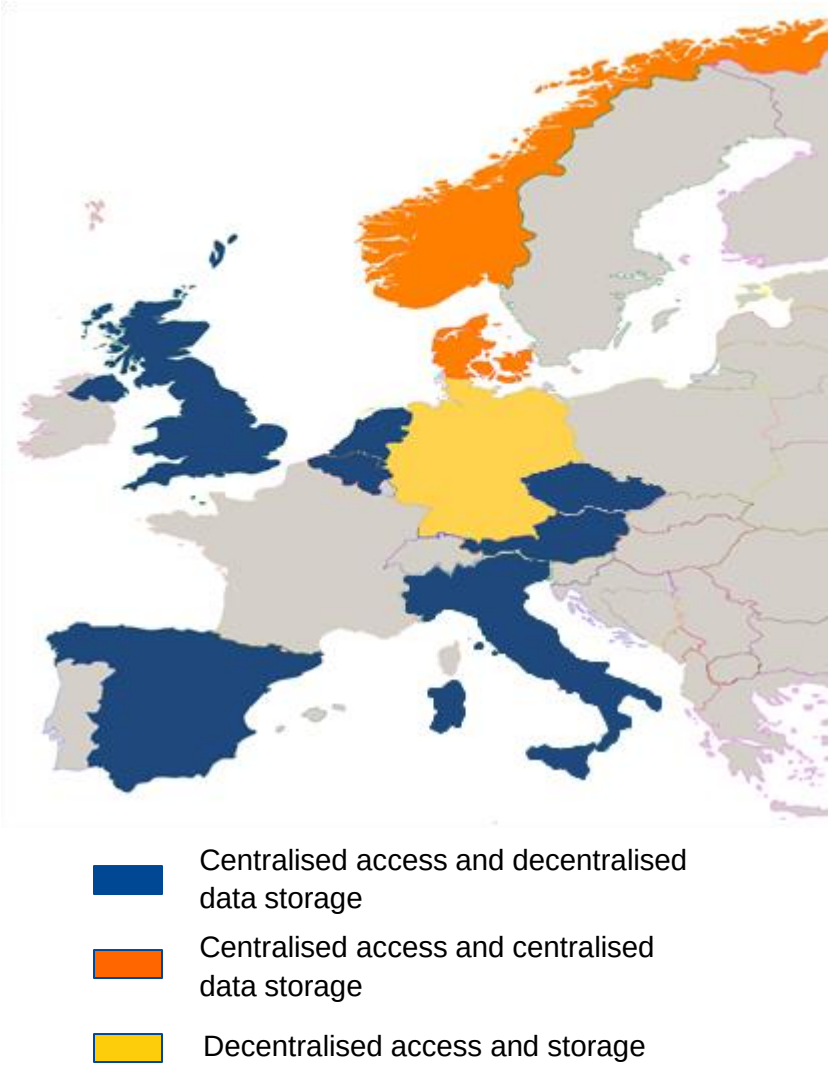
› Dynamic 5% approach of EWE NETZ according to RES would offer the opportunity to double the grid connection capacity on DSO level

Regional information hubs?



CEER Report on Meter Data Management (MDM) in 2012 - three different approaches in Europe

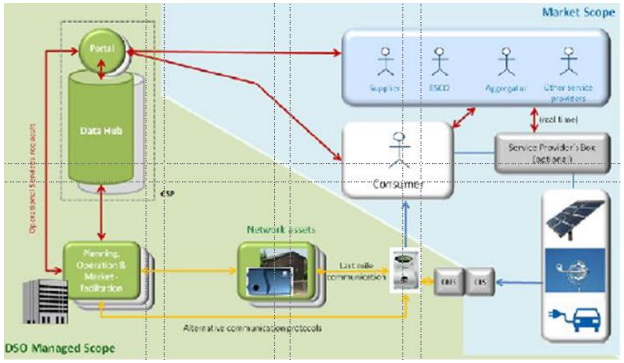
- In most countries the responsibility for metering activities (installation, maintenance, meter reading, data management, etc.) lies solely with the Distribution System Operator (DSO).
  - Exemptions (UK, Germany)
- MDM-discussions in Germany are ongoing based on conducted CBA for the rollout of smart meters → similar to other EU-countries
- Smart Grid Task Force, EG 3 has analysed three models to handle data :
  - DSO as Market Facilitator
  - Independant Central Data Hub
  - Data Access-Point Manager



Source: EWE drawing based on CEER Benchmarking Report on Meter Data Management Case Studies, Nov. 2012 and own research

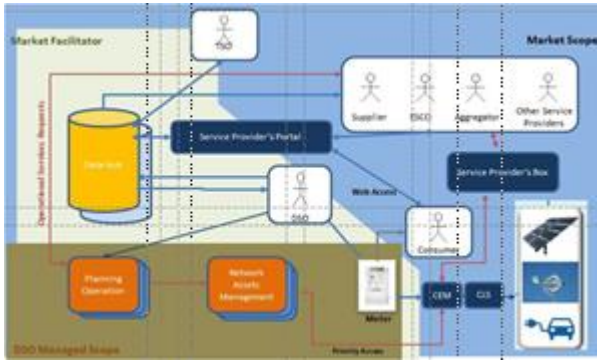
Options on data handling: Results of EU Smart Grids Task Force, Expert Group 3

Case 1:
DSO as Market Facilitator



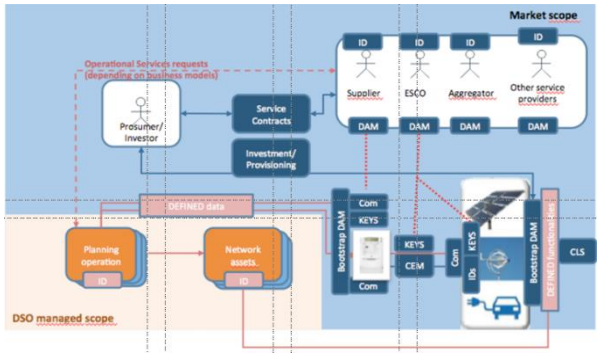
- **DSO facilitates data provision based on smart meter data**
- Communication and service platform consist of data-hub(s) and portal(s)
- Smart Meter provide interfaces to Energy Data Management Systems (EDMS) and Controllable Load System (CLS) of technical components
- CLS is part of the market scope

Case 2:
Third Party Market Facilitator



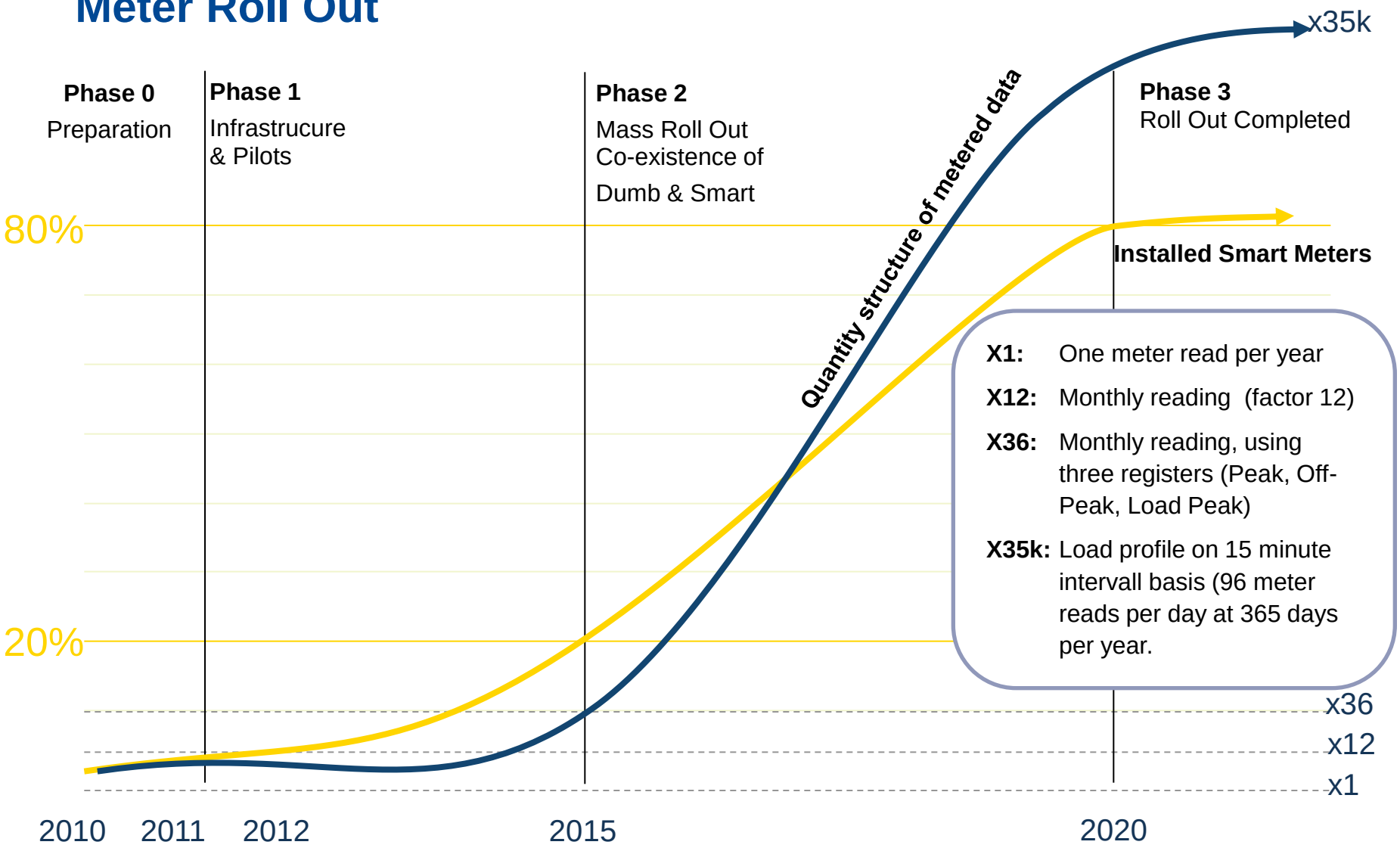
- **An independant Third Party facilitates data provision**
- Third parties receive data via a service-providers portal; DSO have direct access to hub-database;
- DSO´s provide Smart Meters with an interface to a customer Energy Management System (CEM)
- CEM and CLS are part of the market scope

Case 3:
Data Access Point Manager (DAM)



- **Data Access Point Manager (DAM) is the central actor to facilitate data provision**
- DSO concentrates on grid operation, operated assets and receives defined data
- Smart Meter, CEM and CLS are provided by the market
- **Model is currently a theoretical approach**

Increasing Quantity of Metered Data due to Smart Meter Roll Out



Exploring synergies ….

1. Energy and ICT must be perceived as one system – and not two separate entities
2. Further increase of renewable energies can only be achieved by reinforcing distribution grids with distribution grid operators serving as market facilitator
3. Regulatory obstacles have to be eliminated to encourage investments
4. An intelligent energy system requires sensible data protection and data security
5. A systemic approach of energy and ICT must be accompanied by sufficient funding
6. Raising awareness will be essential to get the needed support from the consumer
7. Modern energy services need reliable ICT

Thank you for your attention!

EWE NETZ