European Consumer and Competition Day

Impact of Digitization on Market Relations
in the Energy Market –
Presentation by Association of Energy Market Innovators
(bne)

Amsterdam, 18.04.2016

nU
2016

Who is bne and what are our goals?

bne ...

- bne represents the interests of grid-independent energy suppliers and energy service companies in Germany. Unlike suppliers with a connected grid, bne-members are free of monopoly interests: They are committed to fair competition and a diverse energy market.

.... has the following goals

- To promote a competitive regulatory framework for the energy sector
- To implement and control competitive principles on the market
- To implement fair conditions for competition in the design of grid acces and grid use
- To protect customers as consumers in competition

.... in English: **Association of Energy Market Innovators**

bne currently has 46 ordinary members:

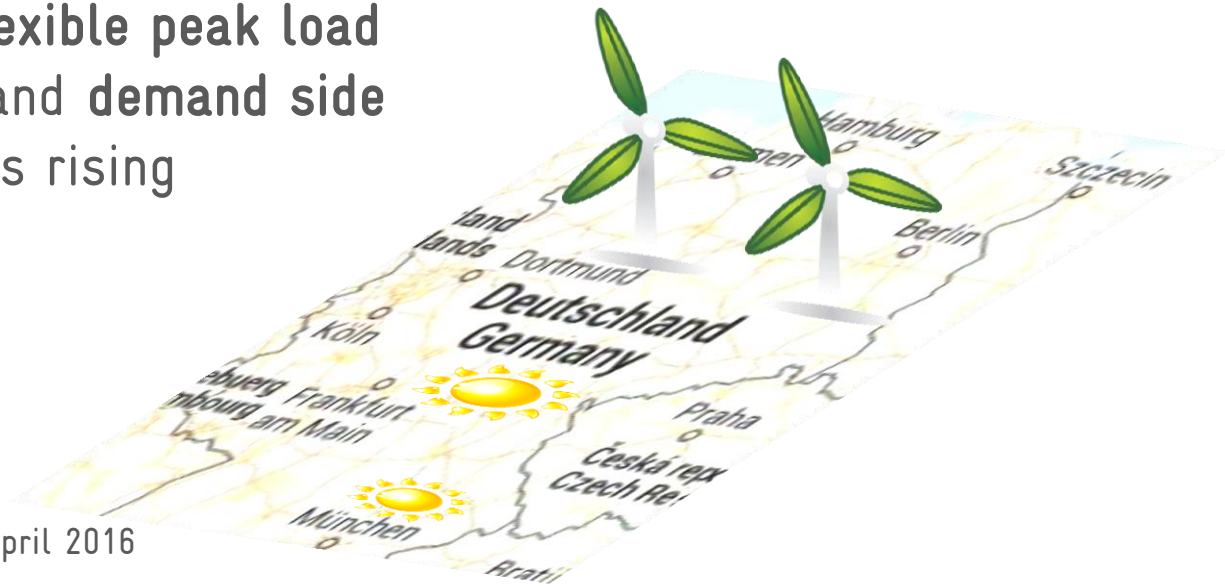
AKTIF TECHNOLOGY
EDF Deutschland
gasNatural
LichtBlick Generation reine Energie
REstore
BEEGY Better Energy.
EnergieSüdwest Strom | Erdgas | Wasser | Wärme
GENEK
LandEnergie
MR
VORWEG GEHEN
→ RWE Effizienz GmbH
BERGEN ENERGI LEADING INTERNATIONAL ENERGY EXPERTS
ENERNOC
meine-energie.de
SAG
CLEAN ENERGY SOURCING
ENOPLAN wenn's um Energie geht
GETEC DATEN- UND ABRECHNUNGS-MANAGEMENT GmbH
meistro Energie für Unternehmer.
SWM Magdeburg
co.met www.co-met.info
enovos
GP JOULE Mit Energie gewinnen
Meter1 Zähler · Daten · Service
switch Energie aus Österreich
CUCULUS SMART ACCESS TECHNOLOGIES
eprimo der energiediscounter MEHR KUNDE. WENIGER KOSTEN.
GRUND GRÜN
tiko
natGAS Energie & Lösungen
DISCOVERGY ENTDECKE DEINE ENERGIE
EVB Billing & Services
in.power
ubitricity
NEAS ENERGY
dse Energie neu entdecken.
fmc Fiedler Management Consulting
ISPEX energie
nexus energie
VATTENFALL
→ Vattenfall Europe Sales GmbH
ECONGAS
Shell PrivatEnergie
→ First Utility GmbH
LBD-Beratungsgesellschaft mbH
PQ ENERGY
watt synergia
lekker ENERGIE
QUADRA Energy
Yello Strom

Agenda

1. General trends in the German electricity market
2. Flexibility is key to future energy markets
3. Flexibility & Digitization = Smart Meter
4. Data Management
5. Regulatory Barriers

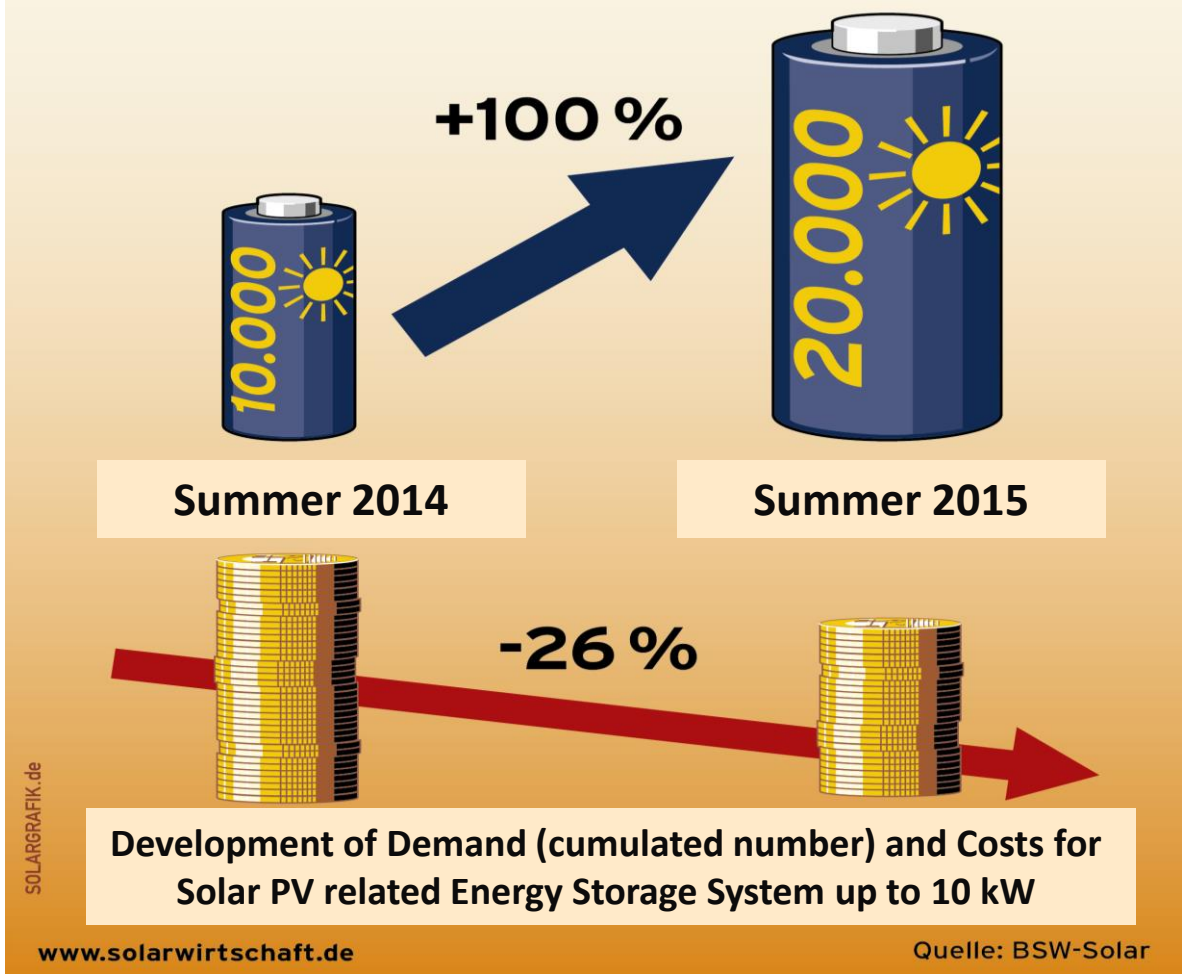
General trends in the German electricity market (1)

- Renewable energy will take on a greater role in power supply
- Wind and PV installations will play a central role in this development
- Electricity production depends on the weather situation and becomes more volatile
- Need for base load is decreasing while demand for **flexible peak load technologies** and **demand side management** is rising



General trends in the German electricity market (2)

- Dramatic cost reductions position **battery storage** as a critical game-changer.



General trends in the German electricity market (3)

- **Connecting** the markets for **electricity, gas and district heating** will play a crucial role in decarbonizing our economy.
- The same is applying to the **transport sector**: Using **electricity** will be necessary to achieve our carbon emission reduction goals.

  → **Electricity** will be **"the leader"**
- **Electrification** means increasing the use of electricity in satisfying final energy demand. Concretely: **Replacing fossil fuels with** low-carbon **electricity** in meeting daily energy needs.
- **Electrification** holds enormous **flexibility potential** for the electricity market.

95 TWh/a

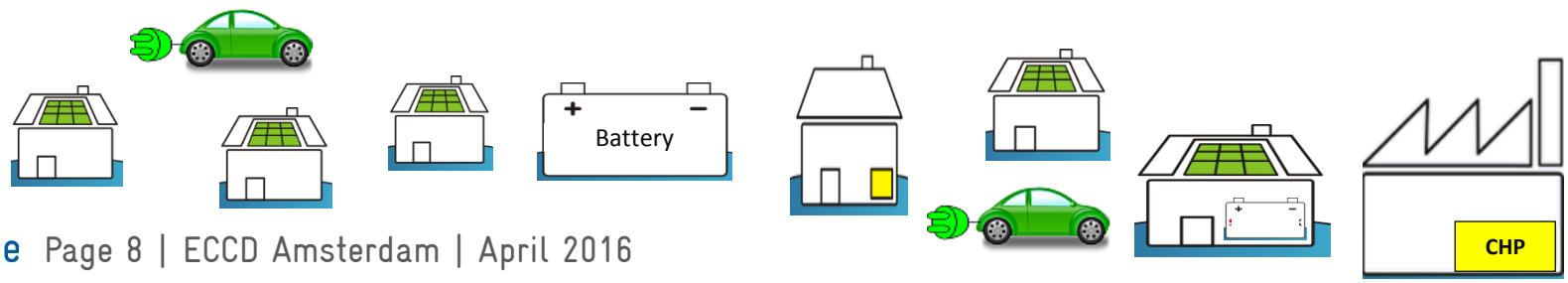
+

85 TWh/a

= 180 TWh/a

Where do we find flexibility?

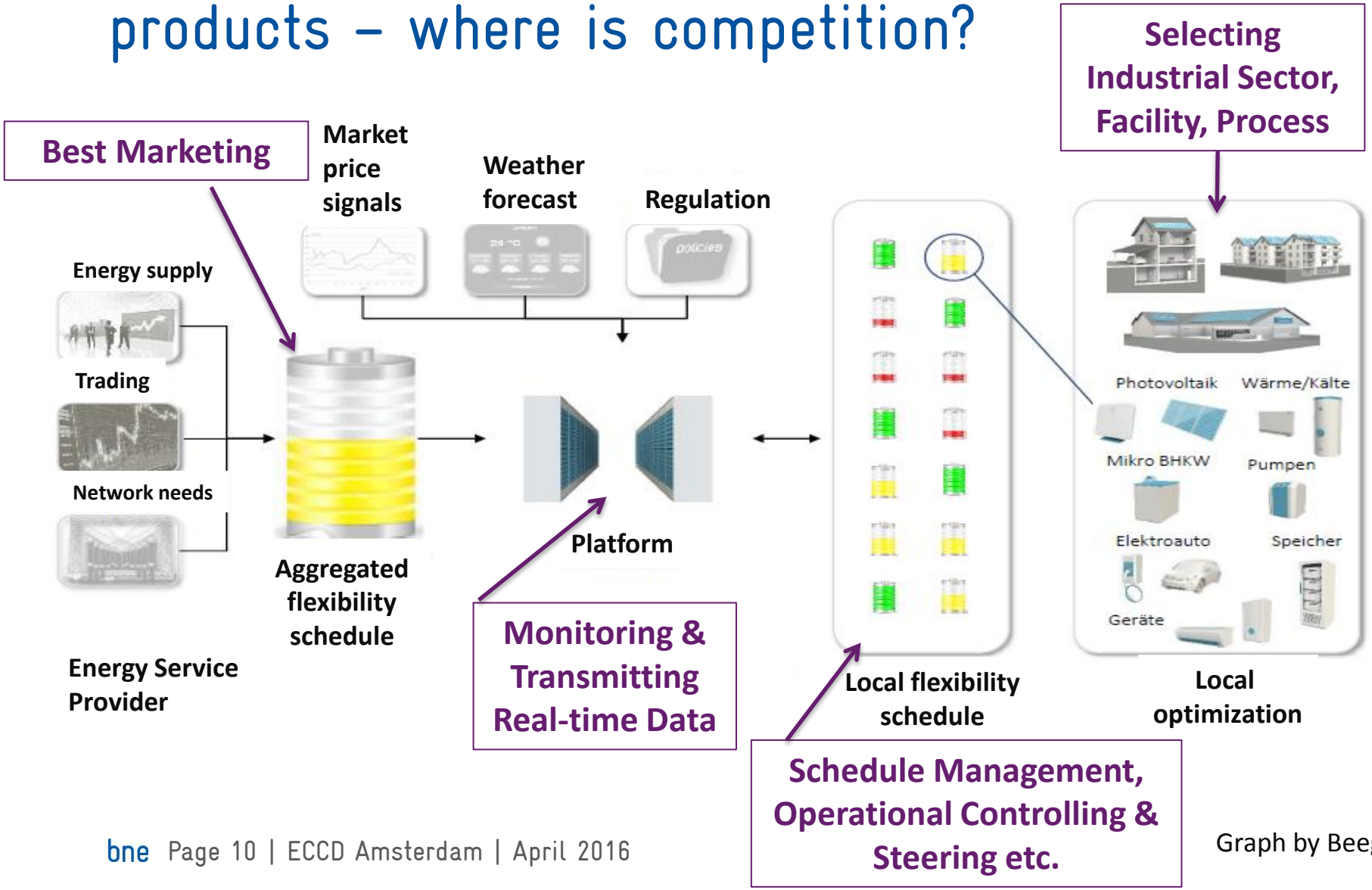
- **Thermal conventional** and **bioenergy power plants can adapt** their electricity **production**. **Wind and solar PV** installations **can reduce** their **generation**.
- **Industrial, commercial** and **residential consumers** can **reduce their power demand** to some extent in times of high residual load **and shift their demand** to times of low residual load.
- **Storage systems** can also help balance power production and consumption.
- As for **residential customers**, best positioned to offer flexibility are those that have **PV-related storage systems**, **electric vehicles** or **electric heating appliances** such as **heat pumps** for example.



Who is bringing flexibility to the energy markets?

1. **Energy supply company** possessing the knowledge and expertise to bring flexibilities to the market (as an integrated provider)
2. **Independent Aggregator** (→ Management of flexibility is separate from energy supply)
3. **Cooperation** / service agreement between independent aggregator and energy supply company (e.g., white labeling)

Flexibility Management: Searching and finding products – where is competition?



Graph by Beegy

Technical requirements for marketing flexibility

- **Advanced measurement devices** recording electricity consumption data on frequent intervals (minimum requirements in Germany: every 15 min = 96 data points per day)
- **Communication infrastructure** transmitting the recorded values in a secure manner
- **Operational control** of appliances and devices (Direct Load Control)

In Germany: Installation of so-called *"Intelligent Metering System"* is pre-requisite!

Current situation in Germany – Challenges that need to be addressed

Basic Problem:

All customers with annual consumption below 100,000 kWh

SLP

One meter-reading per year = one data point per year!

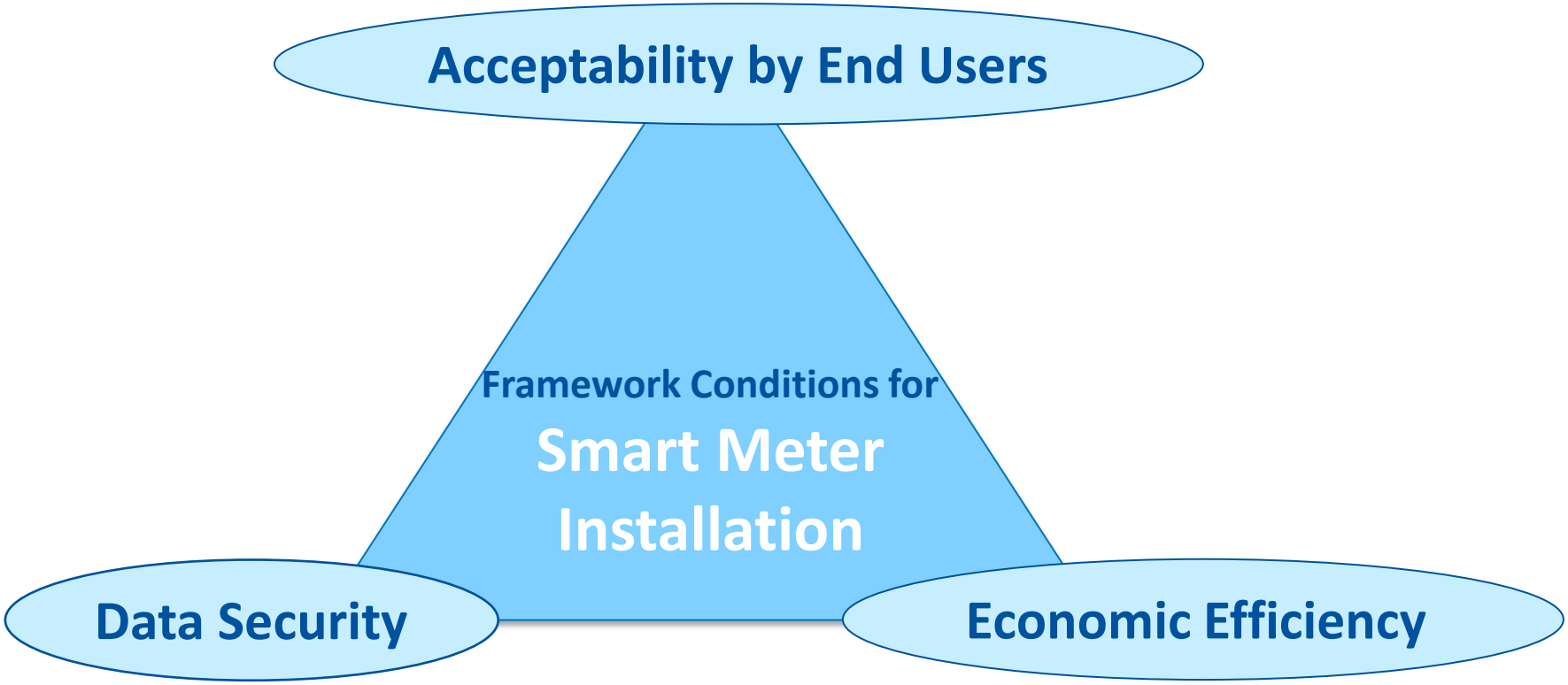
Activating Flexibility Options

More data points at high costs (between 800 and 1000 EUR per year charged by DSOs)

rLM

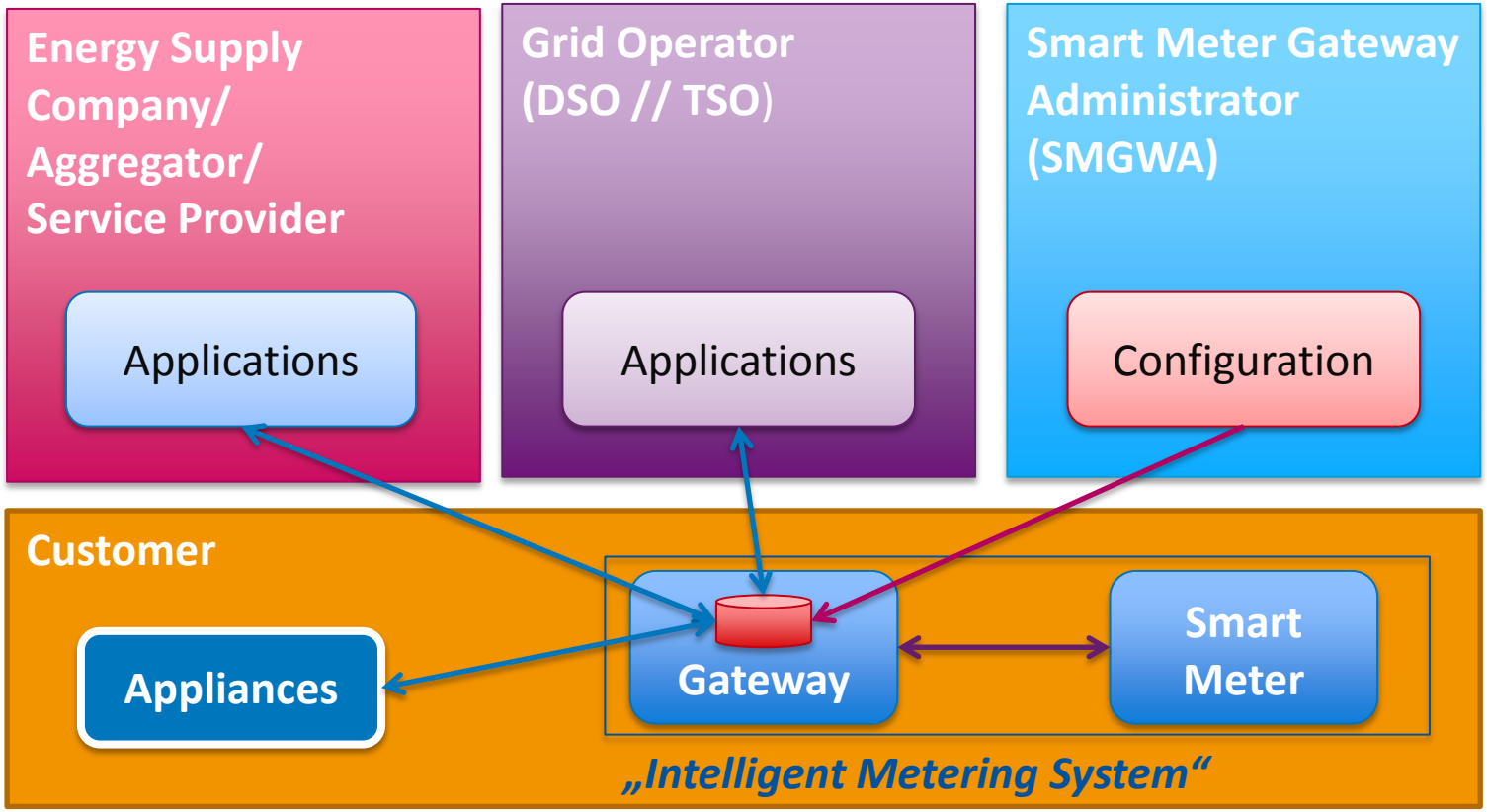
→ **Advanced consumption metering will be required**
→ **Methods for balancing group management and billing processes need to be enhanced**

Smart Meter Challenge Triangle: Balancing the trade-offs between different objectives



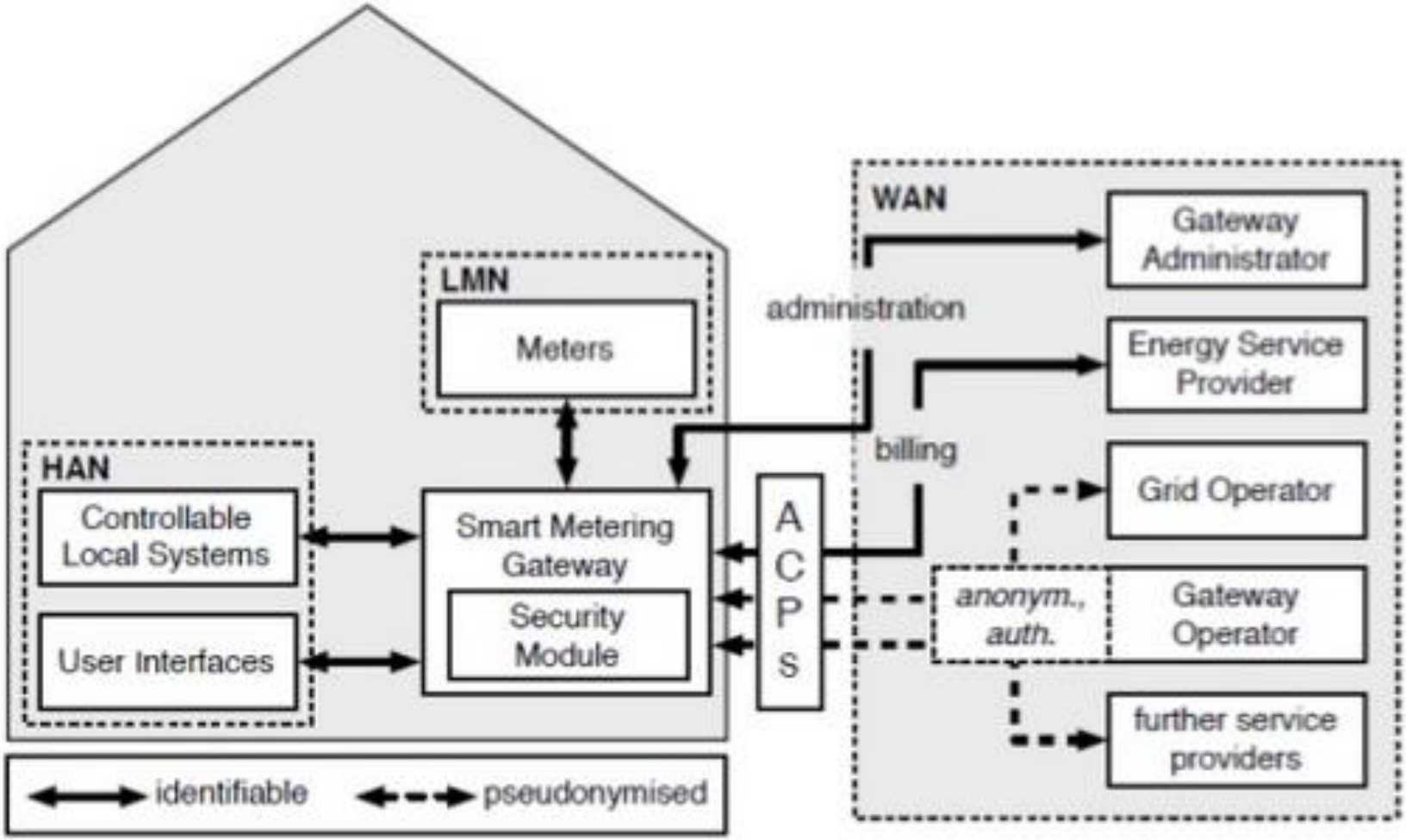
„Intelligent Metering System“ and Data Management

According to the current **German law proposal** on the **digitization of the energy transition**, data management will be based on the **principle of radial market communication**:



Graph by 50hertz

Smart Meter Architecture in Germany (= "Intelligent Metering System")



Graph taken from Wipro

Current Draft Digitization Law (April 2016)

- Must-Rollout above 6.000 kWh/year
- Must-Rollout >7kWp (Renewables/CHP)
- Must-Rollout in case of network tariff reduction (flexibility)
- Can-Rollout in remaining cases
- Staggered price caps in place for metering systems
- Liberalization Metering Operator – however, DSO is default metering operator
- Unbundling DSO/Metering Operator/Supplier
- Tender for „Must-Rollout" in case, DSO won't do it
- New balancing system (no more standard load profiles!)

Regulatory barriers for the introduction of Demand Side Flexibility

- Today's **network tariff structure** (currently greatest challenge in Germany!)
- **Market price signals** are often superseded by other price components (such as levies, taxes and network fees)
- **Greater price spreads** on the spot markets are needed to generate positive business cases for Demand Side Flexibility (Problem: existing generation overcapacity and regulations which help delaying their dismantling)
- Defining **clear roles, rights** and **responsibilities for independent aggregators** and **setting up standardized processes**

bne

Thank you for your attention!

Bianca Barth
Bundesverband Neuer Energieanbieter e. V. // Association of Energy Market Innovators

Hackescher Markt 4
D-10178 Berlin, Germany
Telephone +49 30 400548-20
Fax +49 30 400548-10
bianca.barth@bne-online.de
www.bne-online.de