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Meter Data Management in Germany by now and prospective

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market overview

- Regulated monopoly:
  - **4 TSO**
  - **869 DSO** (794 < 100,000 customers)

- Retail market:
  - **January 2012: 1013 suppliers**
  - 20 biggest obtain 48% of the retail market
  - 458 TWh supplied amount
  - Averaged in 62% of DSO-areas over 50 active suppliers – but not always nationwide

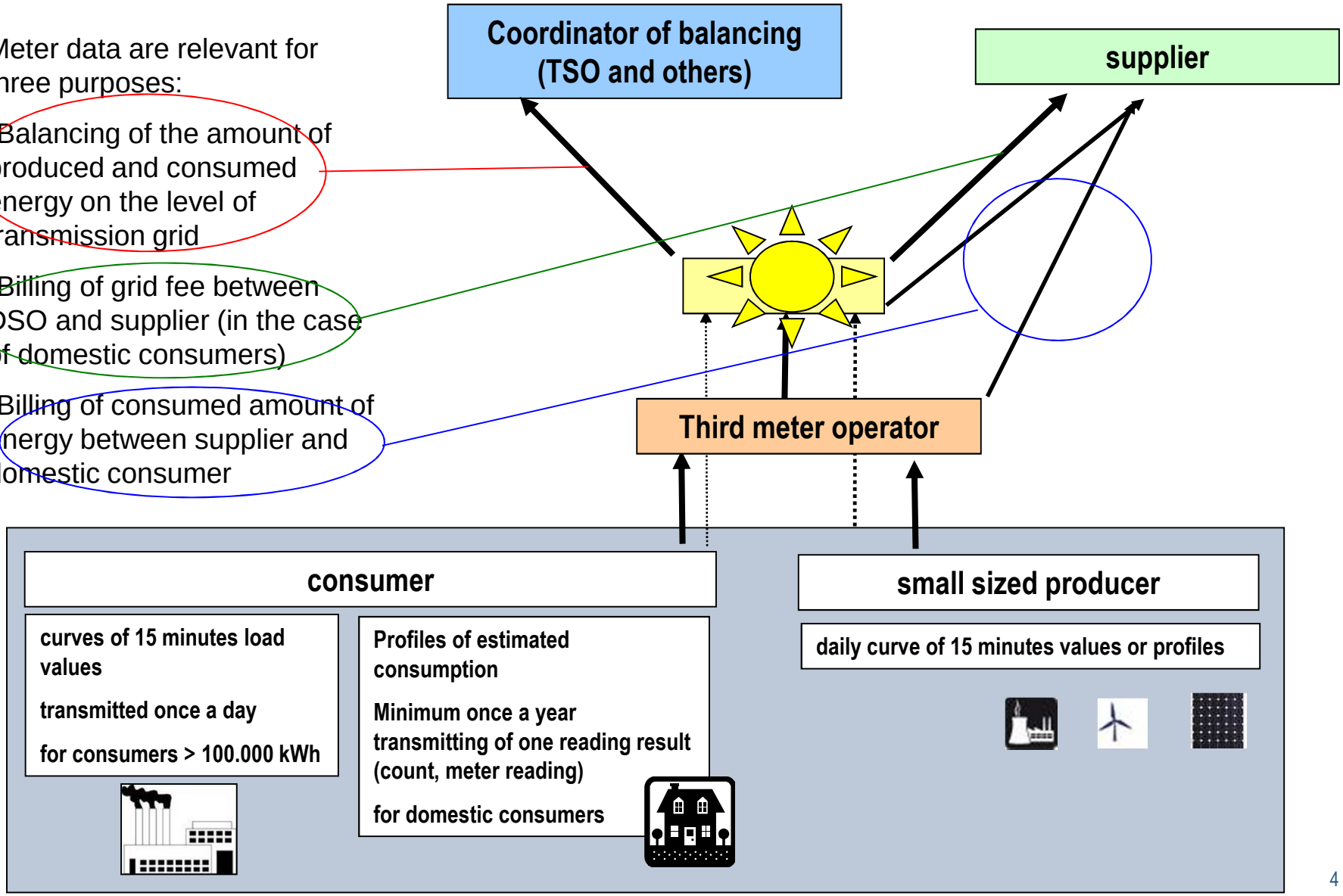
  - 3 million domestic consumers chose a new supplier in 2011
    [**switching rate of 6,5%]**
  - 2,7 million domestic consumers chose a new supplier in 2010
    [switching rate of 5,9%]

  - **658 DSOs as „base"-meter operator**, if there is no third party
  - App. **20 nationwide independent MO** – prevailing in the area of industry and middle sized enterprises, not very successful in the field of domestic customers

Meter value management – state of the art

Meter data are relevant for three purposes:

- Balancing of the amount of produced and consumed energy on the level of transmission grid
- Billing of grid fee between DSO and supplier (in the case of domestic consumers)
- Billing of consumed amount of energy between supplier and domestic consumer



meter value management – state of the art

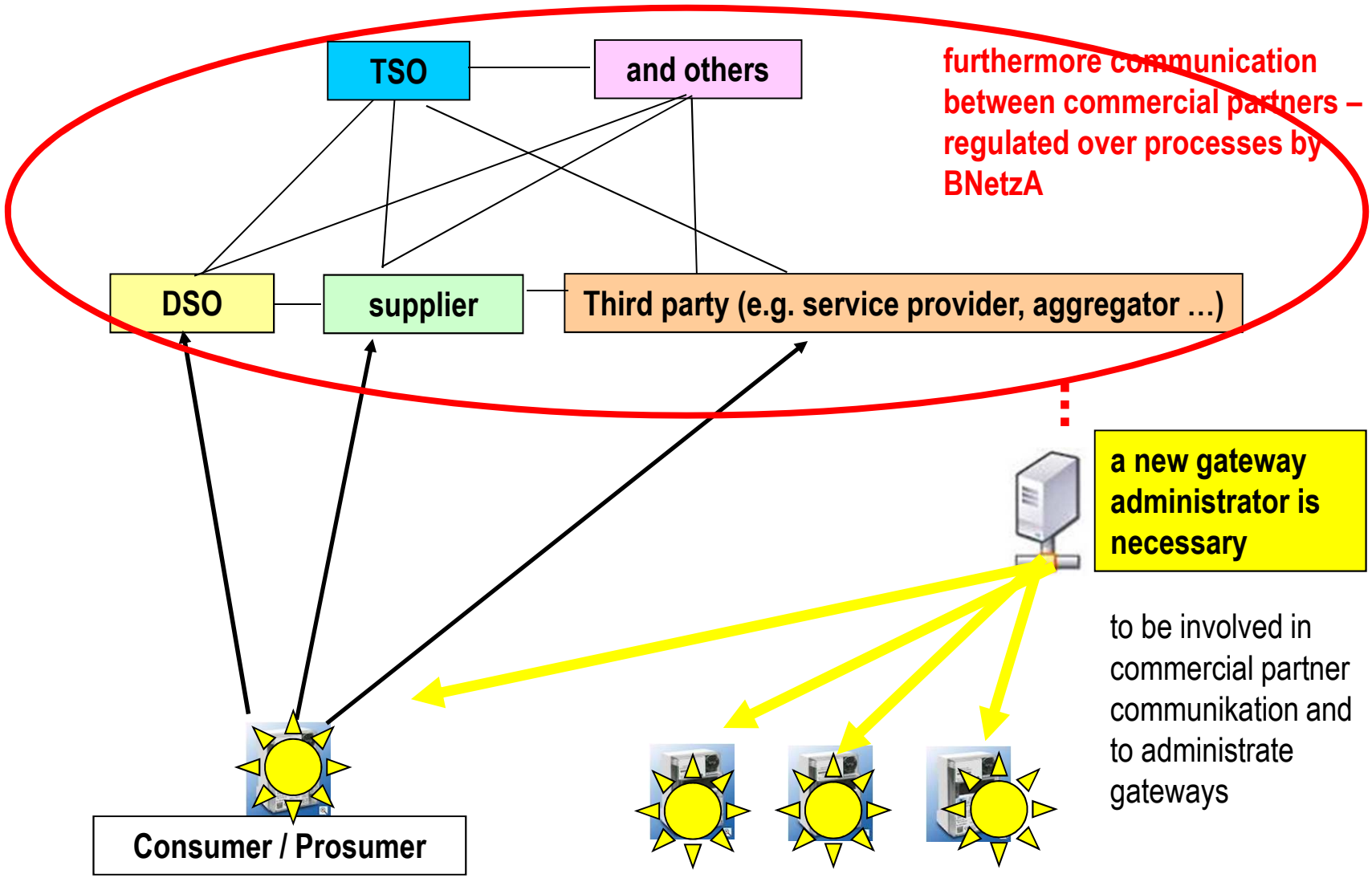
- DSO sends relevant meter data to relevant market roles - how to send these data is regulated over fix processes, which were created by BNetzA in consultation with stakeholders (esp. Supplier and DSO)
- such processes are abstract descriptions of communication between market participants (supplier, DSO, MO etc.)
- they are nationwide obliging rules, specifiying **timelimits, data protocols and sequence in communication** between the relevant stakeholders for each process
- there are 3 main processes created by BNetzA:
  - Switching (GPKE – processes for supplying consumers with electricity) – important for smoothly and in-time switching of supplier (since 2006)
  - metering in context with a third party as metering operator (WiM) – important for smoothly and in-time switching of metering operator (since 2009)
  - Balancing (Mabis) – important for smoothly and in-time accounting and billing auf consumed and produced energy per control area (since 2010)

Advantages, challenges

- DSO-(de)centralized data flow - it´s the solution of the german „problem“ of app. 1000 DSO and 1000 suppliers to guarantee a fast switching process for the consumer without discriminary behaviour. – **main driver: liberalisation / switching of supplier**
- It took time and it generated costs (for each supplier and DSO) to install and to establish these processes. --> **Pre-condition: capable IT-Systems at each stakeholder** – there are no hand-made data exchange anymore!
- storage of original meter data in the measurement unit (meter) – here are not only energy law but also standards weights and measures law of interest
- Conclusion: well running system

- Actual challenges: if a more flexible market for domestic consumers is forced and wanted:
  - costs of getting hisorical meter data or additional meter readings beside the need of balancing and grid fee
  - the more frequently and detailed data that are necessary for participating in the market – the more questions of data protection, data security, trust in the market parties rise (it´s not anymore the „once-a-year-meter-reading“)

Meter value management – new approach



Functionalities of the gateway

- The Smart Meter Gateway supports communication with various external parties
- The Gateway supports flexible tarifs
- The Gateway provides communication channels to local systems (so called Controllable Local Systems, CLS)
- Those CLS may comprise
  - Local energy production facilities (e.g. solar plants)
  - Energy management facilities
  - other (e.g. white goods)

Why this change of a running system?

- Smart metering causes political discussion about two different topics: data security and data privacy
  - Authority responsible for data privacy postulates that decisions about usage of data have to be made by data owners. These are the prosumers/consumers – so they decide about who get which data (unless priorities of energy system is not disturbe).
  - Authority responsible for data security postulates that in the future environment of smart metering (including communication between commercial partners) the IT-systems of each stakeholder (including smart meter of each consumer) and the communication over public network of telecommunication (www) have to be secure

Centralized approaches vs. de-centralized

- The centralized approach
  - Many business cases and processes around smart metering base on a centralized concept
  - The Smart Metering system will send consumption data in high resolution to a centralized system
  - The system will apply tariffs, control the data and share the data with authorized parties
- The de-centralized approach
  - The Smart Metering System itself (the Gateway to be precise) handles the data
  - Only results of tariffs are submitted to external parties
  - The consumer keeps control over their data (at least physically)
- The German technical requirements support both approaches

Advantages, challenges

- requirements of data security and data protection are technically fullfilled
- the „old“ running system where the data flows to and from the DSO is still applicable
- new – more flexible – offers from new market players are possible, too

- Actual discussion: new approach of decentral installed Gateways requires an administrator for the gateways - maybe a more centralized authority for getting an overview about all master data – who´s that? DSO, Meter Operator … ?