Data Protection and Smart Grid Communication
– The European Perspective –

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Europe is different.
Regulatory Approach

and

Privacy / Data Protection
EU Givens
„The Utility“
EU Givens: Energy Regulation

- Physical flow
- Logical (virtual) flow

Diagram:
- Producer
  - Transmission System Operator (TSO)
  - Distribution System Operator (DSO)
  - Customer
- Supplier

Givens:
- Energy Regulation
- Transmission System Operator (TSO)
- Distribution System Operator (DSO)
- Customer Supplier

Physical flow:
- From Producer to Supplier

Logical (virtual) flow:
- From Producer to Customer
EU Givens: Energy Regulation

Market-driven

“Local Natural Monopolies“
→ Strict Regulation
→ Unbundling (incl. Information)
Domains vs. Unbundled Actors

Domains vs. Unbundled Actors

„Informational Unbundling“

Smart Meter

?  

<table>
<thead>
<tr>
<th>TSO</th>
<th>Supplier</th>
<th>DSO</th>
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</table>
| Needs high-res measurement data for balancing mechanism  
(suppliers must align generation and consumption, aggregated data suffices) | Needs high-res measurement data in individualized form for billing customers on the basis of dynamic tariffs | Needs the data necessary to calculate network fees having to be paid by supplier  
(necessary data depends on national legislation) |
EU Givens
EU Givens: Data Protection („Privacy“)

Any collection, processing and use of „personal data“...

... requires a **legitimation** for doing so, ...

... must serve well-specified and explicitly stated **purposes** and ...

... must be confined to the essential **minimum amount** of personal data.
### „Data Needs“ and Data Protection

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| **Legitimation:**  
No contract; legal obligation inconsistent across EU | **Legitimation:**  
Contract with customer | **Legitimation:**  
No contract; legal obligation inconsistent across EU |
| **Data minimization:**  
Sum-values per supplier and/or DSO suffice under most legislations  
➡ Depersonalization via Aggregation $_{\text{TSO}}$ | **Data minimization:**  
Confine resolution to interval of potential price changes  
**Purpose limitation:**  
May use for billing etc.; other purposes (targeted advertising) require separate legitimation (i.e. customer consent) | **Data minimization:**  
Sum-values per supplier and/or DSO suffice under most legislations  
➡ Depersonalization via Aggregation $_{\text{DSO}}$ |
| **Purpose limitation:**  
-- | **Purpose limitation:**  
-- | **Purpose limitation:**  
-- |
Implication

Any SG communication architecture that is to be deployed within the EU must provide different „restricted data views“ to different market roles, depending on different legitimating bases.
„Data Needs“ and Data Protection

Smart Meter

???

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<td>➔ Depersonalization via Aggregation$_{TSO}$</td>
<td>➔ Confine resolution to interval of potential price changes</td>
<td>➔ Depersonalization via Aggregation$_{DSO}$</td>
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**Approach 1: Central Database („AMI“)**

- Smart Meter
- „AMI“
- TSO
- Supplier
- DSO

➡ Who should operate?
State / DSO / TSO?

➡ No choice, customer is forced to „trust“

➡ Conflicts with idea of „informational self-determination“

➡ More or less attitude against centralized, inescapable databases across Europe (UK vs. D)
Approach 2: Access Control at User Side

- Smart Meter with local data flow control
- TSO
- Supplier
- DSO
Approach 3: Customer-selectable „Data Trustees“
Europe is different.
And don’t underestimate the implications arising from regulatory given.
Contact

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