

TP Smart Grids Austria

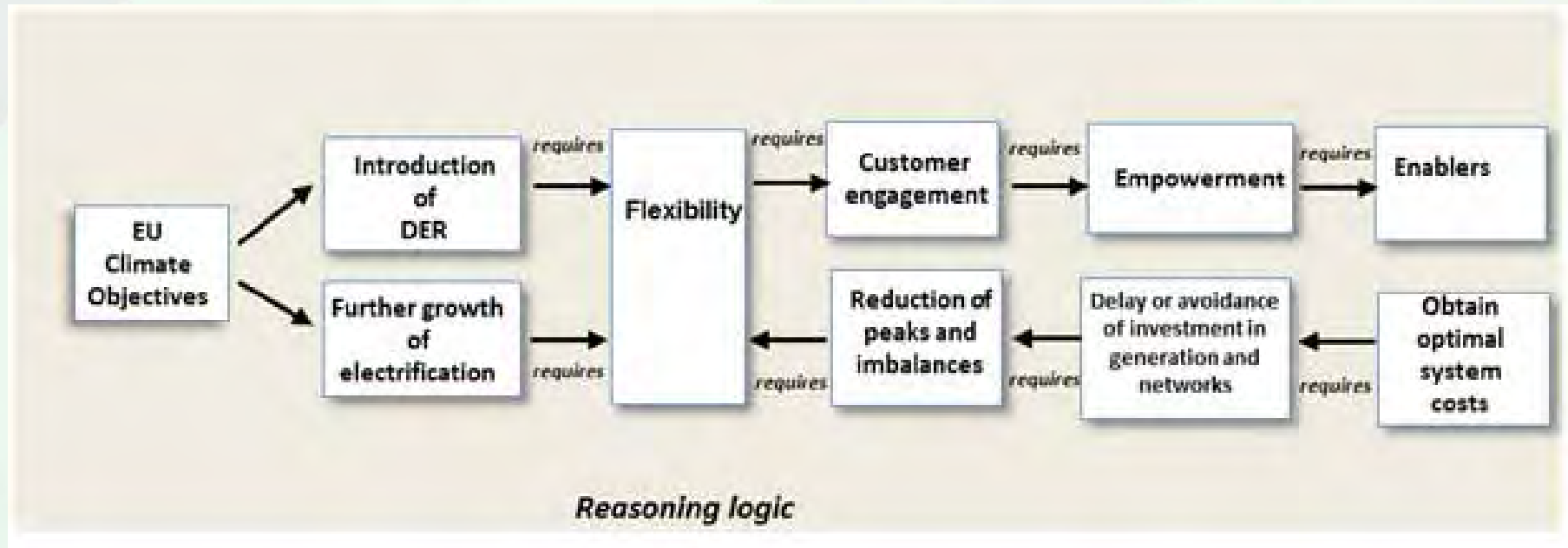
Update und Inputs zu Flexibilitäten als Treiber des zukünftigen Energiemarktes



SMARTGRIDS
AUSTRIA

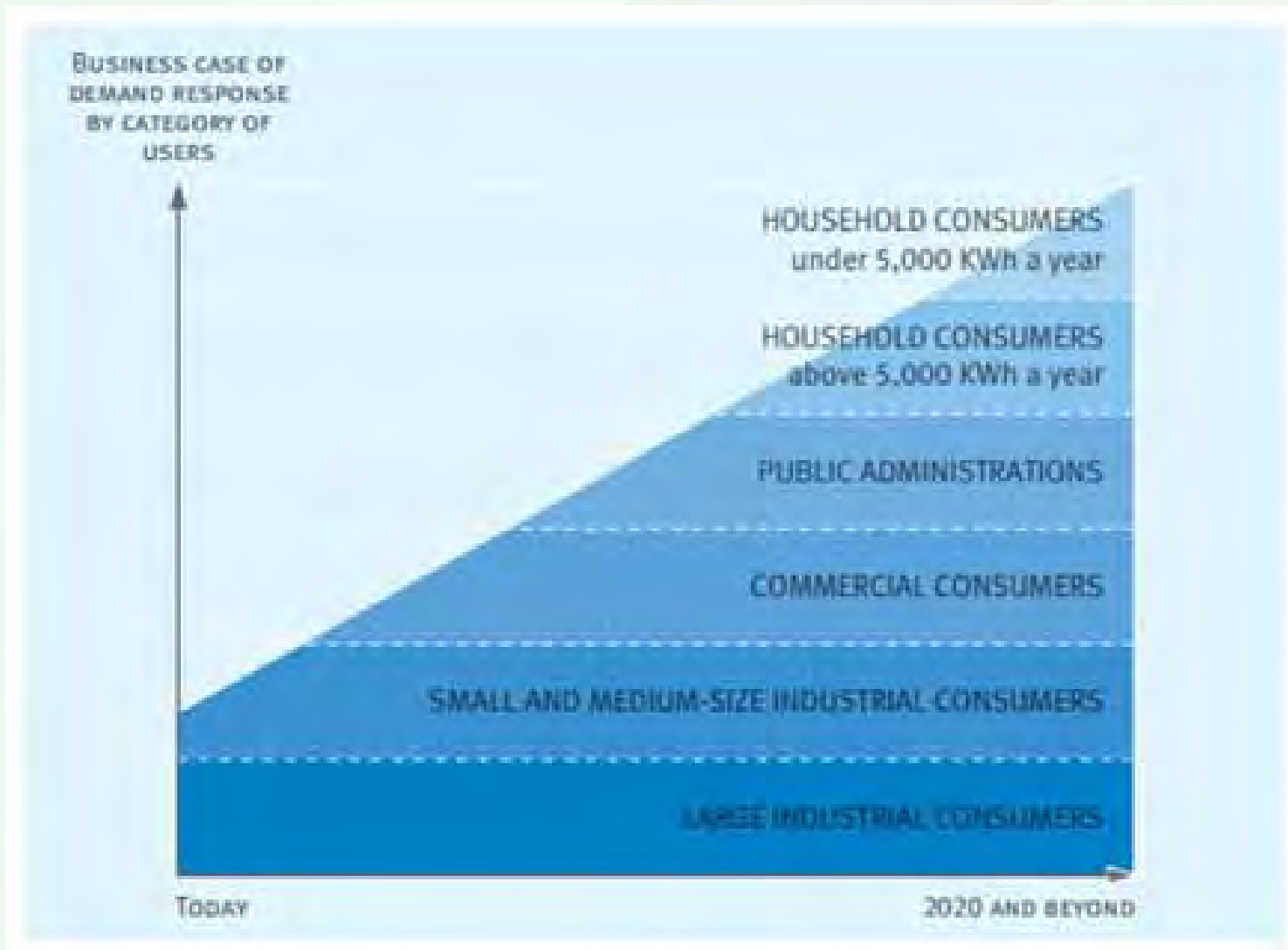
Andreas Lugmaier
Friederich Kupzog

Definition „Flexibility“



- How flexibility from distributed resources, including demand side, can support the overall efficiency and security of the system, and;
- How to achieve active system user participation within a Smart Grid context.

Business Case „Flexibility“



Flexibility: „Users vs. Providers“

1. Service that can be provided	2. System user that can offer this service	3. Function that this product can fulfil	4. Flexibility user requiring this service
Peak shifting (i.e. shifting the peak demand)	Aggregated (or individual) industrial and commercial users Aggregated domestic customers	Long term congestion management. Portfolio optimization Generation capacity adequacy	DSO TSO
Demand adjustments – manually/auto matically	Aggregated (or individual) industrial and commercial users Aggregated domestic customers	Short term congestion management Portfolio optimization Generation capacity adequacy	DSO TSO
FC/FRR/RR balancing services	Aggregated or individual industrial and commercial users Aggregated distributed generation	Frequency control	TSO
Generation adjustments	(Aggregated) distributed generation	Short term congestion management Grid losses reduction	DSO TSO
Curtailement products	(Aggregated) distributed generation (Aggregated) industrial and commercial users Aggregated domestic customers	Short term congestion management	DSO TSO
Reactive power (mandatory)	(Aggregated) distributed generation	Voltage control	DSO TSO

Recommendations to „Flexibility“

- **The approach to flexibility should be holistic, and look at how the energy system as a whole can be organised to deliver more efficient and sustainable market-based solutions in the interests of customers**
- **...left to each national regulatory authority, and will be dependent on individual national contexts. ...**
- **...consideration should be that the roles and responsibilities of the participants in different parts of the energy value chain, including their evolving interactions, should be clear. Sufficient information must be available at all times to enable them to meet their required roles....**

Recommendations to „Flexibility“

- **Recommendation 1: Member States and NRAs should ensure that the value of flexibility is maximised to the consumers and other providers of that flexibility, and continues to be maximised in an evolving market over time.**
- **Recommendation 2: The EU Commission and Member States should ensure that consumers and other providers of flexibility are provided with the necessary information and tools, and services tailored to consumer needs, to adequately and effectively engage in the market and to extract the best value of their flexibility.**

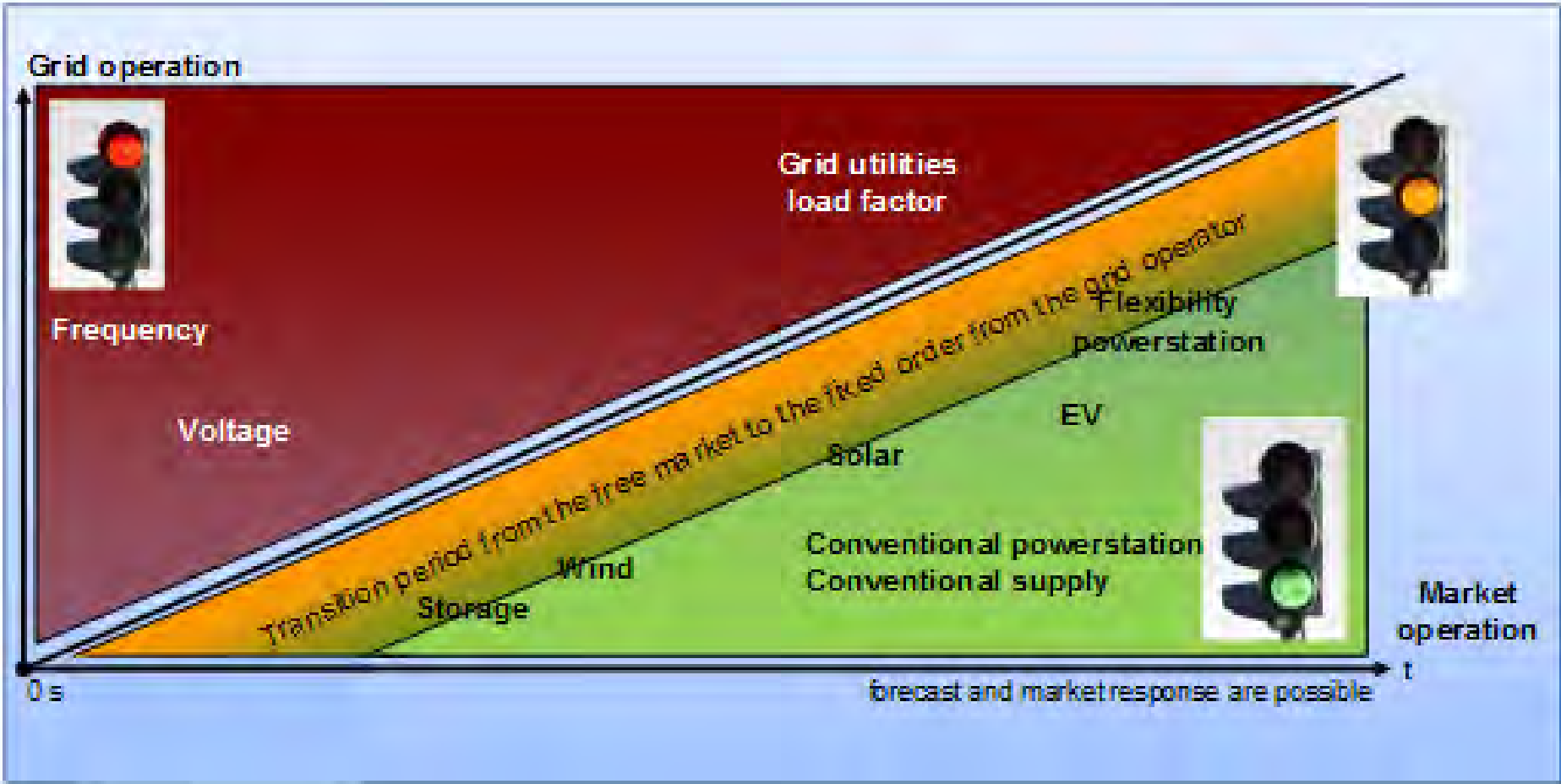
Recommendations to „Flexibility“

- **Recommendation 3:** Member States and NRAs should ensure that arrangements exist in the market that provide adequate transparency and visibility to maximise efficiency, while protecting the interests of the consumer and other providers of flexibility (including data privacy), and remain flexible in an evolving market.
- **Recommendation 4:** Member States and NRAs should ensure that the market is free from barriers and provides equal access for all existing parties and new entrants (such as independent aggregators), including through interoperable standards and arrangements.

Recommendations to „Flexibility“

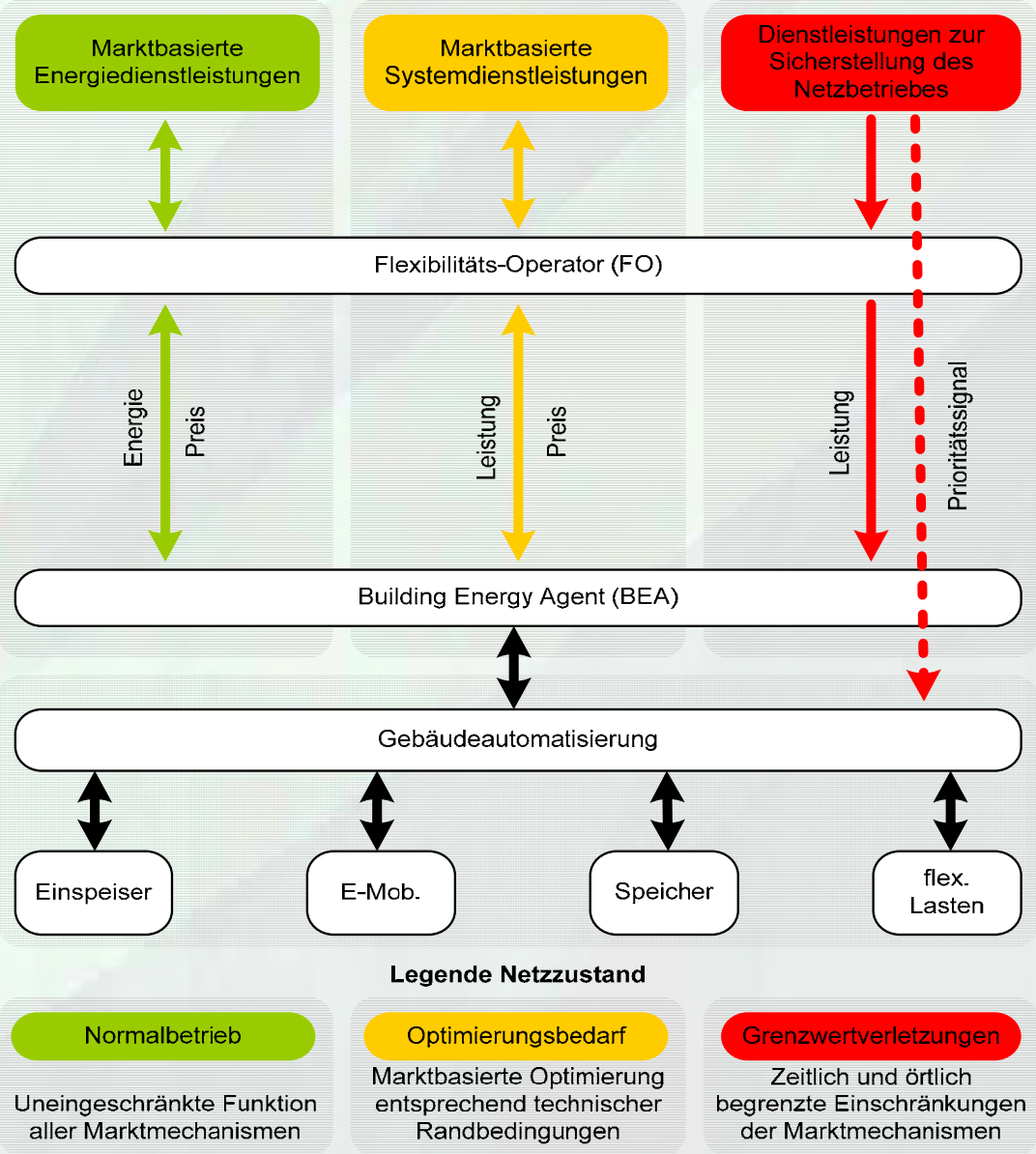
- **Recommendation 5:** EU Commission or Member States should ensure that balance responsibility related to a connection, recognizing that this is a crucial role for maintaining system stability and security of supply, is unambiguously defined in relation to all market parties that are supplying/ receiving energy and/ or invoking flexibility on that connection.
- **Recommendation 6:** NRAs should ensure that there are appropriate mechanisms in place to incentivise cost effective solutions (as alternatives to the traditional approach of ‘investing in copper’ when it is efficient to do so)
- **Recommendation 7:** NRAs should ensure that regulatory mechanisms incentivise TSOs’ and DSOs’ use of flexibility & innovation.

Traffic Light Model

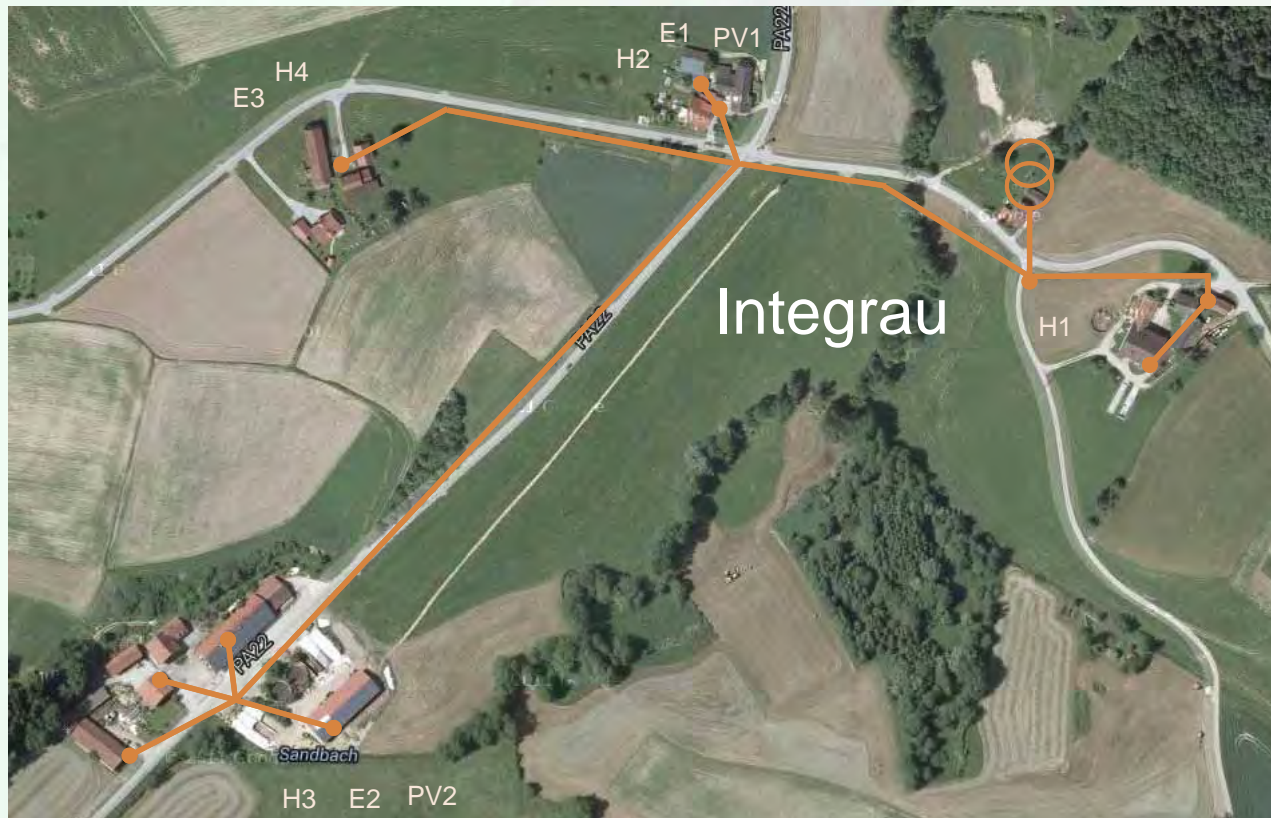


Traffic Light Model

Smart Grids Austria
Ampelmodell



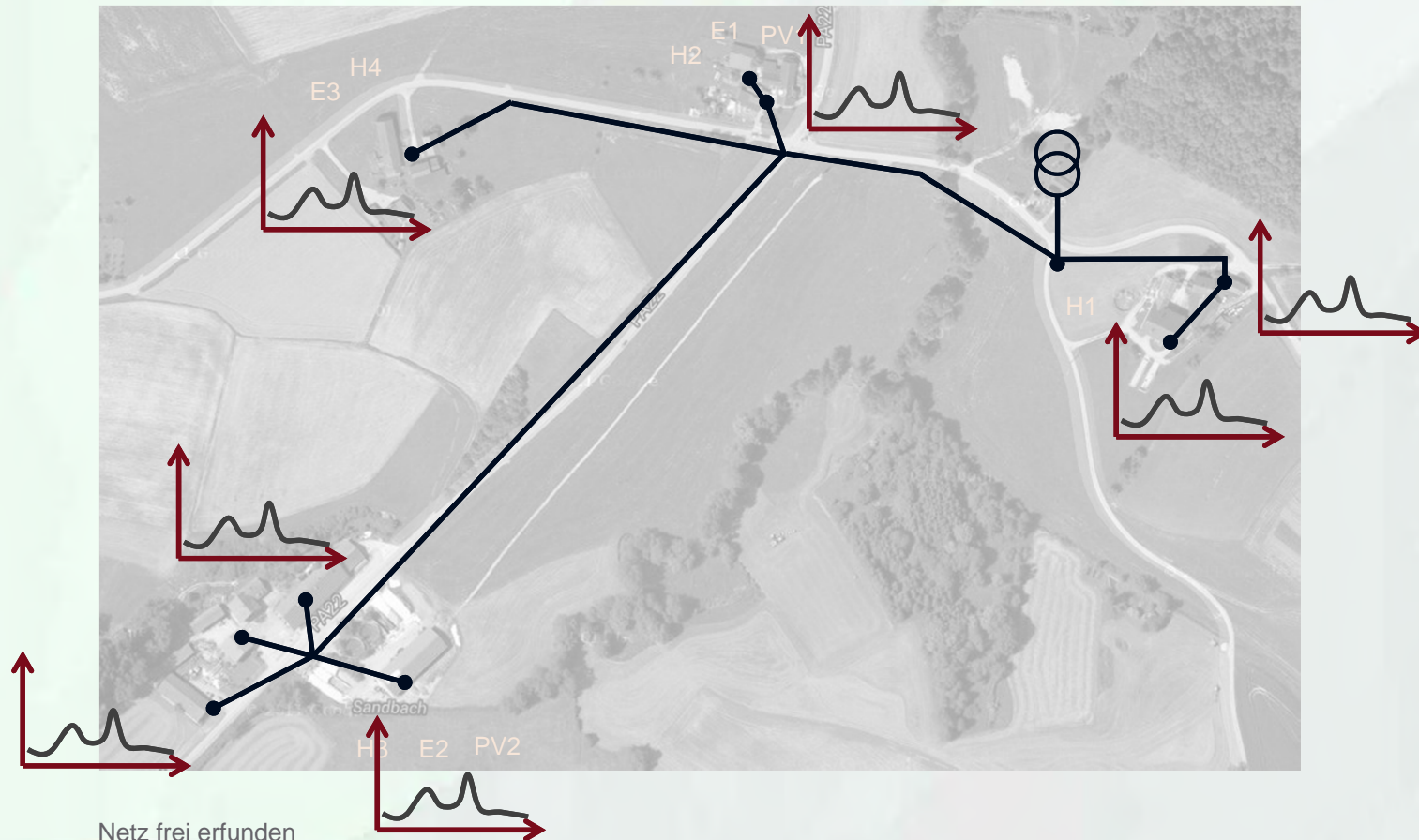
Projekt INTEGRA



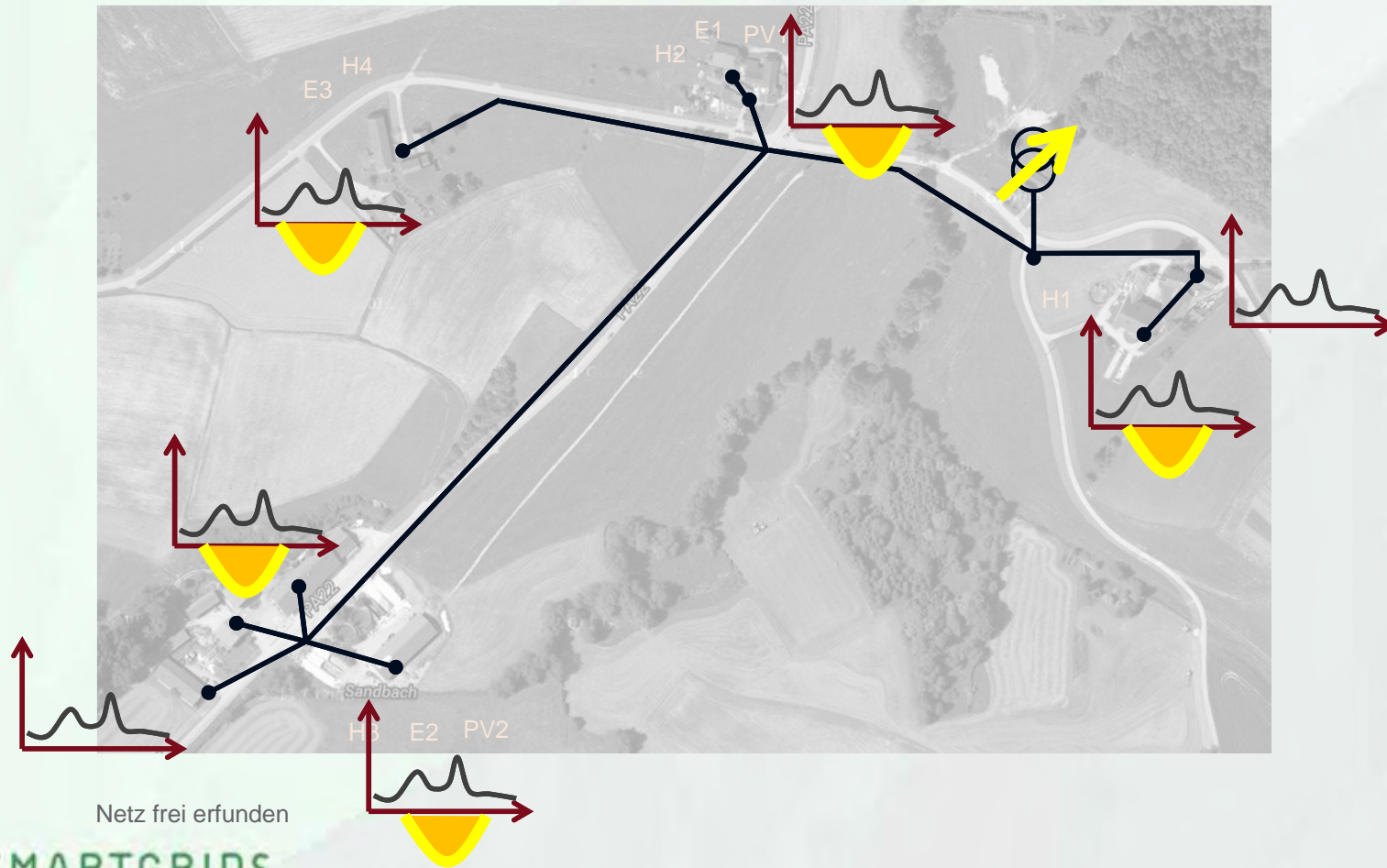
Netz frei erfunden



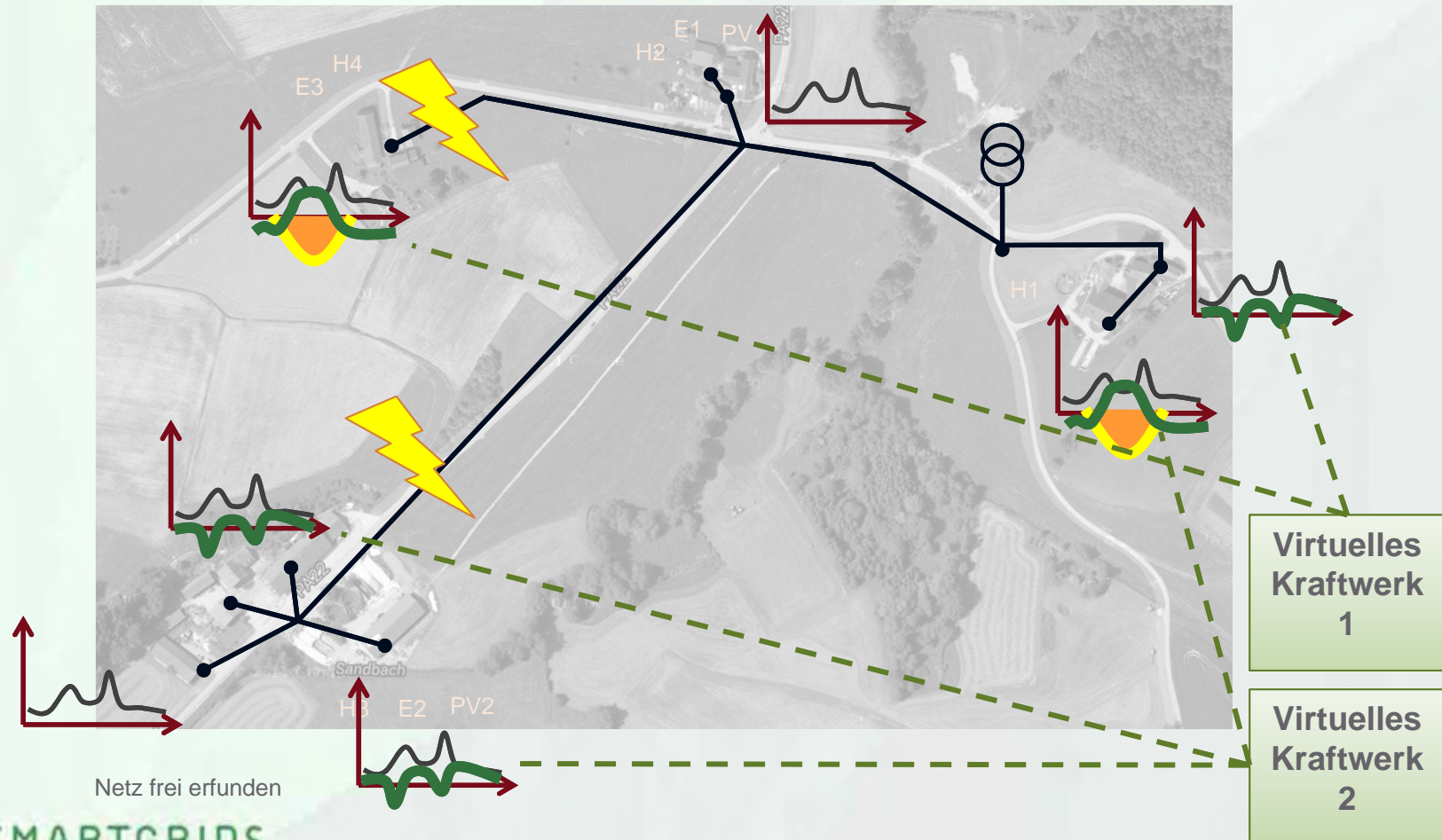
Integrau heute



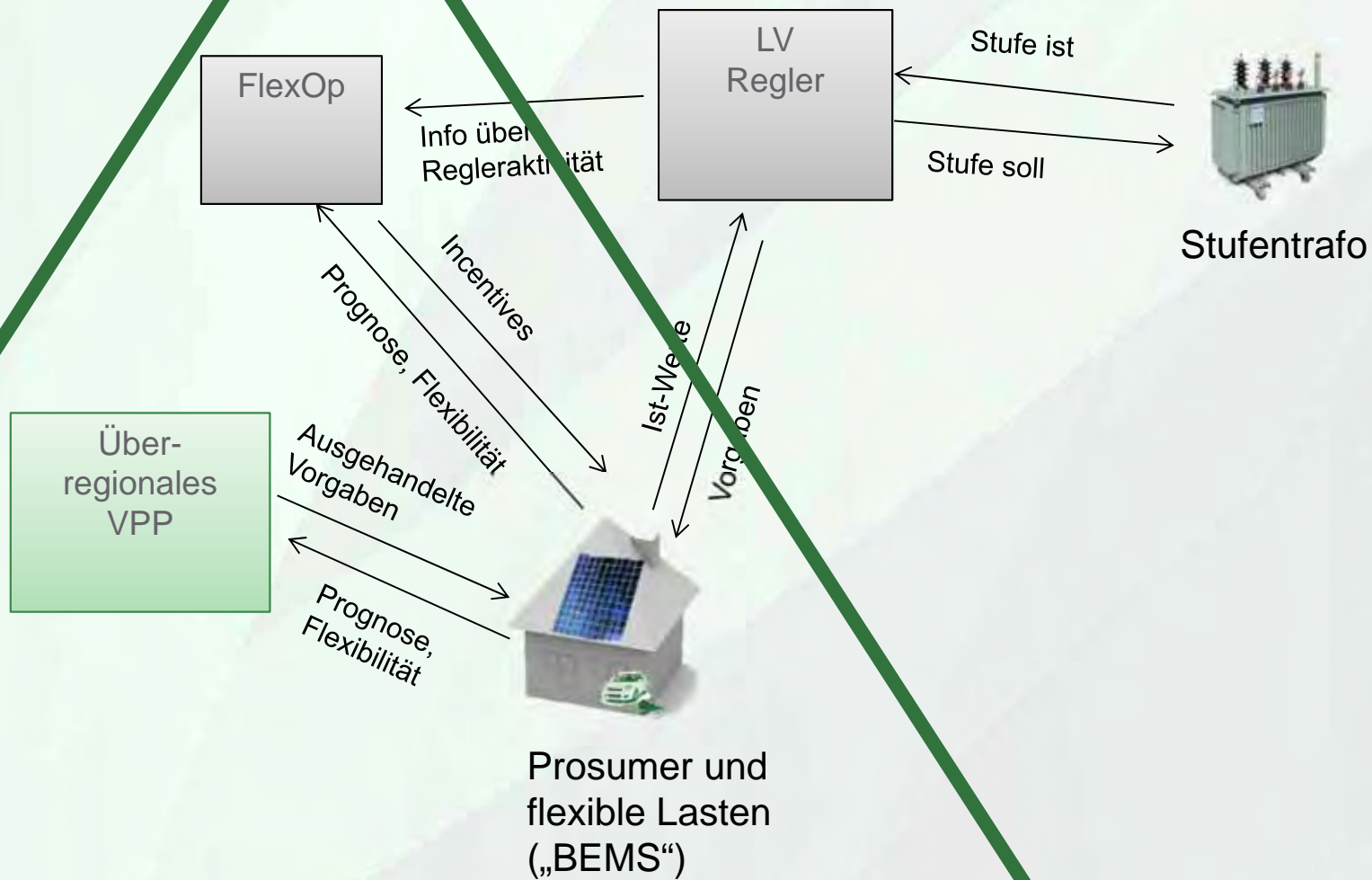
PV-Ausbau



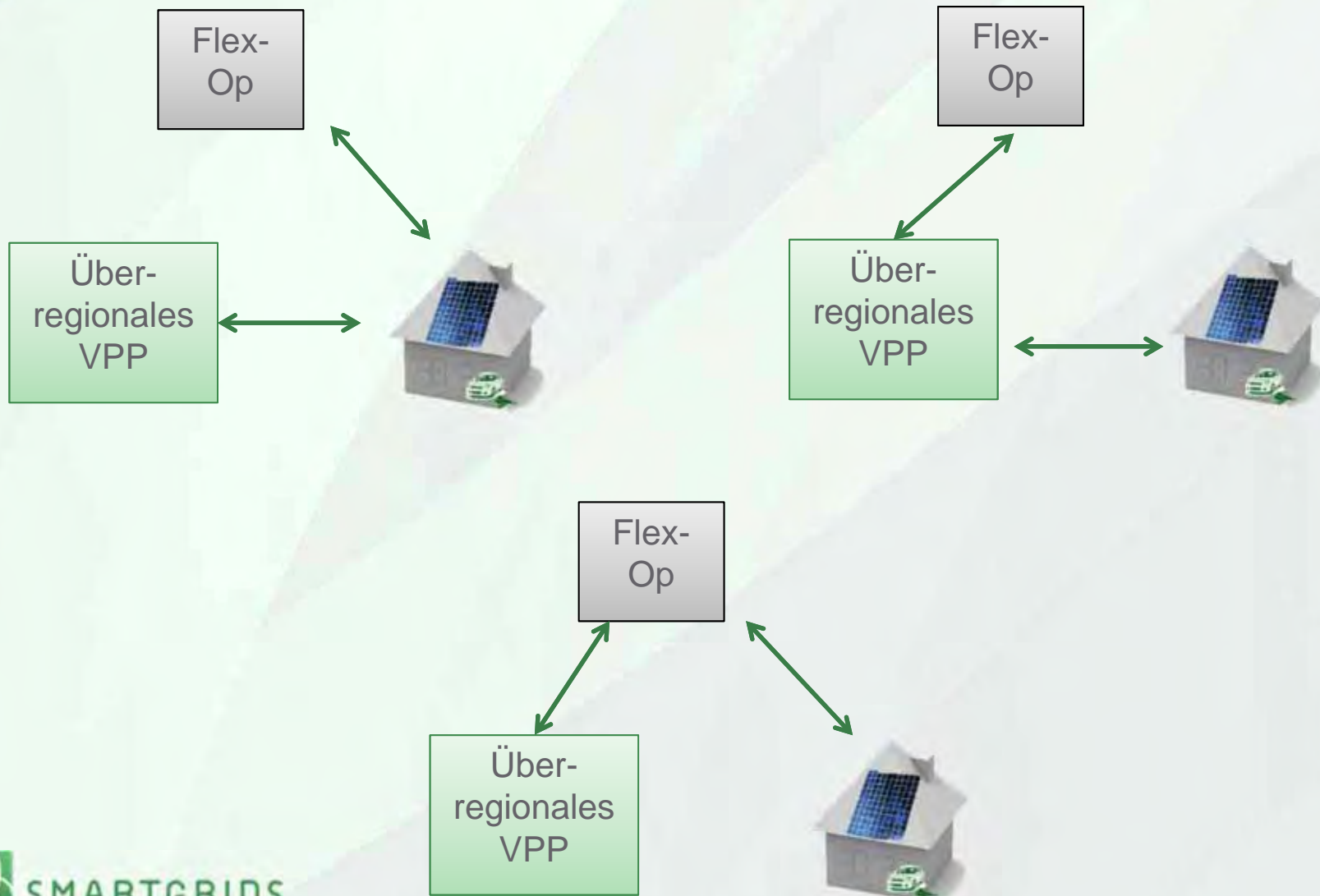
Flexibilität



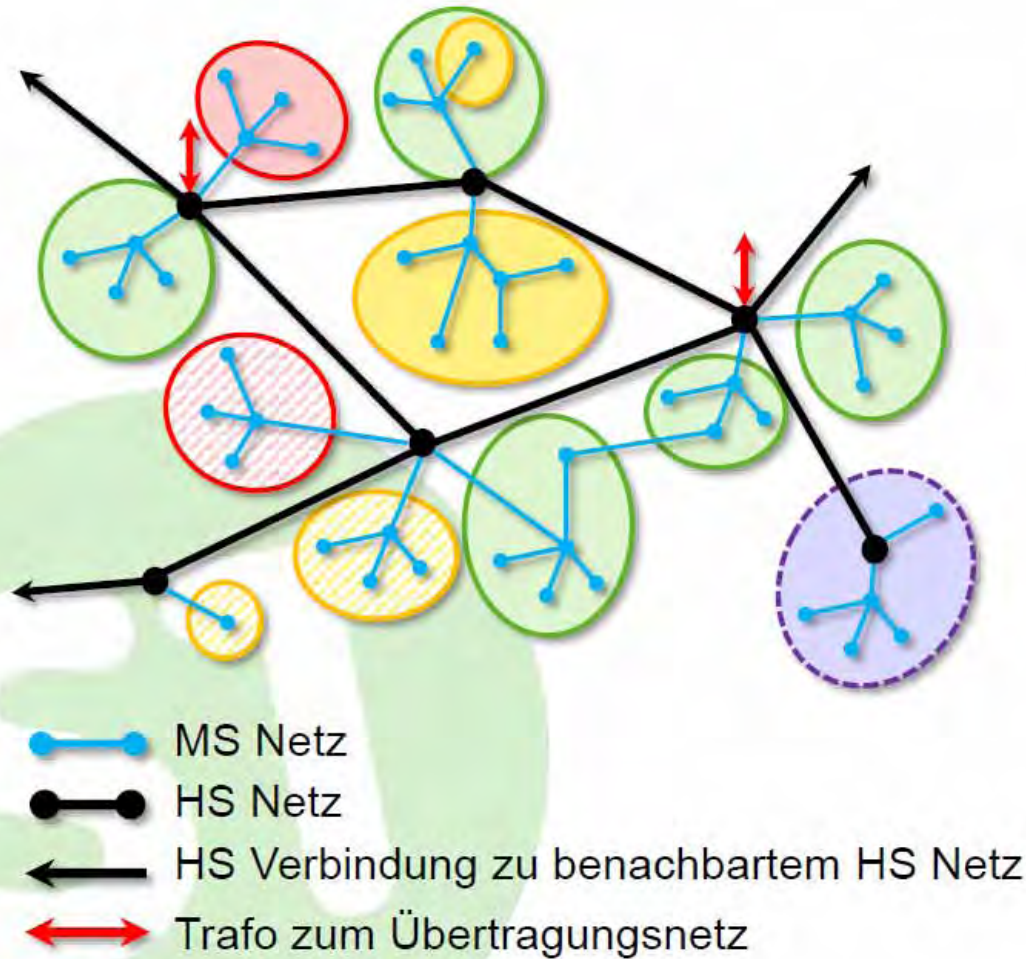
Optionaler Flexibility Operator und Netzregler



Varianten im Zusammenspiel von Markt und Netz



VPP4DSO Project



- **Unkritisch:**
 VPP-Eingriff $P\updownarrow$ erlaubt
- **teil-kritisch:**
 nur $P\downarrow$ erlaubt
- **kritisch:**
 $P\downarrow$ vom VNB angefordert
- ▨ **teil-kritisch:**
 nur $P\uparrow$ erlaubt
- ▨ **kritisch:**
 $P\uparrow$ vom VNB angefordert
- ⊖ **hoch-kritisch:**
 kein VPP-Eingriff erlaubt

Taljan, Gutschi, Mai 2014



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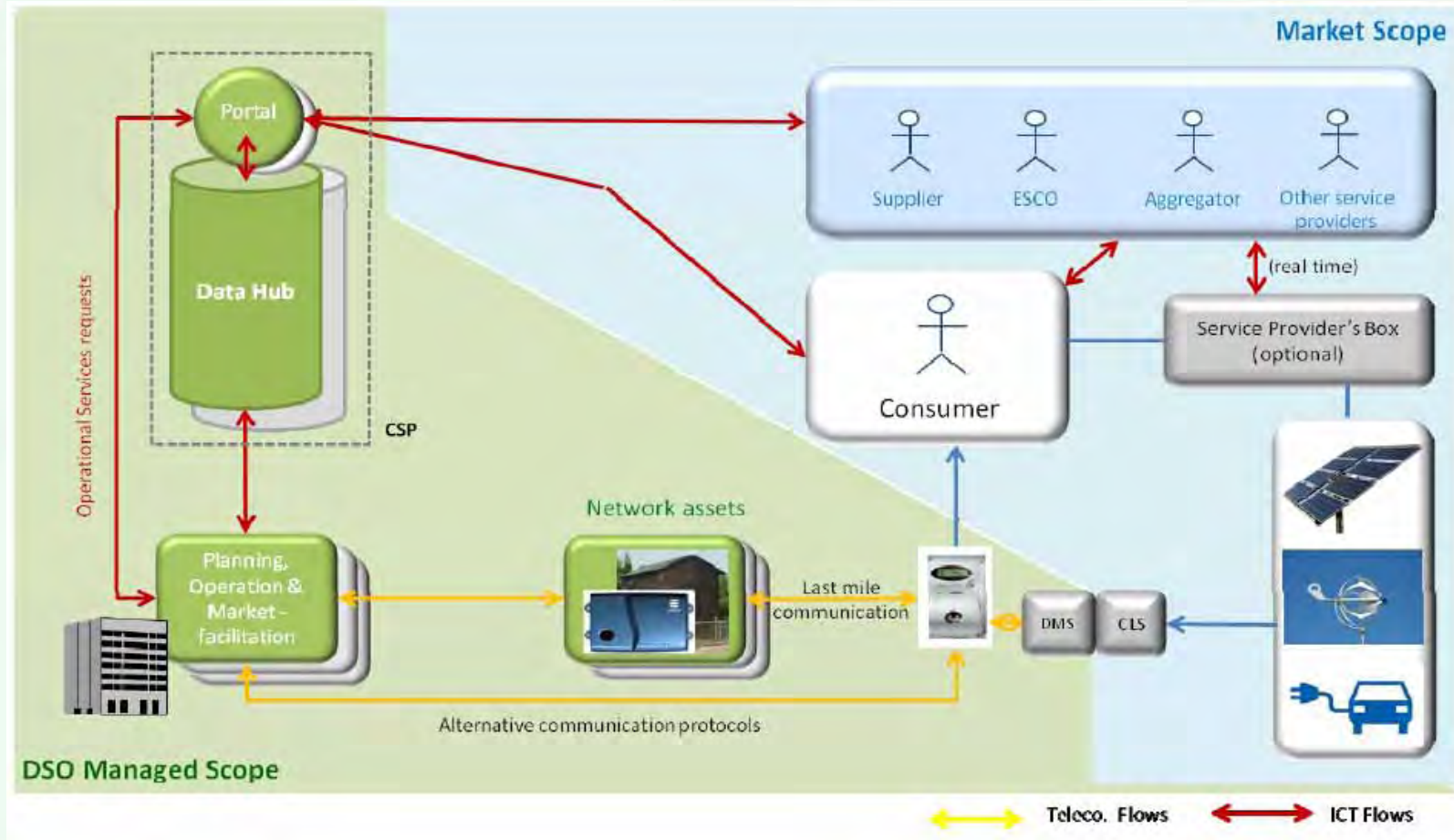
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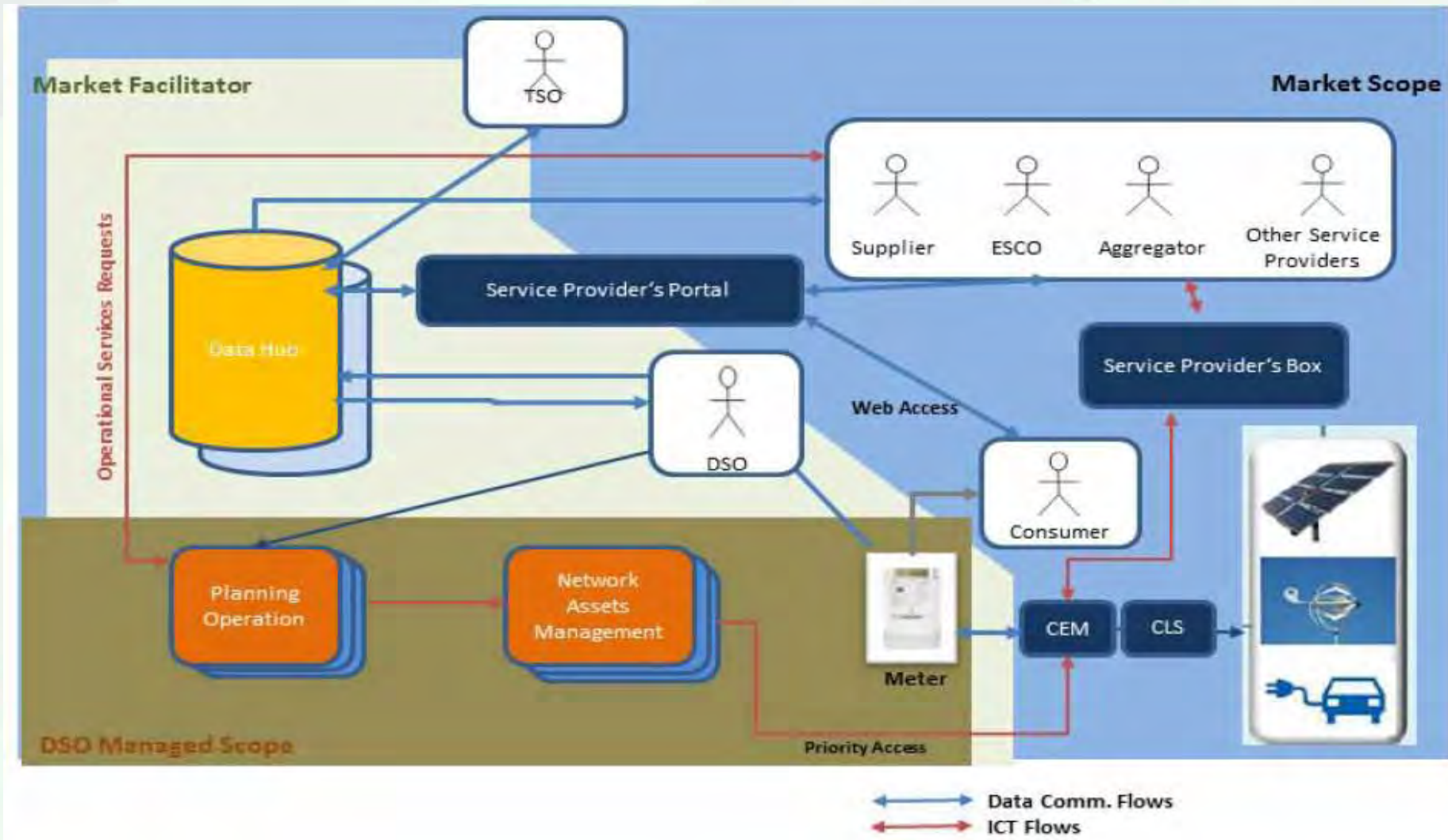
Backup

I. DSO als „Market Facilitator“

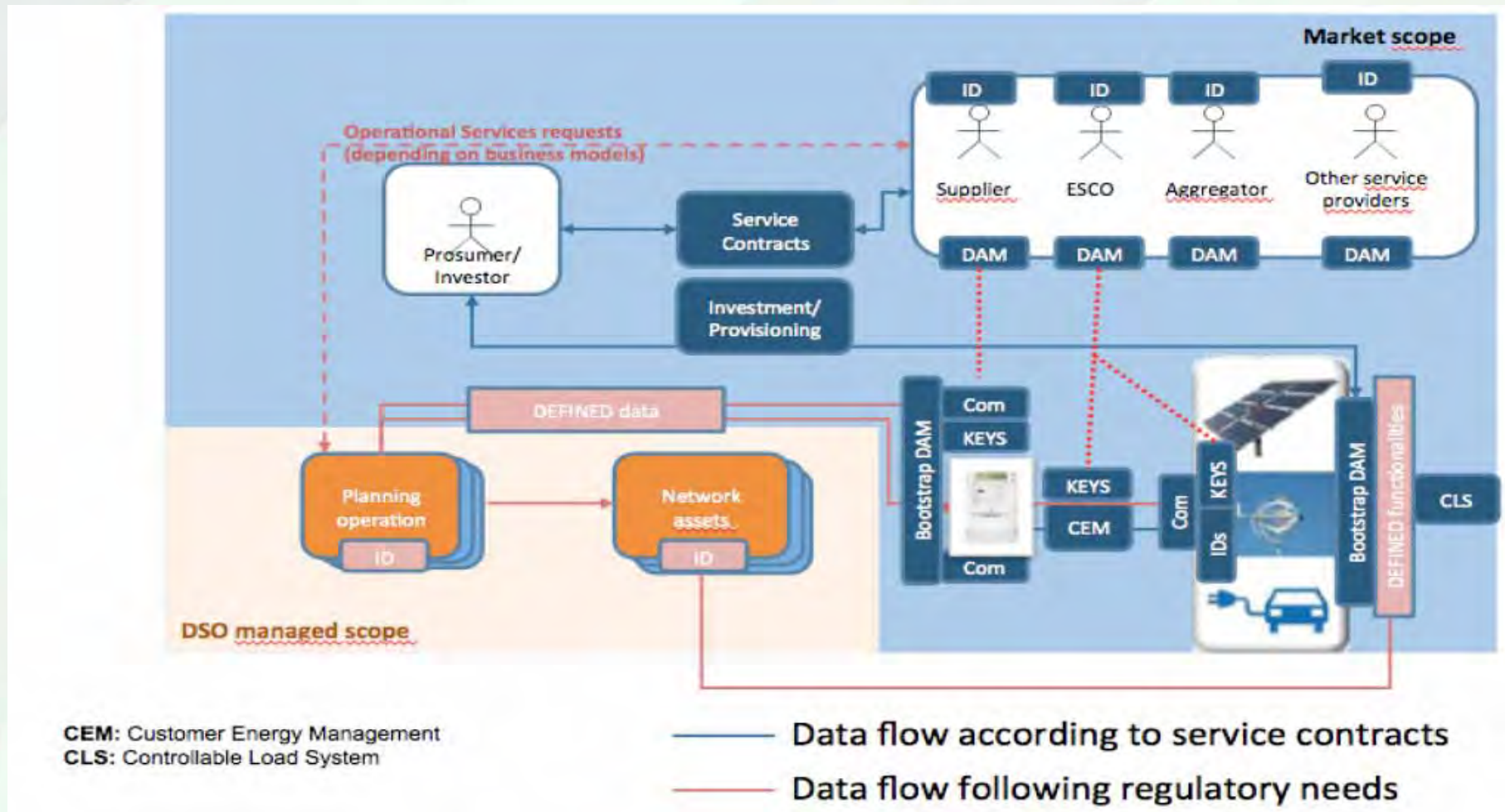


DSO responsible for collection and sharing of data

II. Third Party Market Facilitator (Central Hub):



III. Data Access Point Manager (DAM):



Organizing open and neutral access to information from distributed resources for all market participants and leaving it up to them to organize, who should own and process data required for their purposes.