

SHAPING SMARTER GRIDS FOR YOUR FUTURE

DSOs as Market Enabler

Smart grids in the new programming period

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E.DSO represents power distribution companies



E.DSO is the only **100% DSO**, **100% electricity** association at EU level

E.DSO's Members



44

Distribution System Operators, including 3 associations



>350

million customers



7

million kilometres of distribution lines

E.DSO's Mission



- **Lead cooperation** between European distribution system operators for electricity



- **Represent and promote their common interests**, specifically on smart grids development and implementation; and towards ACER, CEER and EU Institutions



- Play an active role in the future **European regulatory process** regarding the smart grid development and implementation; the network codes

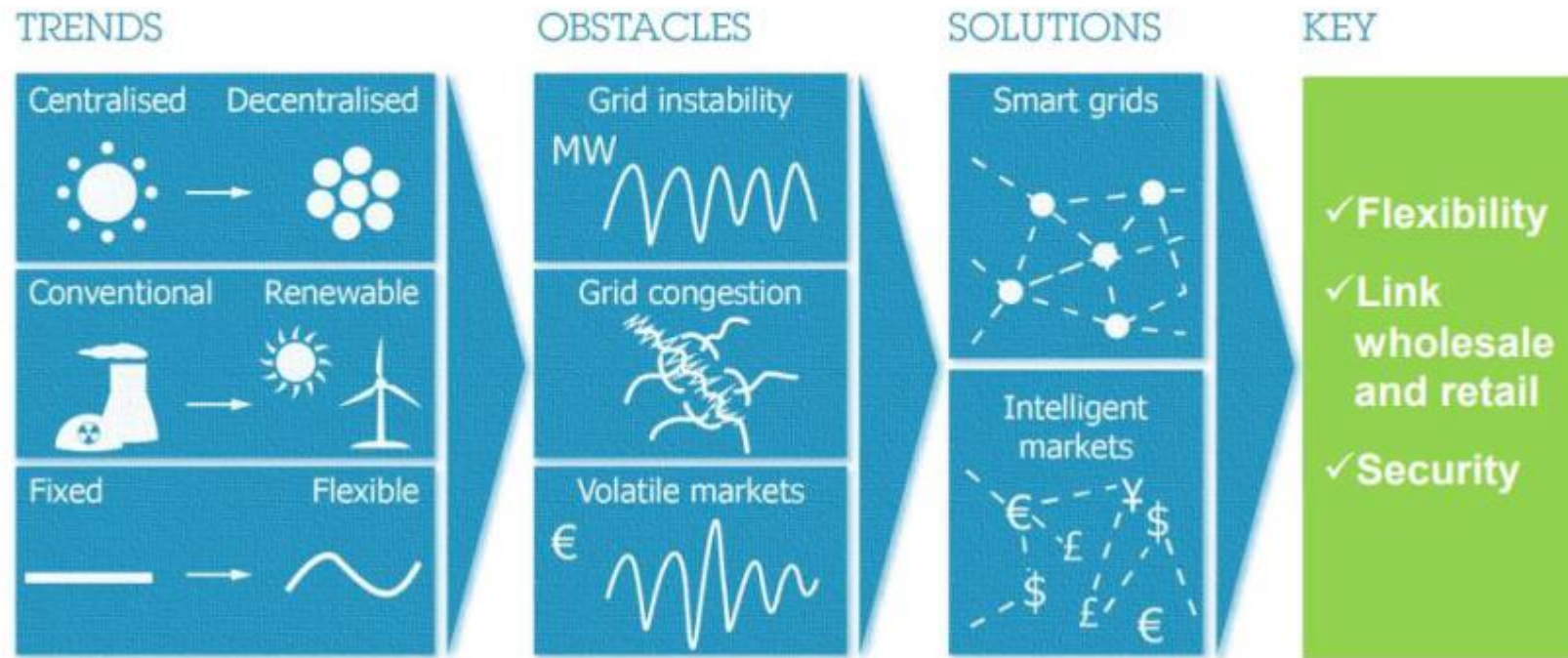


- Contribute to European innovation through **participation in European research, innovation and deployment projects**; foster cooperation and knowledge sharing among members

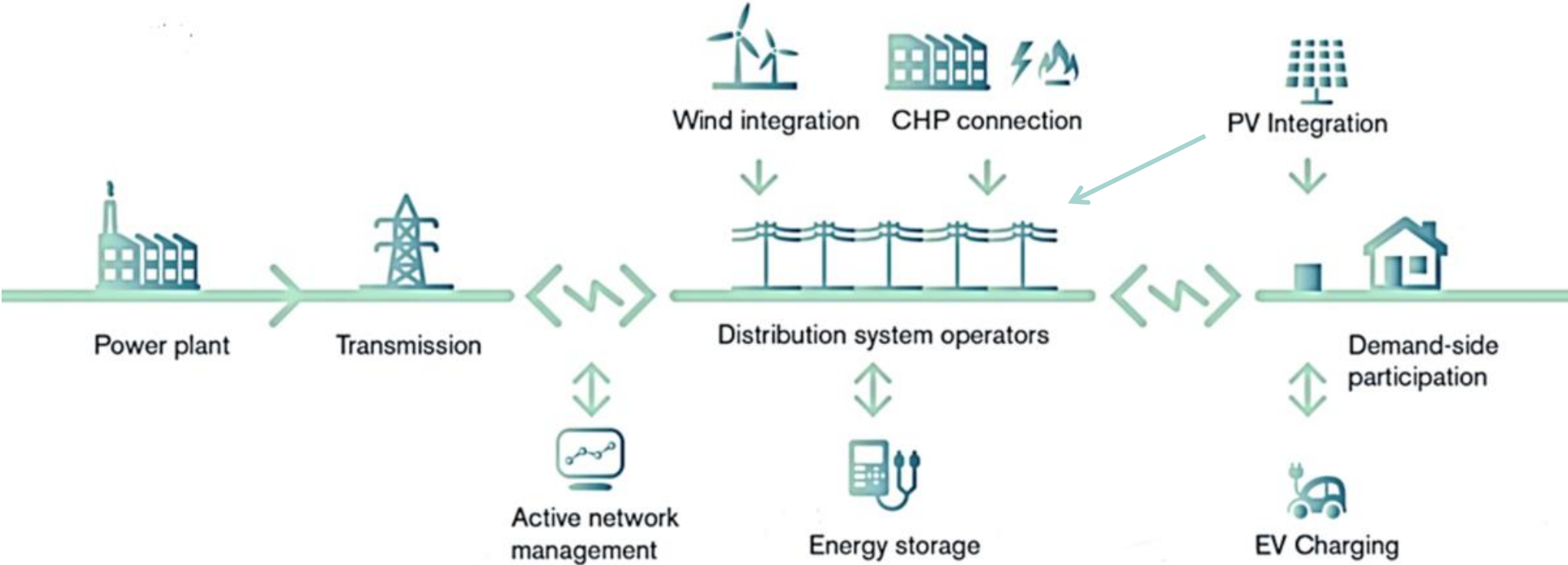
Challenges for the energy transition

IMPLEMENTING THE ENERGY UNION STRATEGY

CHALLENGES FOR THE ENERGY TRANSITION AND THE MARKET DESIGN REQUESTS SMART SOLUTIONS



The new energy system: DSOs at the center



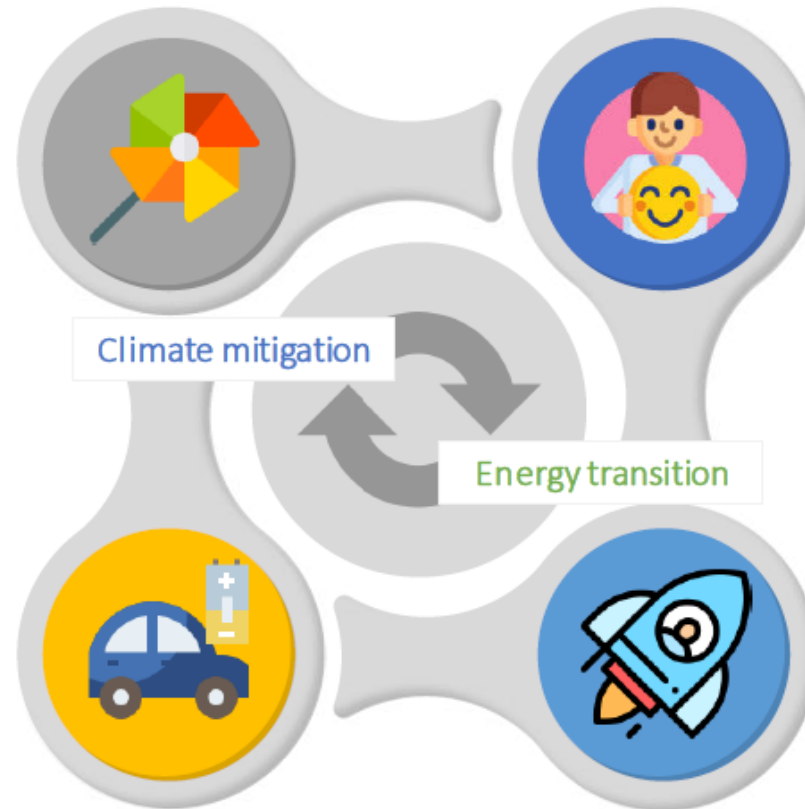
What is at stake ?

RES INTEGRATION

Most of the renewable capacity is connected at DSO level, and there will be much more to come with the National Energy and Climate Plans. The need for flexibility will increase, alongside additional grid reinforcements.

EU ELECTRIFICATION

DSOs believe that priority must be given to electrification as a pathway towards decarbonisation, although Increased electrification must be supported by a reliable and affordable grid.



ACTIVE CONSUMERS

DSOs are neutral market catalysers, enabling new services and empowering customers to play an active role in the energy system, for example by integrating prosumers' electricity into the grid and by making it possible for them to provide system flexibility.

GROWING COMPLEXITY

RES integration, electrification and consumer/citizen participation will contribute to new and less predictable generation and demand patterns, pushing the grid limits further and demanding innovative approaches.

What are the needs ?



System enhancement

Further observability, system reliability, resilience, network capacity and assets life-cycle optimisation, toolbox for flexibility, improved forecast of demand and generation, ...



Market facilitation

Proper implementation of the CEP, enhanced data sharing, uptake of market-based flexibility services, better interfacing market operations ...



Cooperation

With TSOs (on system operation, grid service requirements, future network codes, ...), with Market Parties, with Energy Communities ...



Innovation

Allowing innovation in a regulated environment, digitalisation to enable smart, active operation of the system, and market facilitation, ...



Enabling regulatory frameworks

Smart investments, "sandboxes" to test new proposals, capacity-based tariffs, cost-effective flexibility solutions, overseeing platforms/marketplaces, ...



Consumer participation

Empowerment of consumers and their active participation in the energy markets, ...

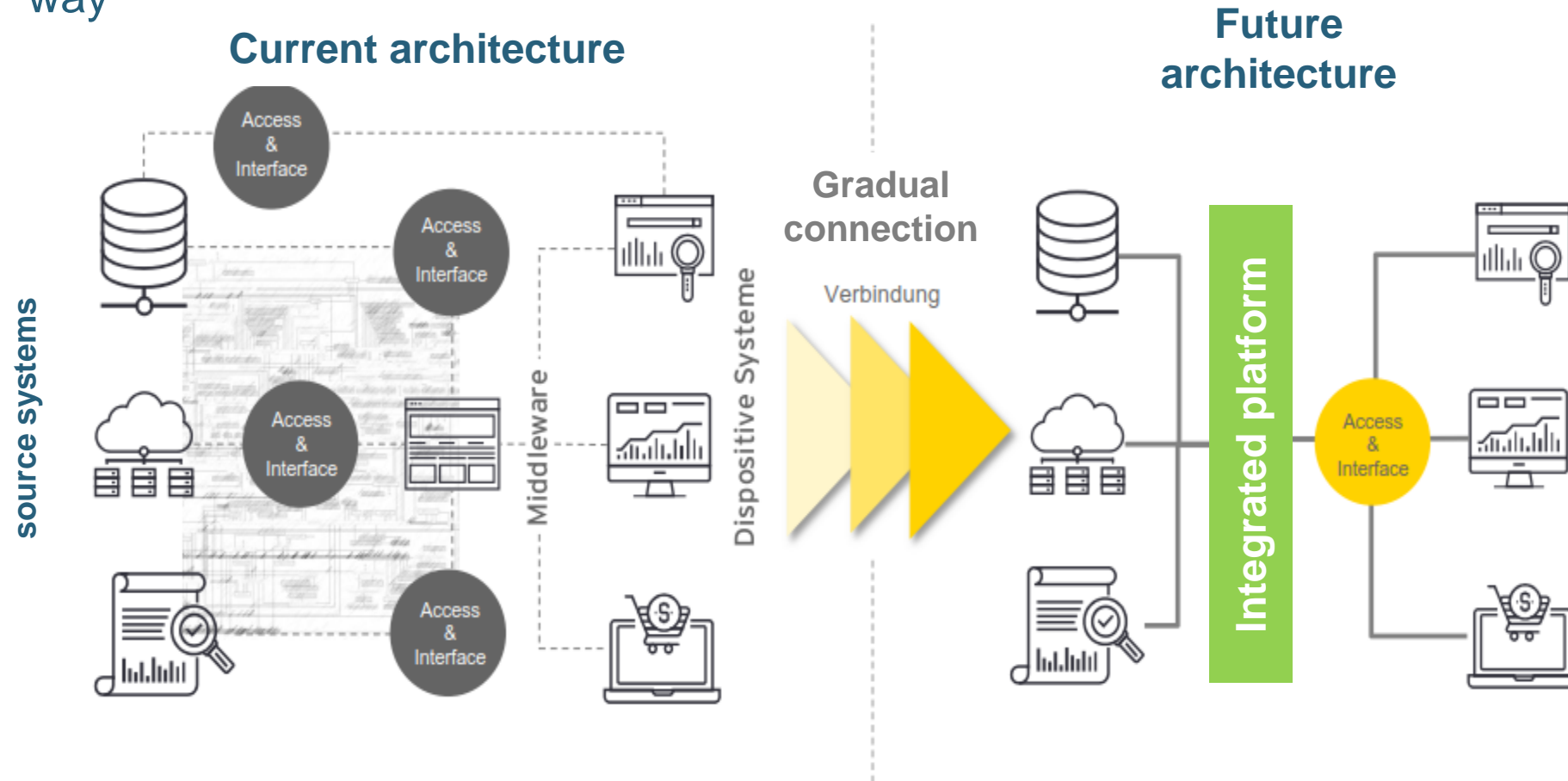


Challenges for DSOs

- **Smart Metering, Digitalization and Data hub**
 - Digitalization requires Smart Meter installation (almost 100 %!)
 - Grid automation and observability at all voltage levels
 - Big data analytics
 - Commercial data management and market enabler
- **RES and Flexibility**
 - RES are almost connected to the distribution grid (DSO)
 - Incentivize local/regional flexibility (generation, heat pumps, batteries, e-vehicles, air conditions, etc.)
 - CEP: New market players ... energy communities
- **Active System Management (ASM)**
 - Ancillary services need to be provided on distribution grid level
 - Local problems must be solved locally – congestion management
 - Cooperation of TSO and DSO for the overall system stability

Business Intelligence

- Big data, predicted analytics and AI
- New IT architecture is needed to take advantage in a quick, flexible and efficient way



The Clean Energy Package

DSOs' roles need to be further developed
around 5 different main topics

- Further strengthening representation of all DSOs
- Enhancing collaboration with Stakeholders
- Focusing on operational challenges
- Leading distribution-related network codes
- Equal footing, greater coordination and clearer boundaries
- Viable interactions schemes to enable flexibility services
- DSO-TSO innovation and smart investments
- Risk preparedness



- Further visibility and control over networks
- Smarter and digital grids



- Balancing investments and flexibility
- Future flexibility platforms



- Advanced data sharing to foster innovative services
- Strengthening grid hosting capacity
- Managing external impacts on the grid
- Contributing to future-proof market design



- Innovative collaborations to work out best solutions
- Customers' participation and flexibility
- Opportunities to improve resiliency and reliability
- Enabling the sharing economy

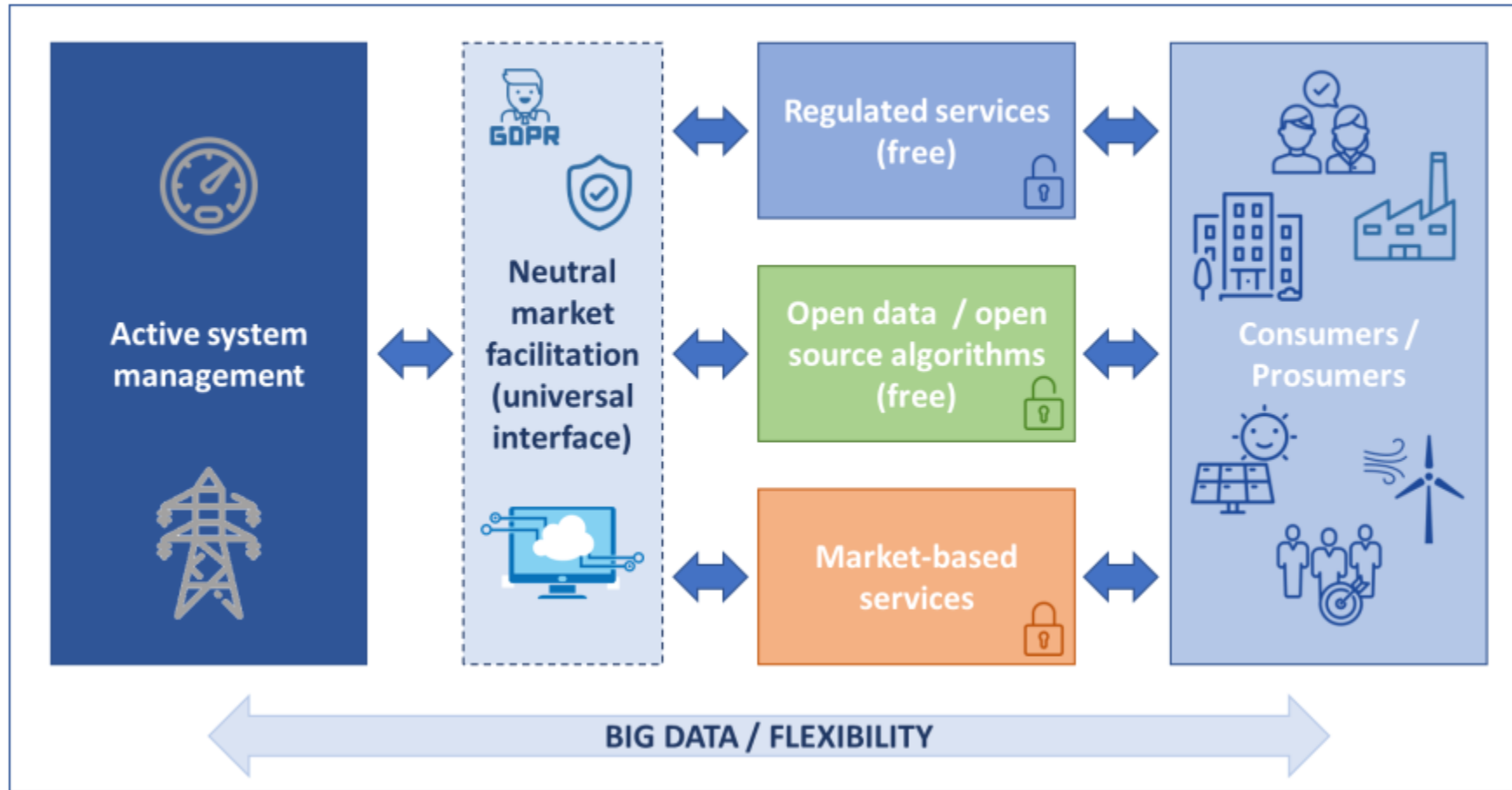
The Clean Energy Package

Main challenges for DSO-TSO to implement the CEP



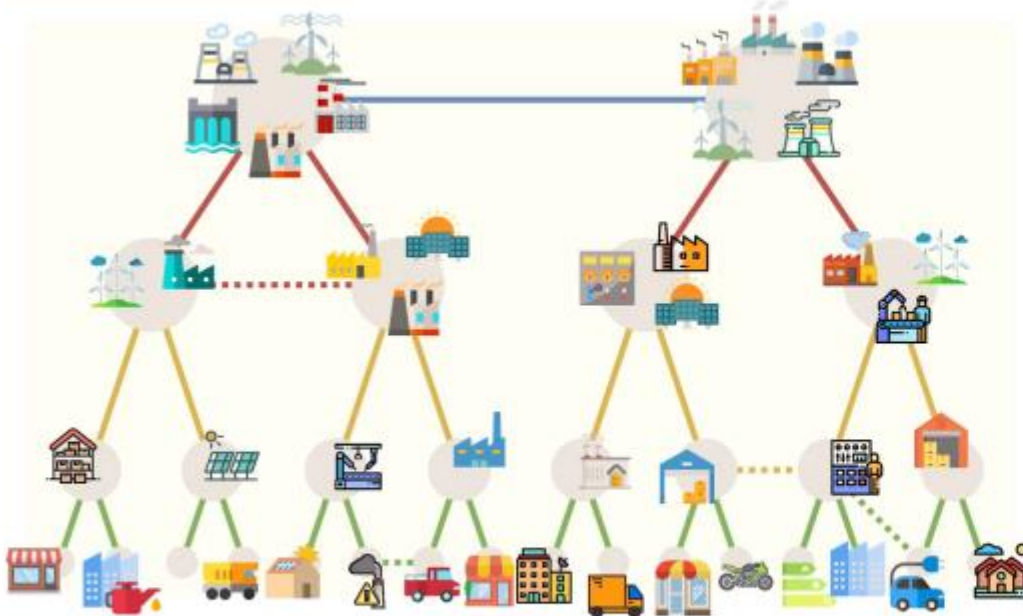
DSO as Market Enabler ...

Implementing the Universal Market Enabling Interface (UMEI)



Towards a web of energy

Conventional system



VS

Future system



Source: EDPD. Luis Vale Cunha. December, 2018



Thank you for your attention!

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