

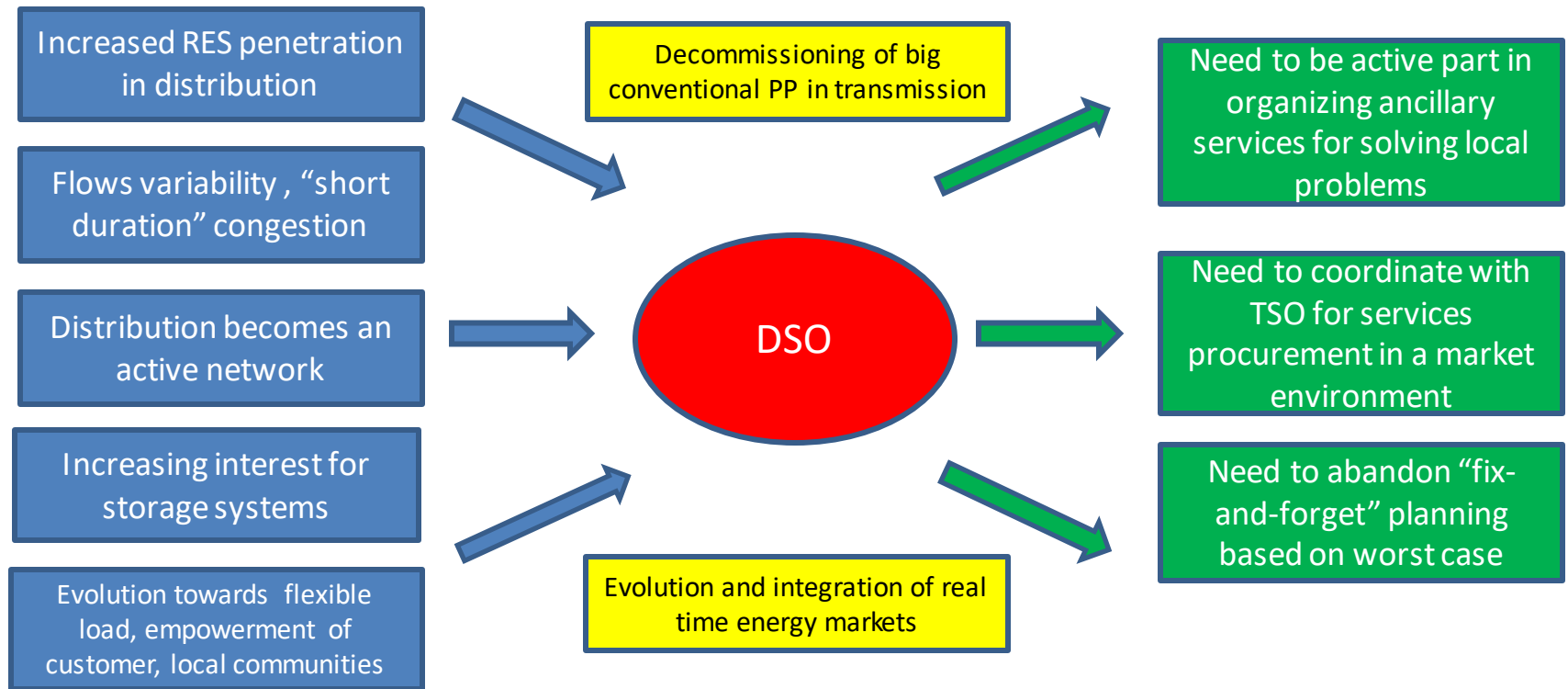


# Evolution of the role of Distribution System Operators

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FG4: Smart cities, smart grids and digitalization:  
modelling insights and lessons learned

# The changing role of DSO



From the Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU:

## Art.32 comma 1

Member States shall provide the necessary regulatory framework to **allow and provide incentives to distribution system operators to procure flexibility services, including congestion management in their areas, in order to improve efficiencies in the operation and development of the distribution system.** ...from providers of distributed generation, demand response or energy storage and shall promote the uptake of energy efficiency measures....

## Art.32 comma 3

The development of a distribution system shall be based on a transparent network development plan that the distribution system operator shall publish at least every two years and shall submit to the regulatory authority. ... **The network development plan shall also include the use of demand response, energy efficiency, energy storage facilities or other resources that the distribution system operator is to use as an alternative to system expansion.**

# A few reflections from the H2020 projects SmartNet and FlexPlan



<http://smartnet-project.eu/>

- **Decentralized TSO-DSO coordination schemes are usually less efficient than centralized ones** because of the two-step optimization process and of some consequent undue rigidities (e.g. imposing flow at the TSO-DSO interface).
- **Scarcity of liquidity and potential impact of local market power** (not investigated in SmartNet), along with **extra constraints introduced to avoid counteracting actions** between local congestion market and balancing market (e.g. increasing system imbalance while solving local congestion) furthermore negatively affect economic efficiency of decentralized schemes.
- **Local congestion markets should have a “reasonable” size** and guarantee a sufficient number of actors are in competition in order to prevent scarcity of liquidity and exercise of local market power. Small DSOs could need to pool-up.

## FlexPlan

<https://flexplan-project.eu/>

- Investments in storage and flexibility will remain mostly in the hands of private investors. That means that depending on the results of the planning phase carried out by the System Operators, **National Regulatory Authorities should translate the suitability of deploying new storage or flexibility in strategic network locations into opportune incentivization forms towards those who are possibly going to invest in that direction.** This complicates a lot the scheme with respect to traditional planning modalities, where System Operators after carrying out their planning analyses were the only subject entitled to invest.

## Survey questions

- Which are in your opinion **the most evident enablers for this transformation in the EU policy** and regulation and which are the **still present barriers** (both regulatory and in the practice of the System Operator) which should be removed in order to foster the transition of distribution grids into active networks?
- Are **ancillary services markets the most opportune modality** for DSOs to procure services **at local level** (congestion management, voltage regulation)?
- Which kinds of **TSO-DSO coordination mechanisms** should be put in place in order to allow a seamless and optimized management of the ancillary services purchase?
- Are **flexibility and storage to be considered as one of the resources available for grid planning at DSO level**? If yes, how could this modify the way to carry out grid planning in the future?
- What **influence** have all the above aspects **on the way to perform scenario studies** and how should **the way to model the system** when setting up scenarios change in order to cope with the on-going transitions taking place in distribution networks?

# Thank you...

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