



# Energy Transition Strategy

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Mediterranean Conference on Power Generation, Transmission, Distribution and Energy Conversion  
*9 – 12 of November 2020*

## DSO' s in the new Era

### **Key players in the new era of energy transition**

The era of:

- Decarbonisation
- Decentralisation
- Digitilisation

### **The era of:**

- Distr. RES integration
- Dynamic tariffs
- Flexibility
- Active customers
- Big Data
- Disruption and ET

# ET in reforming the new electricity system

Emerging Technologies (Storage, EVs and Demand Response) could potentially enable System Operators to create a robust, reliable, resilient and efficient systems



These technologies can provide:

Increased RES Hosting capacity

Balancing capacity→  
Congestions Reduction/Avoidance

Increased Power Quality

Reduced CAPEX

Reduced OPEX (incl. losses)

## Operation of ET – Regime and Consequences

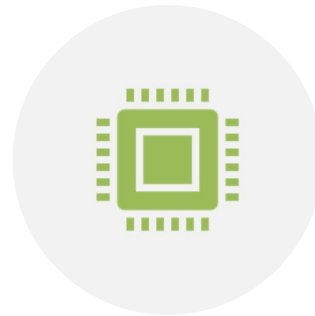
- European Regulators do not allow System Operators to own, develop or operate these devices, except in market weakness. However DSOs should connect and integrate ETs to facilitate their effective participation in the markets.
- Therefore ET can be installed and operated only by market players according to market rules and provisions.
- Consequently depending on the market signals ET can create significant obstacles to SOs like:
  - Congestions
  - Curtailments
  - Costumer Interruptions

If system operation is not equipped with the right tools under the right regulatory regime.

## Integration of ET



SYSTEM OPERATORS MUST ENSURE THAT ET WILL NOT CREATE ANY VIOLATION UNDER ANY POSSIBLE OPERATION STRATEGY



ET MUST BE INTEGRATED WITH A PROPERLY EQUIPPED SYSTEM OPERATED WITH ADVANCED OBSERVABILITY AND HEALING ACTIONS



THIS REQUIRES EFFECTIVE COLLABORATION BETWEEN ET OWNERS AND DSO, AS WELL AS DSO-TSO AT REAL-TIME OPERATIONS

# Local Flexibility Markets

- In order for DSOs to be able to utilize the huge advantages of ET, either
  - Dedicated local flexibility markets have to be created or
  - Electricity market to integrate ancillary services market with not frequency related and localized products.
- In such markets DSOs can procure local flexibility in order to alleviate predicted violations of the system
- Regulation and Legislation needs to provide that adequate services from emerging technologies are available upon call and upon location of the DSO requirements.

## **Flexibility is only useful to DSOs if it is localized!**

- Currently, the Electricity Market Rules do not provide for such services. The new Law Regulating the Electricity Market, harmonizing Regulation 943/2019/EU and Directive 944/2019/EU, provides for such services and the DSO expects clear incentives to include energy from ETs in the mid- to long-term planning.

## Dynamic Network Tariffs

- Dynamic tariffs are a powerful tool for system flexibility but is currently not in place.
- D. T. can cater not only for the production cost but for the Network Use cost. This will provide the necessary incentives to consumers to shift their consumption and in addition to transform themselves from consumers to active prosumagers
- This can significantly affect the energy behavior of the network users.
- AMI roll out must be enhanced if not in place

## Conclusions

- DSOs shall reform their system planning and operation to efficiently and effectively integrate the RES and the ETs. This is necessary to achieve RES targets and facilitate market operation.
- Regulation and Market Rules must be suitably structured and allow for proper incentives, so as DSOs maintain balancing and avoid congestions through the ETs. Otherwise, costly and inefficient network expansions will not be avoided.
- ETs can significantly support DSOs, if flexibility is available, either through the Electricity Market or dedicated Local Flexibility Markets. If not, energy from ETs could challenge distribution system operation and add a financial burden to further integration of RES or the ETs.





# Thank you for your attention

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