



**RELATIONSHIP BETWEEN  
CENTRAL AND LOCAL GRIDS:  
TSO-DSO COOPERATION**

Competition or complementarity?  
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## **AGENDA**

- 1. State of play**
- 2. New challenges**
- 3. Development of networks**
- 4. Operation of networks**
- 5. Legal issues**

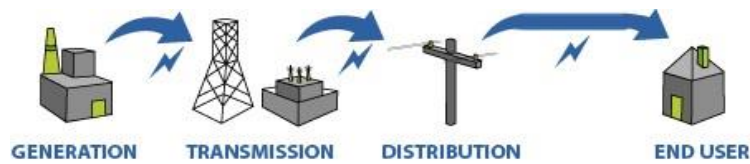
## 1.1 State of play: The old days

Both, TSOs and DSOs, are:

- Regulated entities
- Developing and operating a network that can be considered as a natural monopoly or an essential facility

The distinguishing criterion between transmission and distribution is a technical criterion: the voltage range

However, electric systems used to be very centralized. The power used to flow from the plant to the end user



## 1.2 State of play: The old days

TSOs and DSOs used to have different tasks → giving TSOs a prominent role

Most technical issues were dealt with at the TSO level.

- security of supply,
- ancillary services (frequency and non frequency),
- congestion management
- ...

There used to be a kind of hierarchy between the two networks.

Cooperation between TSO&DSO was designed to enable TSO to perform its tasks.

### 1.3 State of play: Time of changes

Two trends that move in opposite directions oblige to reconsider the relationship between TSOs and DSOs

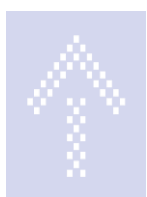
**The first trend:** More integration of electricity markets (at the European level)

- Assessment of capacity adequacy (security of supply)
- Wholesale and balancing markets
- Tariffs (towards a common methodology?)

**The second trend:** Decentralization

- Development of distributed energy resources
- New uses for electricity (electric vehicles)
- Digitalization

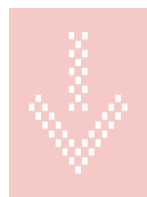
### 1.4 State of play: Time of changes



EU Level (Entso-e)

Regional Level (RCC)

National Level (TSO)



Local Level (DSO)

Local Level (Energy communities)

Local Level (self consumption)

## 2.1 New challenges

Because of the changes previously described, there may be a shift (or even a split) of the center of gravity :

Electric system may become less centralized at the national level: and may become more integrated upward and more decentralized downward

The relevance of the national level becomes less obvious

Impacts on networks:

- Transmission network may lose a little bit of its influence
- Distribution network will be at the heart of this transition

Impacts on players:

- The relationship between TSO & DSO will change
- New players are coming (Distributed energy resources, end users, storage operators, flexibility providers...)

## 2.2 New challenges



The distribution network shall become smarter and more flexible.

This will affect the way investments are made and also the way the network is being operated.

The legal framework will have to take into account these changes: the Electricity Directive (recast) provides that: « Member States provide the necessary regulatory framework to allow and incentivise distribution system operators to procure flexibility services, including congestion management in their service area » (article 32).

However, so far...

- Rather vague
- Not very prescriptive

### 3.1 Network development

At both level (TSOs and DSOs) investment plans will be monitored by the regulator.

This is new for DSOs.

Article 32§2: « The development of a distribution system shall be based on a transparent network development plan that distribution system operators shall publish at least every two years and submit to the regulatory authority ».

The challenges:

- Reconsider the remuneration model of the network operators in order to incentivise them to rely on flexibility and not on investment where appropriate. At this stage, the Regulated Assets Base is still one of the key driver.
- Coordination between TSO investment plan and DSO investment plan?

### 3.2 Network development

Towards a change of approach:

Electricity Directive – Commission proposal:

Article 32: « regulatory framework **shall enable** distribution operators to procure services from resources such as distributed generation, demand response or storage and consider energy efficiency measures, which may supplant the need to upgrade or replace electricity capacity and which support the efficient and secure operation of the distribution system ».

Electricity Directive – Final version

Article 32: « regulatory framework **shall ensure** that distribution system operators to procure services from resources such as distributed generation, demand response or storage and consider energy efficiency measures, **when such services cost-efficiently supplant** the need to upgrade or replace electricity capacity and which support the efficient and secure operation of the distribution system ».

TOTEX approach (CAPEX and OPEX)

## 4 Operate the network

Operating a network may require more flexibility in the near future.

2 questions:

1) At which level this flexibility could be found?

- The building (or the block)
- The distribution network
- The transmission network

2) Once the level is identified, how the value will be shared?

- Who will be the players?
- How to choose between the different options?

## 5.1 Legal issues

As stated previously, the provisions of the Directive are not very prescriptive... the network codes either...

...It will not be an easy task to transpose those provisions into national laws

→ The NRA will probably play a key role → development of new regulatory models:  
« incentive regulation »

## 5.2 Legal issues

Cooperation and/or competition?


Two remarks on the need for cooperation between TSO&DSO:

- Importance of the context: 1TSO v. 1DSO or 1TSO v. XDSOs...
- The cooperation should not be limited to network operators but should also include all the other players (flexibility providers)

Two remarks on competition between TSO&DSO:

- Will they compete on an equal footing (unbundling rules...)
- Need to check and prevent anticompetitive behaviour

**Thank you for your attention!**



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