



# Reglamento de Servicios Complementarios

June, 2017



# Economic Principles for Assessing AS Mechanisms



## Principle 1

*The hourly price paid to each ancillary service should at least equal the sum of both the direct variable cost and opportunity cost of the resource providing that ancillary service.*



## Principle 2

*The **mechanism** used to determine which resources provide ancillary services and payments to the resources providing ancillary services **should provide economic incentives for the least cost supply of energy and ancillary services** to final electricity consumers.*



## Principle 3

*The **system operator** should define the **technological characteristics** of each ancillary service necessary to operate the network, and **allow all generation and load resources** able to provide that ancillary service the opportunity **to compete** to provide it.*



## Principle 4

*Annual generation unit-level **revenue shortfalls** from selling ancillary services in the short-term market should be **recovered through an annual fixed payment** to that resource owner, rather than by ad hoc increases in the hourly price of ancillary services*



# Ancillary Services main drivers



Ancillary services ensure power system stability, ensuring the adequate response when facing **unbalances in the system**



**Different drivers** contribute to the unbalance of the system and to the need of a well designed AS market:

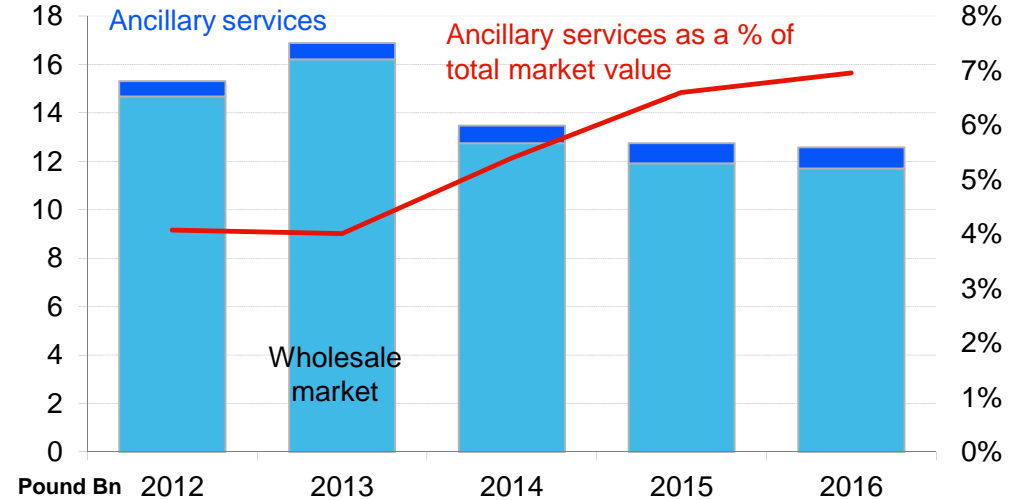
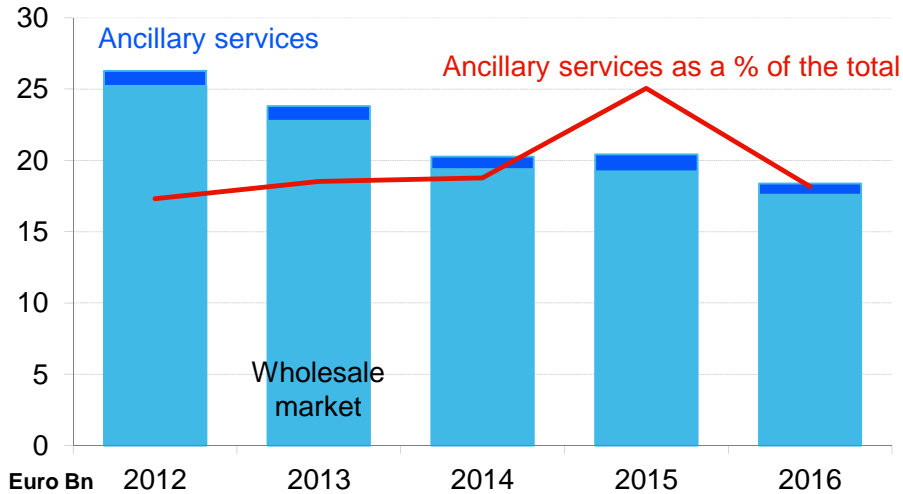
- ✓ Demand behavior
- ✓ Hydro plants water flow
- ✓ Real time availability of Thermal Power Plant
- ✓ Internal grid Constraints
- ✓ Increased RES penetration



An efficient system is the one able to **share** the imbalance **real cost** among all market participants (Gx and Clients) **proportionally** to the problem they create

# Ancillary Services costs –

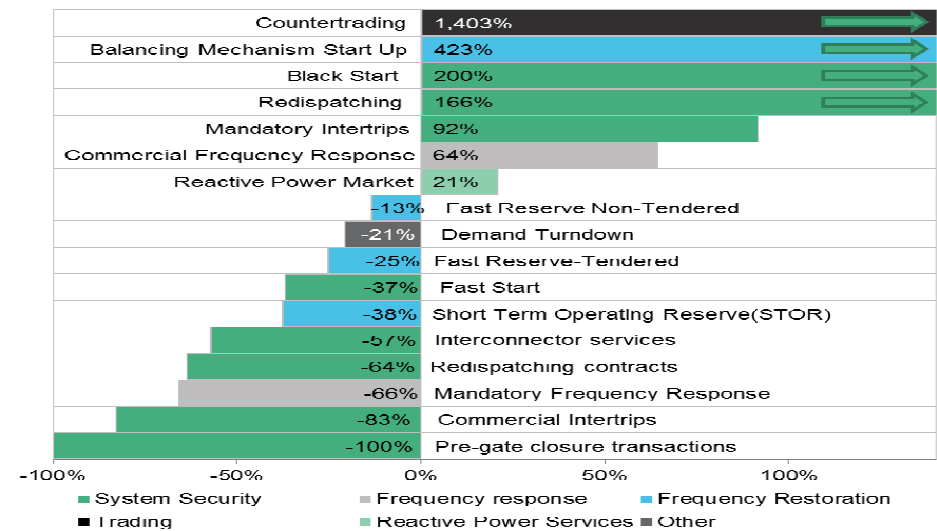
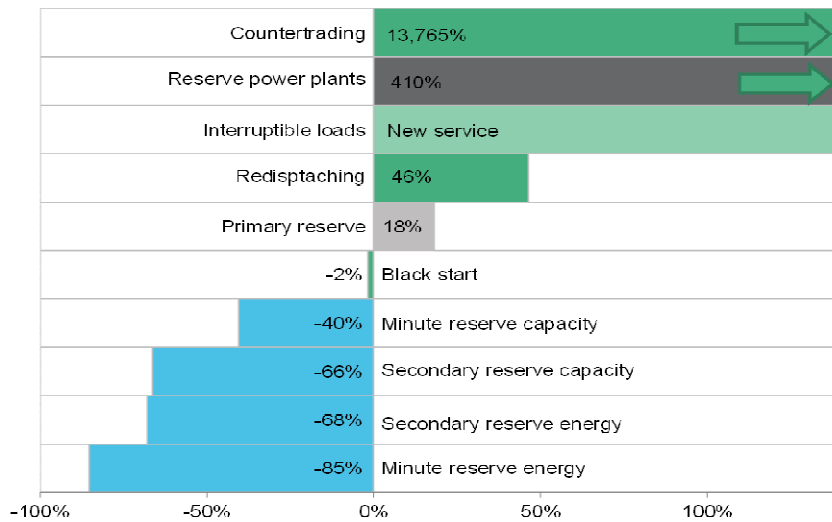
## Size of the wholesale market vs ancillary service market



- **Ancillary service remain a small revenue stream** (4-6% of revenues opportunity in Germany)
- **Increasing RES has not led to increasing AS revenues** but contributed to falling wholesale prices
- **Redespaching and countertrading cost have spiked**, typically when wind output in the north is high and **Transmission lines** in the south become **congested**

# Ancillary Services costs

## Breakdown by component and contribution



➤ **Redispatching and countertrading cost have spiked, typically when wind output in the north is high and Transmission lines in the south become congested**