

Paper 10350: Are Imbalance Price Incentives to Balance Responsible Parties effective in a system with higher volatile RES integration?

SUMMARY

The impact of integration of increasing volumes of energy from variable renewable sources in three European countries is presented and discussed.

The impact on the balancing energy and capacity demands of the TSOs are explained by imbalance pricing methodologies.

Three country specific examples are presented in the paper where introduction of, or strengthening of imbalance price incentives to BRPs were followed by a gradual decrease in their TSOs' Balancing Energy demand, over a few years.

All examples are based on a self dispatching model with 15 minute ISP and with no discrimination between generation and consumption in imbalance or in imbalance settlement.

Question 4: Will a differentiation between the generation and consumption in imbalance settlement create incentives for BRPs to take actions for better balancing their systems?

The relative 'strength' of imbalance price incentives to BRPs is reflected in the spread between the average imbalance price for short BRPs, when system is short, and the average imbalance price for long BRPs when system is long.

This spread indicates the difference between actual losing or gaining in imbalance as a BRP for a given system state.

Data from ENTSO-E European Balancing Report 2021 show significant differences in spread according to ISP length between several countries (Figure 1).

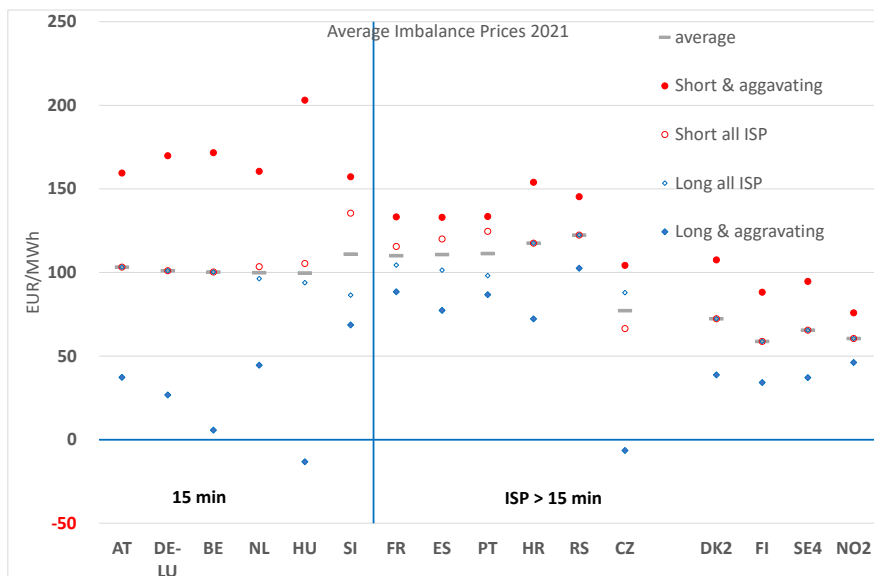


Figure 1 Imbalance price spread European countries 2021

There is more difference in imbalance price spread between countries that applied and ISP of 15 mins (average imbalance price spread > 100 EUR/MWh) and those with longer ISP (average imbalance price spread ca. 50 EUR/MWh) than within each group.

In most of 2021 ES and the Nordics applied discrimination between generation and consumption in imbalance or in imbalance settlement.

Yet the imbalance price spread there does not differ much from other countries with ISP > 15 mins that did not differentiate between generation and consumption in imbalance settlement.

Note that all TSOs with 15 min ISP in Figure 1 only perform Frequency Restoration process, whereas most of the TSOs with longer ISP in addition perform Reserve Replacement process, indicating their balancing energy demand is larger.