# LIQUIDITY DEVELOPMENTS IN EUROPEAN INTRADAY MARKETS

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## Overview

With the rise of wind and solar capacities, balancing the European power system is becoming more challenging. Intraday trading provides a flexible tool for market participants to adjust their positions closer to the delivery period. As intraday market liquidity gains momentum, a flourishing literature examining liquidity drivers has developed (Thakare et al., 2023). Liquidity is defined as the ability of economic agents to buy or sell an asset quickly and at a low cost (Amihud and Mendelson, 1991). Previous studies focused on metrics such as prices, bid-ask spread, and total traded volumes to measure liquidity. This analysis proposes to apprehend liquidity in an unexplored way by disentangling traded volumes between buying and selling trades. It investigates liquidity developments in countries from Central West Europe (CWE), using high-frequency data from 2019 to 2024.

## Methods

This econometric study focuses on the continuous segment of the intraday market, given its dominance in traded volumes compared to the auction segment across the studied countries. By distinguishing between selling and buying volumes, it aims to precisely assess the impact of key drivers on market participants' behavior. The effects of balancing needs, supply and demand elasticities, and intraday prices on buy and sell traded volumes are tested. I model these relationships using a two-stage least squares (2SLS) model. In the first stage, I instrument intraday prices with day-ahead prices (other instruments, such as commodities prices, are also considered) to overcome the endogeneity bias. Demand, wind, and solar forecast errors, in terms of magnitude and direction, reflect balancing needs. The elasticity of supply and demand curves is calculated using a proxy from the day-ahead auction curves (Balardy, 2019). The price elasticity of traded volumes is scrutinized using estimated intraday prices. Regressions are performed separately by country and hour of the day, while controlling for the effect of cross-border coupling and market dynamics.

## Results

First, this analysis will evaluate the impacts of renewables balancing needs on intraday markets. Although some literature already quantifies these effects (Gürtler and Paulsen, 2018; Kulakov and Ziel, 2019), it predominantly focuses on the German market. This comparative work on CEW countries is the occasion to explore how the different European intraday markets are reacting to the renewable push. In addition, the distinction between buying and selling volumes should provide expanded insights on flexibility issues during times of high renewable generation. In particular, it seeks to characterize the behavior of market participants in moments of low residual load and renewable energy surplus, where energy surplus tends to persist in real-time.

## Conclusions

This study will compare liquidity developments in the intraday markets from the CWE zone to highlight shared patterns and potential discrepancies. The discrepancies should open the floor to future research on drivers that may differ between countries and influence the functioning of the intraday market, such as imbalance settlement models or designs of renewables support schemes.

## References

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