

# Hungarian Imbalance Market

Navigating the challenges of the solar boom  
during the Energy Crisis

SEE Energy Day - 04.04.2024

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**MONTEL**

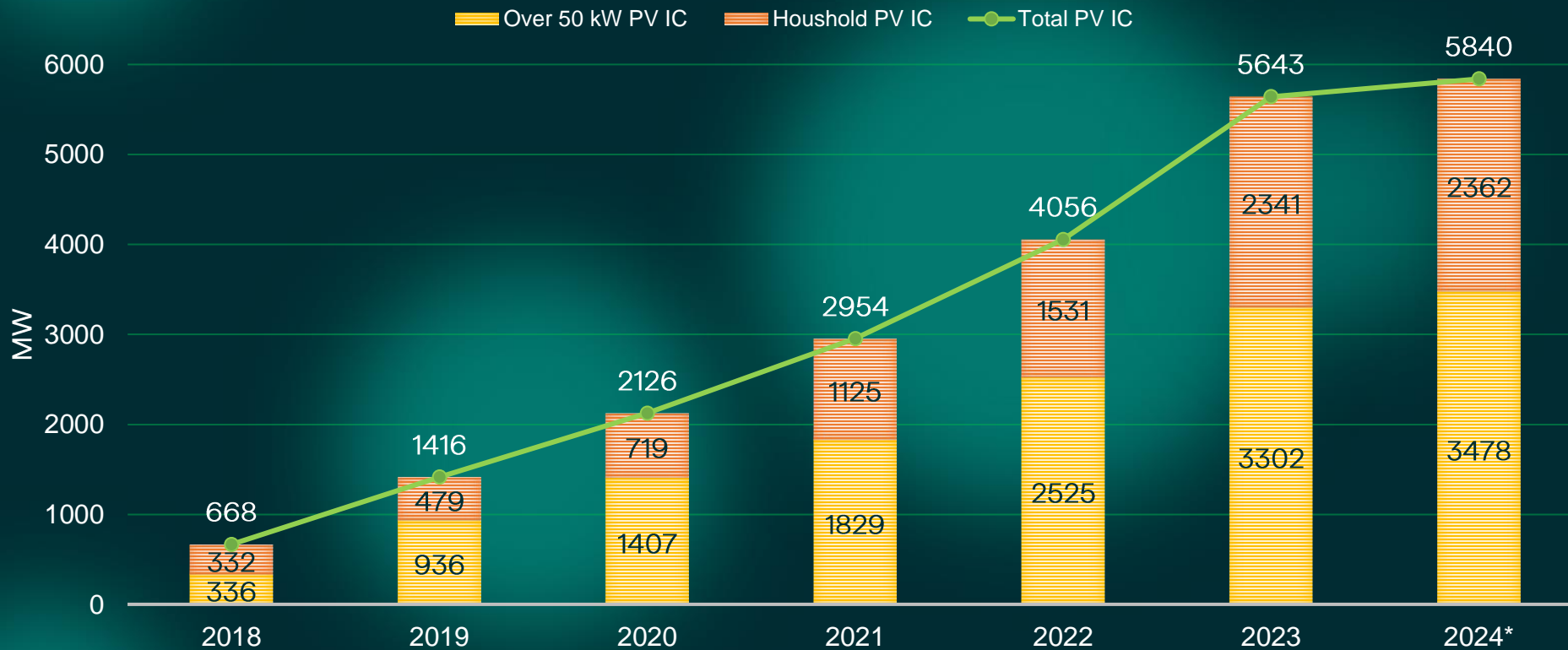
# Agenda:

- **Grid challenges**
  - Solar boom since 2018
  - Energy crisis vs price caps
  - Asymmetrical incentives
  - Struggle of the flexibility providers
  - Opportunity for Intraday traders
- **Q4 2023 Regulatory Responses**
- **Winter 2023/2024**
  - Calm before the storm?
- **New MAVIR proposals**
- **Conclusion**



# Solar boom in Hungary:

## HUNGARY PV INSTALLED CAPACITY



\*01.03.2024 publication of MAVIR

Total IC > 5800 MW

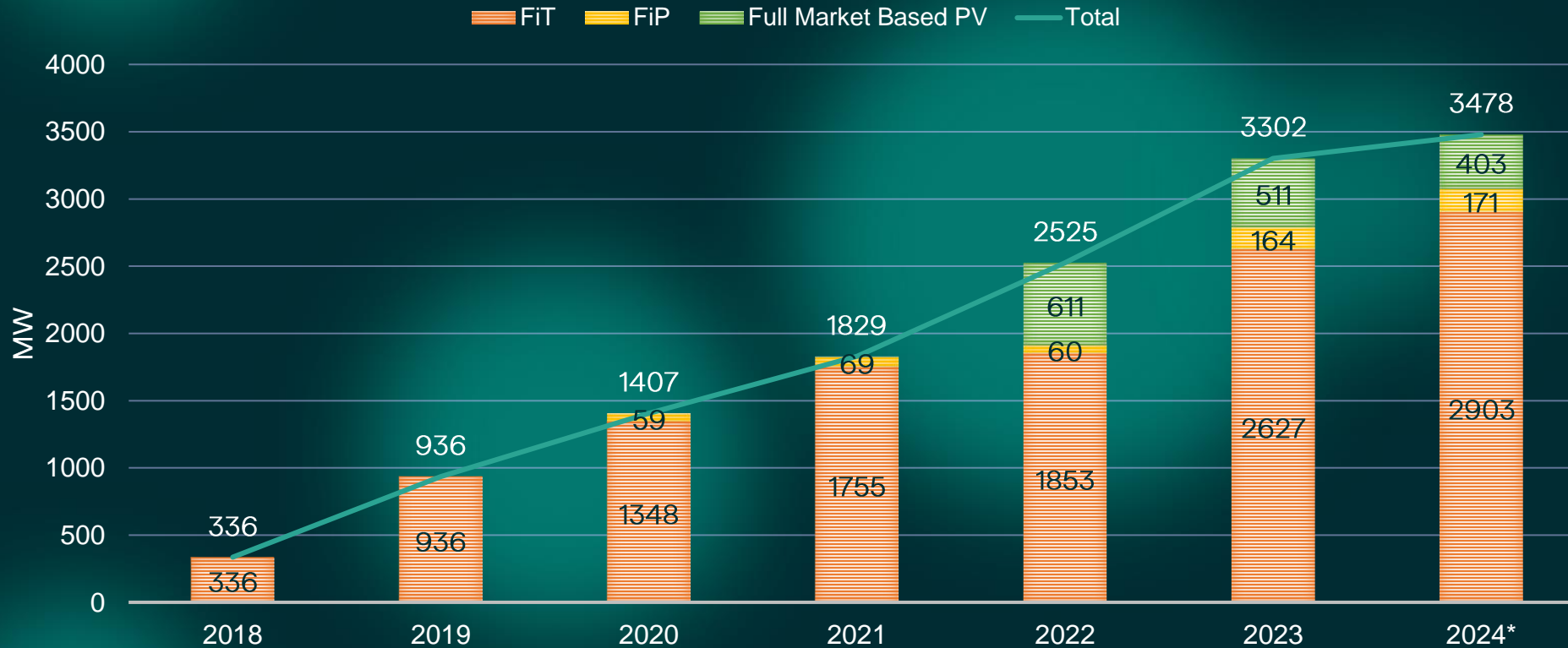
HU Demand Peak = 7000 MW in January

2340 MW Household Solar

Forecasting generation and demand both got more complex

# Solar boom in Hungary:

## OVER 50 KW PV IC - BY SUBSIDY SCHEME



\*01.03.2024 publication of MAVIR

FEED-IN-TARIFF (FiT)

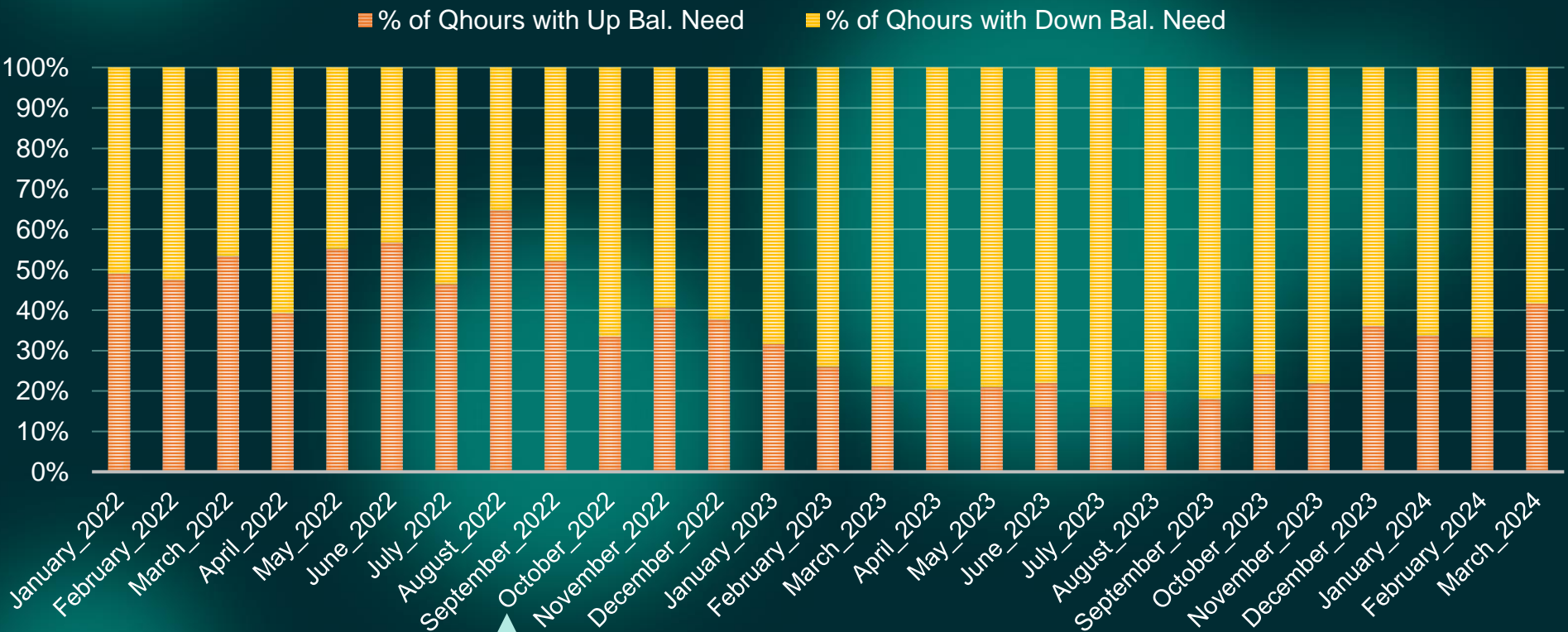
Fix Price = ca. 118 EUR/MWh

HU Regional leader in renewable growth

2903 MW additional inflexible/must-run generation created

# Energy crisis vs price caps

## SHORT AND LONG SYSTEM DIRECTION IN %



From Q4 2022 asymmetrical rules for aFRR/mFRR energy fee

Upward price caps cancelled (due to increasing wholesale prices)

Downward energy fee was still capped at ca. - 130 EUR/MWh

Upward aFRR/mFRR energy fee fix price cap cancelled 03.10.2022

Quarterhourly, incremental bidding option for energy fee tenders 16.11.2023

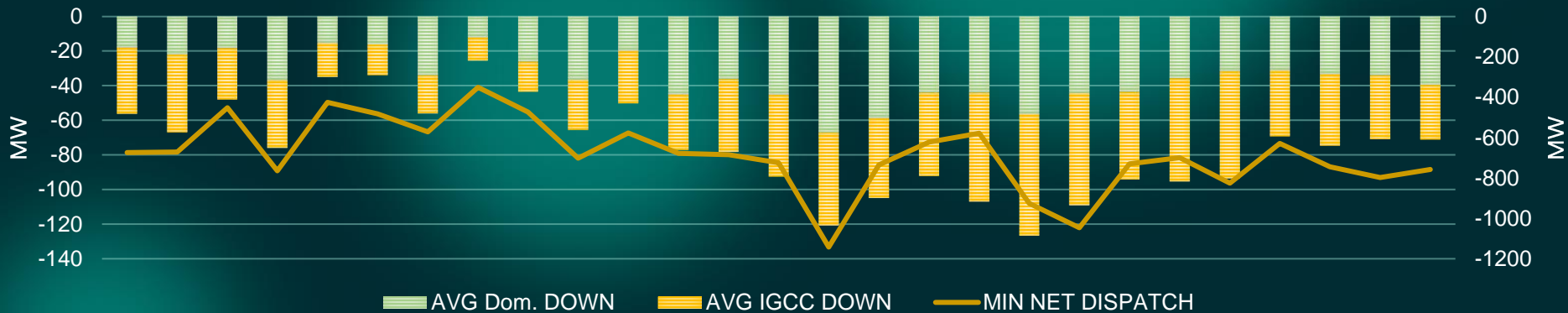
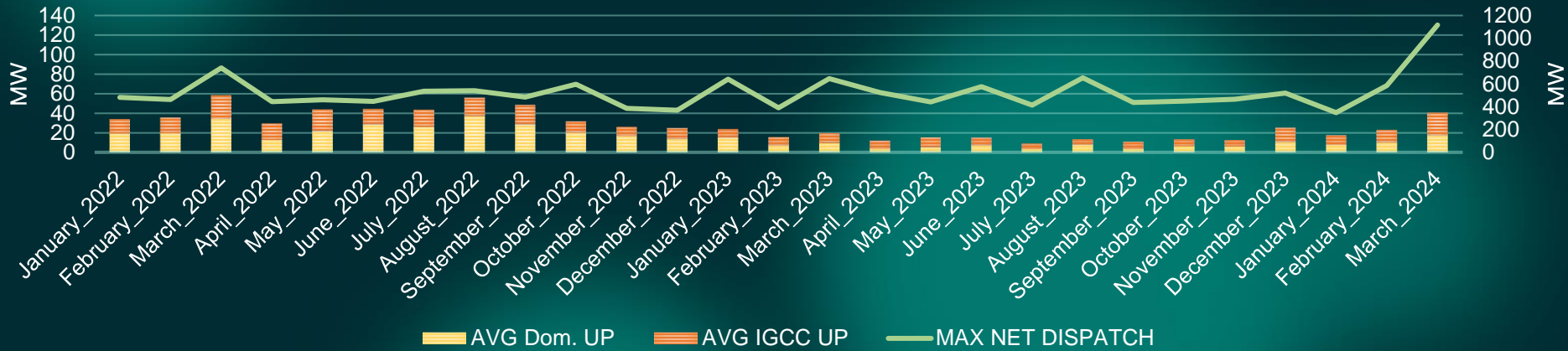
Upward aFRR/mFRR energy fee spark-spread based price cap re-introduced 01.12.2023





# Asymmetrical imbalance volumes:

## MAX. AND AVG. UP BALANCING

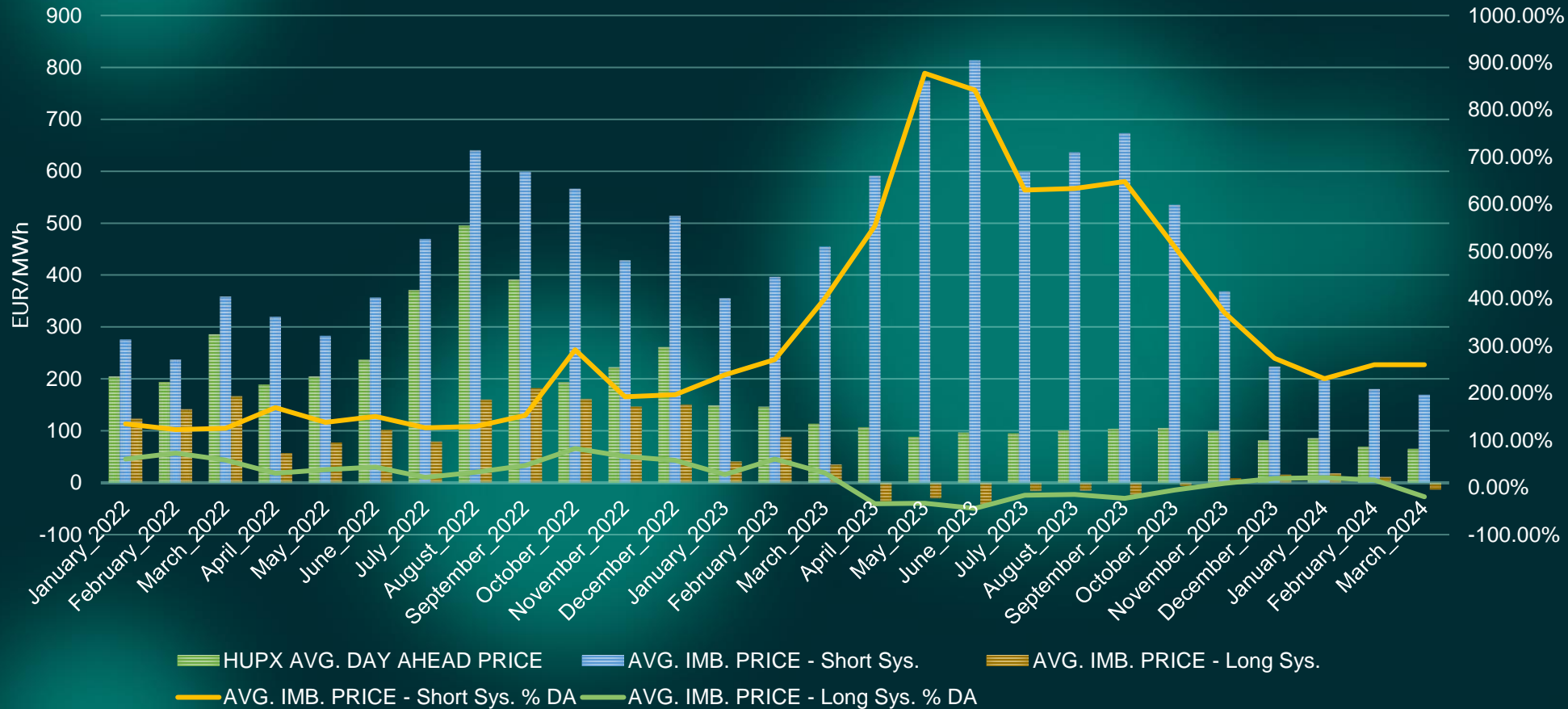


Shrinking upward activation periods and volumes (extra cost for ramp ups)

Downward activation increases (AVG + MIN)

# Asymmetrical imbalance prices:

## IMBALANCE PRICES VS HUPX DAM MONTHLY AVG.

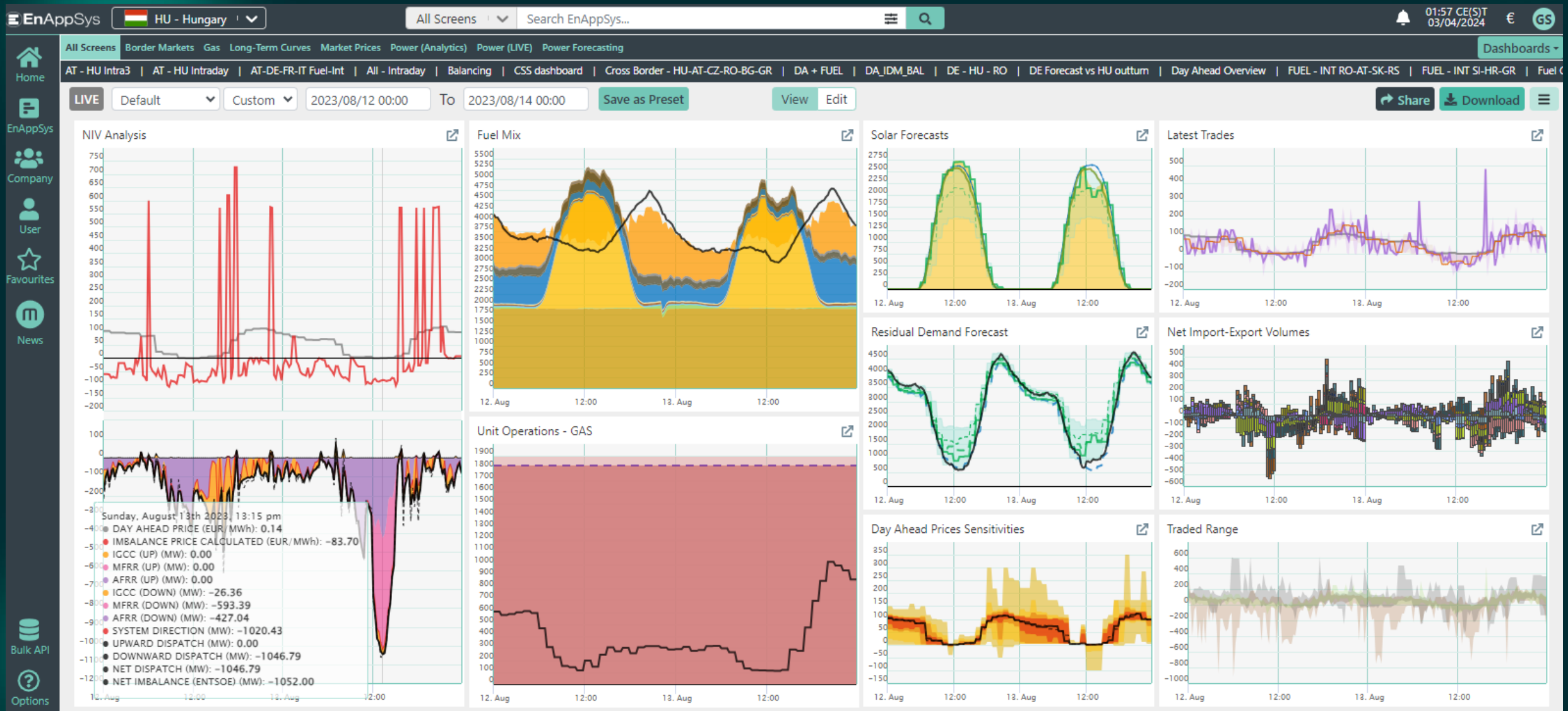


Upward flexibility providers struggle on DA + reserve market

Imb. prices during short system kept increasing in 2023 (vs HUPX DAM)

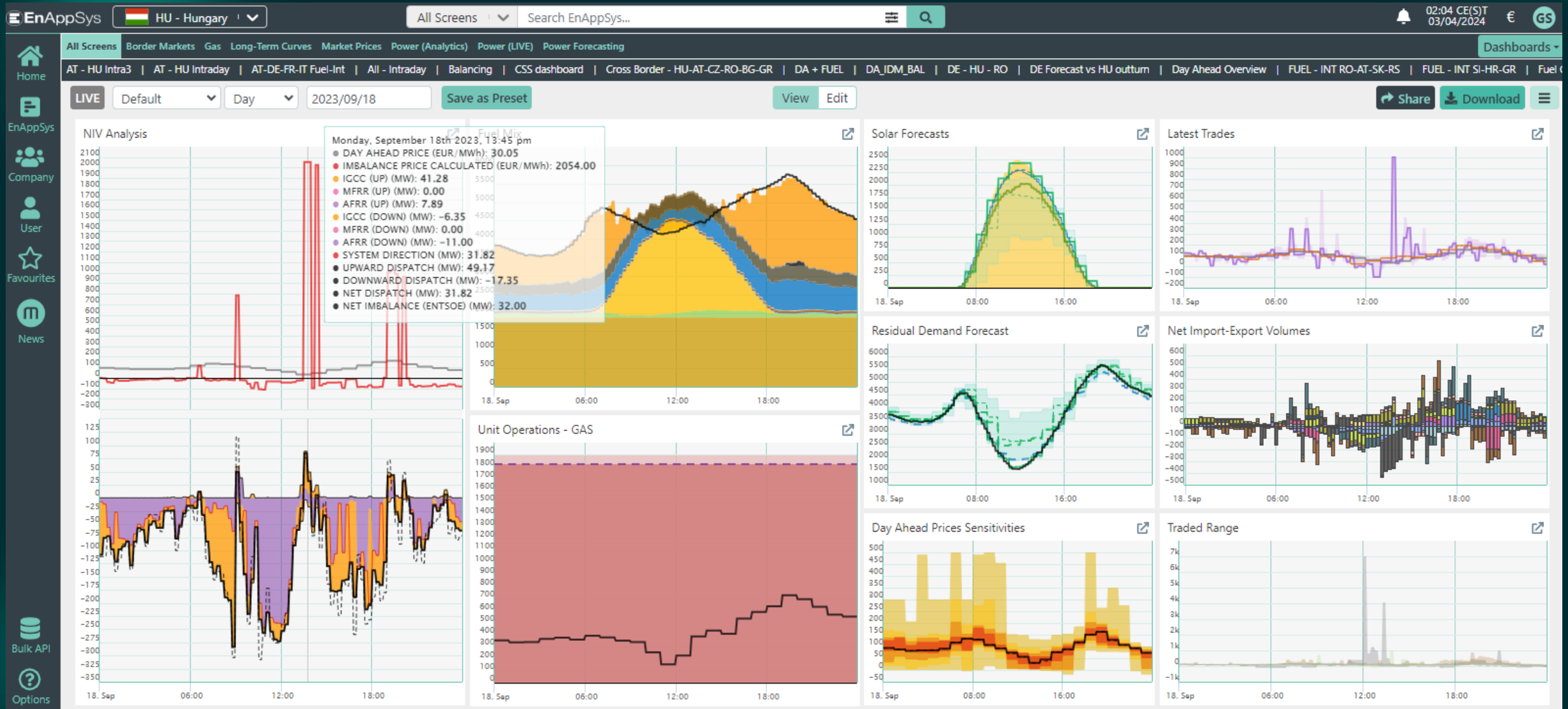
During long system imb. prices went to negative but stayed moderate

# Case study – Extreme downward activation volume:





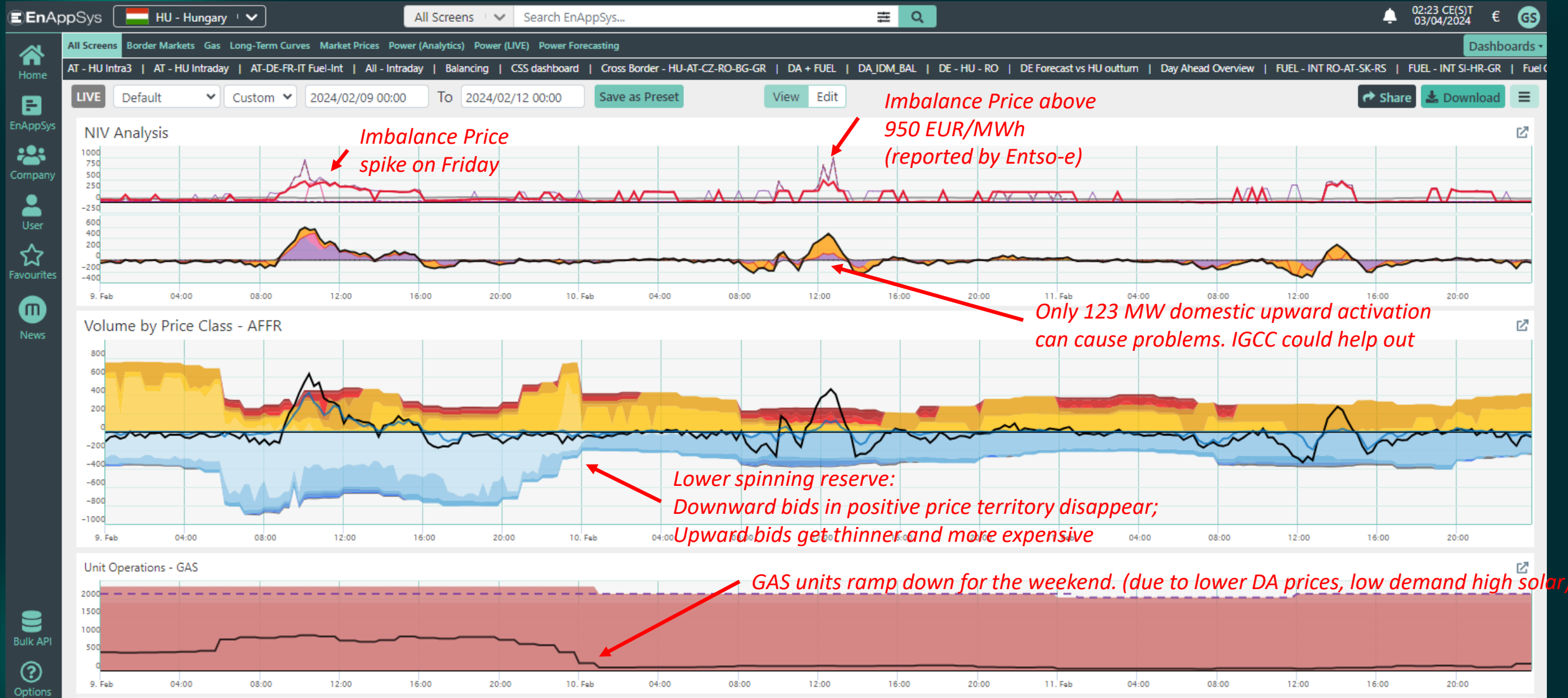
# Case study – Extreme price for tiny upward activation:



# Regulatory Responses in Q4 2023:

- Reintroduction of a price cap for upward aFRR/mFRR energy fees
  - Applies only when market is concentrated (measured by HHI index quarterhourly)
  - Instead of the previous, fix price cap – a clean-spark-spread based solution
- Changes in the Reserve market energy fee tenders
  - Incremental bidding option (by 1 MW vs previous unit-size block bids)
  - Quarter-hourly tenders instead of an hourly period
  - Introduction of the intraday capacity tenders (when needed)
- Results:
  - Average and maximum imbalance prices during short system declined
  - Increased competition is clearly visible in both directions
  - Probably too early to say as we are just exiting the heating season

# Calm before the storm?



# MAVIR proposals – 20.03.2024:

- Adding 7 new price elements from HUPX IDA and IDM
  - In the current formula only HUPX DAM hourly price is used as a min/max barrier
  - This could be replaced by the *worst* price from HUPX intraday markets to ensure it is not beneficial to close short/long positions on the imbalance market vs HUPX
- Introduction of a scarcity element in the formula
  - Above or below a preset threshold for upward/downward activation
    - Exact MWs per direction will be introduced later
  - Scarcity element will only be applied on BRPs causing the imbalance
    - (same direction of imbalance as the system as a whole)
  - That means re-introduction of dual pricing during scarcity periods
  - Remains a weighted avg. price system
- Next steps:
  - The proposed modification by MAVIR needs to be approved by the Energy Regulator (Hungarian Energy and Public Utility Regulatory Authority)
  - Proposed go-live is 01.01.2025

## Conclusion:

- Integration of renewables into the system is hard enough on it own...
- Market regulation is needed for System Security
  - Fair and Simple
- Price incentives needs to be clear and symmetrical
- Liquid and efficient intraday markets can provide the missing flexibility – proved concept on multiple cases across Europe.