CONNECT LIVE 26

FLEXIBILITY MEETS EFFICIENCY: POWERING THE ENERGY TRANSITION

TRADING AND ENERGY DATA MANAGEMENT

AGENDA

Navigating the Volatile Nordic Short-term Power Markets	Priyanka Shinde, Nordic Market Expert, Montel Analytics
Wind Power Trading in Volatile Markets	Jyri Joutsi, Product Manager, Hansen
Latest on Hansen Trade	Jyri Joutsi, Hansen
User-made integrations with Hansen EDM	Sakari Seppälä, Senior Product Manager, Hansen
Wrap Up & Closing	Juha-Pekka Einamo, Hansen

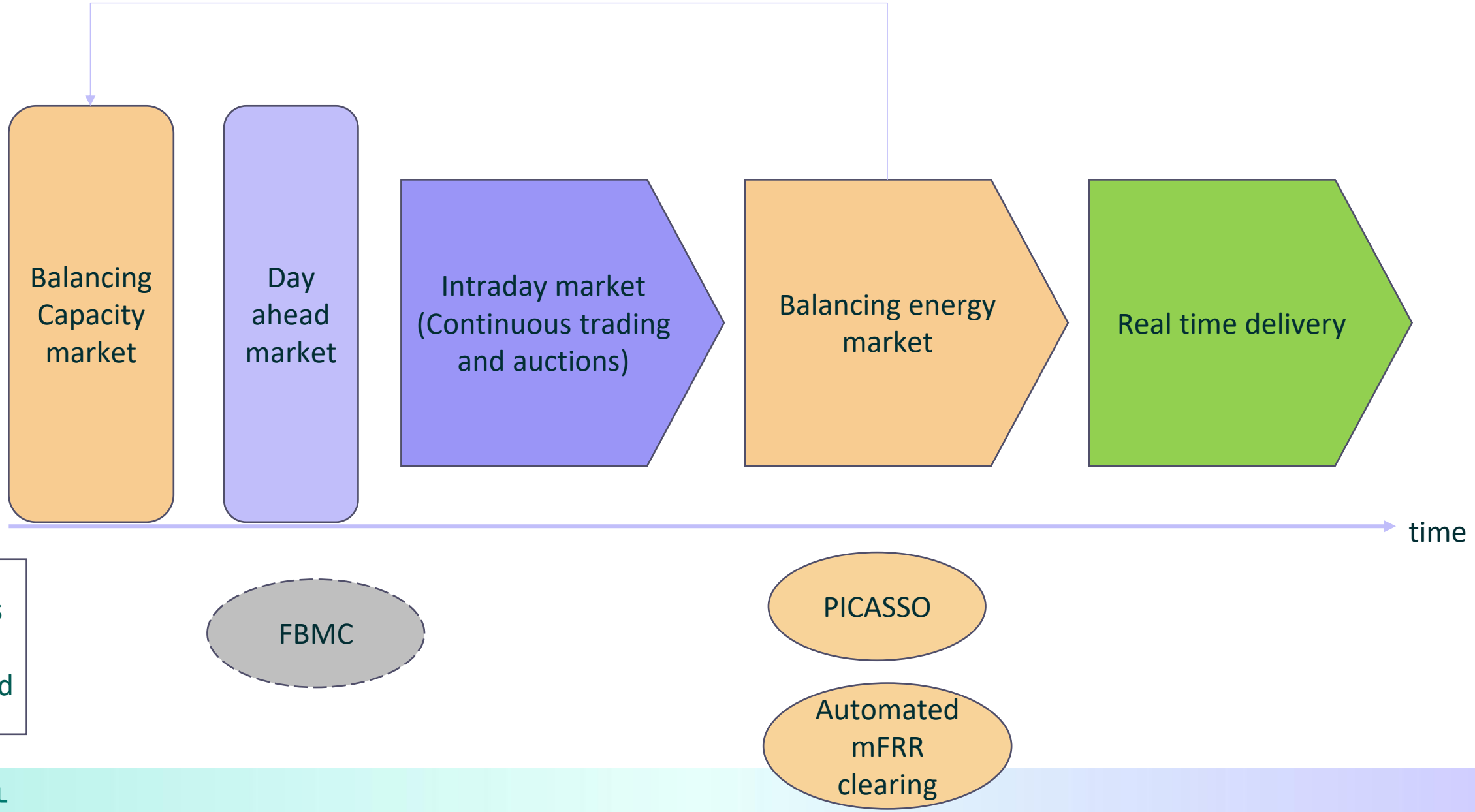
NAVIGATING THE VOLATILE NORDIC SHORT-TERM POWER MARKETS

Priyanka Shinde, Nordic Market Expert, Montel Analytics

Navigating the Volatile Nordic Short-term Power Market

Priyanka Shinde, Ph.D.
Nordic Market Expert
Montel EnAppSys
29th January 2026

What are we going to talk about?

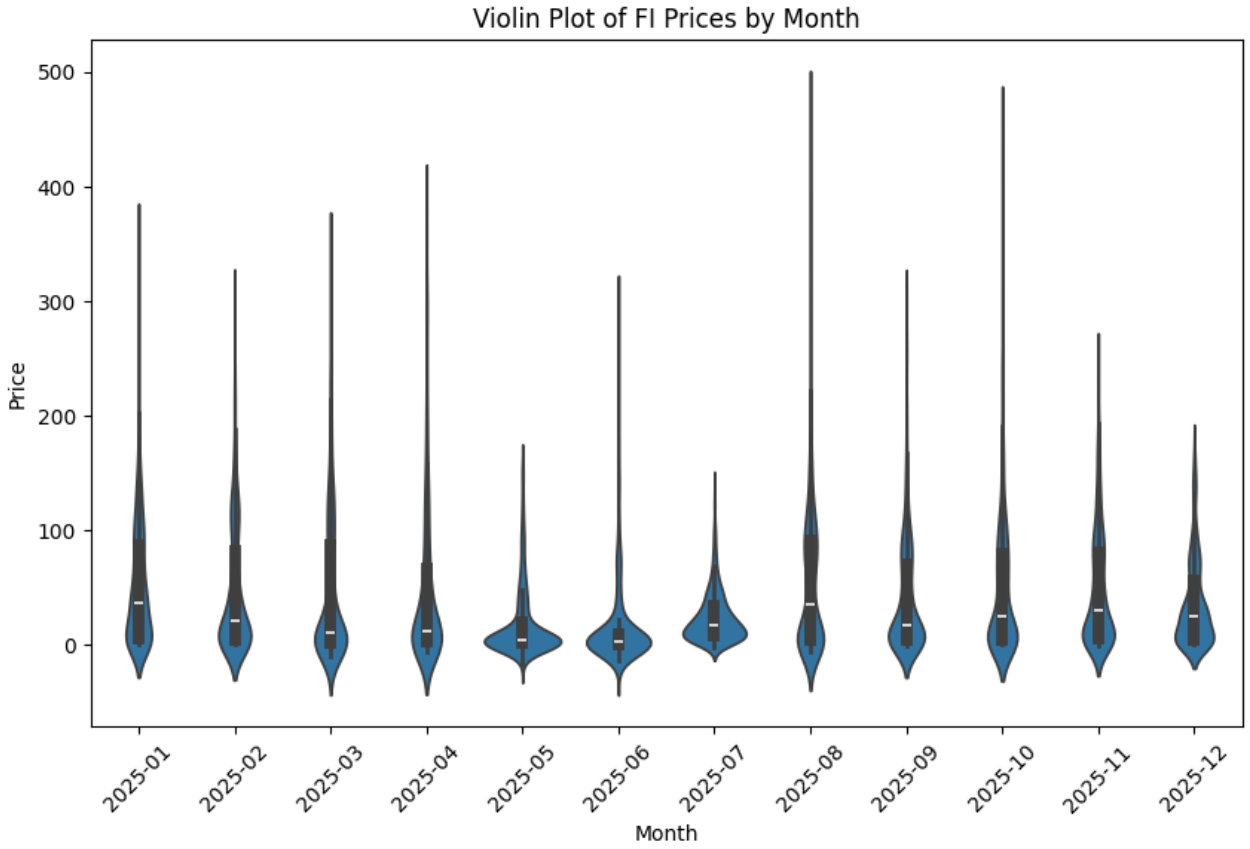


Objectives

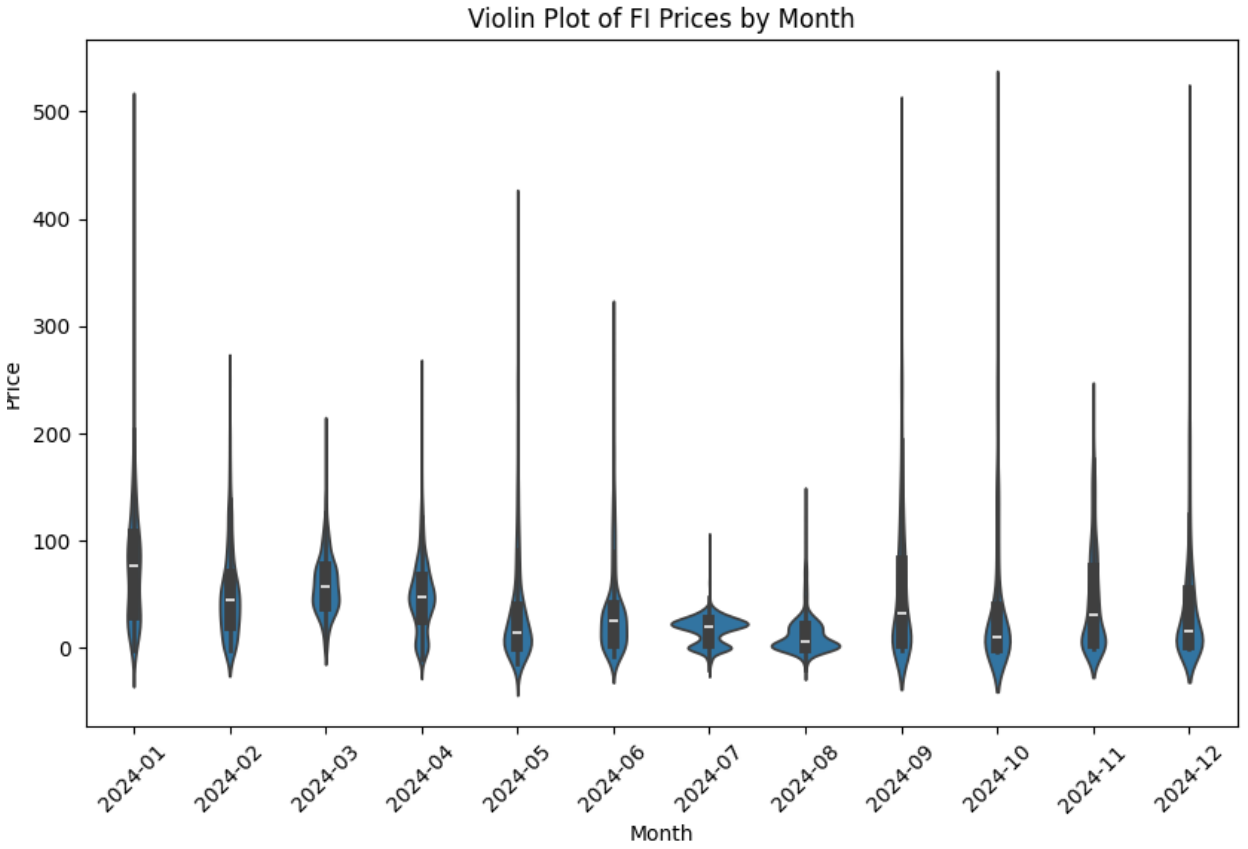
- Overview of the **Day-ahead** market trends, updates, volatility and observations.
- **Balancing** market developments in the Nordics in the past one year: mFRR EAM and PICASSO
- **Imbalance** price formation updates and key observations.
- **Intraday** market opportunities in the Nordics and how to act on the balancing market forecast signals to act in the intraday market!

Spot market overview

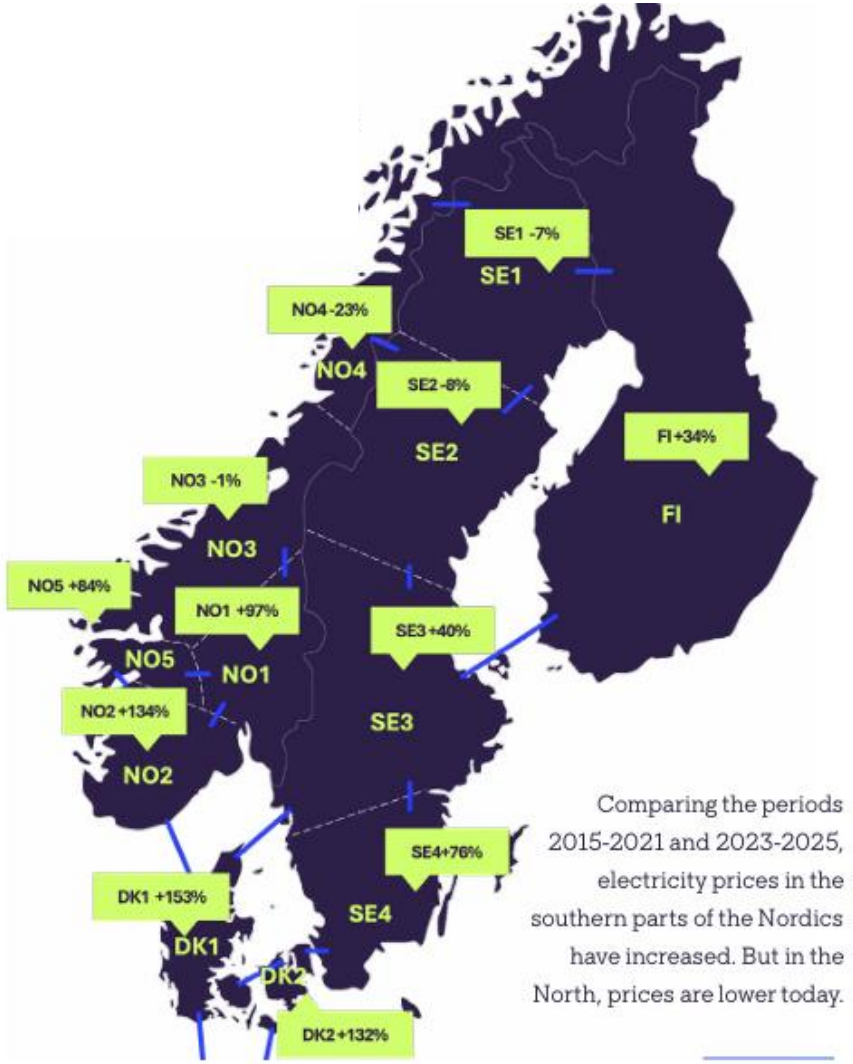
Finnish day-ahead price volatility in 2025



Finnish day-ahead price volatility in 2024



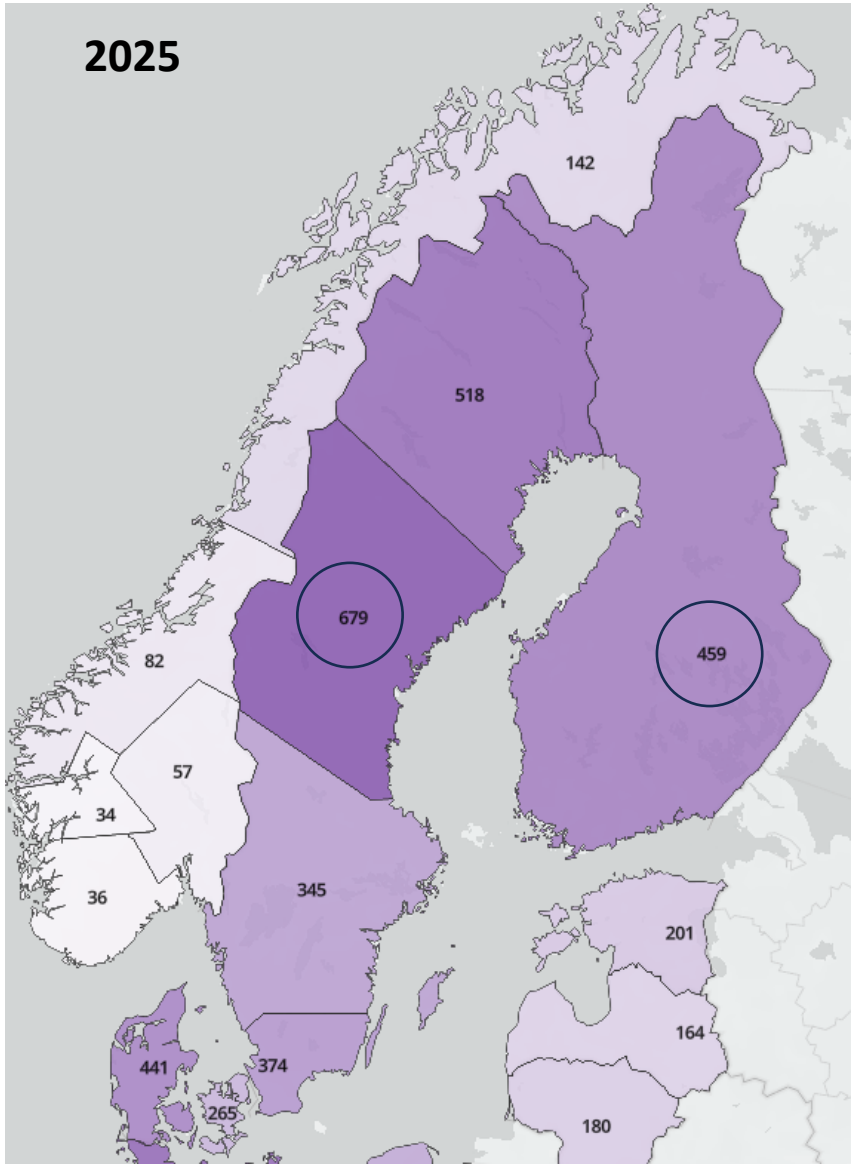
Divergent day-ahead prices amongst Nordics

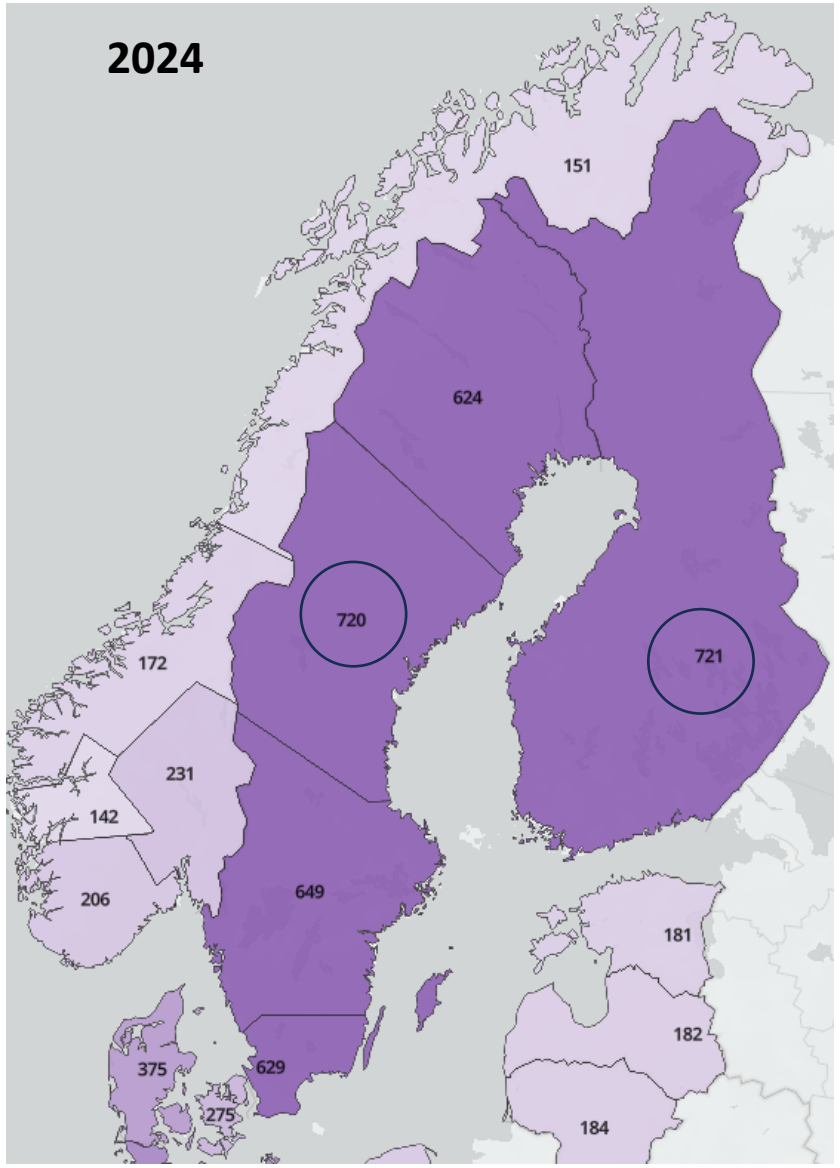


- The electricity prices have fallen in the north and risen in the south!
- The limitation in the transmission capacities between SE2-SE3 has been one of the culprits for a higher price spread.
- Demand is still majorly concentrated in the southern bidding zones.
- Furthermore, stronger intercoupling with central Europe after Flow-based market coupling go-live has also partly lifted up the prices in south of Sweden, Denmark.

Source of image: Nordic Energy Markets Insights Report · January 2026 (Mind Energy)

Negative price hours comparison

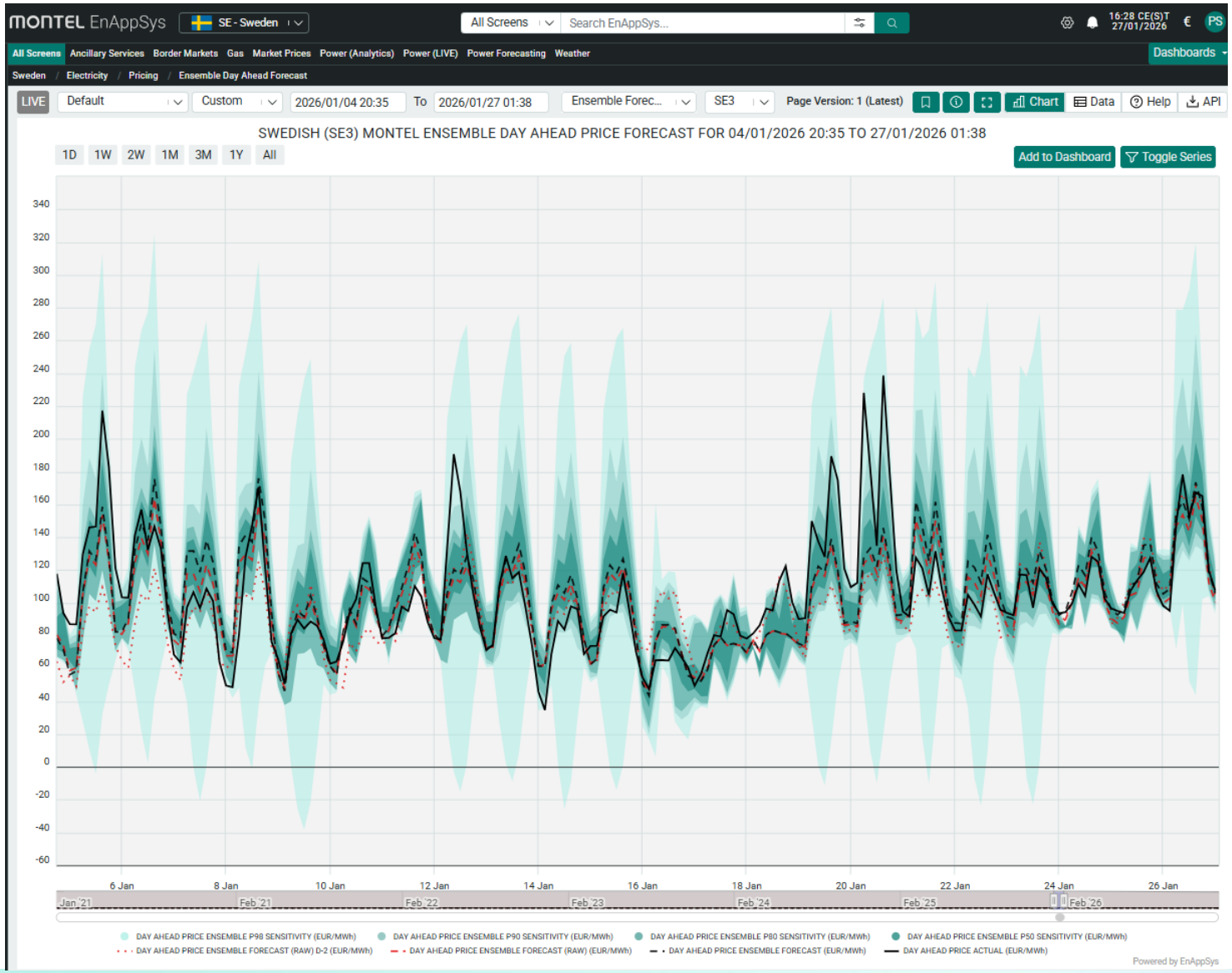




- There has been a sharp decline in the number of negative price hours in Finland for 2025 after being at the top spot in Europe for 2024 and 2023.
- Part of the decline in the count comes from price sensitive curtailment, relatively better connection with the Baltics compared to the last year.
- SE2 has been on the top of the list this year though the number is lower than previous year.
- South of Sweden being more intercoupled with the continental Europe shows decline in the count too.

Source of figures: EnAppSys

Day-ahead price forecasts



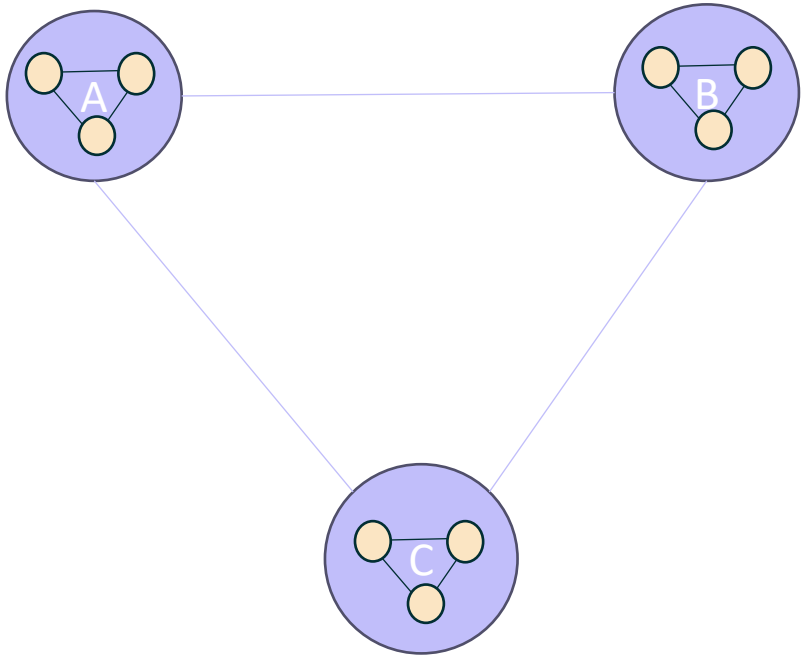
Ensemble model forecasts:
These models combine the best of fundamental, AI, and flow-based market coupling approaches. Based on the learning and performance of these models under similar situations, the weights are optimized to be assigned to each of them.

Update coming soon

As flow-based domains are included in these forecasts for Nordics. We have an update coming soon.... due to?

Process of Day-ahead market coupling

Capacity Calculation



TSOs and Nordic RCC

Capacity allocation

Maximize Social welfare
Subject to:
Supply - demand balance
(price = Lagrangian multiplier)
Transmission constraints
Supply side constraints
Demand side constraints

NEMOs

Flow-based domain parameters published around 10 am CET

Gate closure to send in bids 12:00 CET

Around 13:00 CET

time

Flow-based market coupling updates

- Forecast of the flow-based domain is available on D-2 at 21:00 CET.
- This started being published from 8th Jan 2026 for 10th Jan (as a new year gift!).

Preliminary Domain

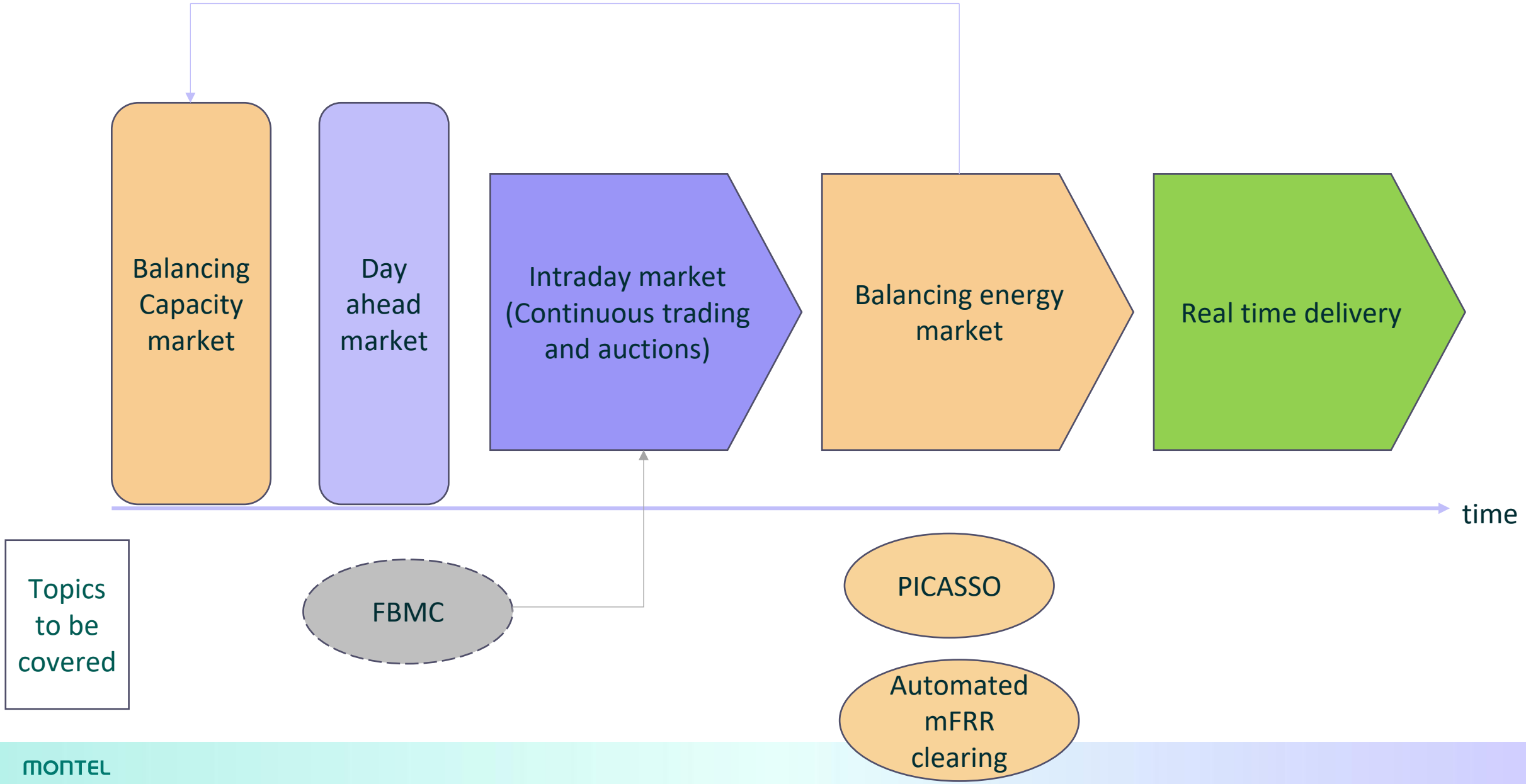
Download

Please note that the Preliminary Domain is for indicative use only. If delayed or not published, no market message will be sent to notify the user. See Publication Handbook for more details.

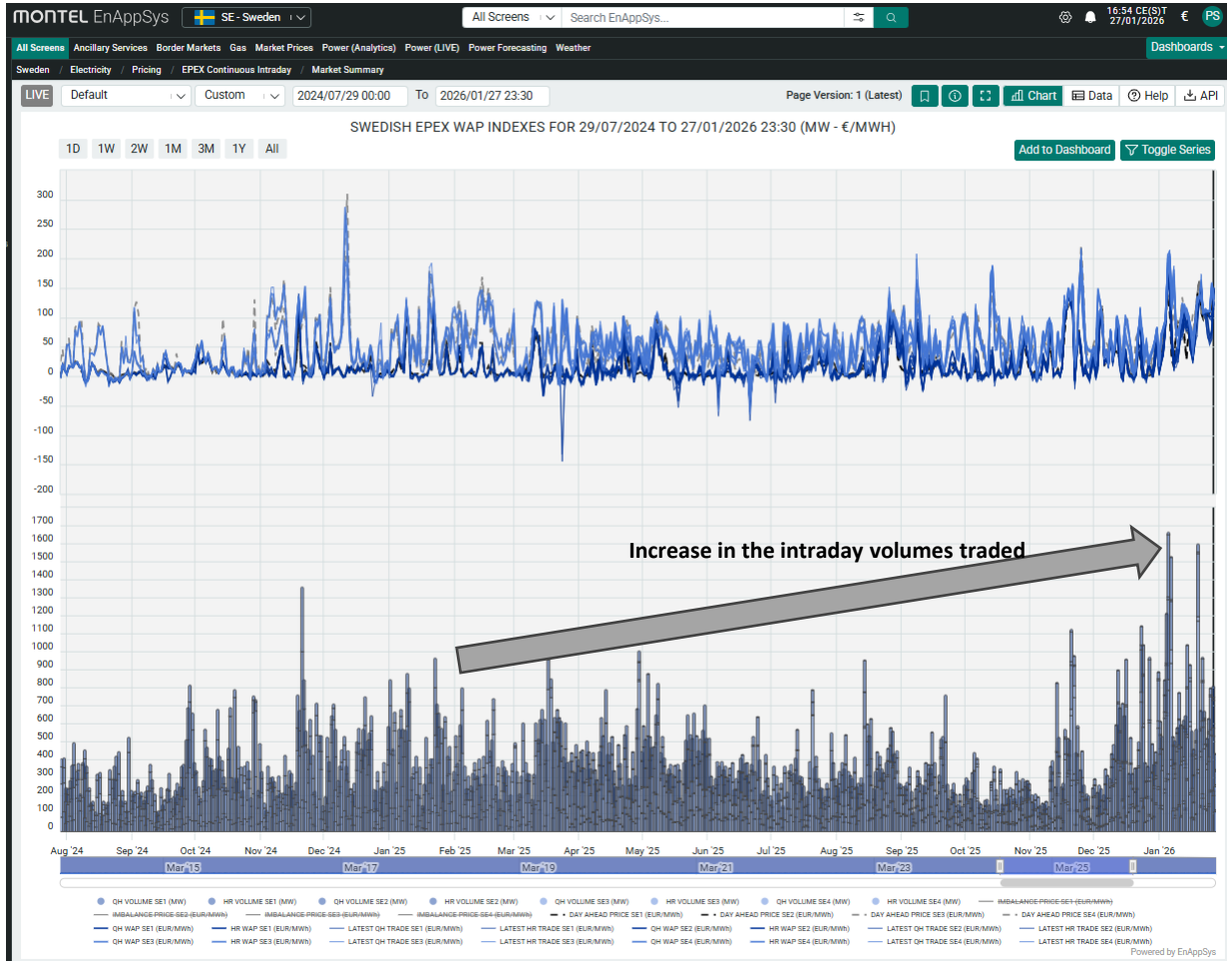
SEARCH

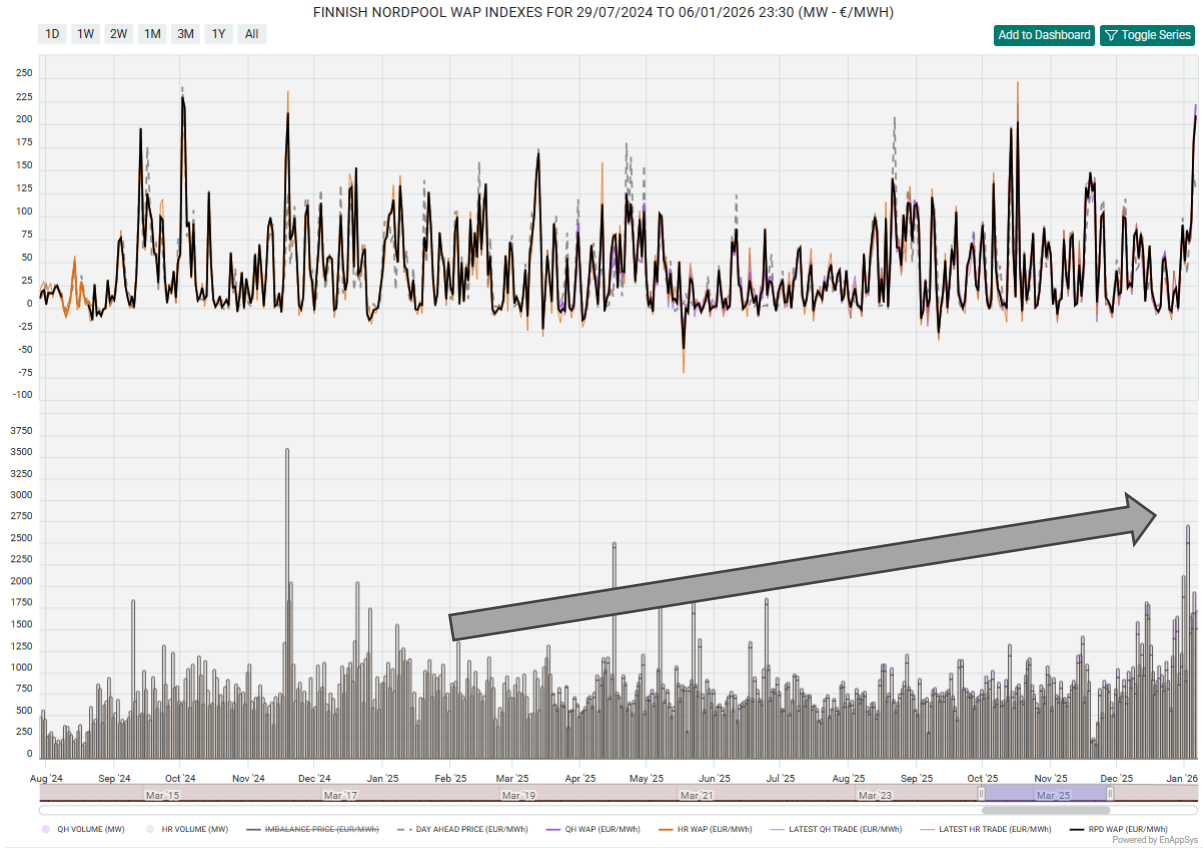
	CNEC or Combined Dynamic Constraint				Information on the CNE							
Date	Name	mRID	Type	TSO	Name	EIC	Status	Bidding Zone From	Bidding Zone To	Substation From	Substation To	Ty
2026-01-25 00:00:00	FI_P0_KEMINMAA-PIKKARALA_OLG3_SIPS	7508188a-e32b-11ec-be0c-94e6f7d52ec8	BRANCH	FINGRID	KEMINMAA - PIKKARALA - Terminal: : KI4IT-PR4 1 400		OK	FI	FI			CN
2026-01-25 00:00:00	FI_P0_KEMINMAA-PIKKARALA_OLG2	8a682859-767a-11eb-bdca-e470b896f59a	BRANCH	FINGRID	KEMINMAA - PIKKARALA - Terminal: : KI4IT-PR4 1 400	44T-KI-PR-00000R	OK	FI	FI	Keminmaa	Pikkarala	CN
2026-01-25 00:00:00	FI_P0_KEMINMAA-PIKKARALA_PIRTTIKOSKI-PIKKARALA	8064345a-767a-11eb-bdca-e470b896f59a	BRANCH	FINGRID	KEMINMAA - PIKKARALA - Terminal: : KI4IT-PR4 1 400	44T-KI-PR-00000R	OK	FI	FI	Keminmaa	Pikkarala	CN
2026-01-25 00:00:00	FI_P0_KEMINMAA-PIKKARALA_ISOKANGAS-PYHANSELKA	80643459-767a-11eb-bdca-e470b896f59a	BRANCH	FINGRID	KEMINMAA - PIKKARALA - Terminal: : KI4IT-PR4 1 400	44T-KI-PR-00000R	OK	FI	FI	Keminmaa	Pikkarala	CN
2026-01-25 00:00:00	FI_RAC_SE1-FI_KUKKOLANKOSKI-KEMINMAA_VUENNONKOSKI-VIITAJARVI	eacaf469-66bb-4714-a555-2feb49cc70b9	BRANCH	FINGRID	KUKKOLANKOSKI - KEMINMAA - Terminal: KU: KU4-KI4LÄ 1 400		OK	SE1	FI			CN
	FI_RAC_SE1-	273f5c35-			KUKKOLANKOSKI -							

What are we going to talk about?



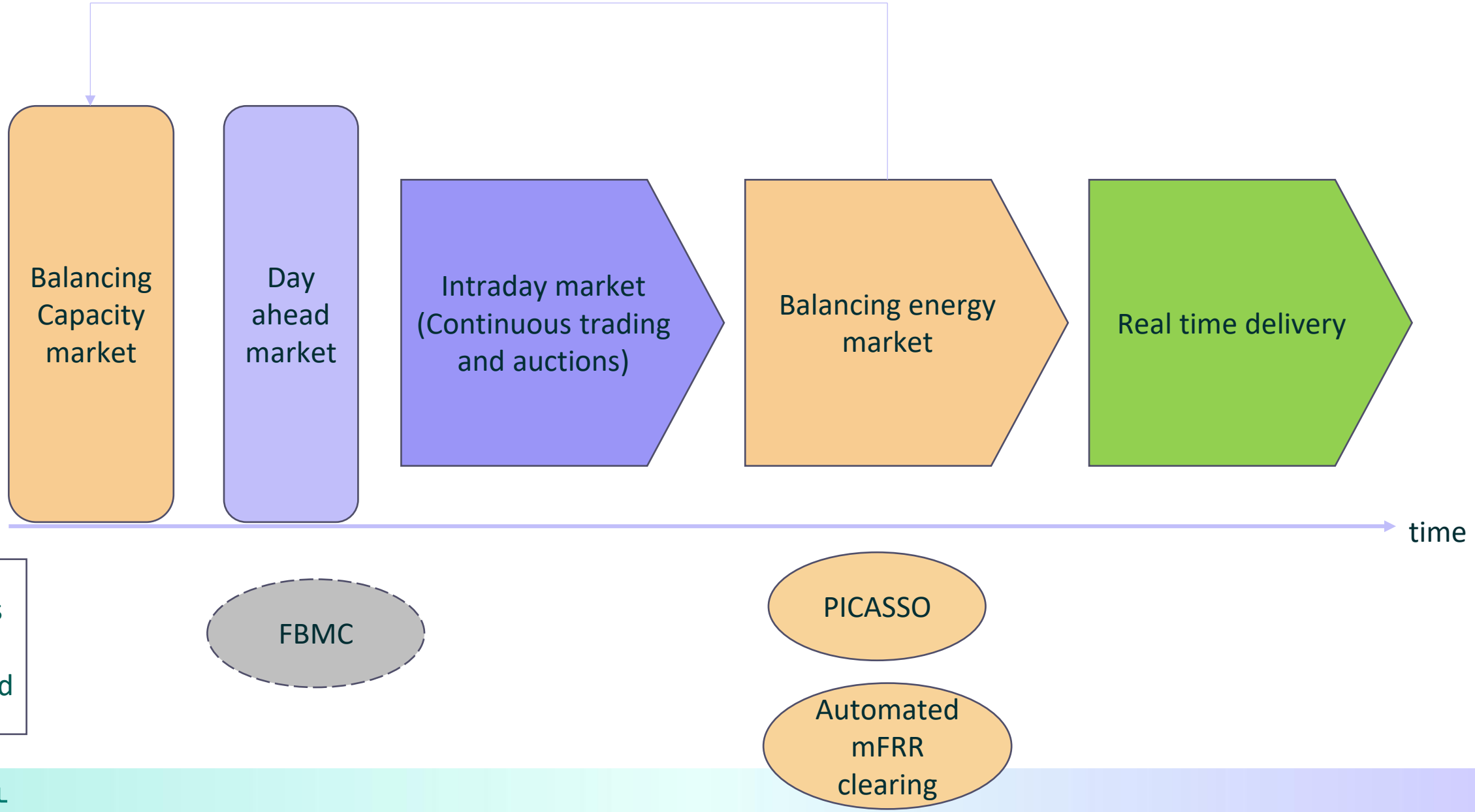
Intraday volumes, liquidity growth



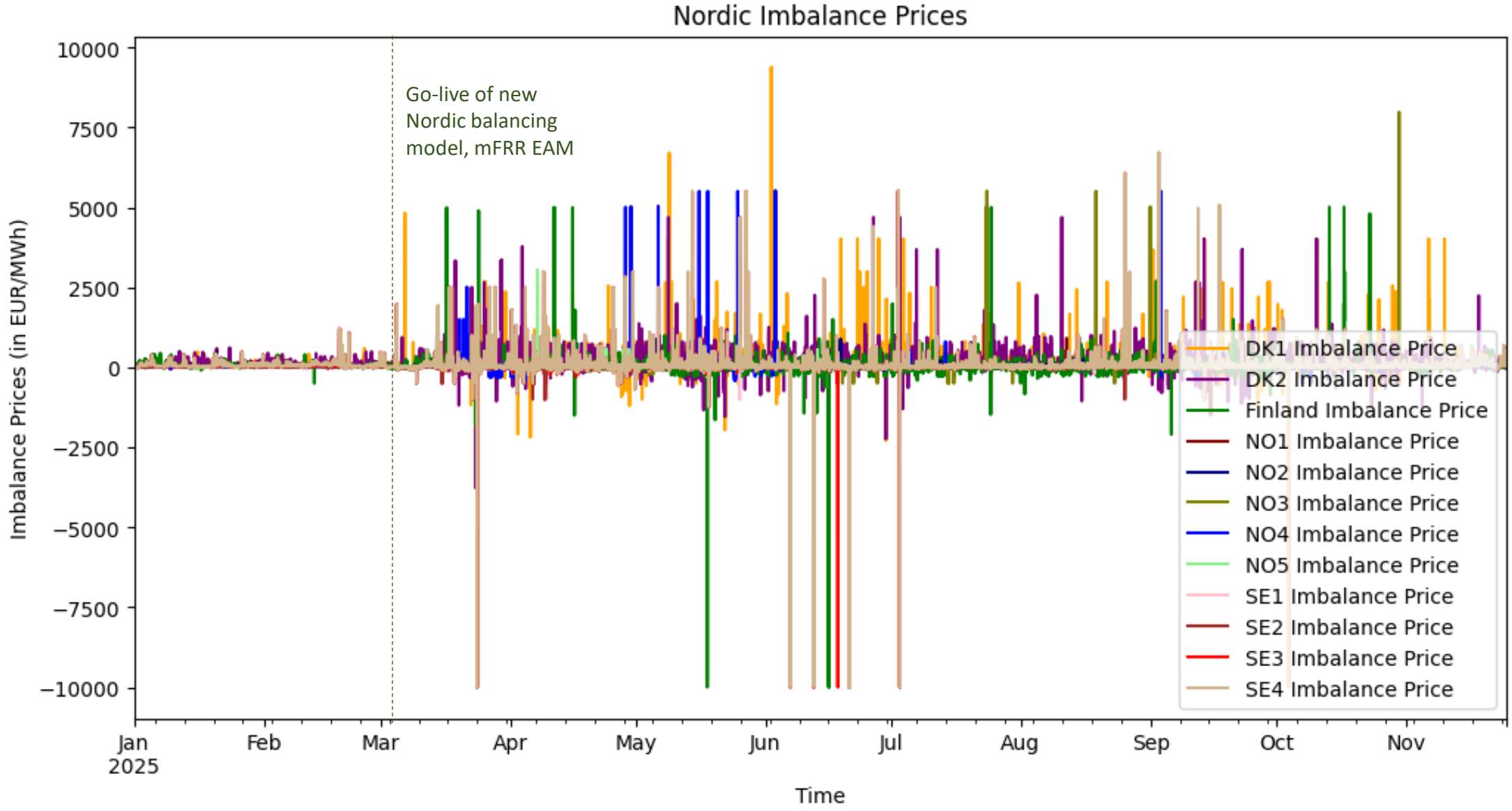


- Cross-border trading possible for QH and HR products which opened up avenues for more trades.
- Gate closure time updates: in Nordics still 60 min except for FI-EE which is until 30 min before.
- From Jan 2026, several other European countries have already moved to 30 min gate closure which allows more possibilities for the market to find solutions themselves for the problems.
- But this change will come to the Nordics a bit later due to the TSOs not being ready for it at the moment.

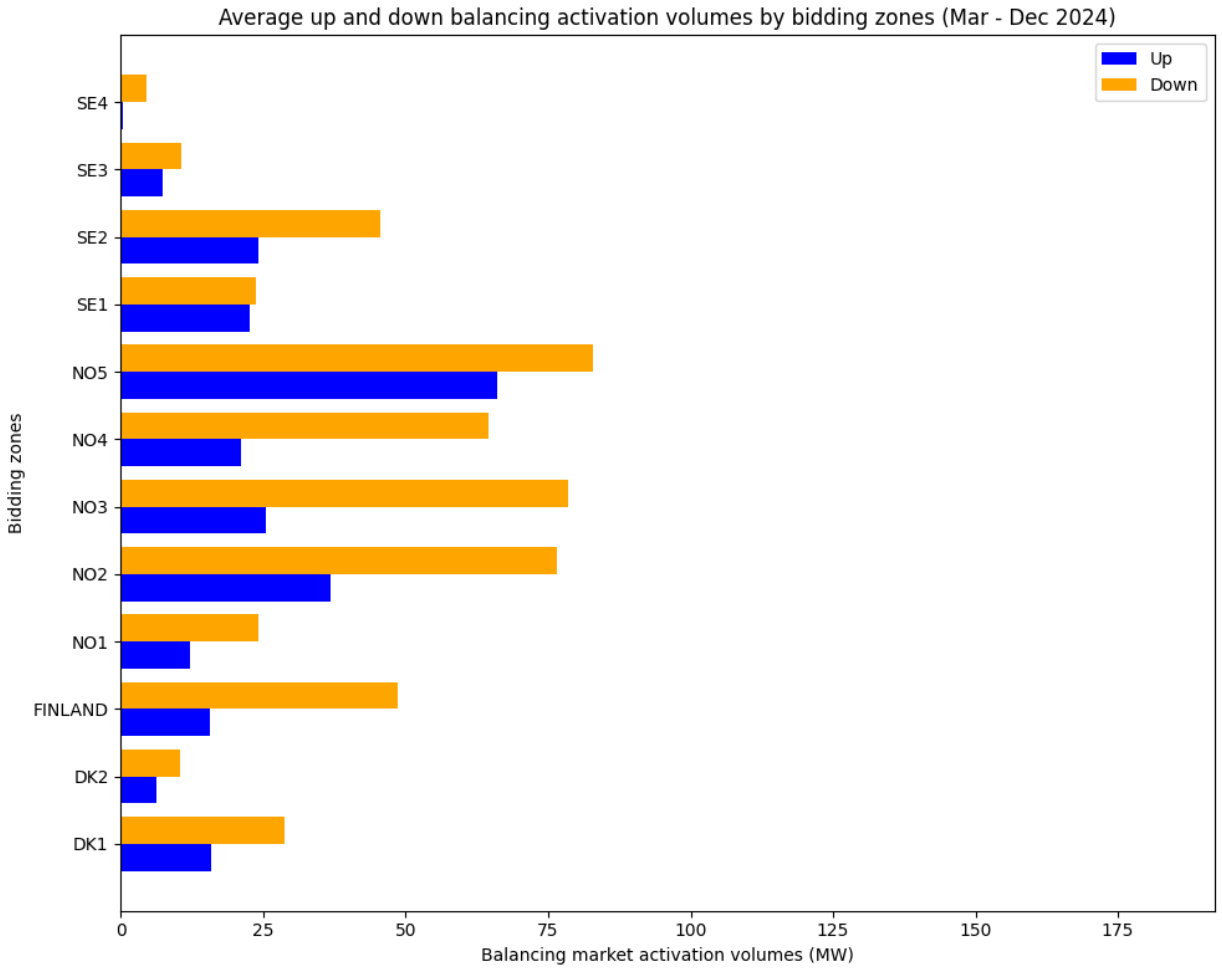
What are we going to talk about?

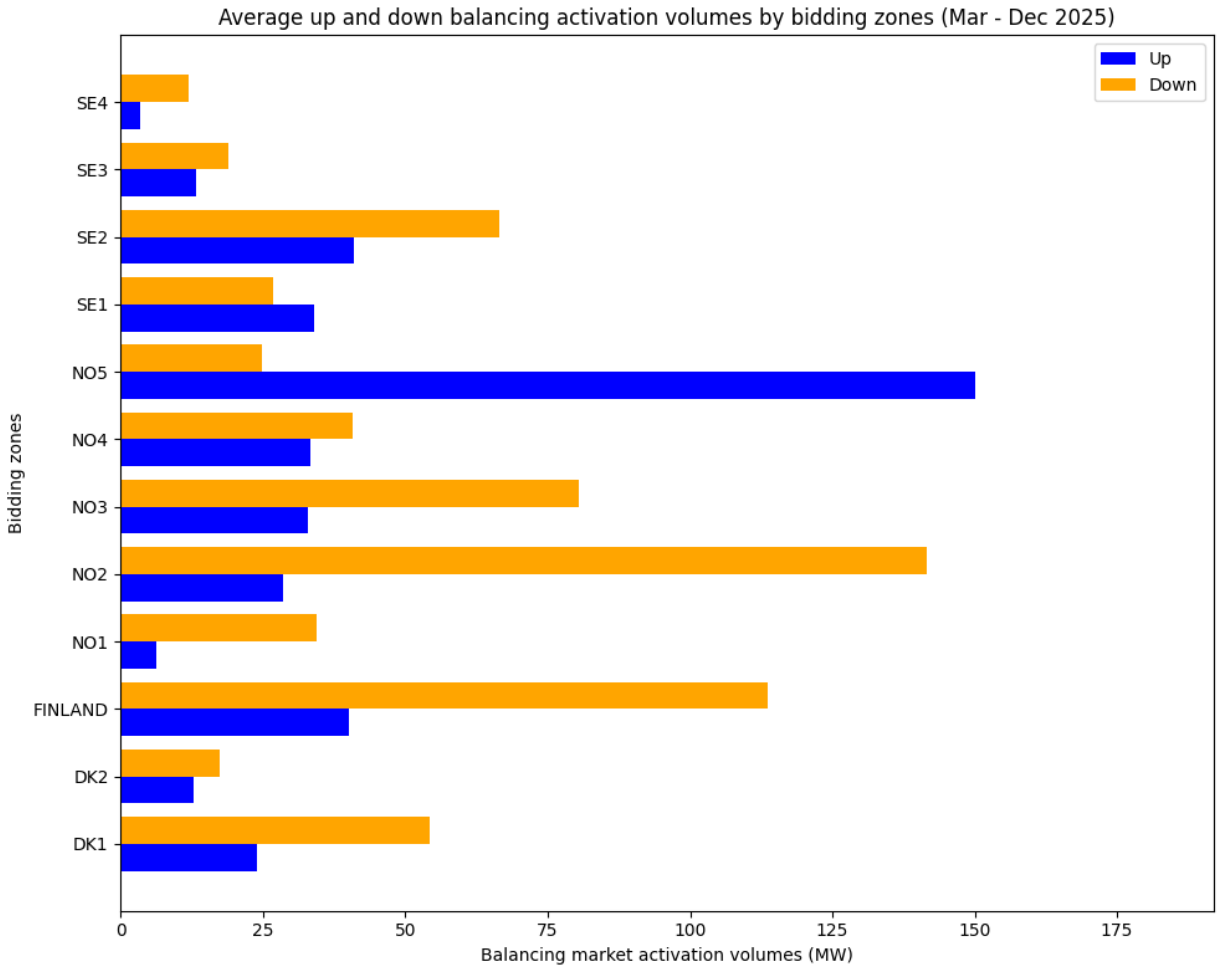


Imbalance price evolution in 2025

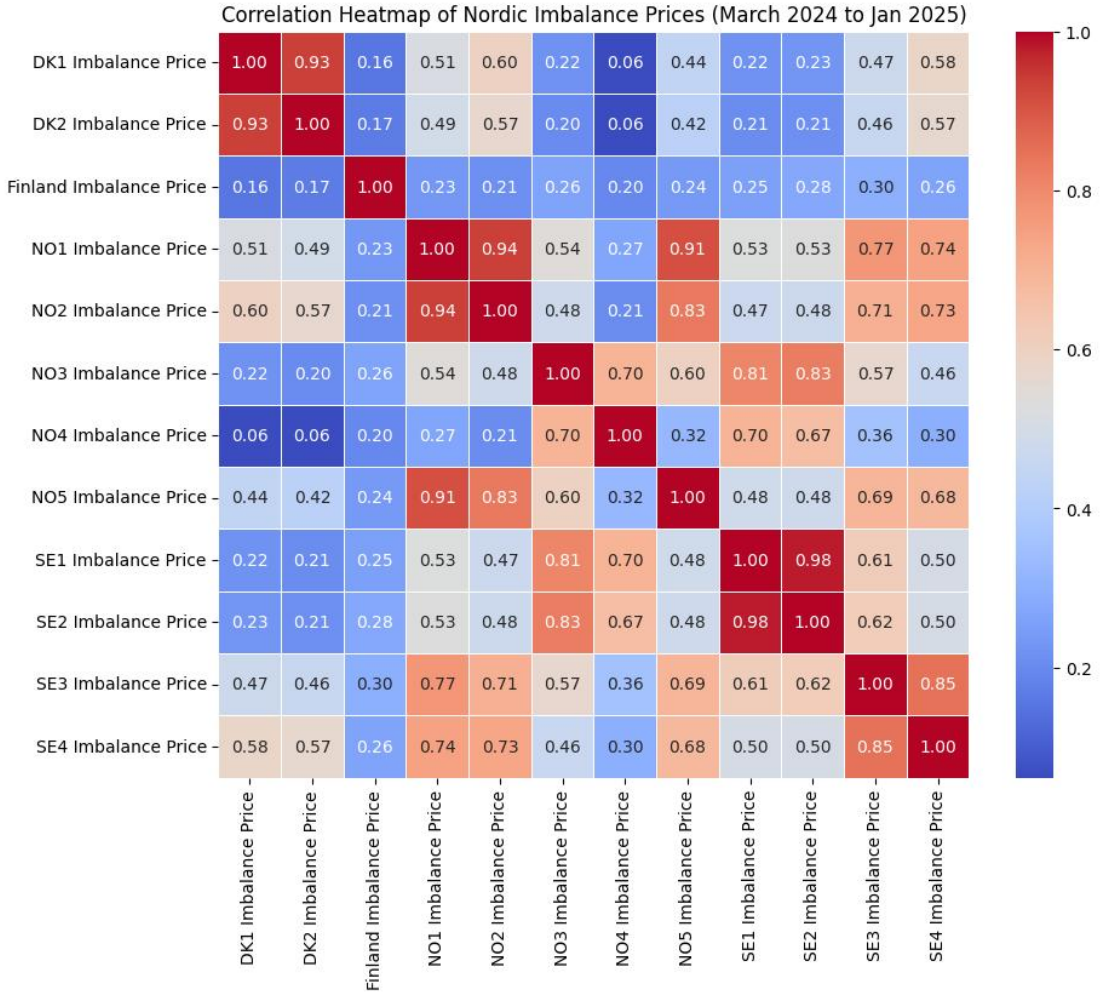


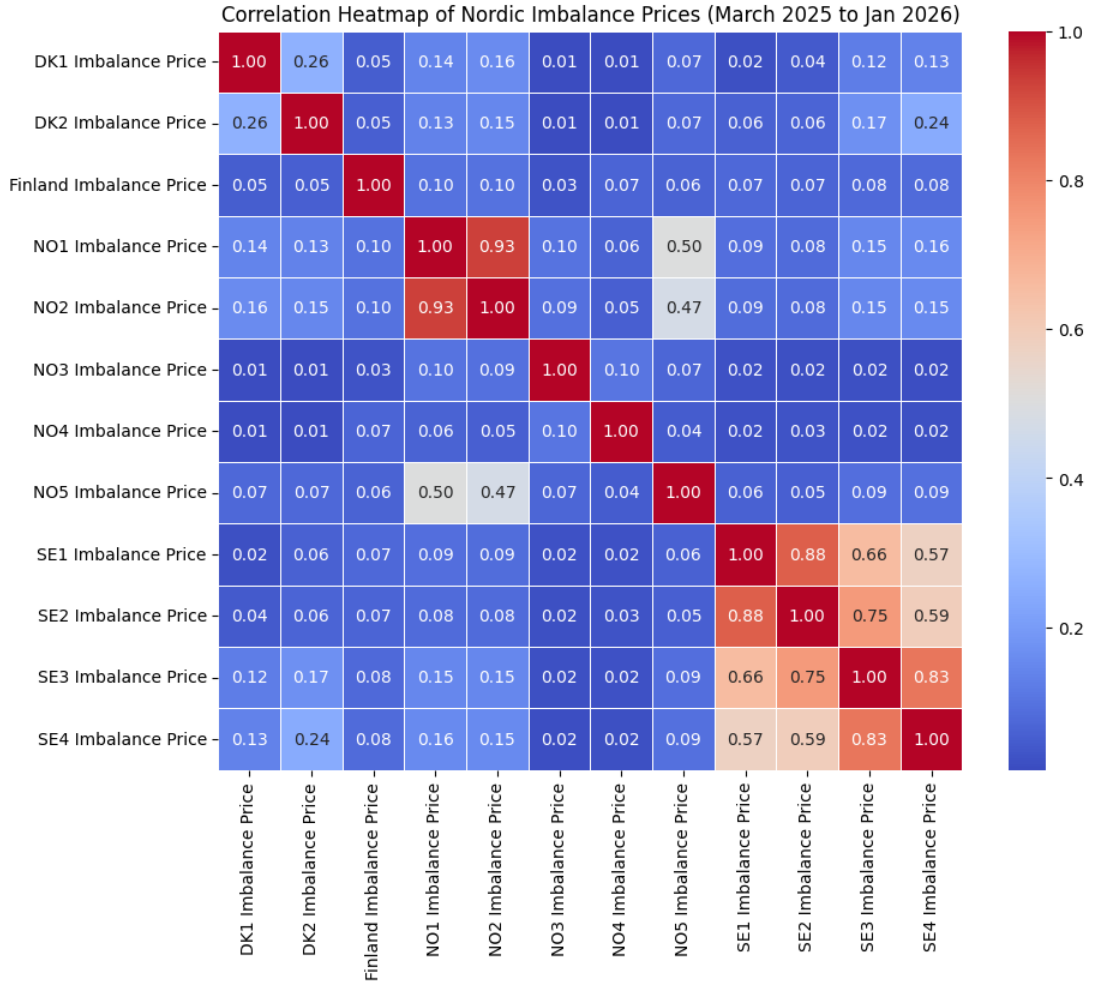
Regulation volume activations





Correlation of Nordic Imbalance Prices



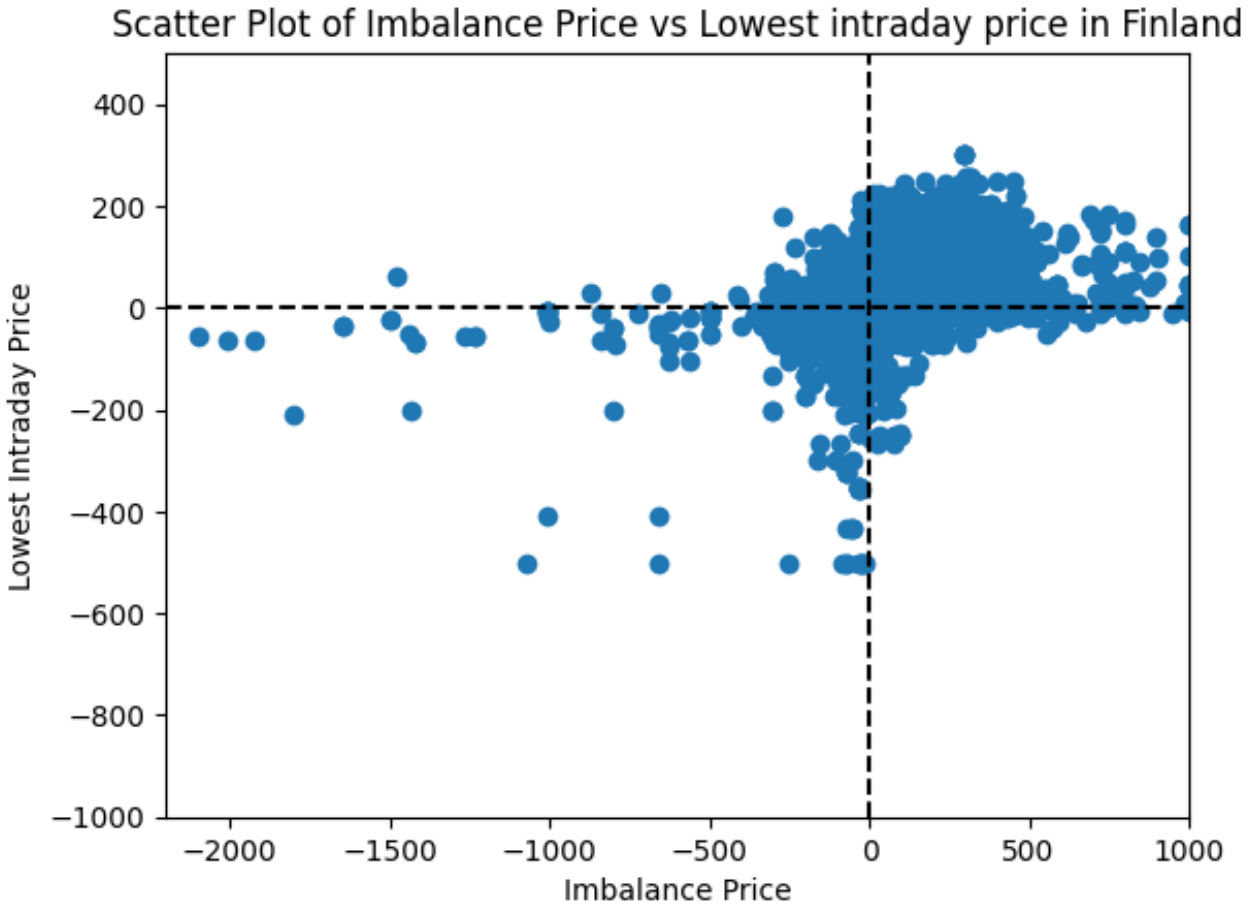


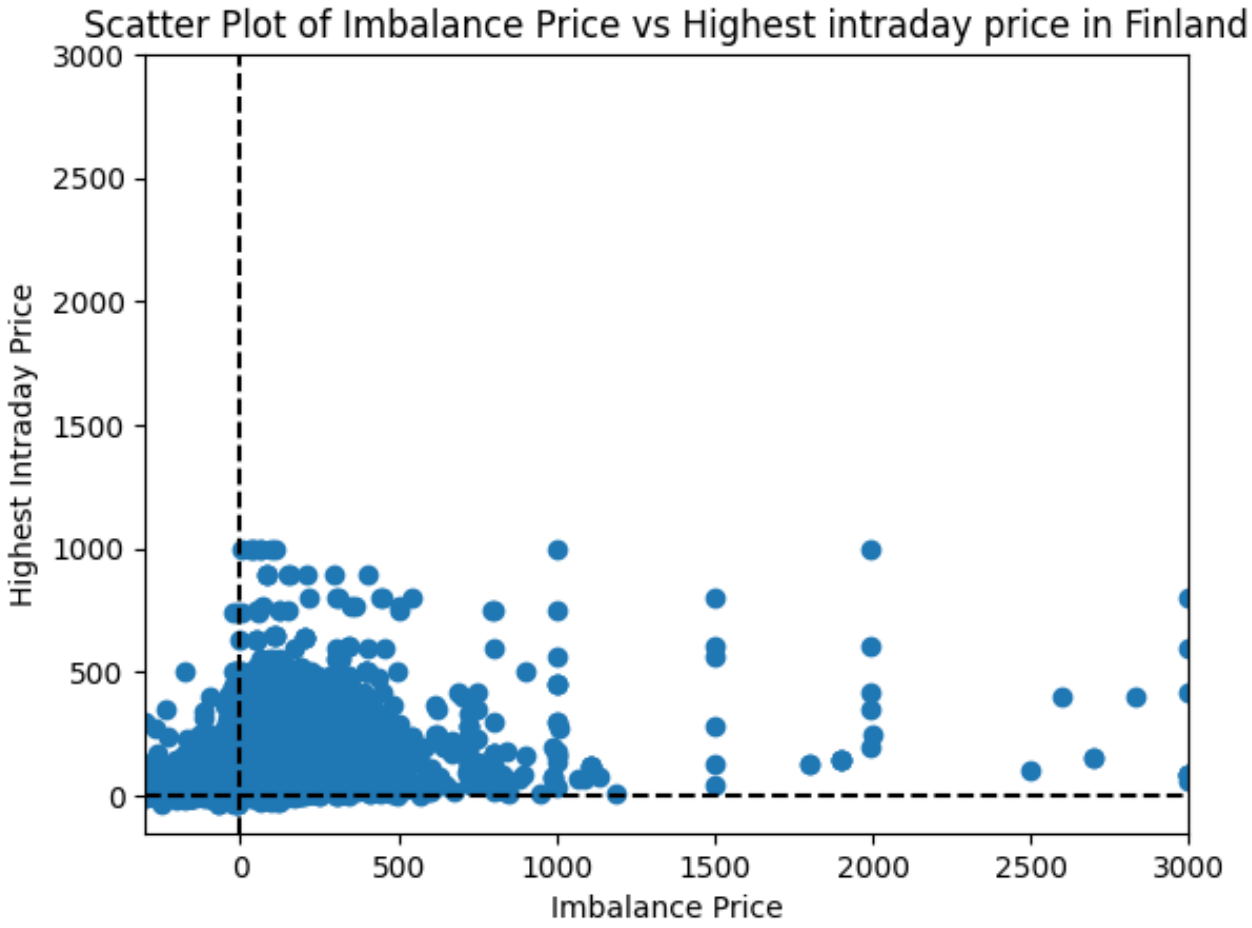
Why do the prices look so disconnected?

To answer that question, it would be important to understand what does the imbalance price consist of?

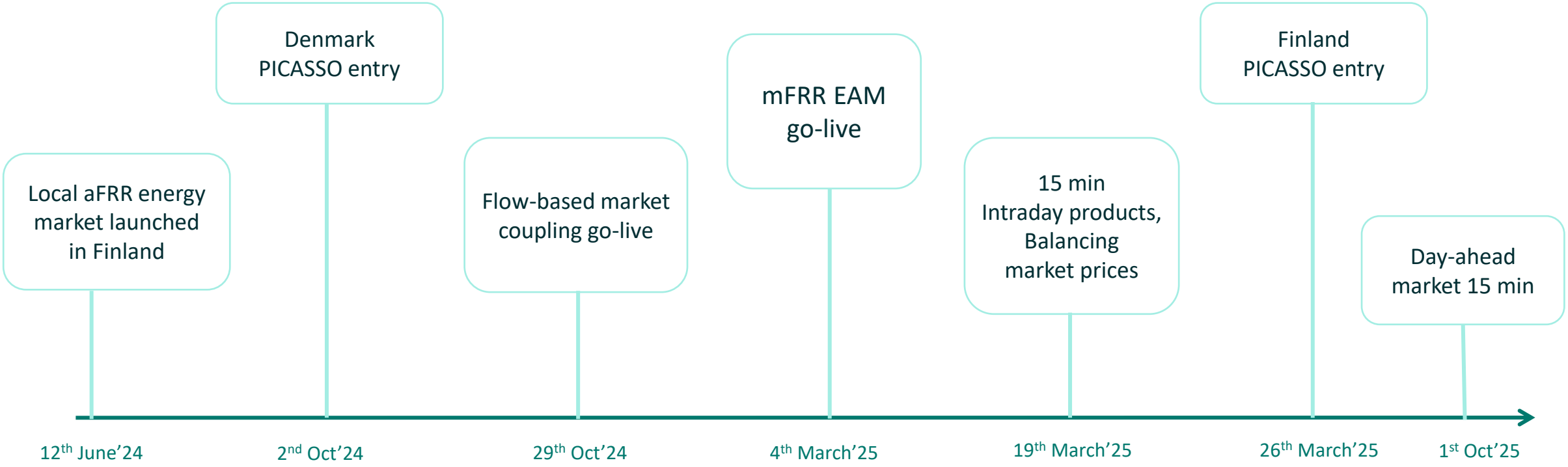
And what components go into it…and by that I don't necessarily mean PICASSO but also the inputs merely based on mFRR market. From mFRR, it takes in the demand and not the activation!

Correlation and predictability of prices





Nordic short-term market development timeline



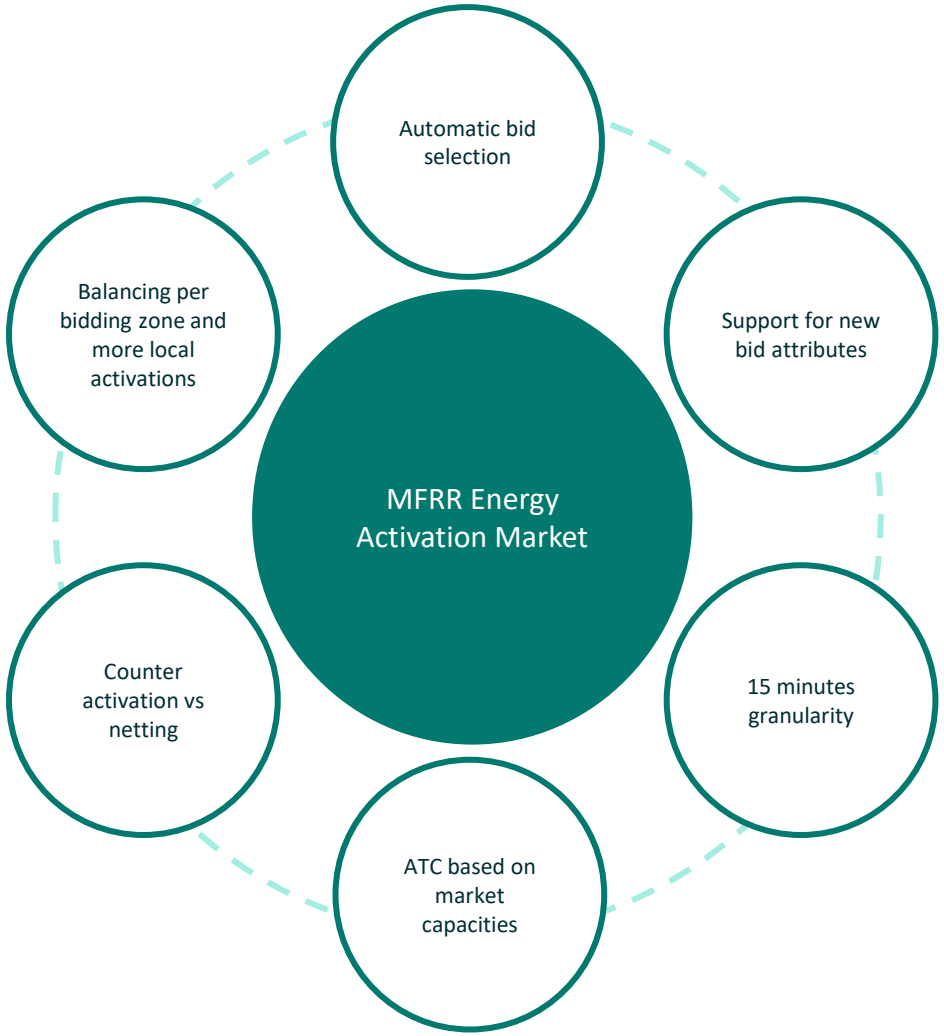
Balancing market highlight

- Nordic balancing market update
- Imbalance pricing method update
- Effect of asymmetry amongst Nordics
- Role of balancing forecasts in intraday strategies
- PICASSO and lessons learnt so far?
- So, what has really changed? And what's coming next?

Nordic balancing market update

Summarizing the balancing market update

- Scheduled activation (SA): Activated at Nordic level with a common algorithm.
- Direct activation (DA): Decided by local bid selector if sudden need arises or if SA is not enough.

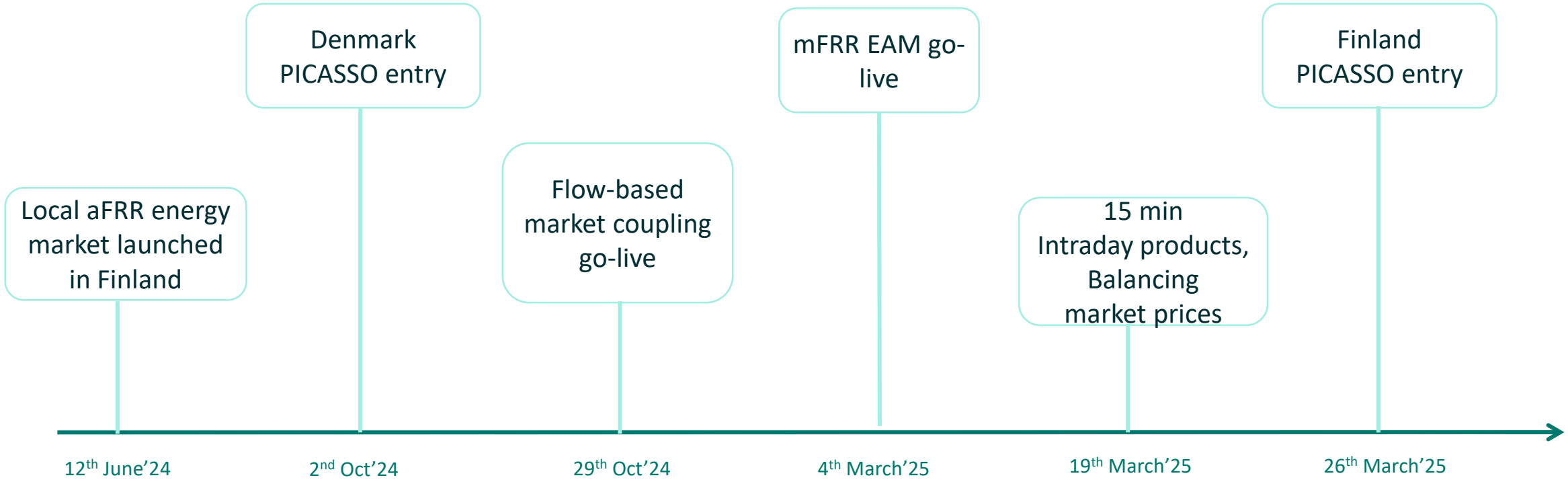


Balancing market highlight

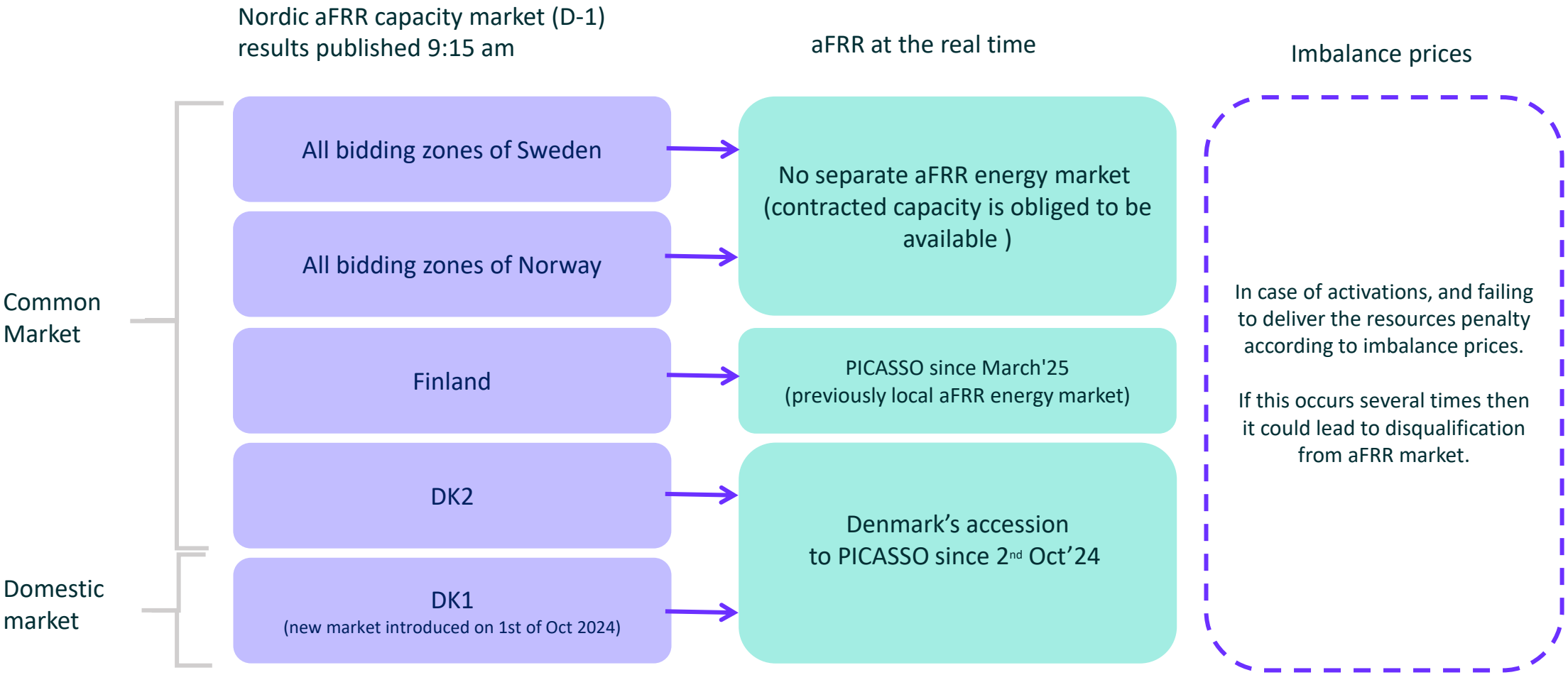
- [x] Nordic balancing market update
- [ ] Imbalance pricing method update
- [ ] Effect of asymmetry amongst Nordics
- [ ] Role of balancing forecasts in intraday strategies
- [ ] PICASSO and lessons learnt so far?
- [ ] So, what has really changed? And what's coming next?

Effect of asymmetry amongst Nordics

Nordic short-term market development timeline



aFRR markets in the Nordics



Glimpse of Nordic balancing market

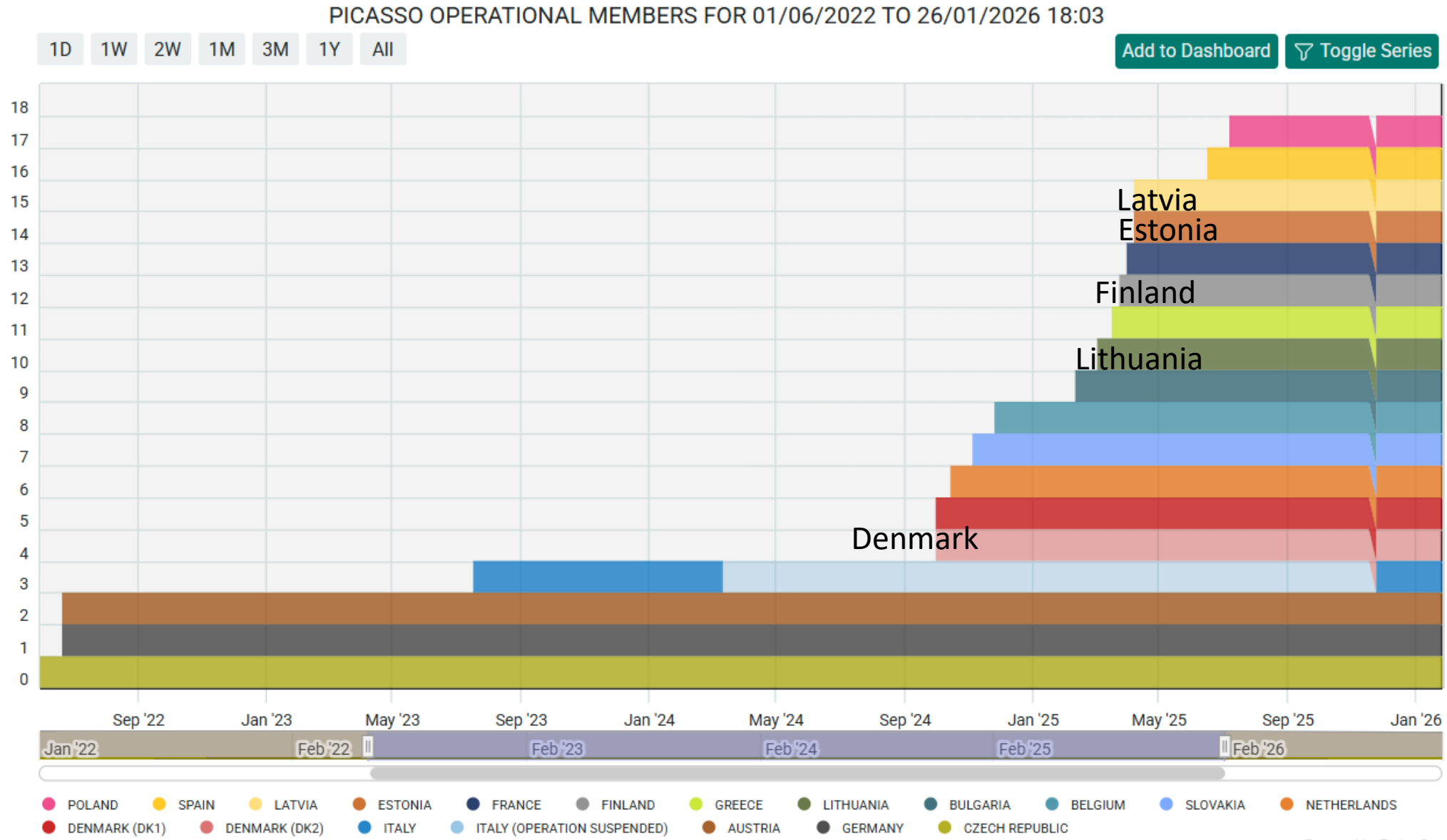
	Denmark	Finland	Sweden	Norway
PICASSO	✓	✓	✗	✗
mFRR EAM	✓	✓	✓	✓

Balancing market highlight

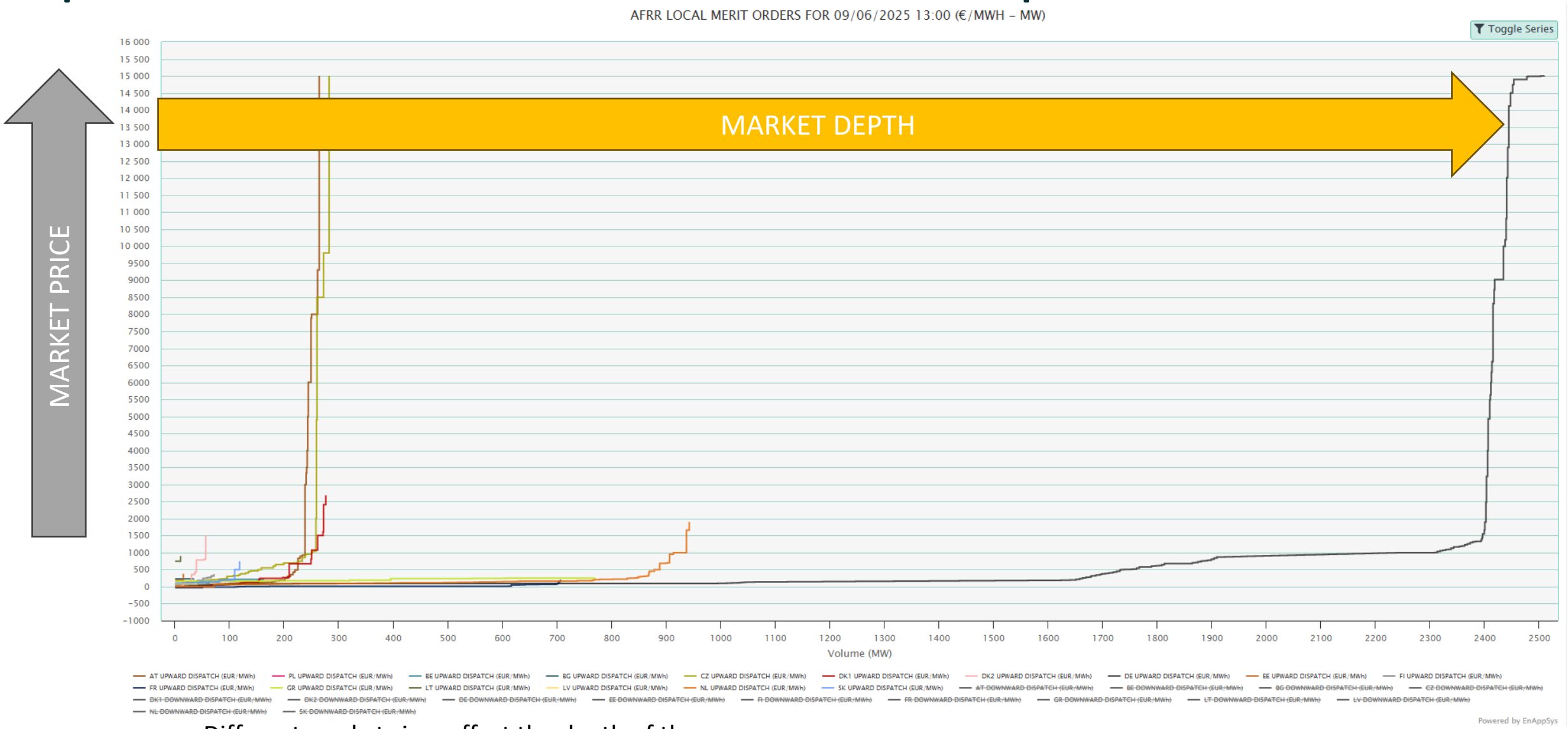
- [x] Nordic balancing market update
- [ ] Imbalance pricing method update
- [x] Effect of asymmetry amongst Nordics
- [ ] Role of balancing forecasts in intraday strategies
- [ ] PICASSO and lessons learnt so far?
- [ ] So, what has really changed? And what's coming next?

What is PICASSO and what have we learnt so far?

PICASSO Operational Members' timeline



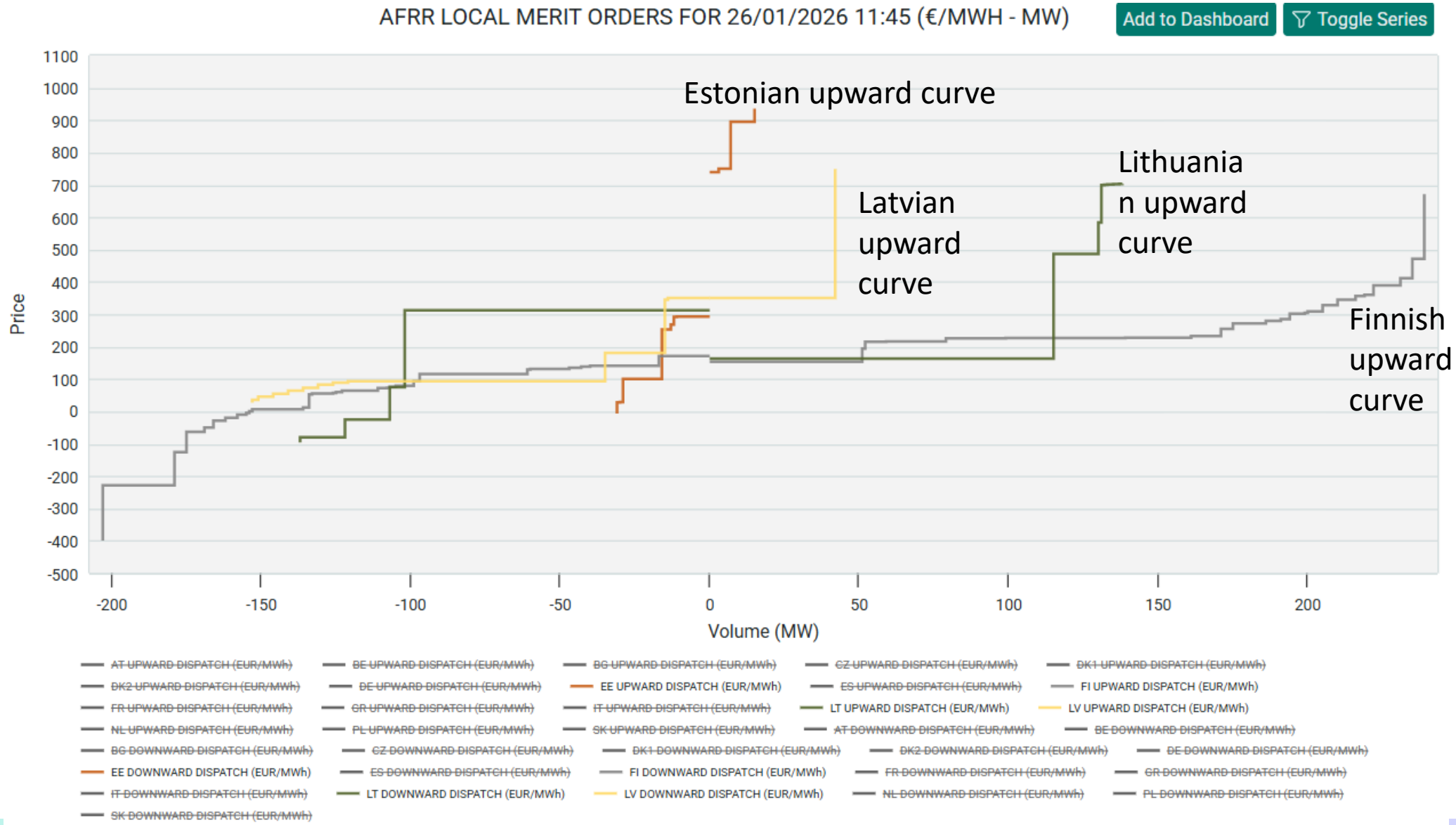
Upward Activation Prices in the European Context



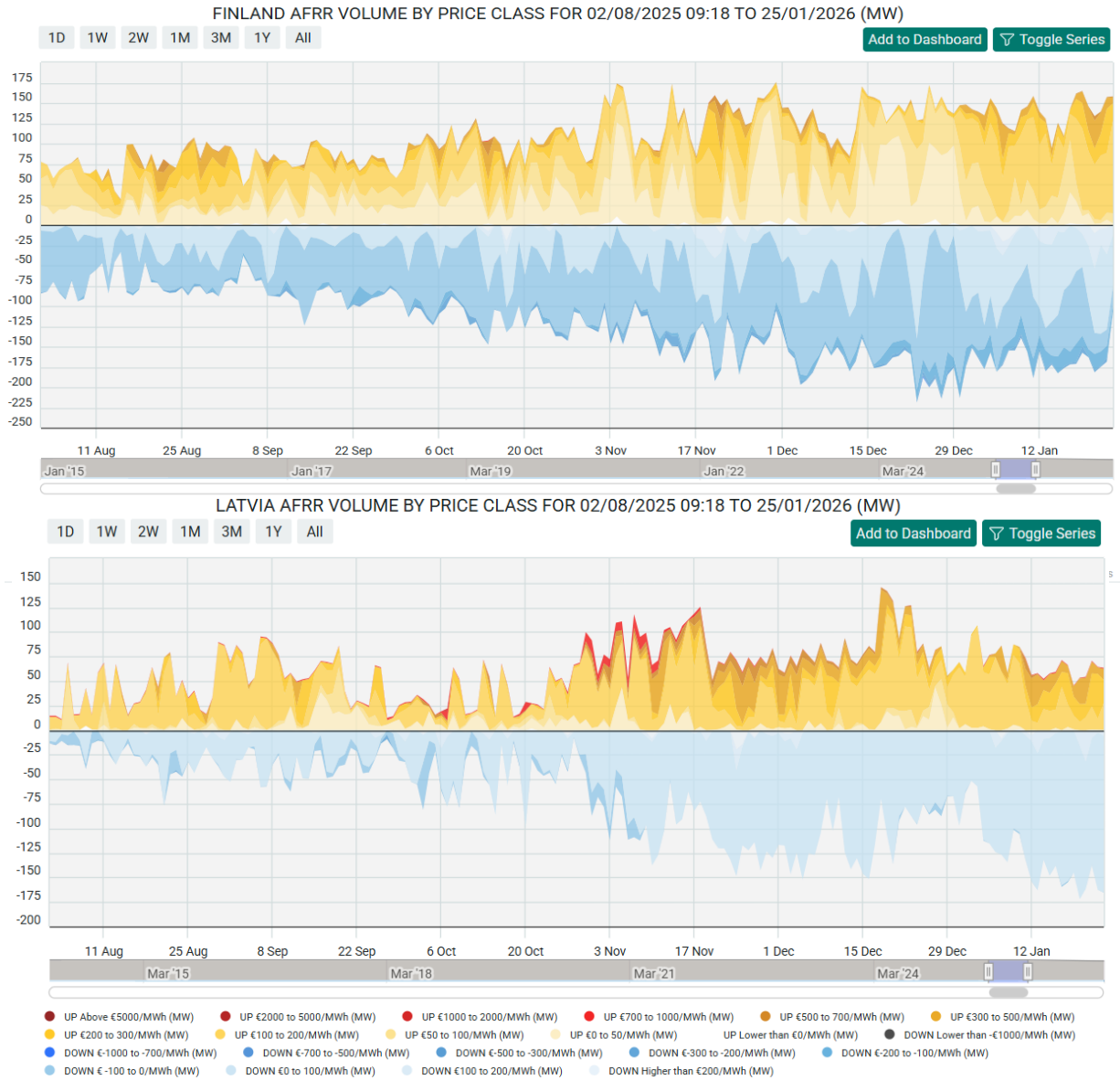
- Different market sizes affect the depth of the curve.
- Different market rules affect ‘extreme’ bids.
- Scarcity can drive the ‘tails’ of the activation merit-order.

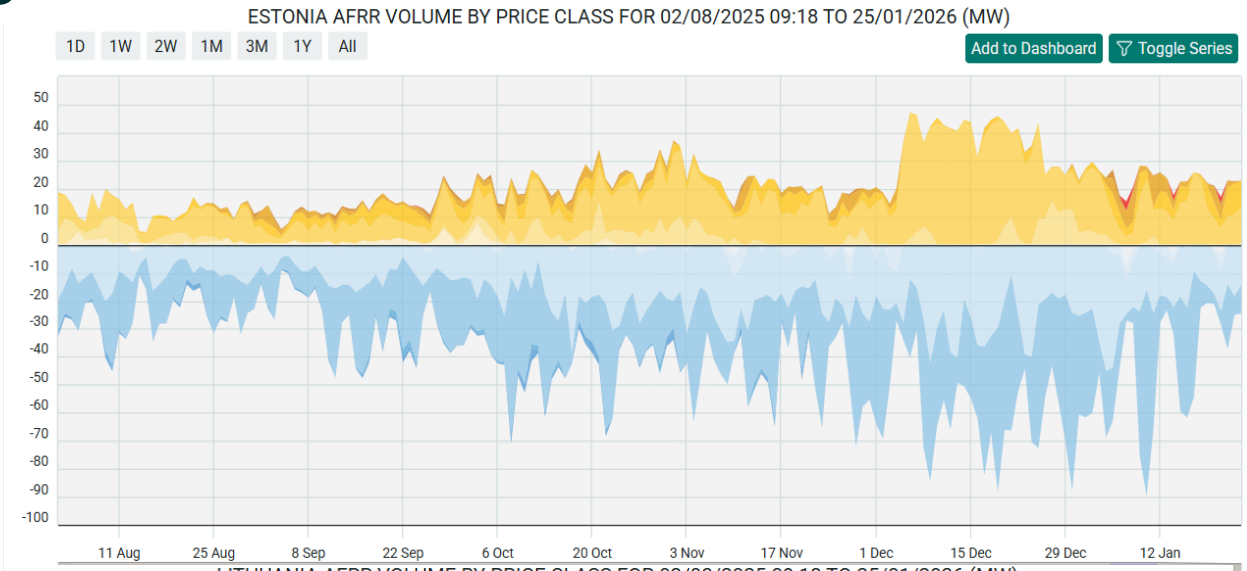
aFRR: automatic Frequency Restoration Reserve

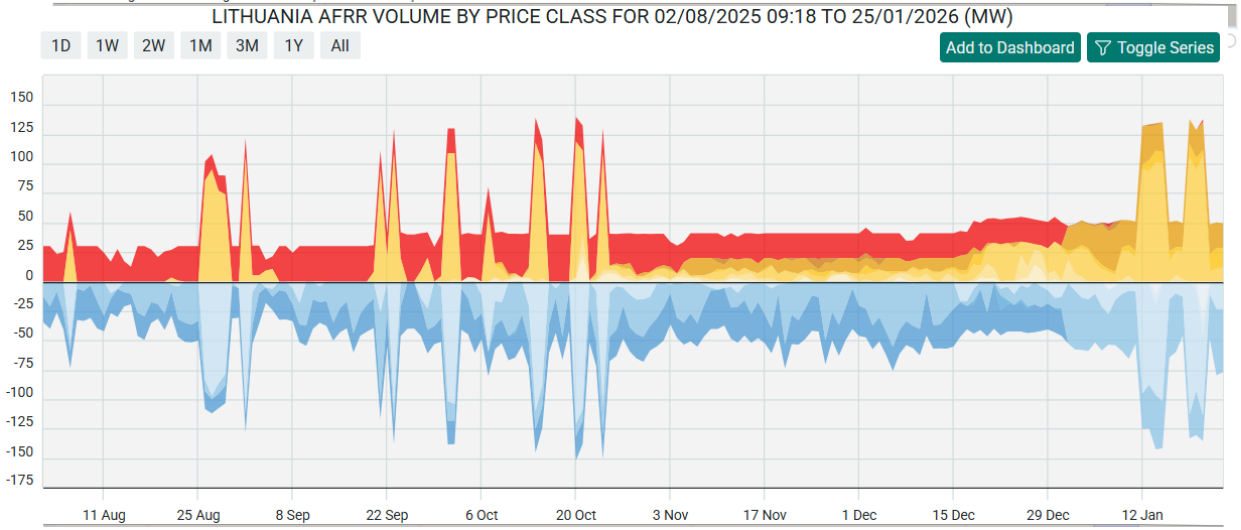
Merit order curves in Finland and Baltics



PICASSO in Finland and Baltics

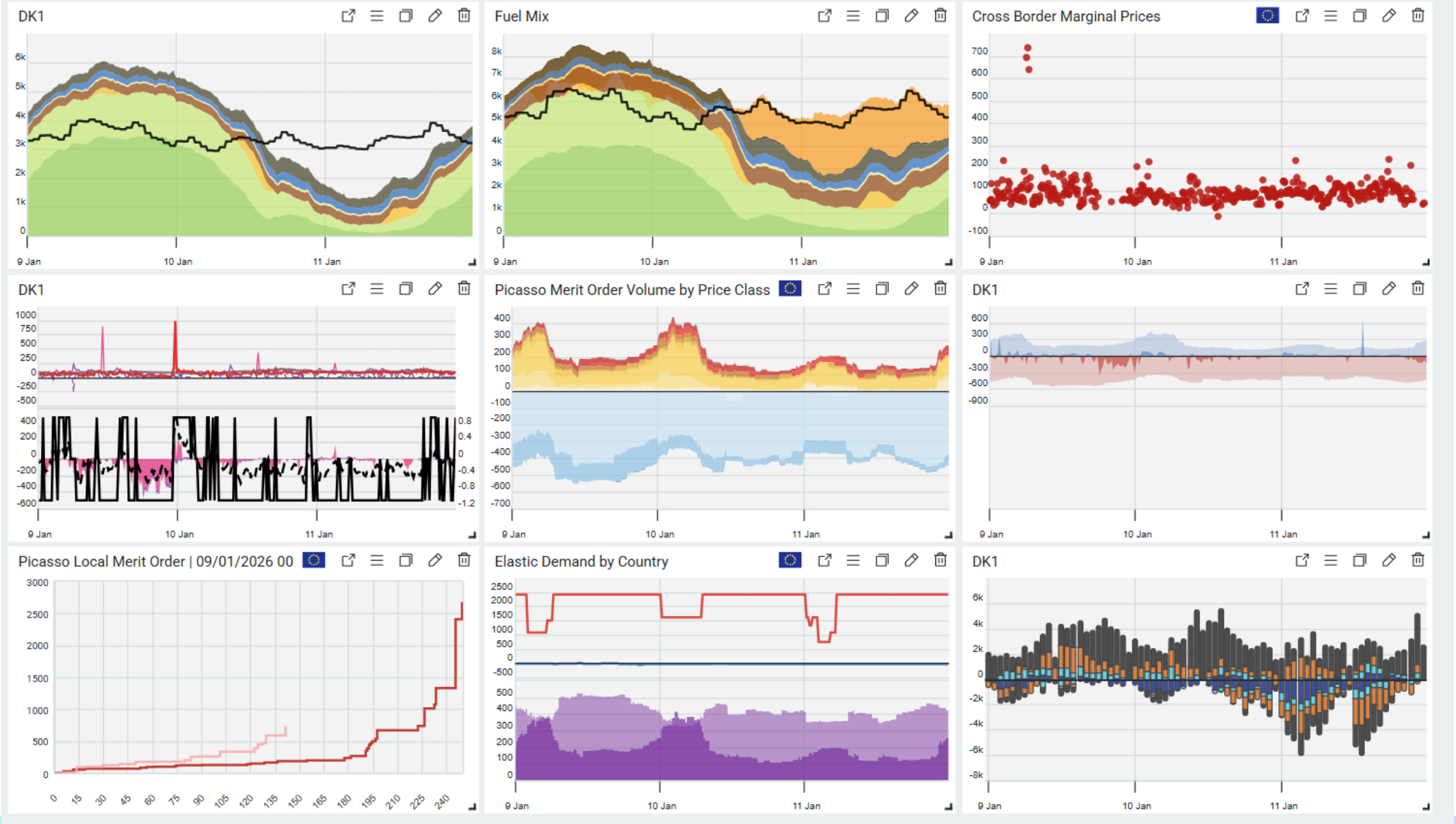






- Since 7th May in PICASSO connection between Finland and Estonia was established with +/- 30 MW of capacity.
- Further cross-border capacities will be released in the future.
- Already observing some PICASSO price convergence.

Elastic demand in PICASSO for DK



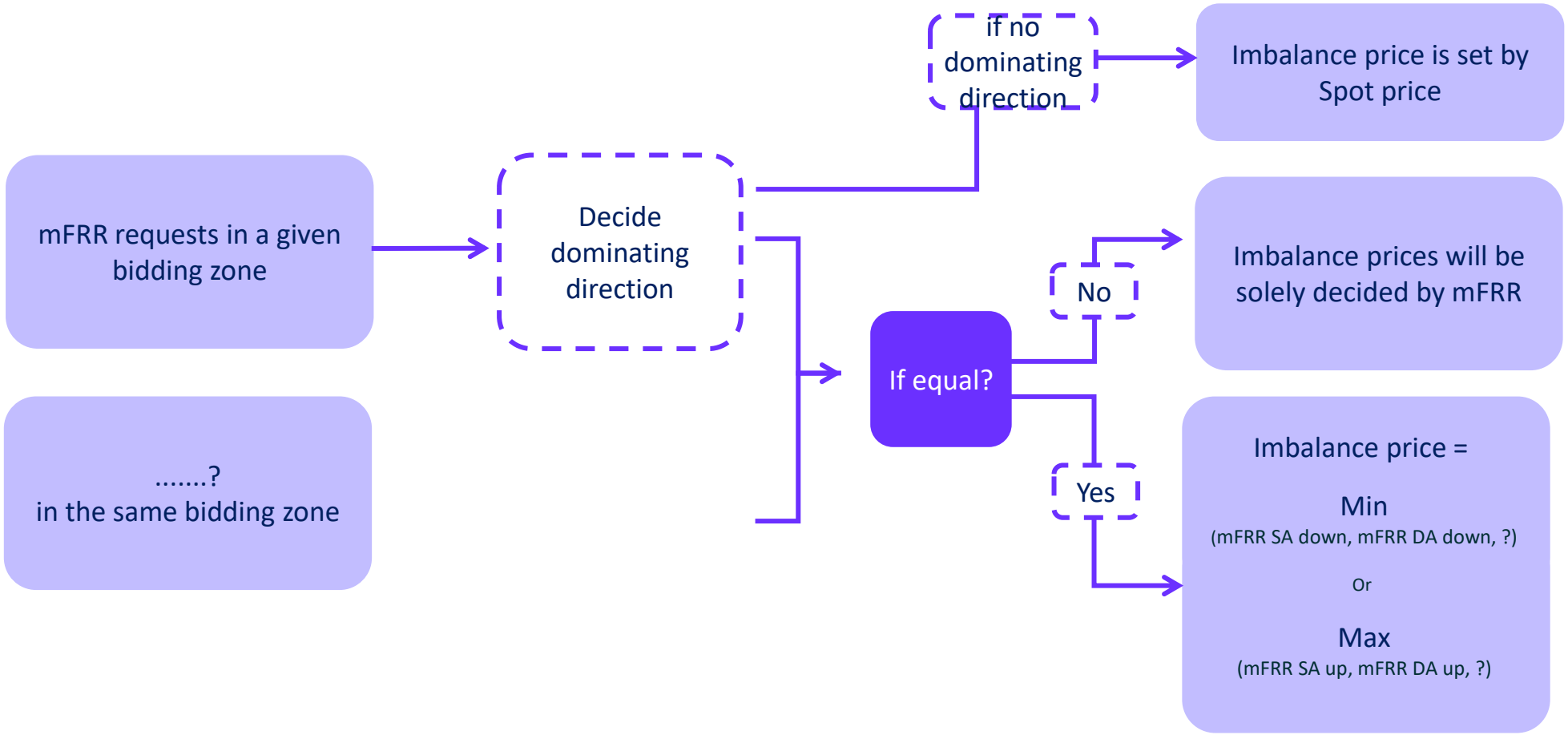
Balancing market highlight

- [x] Nordic balancing market update
- [ ] Imbalance pricing method update
- [x] Effect of asymmetry amongst Nordics
- [ ] Role of balancing forecasts in intraday strategies
- [x] PICASSO and lessons learnt so far?
- [ ] So, what has really changed? And what's coming next?

Imbalance pricing method update

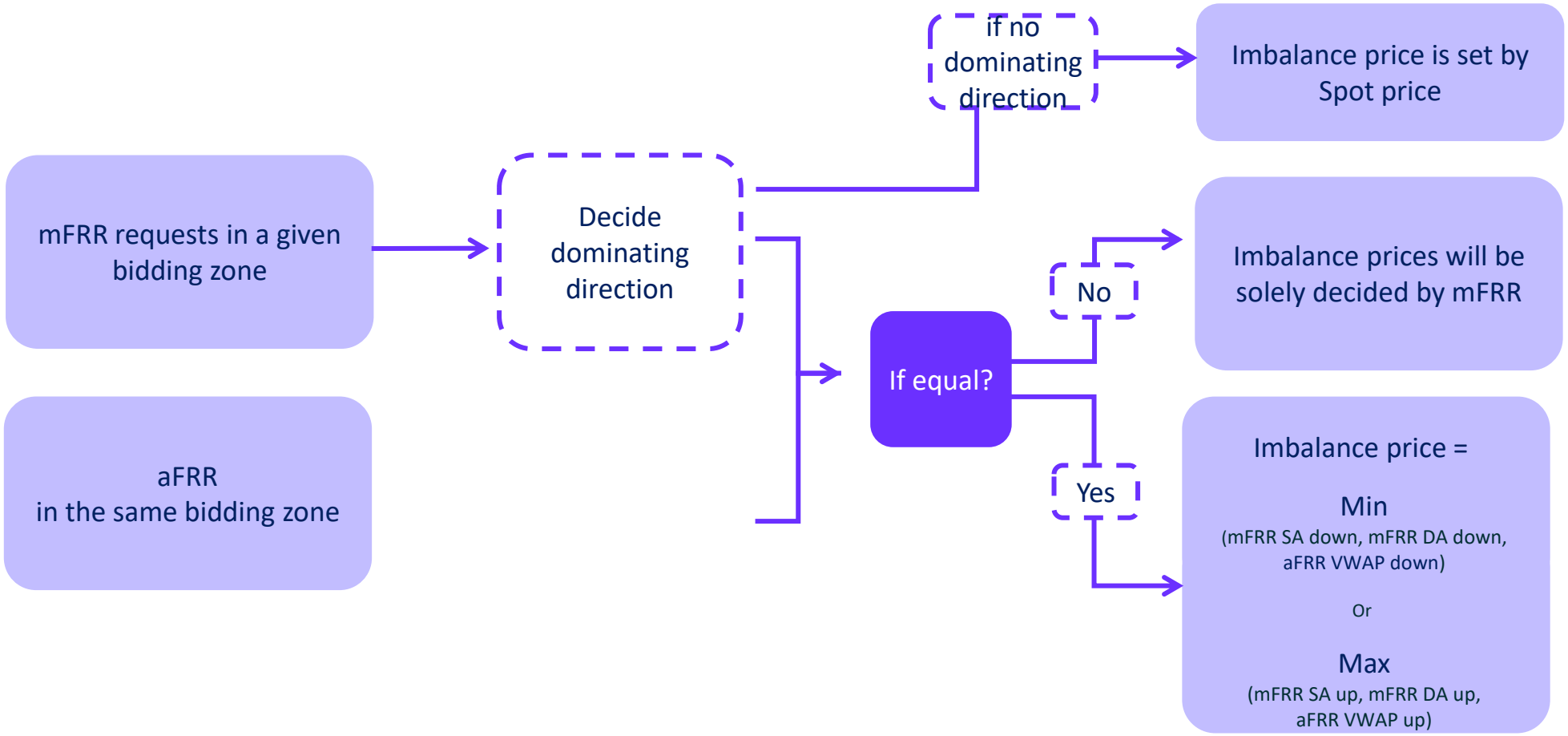
Imbalance price calculation changes

Including Direct Activation and Scheduled Activation

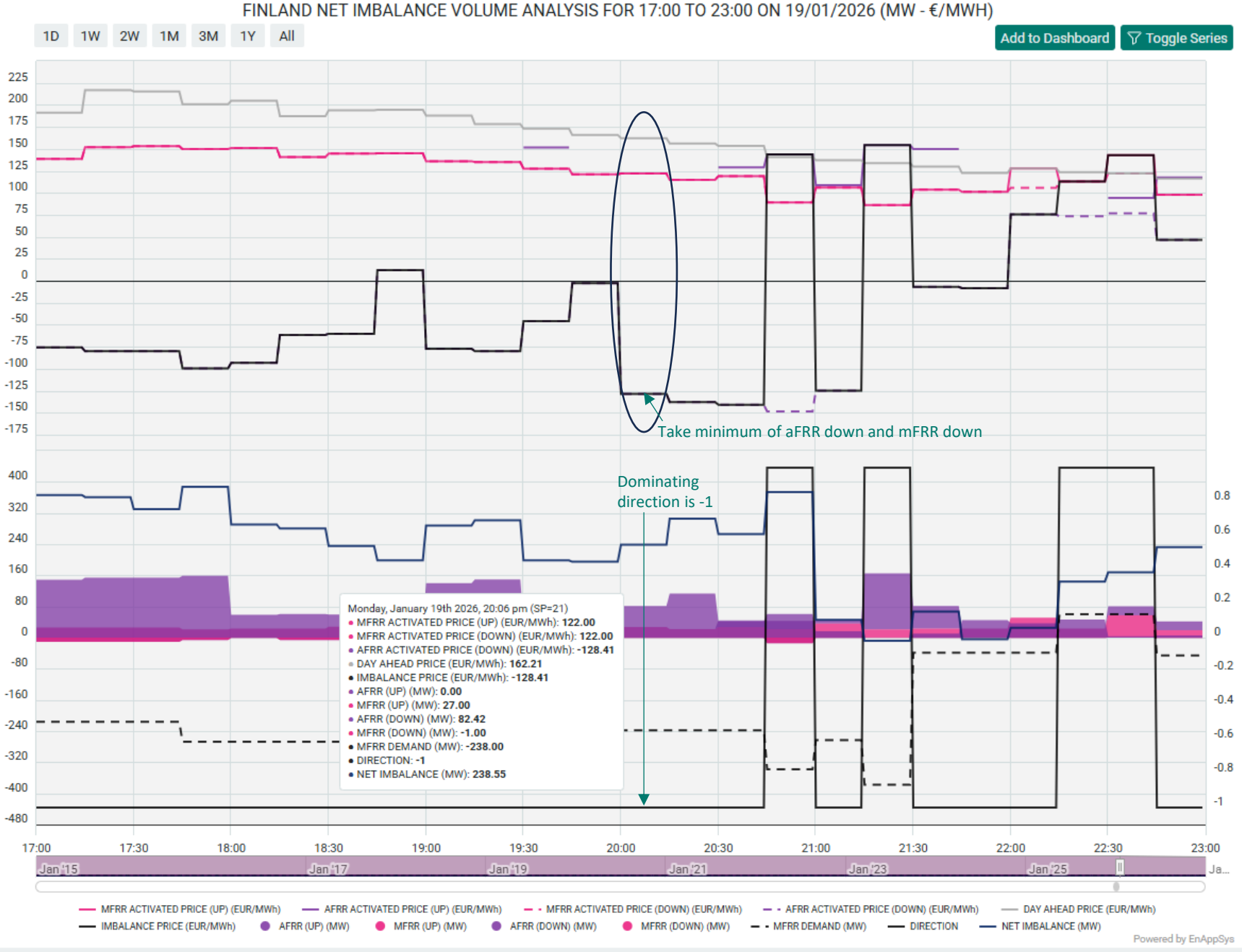


Imbalance price calculation changes

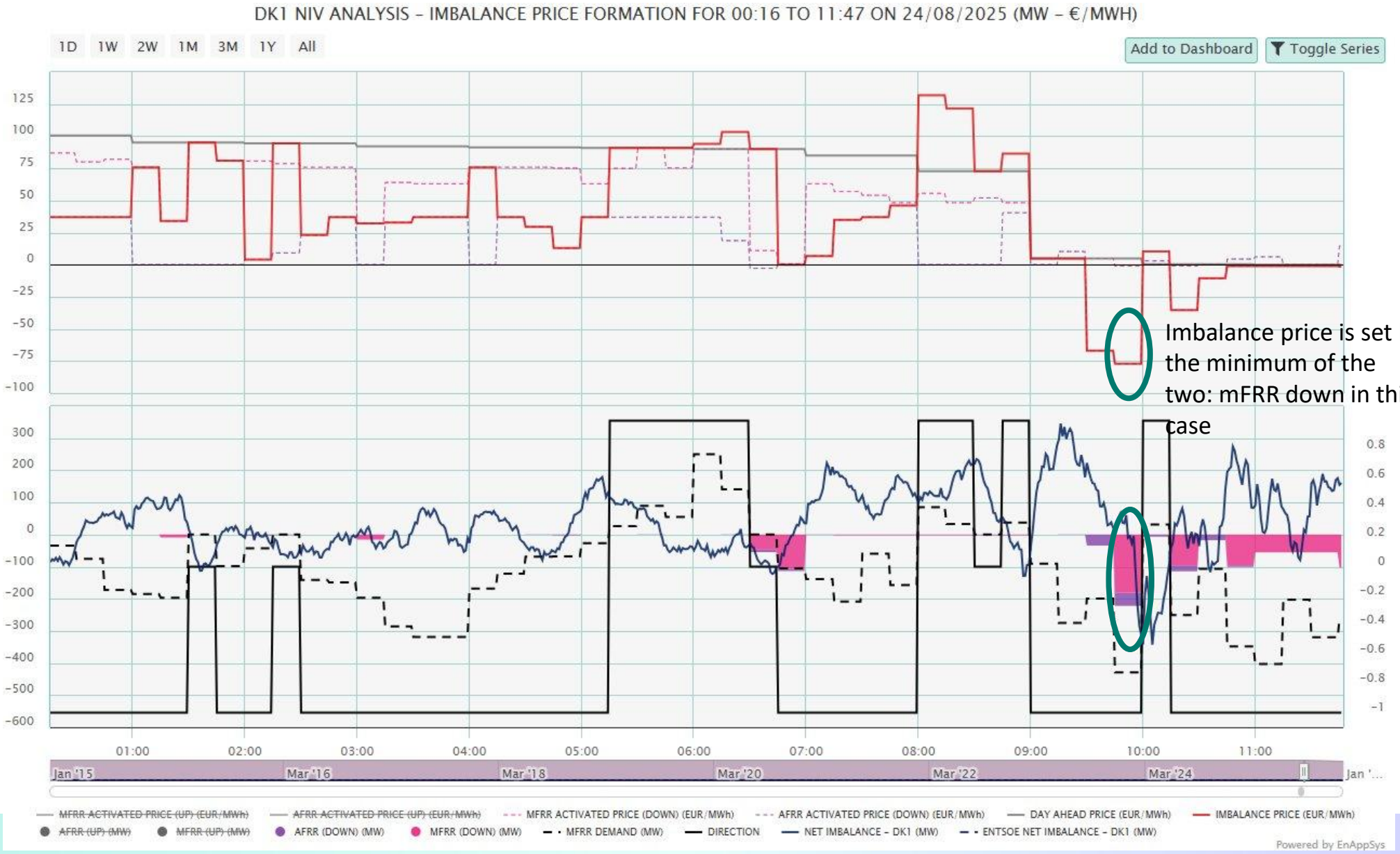
Including Direct Activation and Scheduled Activation



Finland’s imbalance price formation



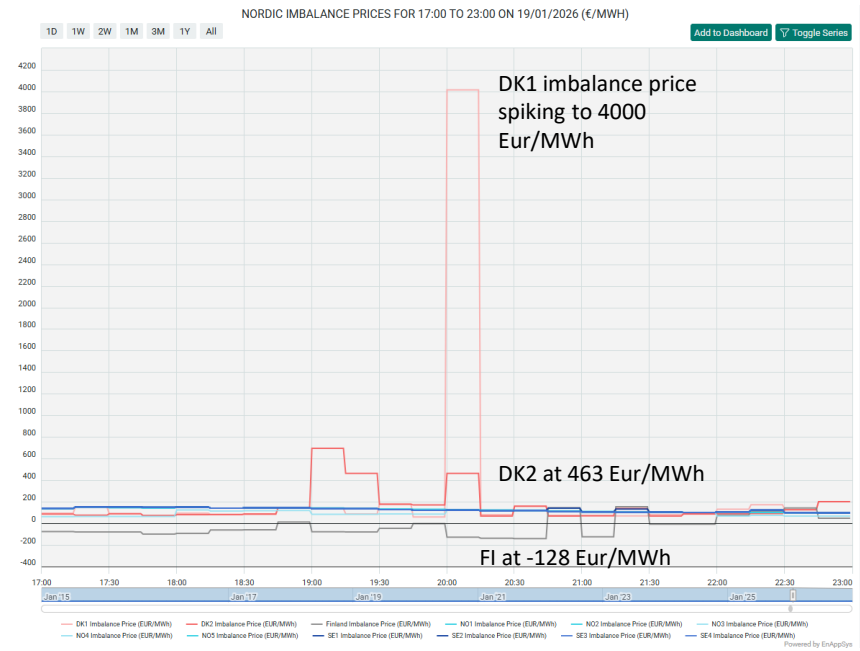
Denmark DK1's imbalance price formation

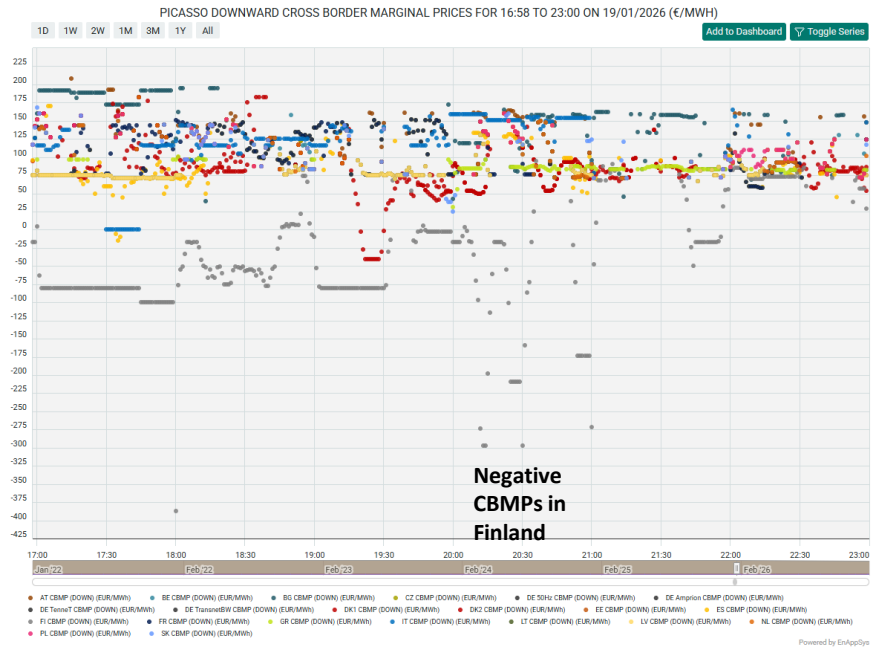


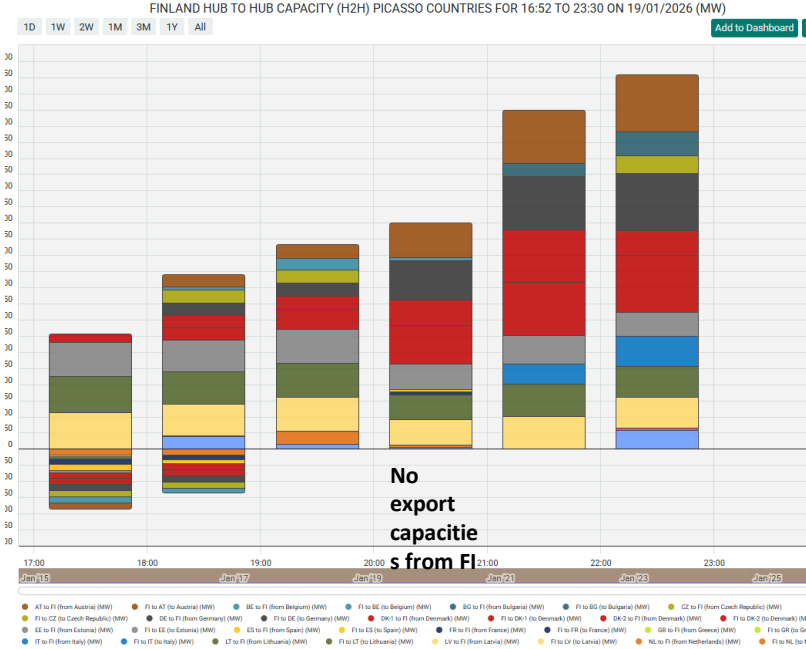
Imbalance price is set by the minimum of the two: mFRR down in this case

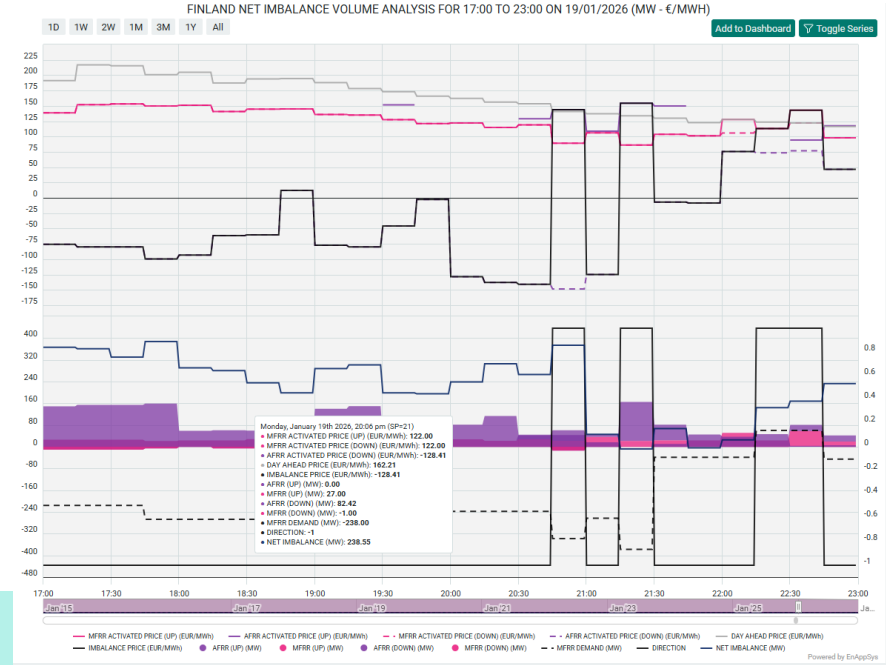
Divergent Nordic Imbalance Prices: Case study from 19th Jan 2026

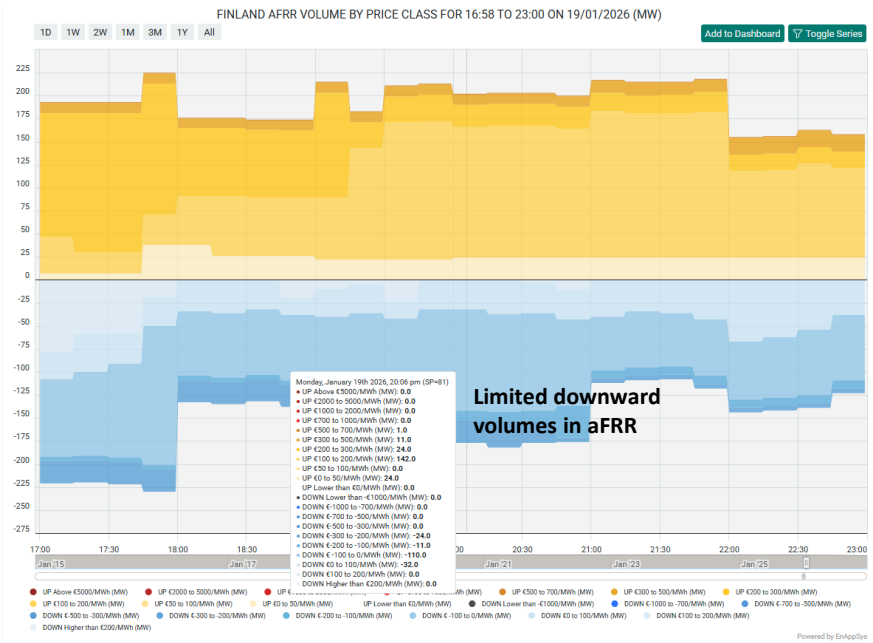
Finland negative imbalance price from PICASSO

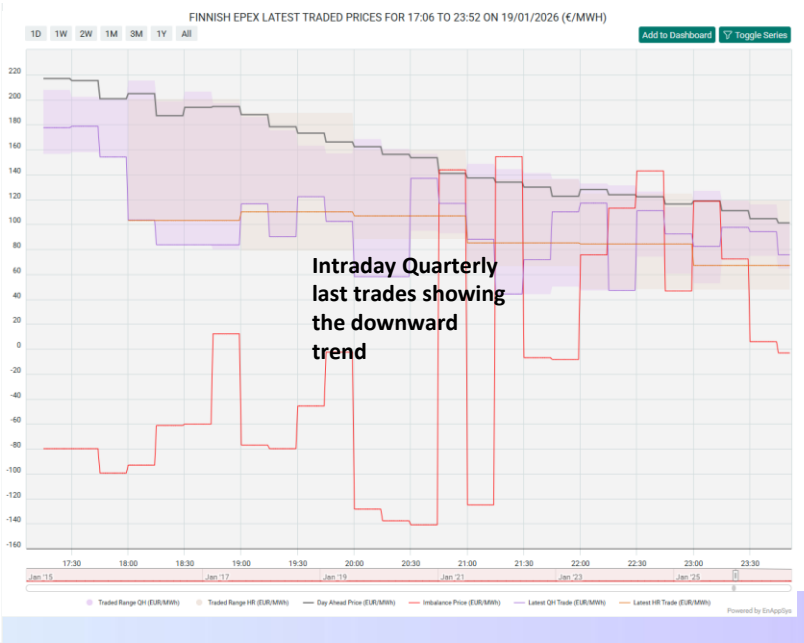




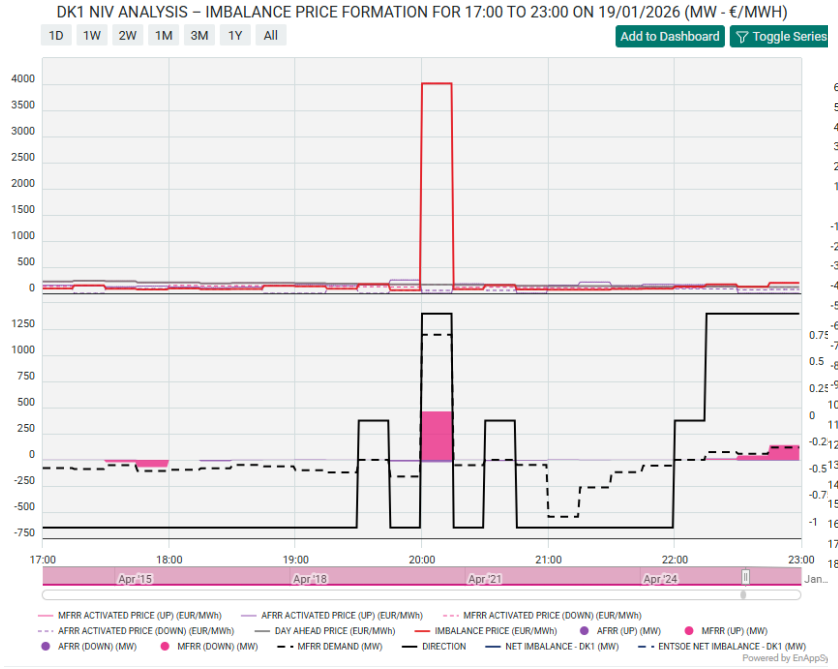


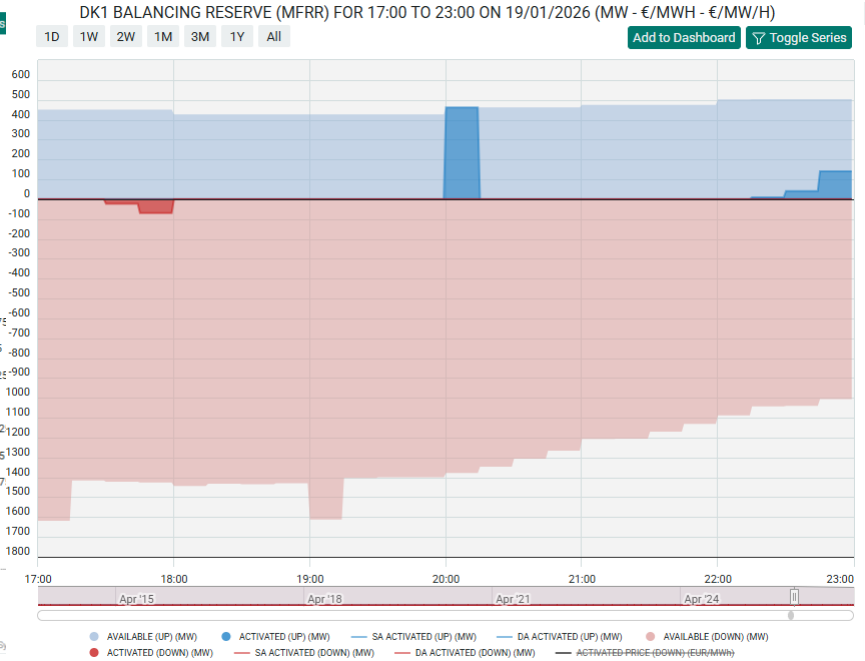


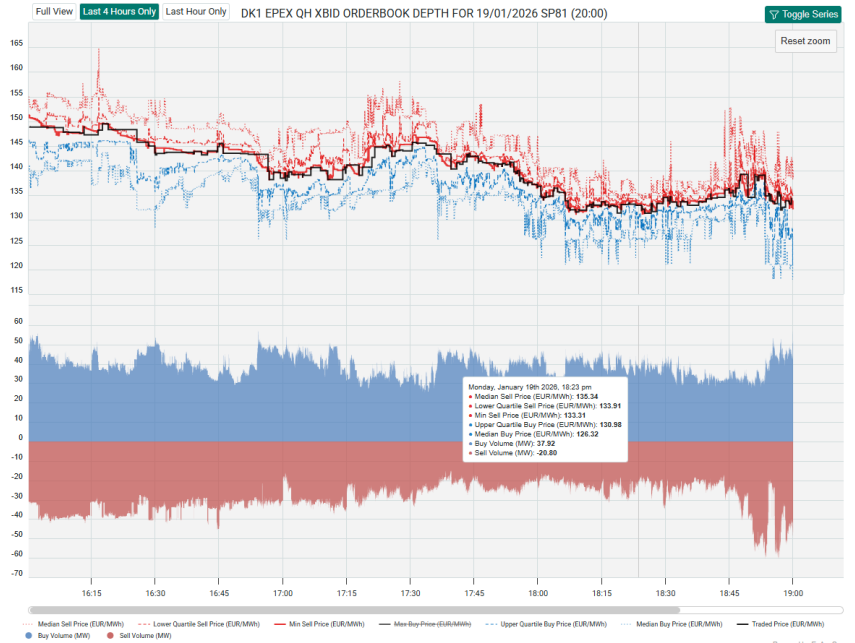


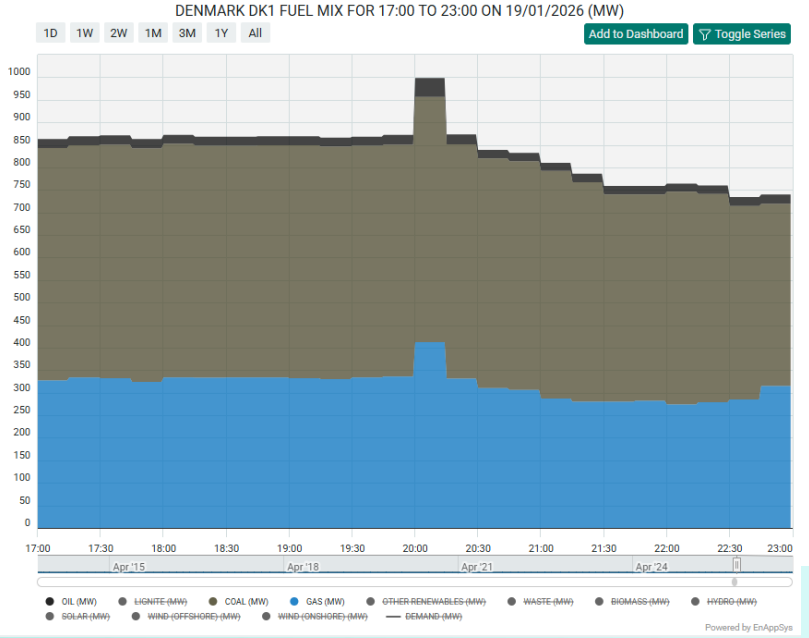


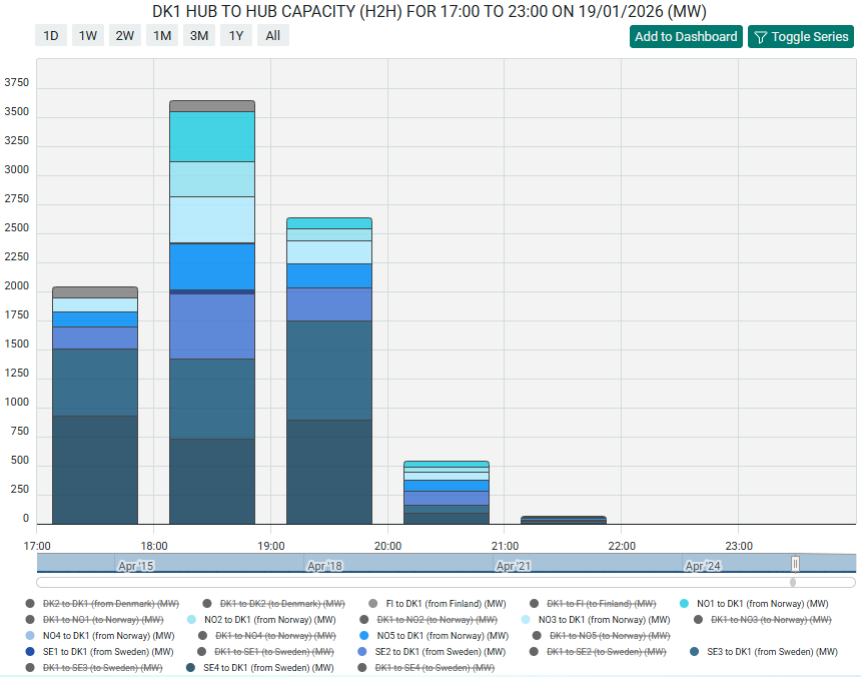
DK1's extreme imbalance price from mFRR

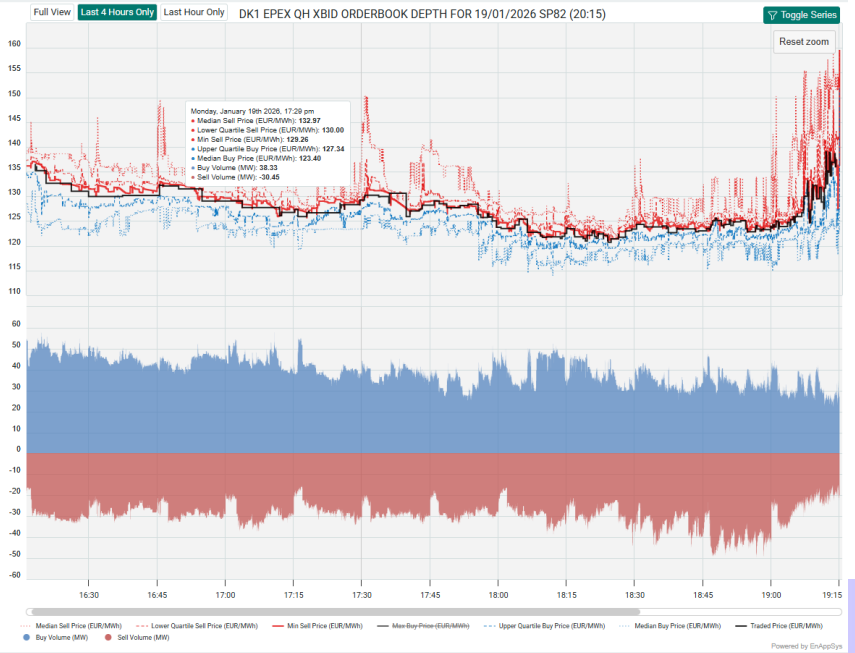










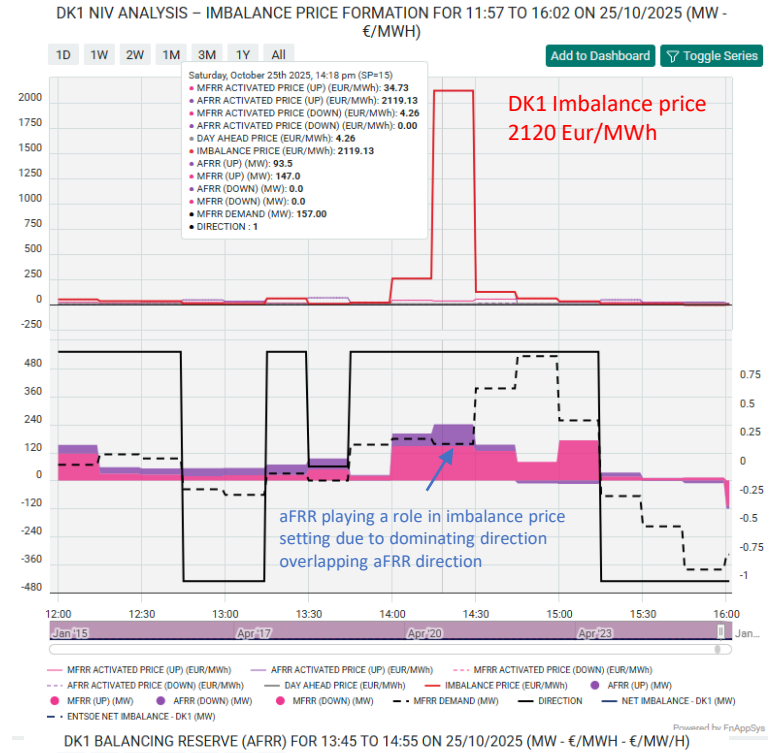


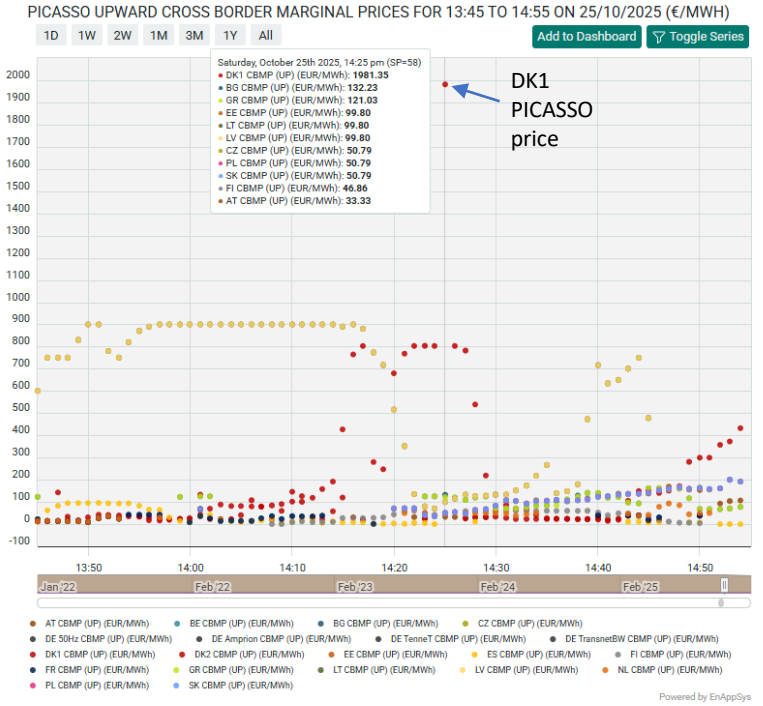
Balancing market highlight

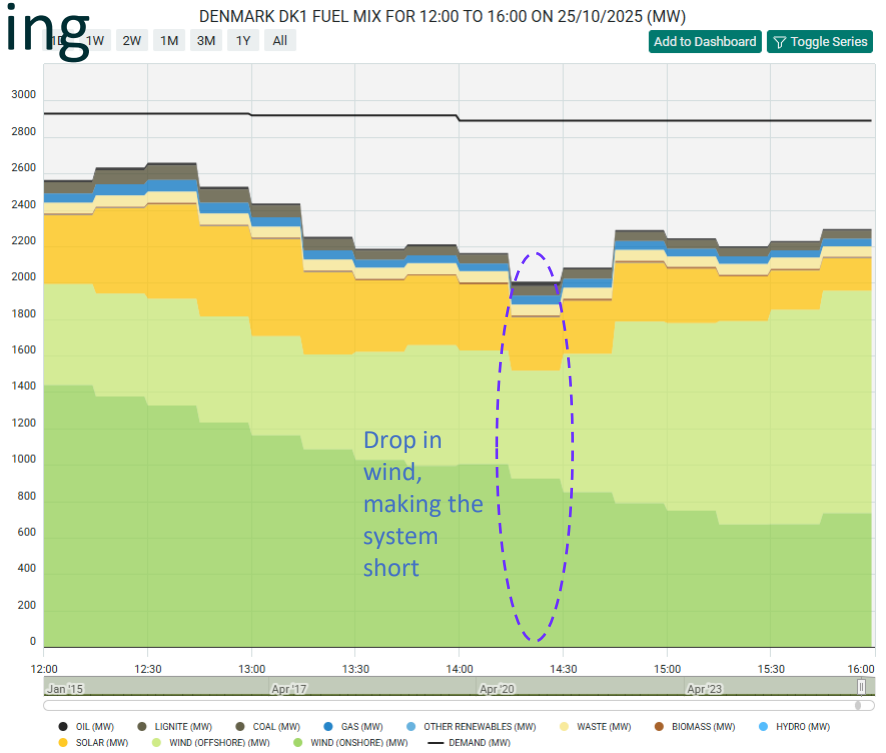
- [x] Nordic balancing market update
- [x] Imbalance pricing method update
- [x] Effect of asymmetry amongst Nordics
- [ ] Role of balancing forecasts in intraday strategies
- [x] PICASSO and lessons learnt so far?
- [ ] So, what has really changed? And what's coming next?

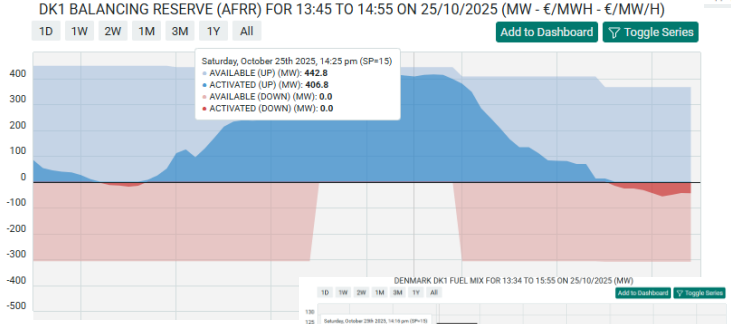
How can balancing market forecasts help with intraday market strategies?

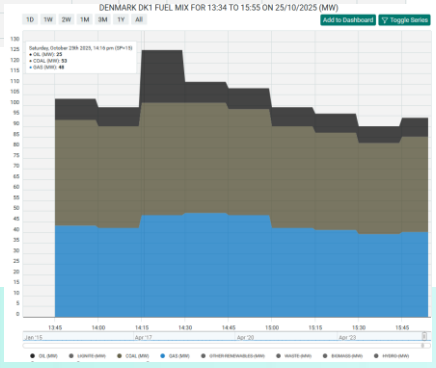
Net Regulation Volume forecasts use case for ID trading

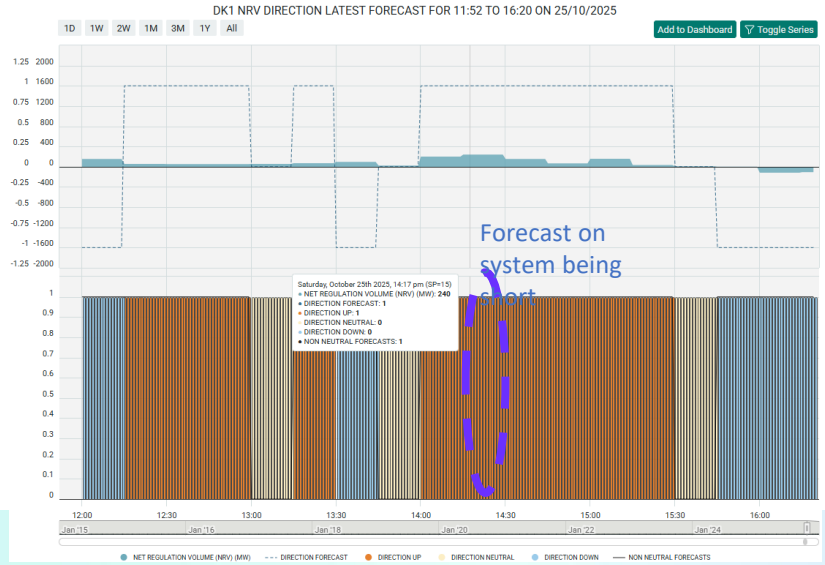


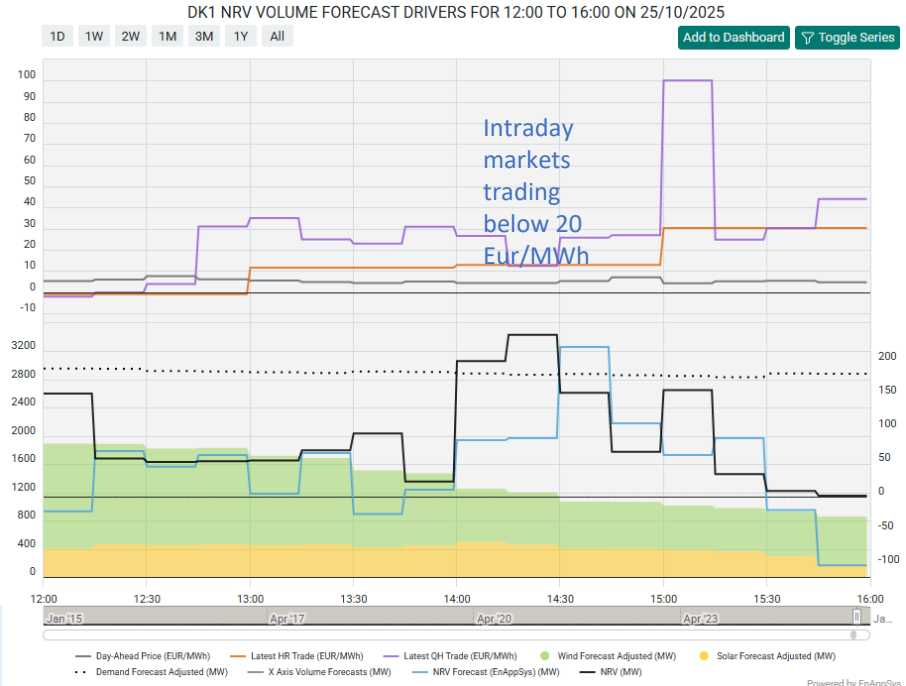






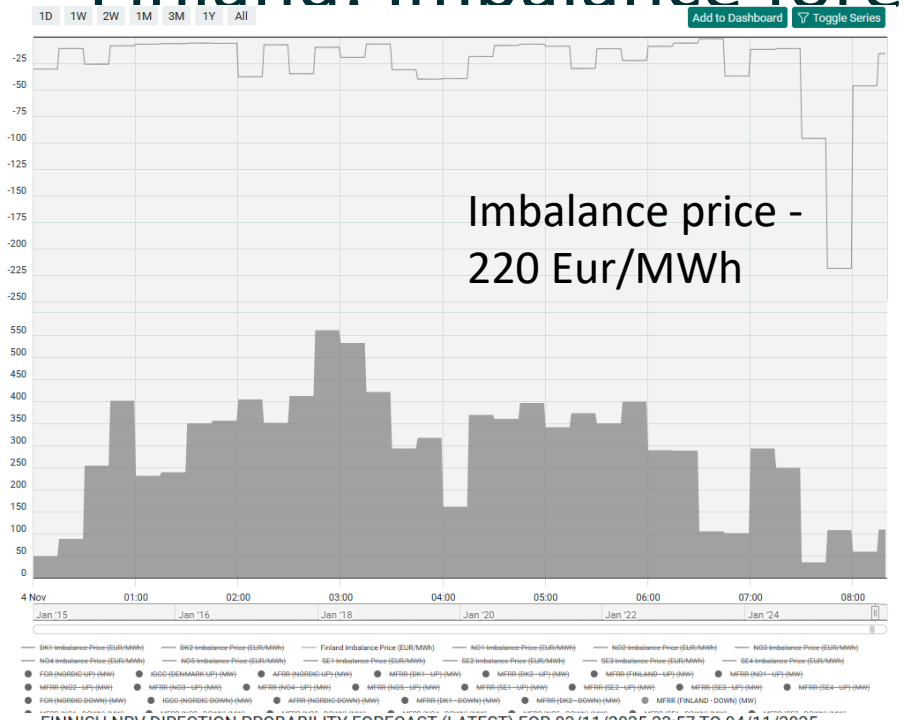


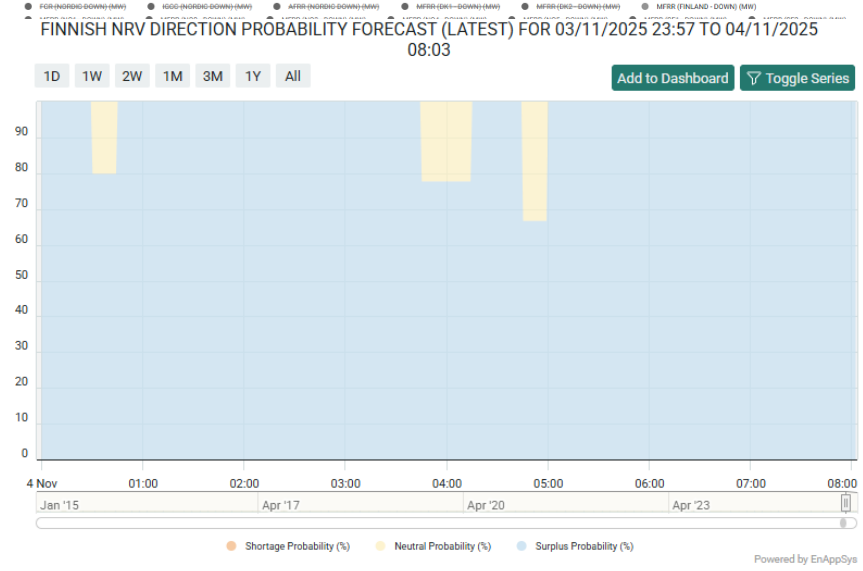


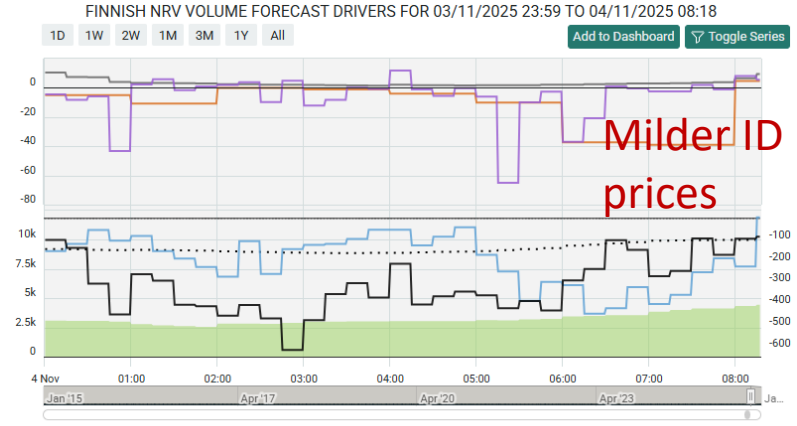


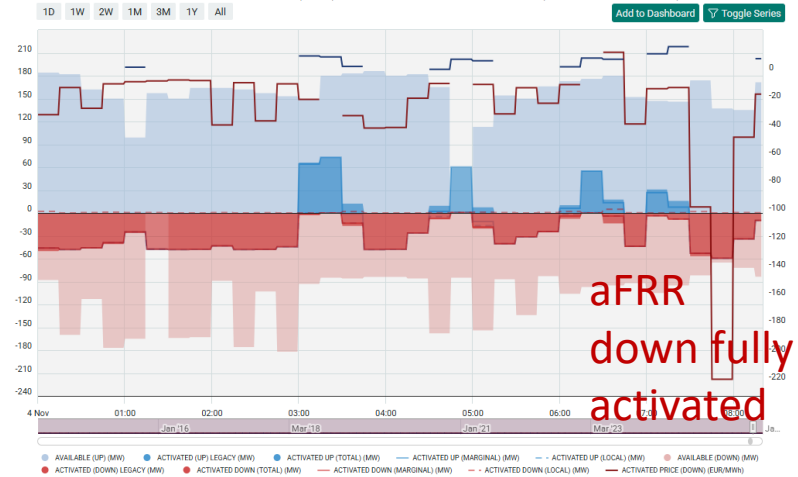
MONTEL

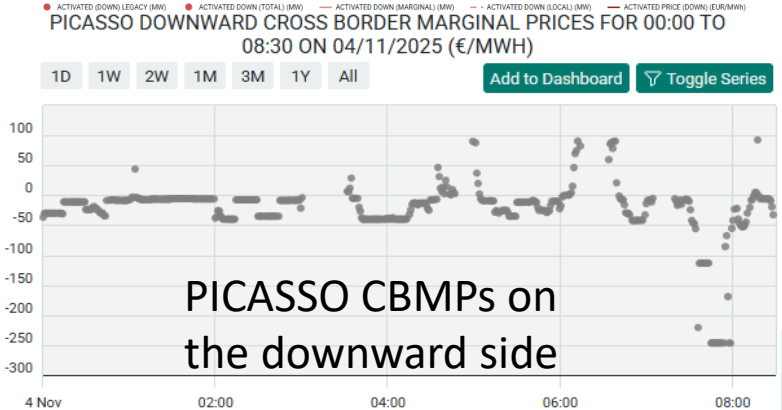
Finland: Imbalance forecasts for a long system on 4th Nov morning

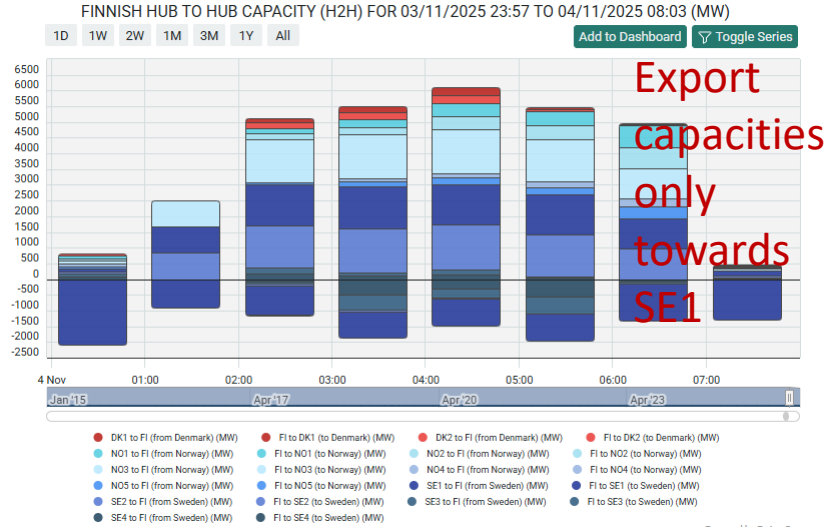


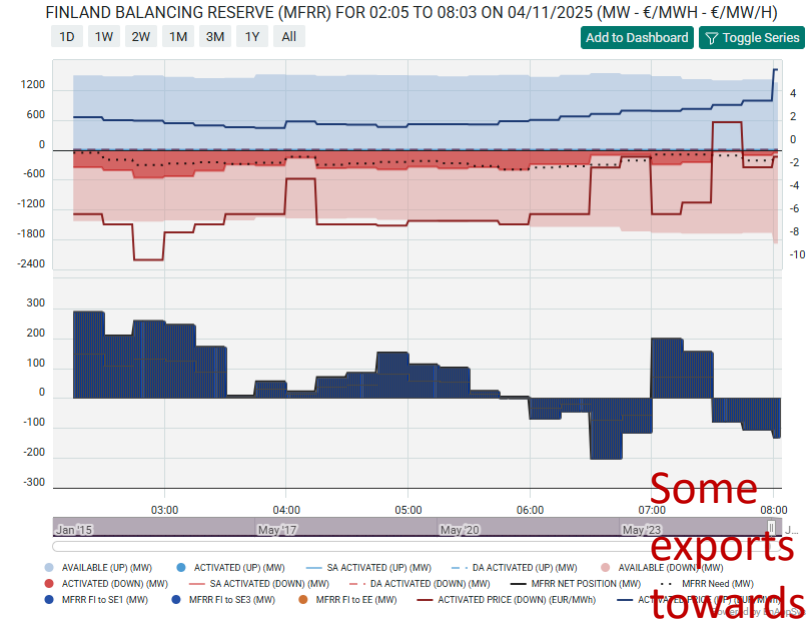




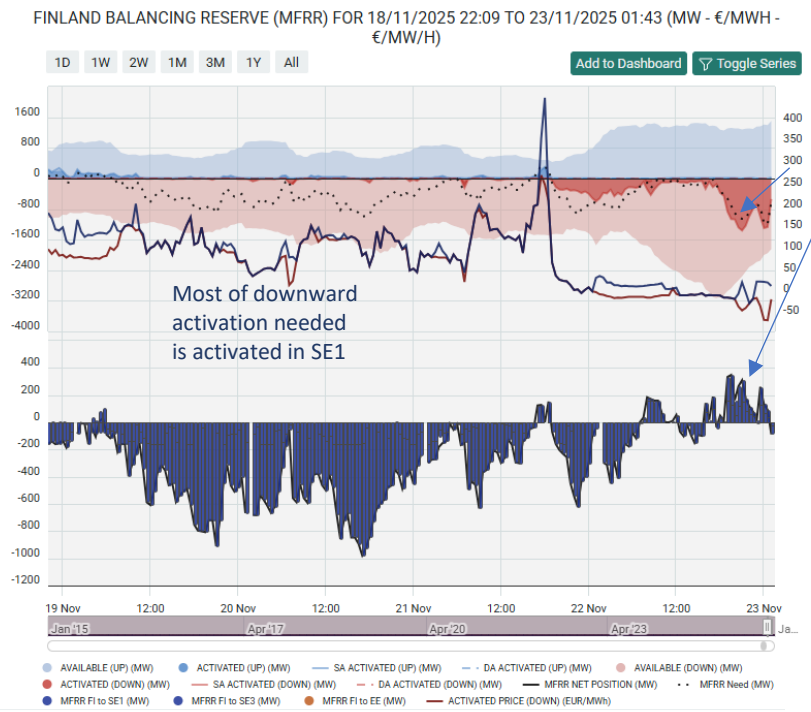




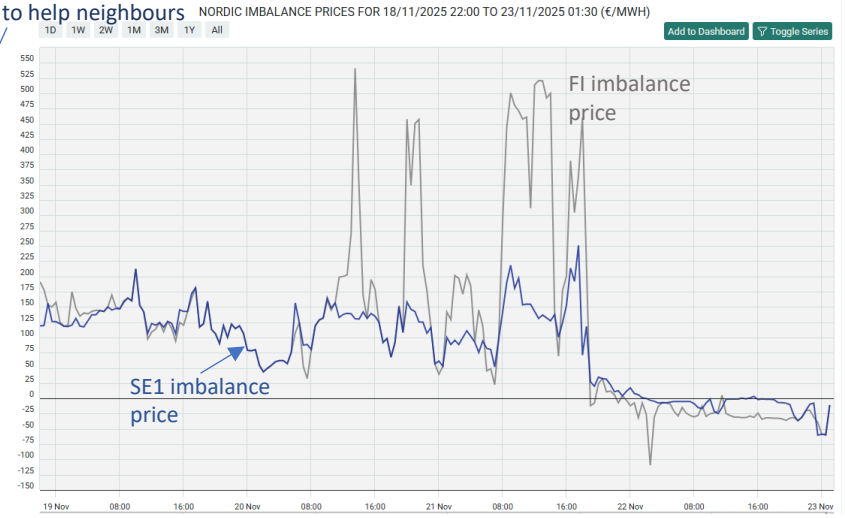


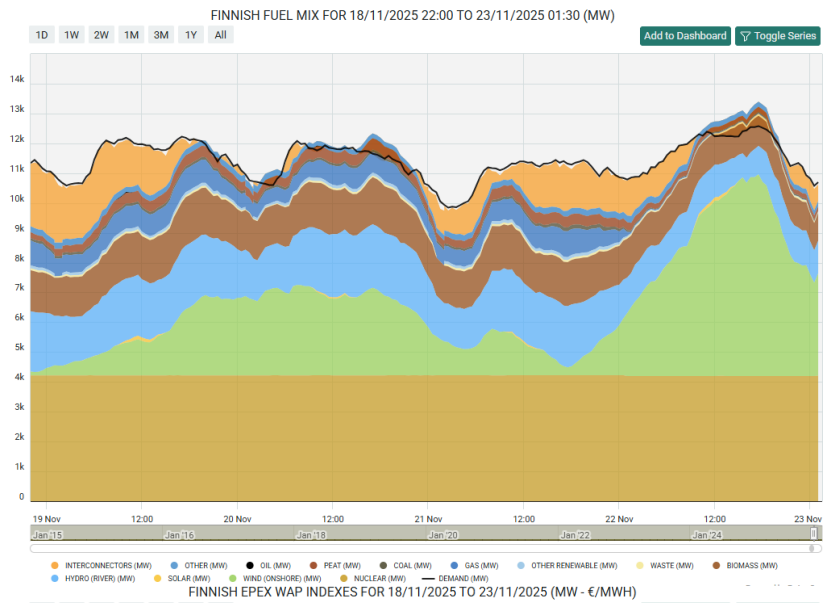


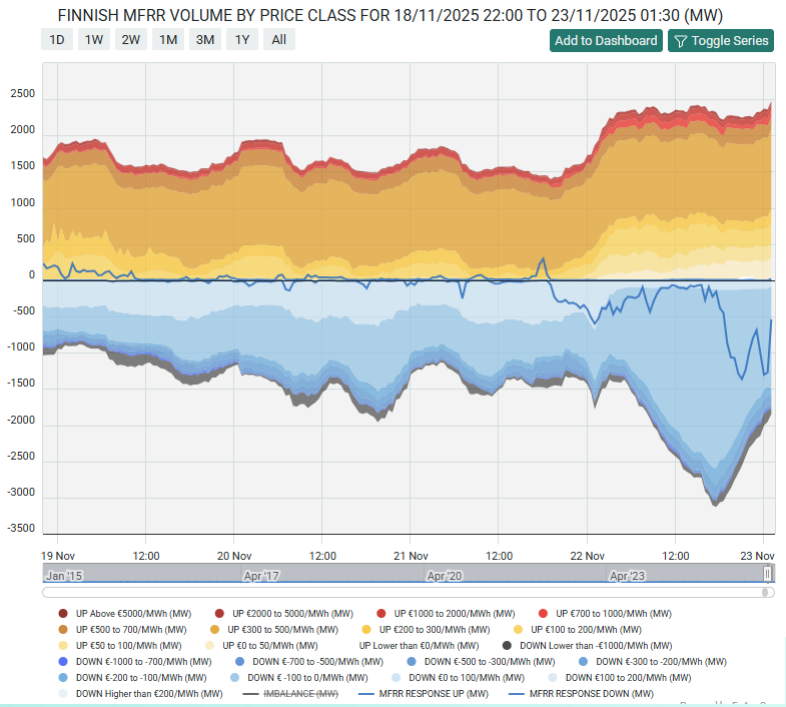
Finnish balancing market insights!

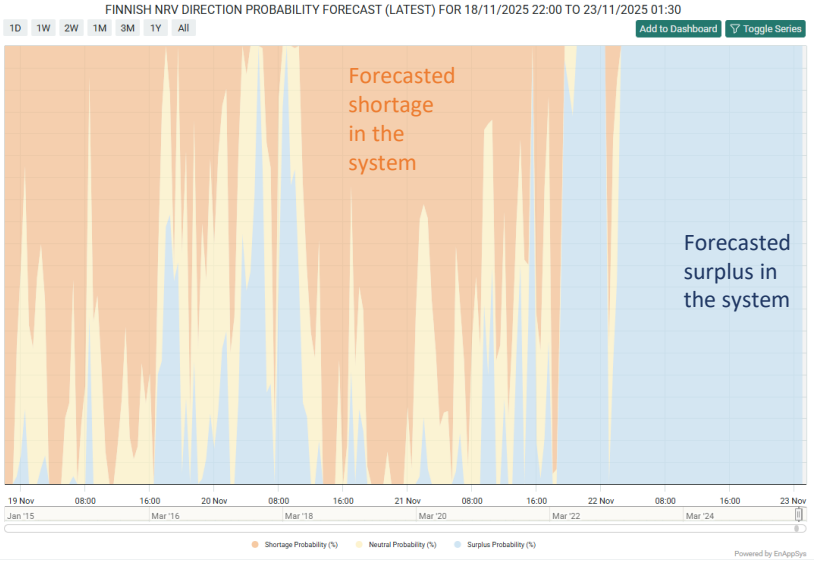


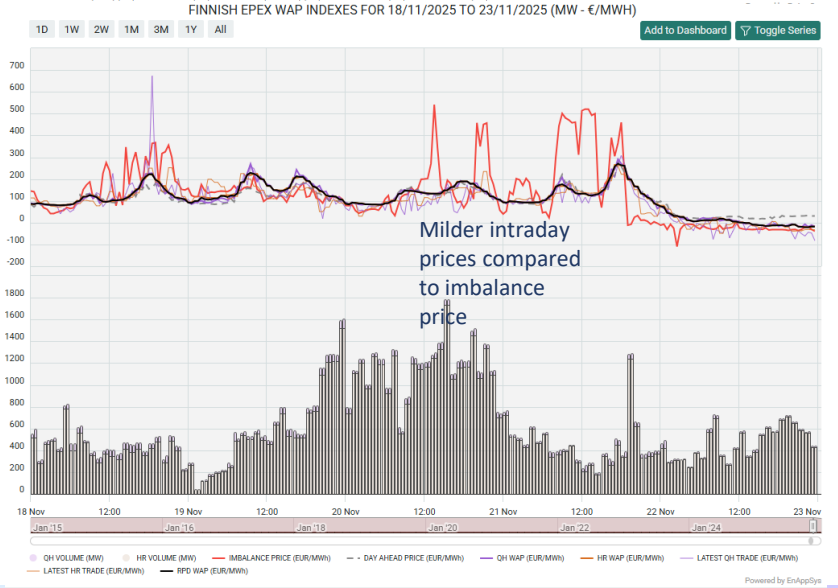
Local activation is fully done locally and some imports to help neighbours



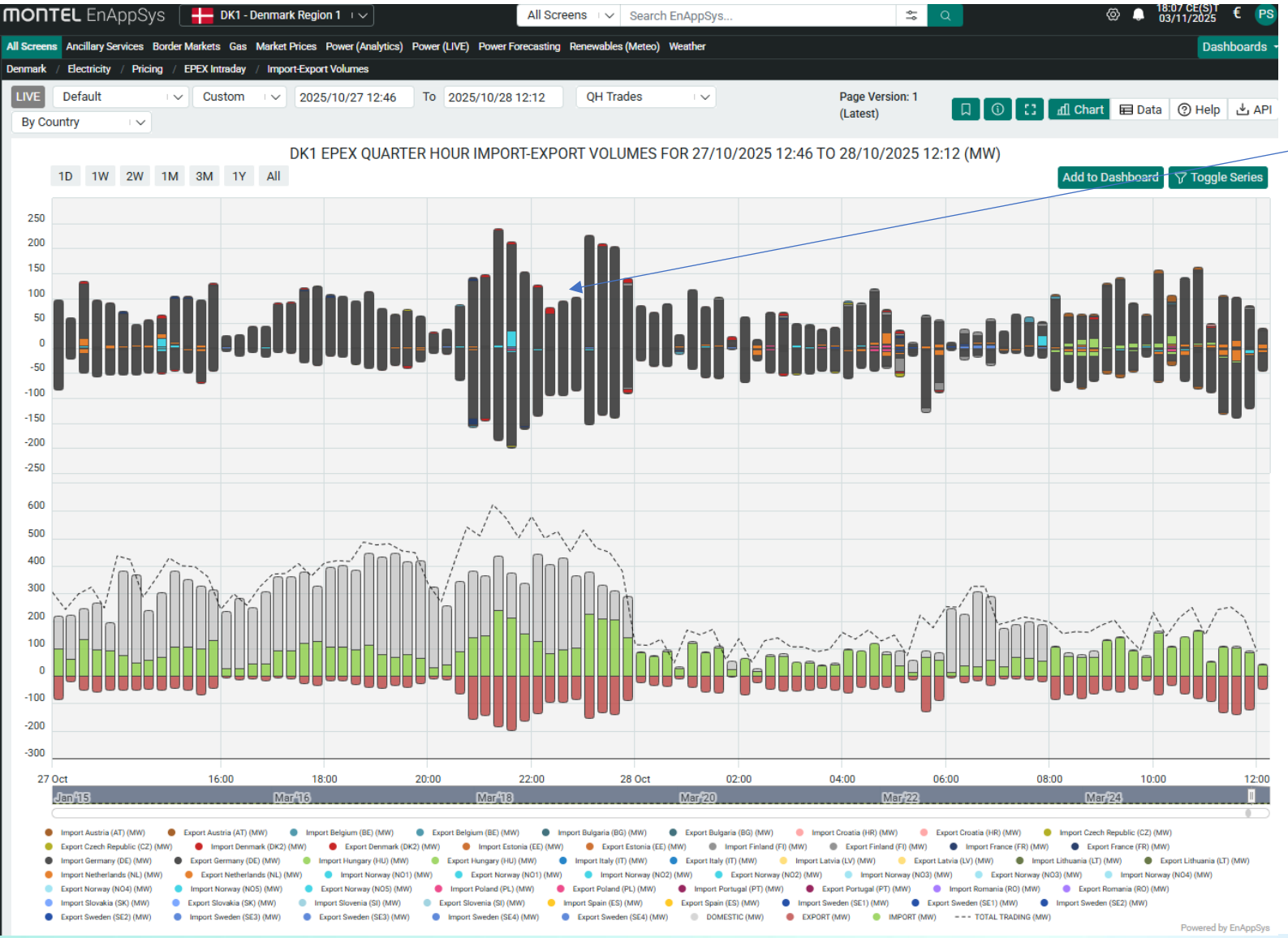


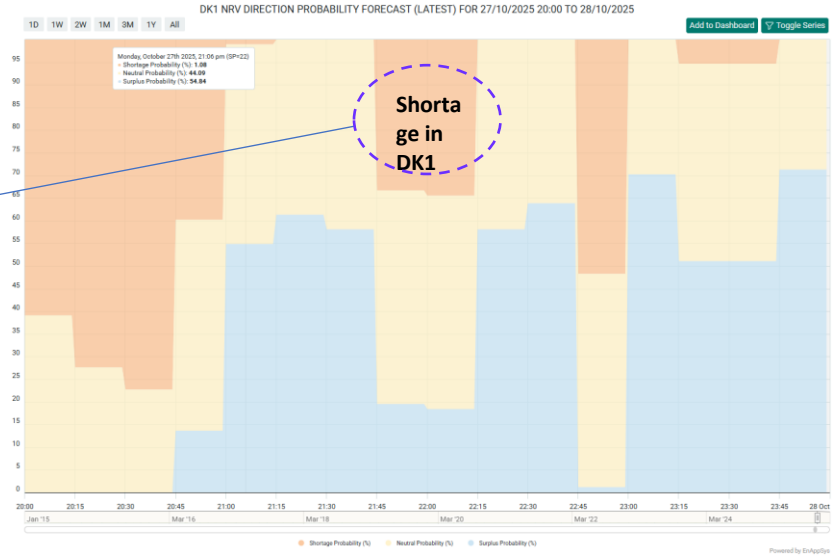


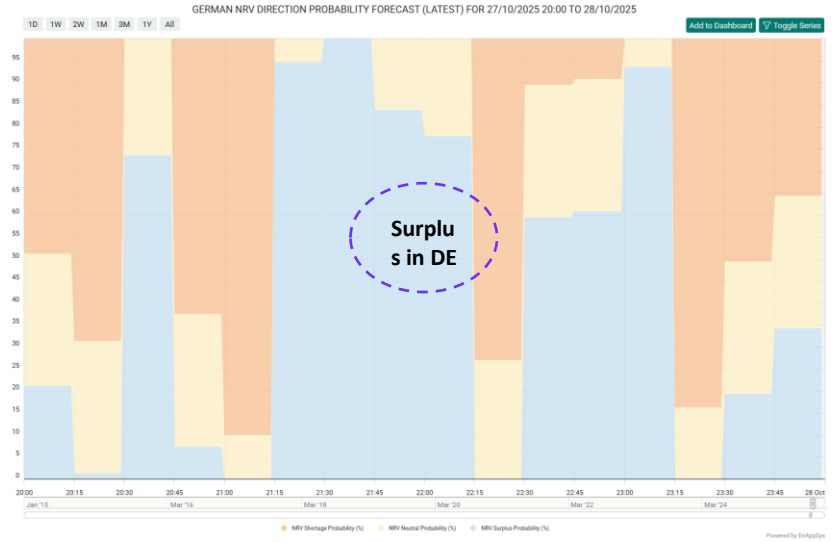




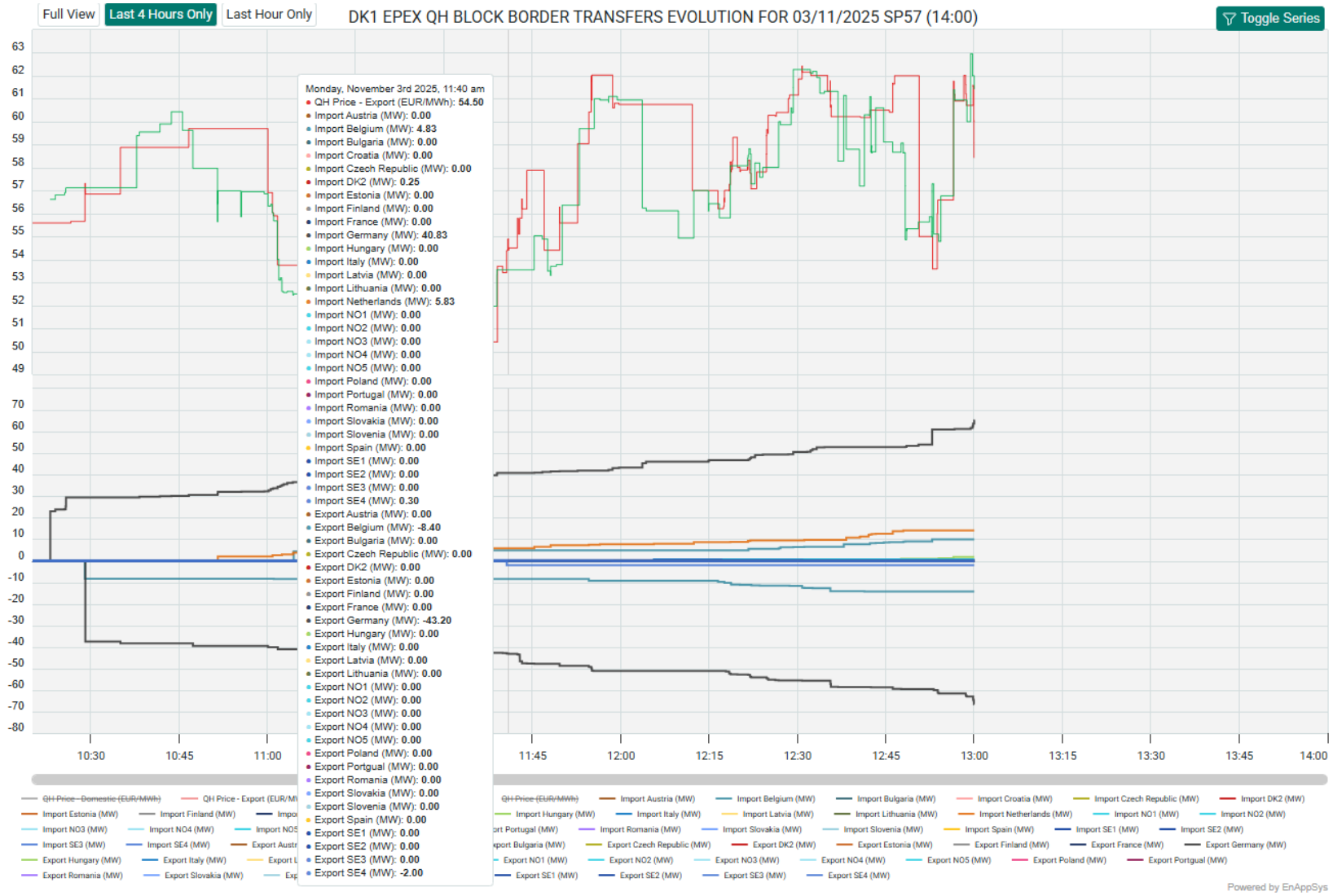
Finding value in cross-border intraday trading







Where does the value lie?



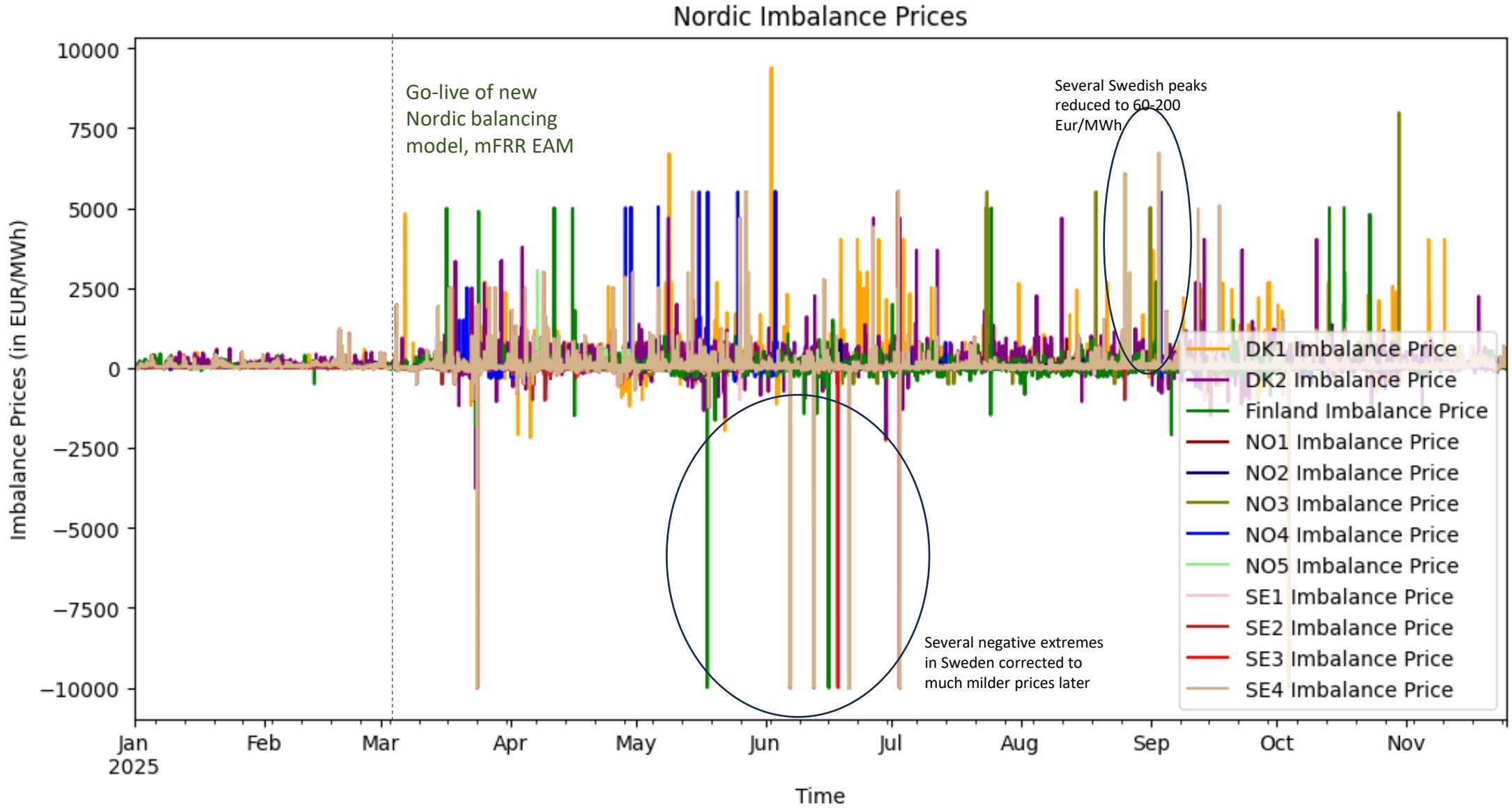
- Cross-border intraday trading of selling at higher prices and buying back at lower prices.
- Useful to monitor the market foresights of these cross-border markets that are being traded the most.

Balancing market highlight

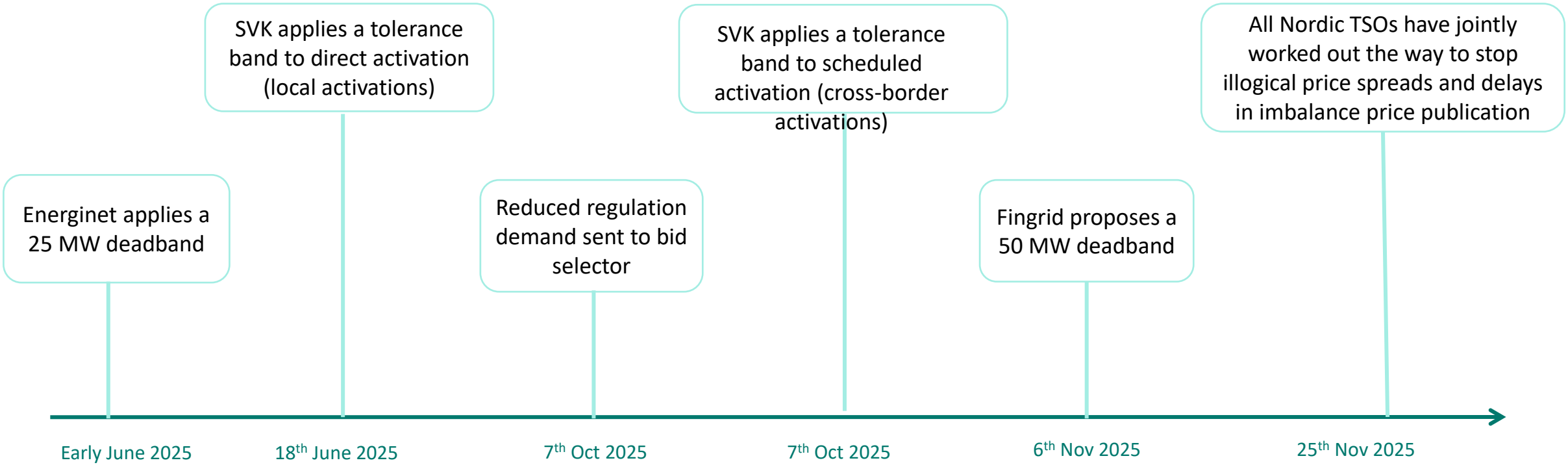
- [x] Nordic balancing market update
- [x] Imbalance pricing method update
- [x] Effect of asymmetry amongst Nordics
- [x] Role of balancing forecasts in intraday strategies
- [x] PICASSO and lessons learnt so far?
- [ ] So, what has really changed? And what's coming next?

So, what has really changed?
And what’s coming next?

The corrected imbalance prices



Updates in the mFRR EAM algorithm



Developments in the mFRR EAM algorithm

Energinet (Denmark):

+/- 25 MW Deadband

- mFRR demand for upregulation or downregulation of 25 MW or less is rounded down to a demand of 0 MW.
- Implemented in early June 2025.

- Hours without dominating direction: 10% for DK1 and 20% for DK2
- Deadband-related cost is calculated as the cost of aFRR activations when balancing demand is zero.
- These costs are not covered by the imbalance price. As a result, Energinet absorbs these costs directly

- Publishing mFRR demand in real-time before the MTU.
- Dominating direction is also published per MTU for each bidding zone.

Developments in the mFRR EAM algorithm

SVK (Sweden):

Tolerance band of 10 MW	• Allows the national bid selector to choose a larger, but cheaper, balancing bid for direct activation. • Implemented since end of June 2025.
Reduced regulation demand sent to bid selector	• A forecast is never 100% accurate, sometimes too much is activated, sometimes too little. • SVK has reduced the demand they send to the bid selector by 10% (up to a ceiling of 50 MW per electricity area).
Tolerance band of 10 MW	• Allows the national bid selector to choose a larger, but cheaper, balancing bid for scheduled activation.

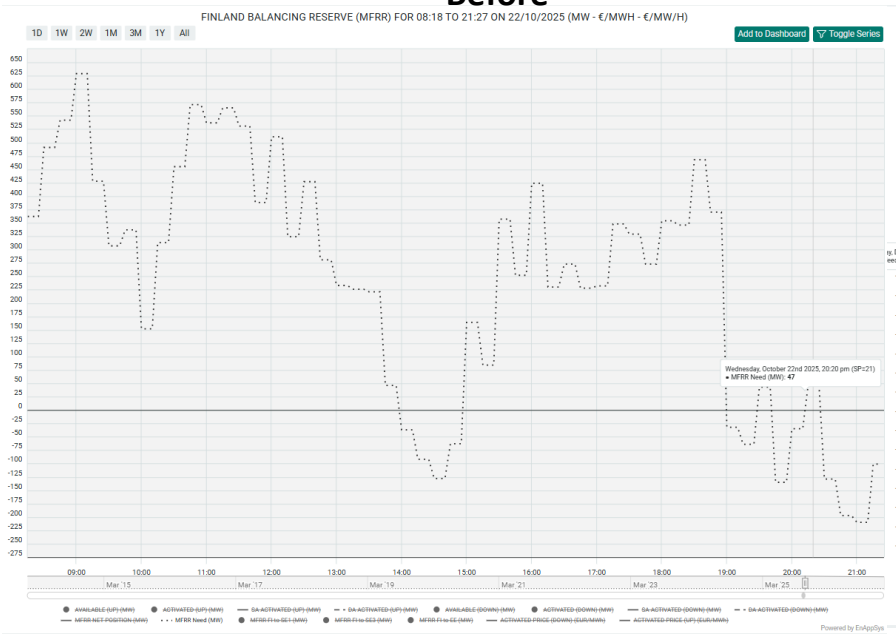
Developments in the mFRR EAM algorithm

Fingrid:

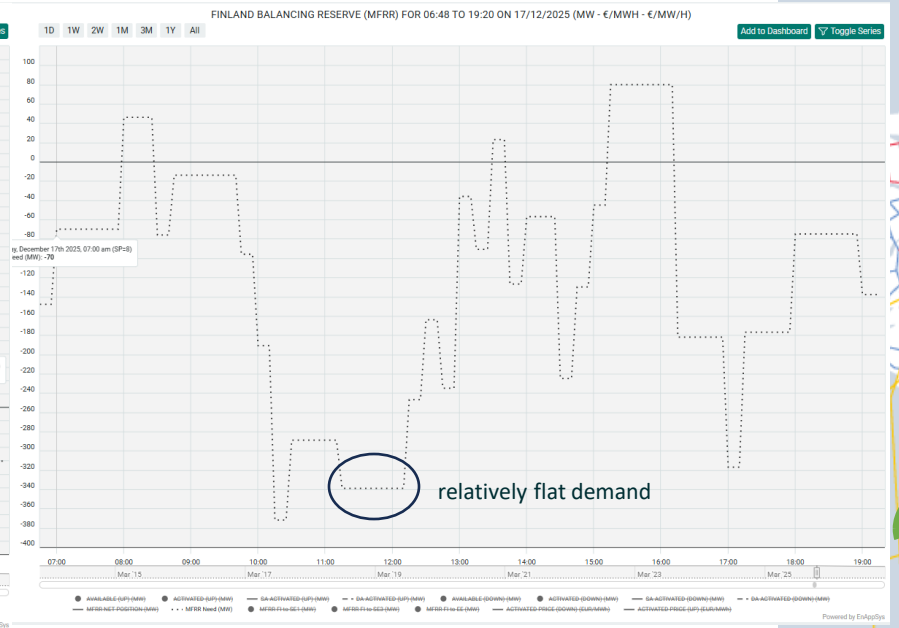
+/- 50 MW Deadband

- mFRR demand change for upregulation or downregulation of 50 MW or less is rounded down to a demand change of 0 MW.
- Implemented in November 2025.

Before



After



Overall for Nordic mFRR EAM

- Achieved so far:

Manual correction

- Delay in imbalance prices due to manual price correction by TSOs resulting due to illogical price spreads have been resolved.
- All the Nordic TSOs have worked on this together to update the algorithm to get rid of this issue.

- More to do:

Elastic demand

- Elastic demand in Nordic bid selector (Scheduled activation).
- Yet to be launched, work in progress.

Asymmetry in?

Asymmetry in **market developments**: PICASSO in some not in others but common markets on capacity exists.

Asymmetry in terms of **data transparency**:

we know more about some markets than the other, but we trade cross-border.

Asymmetry in **approaches** to tackle the high balancing prices and volatility.

New Imbalance Pricing Model Proposals

Dominant Direction from aFRR and mFRR

aFRR and mFRR in both up and down regulation are summed together to form one total volume and direction.
More often dominant direction (price is rarely equal to spot price).

Full volume weighted average

mFRR will have larger weight in the imbalance price.

Spikes will be milder.

Increased under coverage of balancing costs.

Additional component

Incentivizing component or financial neutrality component

Cost coverage outside of imbalance price

Imbalance costs must be paid in two instalments.

Imbalance price more averaged out and closer to spot price and the rest is covered through imbalance fees.

Source: Energinet

Summary

Balancing markets act as a guiding light for intraday markets

Major updates in balancing markets have influenced the market results! And disconnected imbalance prices

Market opportunities still exists in the new market and those acting quickly get the most out of it

Those with added **balancing market foresights** of their own and neighbouring bidding zones can use this to take informed decisions in intraday markets

More balancing forecasts available many more to come soon!

Markets with Balancing Forecasts on Montel EnAppSys

LIVE NOW:

SWEDEN
NORWAY
DENMARK
FINLAND
AUSTRIA
BELGIUM
GERMANY
FRANCE
GREAT BRITAIN
HUNGARY
ISEM
NETHERLANDS
SPAIN
PORTUGAL
CROATIA

COMING SOON:

POLAND
And many more…

MONTEL

Sign up for a free trial: https://montel.energy/platforms/enappsys?utm_campaign=182956281-Montel%20EnAppSys%20platform%20page%20Organic%20social&utm_source=linkedin&utm_medium=social&utm_content=thought_leadership_Priyanka

Thank you!

For more details on
our analytical products

Feel free to contact us:

Priyanka Shinde
Priyanka.shinde@montel.energy

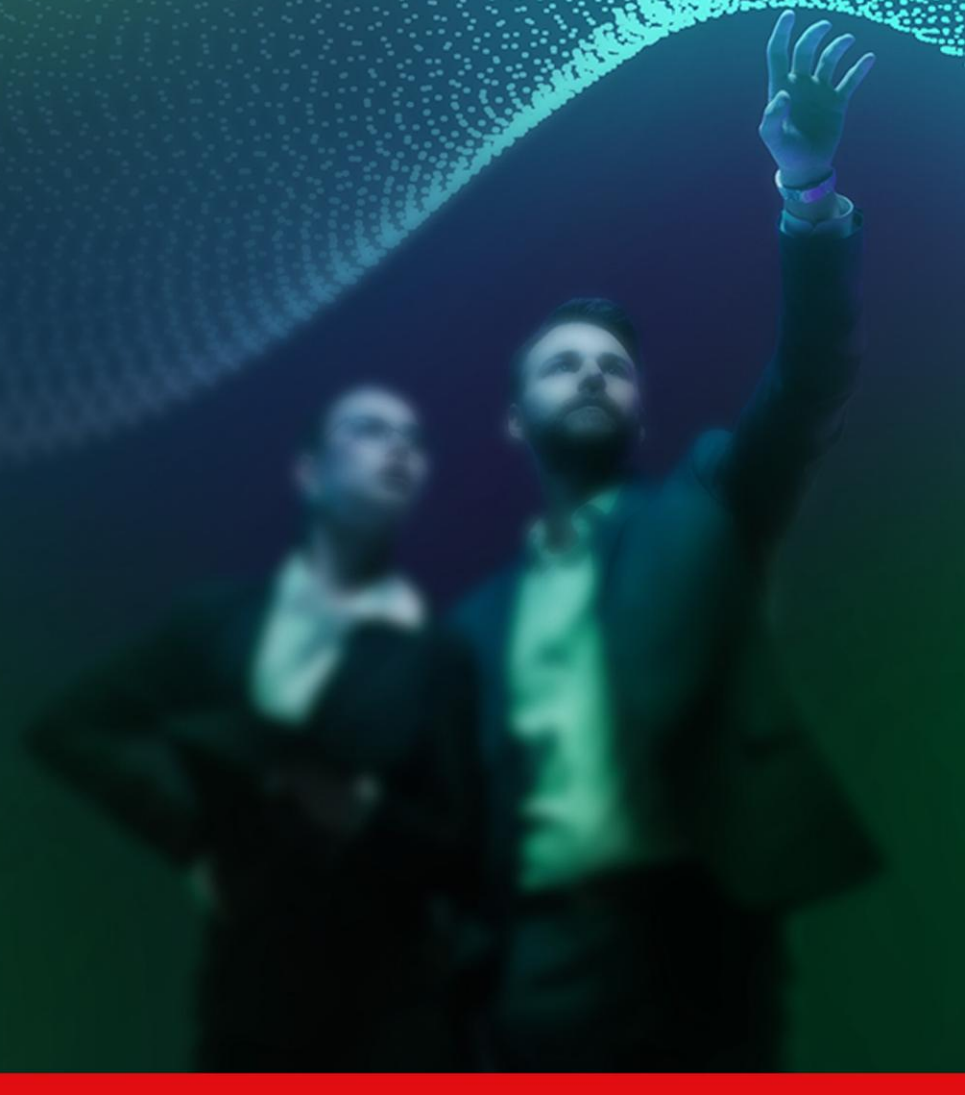
https://www.linkedin.com/in/priyanka-shinde-67024a64/

www.montel.energy

Thank you

MONTEL

THANK YOU!



WIND POWER TRADING IN VOLATILE MARKETS

Jyri Joutsi, Product Manager, Hansen

Swedish wind farms face flagging profitability amid oversupply

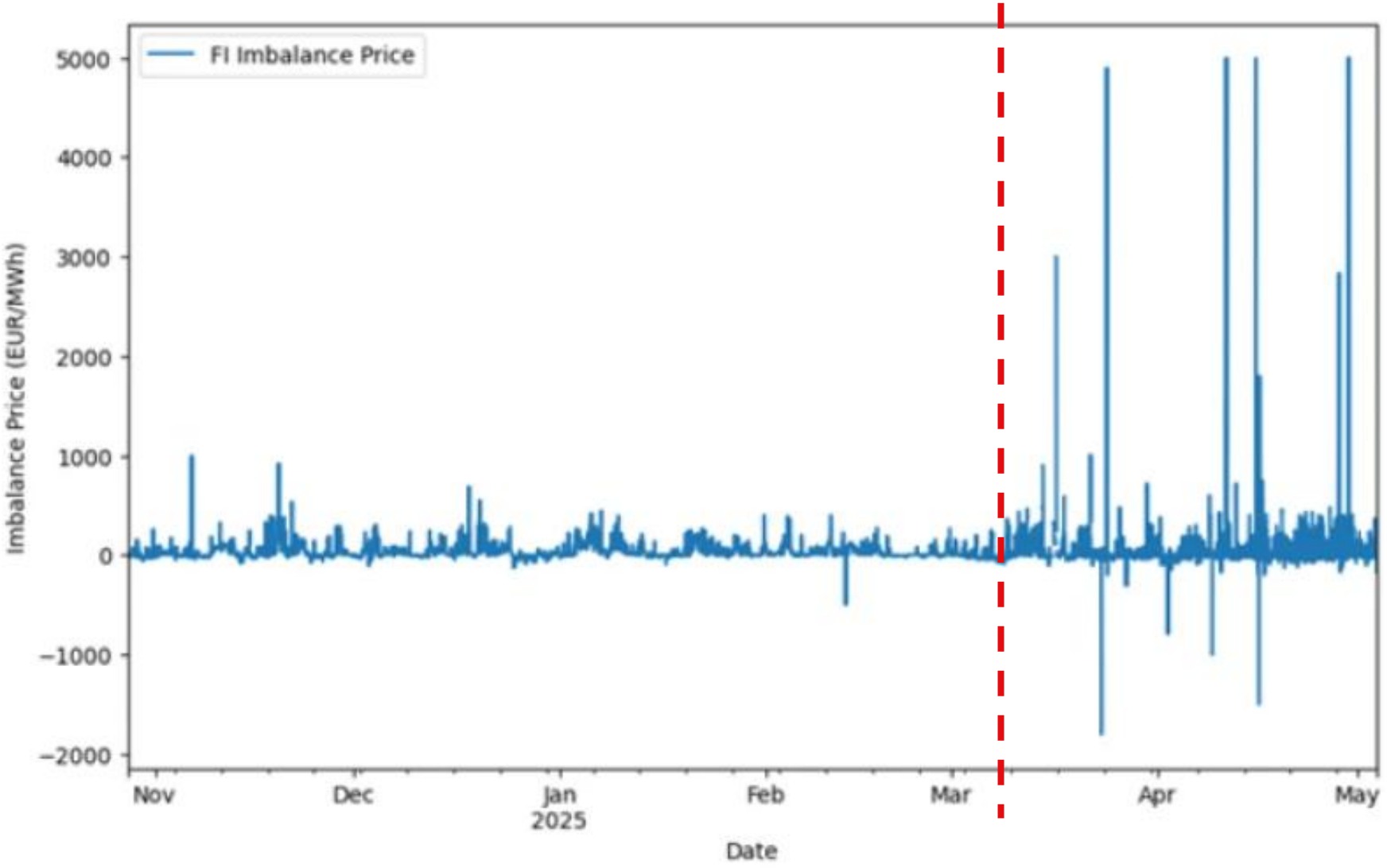
(Montel) Onshore wind farms in northern Sweden have struggled with waning profitability this year due to an oversupply that has weighed on average spot prices.

Balancing power costs cut Nordic wind producer's revenues in half

(Montel) Swedish wind power cooperative Solivind will halt output over weekends after losing half its revenues to balancing power costs in March, it told Montel on Wednesday.

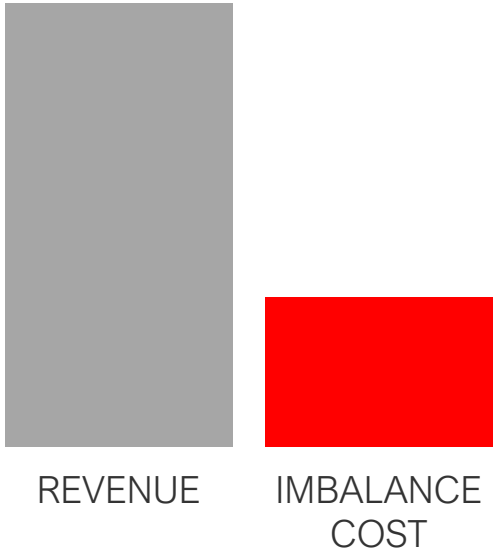
HANSEN

IMBALANCE PRICES - FINLAND



WIND POWER CHALLENGES

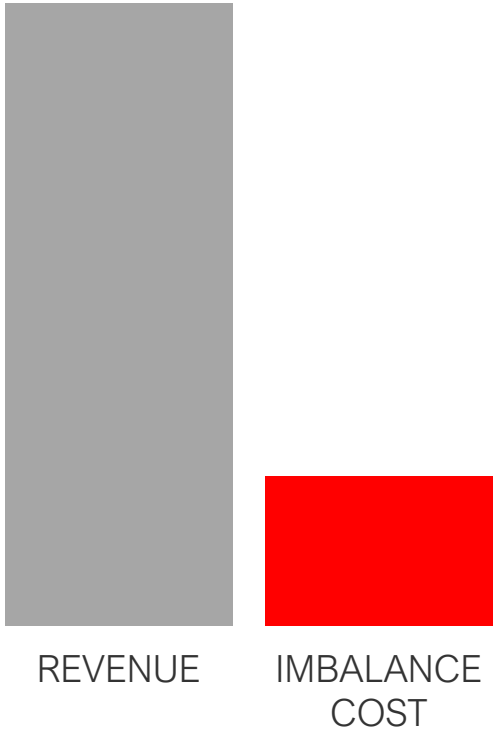
WIND POWER CHALLENGES



WIND POWER CHALLENGES

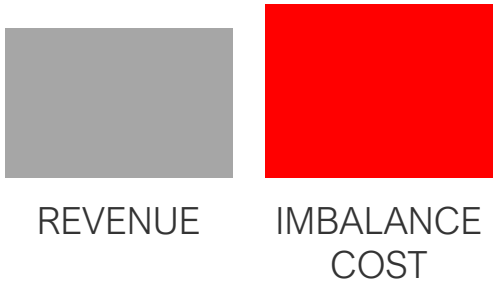
WIND POWER CHALLENGES

HIGH WIND OUTPUT?



WIND POWER CHALLENGES

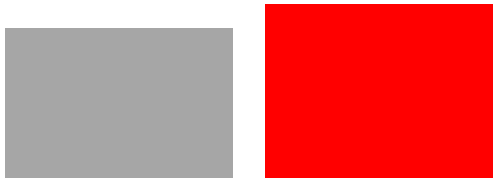
HIGH WIND OUTPUT



HANSEN

WIND POWER CHALLENGES

mFRR EAM & aFRR energy market prices?



REVENUE

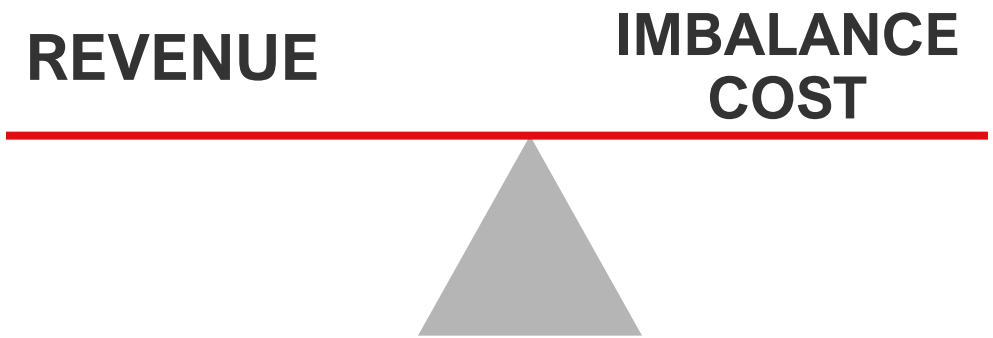
IMBALANCE COST

HANSEN

WIND POWER CHALLENGES

mFRR EAM & aFRR energy market prices

WIND POWER CHALLENGES



ELECTRICITY | WIND

1 minute read

Wind output curbed amid extreme balancing prices – consultant

(Montel) Extreme prices in the new Nordic balancing market have led wind power producers in southern Sweden to reduce their output to avoid the risk of imbalance, the CEO of consultancy Bodecker Partners said on Thursday.

HANSEN

BALANCING POWER PRICES FROM +-10 000 €/MW TO HIGHER?

MIN & MAX PRICES IN MARI AND PICASSO

99 999 €/MW

16 000 €/MW
15 500 €/MW
15 000 €/MW

10 000 €/MW

MARI AND PICASSO – DYNAMIC MIN/MAX PRICES

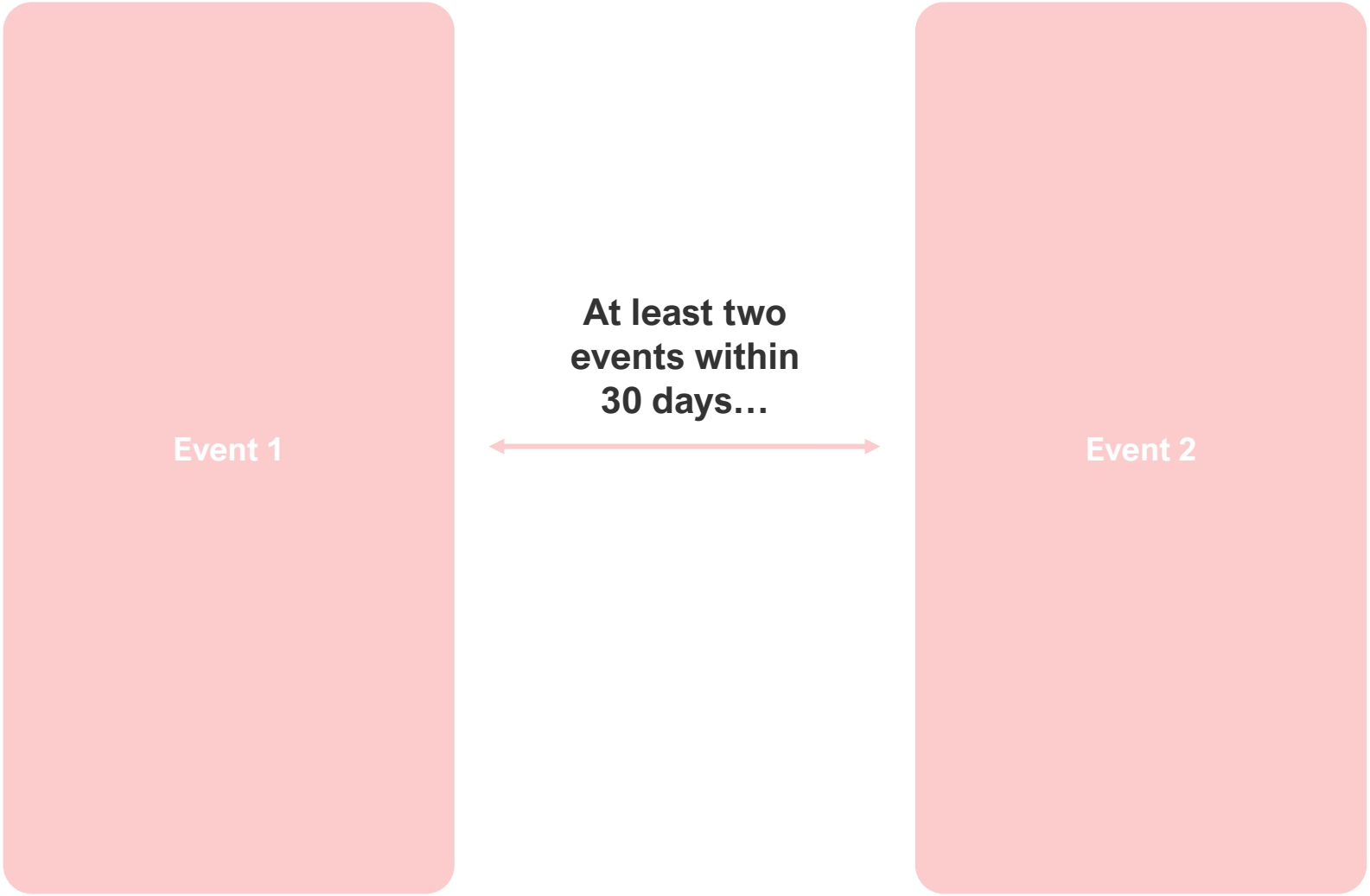
How min & max prices can be increased?

MARI AND PICASSO – DYNAMIC MIN/MAX PRICES

Event 1

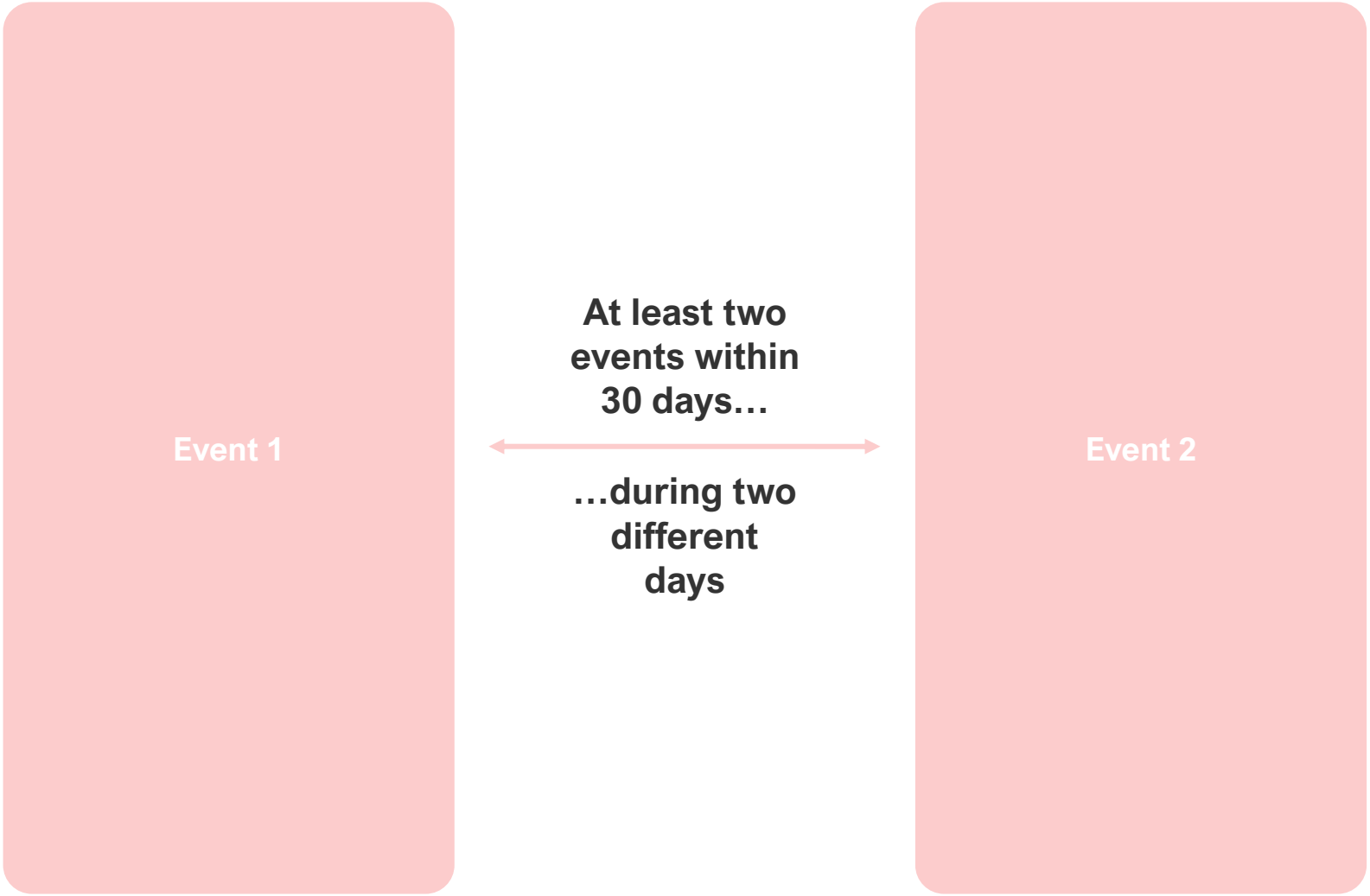
Event 2

MARI AND PICASSO – DYNAMIC MIN/MAX PRICES



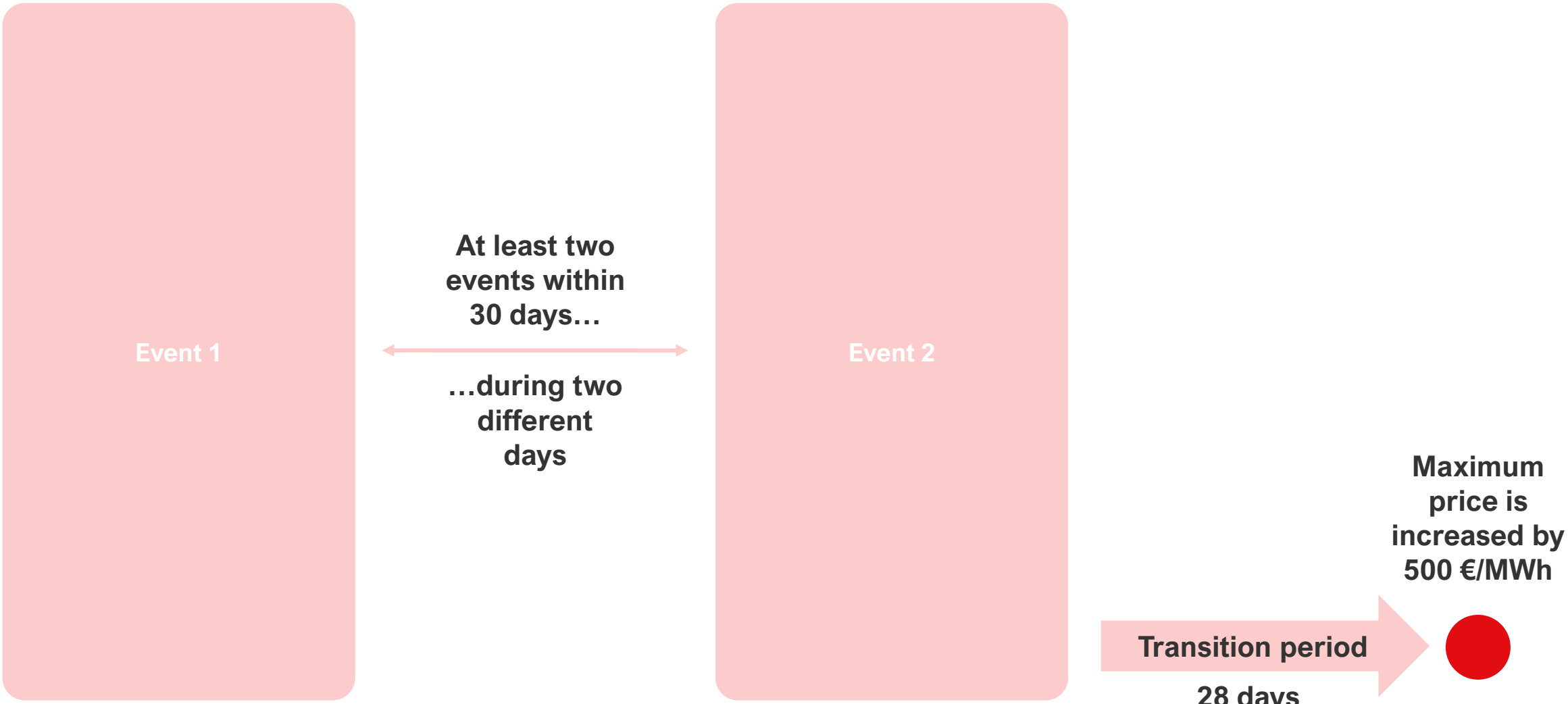
HANSEN

MARI AND PICASSO – DYNAMIC MIN/MAX PRICES

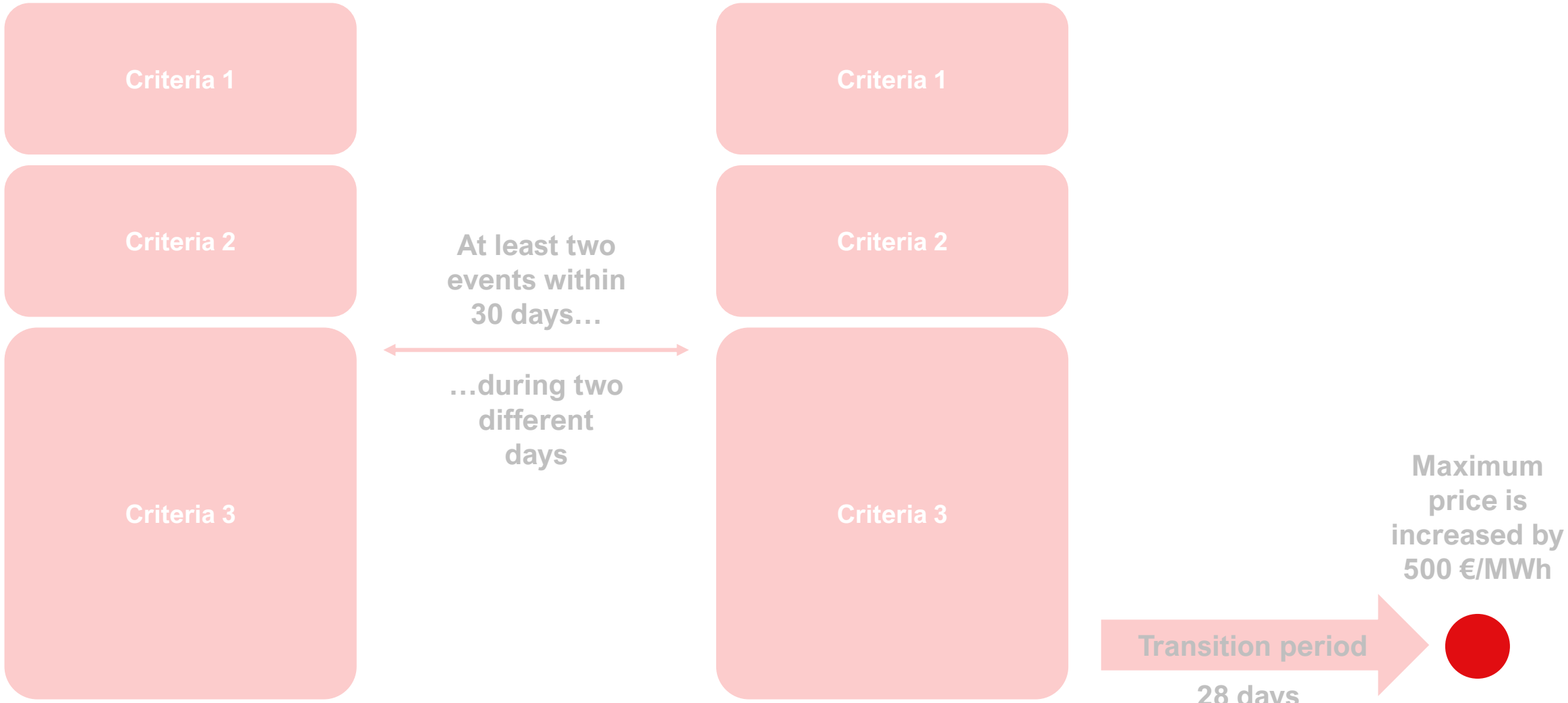


HANSEN

MARI AND PICASSO – DYNAMIC MIN/MAX PRICES



MARI AND PICASSO – DYNAMIC MIN/MAX PRICES



MARI AND PICASSO – DYNAMIC MIN/MAX PRICES

Volume-weighted average price of activated aFRR energy (up) exceeds 70 % of the maximum price

Criteria 2

Criteria 3

At least two events within 30 days…

…during two different days

Volume-weighted average price of activated aFRR energy (up) exceeds 70 % of the maximum price

Criteria 2

Criteria 3

Transition period

28 days

Maximum price is increased by 500 €/MWh

HANSEN

MARI AND PICASSO – DYNAMIC MIN/MAX PRICES

Volume-weighted average price of activated aFRR energy (up) exceeds 70 % of the maximum price

Activated mFRR energy (up) exceeds 70 % of the maximum price

Criteria 3

At least two events within 30 days…

…during two different days

Volume-weighted average price of activated aFRR energy (up) exceeds 70 % of the maximum price

Activated mFRR energy (up) exceeds 70 % of the maximum price

Criteria 3

Transition period

28 days

Maximum price is increased by 500 €/MWh

HANSEN

MARI AND PICASSO – DYNAMIC MIN/MAX PRICES

Volume-weighted average price of activated aFRR energy (up) exceeds 70 % of the maximum price

Activated mFRR energy (up) exceeds 70 % of the maximum price

Border capacity limitations (import) to the bidding zone in the mFRR-Platform is at least equal to the sum of the volume of bids offered in the mFRR-Platform and aFRR-Platform in that bidding zone by its largest BSP in the positive direction

At least two events within 30 days…

…during two different days

Volume-weighted average price of activated aFRR energy (up) exceeds 70 % of the maximum price

Activated mFRR energy (up) exceeds 70 % of the maximum price

Border capacity limitations (import) to the bidding zone in the mFRR-Platform is at least equal to the sum of the volume of bids offered in the mFRR-Platform and aFRR-Platform in that bidding zone by its largest BSP in the positive direction

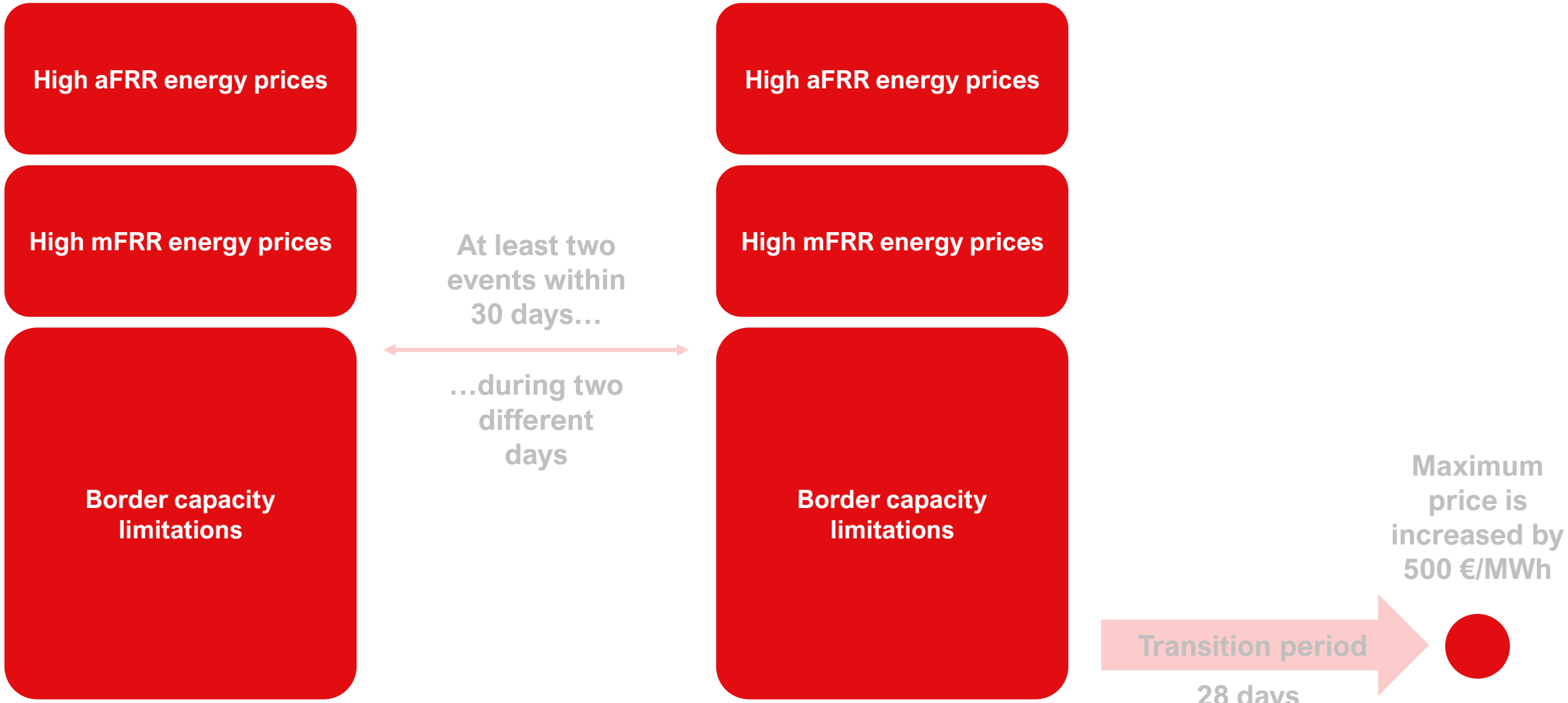
Transition period

28 days

Maximum price is increased by 500 €/MWh

HANSEN

MARI AND PICASSO – DYNAMIC MIN/MAX PRICES



IMBALANCE COST RISK MANAGEMENT

+

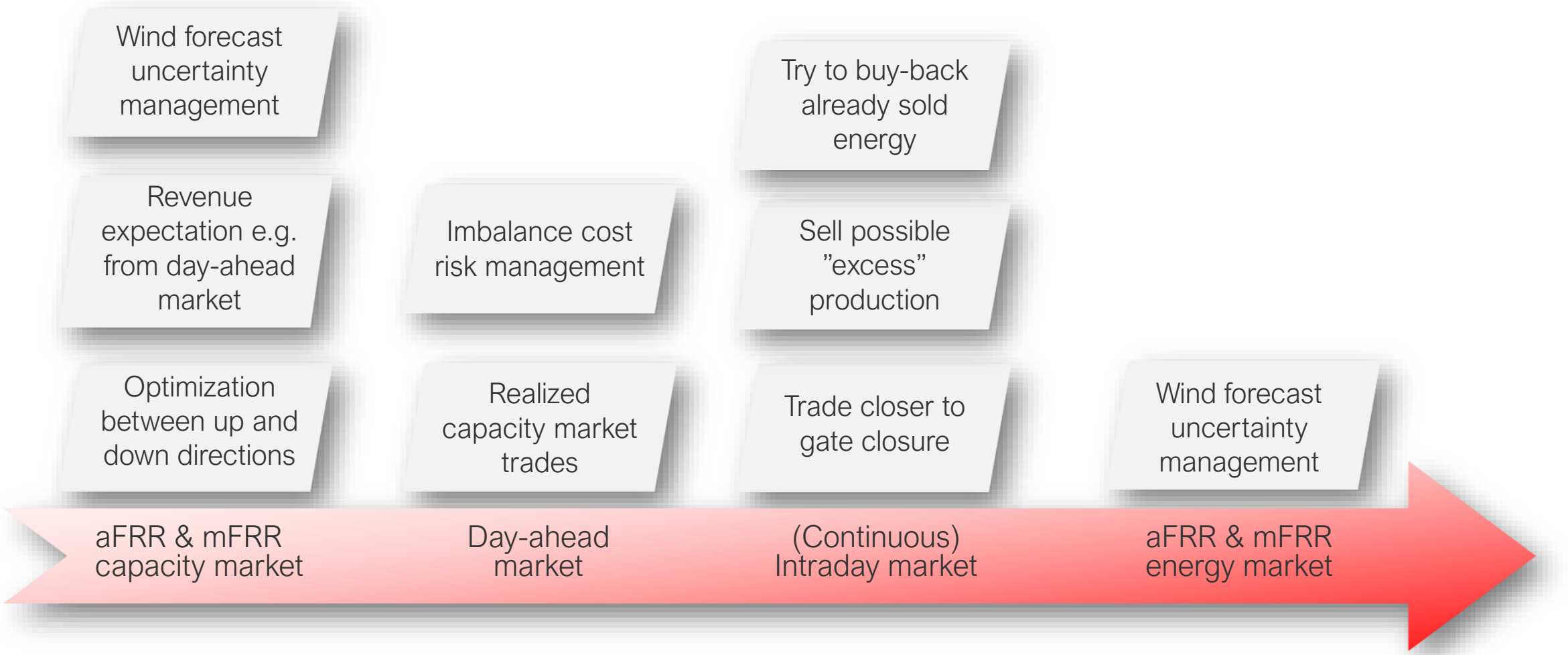
REVENUE MAXIMIZATION

HANSEN

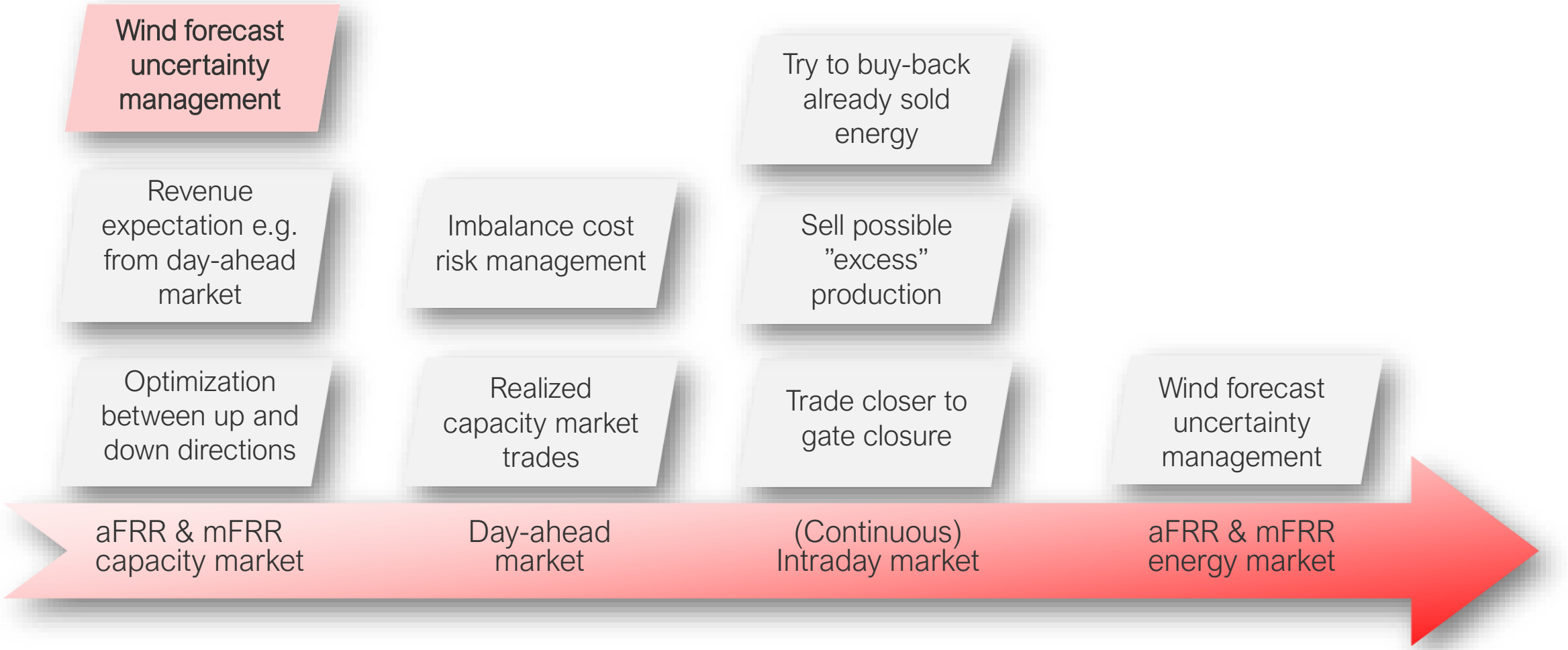
MULTI-MARKET OPTIMIZATION

HANSEN

MULTI-MARKET OPTIMIZATION



MULTI-MARKET OPTIMIZATION

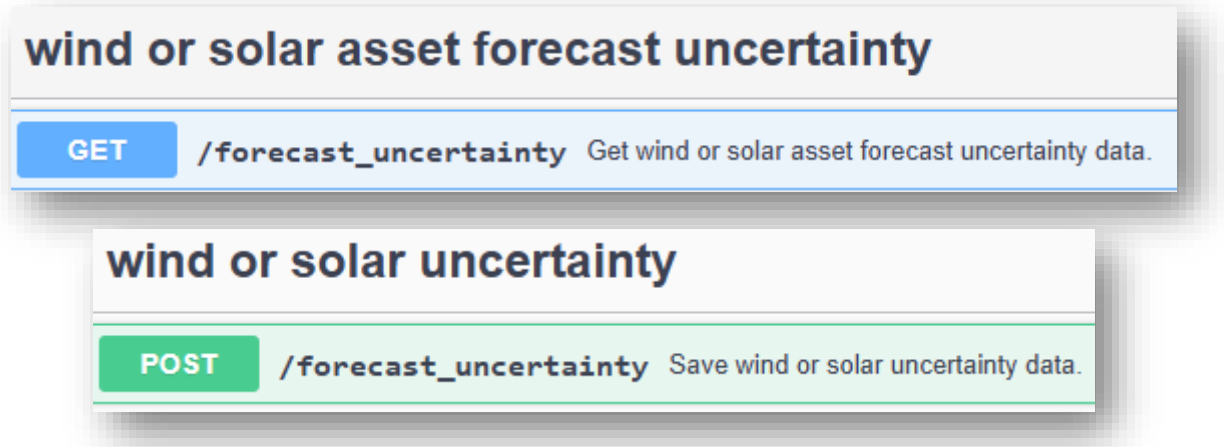


Download template Paste values

Time	Down-direction flexible capacity (% of production plan)	..or production plan "minus" X MW, depending on which one is smaller	Up-direction flexible capacity (% of production plan)	..or production plan "minus" X MW, depending on which one is smaller
HH+0	89 %	5 MW	99 %	6 MW
HH+1	95 %	5 MW	99 %	6 MW
HH+2	94 %	6 MW	89 %	6 MW
HH+3	93 %	7 MW	88 %	7 MW
HH+4	92 %	8 MW	87 %	8 MW
HH+5	91 %	9 MW	86 %	9 MW
HH+6	90 %	10 MW	85 %	10 MW
HH+7	89 %	11 MW	84 %	11 MW
HH+8	88 %	12 MW	83 %	12 MW
HH+9	87 %	13 MW	82 %	13 MW

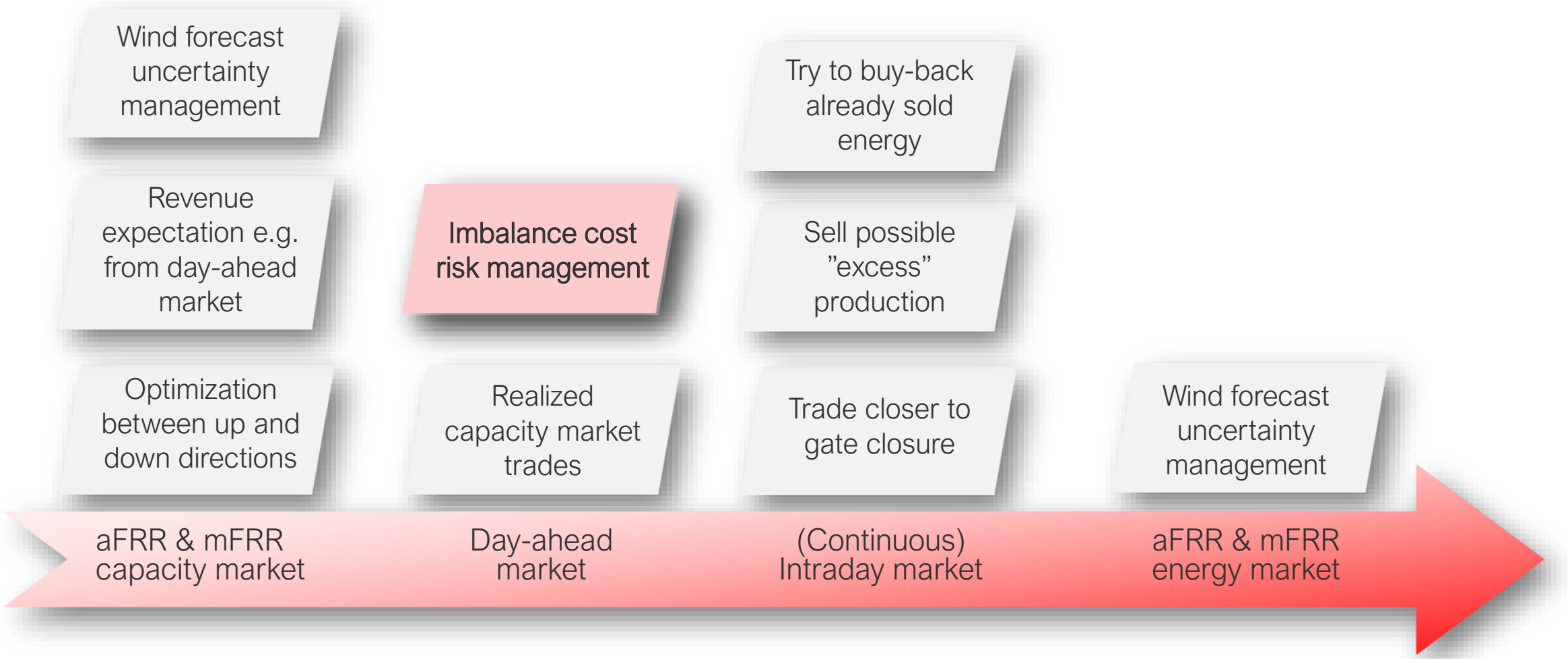
Cancel Save

APIs FOR AUTOMATIC UPDATES



HANSEN

MULTI-MARKET OPTIMIZATION

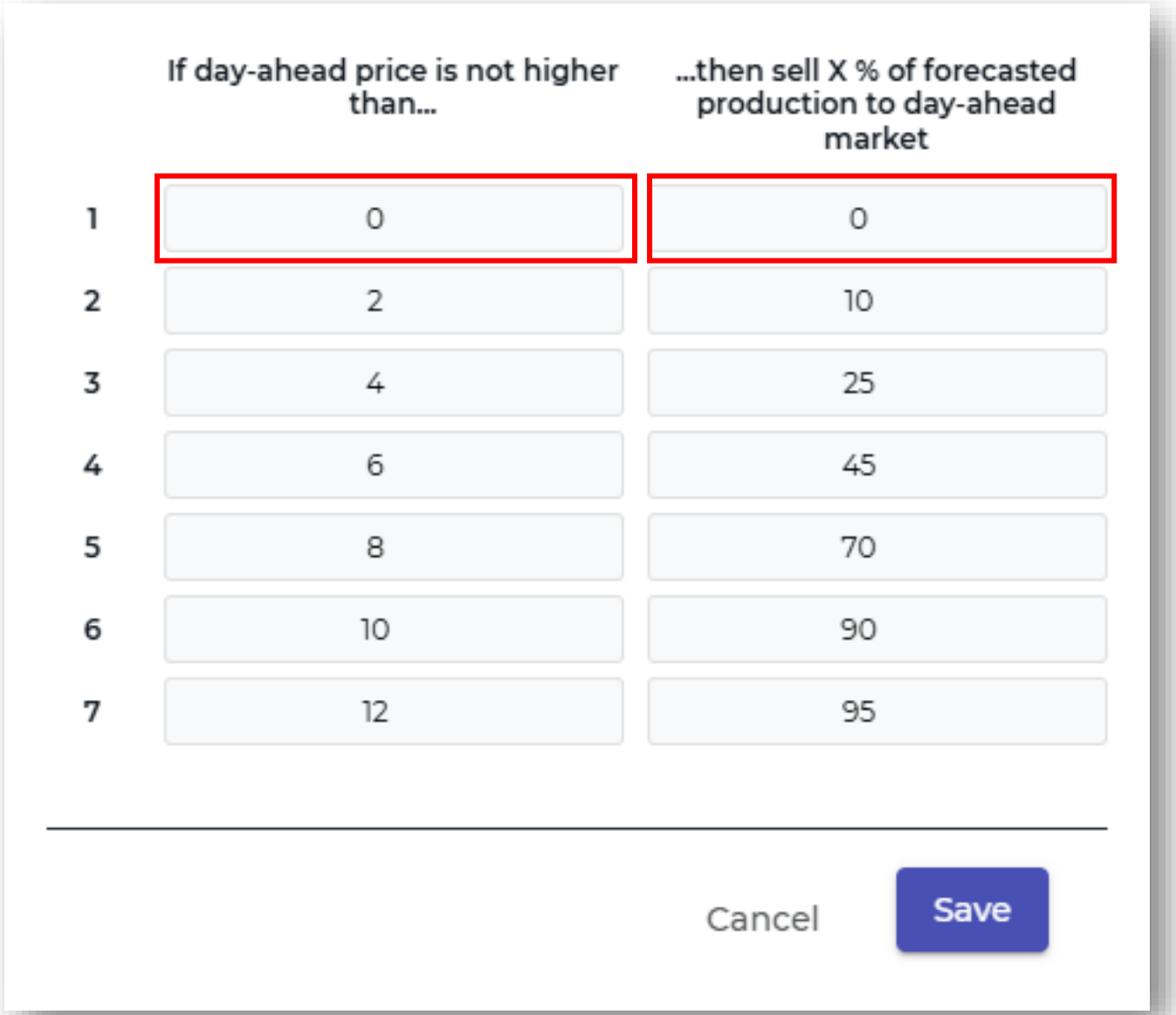


	If day-ahead price is not higher than...	...then sell X % of forecasted production to day-ahead market
1	0	0
2	2	10
3	4	25
4	6	45
5	8	70
6	10	90
7	12	95

Cancel Save

HANSEN

If day-ahead price is not more than 0 €/MW…

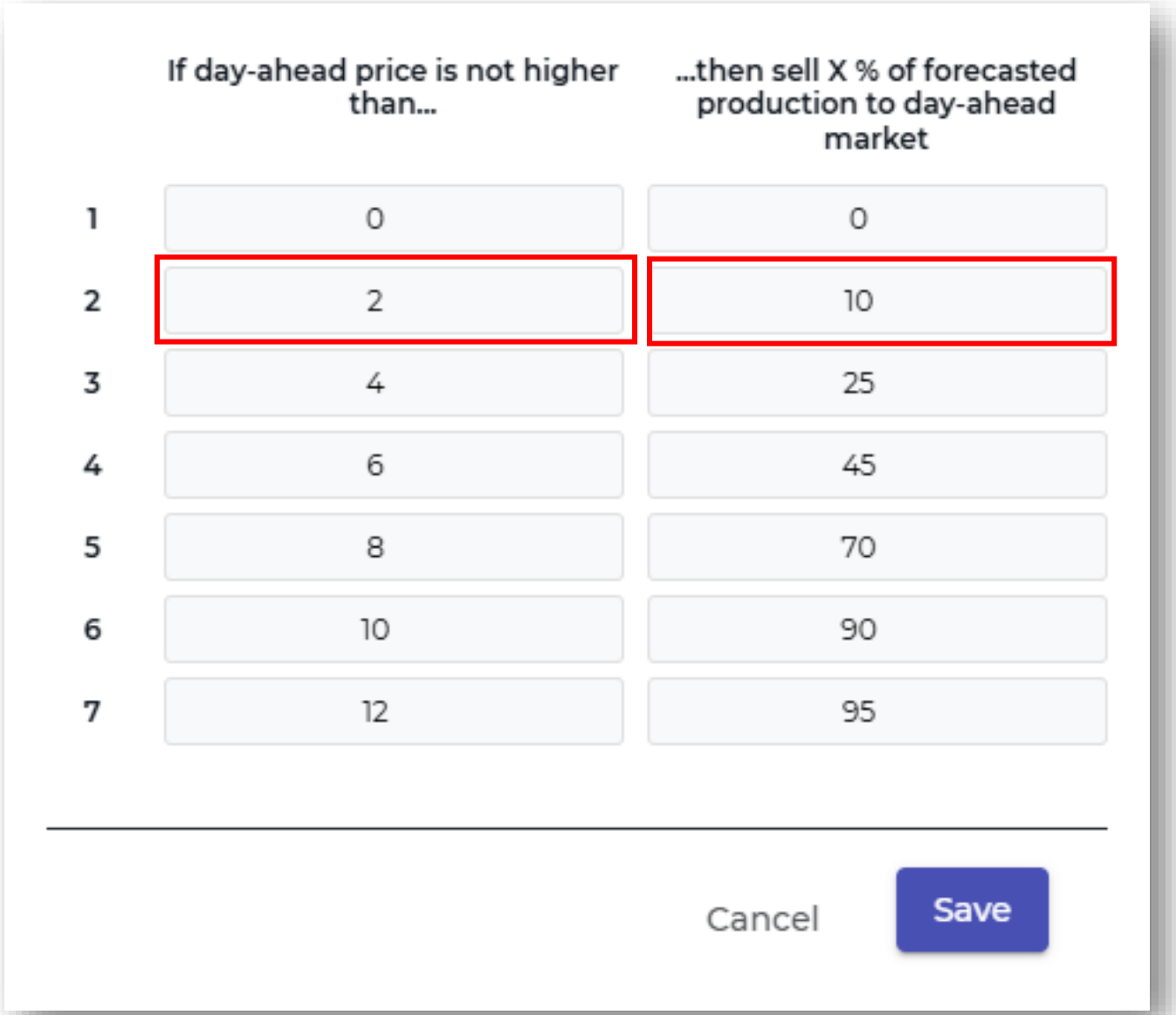


	If day-ahead price is not higher than...	...then sell X % of forecasted production to day-ahead market
1	0	0
2	2	10
3	4	25
4	6	45
5	8	70
6	10	90
7	12	95

Cancel Save

…then sell nothing

If day-ahead price is not more than 2 €/MW…

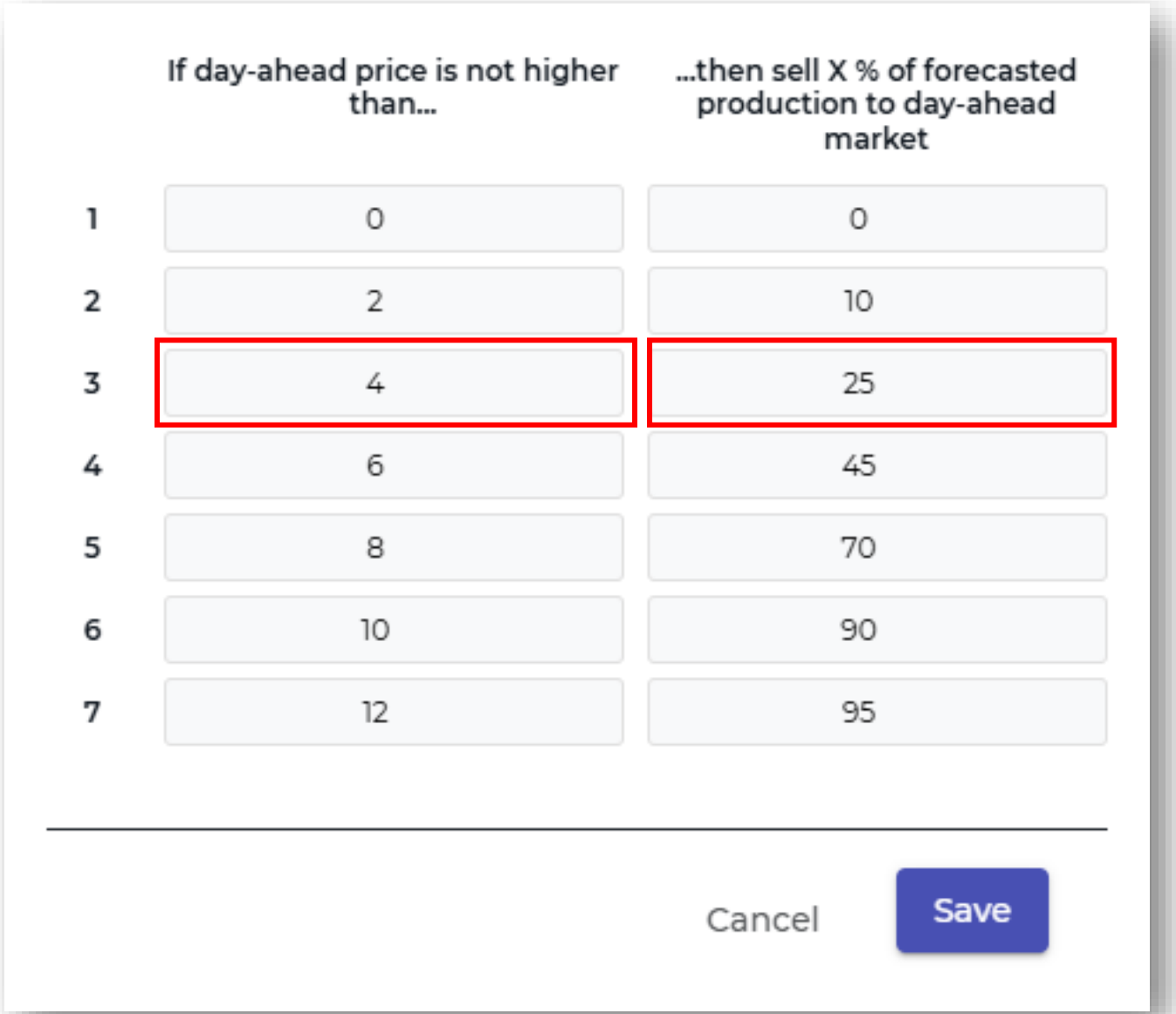


	If day-ahead price is not higher than...	...then sell X % of forecasted production to day-ahead market
1	0	0
2	2	10
3	4	25
4	6	45
5	8	70
6	10	90
7	12	95

Cancel Save

…then sell 10 % of forecasted production

If day-ahead price is not more than 4 €/MW…

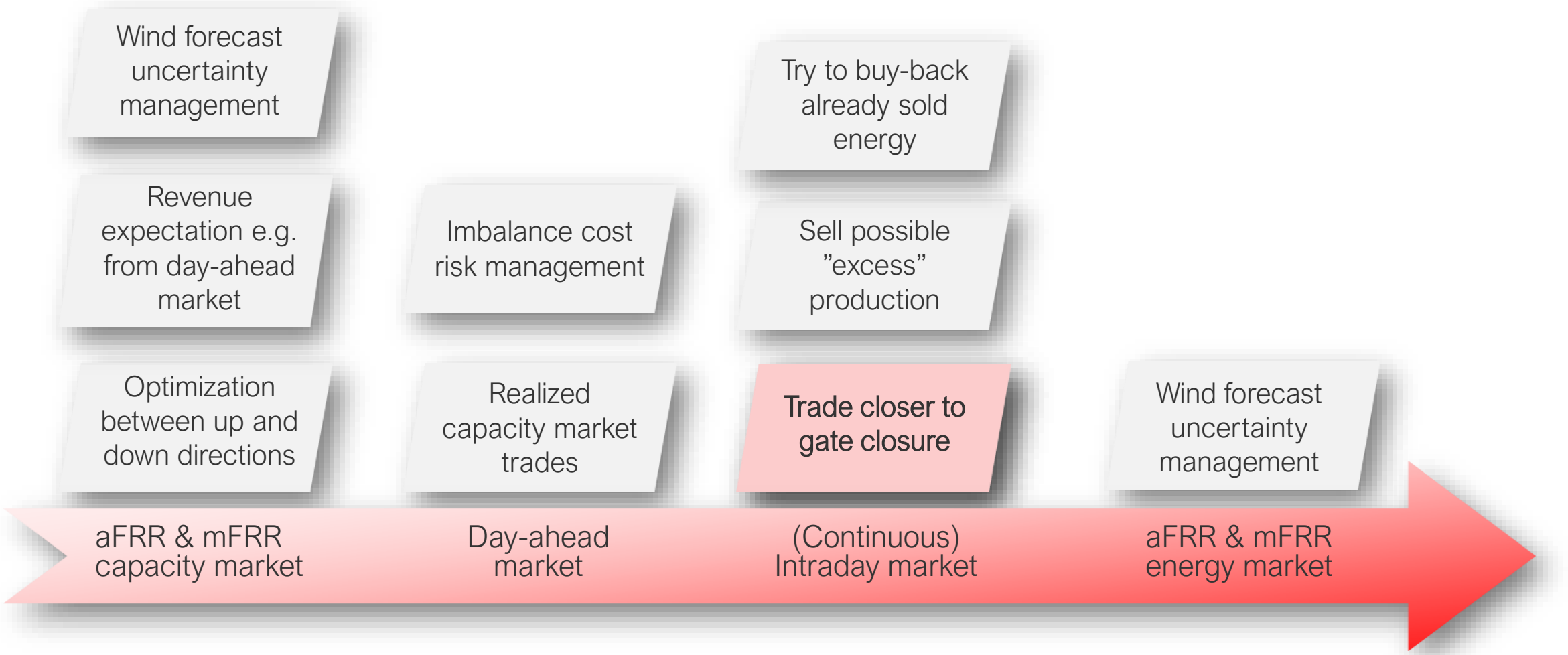


	If day-ahead price is not higher than...	...then sell X % of forecasted production to day-ahead market
1	0	0
2	2	10
3	4	25
4	6	45
5	8	70
6	10	90
7	12	95

Cancel Save

…then sell 25 % of forecasted production

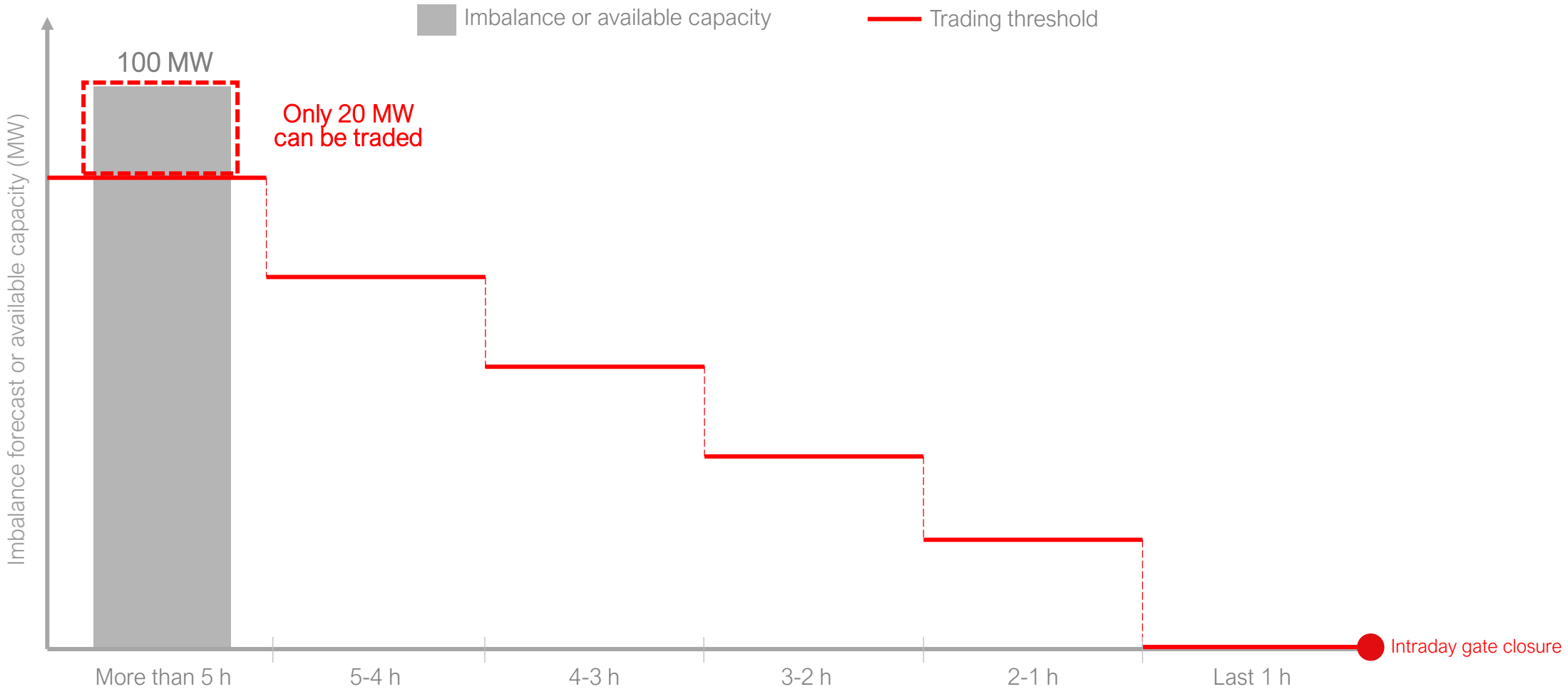
MULTI-MARKET OPTIMIZATION



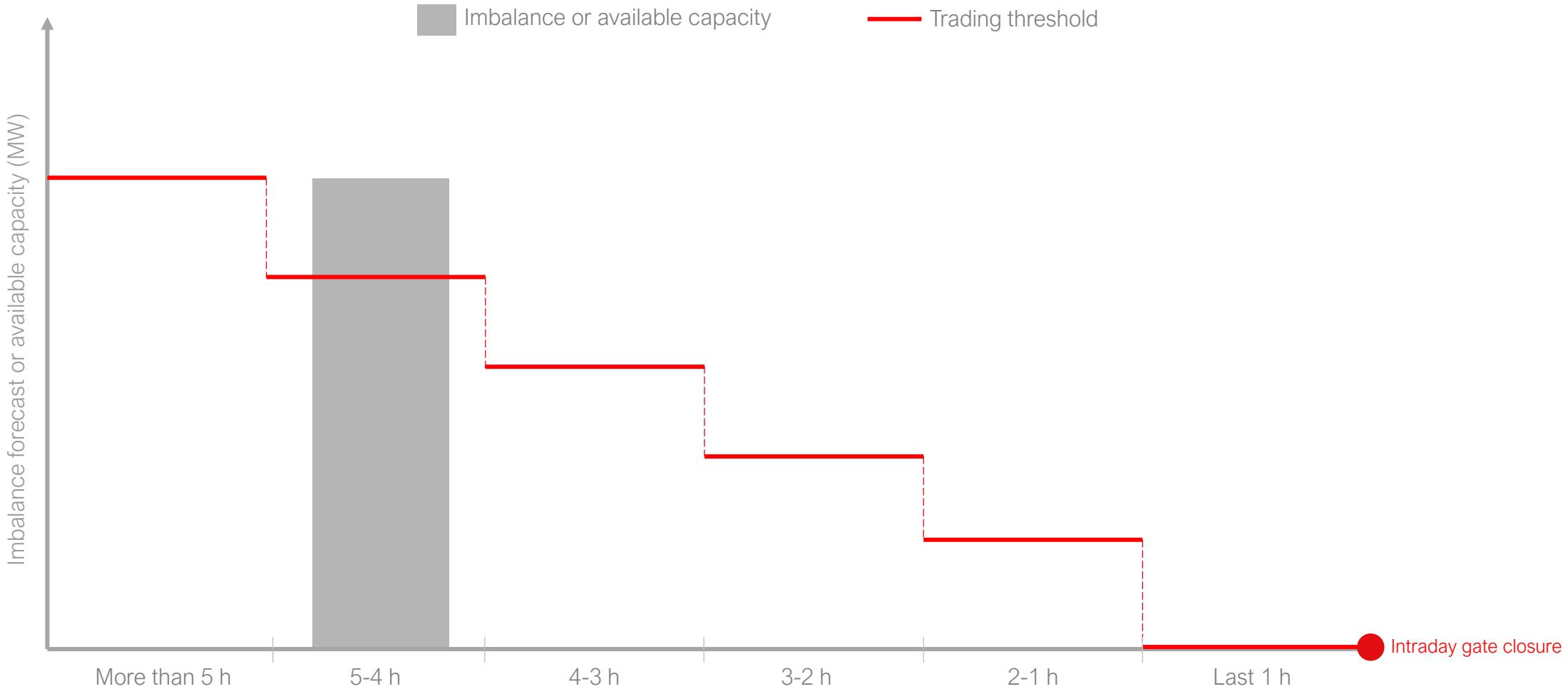
UTILIZE MORE RELIABLE WIND FORECAST CLOSER TO DELIVERY PERIOD

HANSEN

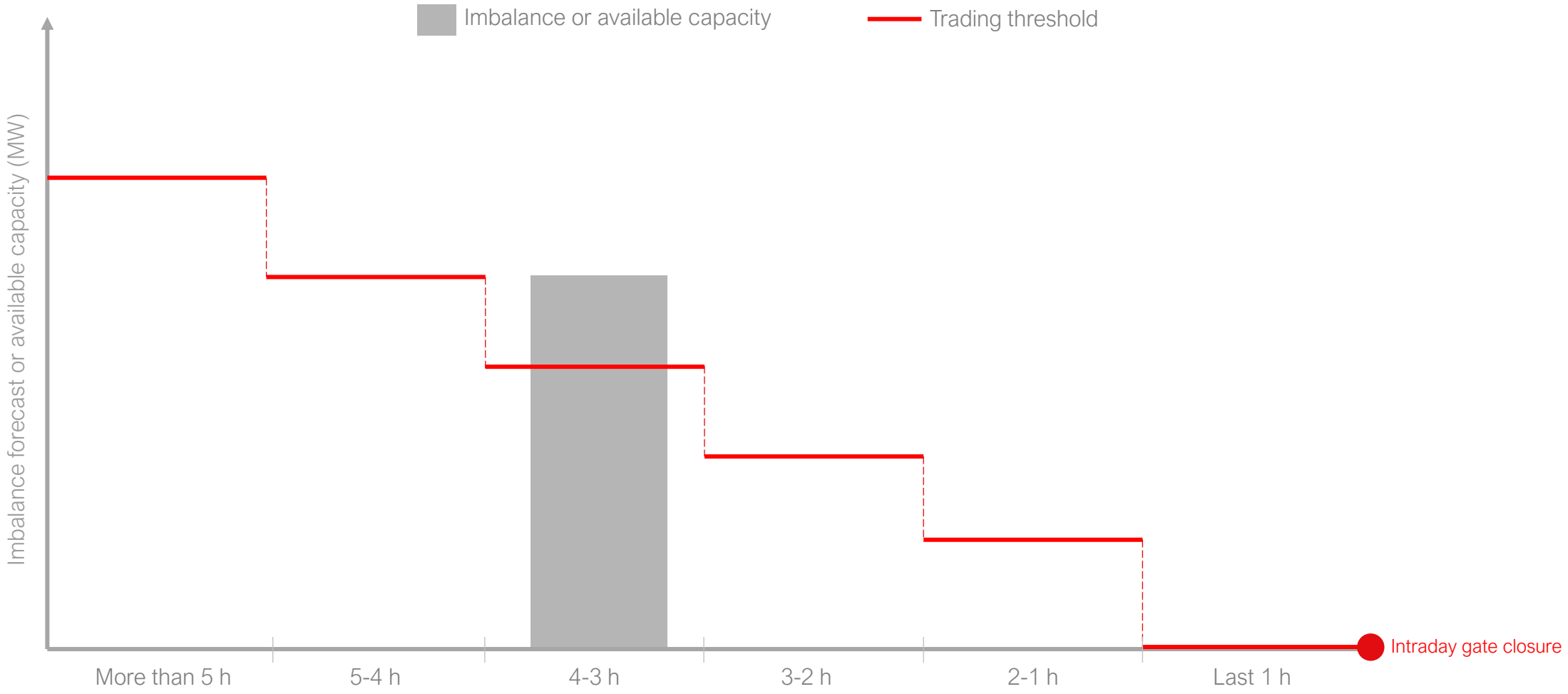
TRADING CLOSER TO GATE CLOSURE



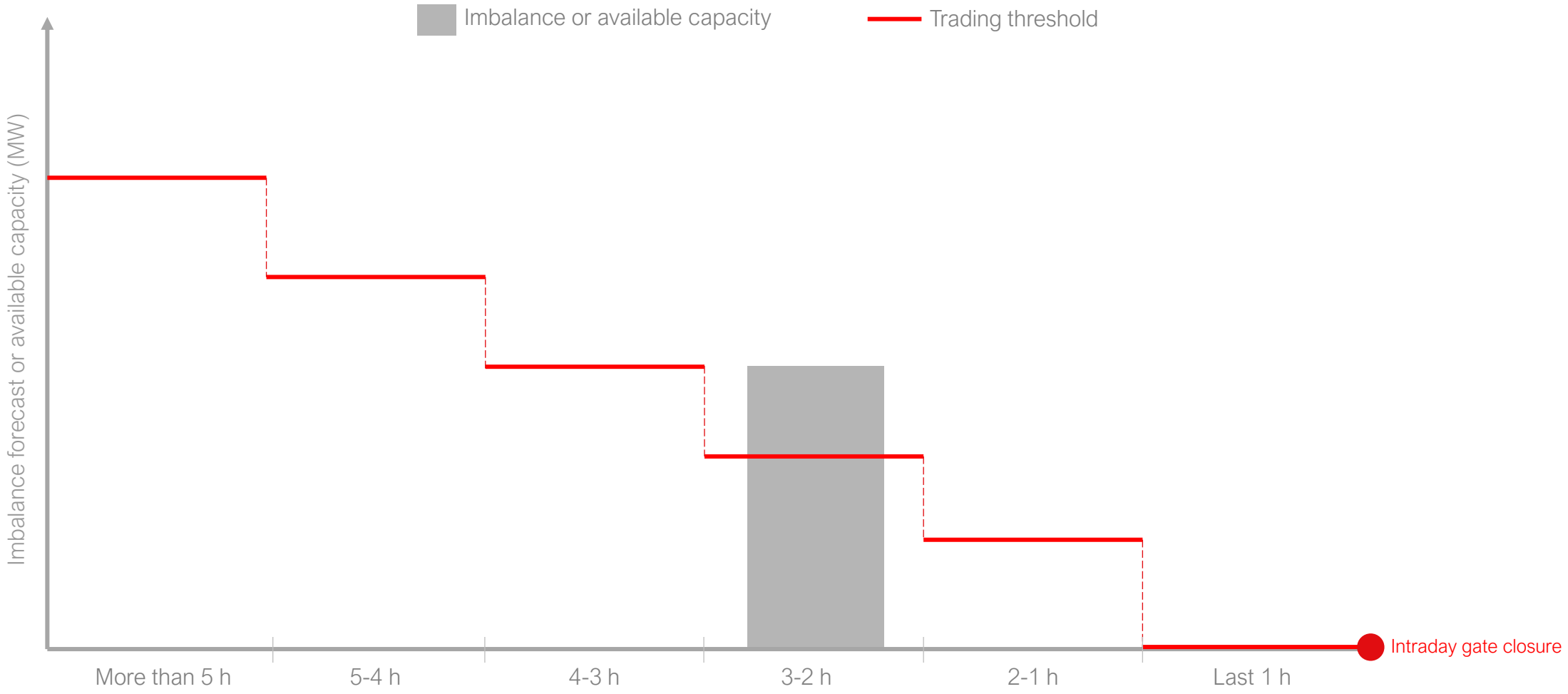
TRADING CLOSER TO GATE CLOSURE



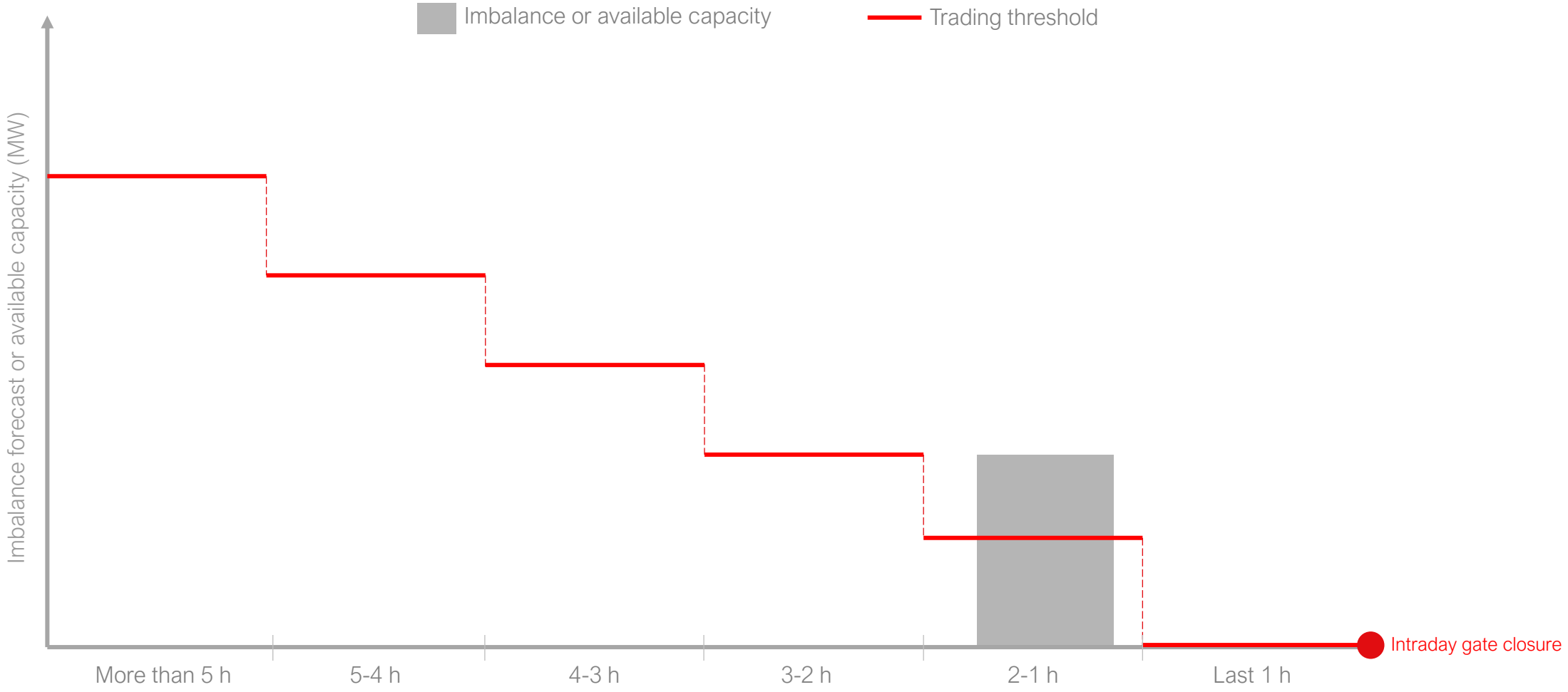
TRADING CLOSER TO GATE CLOSURE



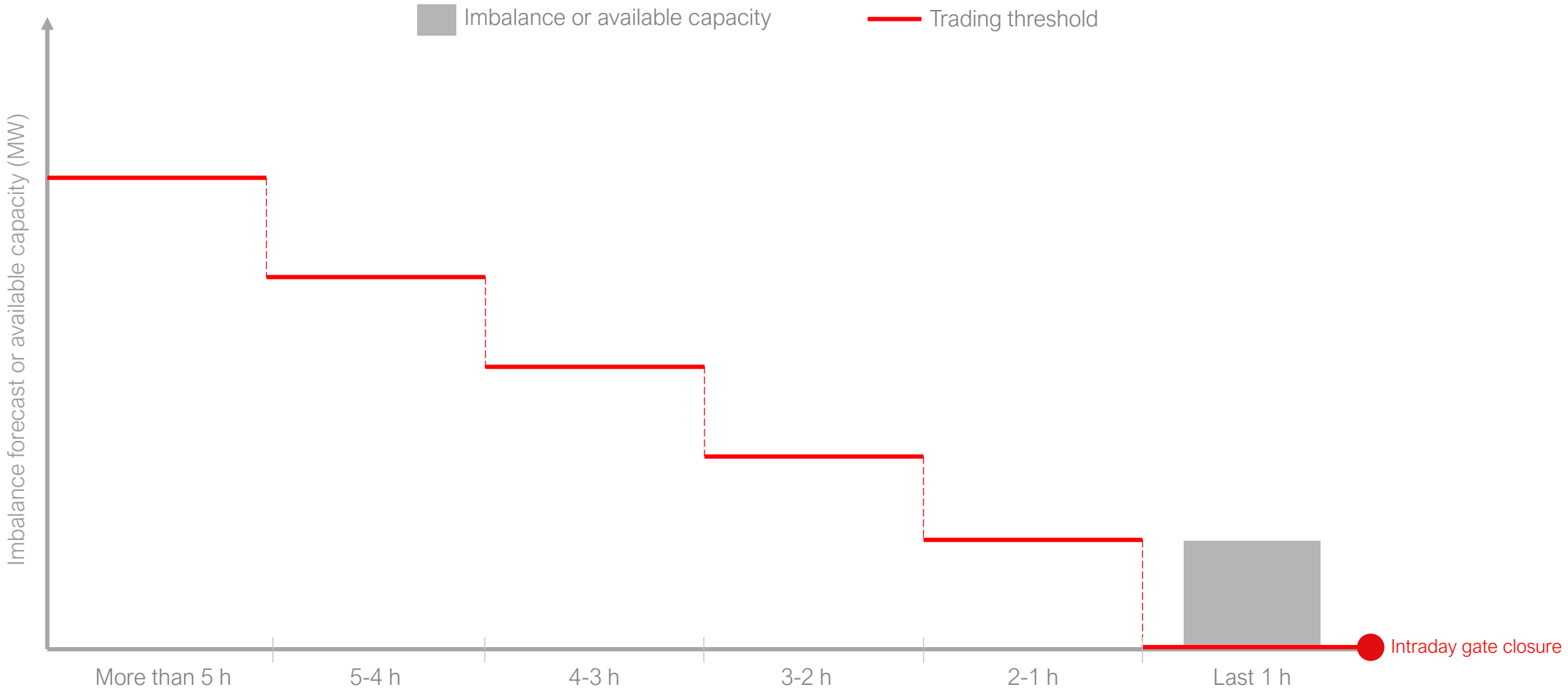
TRADING CLOSER TO GATE CLOSURE



TRADING CLOSER TO GATE CLOSURE



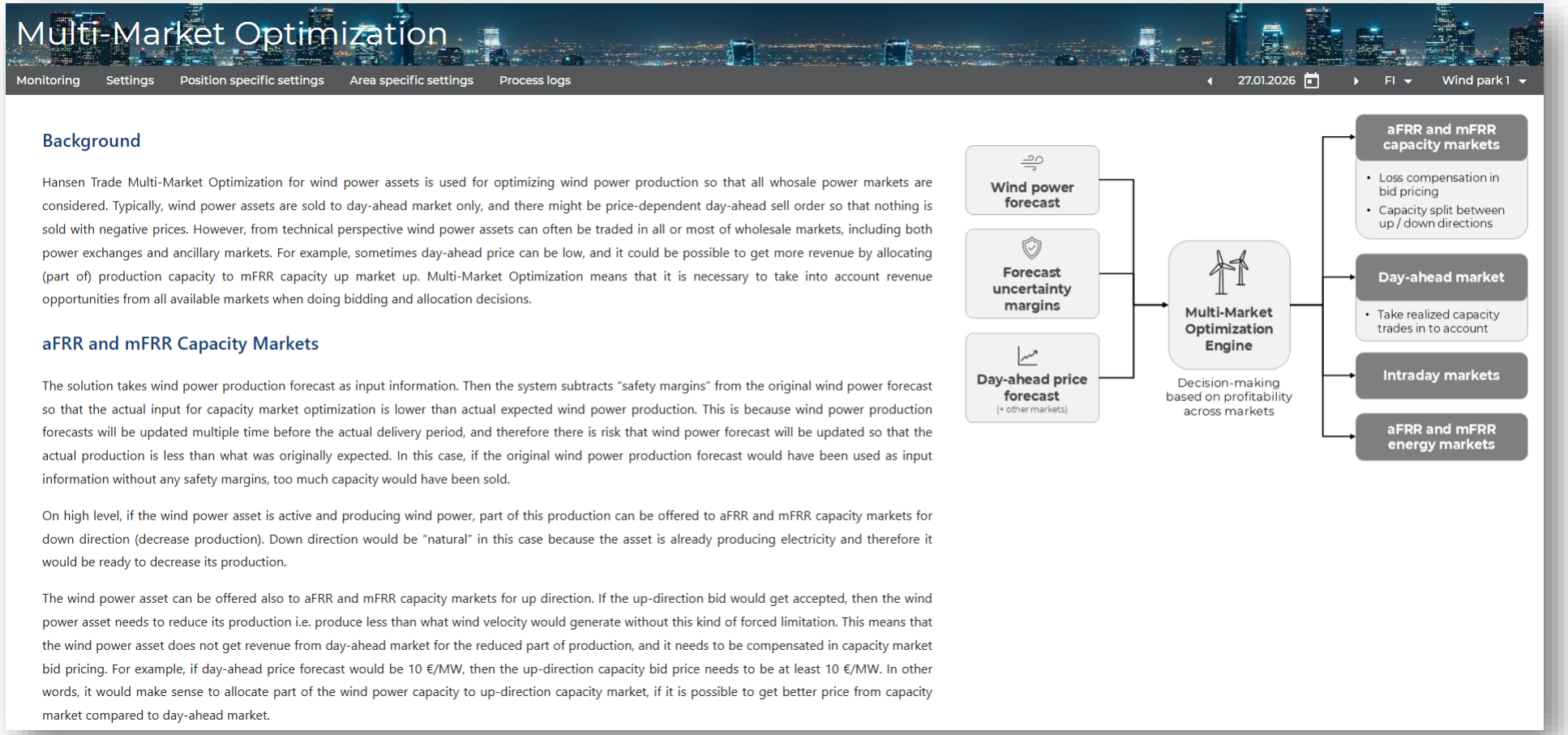
TRADING CLOSER TO GATE CLOSURE



TRADING CLOSER TO GATE CLOSURE

Trading threshold*:	15
Randomization range (±)**:	0
Trading threshold*:	10
Randomization range (±)**:	0
Trading threshold*:	8
Randomization range (±)**:	0
Trading threshold*:	6
Randomization range (±)**:	0
Trading threshold*:	5
Randomization range (±)**:	0
Trading threshold*:	3
Randomization range (±)**:	0
Trading threshold*:	2
Randomization range (±)**:	0
Trading threshold*:	1
Randomization range (±)**:	0
Trading threshold*:	0
Randomization range (±)**:	0
Trading threshold*:	0
Randomization range (±)**:	0

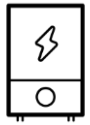
TRADING CLOSER TO GATE CLOSURE



HANSEN TRADE MULTI-MARKET OPTIMIZATION

WIND POWER

SOLAR



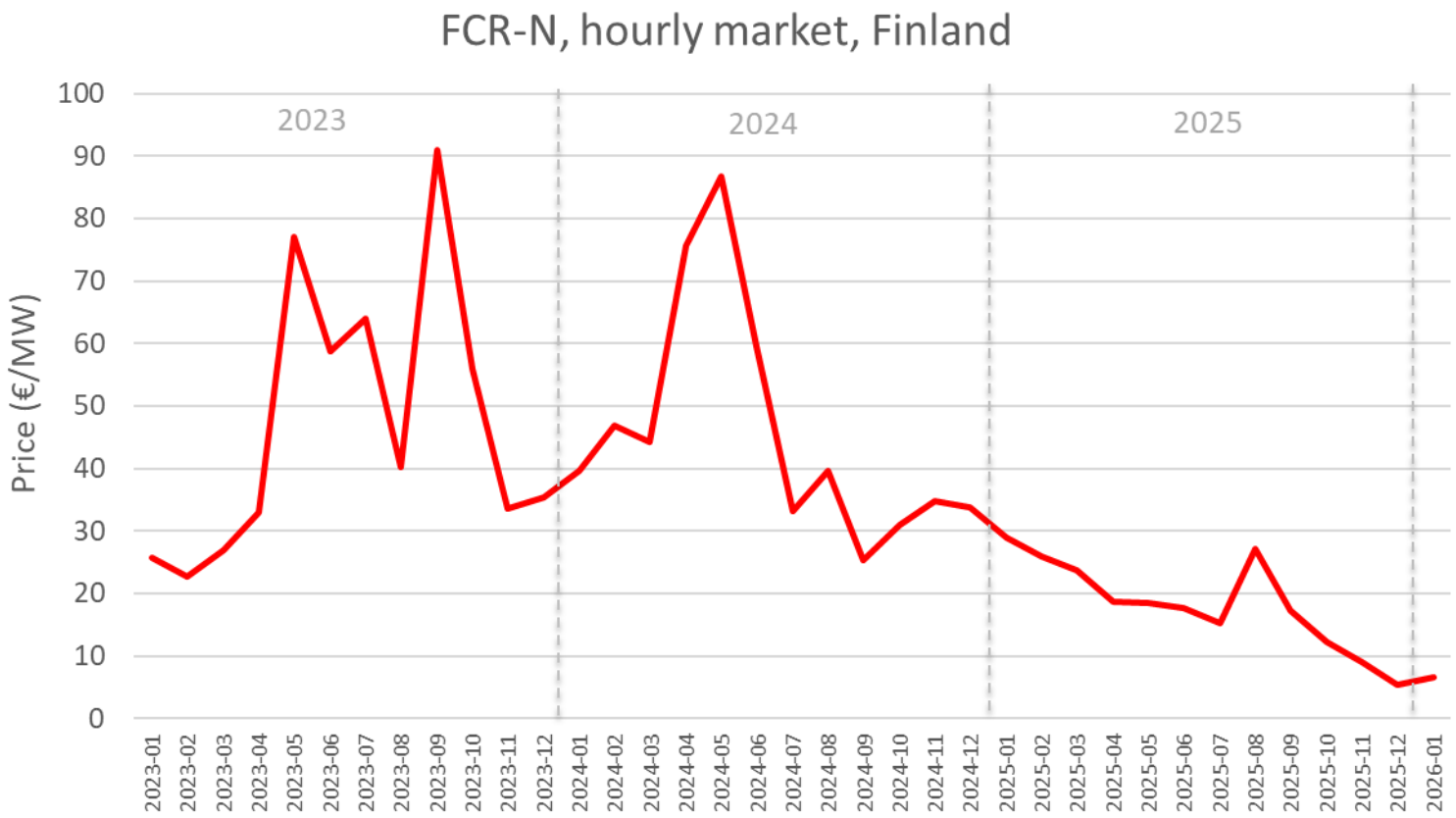
ELECTRIC BOILERS

CRYPTO-MINING DATA CENTERS

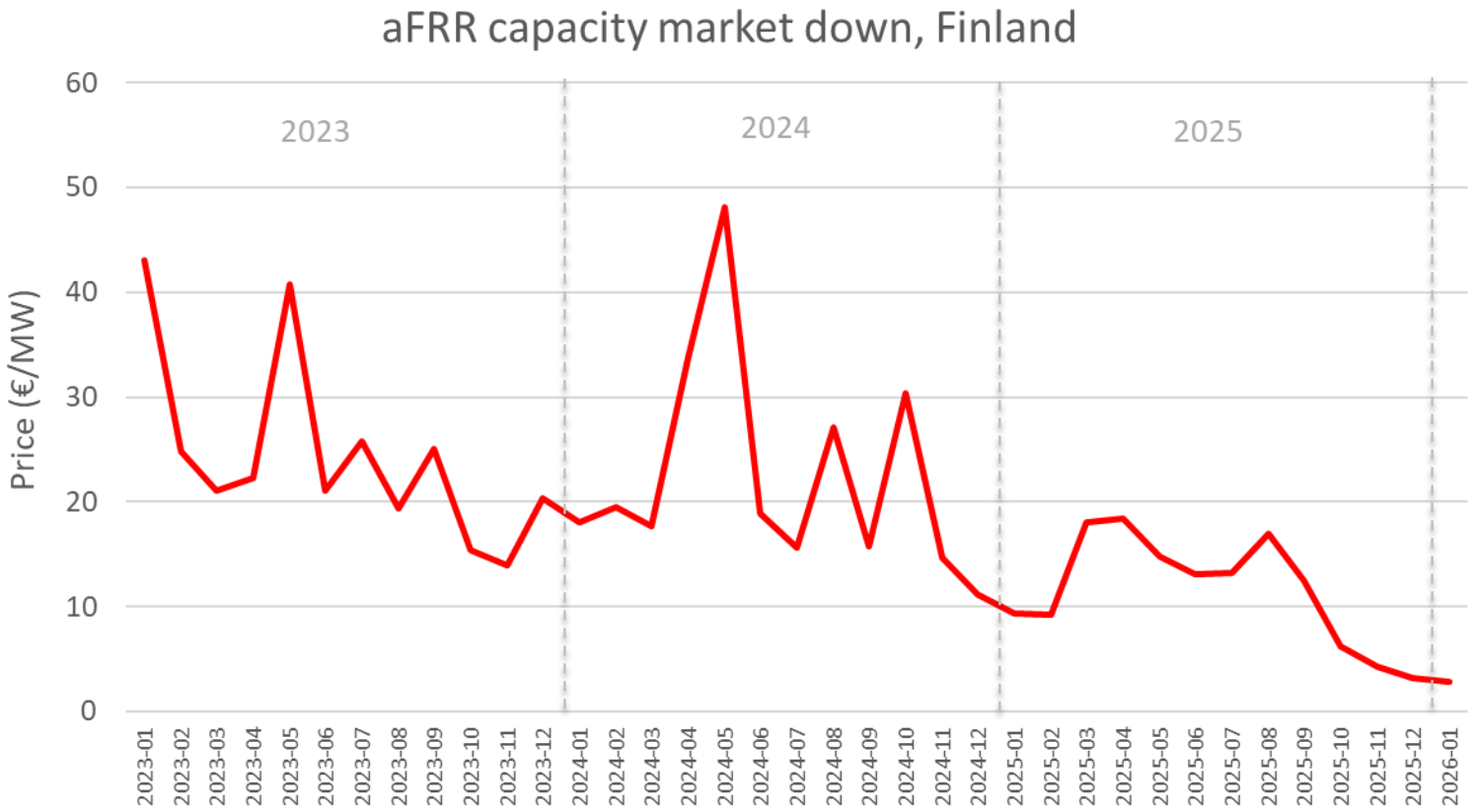
BESS

HANSEN

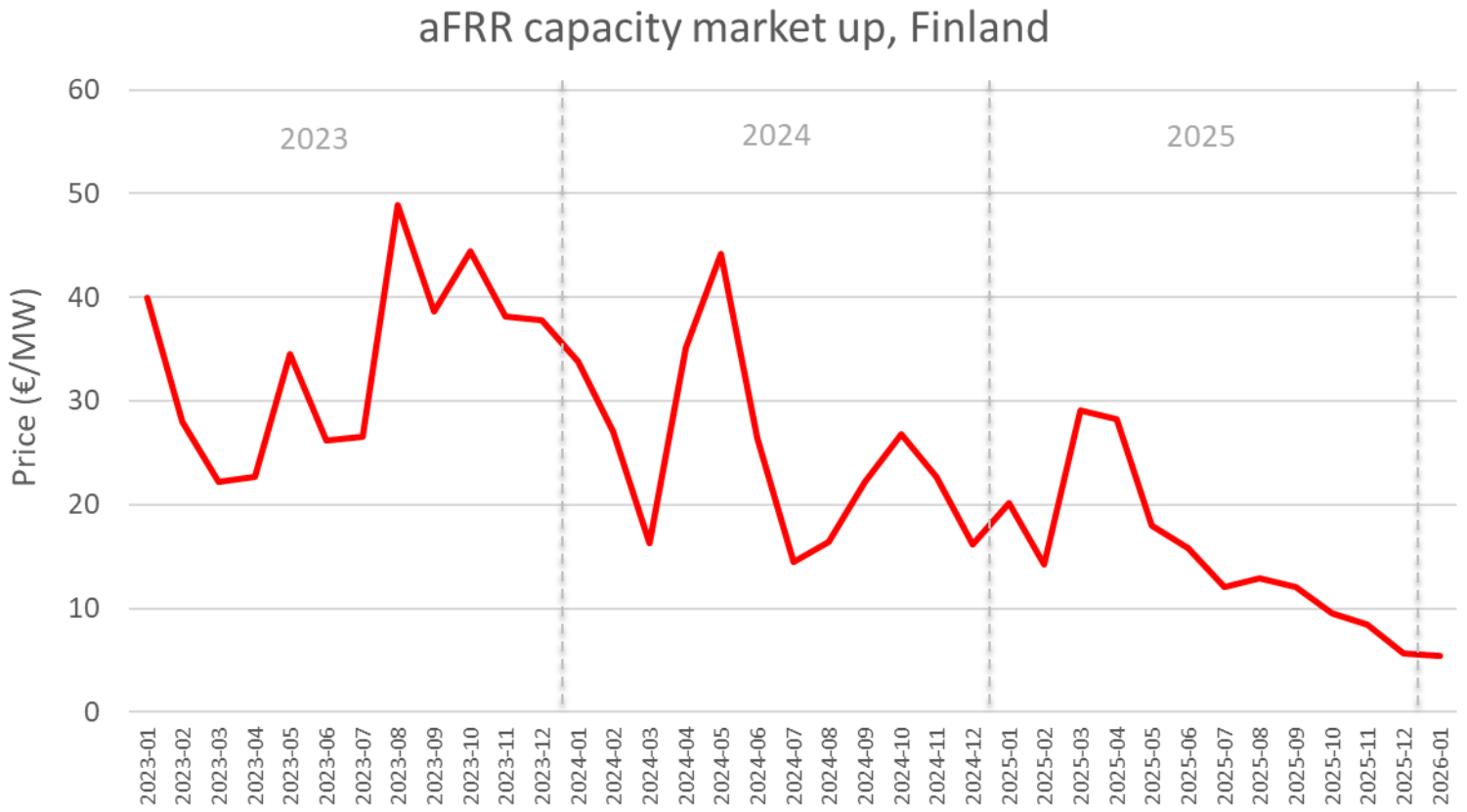
HANSEN TRADE MULTI-MARKET OPTIMIZATION



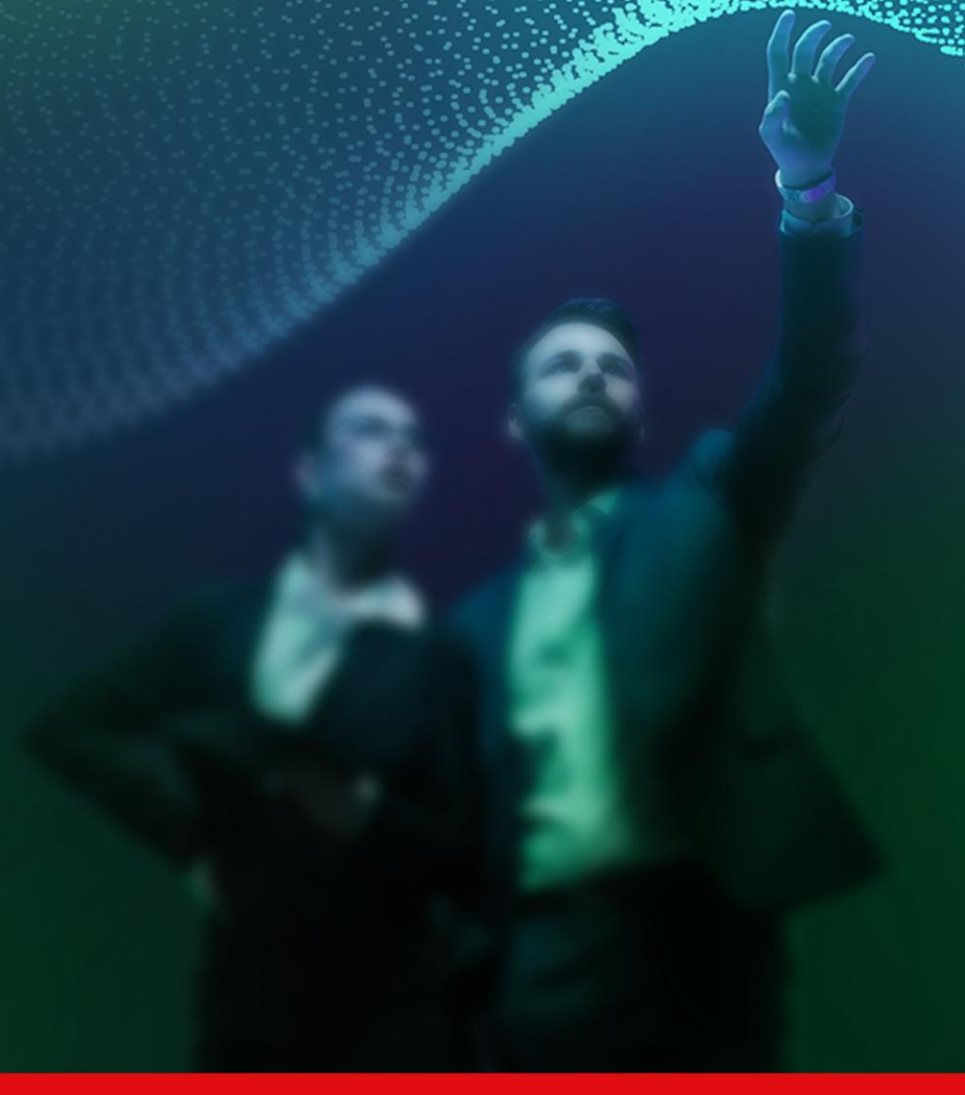
HANSEN TRADE MULTI-MARKET OPTIMIZATION



HANSEN TRADE MULTI-MARKET OPTIMIZATION

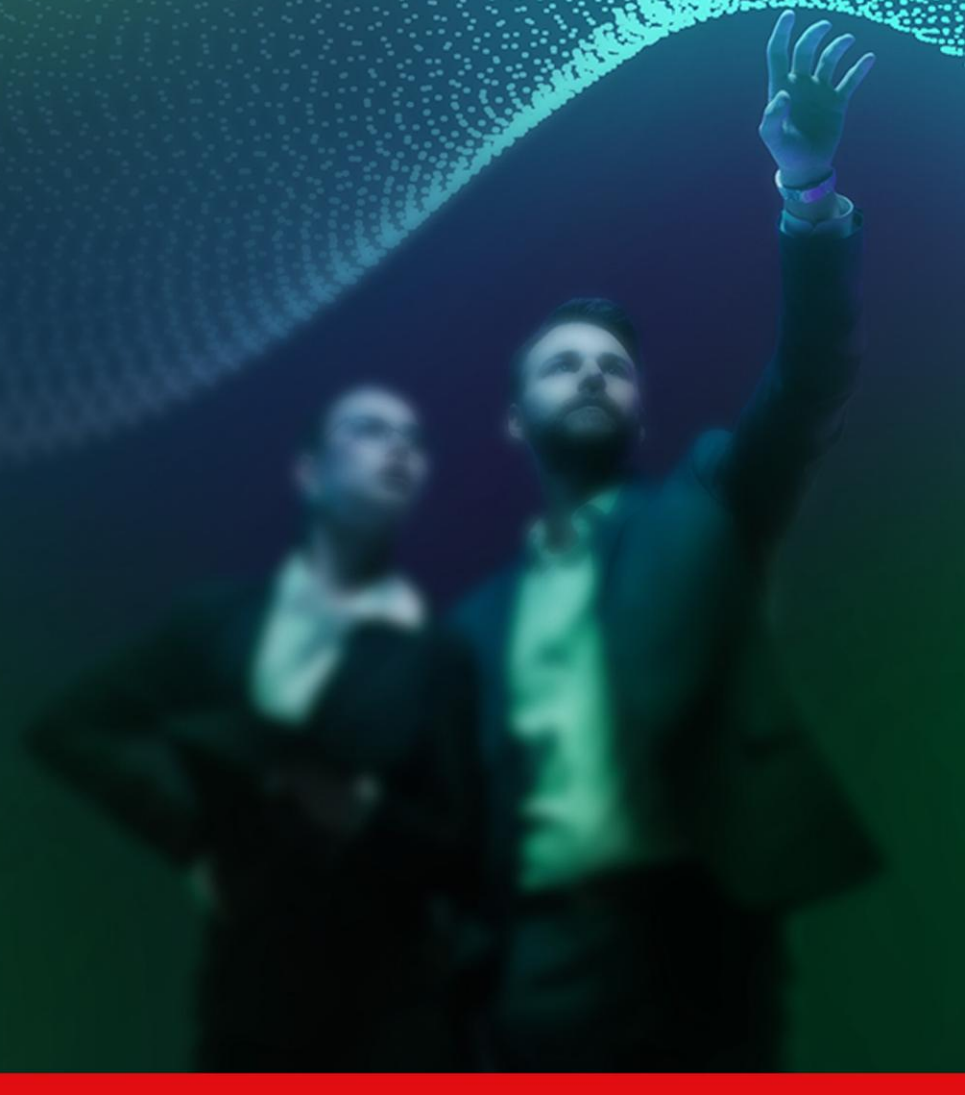


THANK YOU!



LATEST ON HANSEN TRADE

Jyri Joutsi, Product Manager, Hansen



HANSEN

MULTI-MARKET OPTIMIZATION BECOMES STANDARD

NEW ASSET / CLIENT DEPLOYMENT NEEDS TO TAKE MINUTES

HANSEN

MULTI-MARKET OPTIMIZATION BECOMES STANDARD

NEW ASSET / CLIENT DEPLOYMENT NEEDS TO TAKE MINUTES

FOCUS IN TRADING OPTIMIZATION

HANSEN

DEVELOPMENT STRATEGY

HANSEN

NEW MODULES

NEW FEATURES TO EXISTING MODULES

NEW GEOGRAPHICAL AREAS

NEW MODULES

HansenTrade™

Multi-market Optimization

HansenTrade™

Intraday Trading

HansenTrade™

Day-ahead Trading

HansenTrade™

Intraday Auctions

HansenTrade™

Regulating Power (mFRR)

HansenTrade™

FCR

HansenTrade™

Power Market Analytics

HansenTrade™

Power Plant Failure Alarms

HansenTrade™

Position Monitoring

HansenTrade™

Customer Portal

HansenTrade™

aFRR

HANSEN

NEW MODULES

HansenTrade™

Local Flex Trading

HansenTrade™

Trading Analytics

HANSEN

LOCAL FLEX TRADING

HANSEN

LOCAL FLEX TRADING

Bidding & trade result handling solution for local congestion management related trading

- NODES, GOPACS etc…

Currently, NODES has liquidity challenges in Finland (and Sweden)

- Hansen Trade implementation will be driven by Norwegian customers

Hansen Trade solution is similar as the FCR solution

TRADING ANALYTICS

HANSEN

TRADING ANALYTICS

- Module for analyzing and improving intraday trading performance
- Detailed intraday trade data from power exchange
- Combined with third-party data + customer's other data
- Trading performance analysis
  - Basics
  - Too late, too early?
  - Utilization of external data (price forecasts etc…)
- AI component included
- Connection to *Hansen Trade Intraday Trading Dynamic strategy* tool
  - Or export to some other system

HANSEN

NEW MODULES

NEW FEATURES TO EXISTING MODULES

NEW GEOGRAPHICAL AREAS

HANSEN

INTRADAY ARBITRAGE TRADING

HANSEN

INTRADAY ARBITRAGE TRADING

ASK PRICE

BID PRICE

HANSEN

INTRADAY ARBITRAGE TRADING

INTRADAY ARBITRAGE TRADING

Arbitrage trading within a single product (=period)

- Buy at low price – Sell later
- Sell at high price – Buy later

Identify ”momentum” and open trading position

- Close the trading position by using normal static and dynamic strategies

For BESS or speculative trading

Many optional strategy options for entry logic

ASK PRICE

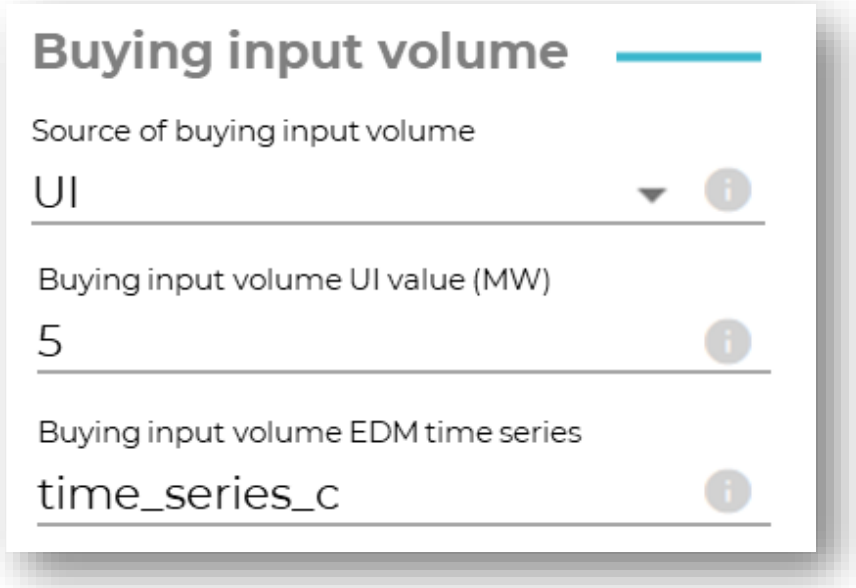
BID PRICE

HANSEN

ENTRY LOGIC

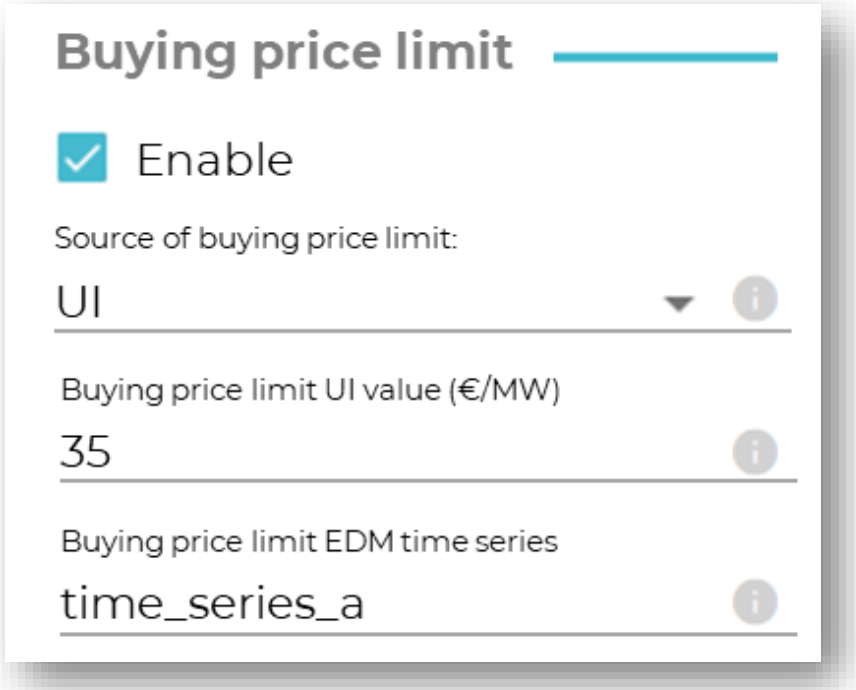
HANSEN

ENTRY LOGIC – INPUT VOLUME

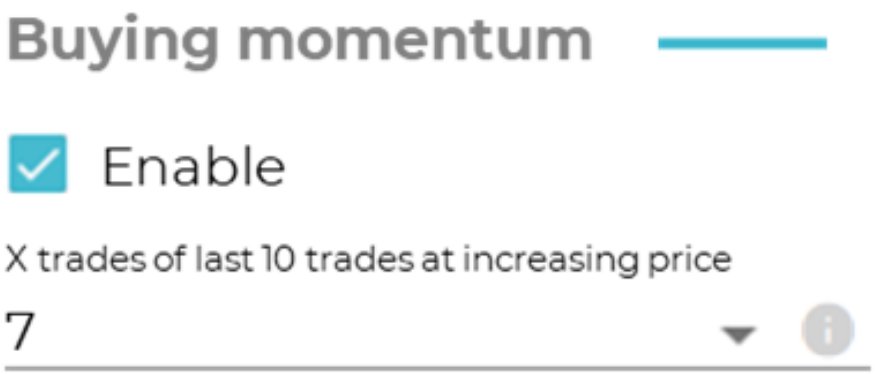


HANSEN

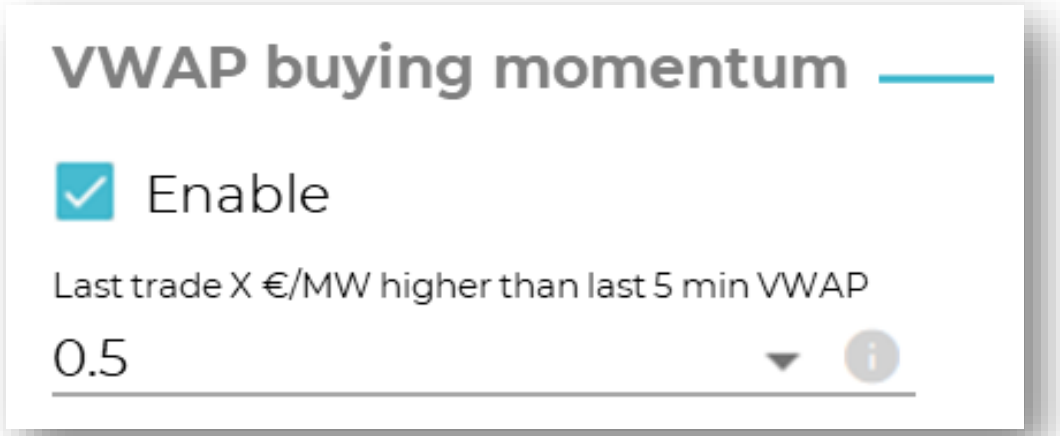
ENTRY LOGIC – PRICE LIMIT



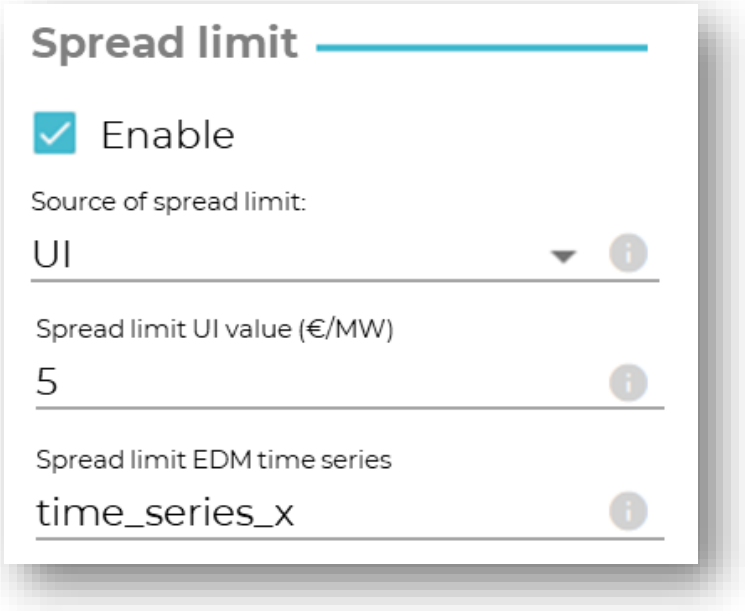
ENTRY LOGIC – MOMENTUM



ENTRY LOGIC – VWAP MOMENTUM



ENTRY LOGIC – SPREAD LIMIT



ADJUSTED mFRR ACTIVATION REQUEST ALARM

HANSEN

ADJUSTED mFRR ACTIVATION REQUEST ALARM

ALARM IN CASE OF CHANGED ACTIVATION ONLY

HANSEN

MULTI-MARKET OPTIMIZATION FOR NEW ASSET CLASSES

(INDUSTRIAL CONSUMPTION)

HANSEN

DAY-AHEAD EXCLUSIVE GROUP ORDER GENERATOR

OPTIMIZE ELECTRICITY PROCUREMENT FOR INDUSTRIAL CLIENTS

HANSEN

NEW MODULES

NEW FEATURES TO EXISTING MODULES

NEW GEOGRAPHICAL AREAS

HANSEN

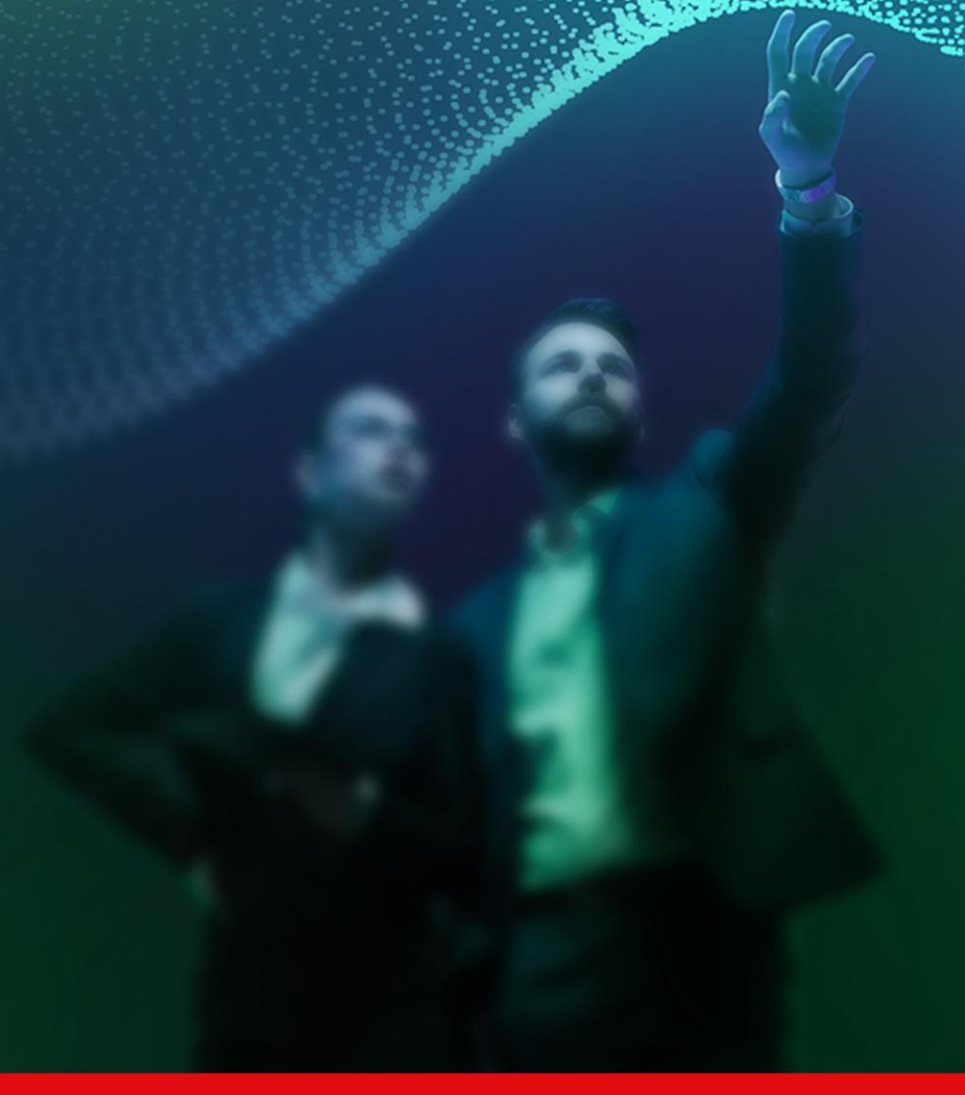
NEW AREAS – WORK IN PROGRESS

- aFRR capacity + energy market for Estonia
- mFRR & aFRR capacity + energy market + FCR market for Latvia
- mFRR & aFRR capacity + energy market + FCR market for Lithuania

…AND LOT OF BACKGROUND WORK

HANSEN

THANK YOU!



USER-MADE INTEGRATIONS WITH HANSEN EDM

Sakari Seppälä, Product Manager, Hansen

INTEGRATION DEMO

- **Need**: EDM systems needs to integrate with new systems constantly to manage in changing energy landscape

- **Problem**: Many systems needs a lot of costly time and version updates for new integrations

Define message content
Read and store time series data
Schedule API call

Use new data

EXCEPTION FOLLOW-UP DEMO

- **Problem**: Rarely special exceptions occur that are not actively monitored. In such cases, you want to receive separate information about this. Typical use cases are exceptional prices or imbalances.

- **Result**: EDM gives a notification, when you need to react

EXCEPTION FOLLOW-UP DEMO

- Hansen EDM has different validators for processing (like messaging bottlenecks), time series data (like missing or invalid values)
- Different validation errors can be monitored, and they can also trigger sending emails with configurable subject and body:

Error occurred: Imbalance limit validator

Ediel
To: Sakari Seppälä

Reply | Reply all | Forward

Tue 2026-01-27 15:11

Imbalance limit validator: Value 10.0 at time 29.01.2026 10:00 CET is above the limit value 5.0, object Imbalance

Reply | Forward

HANSEN EDM
CONFIGURE ANY CALCULATION

Flexible Calculations – With Your Business Logic

- Connected to SCADA for Production Control
- Real-Time Production Versus Optimized Production Scheduling
- Operational Efficiency Calculations
- Flexible Cost and Performance Modeling Across Asset Types
- Power Plant Modeling for Production and Revenue
- Scenario-Based Production and Cost Simulations
- Custom Forecast Adjustment Models
- Internal Imbalance Cost Modeling
- Wind Power Land Ownership Calculation and Invoicing
- Asset Shareholder Ownership and Invoicing Calculations
- Contract-Based Pricing and Settlement Logic
- KPI and Dashboard Calculation Framework

HansenEDM

HANSEN

NORD POOL

epexspot

FINGRID

SVENSKA KRAFTNÄT

Statnett

ENERGINET

MONTEL

50hertz

PVNED
CREATING BENEFITS TOGETHER

Aiolos

HansenEDM

HANSEN

- Hansen EDM has Configurability & adaptability to integrate and aggregate any energy asset data!
- Interfaces can be configured without development or upgrades even by end user!

THANK YOU!