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Providing Context to Intraday Trading

Jean-Paul Harreman
EnAppSys

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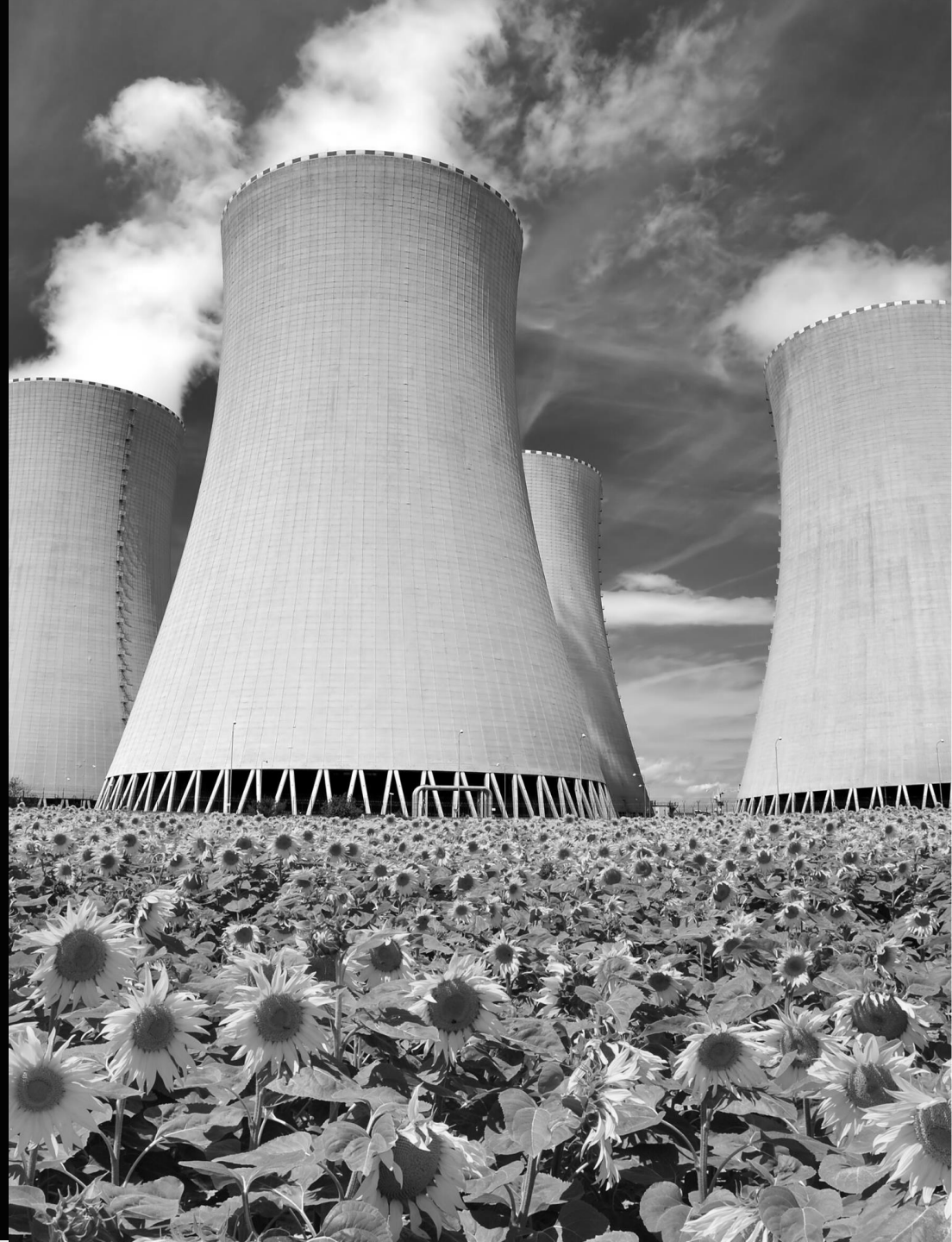

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We are an energy company providing European market insight.

Founded in 2003 • with offices in Stockton-on-Tees, UK and Terneuzen, NL

We are passionate about market transparency

We believe that, by making our insight available to stakeholders in the market we can facilitate a faster energy transition at the lowest possible cost for customers

We are part of:

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Market Data & Forecasting Services

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We collect data from every data source we can find, to save time, effort, and costs through our data platform:

- Charts
- Customizable Dashboards
- Download
- API Access
- Weekly Market Reports
- Twitter/LinkedIn
- Talk to our Market Experts

Data types feeding into the EnAppSys platform (% share)

Public data — 45%

- Majority of data gathered from public sources, e.g. TSOs
- Most TSO and public data can be processed via the universal importer

Licensed data — 20%

- Data purchased from specialist sources on a subscription basis
- Typically this is exchange and broker data that is very challenging to process
- Data usually priced on a per end user basis so usage has to be tracked closely

COST SAVINGS:

DATA STRAIGHT FROM SOURCE THROUGH SINGLE API & PLATFORM

Derived data — 25%

- Data derived from public and licenced data
- Typically processed using the configurable calculation engine, this derived data is developed using the depth of knowledge in the EnAppSys business

Proprietary data — 10%

- Primarily forecast data like demand, generation, price, margin, imbalance and others which involves significant knowhow and coding
- Also includes work from our consultancy team, such as forward price curves

ADDED VALUE:

AGGREGATES, FORECASTS, MODELLED DATA

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Looking for sensitivities

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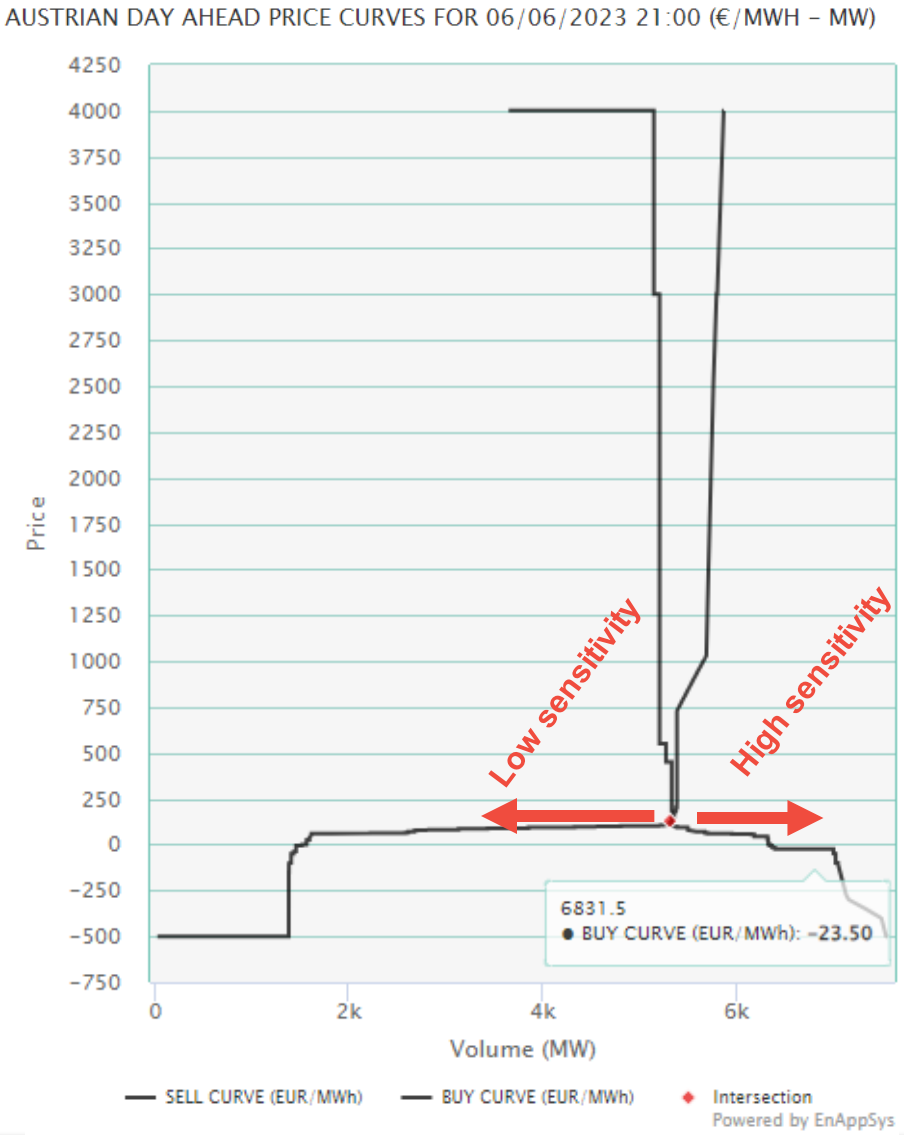
Analysing Day-Ahead Results

- Day Ahead Auction Curves provide a massive amount of information on sensitivities.
- If we take the aggregated curves of the day and **shift one of the curves** by -100, +100, -250, +250, or other interval, the **intersection** of the supply and demand curve shifts, with a **different price** as a result.
- Where the supply curve is very **flat**, more demand or less demand does not really affect prices.
- If we get close to the edges of price levels, you may see dramatic jumps, which are not necessarily symmetric, implying that risk/opportunity is asymmetric.
- The assets in the day-ahead auction will be in the intraday trading as well, their economics will have hardly changed overnight!



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Analysing Day-Ahead Results

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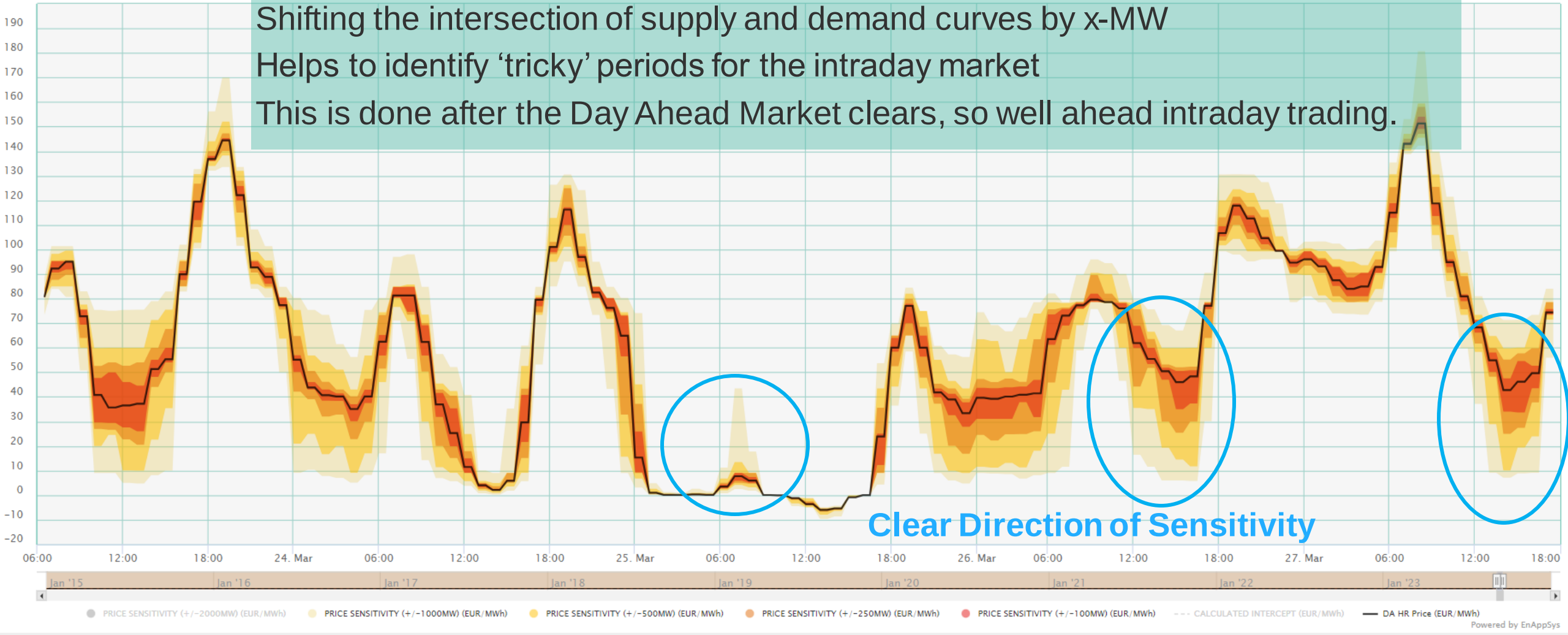
What-if Analysis:

Shifting the intersection of supply and demand curves by x-MW

Helps to identify ‘tricky’ periods for the intraday market

This is done after the Day Ahead Market clears, so well ahead intraday trading.



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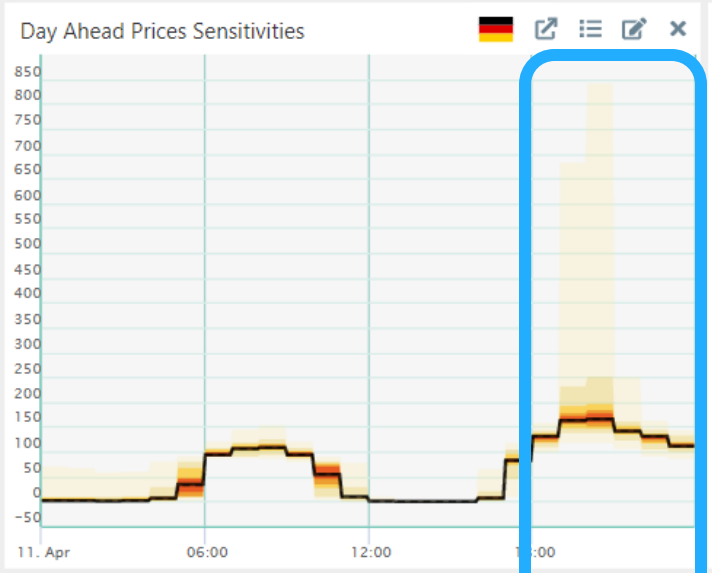
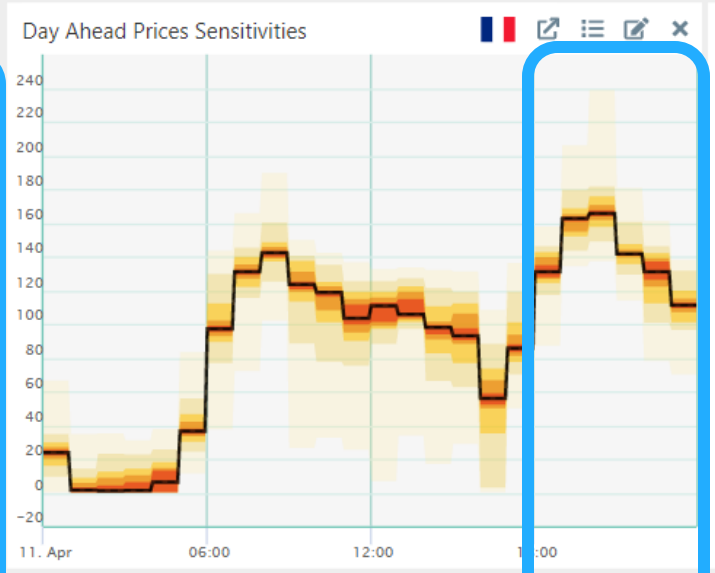
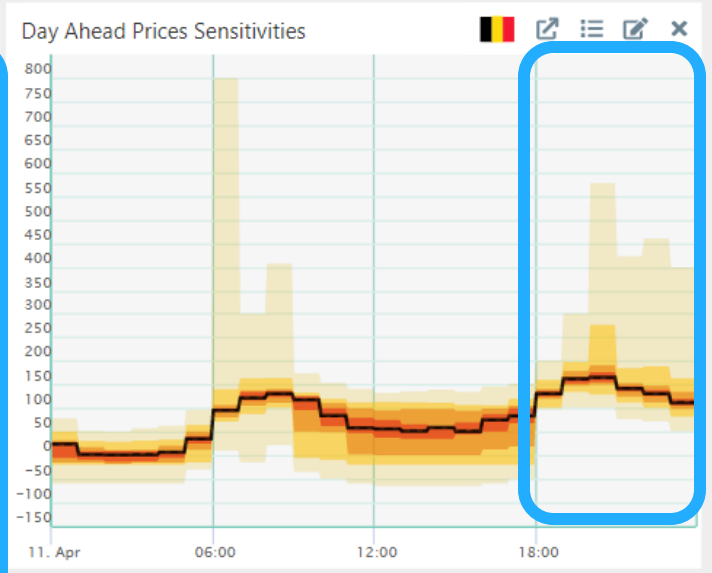
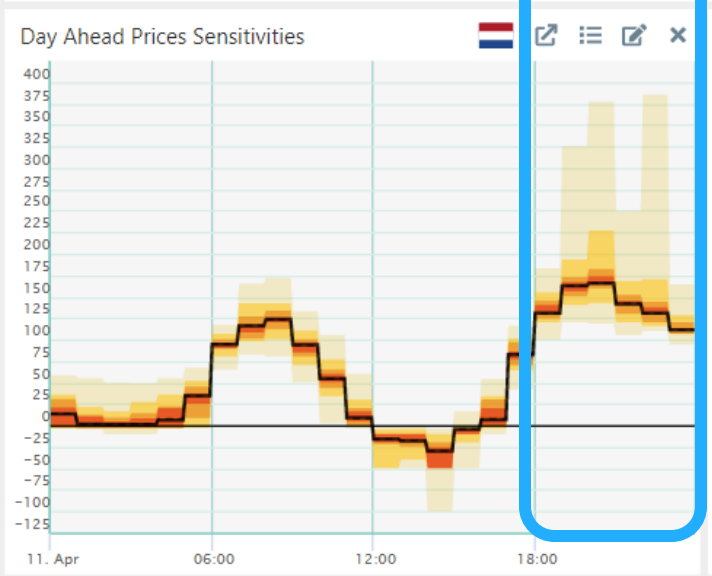
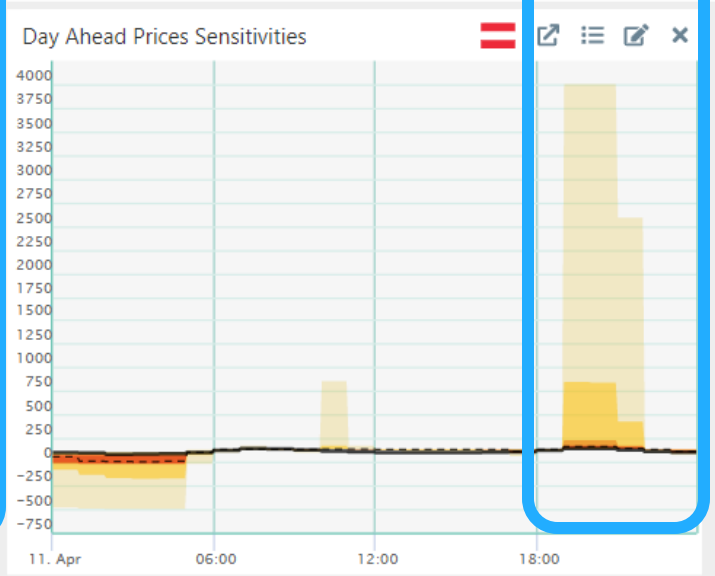
Example: CWE 11 April 2023











Sensitivity:

Massive sensitivity in upward direction for all of the most important border markets.

Largest sensitivities in AT, BE & DE.

This implies a tightness on intraday and balancing markets in upward direction.

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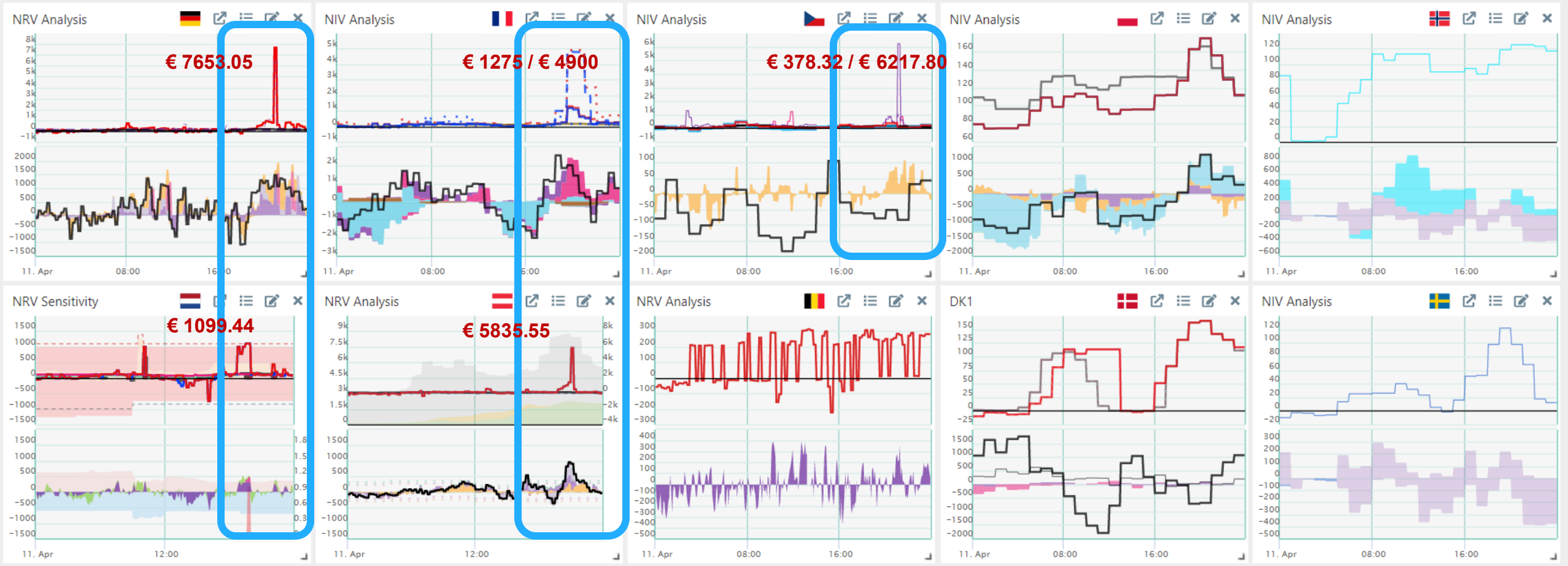
Example: CWE/NWE 11 April 2023



In the evening peak, extreme prices were seen in DE, FR, NL, AT and CZ.

All neighbouring countries facing a shortage on the balancing market, due to a drop in wind generation.

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Intermittent Renewables vs Intermittent Conventional

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Introducing Intermittent Conventional Power

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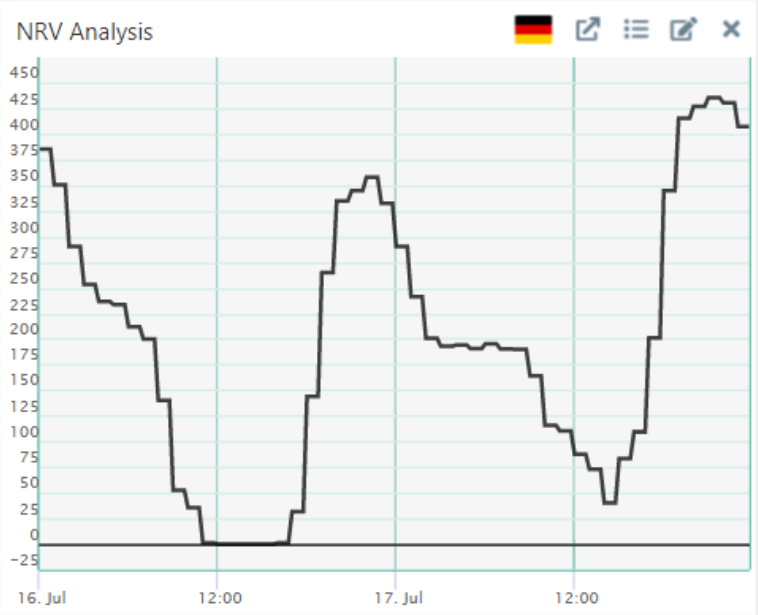
We have seen massive development of renewable capacity during the energy crisis.

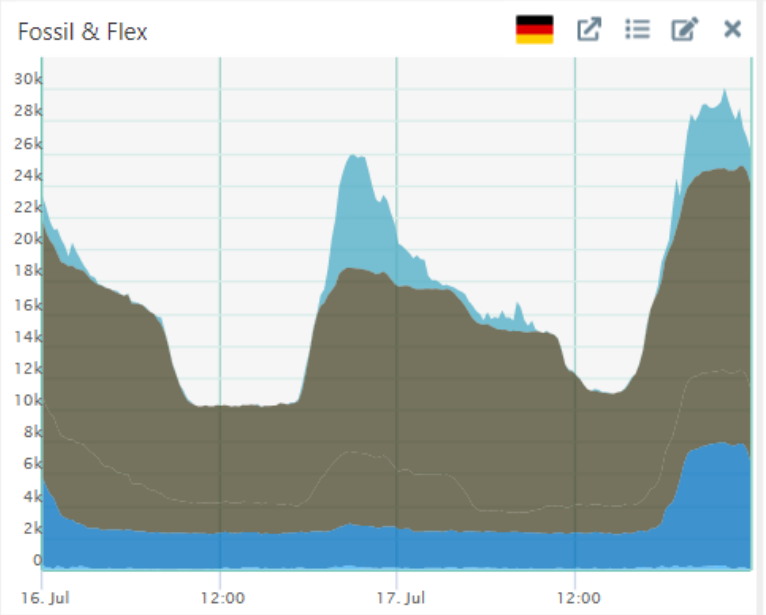
As the extent of new capacity is starting to present itself in the fuel mix, we see that it pushes conventional generation out-of-merit.

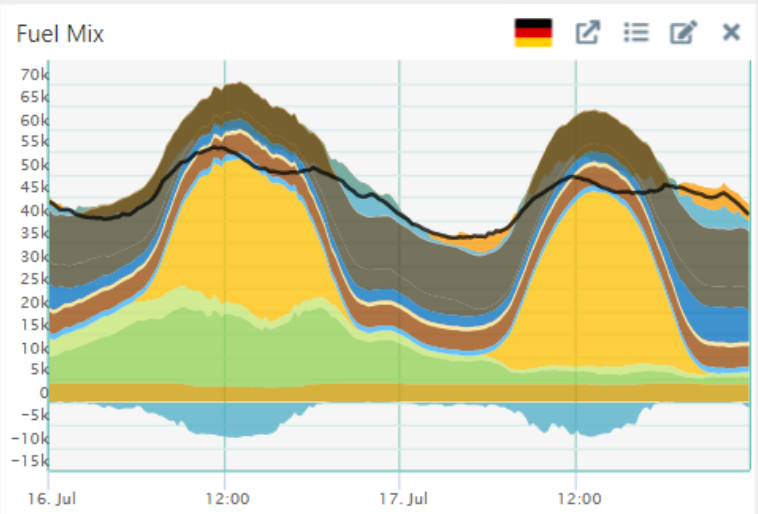
Gas, coal & lignite run at minimum levels during solar peak, of even switch off.

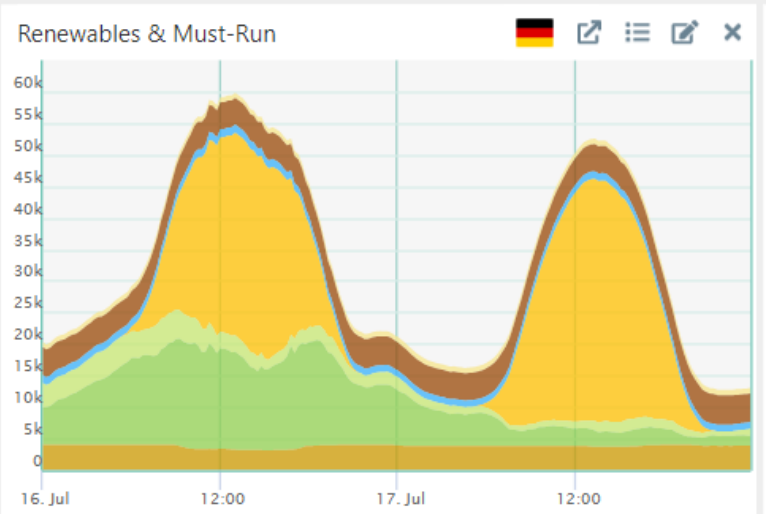
This means there is very little downward flexibility during the solar peak

Germany is one of the countries affecting the whole of Europe









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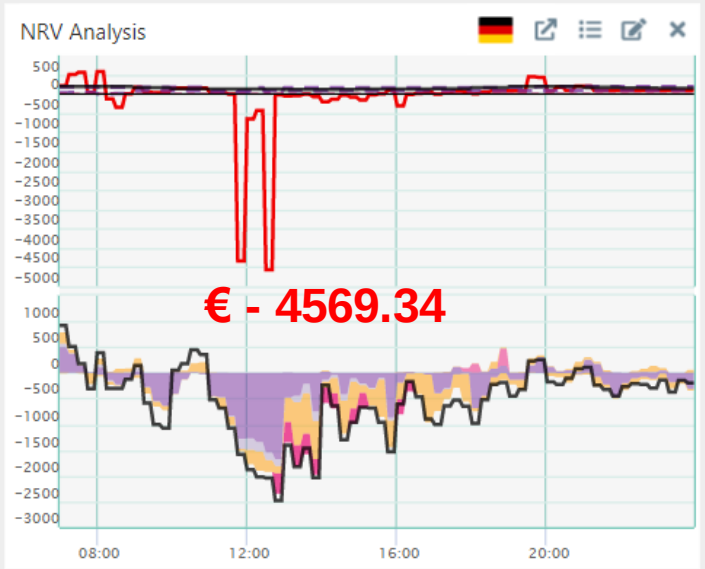
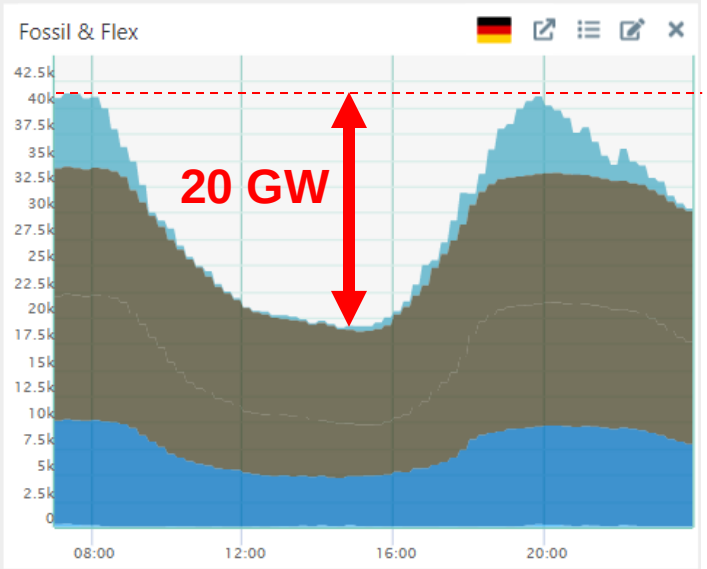
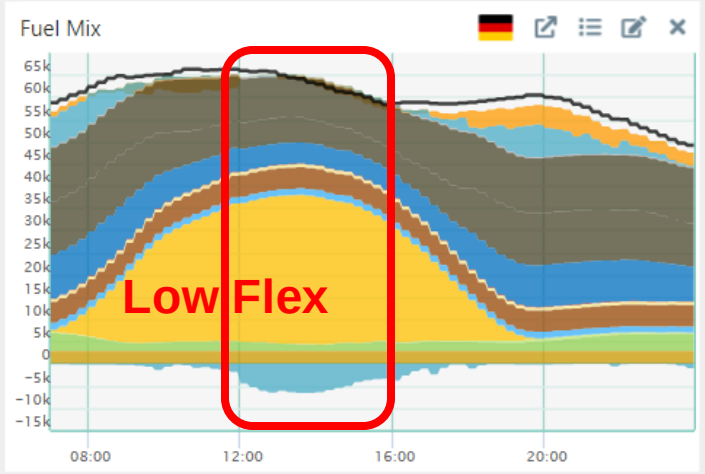
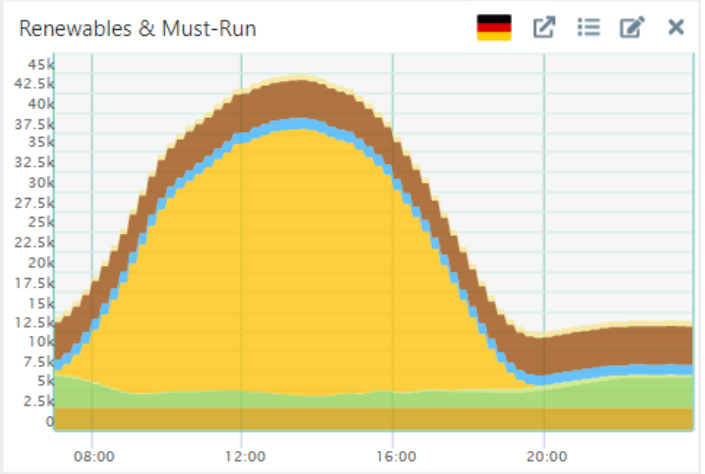
Example: 4 April 2023









As renewables push conventional power out-of-merit, the volume and slope of ramps becomes steeper.

During solar peak, the volume of conventional and flexible generation that is available for ramping down is low.

Even with nearly 10 GW of pumped storage consumption, the surplus could not be balanced out.

In the evening peak, conventional power and pumped storage had trouble keeping up with dropping renewables.

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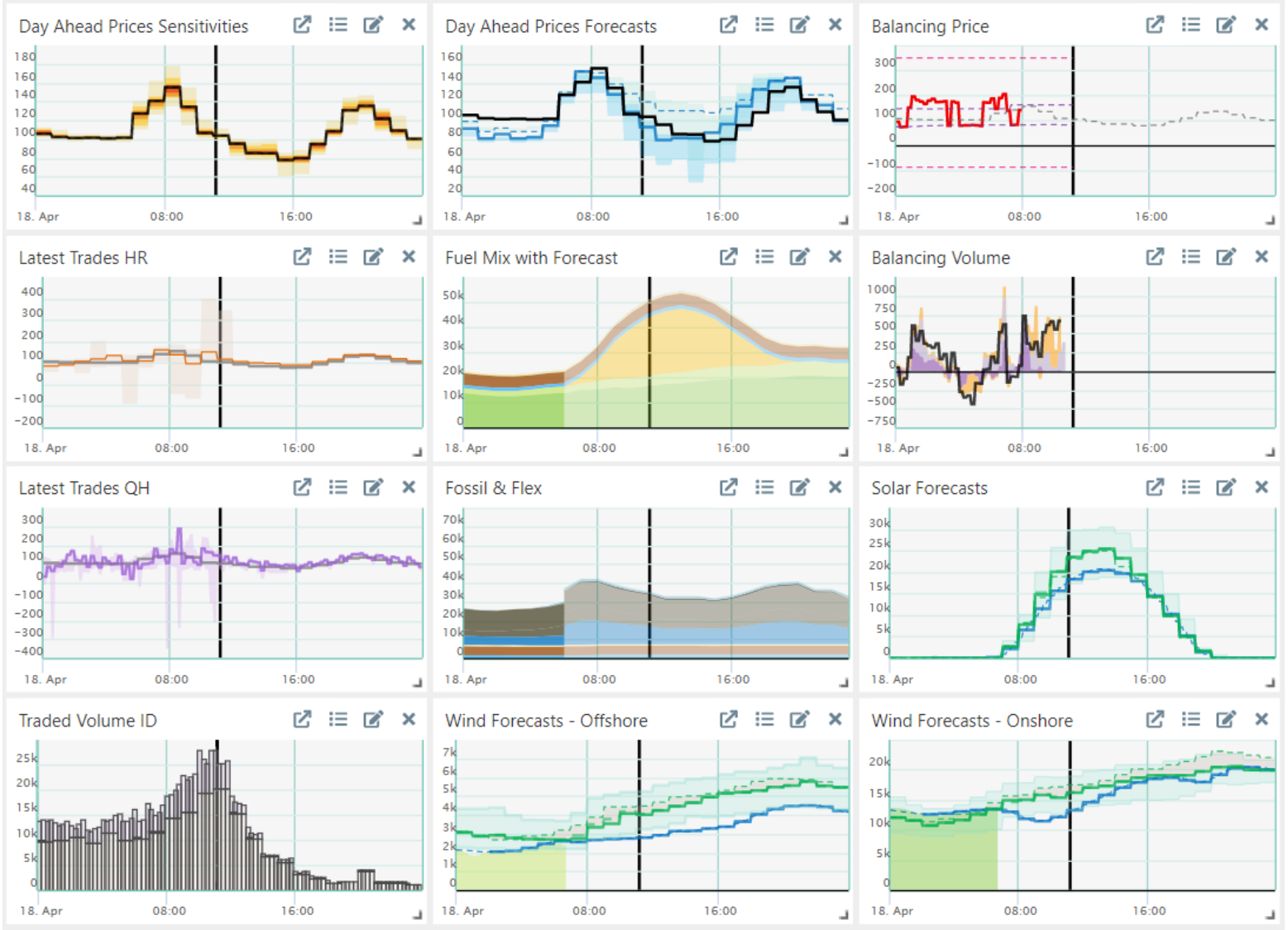
Looking Ahead

Where sensitivities and steep ramps line up, we will see volatility.

Keep in mind that ramps will get steeper in the summer.

Looking at the generation forecast (part of day ahead forecast) is crucial.

Solar and wind forecast deviations will continue to have a major impact, especially when there is low spinning reserve and during ramps.



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Similar Price Patterns across Europe

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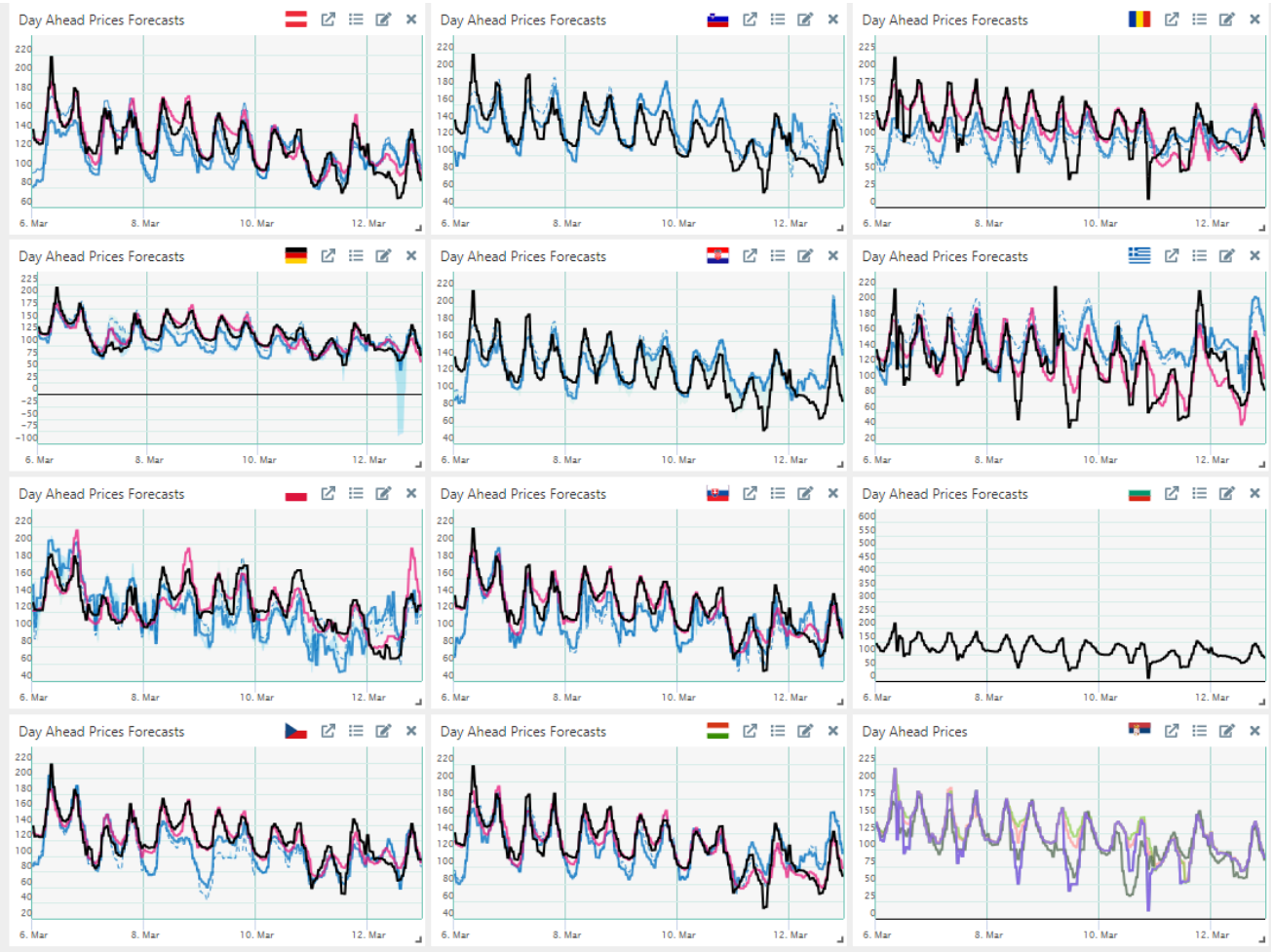

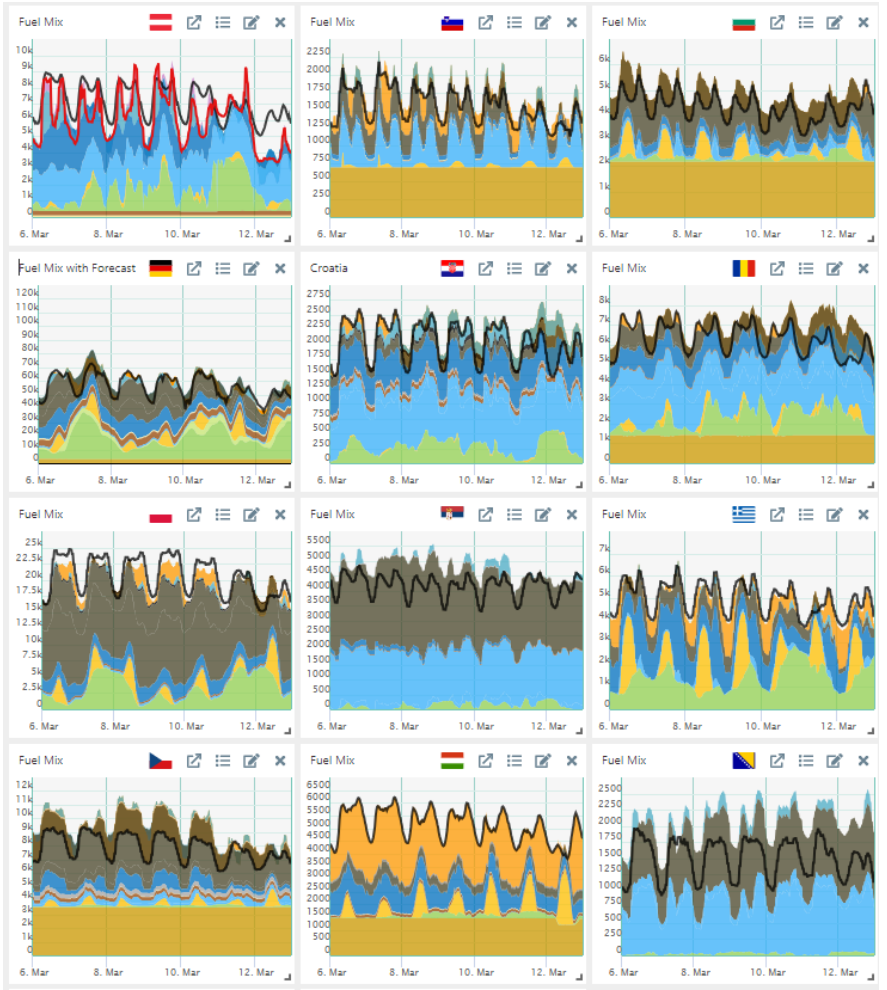

Despite **large difference in fuel mix and renewable penetration**, market coupling ensures prices align.

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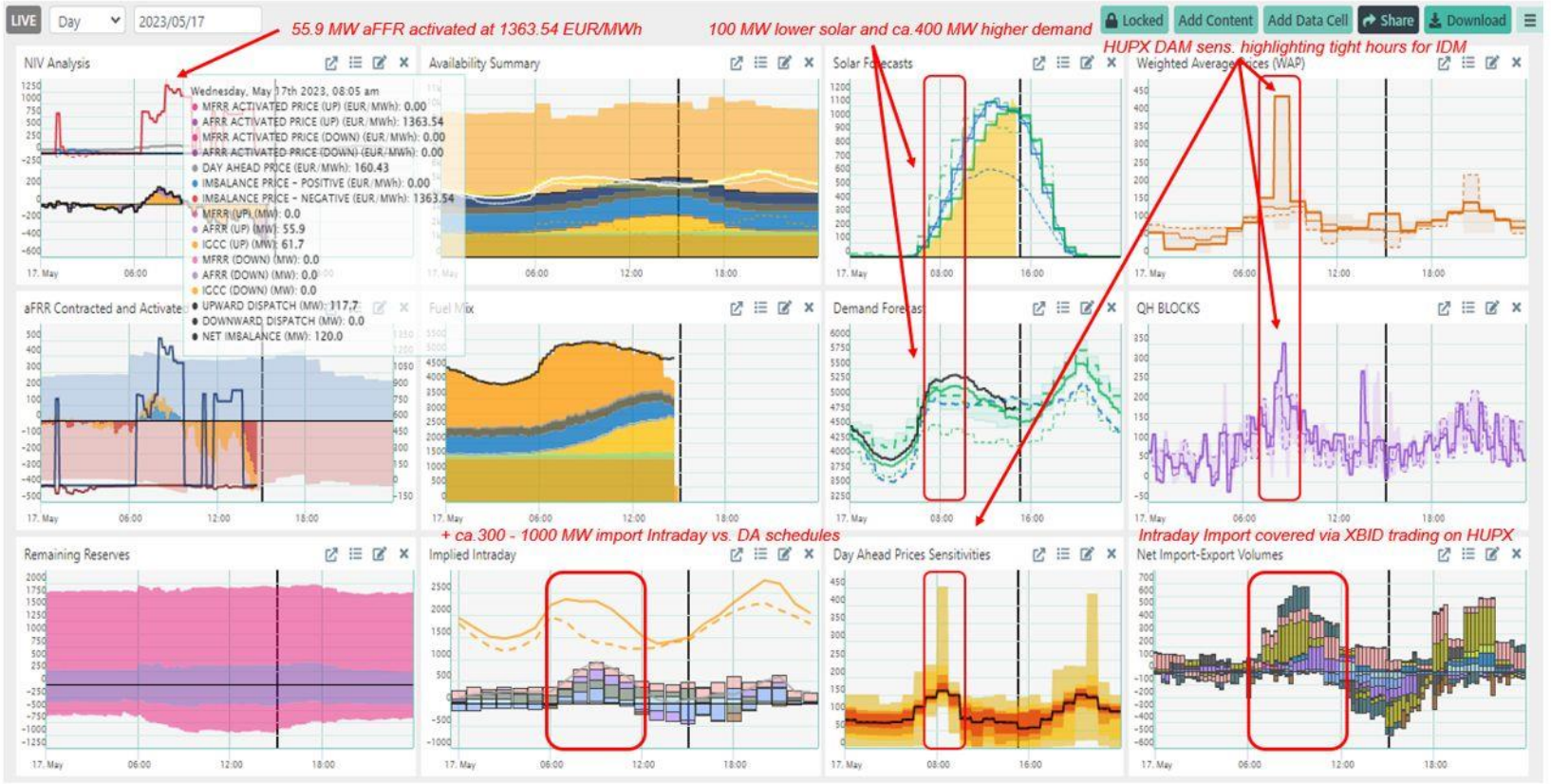
Price convergence/divergence

Markets decouple because of high or low renewables combined with limited transmission capacity.

When a country goes into “Island Mode” intraday and balancing prices can go very extreme as flexible power in the grid will be scarce. We see the first signs of CWE and SEE being affected by this.



*This example shows Hungary seeing **lower solar** and **higher demand** pushing balancing and intraday prices upward. The level of utilization of the interconnectors plays a crucial role here.*

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Price convergence/divergence

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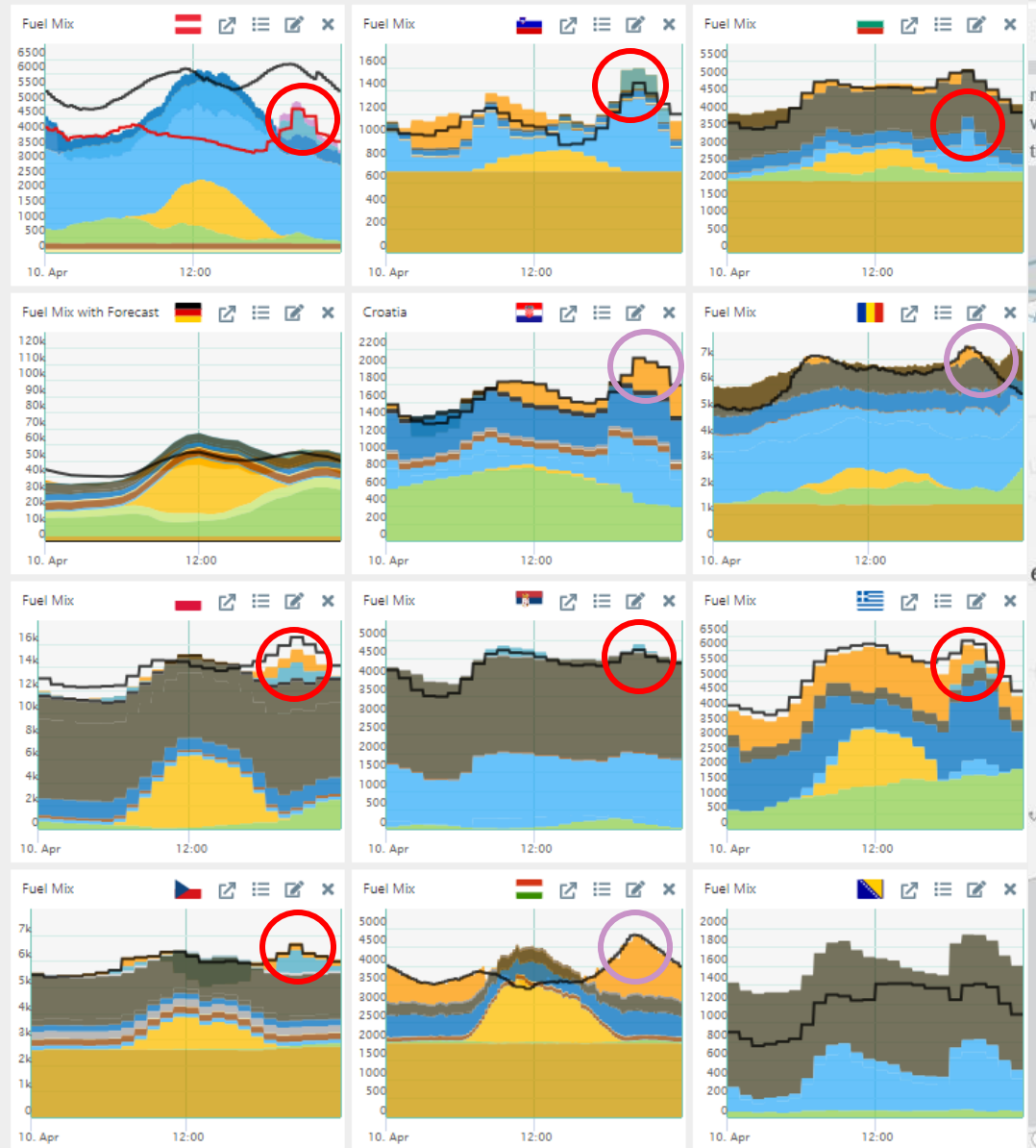
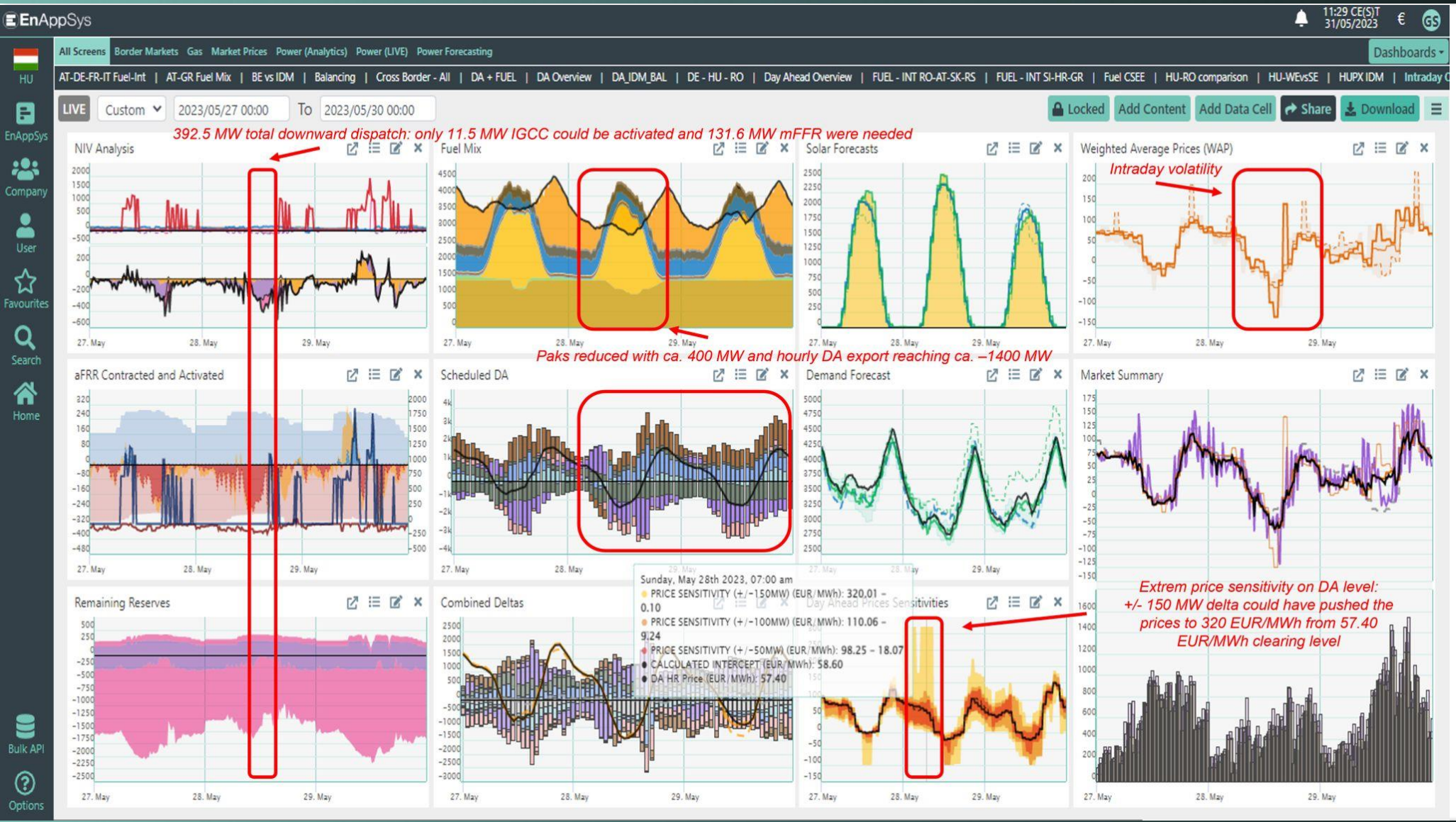
Easter Monday:

This example shows a situation where **demand** was **low** and renewables had pushed **conventional power out-of-merit** during the day.

With **low spinning reserves** we saw a need for **pumped storage** being activated for the evening peak at a premium price. Other countries **importing** flex.



Balancing Markets – Time is of the essence



Another extreme example, showing **extreme sensitivity** during a period of massive surplus.

With fossil fuel pushed out-of-merit, the **nuclear** unit has to provide **flexibility** to the grid.

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Summary

- Analysing sensitivities gives you context, this should be the basis of trading decisions.
- The sensitivities **combined** with fuel mix forecasts, margin forecasts and intraday trading behavior can help you make sense of wholesale and balancing markets.
- Adjacent countries will influence every market, big or small, **your country is not an island**!
- We can help you make sense of the data sources and train your traders (and bots).

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