

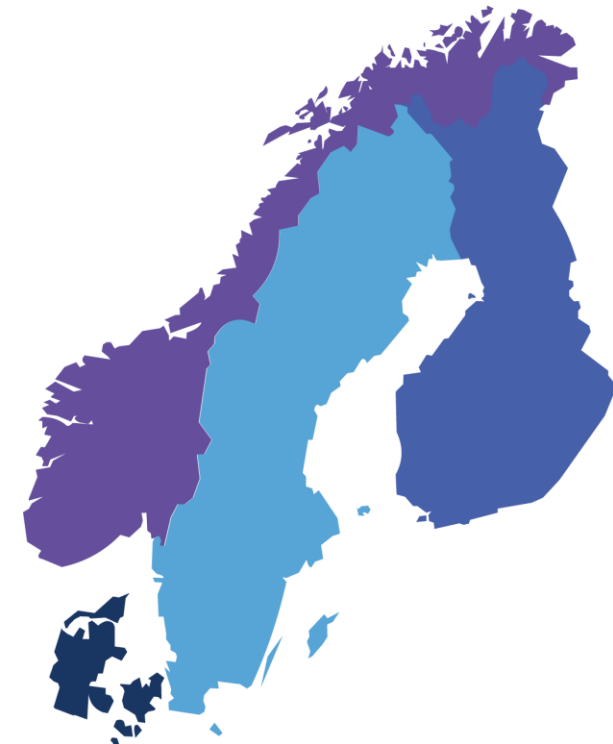
15 min Imbalance Settlement Period

Status and analysis

Tuomas Pulkkinen | 19.10.2023

15 min ISP Status

- Go-live for eSett: 22.5.2023 → **Success**
- Project site and commissioning plan updated to display “post-GL” info
 - E.g. irrelevant sections are marked in grey and references that something “will” happen are updated
- Go-live in Sweden in 2 weeks
- Testing and support for Swedish and Norwegian customers before national go-live dates is ongoing



15 min Commissioning Time Schedule – Nordic and National Timelines*



Nordic and National Milestones

Nordic milestones:

- *15 min for imbalance prices, intraday continuous and intraday auctions: Q1/2025*
- *15 min day-ahead auctions and prices: estimated in Q2/2025*

Denmark:

- *DataHub: 15 min data from Q2/2023.*

Finland:

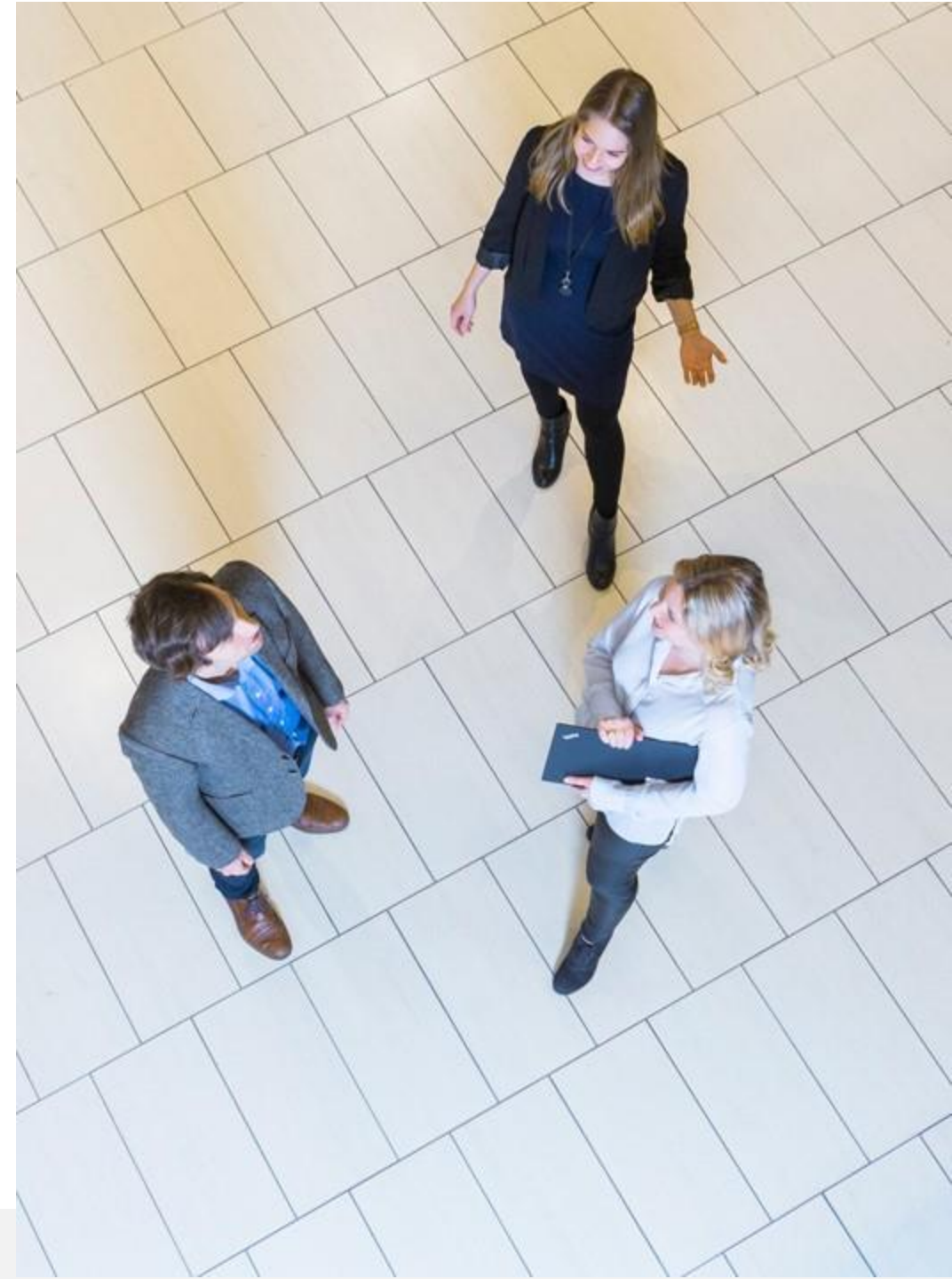
- *Datahub: 15 min data from 22.5.2023.*
- *Energy metering: 15 min from 22.5.2023 (VNA 767/2021).*

Norway:

- *Elhub: Will accept 15 min data from 16.10.2023 and will provide 15 min values to eSett from 22.1.2024*
 - *Values converted into 15 min data by eSett between 22.5.2023 and 22.1.2024.*

Sweden:

- *Energy metering and reporting: 15 min from 1.11.2023 (Förordning 1999:716)*



Impact analysis of the 15 min ISP

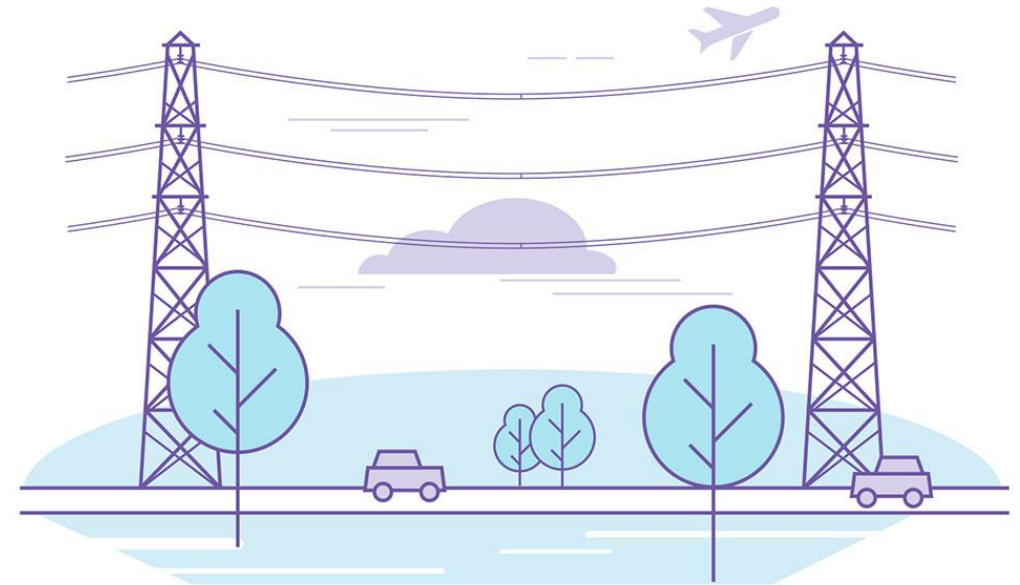
Analysis on changes after the application
of 15-minute imbalance settlement period

eSett Oy | 1.8.2023



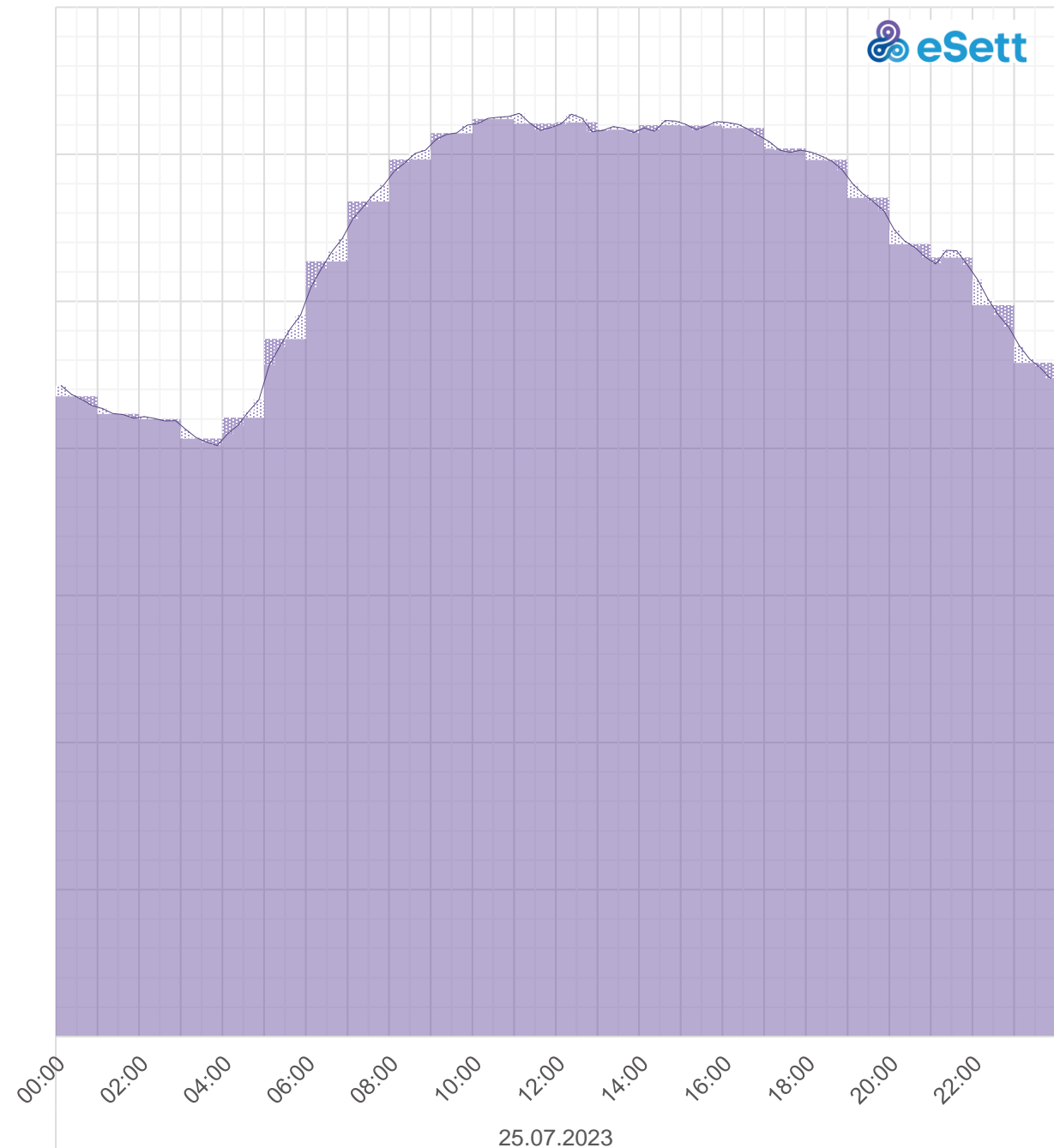
What was studied?

- Impact of the 15-minute ISP to the imbalance settlement data in Finland and Denmark
- Comparison of hourly and 15 min time periods that are relatively similar between each other



Consumption profile in 15 min

- In the graph, there is a consumption profile for a “typical distribution area” in Finland
- Most of the metering in the area is done with 15-minute resolution
- Selected date is a “typical working day” during summer in CEST
- The surplus/deficit between the 15-minute and hourly profiles is highlighted in the graph
- No big surprises in the profile
 - Absolute surplus + absolute deficit is ~0,9 % of the total consumption volume in 15 min



Imbalances in Finland for groups of BRPs with different portfolios

Absolute BRP imbalances – Group #1

Group #1 portfolio

- Mainly consumption and trades
- Low production quantity of mixed types

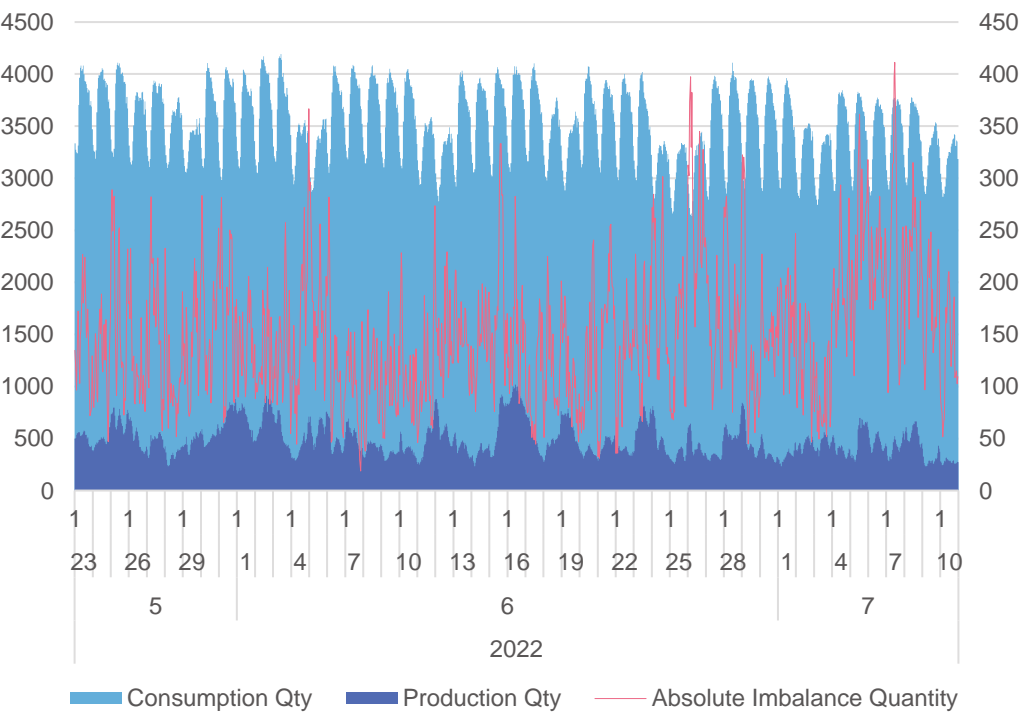
Analysed data

- Periods (49 days each)
 - 23.05. – 10.07.2022
 - 22.05. – 09.07.2023
- Absolute Imbalance
- Consumption
- Production

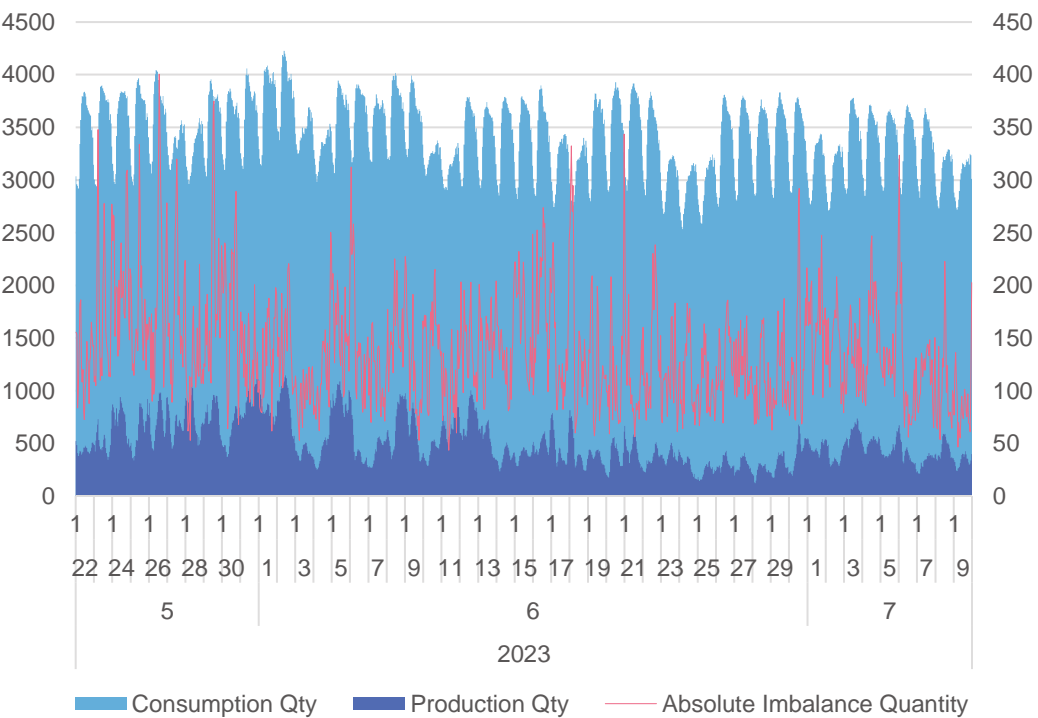


Group #1 – Consumption and trades

Hourly



15 min



-3 %

+4 %

-8 %

Absolute BRP imbalances – Group #1 findings

- Compared periods are quite similar between each other
 - Consumption volume -3 % in 2023
 - Production volume +4 % in 2023
 - Similar-looking profiles
- Absolute Imbalance volume decreased about 8 % in 15-minute ISP
 - Hourly average of 2023 is still within the 'average of absolute deviations of 2022'
- **Conclusions**
 - Imbalances haven't increased
 - Imbalances seem to have decreased, but are still within the error margins of the data set



Absolute BRP imbalances – Group #2

Group #2 portfolio

- Mainly production and trades
 - No significant wind production
- Low consumption volumes

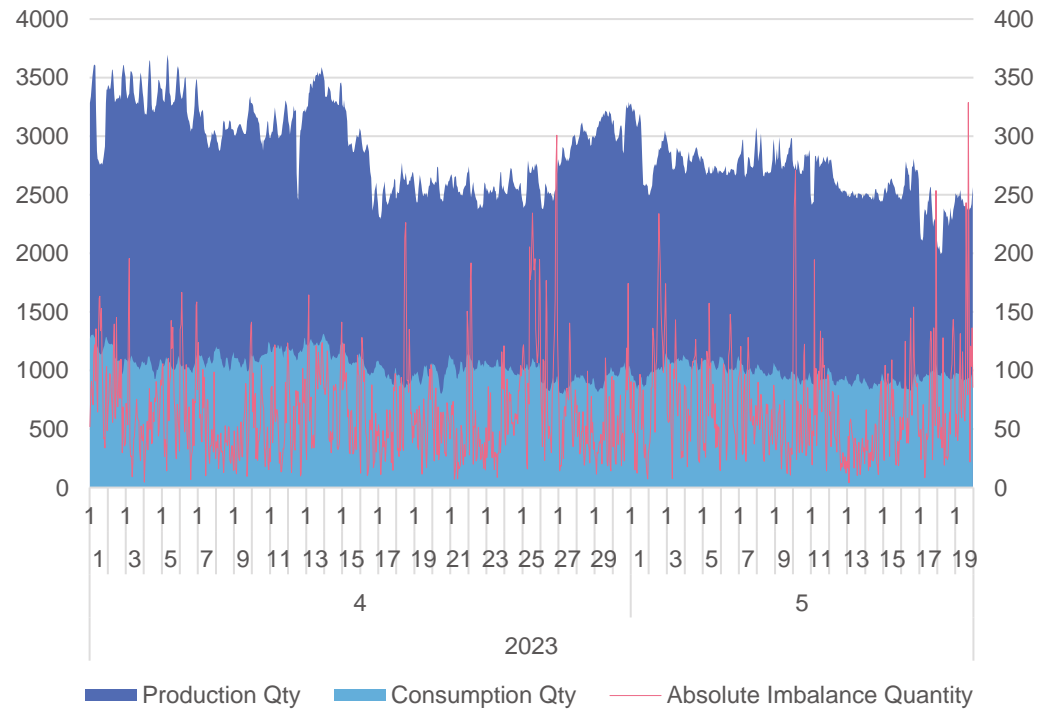
Analysed data

- Periods (49 days each)
 - 01.04. – 19.05.2023
 - 22.05. – 09.07.2023
- Absolute Imbalance
- Consumption
- Production

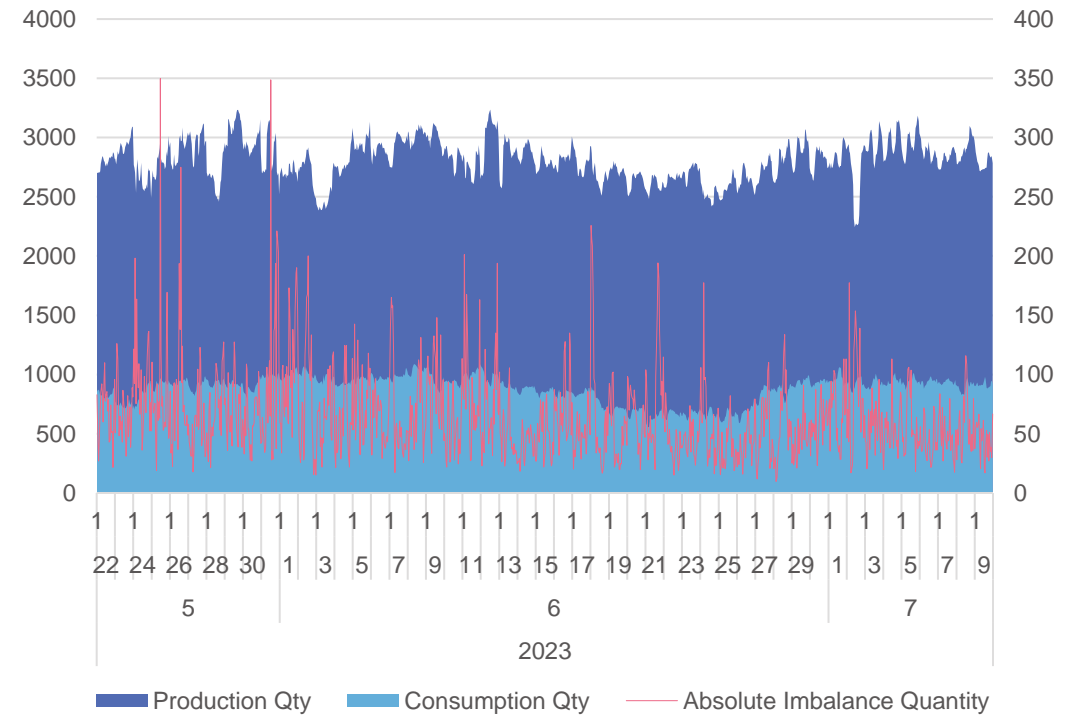


Group #2 – Production and trades (no wind)

Hourly



15 min



-1 %

-14 %

-2 %

Absolute BRP imbalances – Group #2 findings

- Compared periods are have similarities between each other
 - Consumption volume decreased -14 % in 15 min
 - Production volume -1 % in 15 min
 - Similar-looking consumption profiles
 - Production was steadier in 15 min
- Absolute Imbalance volume decreased about 2 % in 15-minute ISP
 - Within normal variation
 - Decreased consumption may have contributed to this
- **Conclusions**
 - No increases or decreases in imbalance volumes with this data set
 - Change to 15 min ISP doesn't seem to have significantly impacted BRPs with this type of portfolio



Absolute BRP imbalances – Group #3

Group #3 portfolio

- Mainly wind production and trades
- Low consumption volumes

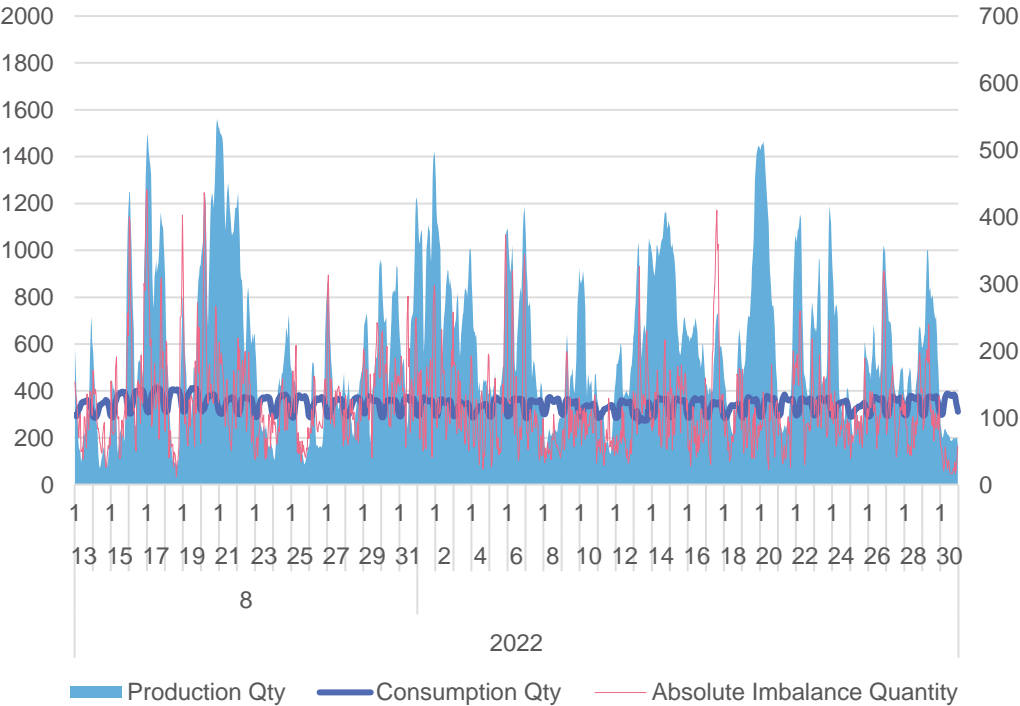
Analysed data

- Periods (49 days each)
 - 13.08. – 30.09.2022
 - 22.05. – 09.07.2023
- Absolute Imbalance
- Consumption
- Production

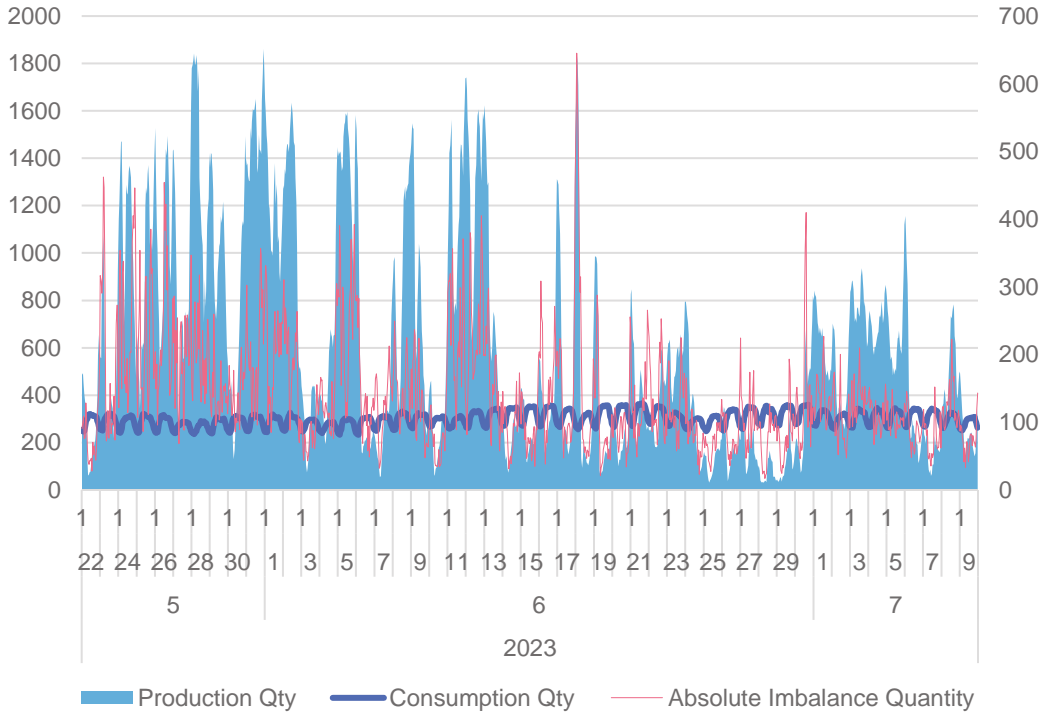


Group #3 – Wind production and trades

Hourly



15 min



+1 %

-12 %

+21 %

Absolute BRP imbalances – Group #3 findings

- Compared periods are have similarities between each other
 - Consumption volume decreased -14 % in 15 min
 - Similar-looking consumption profiles
 - Production volume +1 % in 15 min
 - Production had more hourly variance in 15 min
- Absolute Imbalance volume increased about 21 % in 15-minute ISP
 - Hourly average of 2023 is still within the 'average of absolute deviations of 2022'
 - Higher variation has likely increased the imbalance volumes
- **Conclusions**
 - Imbalances seem to have increased, but are still within the error margins of the data set



Absolute BRP imbalances – Group #4

Group #4 portfolio

- Mixed portfolio with trades, consumption and production of different types

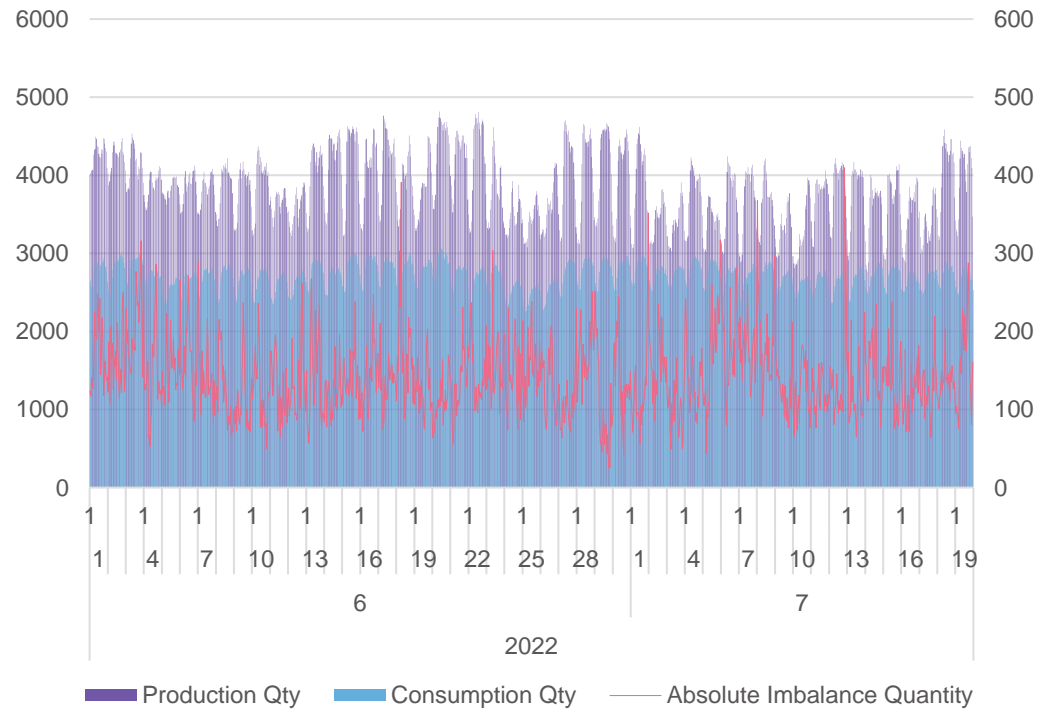
Analysed data

- Periods (49 days each)
 - 01.06. – 19.07.2022
 - 01.06. – 19.07.2023
 - Dates in May 2023 were left out due to exceptionally high imbalances at that time
- Absolute Imbalance
- Consumption
- Production

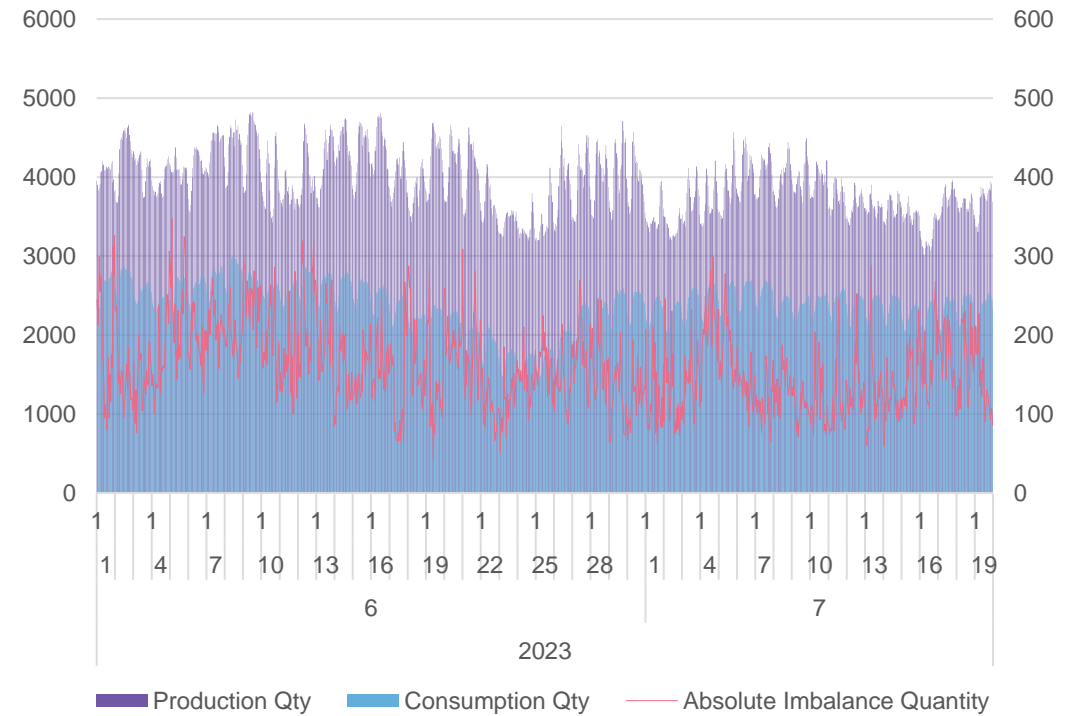


Group #4 – Mixed portfolio

Hourly



15 min



+2 %

-12 %

+11 %

Absolute BRP imbalances – Group #4 findings

- Compared periods are have similarities between each other
 - Consumption volume decreased -12 % in 15 min
 - Production volume +2 % in 15 min
 - Similar profiles, except for the drop in consumption in 2023
- Absolute Imbalance volume increased about 11 % in 15-minute ISP
 - Hourly average of 2023 is still within the 'average of absolute deviations of 2022'
- **Conclusions**
 - Imbalances seem to have increased, but are still within the error margins of the data set



What else was analysed?



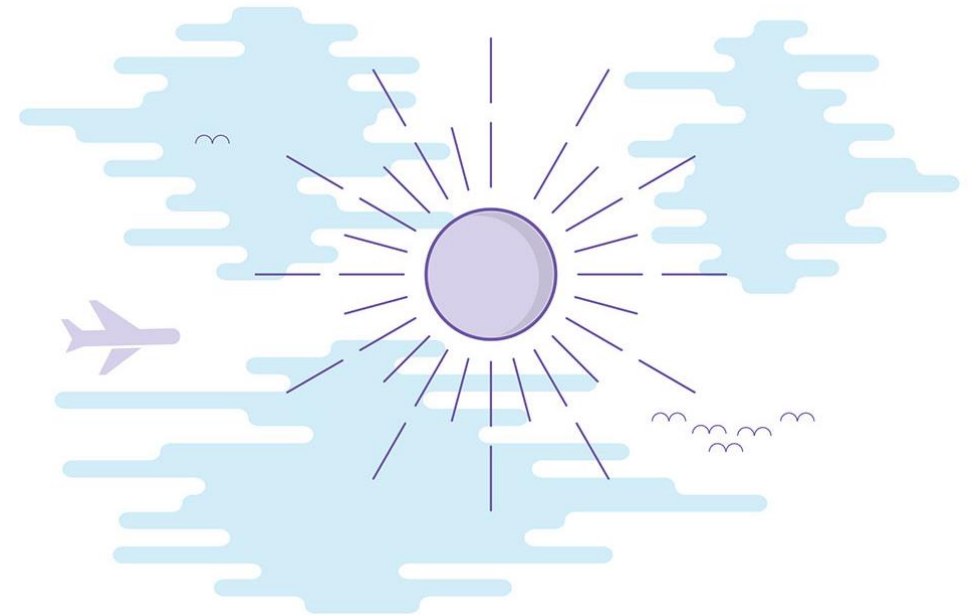
Other analysed topics and short conclusions

Topic	Conclusion
Activated Reserves – is there any change in volumes?	There is so much variation from day-to-day and between different periods that no conclusions could be done.
Better use of cross-MBA interconnectors – has the absolute exchange volumes increased between DK1-DK2, or on Danish borders to Central-Europe?	Volumes decreased towards summer. Also, the market situation had improved, so it was not possible to make conclusions.
Frequency in the grid – is there a smaller changes in frequency during hour change.	Due to available data, frequency changes between minutes nn:58:00 and nn:01:00 were studied. No noticeable changes in the data, possibly due to the relatively long period of 3 minutes.
BRPs who would have started to balance themselves continuously in 15-minute timeframe?	There were no BRPs continuously balancing themselves with 15-minute trading.
Changes in intraday trading volumes?	No changes in Finland. Significant increase in Denmark. However, the reason was the new counter-trade that Energinet does with a German TSO. With Energinet's trades excluded, no noticeable changes in intraday market in Denmark.
Production Plan KPI – has it changed to better or worse?	Slightly worse performance, but within normal variation.

Conclusions

Conclusions – BRPs

- BRPs are not actively balancing themselves in 15 min
 - Evaluation: No significant changes in intraday or bilateral trades
 - Why: Imbalances prices are per hour so there is no financial incentive yet
- BRPs with a lot of wind production have a bit higher imbalance volumes
 - Evaluation: Increased absolute imbalance volumes between periods before and after 15 min ISP
 - Why: Higher volatility in production and no balancing in 15 min



Conclusions – MGAs

- MGA imbalances in distribution areas have not increased significantly with 15 min metering and reporting
 - Evaluation: No increase in the median values
- Overall MGA imbalances (or losses) have increased with 15 min ISP in Finland
 - Why: Some metering is per hour and other per 15 min. → Imbalances within hour.





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