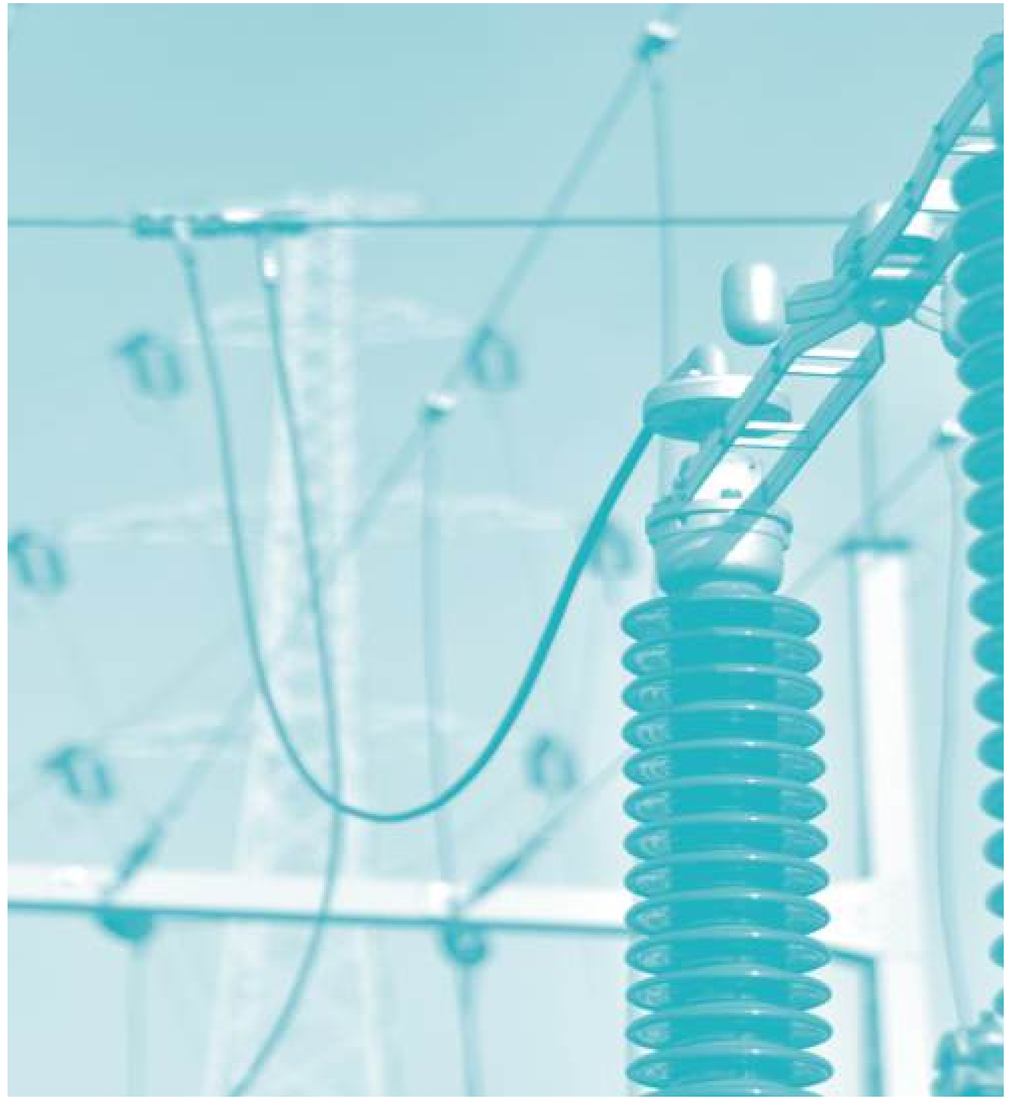
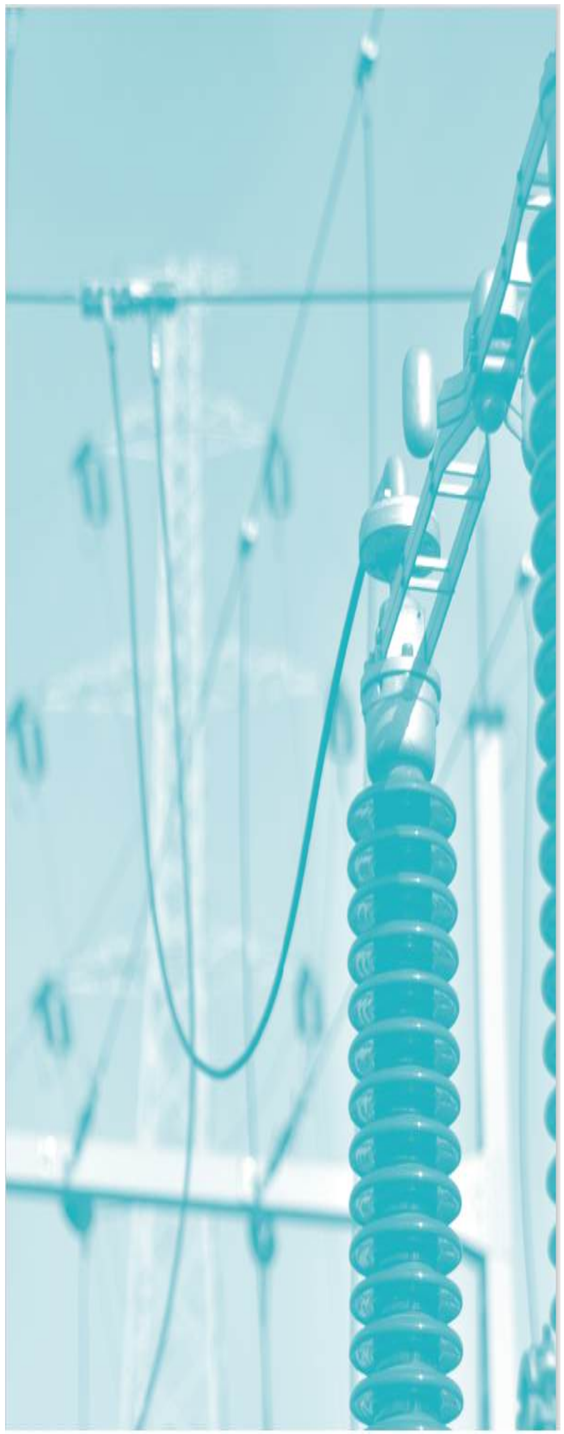


Energy Market Monitoring Report

February 2025

SEM committee



Market Results

Summary Dashboard

SEM committee

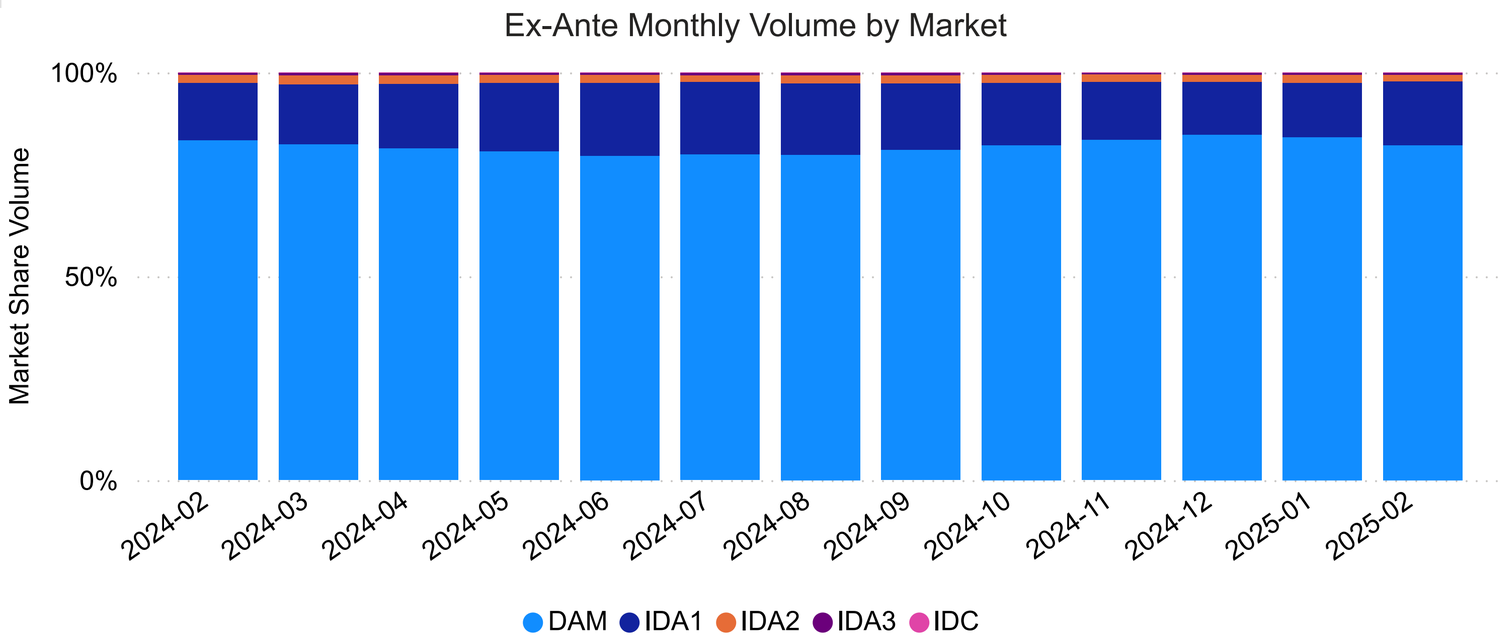
Monthly Averages	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25
DAM (€/MWh)	99.9	84.6	86.67	88.52	107.75	107.74	110.94	100.44	112.73	122.9	146.14	136.99	167.51	140.85
% Change from previous month	12%	-15%	2%	2%	22%	0%	3%	-9%	12%	9%	19%	-6%	22%	-16%
% Change from previous year	-38%	-47%	-40%	-30%	2%	-8%	15%	-6%	1%	-2%	19%	54%	68%	66%
Actual System Demand (MW)	5151	4946	4833	4610	4356	4193	4279	4255	4467.76	4671	5085	5020	5256	5194
% Change from previous month	6%	-4%	-2%	-5%	-6%	-4%	2%	-1%	5%	5%	9%	-1%	5%	-1%
% Change from previous year	5%	3%	0%	3%	2%	0%	4%	2%	3%	3%	4%	3%	2%	5%
Actual Wind Generation (MW)	1854	2000	2072	1496	894	1072	883	1437	1263	1668	1448	2040	1948	2509
% Change from previous month	-24%	8%	4%	-28%	-40%	20%	-18%	63%	-12%	32%	-13%	41%	-5%	29%
% Change from previous year	-7%	-1%	19%	-3%	1%	22%	-33%	3%	-9%	22%	-20%	-17%	5%	25%
Gas Price p/therm	74.87	63.37	68.18	71.69	76.69	81.51	75.07	84.71	86.94	99.04	111	111.22	122.85	123.04
% Change from previous month	-11%	-15%	8%	5%	7%	6%	-8%	13%	3%	14%	12%	0%	10%	0%
% Change from previous year	-52%	-53%	-39%	-29%	6%	5%	6%	2%	-5%	-6%	6%	32%	64%	94%
Carbon Price (€/Tonne)	65.52	55.79	57.94	63.25	70.90	68.29	67.00	70.12	64.86	63.51	67.15	67.05	75.87	76.08
% Change from previous month	-9%	-15%	4%	9%	12%	-4%	-2%	5%	-8%	-2%	6%	0%	13%	0%
% Change from previous year	-18%	-39%	-35%	-30%	-16%	-20%	-23%	-17%	-21%	-22%	-12%	-7%	16%	36%
Coal Price ($/tonne)	107.65	96.84	111.78	118.13	106.15	109.54	105.93	121.36	114.96	119.65	120.84	113.32	109.23	102.88
% Change from previous month	-9%	-10%	15%	6%	-10%	3%	-3%	15%	-5%	4%	1%	-6%	-4%	-6%
% Change from previous year	-38%	-29%	-17%	-14%	-11%	-3%	-5%	5%	-5%	-9%	-1%	-4%	1%	6%
EWIC % Import Periods	69.76%	69.10%	63.78%	81.94%	84.98%	85.90%	94.59%	85.29%	81.53%	71.32%	78.30%	67.64%	67.88%	43.01%
EWIC % Export Periods	14.78%	11.00%	11.32%	4.86%	0.67%	3.72%	1.11%	7.56%	5.52%	10.31%	9.03%	11.49%	10.18%	13.91%
EWIC % Not Flow Periods	15.46%	19.90%	24.90%	13.19%	14.35%	10.38%	4.30%	7.15%	12.95%	18.37%	12.67%	20.87%	21.94%	43.08%
Moyle % Import Periods	78.16%	79.59%	79.00%	87.40%	94.96%	92.47%	96.77%	80.71%	91.98%	81.08%	82.47%	81.55%	78.53%	64.62%
Moyle % Export Periods	21.81%	20.34%	20.83%	12.50%	5.27%	7.53%	3.23%	10.44%	7.60%	18.65%	17.50%	18.41%	21.27%	22.43%
Moyle % Not Flow Periods	0.03%	0.07%	0.17%	0.10%	0.03%	0.00%	0.00%	8.84%	0.42%	0.28%	0.03%	0.03%	0.20%	12.95%
Greenlink % Import Periods	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68.97%
Greenlink % Export Periods	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.04%
Greenlink % Not Flow Periods	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.99%

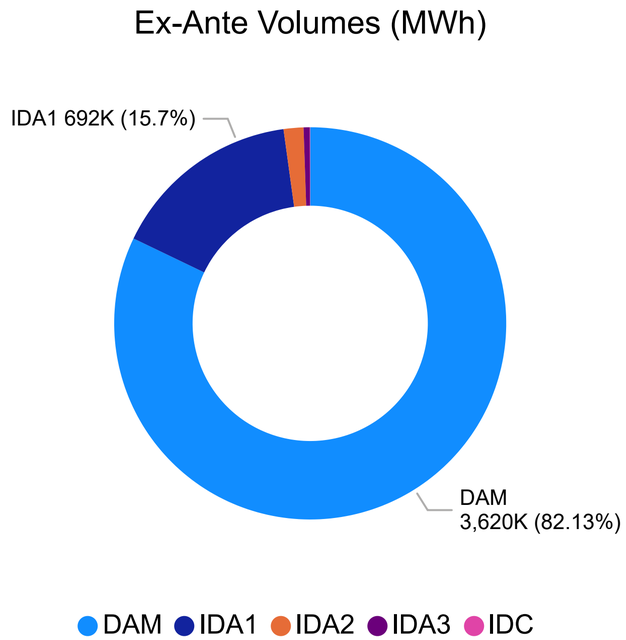
Market Volumes February 2025

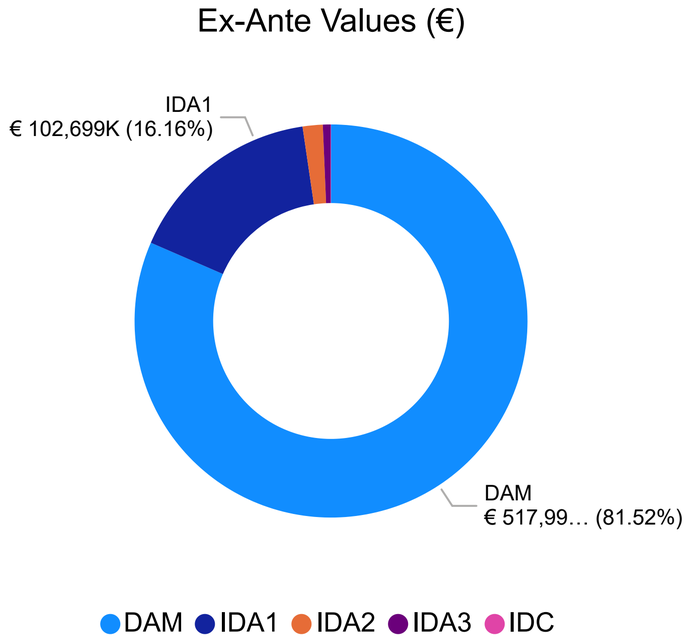
Daily Average Volume	MWh
DAM	129,294
IDA1	24,711
IDA2	2,576
IDA3	801
IDC	55

Total Monthly Volume	MWh
DAM	3,620,234
IDA1	691,917
IDA2	72,139
IDA3	22,415
IDC	1,436
Total	**4,408,142**

Total Market Value	€
DAM	€ 517,997,989
IDA1	€ 102,699,486
IDA2	€ 10,501,630
IDA3	€ 3,991,728
IDC	€ 246,612
Total	**€ 635,437,445**







Market Volumes and Values

The Day Ahead Market is, by far, the largest market in the SEM, circa 80-85% of all transactions are cleared in this market. The distribution of volumes across the SEM markets have been broadly constant since the introduction of these trading arrangements in October 2018.

Generally, in power markets, market participants will prefer to lock their positions well ahead of delivery time given the increased volatility in prices closer to real time.

Another important factor is associated with the TSO dispatch arrangements. The vast majority of wind generation in the SEM is cleared at the Day Ahead stage. That might also explain to some extent the additional volumes cleared in this market.

Day Ahead Market February 2025

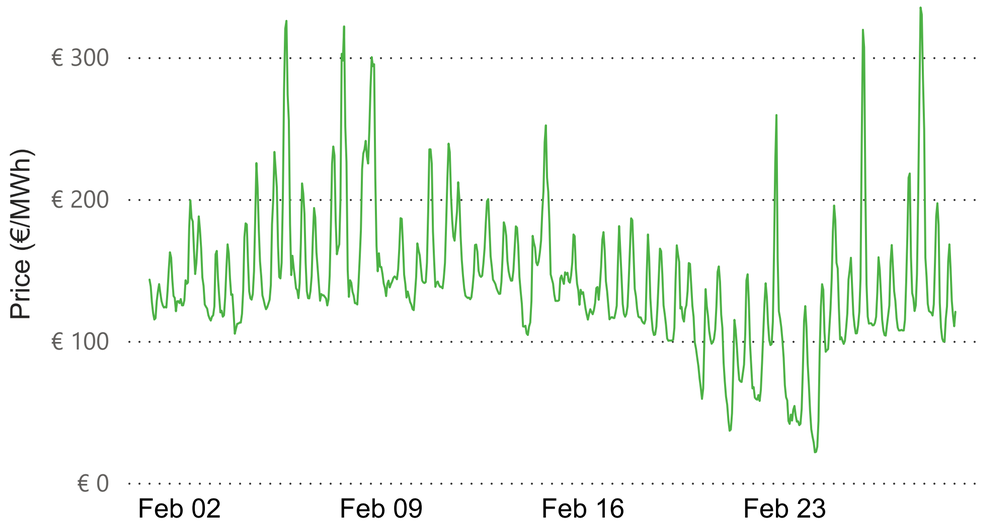
€ 140.85
Average DAM Price

€ 21.42
Min DAM Price

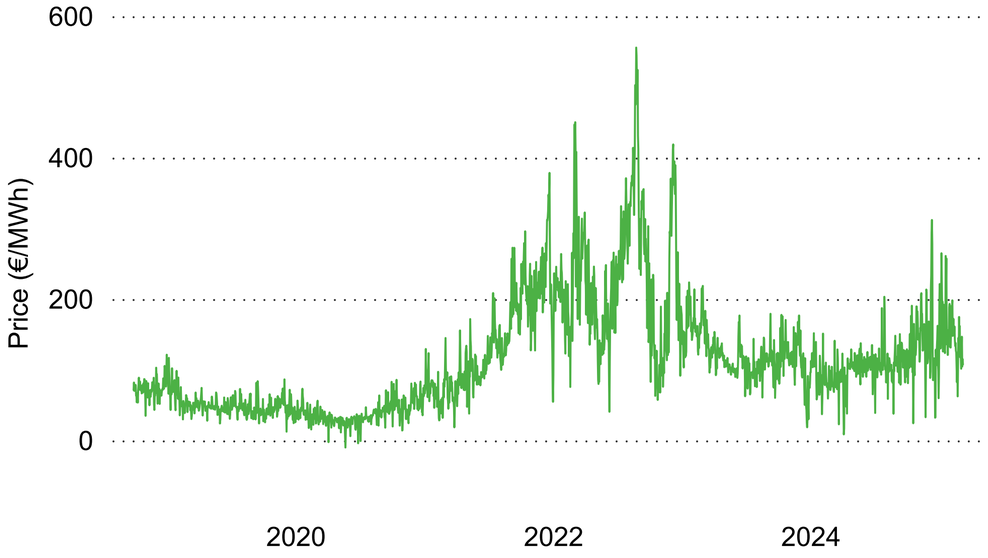
€ 335.00
Max DAM Price

The most frequent price range for January was between €100 and €150.

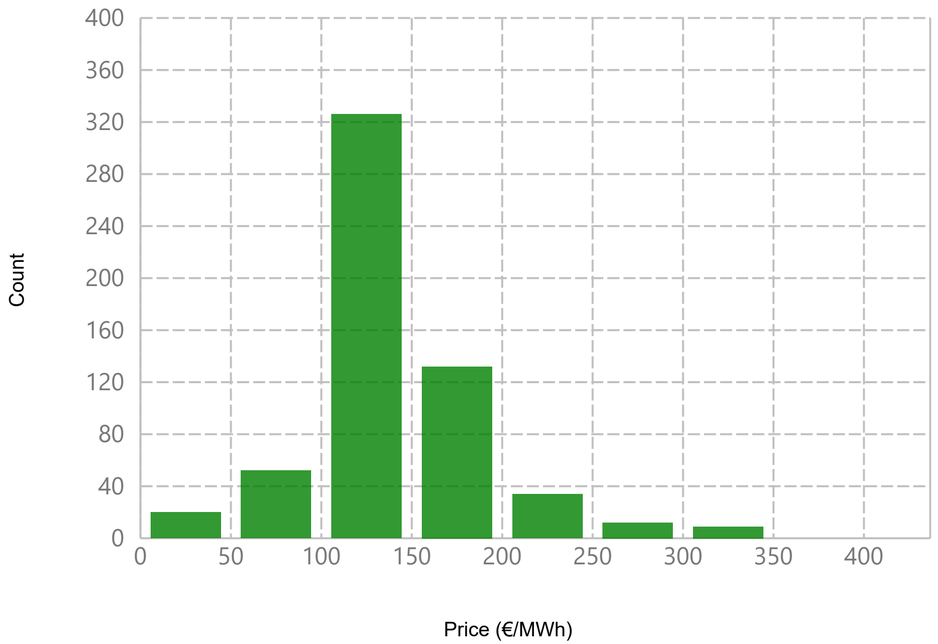
DAM Prices



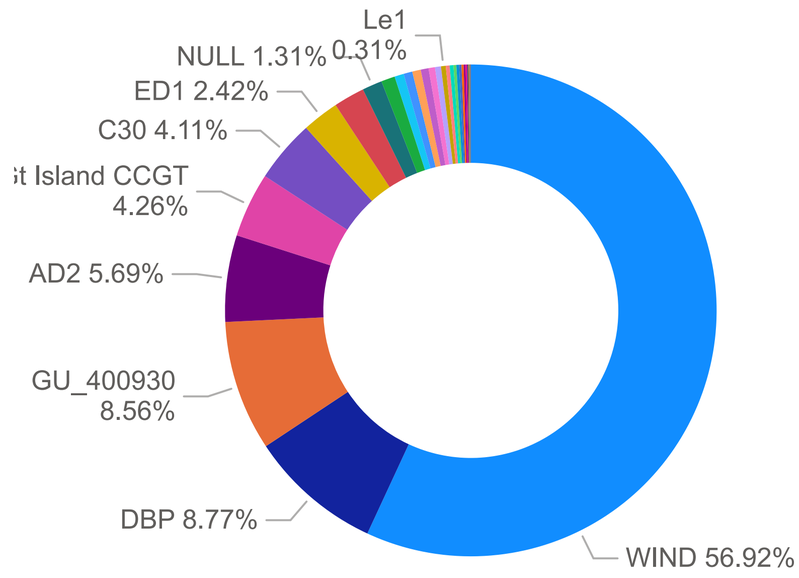
Historic Daily Average DAM Prices



Histogram of DAM Prices



DAM Sell Side Generator Order Results



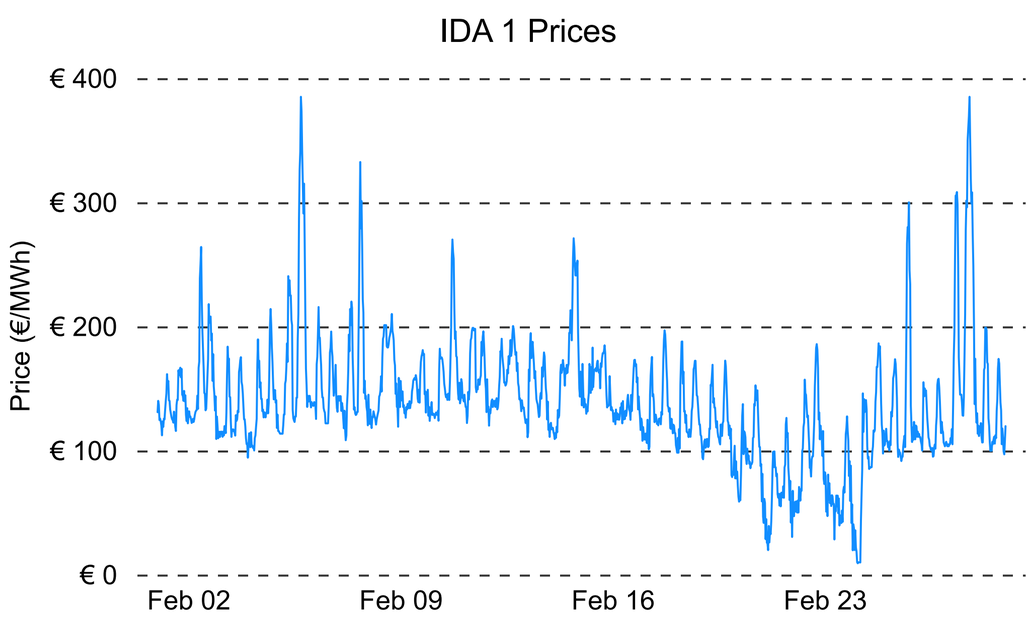
Intraday Market February 2025

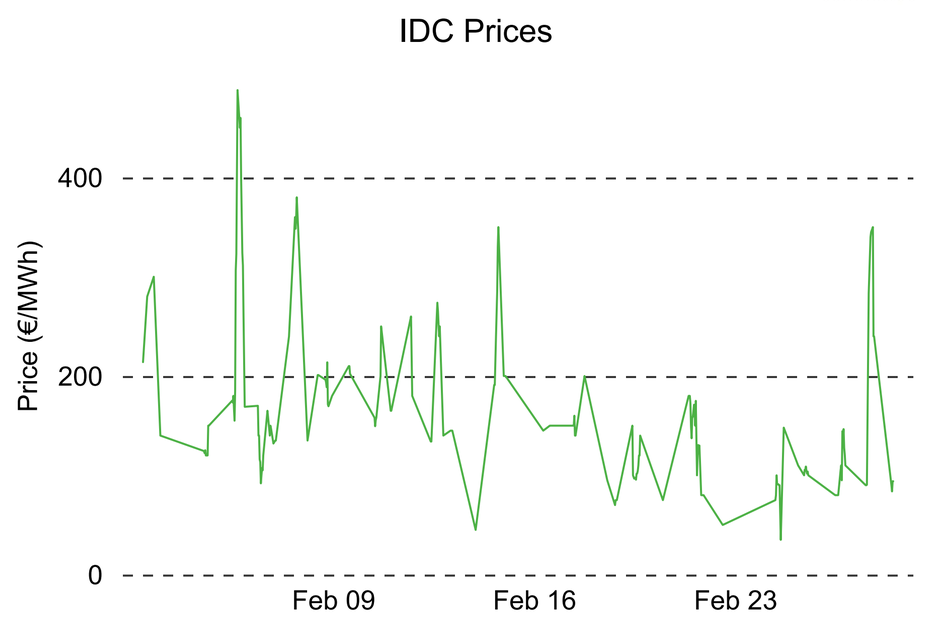
€ 138.52
Average IDA1 Price

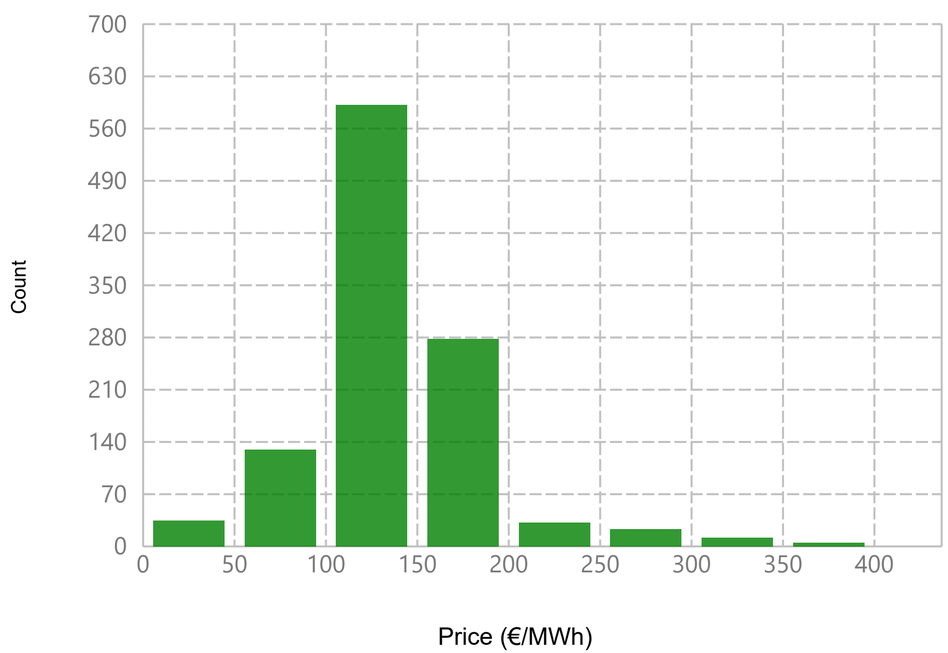
€ 9.12
Min IDA1 Price

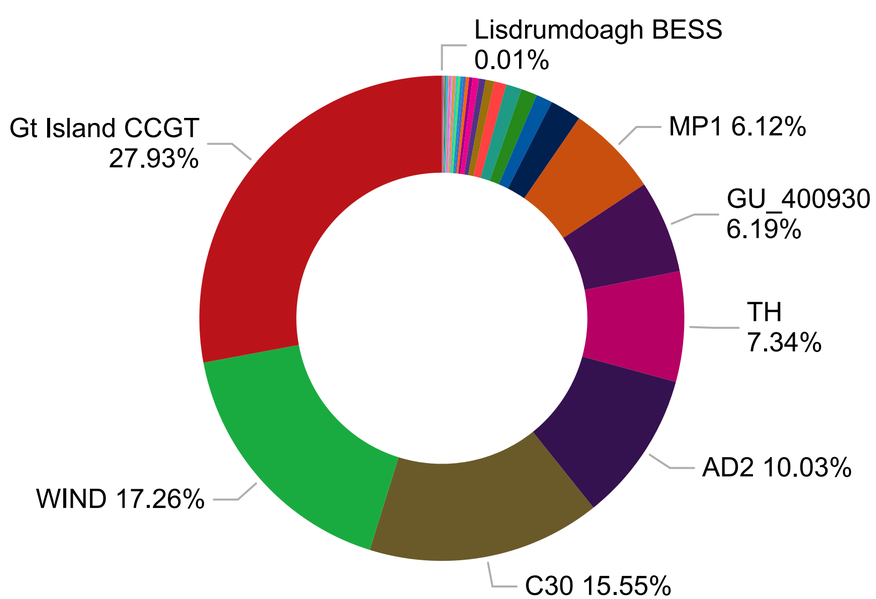
€ 385.00
Max IDA1 Price

The most frequent price range for January was between €100 and €150.









SEM vs GB DAM February 2025

SEM Day Ahead Price

€ 140.85
Average DAM Price

€ 21.42
Min DAM Price

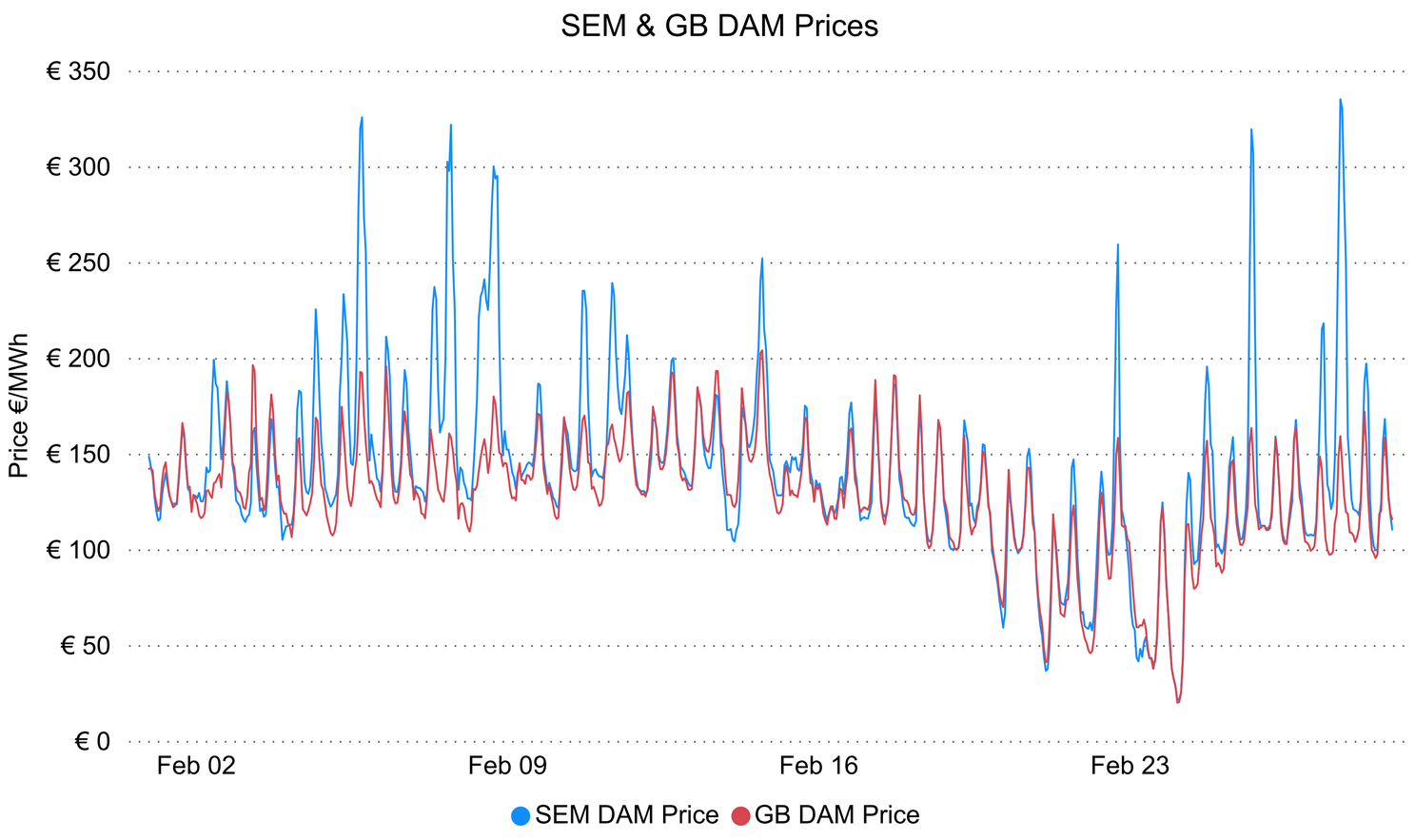
€ 335.00
Max DAM Price

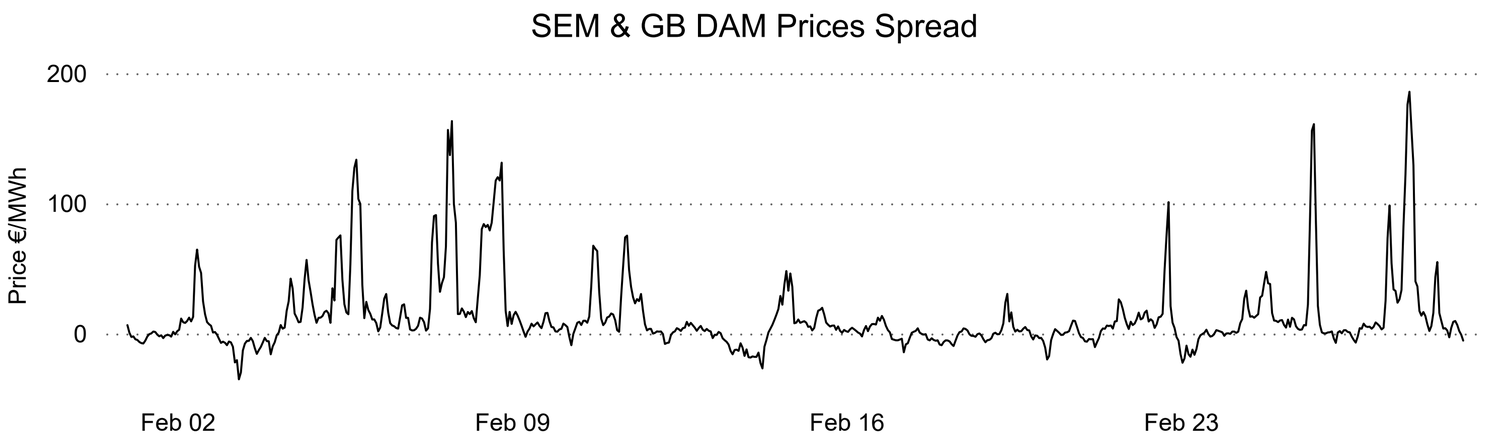
GB Day Ahead Price

€ 127.62
Average Price

€ 19.94
Min Price

€ 203.90
Max Price





SEM committee

SEM-GB Price Differential

The charts show that the SEM and GB prices appear to follow the same general trend. Significant spreads can be observed on several occasions.

Basically, the periods of significant spreads between the two markets are generally correlated with period of very low wind.

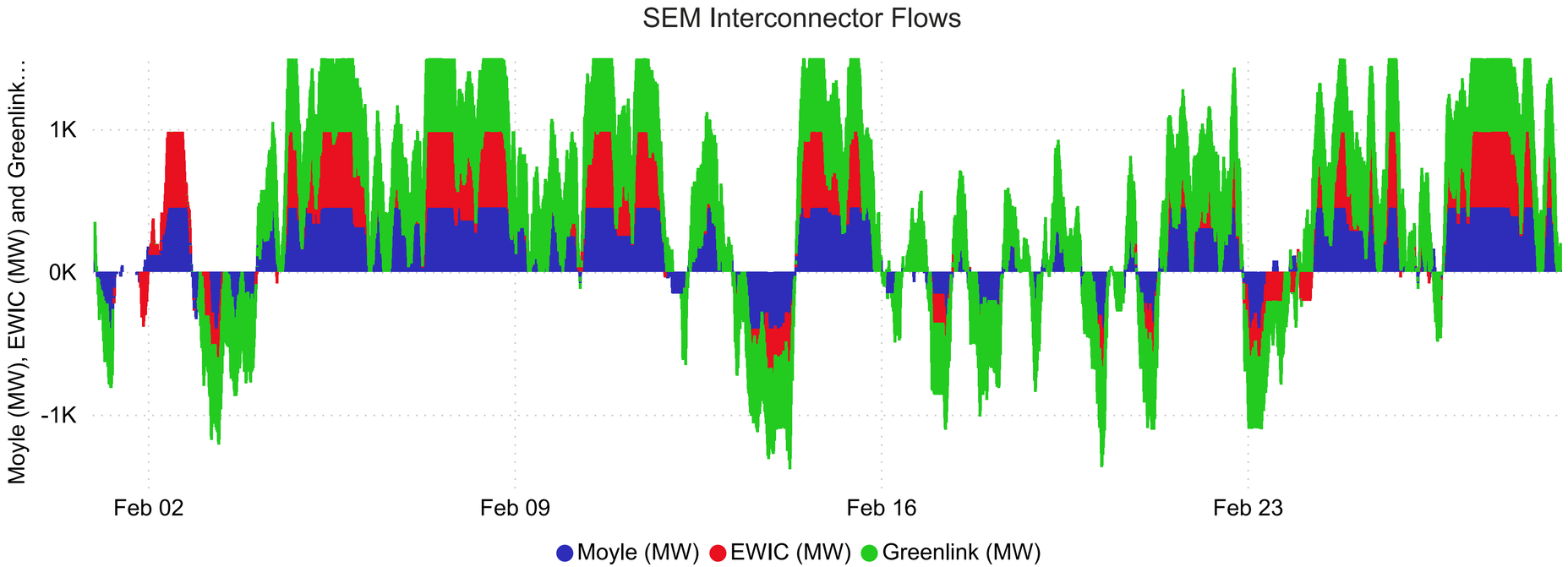
Due to the prevailing fuel mix across both regions, the GB price spiked during the period as more costly conventional generations may need to be brought online to meet demand.

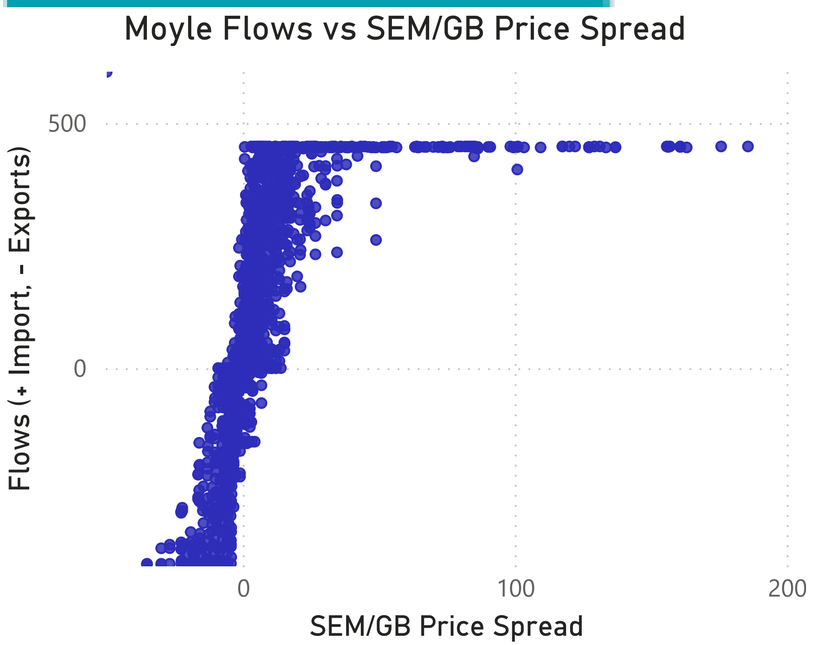
The MMU is investigating this matter further and will come back to the SEMC in the foreseeable future with more information on this front.

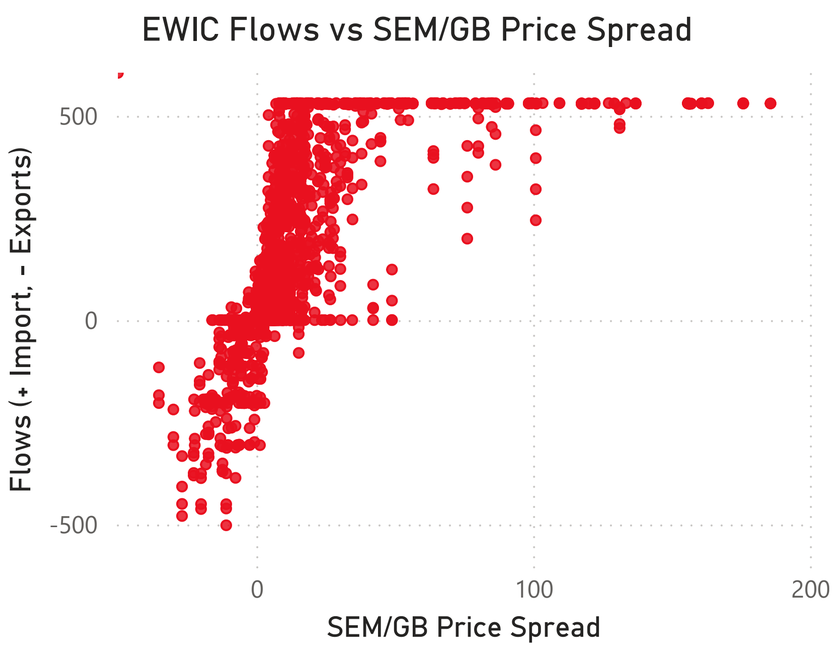
SEM Interconnectors February 2025

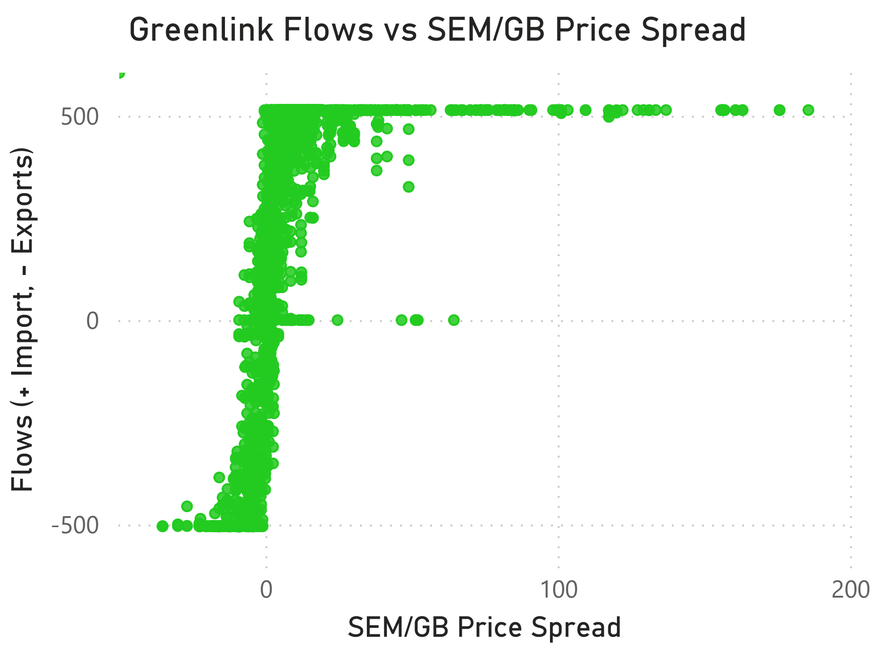
With the introduction of Greenlink, exports on interconnectors exceeded 1GW during periods of strong wind in the SEM.

Also the introduction of Greenlink coincides with decreased utilisation of both Moyle & EWIC. Average flows across Moyle have dropped by ~14% (from 293MW to 252MW). EWIC has experienced the most significant impact with average flows reduced by ~31% (247MW to 170MW).





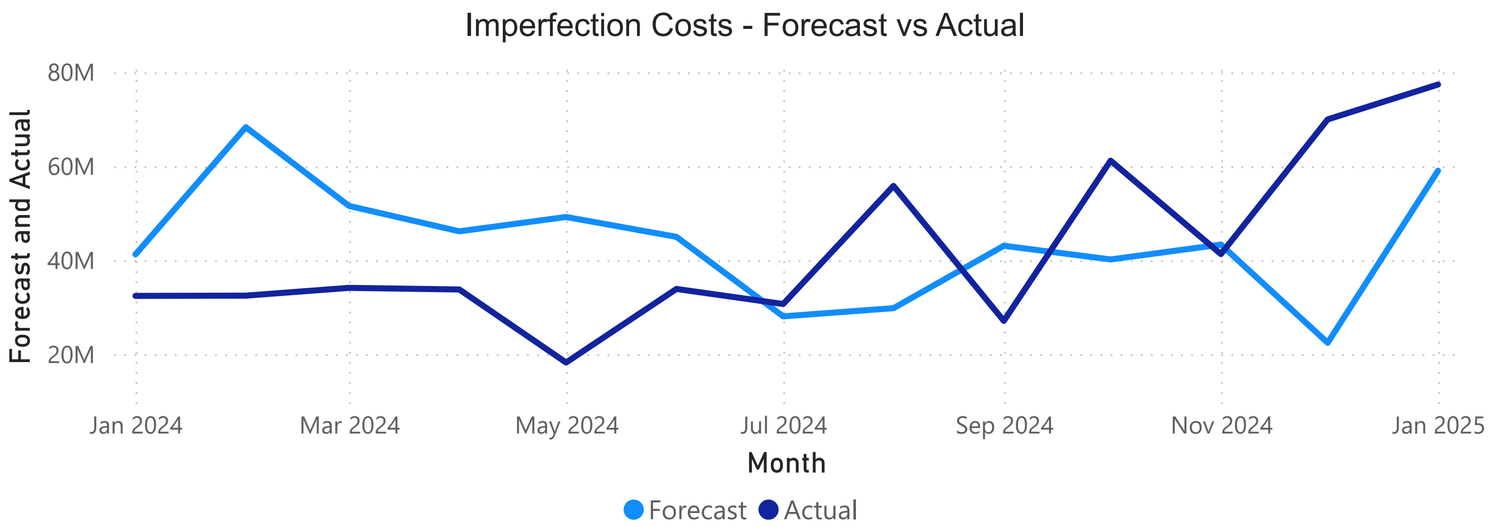




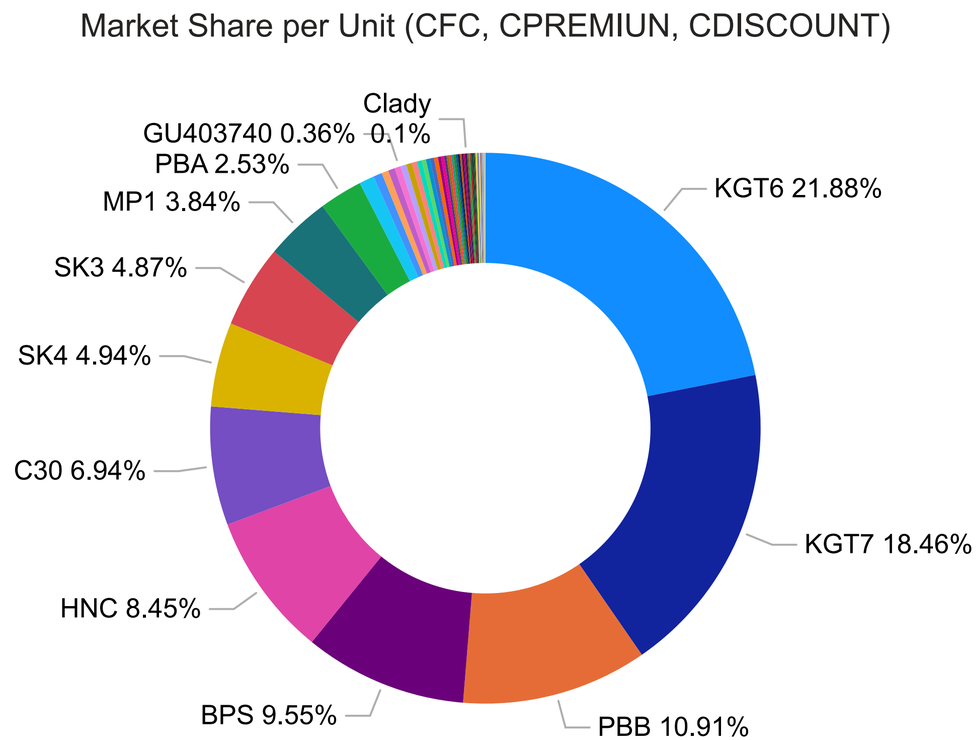
Balancing Market February 2025

Where power stations are run differently from the market schedule, it is termed “constraint". Subject to the Trading and Settlement Code and Firm Access, Constraint payments keep generators financially neutral for the difference between the market schedule and what actually happened when generating units were dispatched.

Generators can be constrained ‘on' or ‘up' if the market schedule indicated they were to be run at lower levels than actually happened. Or they could be constrained ‘down' or ‘off' if they were to be run at a higher level than happened in reality. There is always an overall net cost to the system associated with constraints.



Determinant Name	Value €
CABBPO	67,359.14
CAOOPO	-583,311.37
CCURL	-1,308,070.98
CDISCOUNT	19,912,944.24
CFC	38,980,081.55
CPREMIUM	20,869,268.29
CTEST	-15,226.38
CUNIMB	-1,030,467.75
Total	**76,892,576.74**



Constraints Payments

This charts illustrates the distribution of selected Constraint Payments, to specific power plants. As it can be seen, KGT6 (EP Killroot Ltd) was the largest receiver of these payments in February followed by KGT7 (EP Killroot Ltd).

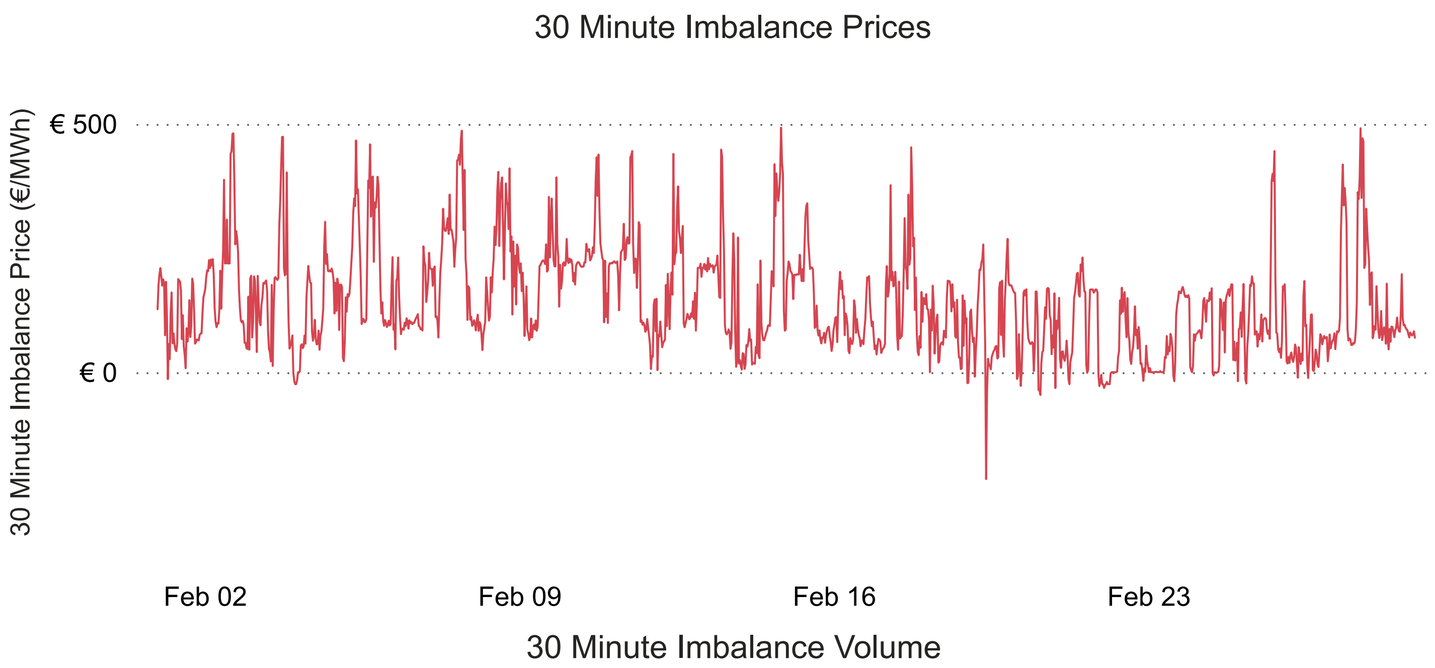
Balancing Market February 2025

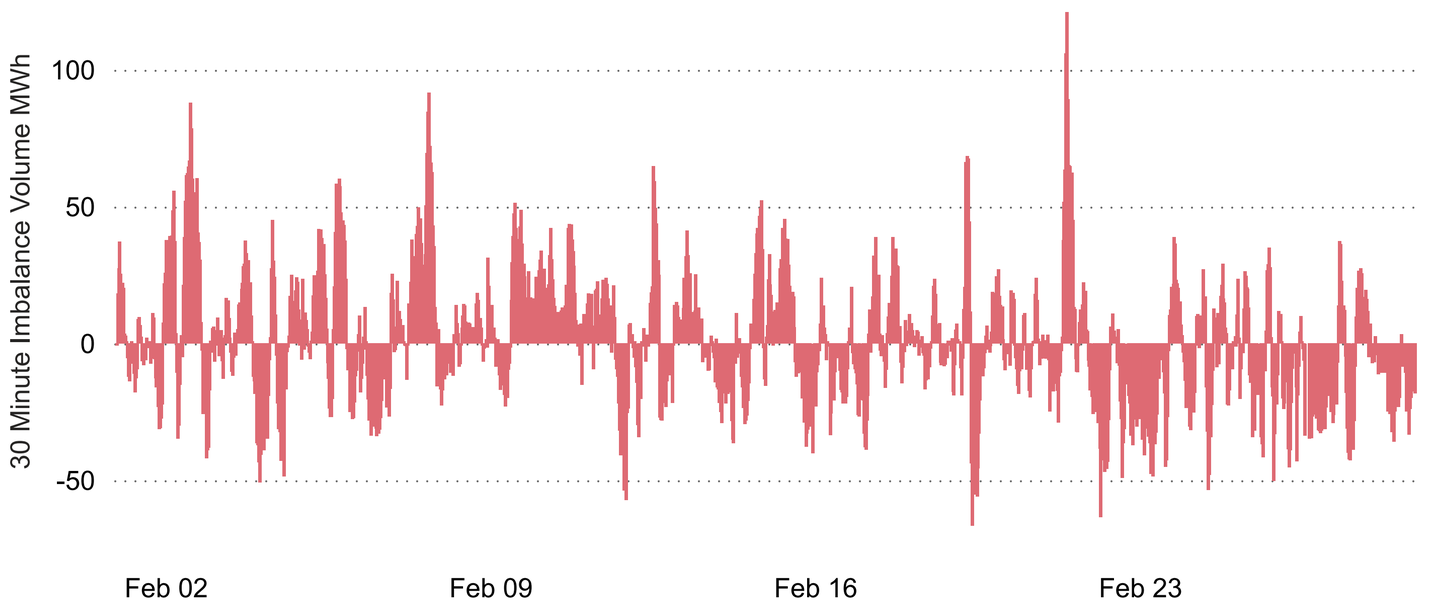
30 Minutes Imbalance Price

€ 140.58
Average Price

-€ 215.08
Lowest Price

€ 492.42
Highest Price



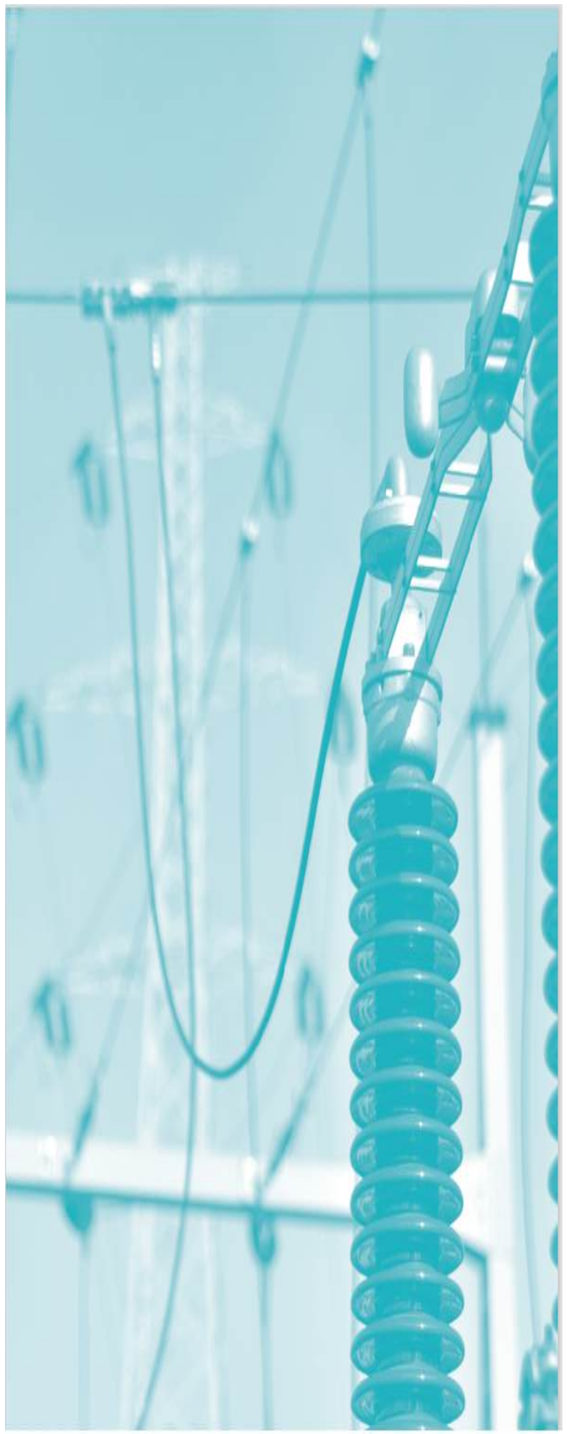


SEM committee

Imbalance Price & Volumes

The average Imbalance (BM) Price this month is approximately same to the Day Ahead Price. But the Balancing Market prices has exhibited a much higher range of prices indicating a higher level of volatility compared to Day Ahead Market Prices. This is an expected characteristic of the Balancing Market.

There were no Reliability Options events this month as the Balancing Market prices have not breached the PSTR level.



Demand and Generation Mix

Demand February 2025

SEM Demand

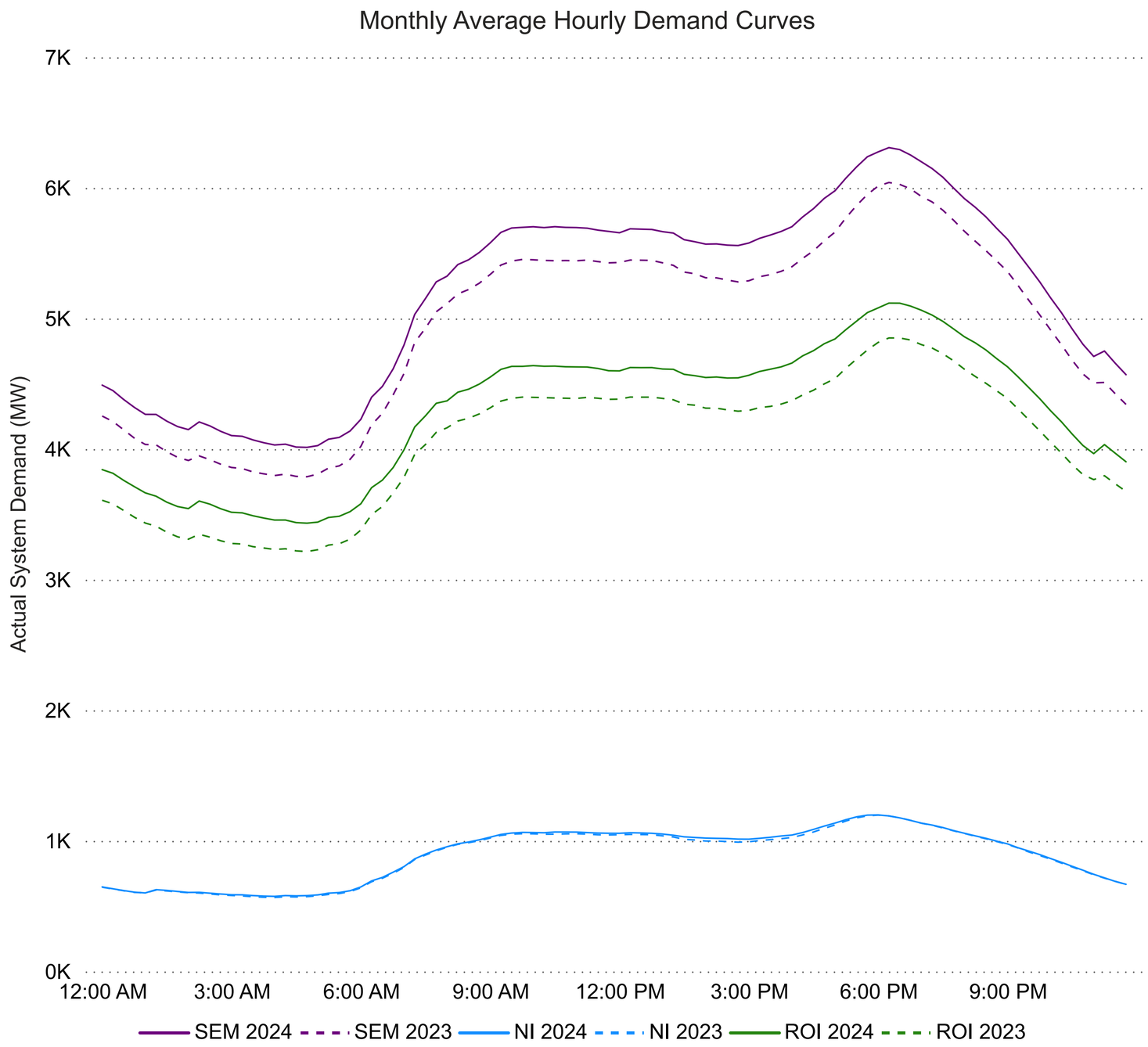
5,193.96 SEM Average 2025	4,945.52 SEM Average 2024
4,012.79 SEM Min 2025	3,787.67 SEM Min 2024
6,308.04 SEM Max 2025	6,041.03 SEM Max 2024

NI Demand

896.04 NI Average 2025	887.72 NI Average 2024
574.82 NI Min 2025	566.13 NI Min 2024
1,198.39 NI Max 2025	1,196.93 NI Max 2024

ROI Demand

4,297.98 ROI Average 2025	4,057.77 ROI Average 2024
3,432.39 ROI Min 2025	3,215.07 ROI Min 2024
5,117.43 ROI Max 2025	4,850.60 ROI Max 2024



SEM committee

SEM Demand

The graph illustrates a steady demand within NI, with a minimal increase of 0.93% compared to the same period in the previous year.

The demand for ROI during the month has shown an increase of 5.91% relative to the same period last year.

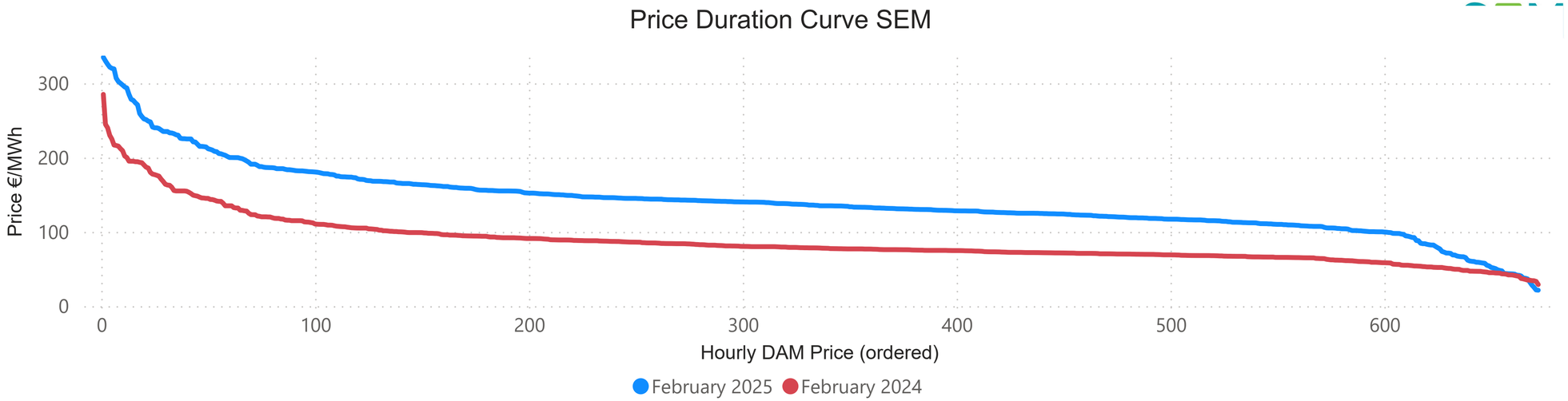
Overall demand in the SEM has increased by 5.02% compared to the same period last year, showing a significant upward trend.

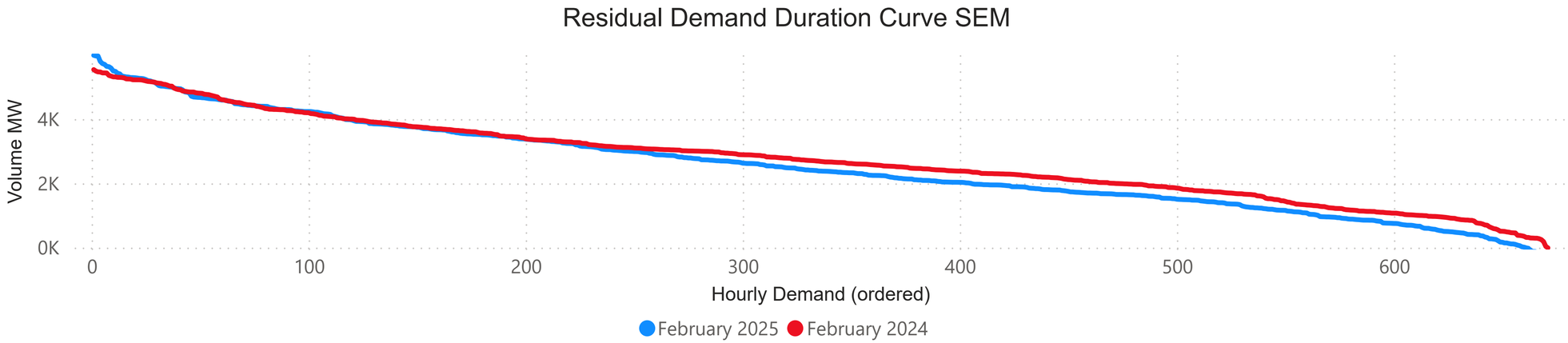
Duration Curves February 2025

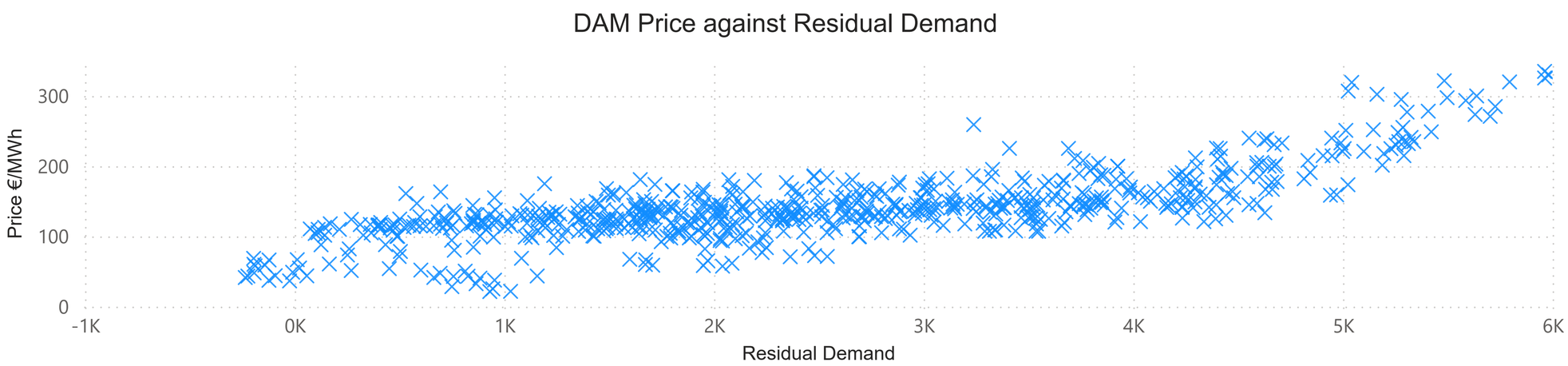
Price Duration
The price duration curve shows the hourly DAM prices across the month ordered from the largest to the smallest.

Residual Duration
The residual demand curve shows the ordered hourly demand level across the month which can't be met by renewable generation.

Price against Residual Demand
Shows the residual demand for each period relative to the DAM price for that period.



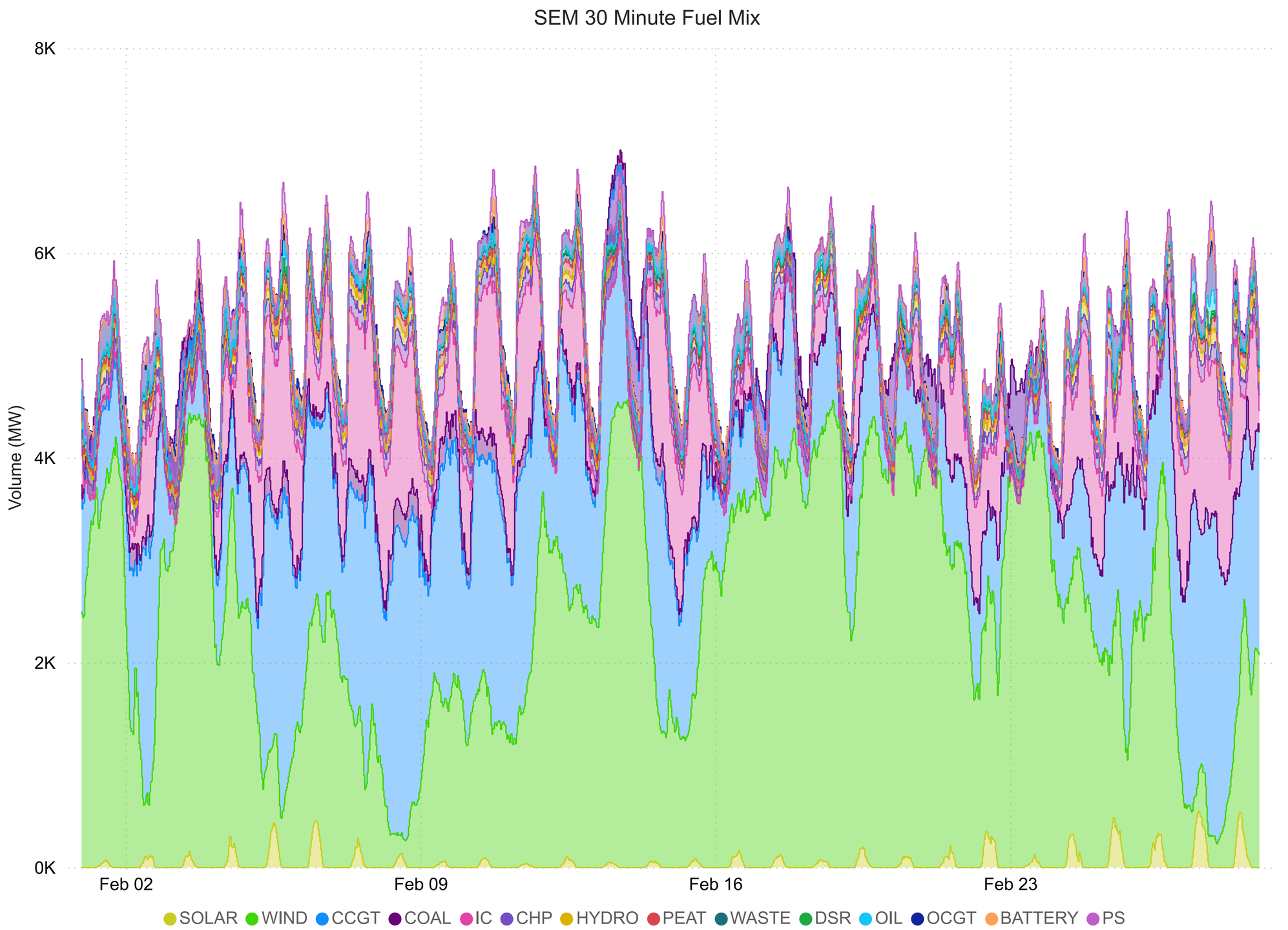




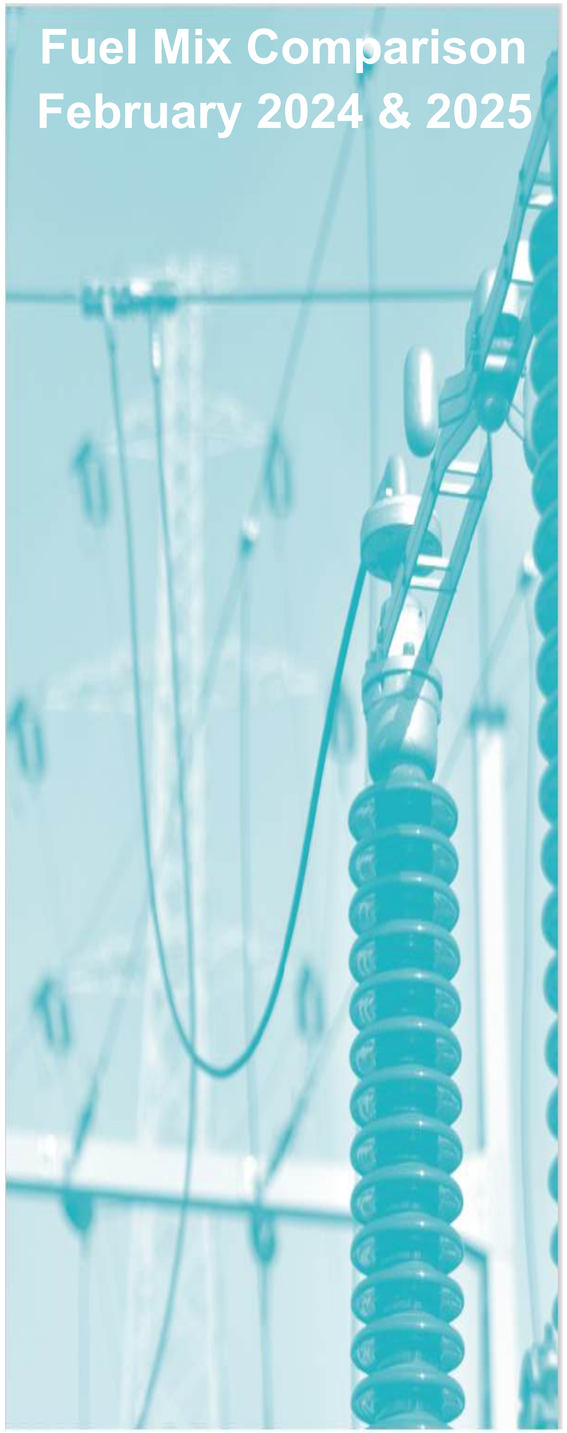
Fuel Mix
February 2025

Fuel Type	Avg Monthly	Per. Monthly
WIND	2511	48.5%
CCGT	1505	29.1%
INTERCONNECTORS	469	9.1%
OCGT	185	3.6%
CHP	144	2.8%
HYDRO	108	2.1%
COAL	87	1.7%
PEAT	61	1.2%
WASTE	61	1.2%
SOLAR	46	0.9%
DSR	16	0.3%
OIL	8	0.2%
BATTERY	-7	-0.1%
PUMPED STORAGE	-21	-0.4%

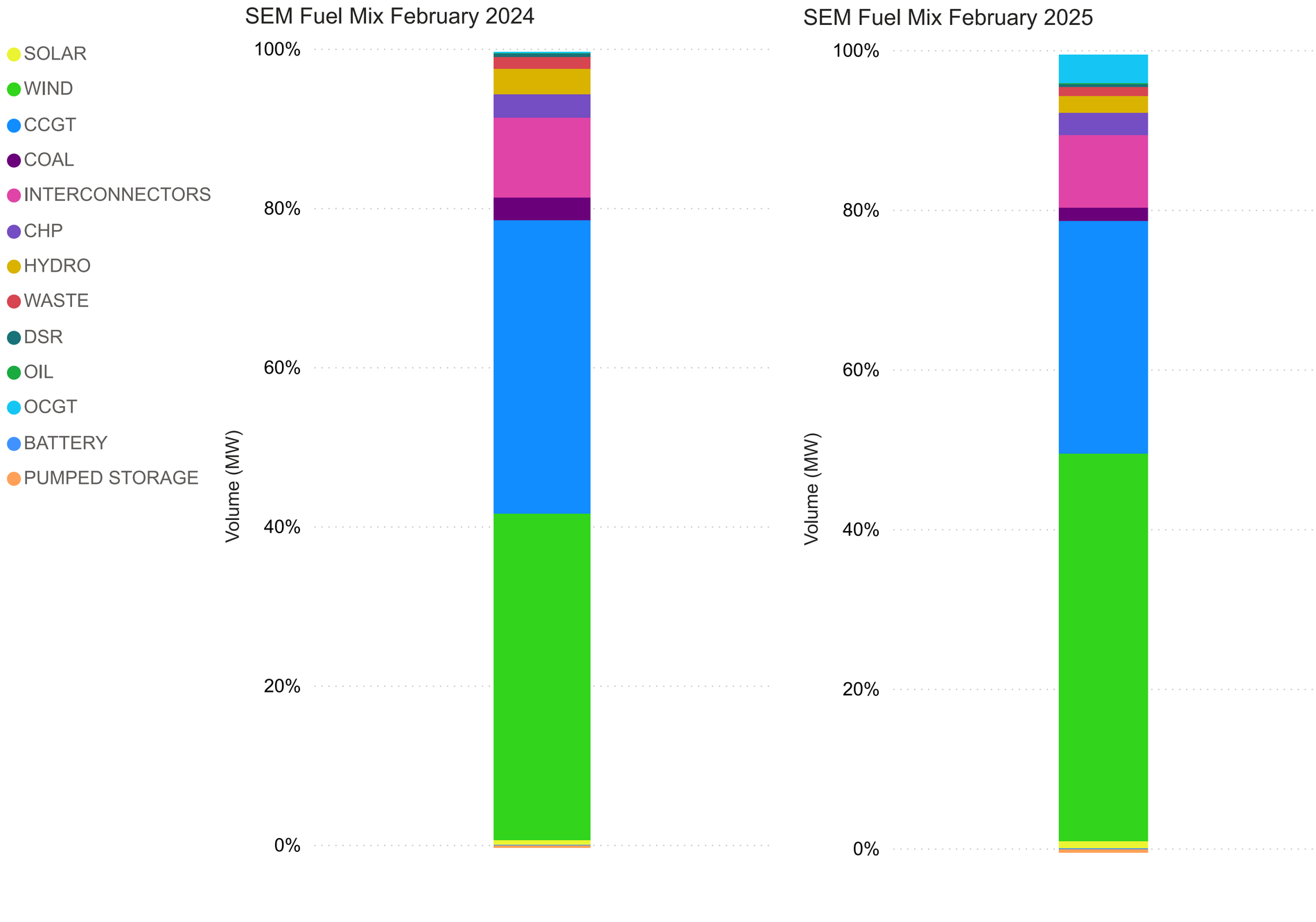
Fuel Type	Max Monthly	Min Monthly
WIND	4563	183
CCGT	3215	626
INTERCONNECTORS	1492	-1349
SOLAR	547	0
OCGT	510	143
PUMPED STORAGE	291	-301
COAL	270	0
OIL	234	0
BATTERY	215	-130
CHP	170	75
HYDRO	153	45
PEAT	116	0
WASTE	77	16
DSR	30	0



Fuel Mix Comparison February 2024 & 2025



SEM committee



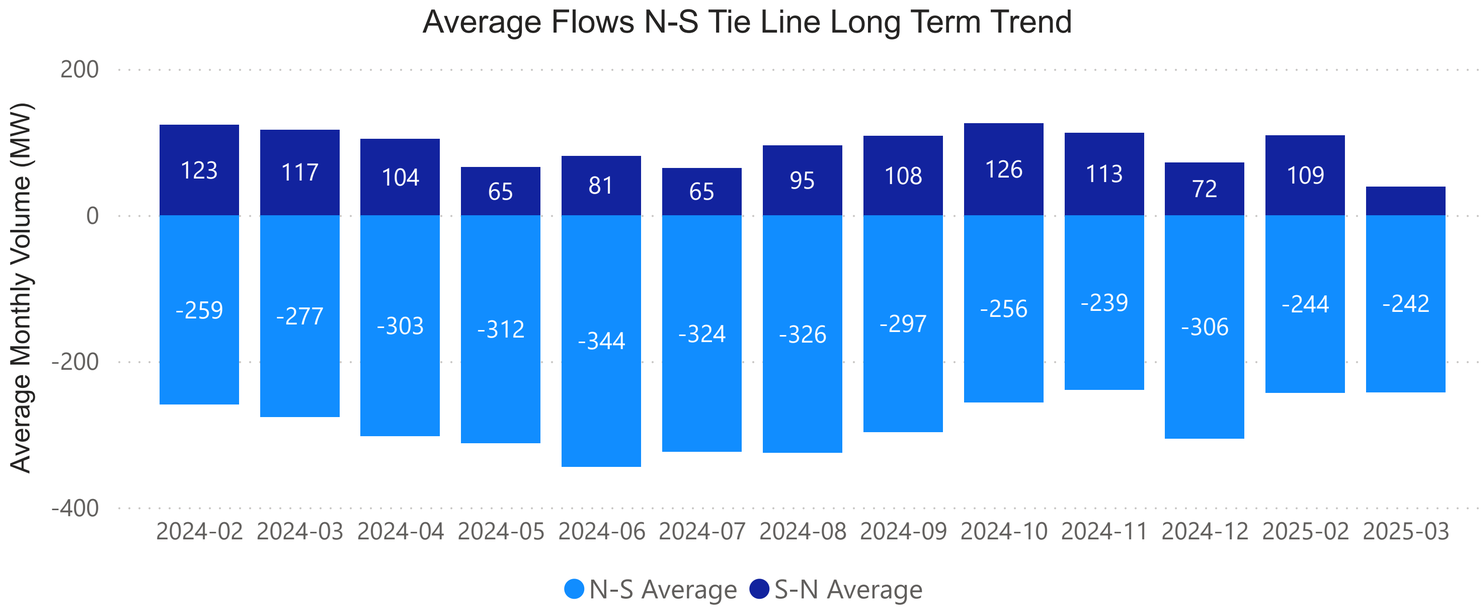
North-South Tie Line February 2025

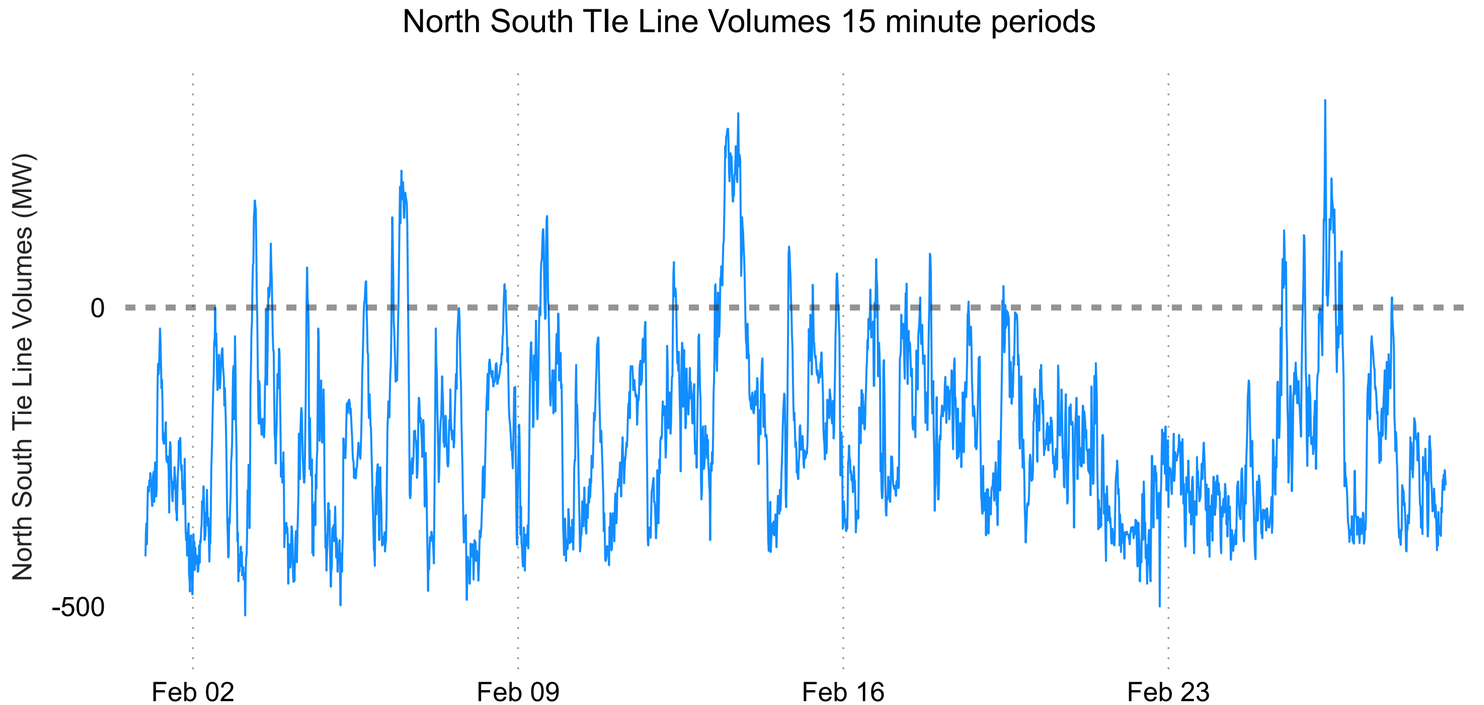
Average Flow NI to ROI (MW)
-243.50

Average Flow ROI to NI (MW)
109.22

Average Net Flow NI to ROI (MW)
-214.89

-ve flow NI to ROI
+ve flow ROI to NI





North South Tie Line

Flows across the N-S Tie Line were predominantly in the North to South direction this month. This has been the long term trend. There are persistence reasons for this trend as below:

•When the wind penetration is high in NI, a surplus of power can be formed as the TSO must run a minimal number of thermal units in NI to deal with operational constrains in the system. Exporting power southwards is a mechanism to avoid wind curtailment.

•The demand in ROI has been growing at a faster pace than in NI.

But the introduction of Greenlink may alter flow patterns, as it directs flow from GB to IE and exhibits the lowest physical losses among interconnectors. Previously, Moyle maintained the lowest loss flow and received priority in dispatch.

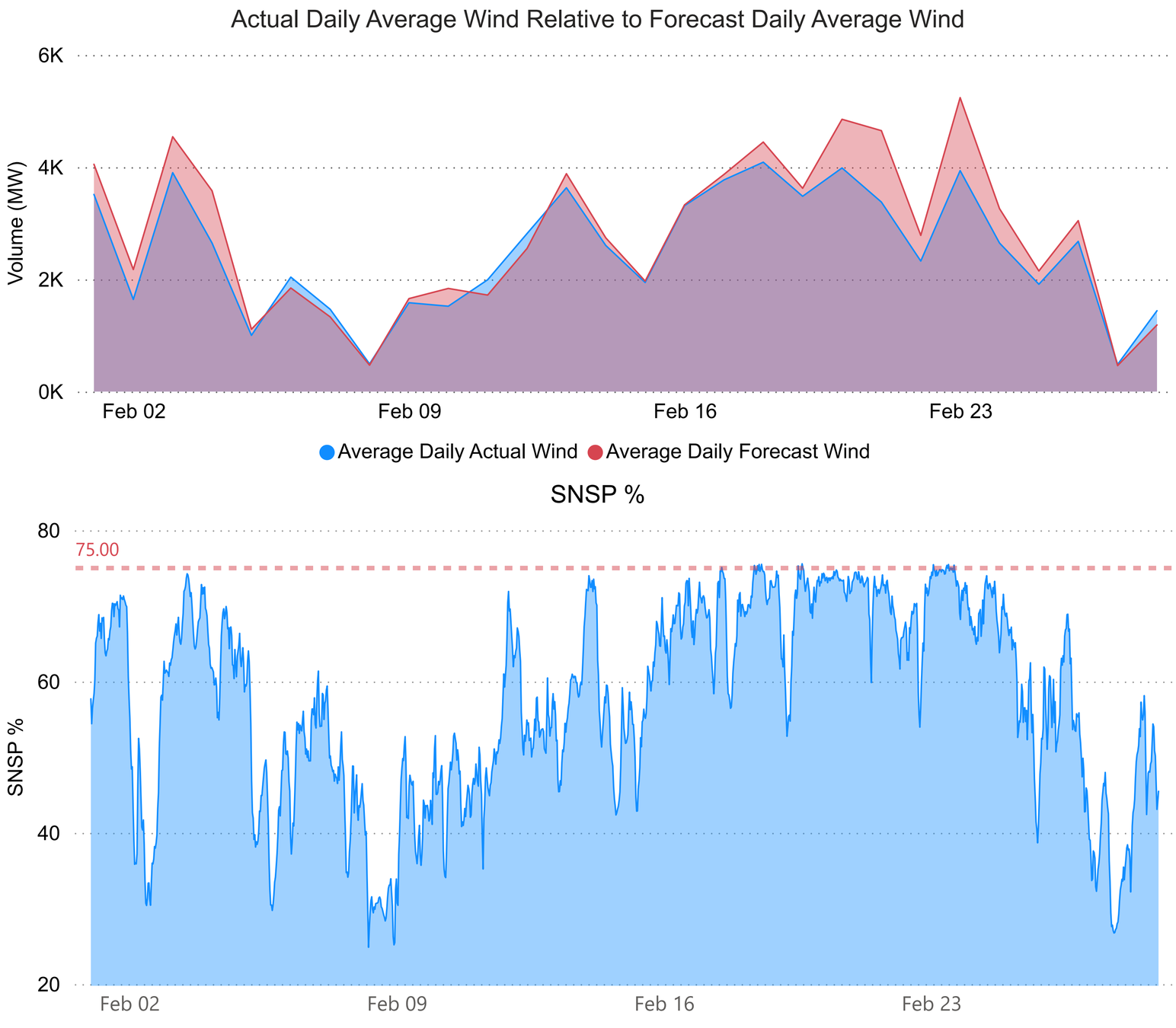
Wind Generation February 2025

Average Daily Actual Wind (MW)
2,509

Average Daily Forecast Wind (MW)
2,799

Min SNSP%
24.87

Max SNSP%
75.57



Wind Generation

Wind generation hit a record level this month with a 29% increase compared to the previous month and a 25% increase from the same period last year.

SNSP

SNSP is closely linked to wind generation and as such follows the same trend across the month.

CO_2 February 2025

CO2 Intensity (gCO2/kWh)

164.09
Average

88
Lowest

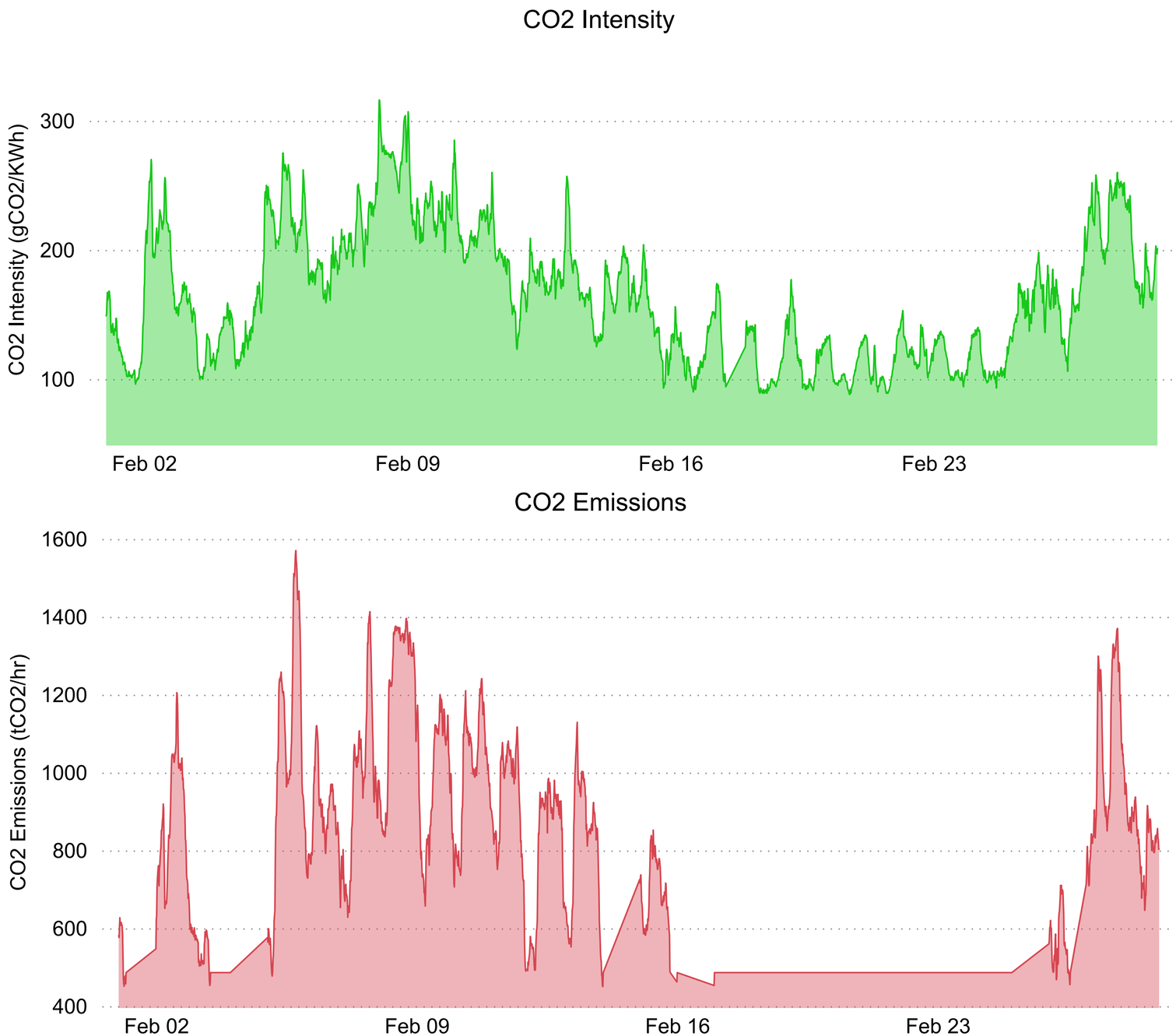
316
Highest

CO2 Emissions (tCO2/hr)

890
Average

450
Lowest

1570
Highest

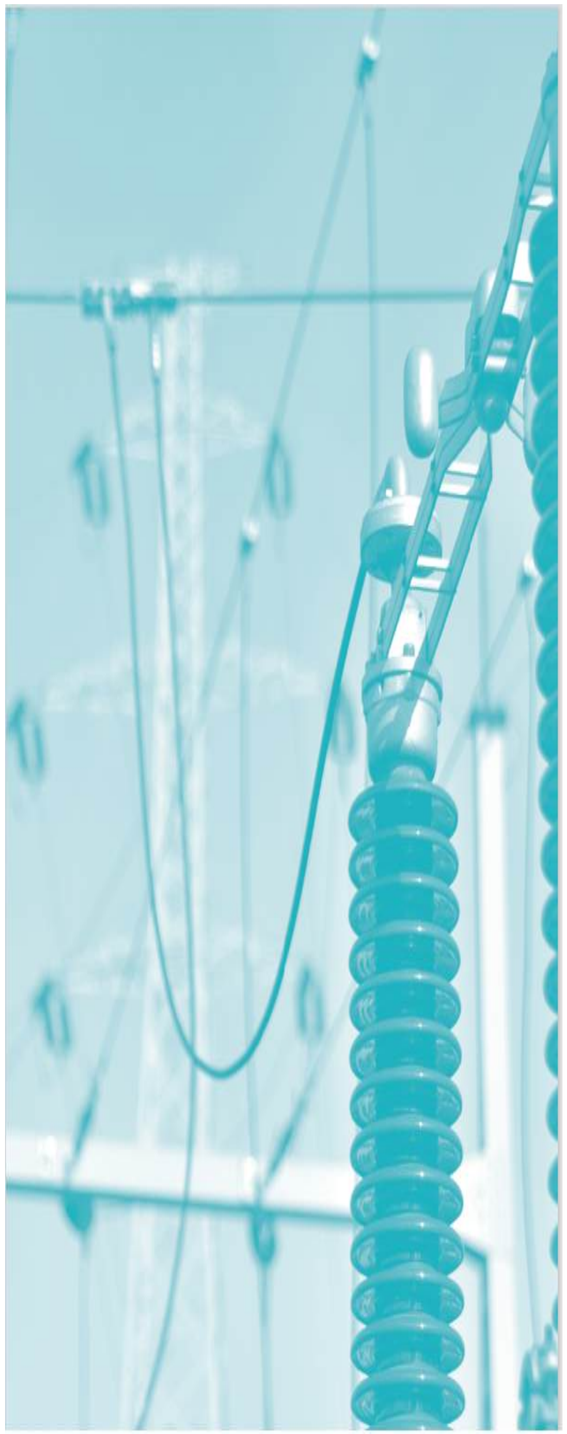


CO_2 Intensity

CO2 Intensity i.e. how many grams of carbon are emitted for every unit of electricity used, should be negatively correlated with the volume of wind output on the system.

CO2 Emissions

CO2 emissions i.e. the estimated total CO2 emissions from all large power stations, follows the same trends as CO2 intensity levels over the course of the month.



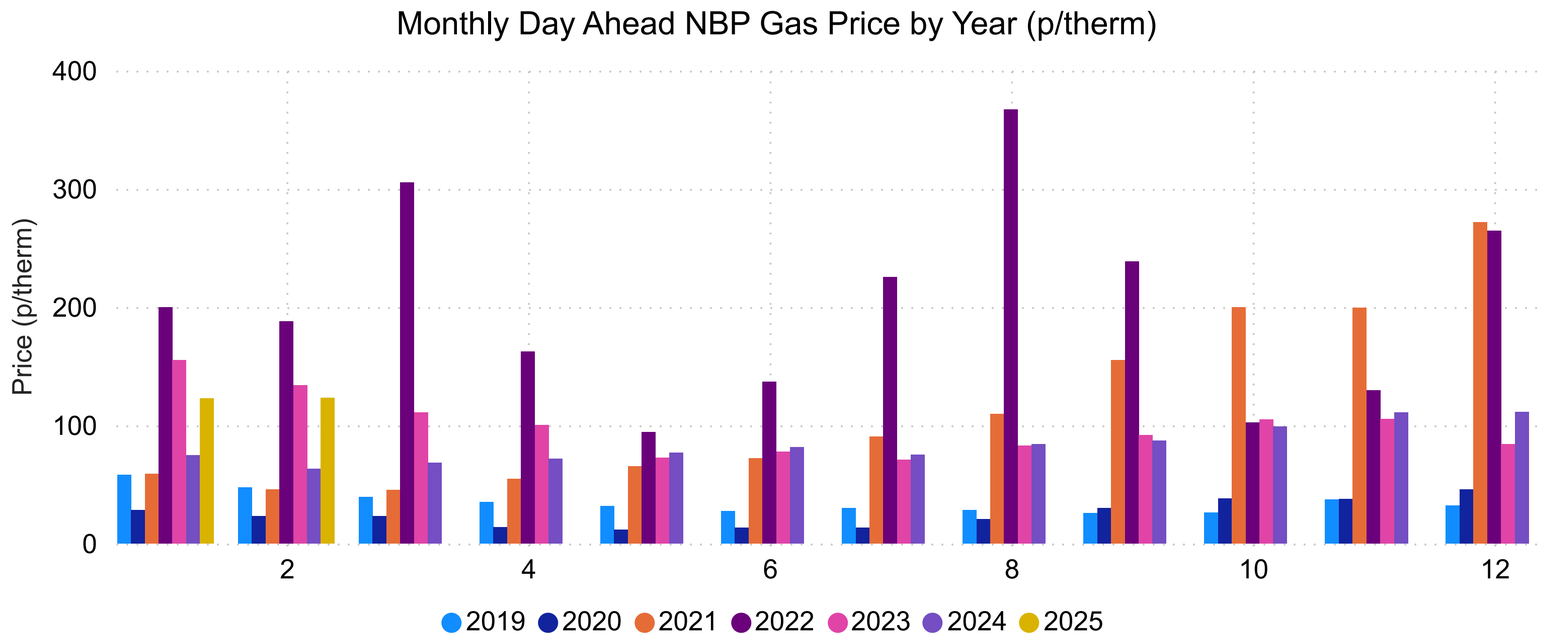
Fuel Costs and Spreads

Gas Price February 2025

123.04
Monthly Average (p/therm)

100.05
Monthly Low (p/therm)

143.13
Monthly High (p/therm)

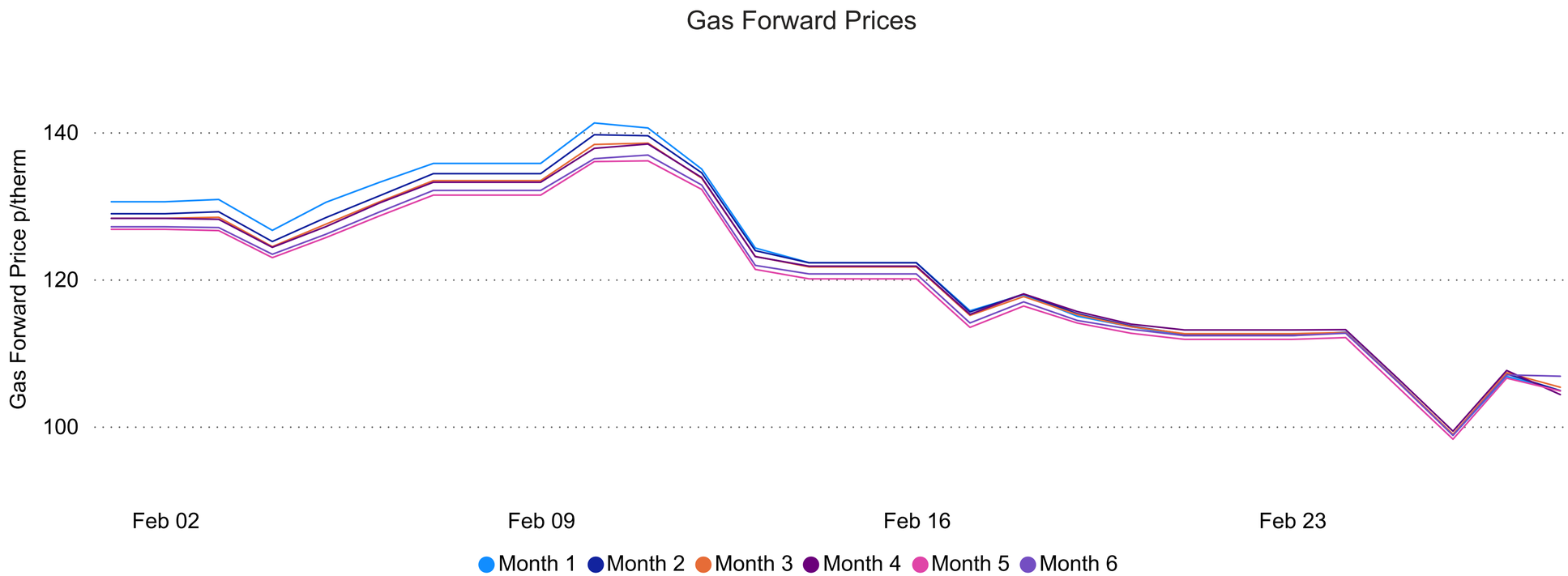


Gas Prices

There was a slight increase in average Gas Prices this month compared to the last month averaging at 123.04p/therm.

Gas Forward Prices

A potential relaxation of European gas storage level targets has also put downward pressure on the futures market.



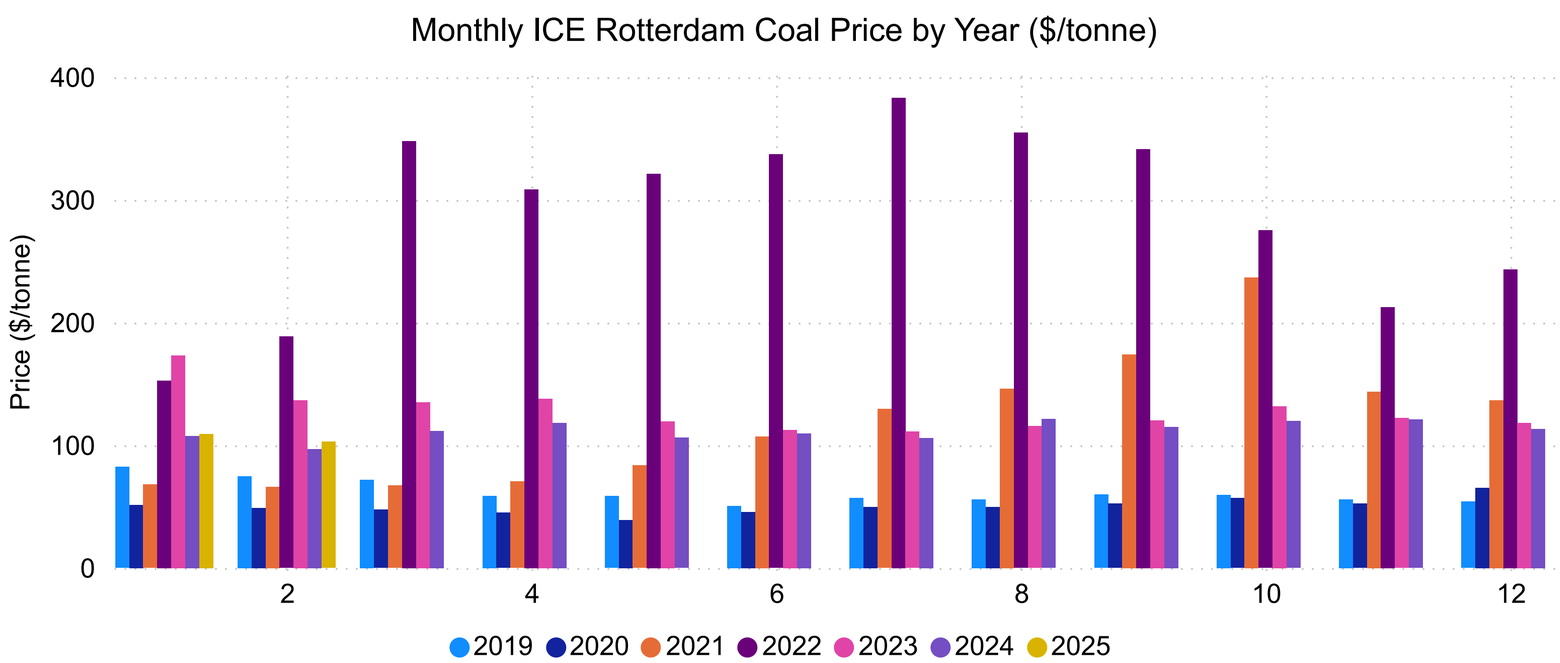
Coal Price February 2025

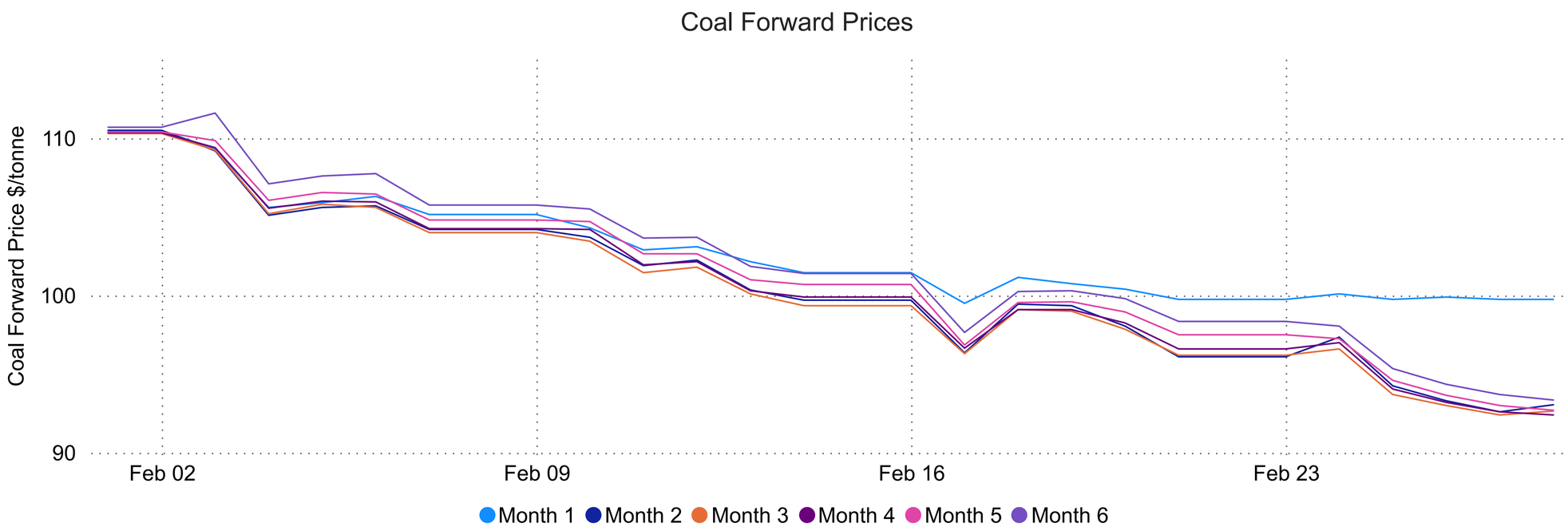
Coal Prices Per Tonne

$102.88
Monthly Average

$99.50
Monthly Low

$110.50
Monthly High





SEM committee

Coal Prices

Coal prices were lower compared to the previous month at $102.88/tonne down from $109.23/tonne (6% decrease from the last month).

Carbon Price February 2025

EU Carbon Prices (€/tonne)

€ 76.08
Monthly Average

€ 69.47
Monthly Low

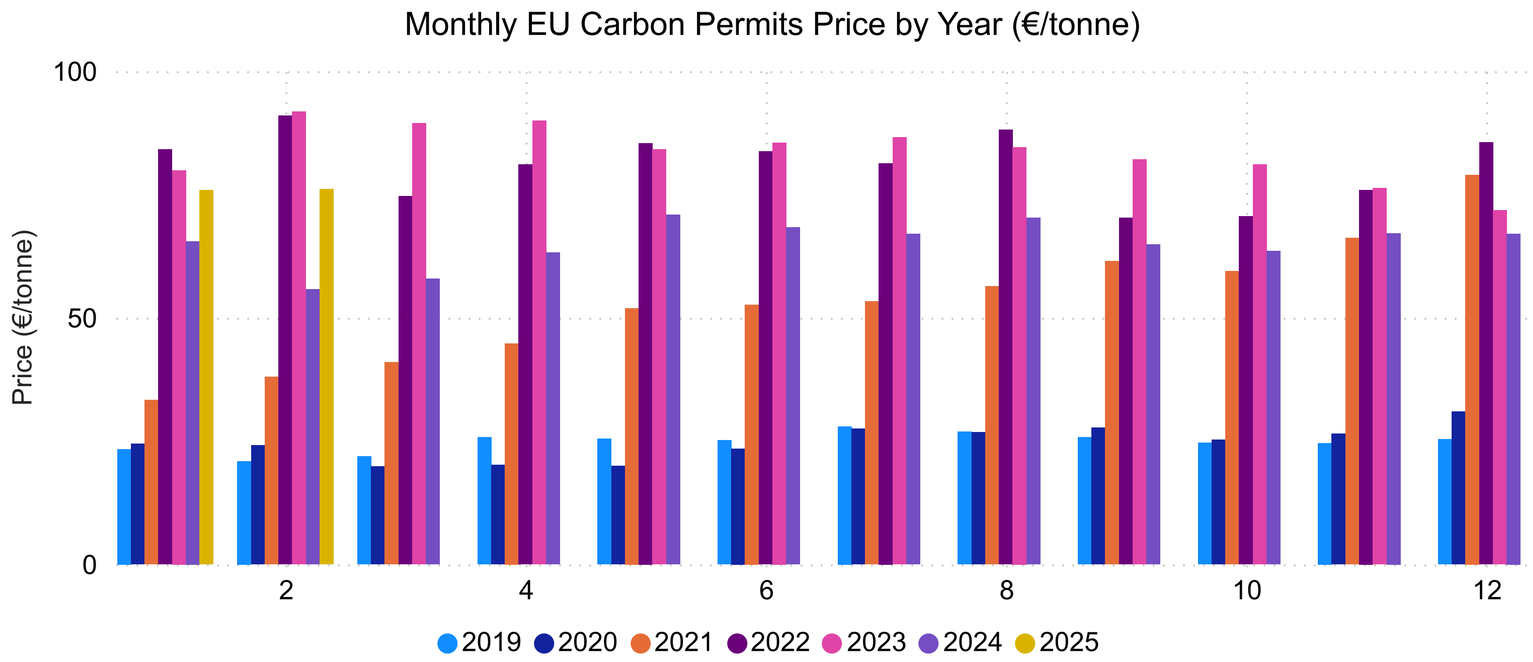
€ 81.63
Monthly High

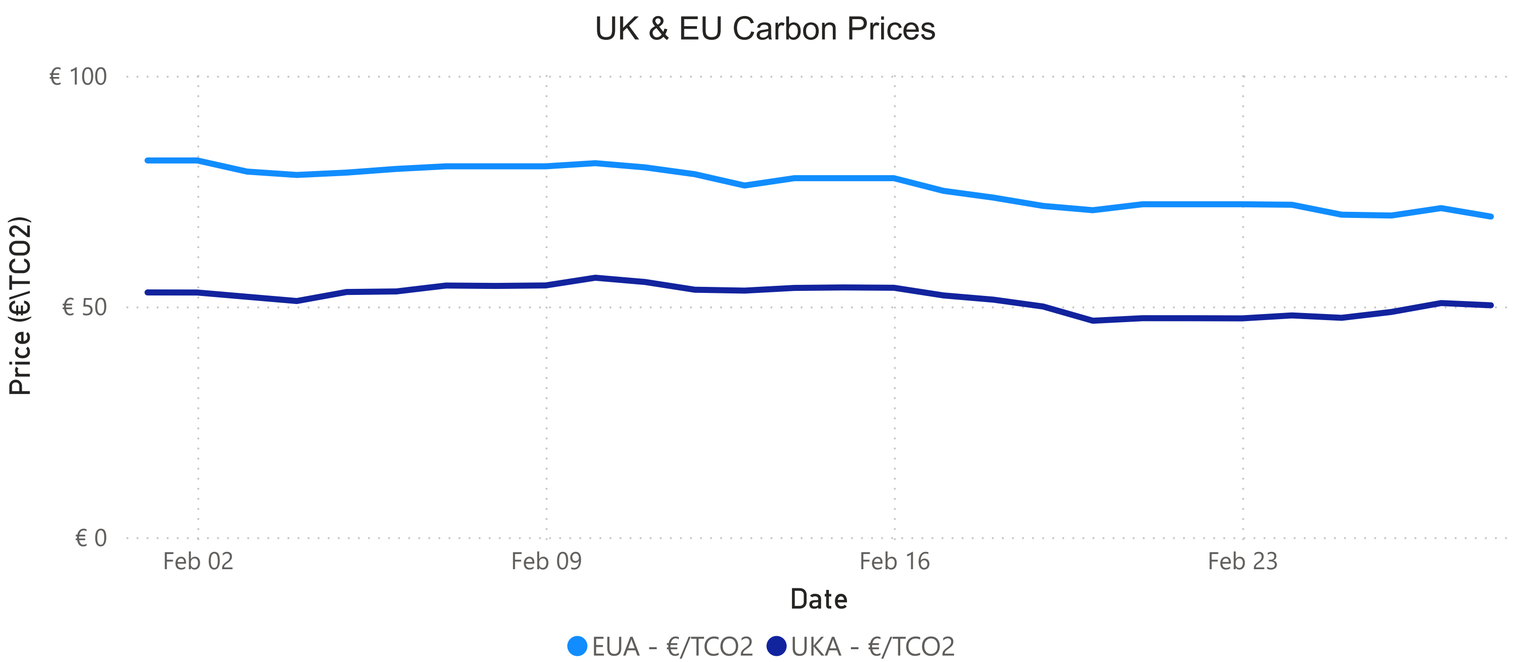
UK Carbon Prices (€/tonne)

€ 51.72
Monthly Average

€ 46.90
Monthly Low

€ 56.21
Monthly High





Carbon Prices

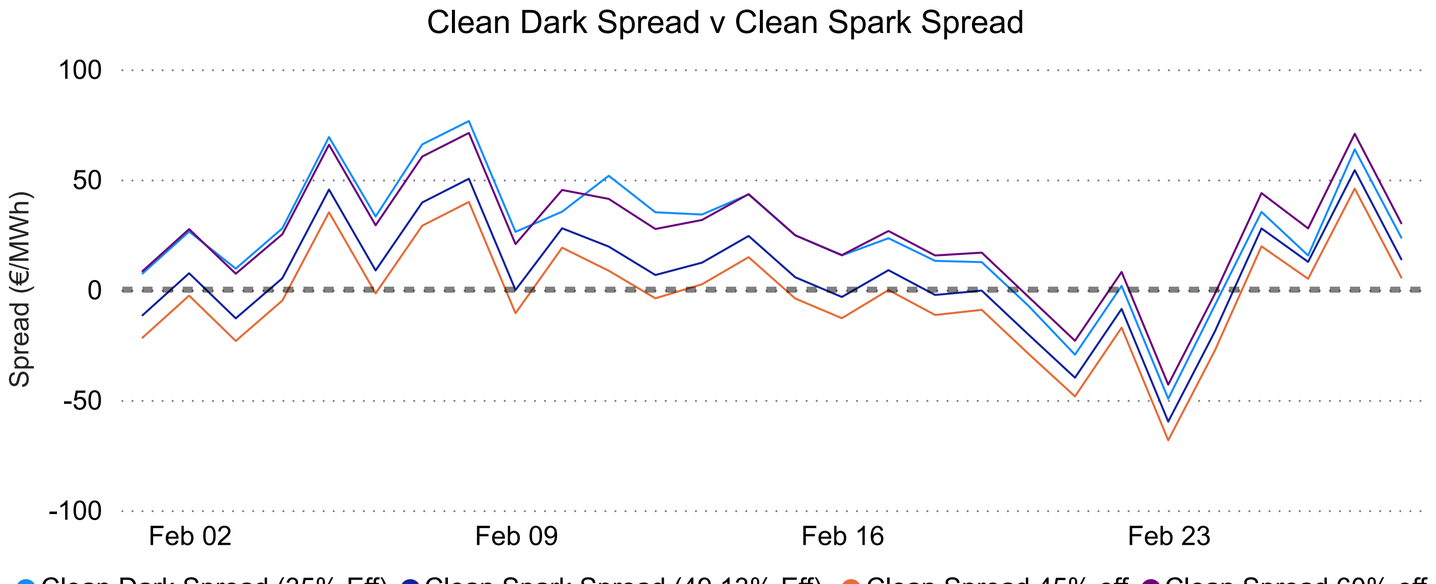
Carbon prices for this month averaged €76.08/tonne, with minimal change from the last month average. During the second half of the month, prices started decreasing once again to the pre January-2025 level.

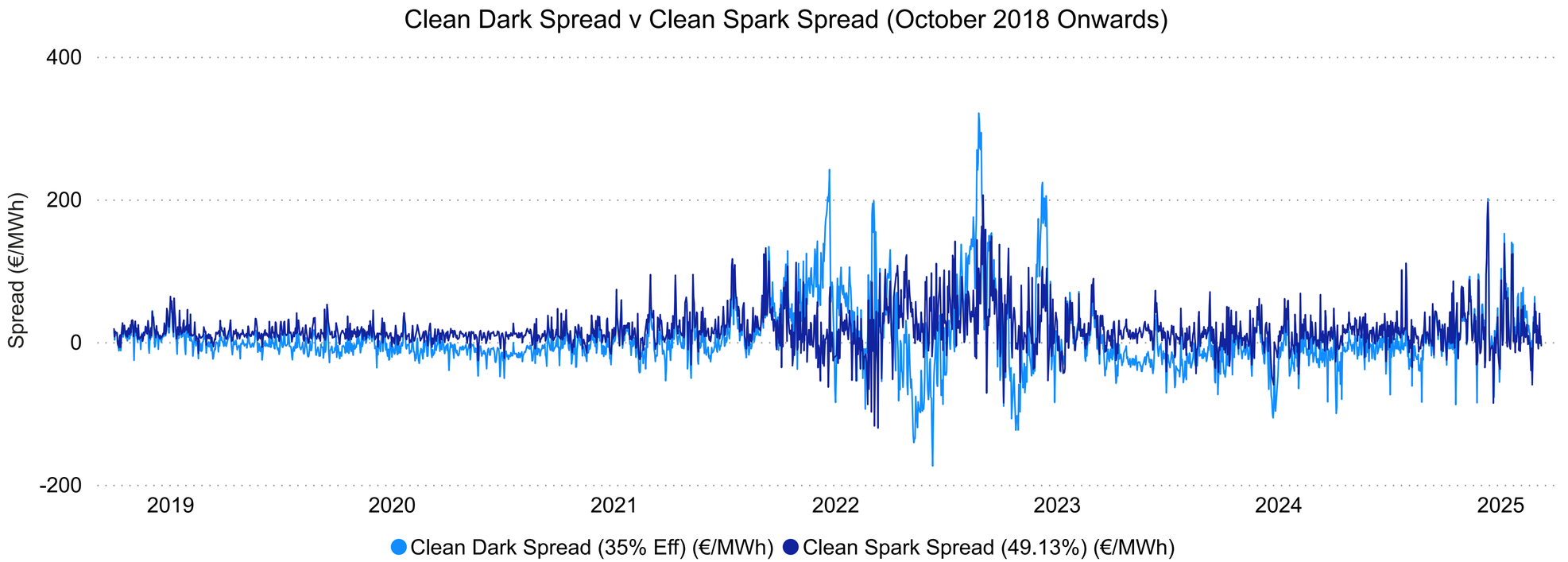
Looking ahead, while supply is expected to remain strong, the demand side is projected to grow steadily due to the reduction in free allocations and the expansion of industry coverage. Overall, EUA prices are expected to experience a moderate recovery.

Spark Spreads
February 2025

Clean Dark Spread measure the profitability of coal fired power generation based on the variable cost of inputs (coal and carbon credits) and the value of the output (electricity).

Clean Spark Spread is the difference between the price received by a generator for electricity produced and the cost of the natural gas + Carbon needed to produce that electricity.





Clean Dark Spread vs Clean Spark Spread

Spreads were generally consistent across the month.