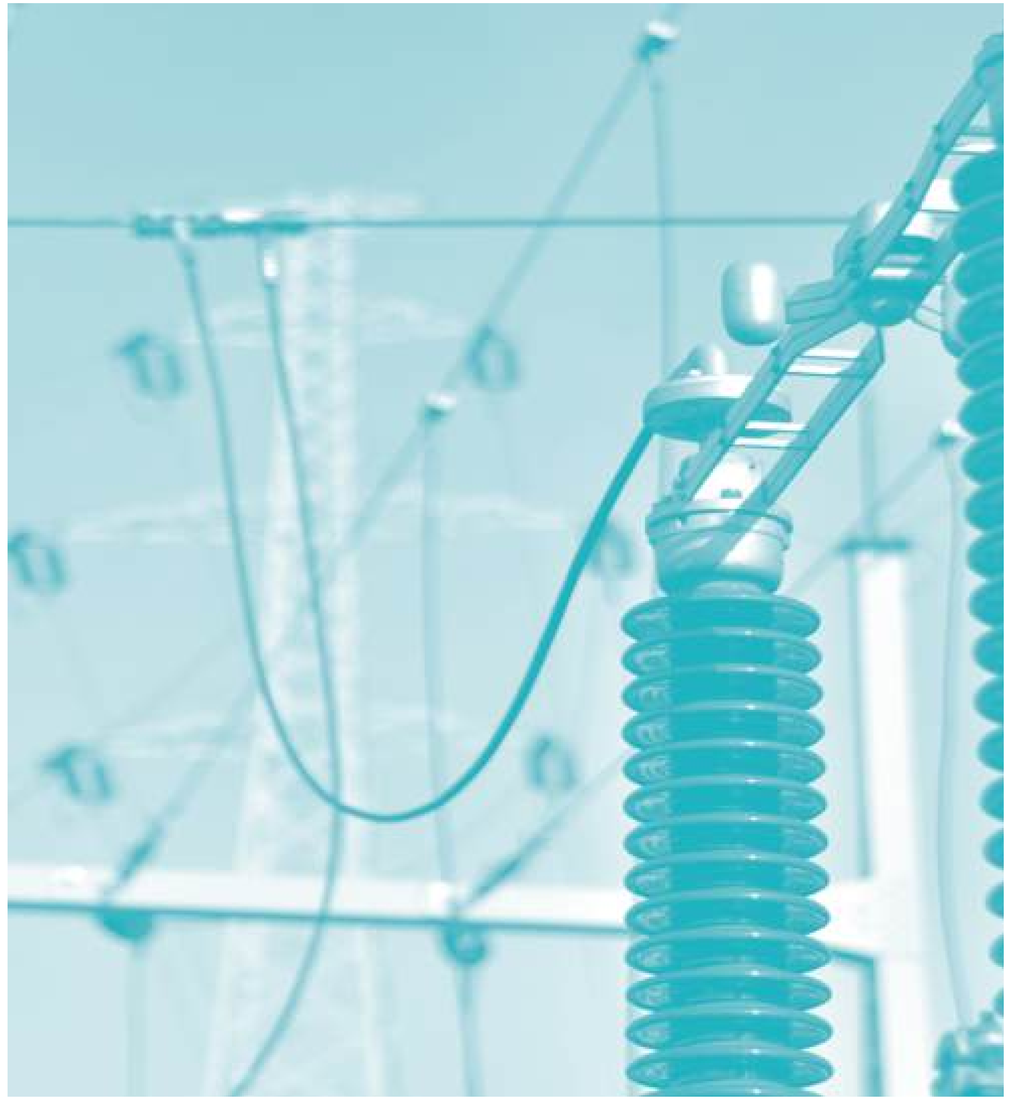
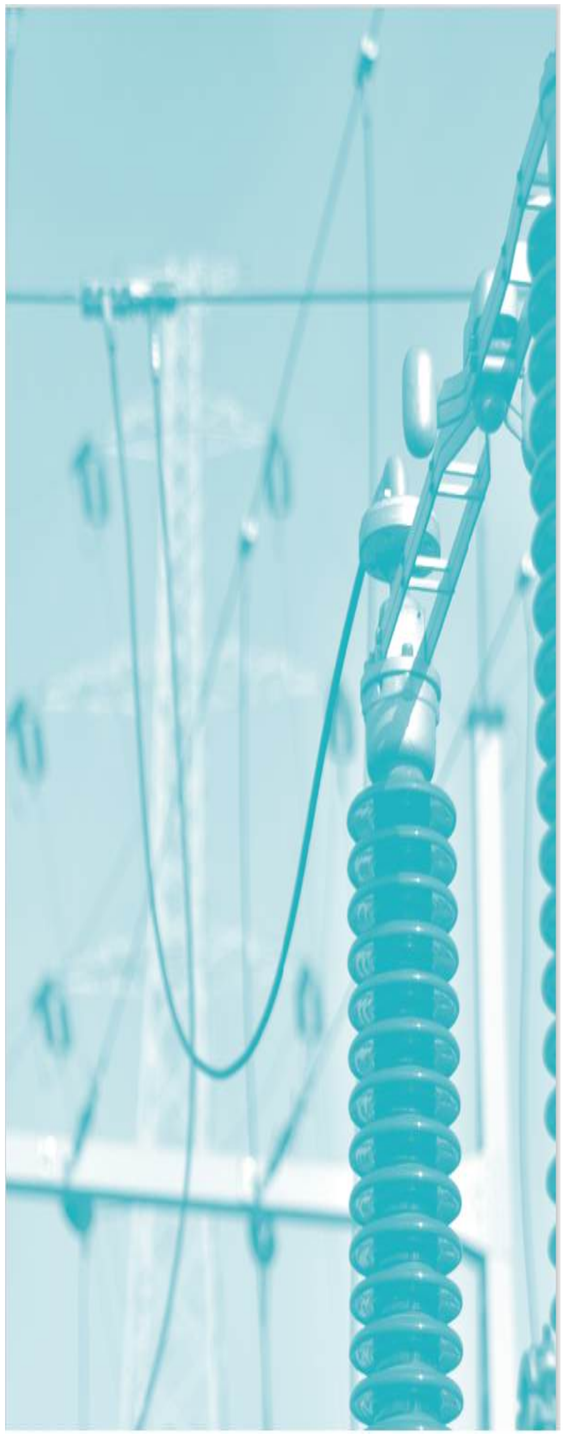


Energy Market Monitoring Report

January 2025

SEM committee



Market Results

Summary Dashboard

SEM committee

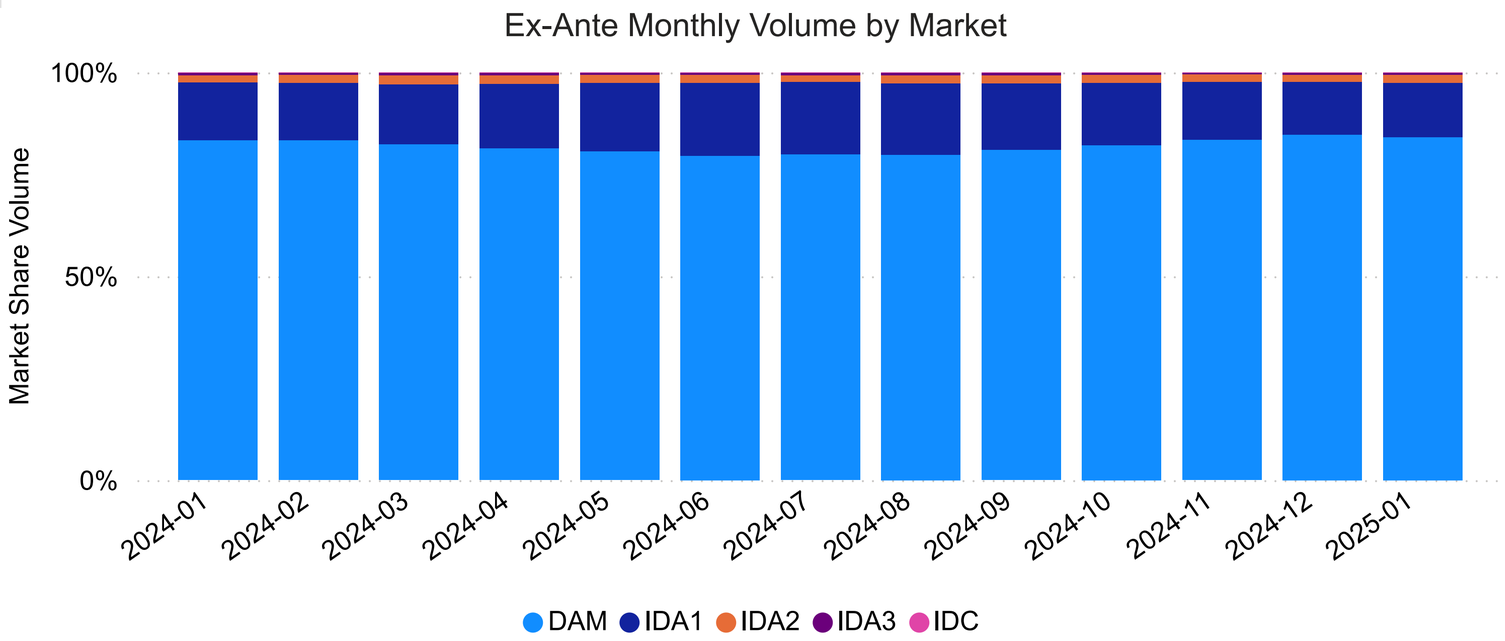
Monthly Averages	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
DAM (€/MWh)	99.9	84.6	86.67	88.52	107.75	107.74	110.94	100.44	112.73	122.9	146.14	136.99	167.51
% Change from previous month	12%	-15%	2%	2%	22%	0%	3%	-9%	12%	9%	19%	-6%	22%
% Change from previous year	-38%	-47%	-40%	-30%	2%	-8%	15%	-6%	1%	-2%	19%	54%	68%
Actual System Demand (MW)	5151	4946	4833	4610	4356	4193	4279	4255	4467.76	4671	5085	5020	5256
% Change from previous month	6%	-4%	-2%	-5%	-6%	-4%	2%	-1%	5%	5%	9%	-1%	5%
% Change from previous year	5%	3%	0%	3%	2%	0%	4%	2%	3%	3%	4%	3%	2%
Actual Wind Generation (MW)	1854	2000	2072	1496	894	1072	883	1437	1263	1668	1448	2040	1948
% Change from previous month	-24%	8%	4%	-28%	-40%	20%	-18%	63%	-12%	32%	-13%	41%	-5%
% Change from previous year	-7%	-1%	19%	-3%	1%	22%	-33%	3%	-9%	22%	-20%	-17%	5%
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
% Change from previous month	-11%	-15%	8%	5%	7%	6%	-8%	13%	3%	14%	12%	0%	10%
% Change from previous year	-52%	-53%	-39%	-29%	6%	5%	6%	2%	-5%	-6%	6%	32%	64%
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
% Change from previous month	-9%	-15%	4%	9%	12%	-4%	-2%	5%	-8%	-2%	6%	0%	13%
% Change from previous year	-18%	-39%	-35%	-30%	-16%	-20%	-23%	-17%	-21%	-22%	-12%	-7%	16%
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
% Change from previous month	-9%	-10%	15%	6%	-10%	3%	-3%	15%	-5%	4%	1%	-6%	-4%
% Change from previous year	-38%	-29%	-17%	-14%	-11%	-3%	-5%	5%	-5%	-9%	-1%	-4%	1%
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%
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%
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%
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%
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%
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%

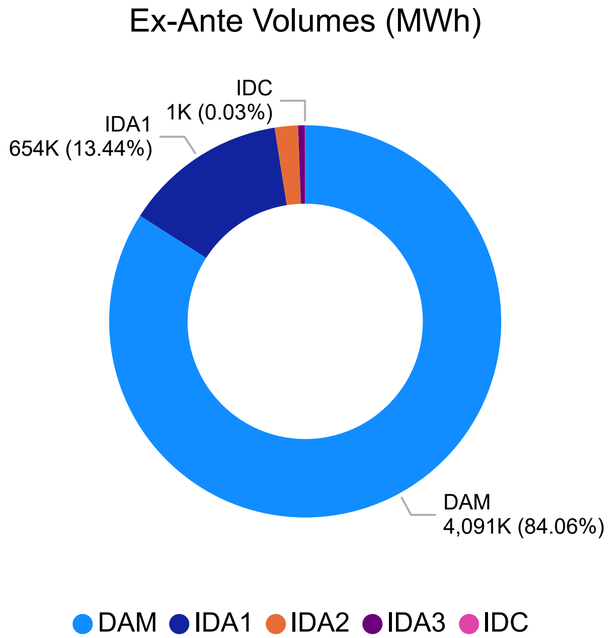
Market Volumes January 2025

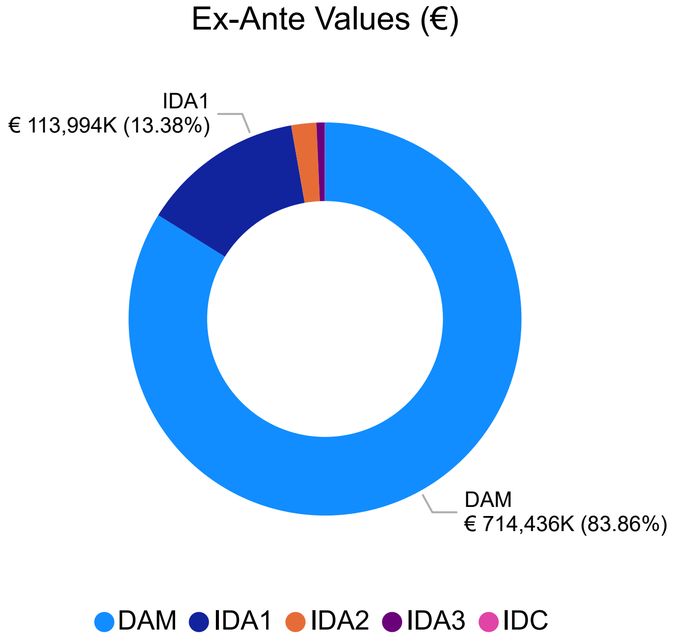
Daily Average Volume	MWh
DAM	131,967
IDA1	21,105
IDA2	3,017
IDA3	861
IDC	51

Total Monthly Volume	MWh
DAM	4,090,988
IDA1	654,242
IDA2	93,533
IDA3	26,680
IDC	1,429
Total	**4,866,872**

Total Market Value	€
DAM	€ 714,436,428
IDA1	€ 113,994,494
IDA2	€ 17,587,185
IDA3	€ 5,649,491
IDC	€ 309,883
Total	**€ 851,977,480**







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 January 2025

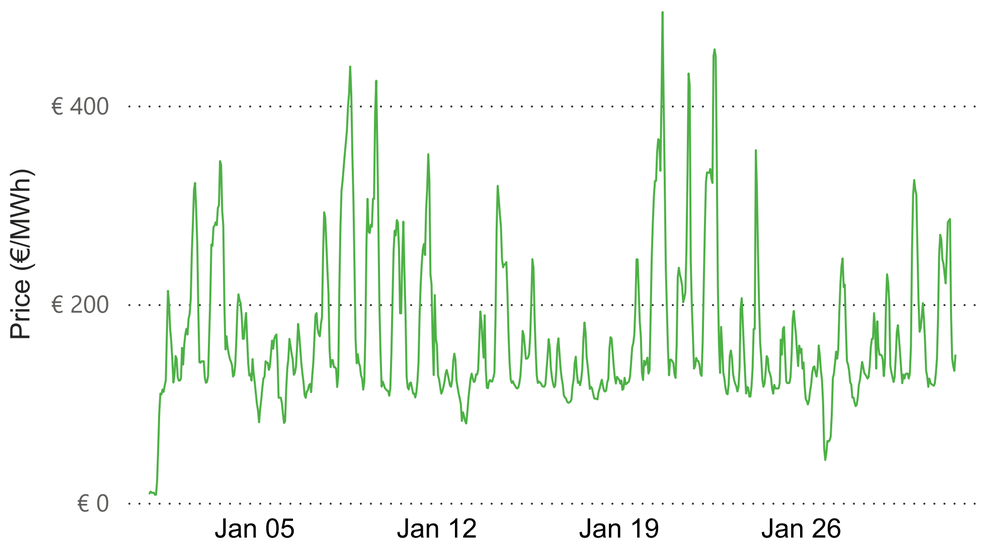
€ 167.51
Average DAM Price

€ 8.00
Min DAM Price

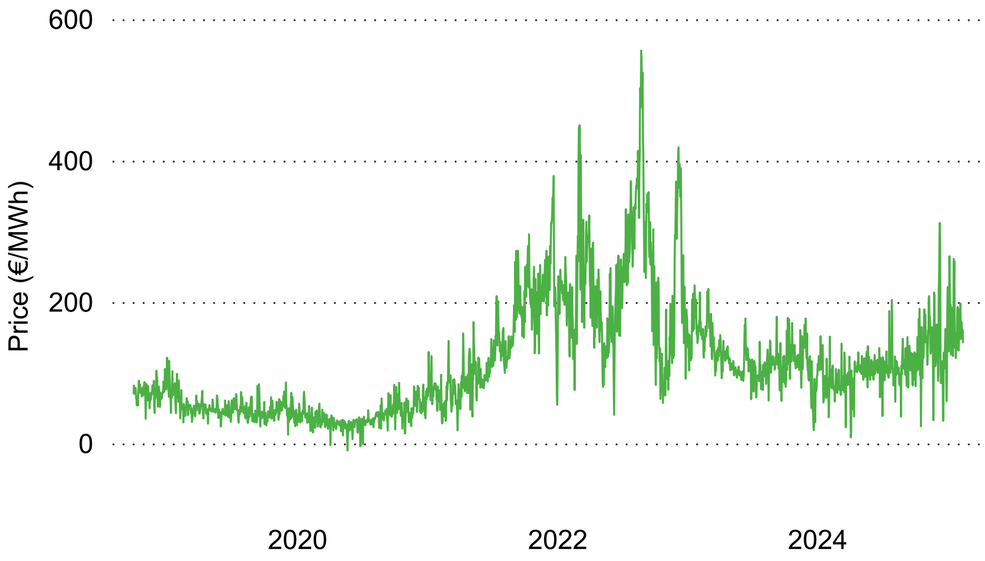
€ 494.10
Max DAM Price

The most frequent price range for January was between €70 and €140.

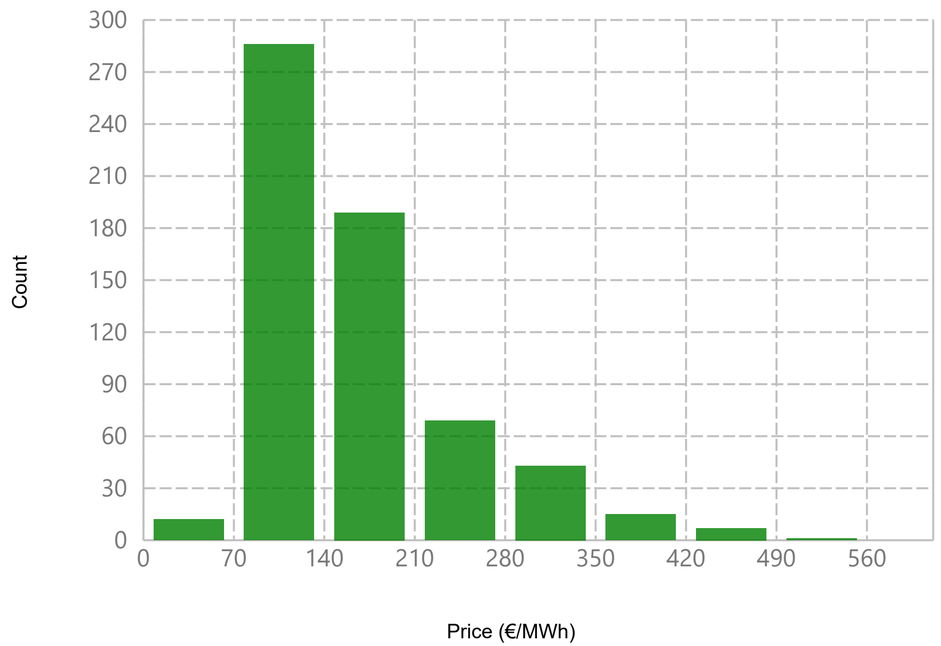
DAM Prices



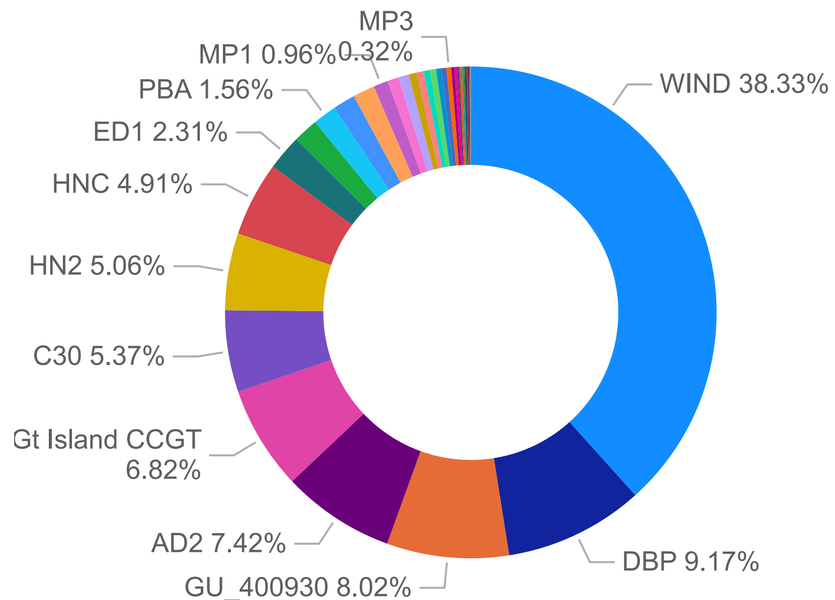
Historic Daily Average DAM Prices



Histogram of DAM Prices



DAM Sell Side Generator Order Results



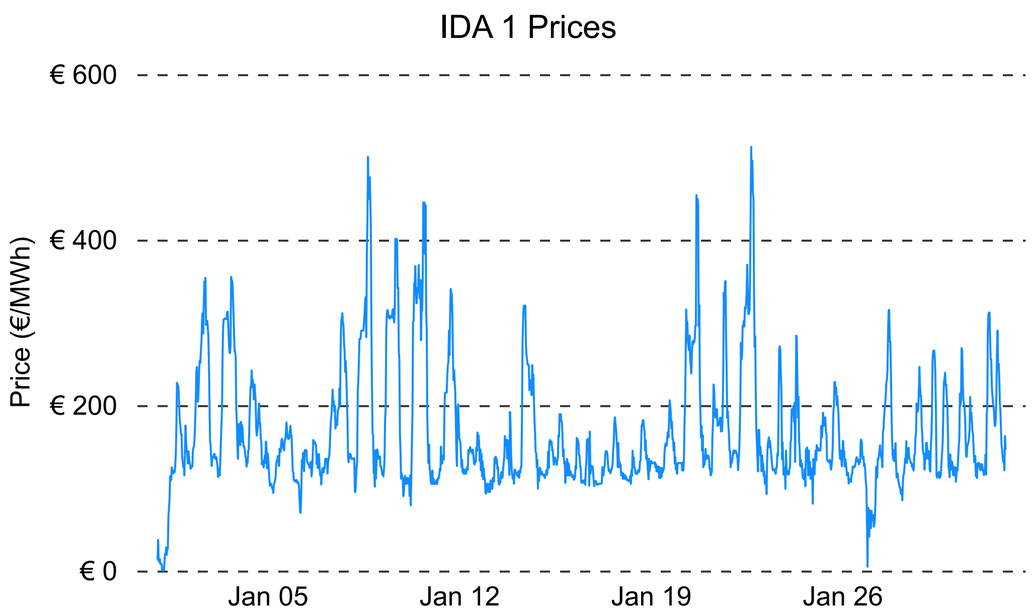
Intraday Market January 2025

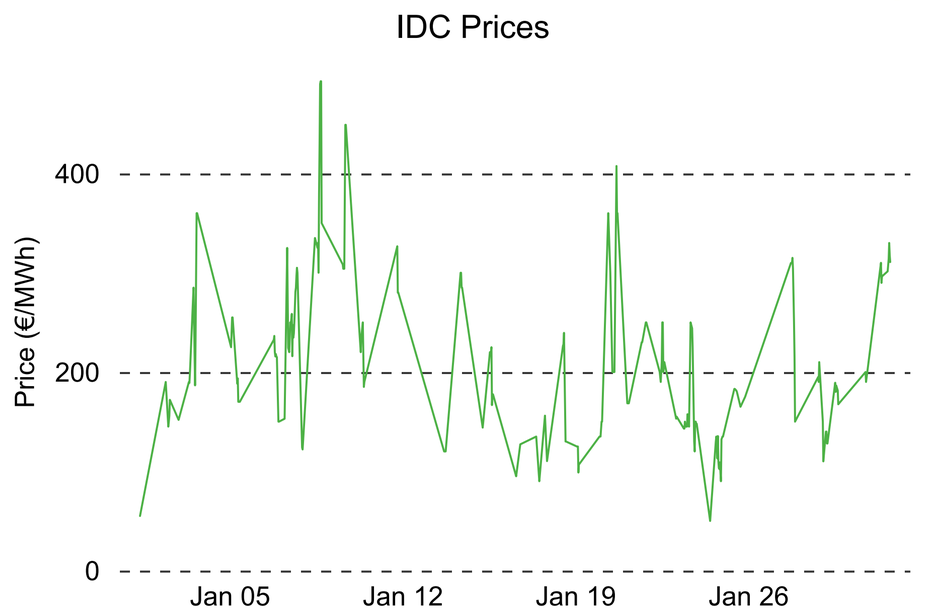
€ 166.97
Average IDA1 Price

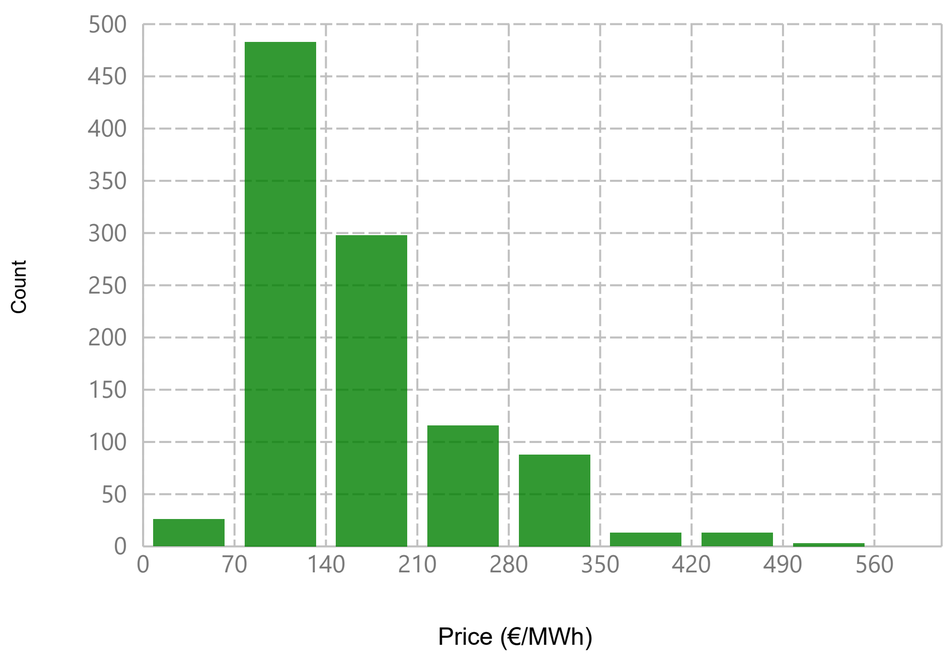
€ 0.00
Min IDA1 Price

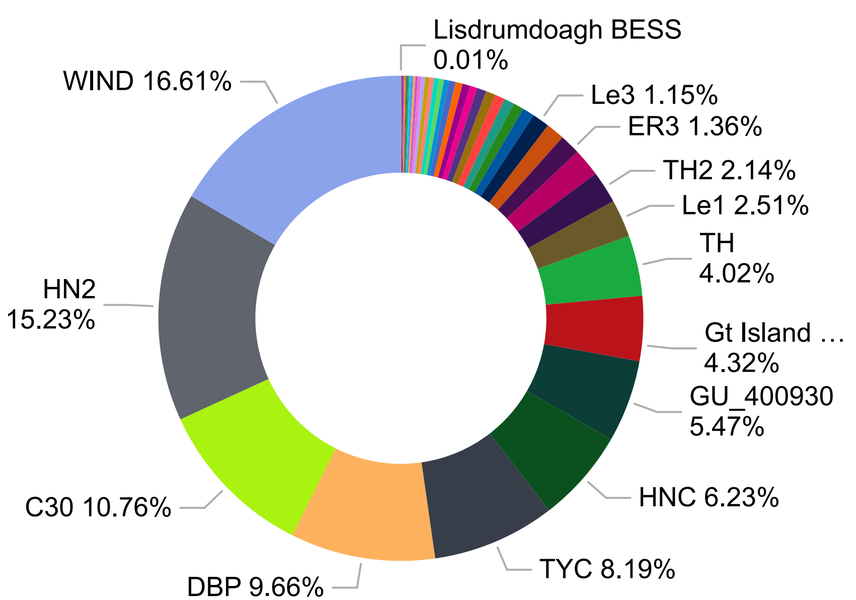
€ 512.12
Max IDA1 Price

The most frequent price range for January was between €70 and €140.









SEM vs GB DAM January 2025

SEM Day Ahead Price
€ 167.51
Average DAM Price

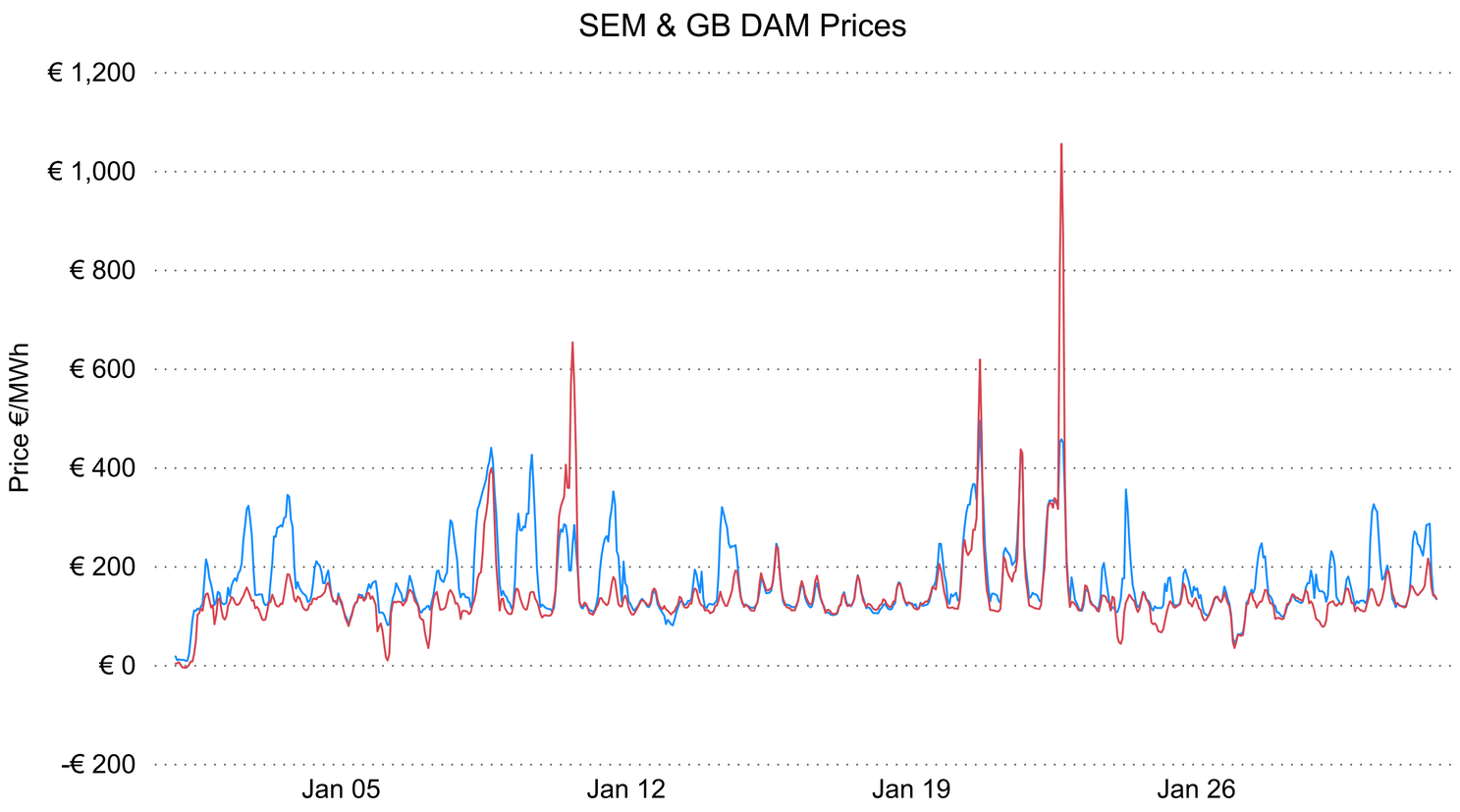
€ 8.00
Min DAM Price

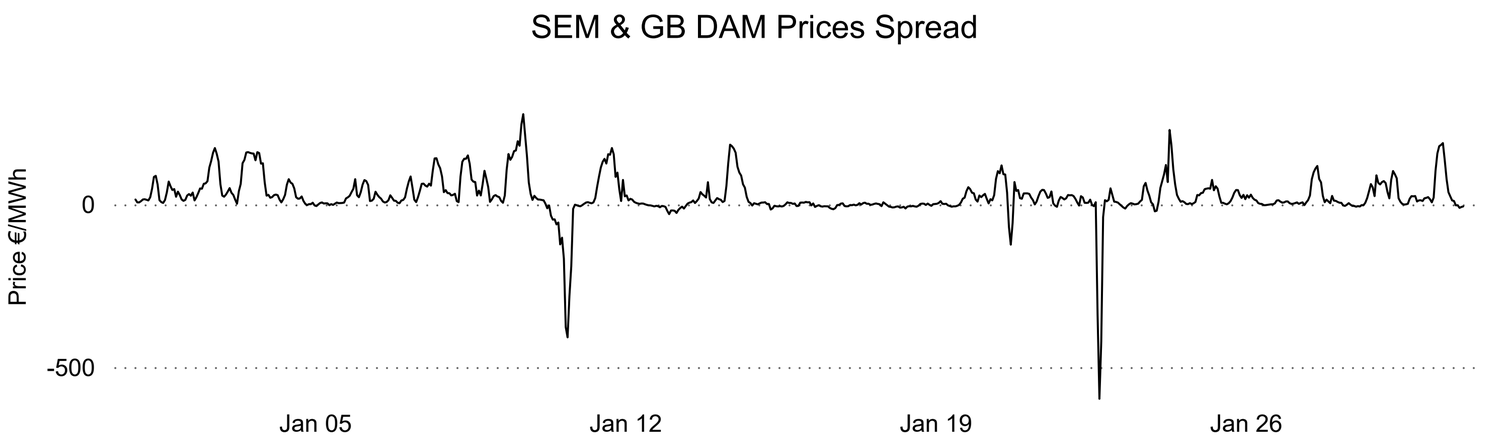
€ 494.10
Max DAM Price

GB Day Ahead Price
€ 141.11
Average Price

-€ 6.05
Min Price

€ 1,054.22
Max Price





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.

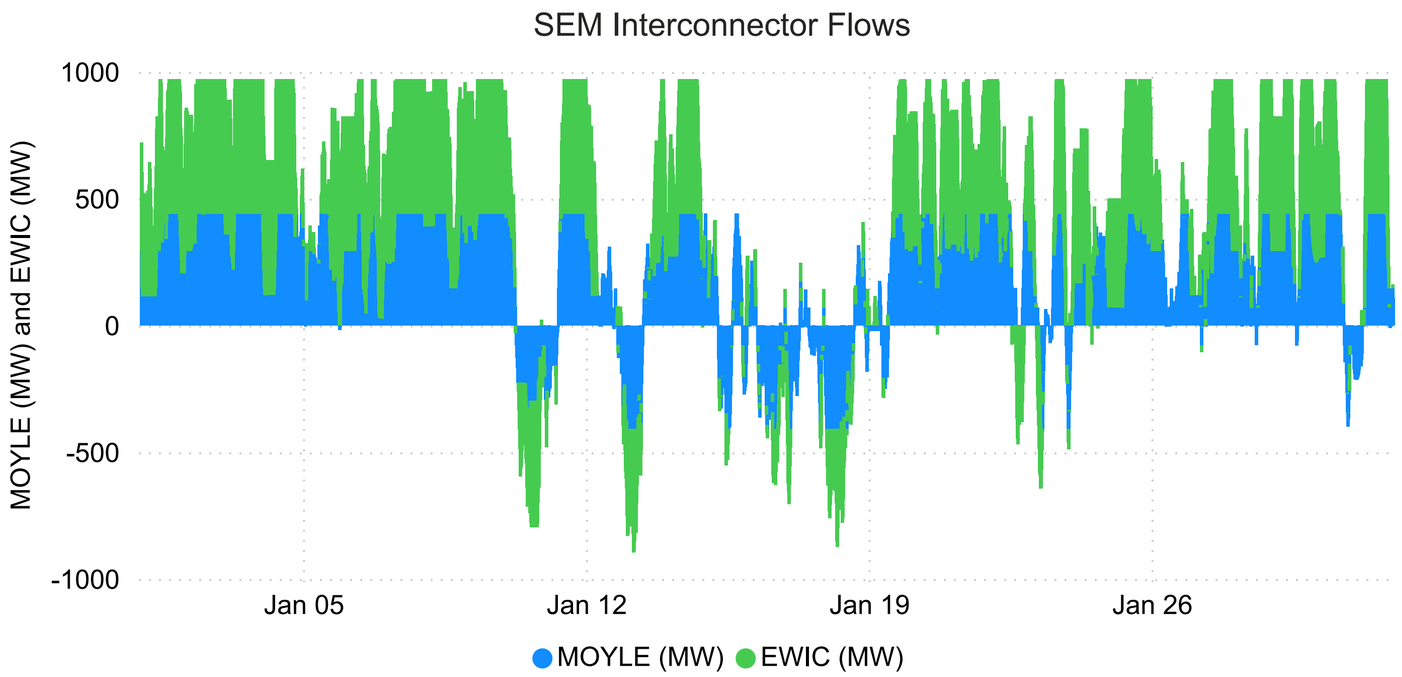
Basically, the periods of significant spreads between the two markets are generally correlated with period of very low wind. For instance, wind output on the 22nd January was very low, resulting in elevated prices in GB during one period. Due to the prevailing fuel mix across both regions, the GB price 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 January 2025

Events of capacity curtailment (by the SEM TSO) in the direction SEM to GB.

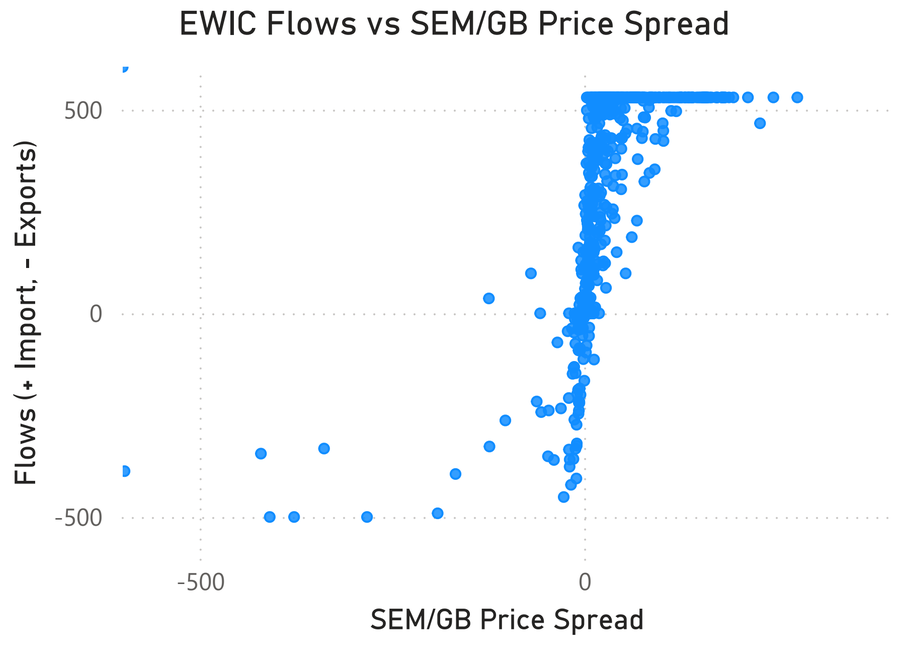
Moyle	EWIC
20/01 07:00 - 22:00	20/01 09:00 - 19:00
	23/12 01:44 - 21:02
	11/12 14:00 - 22:00

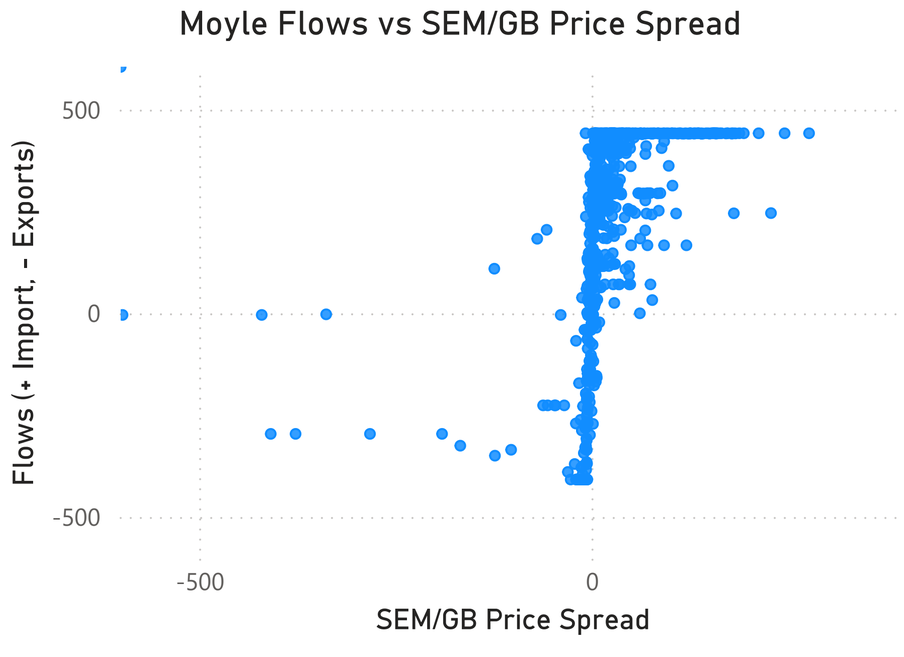


Interconnector Flows

In January, the SEM Interconnectors mostly imported power from GB, with only minimal exports. This reflects the predominantly higher prices in the SEM compared with GB.

MMU will incorporate the Greenlink interconnector into the report starting next month and will subsequently assess its impact on flow patterns.

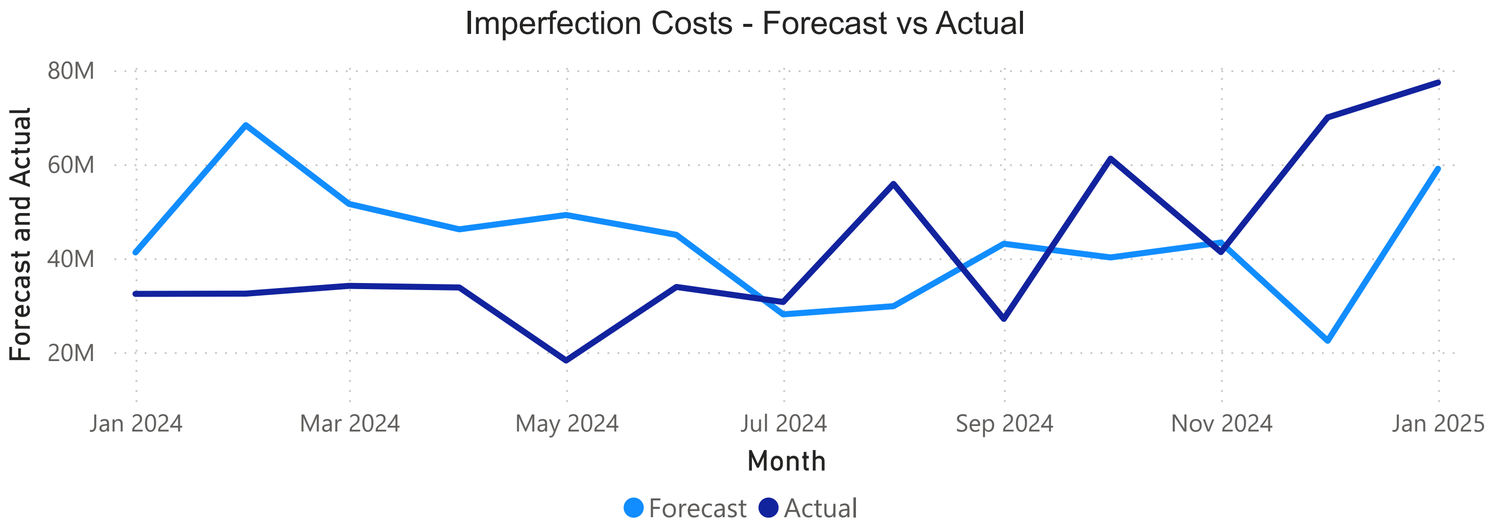




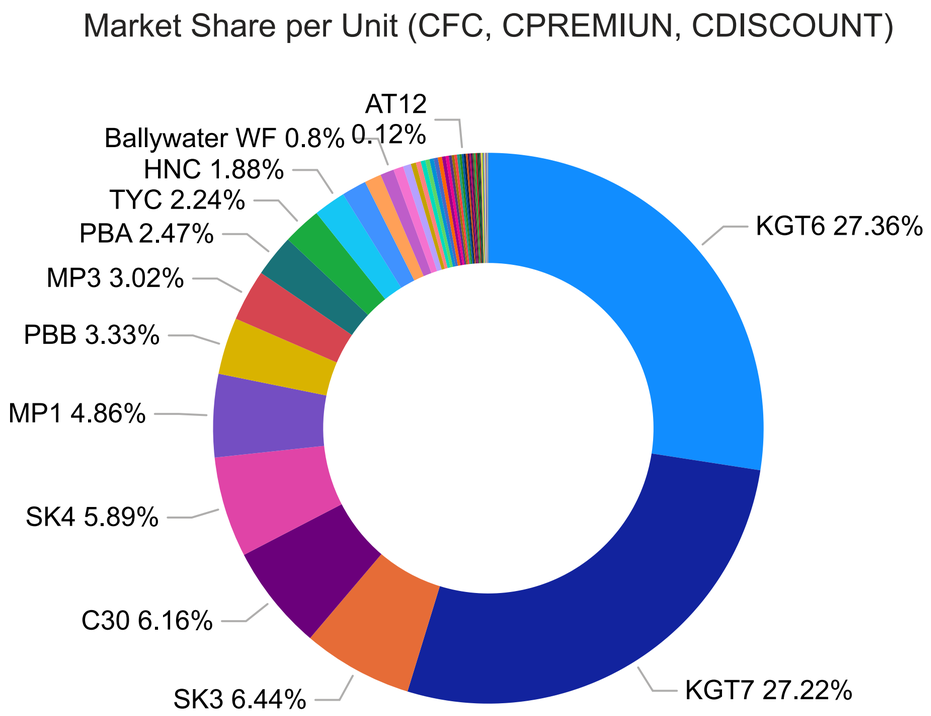
Balancing Market January 2025

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	33,032.71
CAOOPO	-378,401.93
CCURL	-412,363.82
CDISCOUNT	26,159,329.16
CFC	40,146,341.79
CPREMIUM	13,538,729.01
CTEST	-49,075.25
CUNIMB	-1,665,429.05
Total	**77,372,162.63**



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 January followed by KGT7 (EP Killroot Ltd).

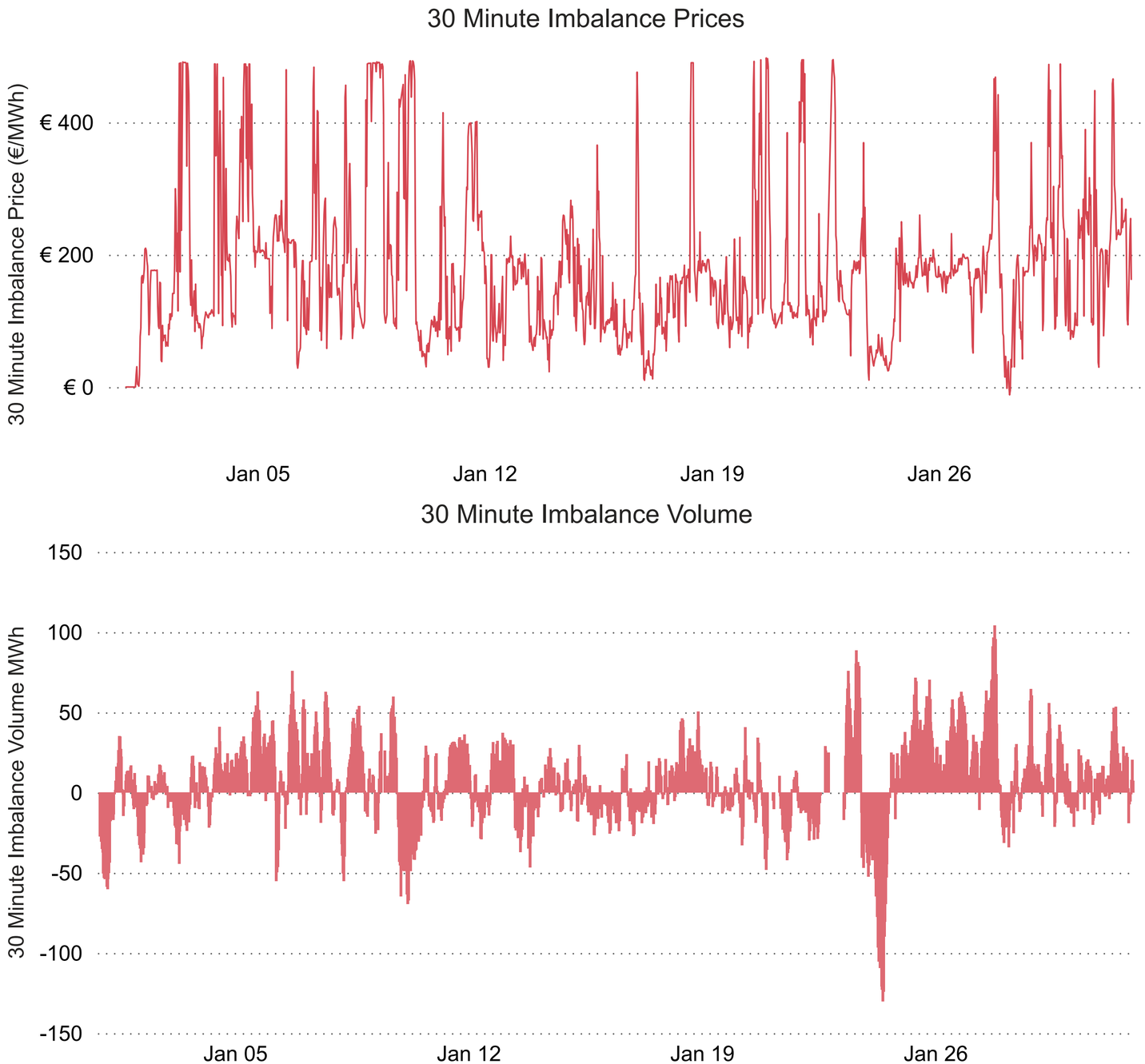
Balancing Market January 2025

30 Minutes Imbalance Price

€ 178.98
Average Price

-€ 11.86
Lowest Price

€ 497.18
Highest Price

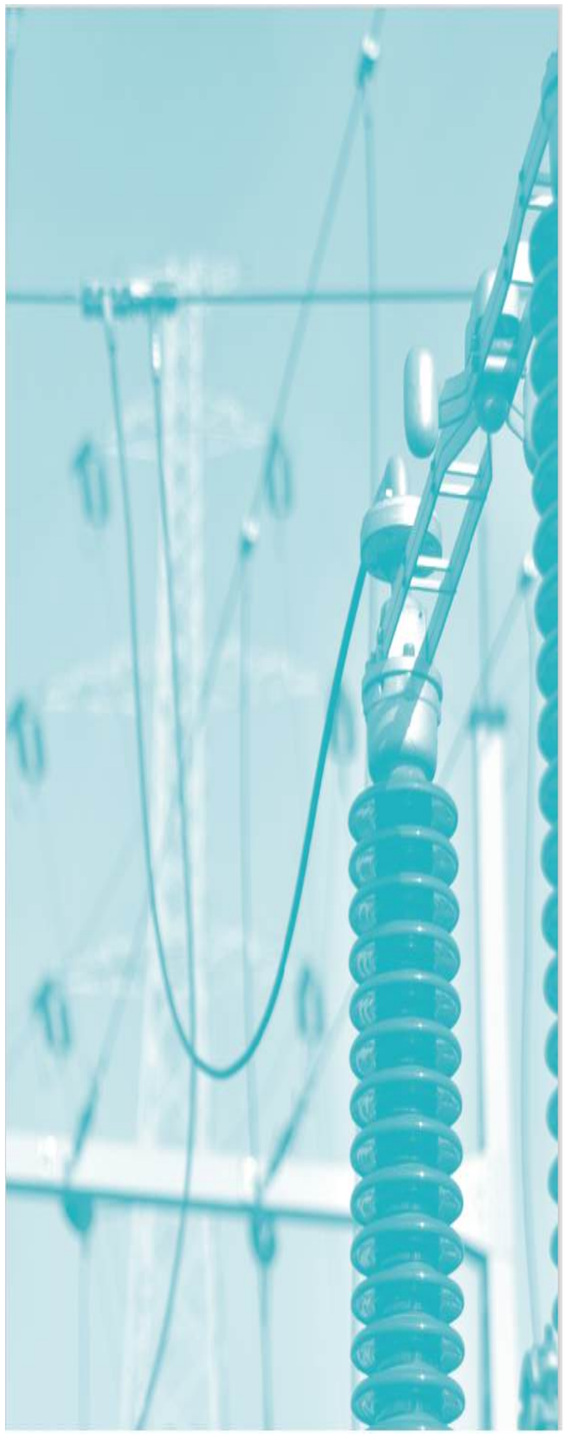


SEM committee

Imbalance Price & Volumes

The average Imbalance (BM) Price this month is higher than the Day Ahead Price. Additionally, 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
January 2025

SEM Demand

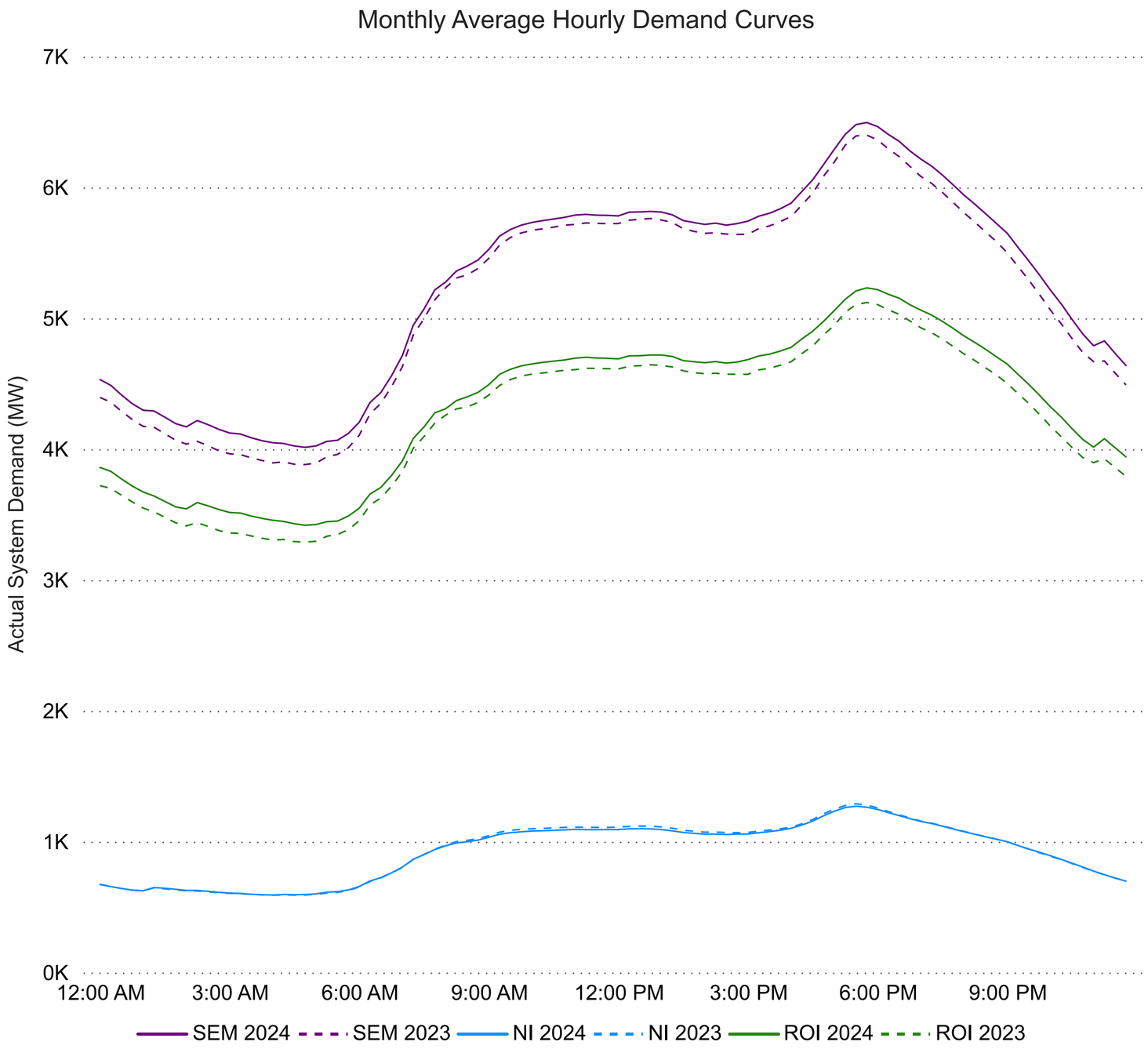
5,256.19 SEM Average 2025	5,150.52 SEM Average 2024
4,013.52 SEM Min 2025	3,881.97 SEM Min 2024
6,495.87 SEM Max 2025	6,399.61 SEM Max 2024

NI Demand

923.87 NI Average 2025	929.80 NI Average 2024
592.45 NI Min 2025	590.42 NI Min 2024
1,270.84 NI Max 2025	1,289.48 NI Max 2024

ROI Demand

4,332.31 ROI Average 2025	4,220.74 ROI Average 2024
3,417.71 ROI Min 2025	3,289.35 ROI Min 2024
5,232.39 ROI Max 2025	5,120.55 ROI Max 2024



SEM committee

SEM Demand

The graph illustrates a steady demand within NI, with a minimal decrease of 0.64% compared to the same period in the previous year.

The demand for ROI during the month has shown an increase of 2.64% relative to the same period last year.

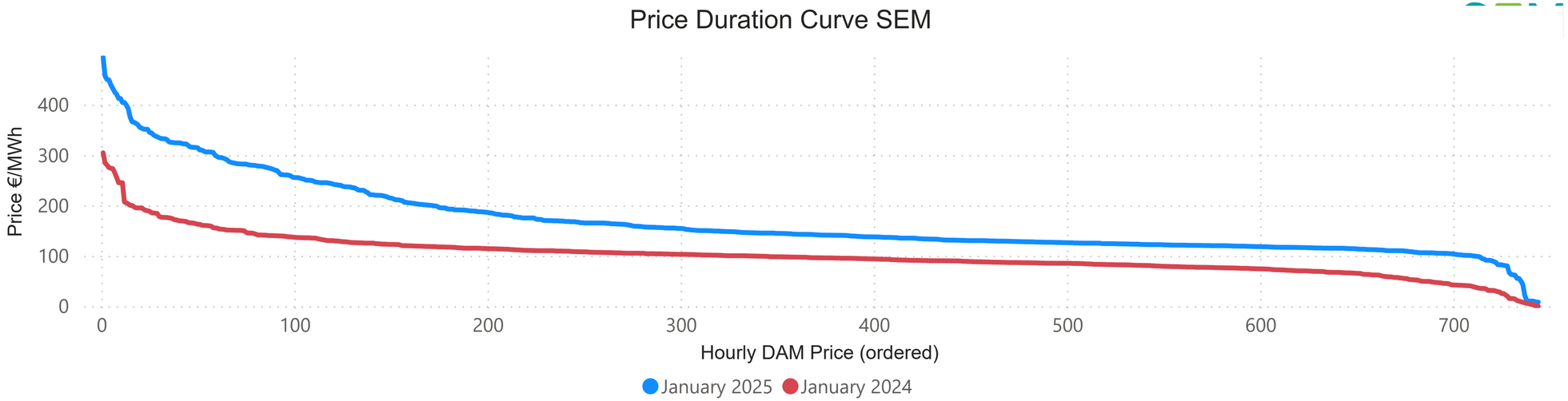
Demand in the SEM as a whole is up by 2.05% compared to the same period last year.

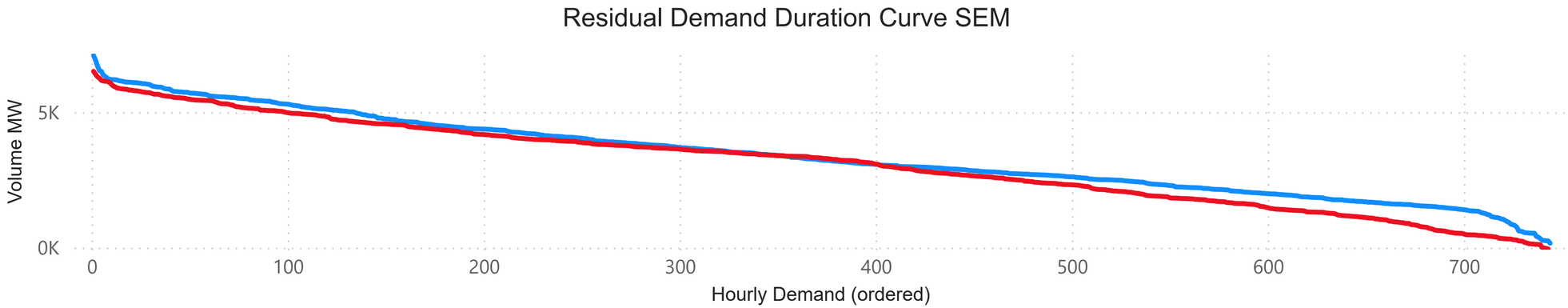
Duration Curves January 2025

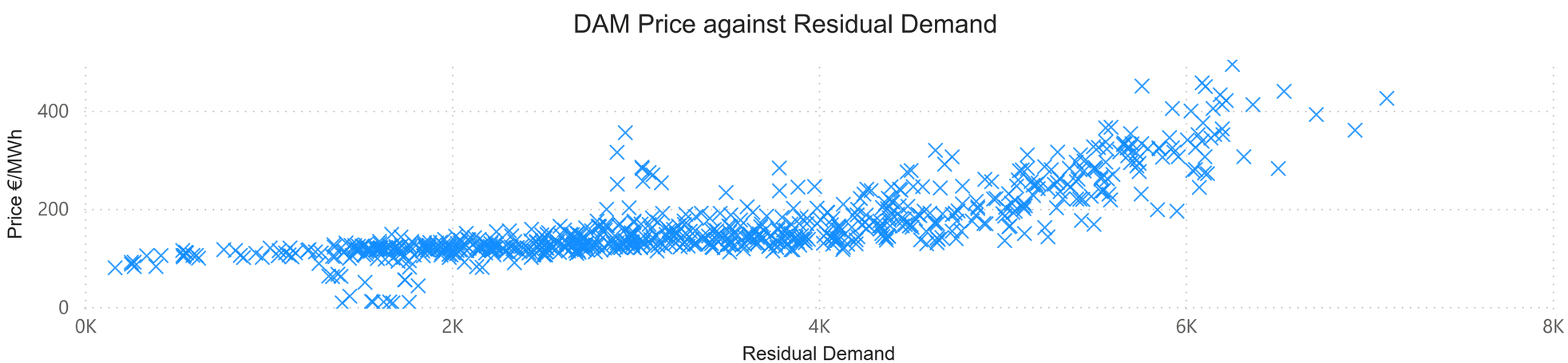
Price Duration
The price duration curve shows the hourly DAM prices across the month ordered from the largest to the smallest.

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.



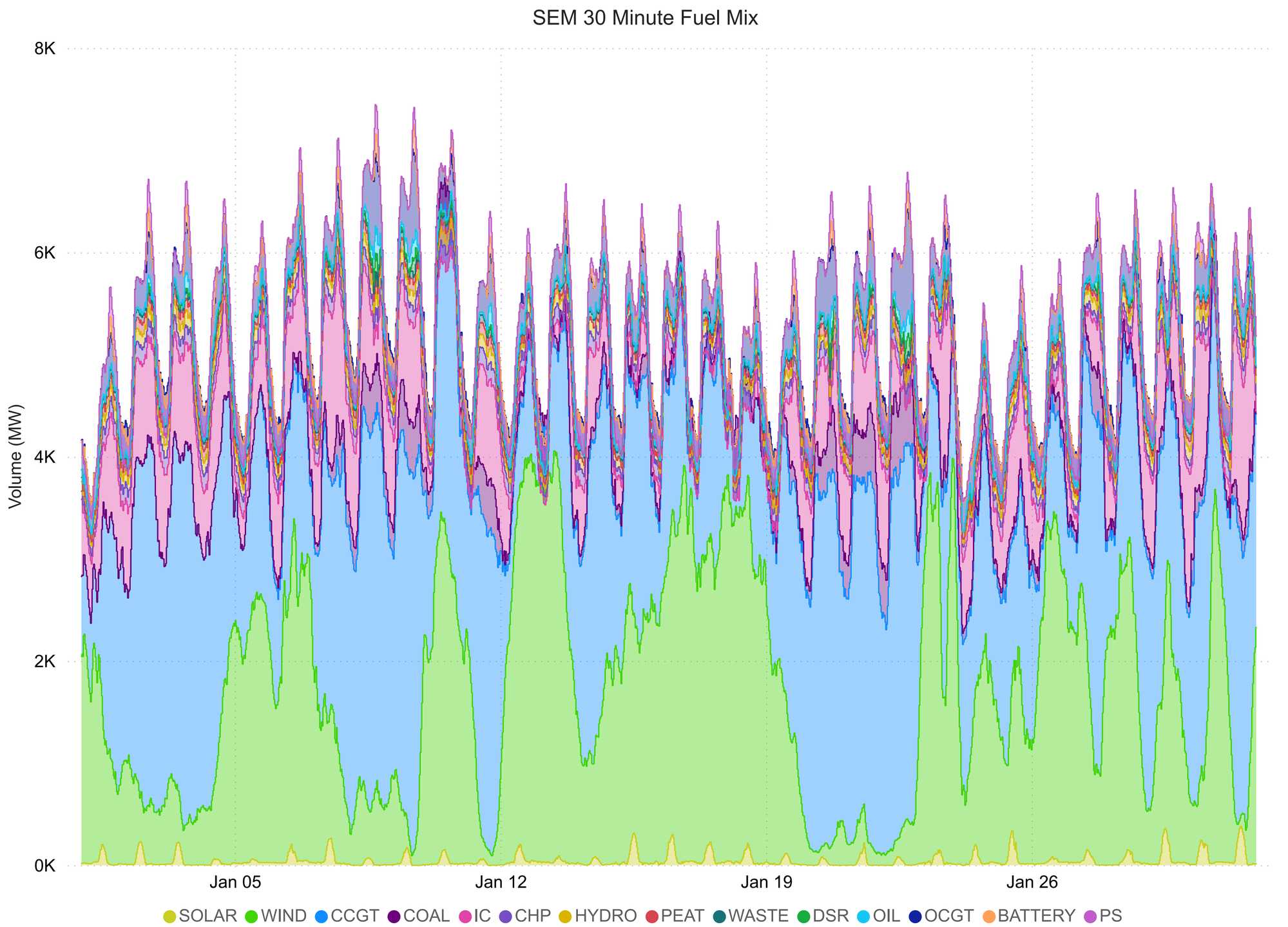




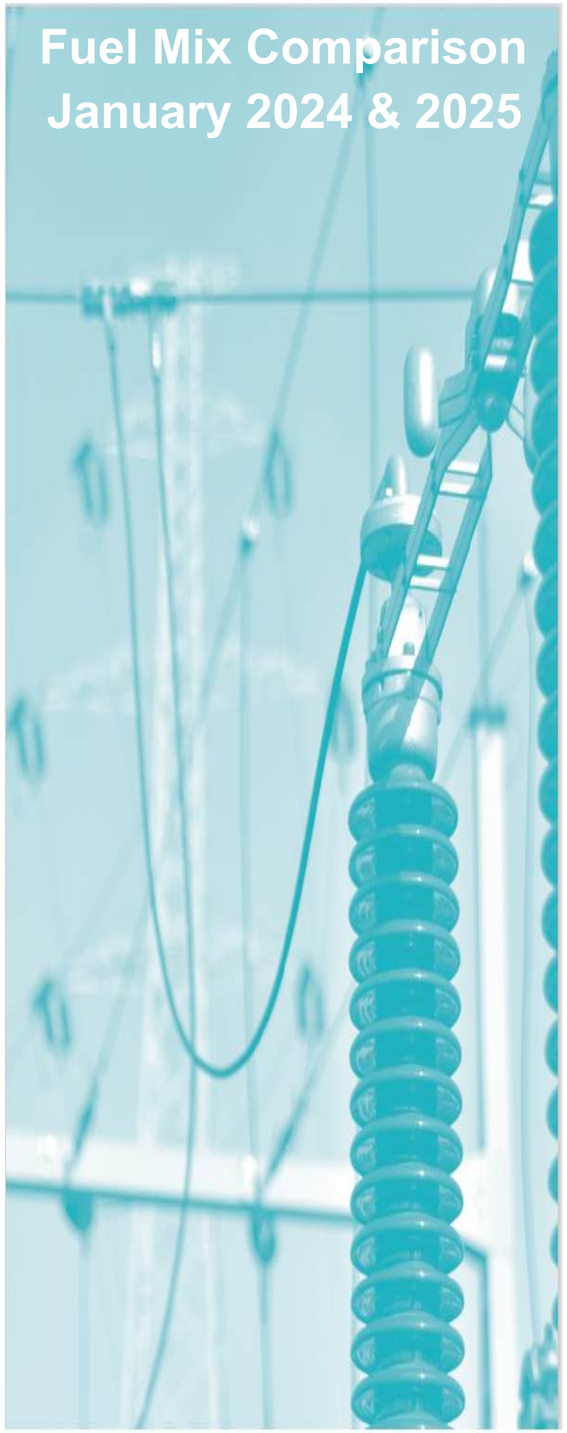
Fuel Mix
January 2025

Fuel Type	Avg Monthly	Per. Monthly
CCGT	2110	40.1%
WIND	1710	32.5%
INTERCONNECTORS	499	9.5%
OCGT	323	6.1%
COAL	175	3.3%
CHP	140	2.7%
HYDRO	111	2.1%
WASTE	72	1.4%
PEAT	71	1.4%
SOLAR	46	0.9%
DSR	23	0.4%
OIL	13	0.2%
BATTERY	-7	-0.1%
PUMPED STORAGE	-19	-0.4%

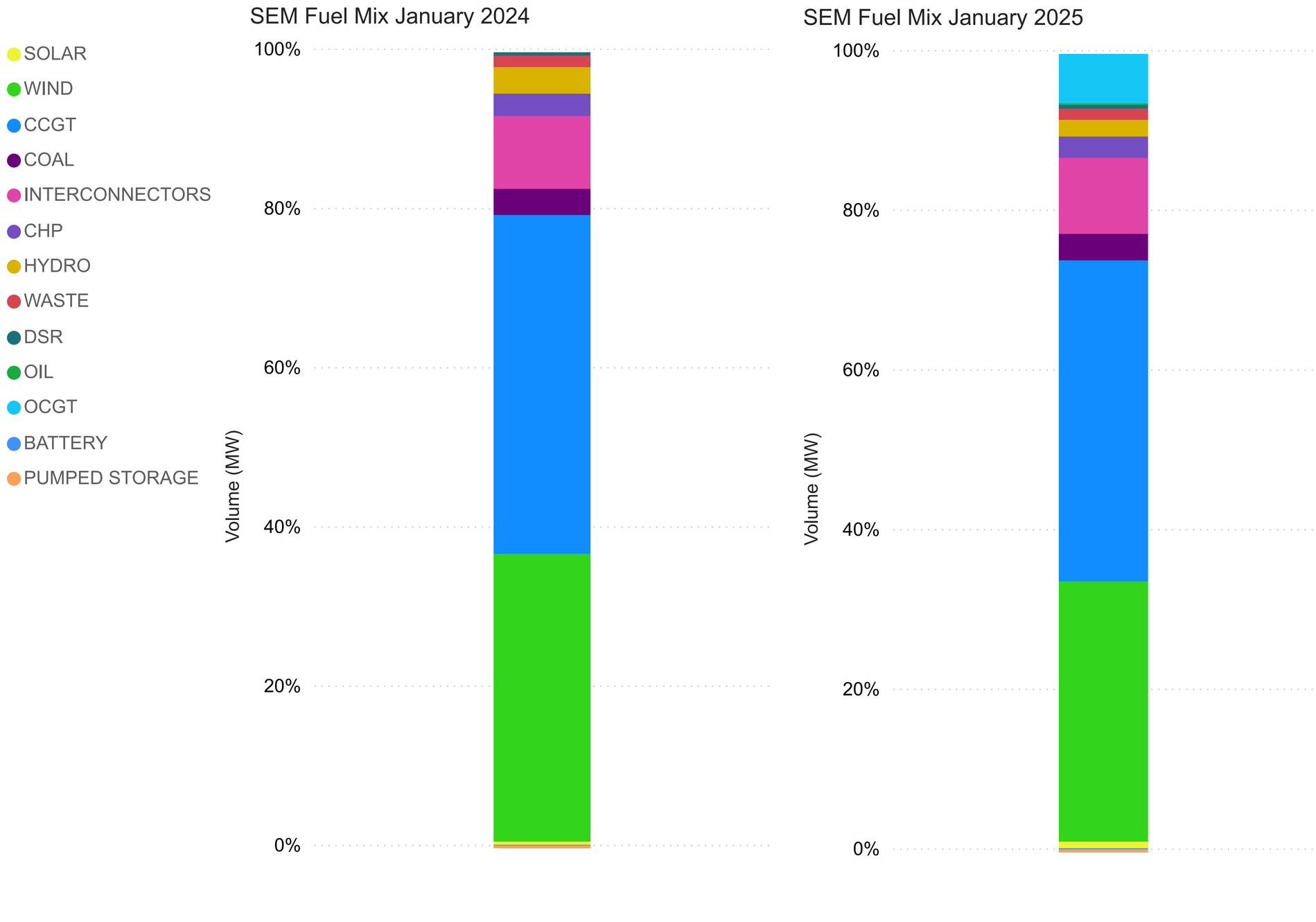
Fuel Type	Max Monthly	Min Monthly
WIND	4020	81
CCGT	3755	619
INTERCONNECTORS	1492	-875
OCGT	1033	163
COAL	766	0
SOLAR	382	0
PUMPED STORAGE	291	-301
BATTERY	273	-179
OIL	266	0
DSR	180	0
HYDRO	170	0
CHP	169	73
PEAT	119	0
WASTE	78	47



Fuel Mix Comparison January 2024 & 2025



SEM committee



North-South Tie Line January 2025

Average Flow NI to ROI (MW)

-269.71

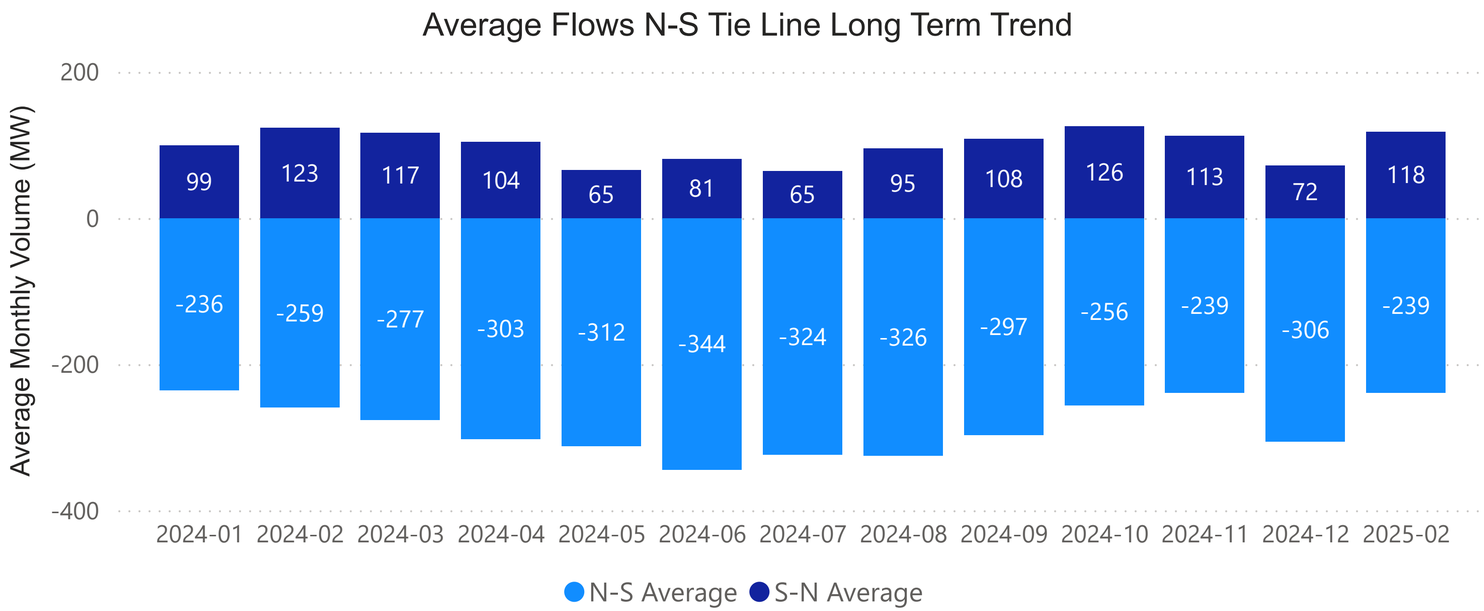
Average Flow ROI to NI (MW)

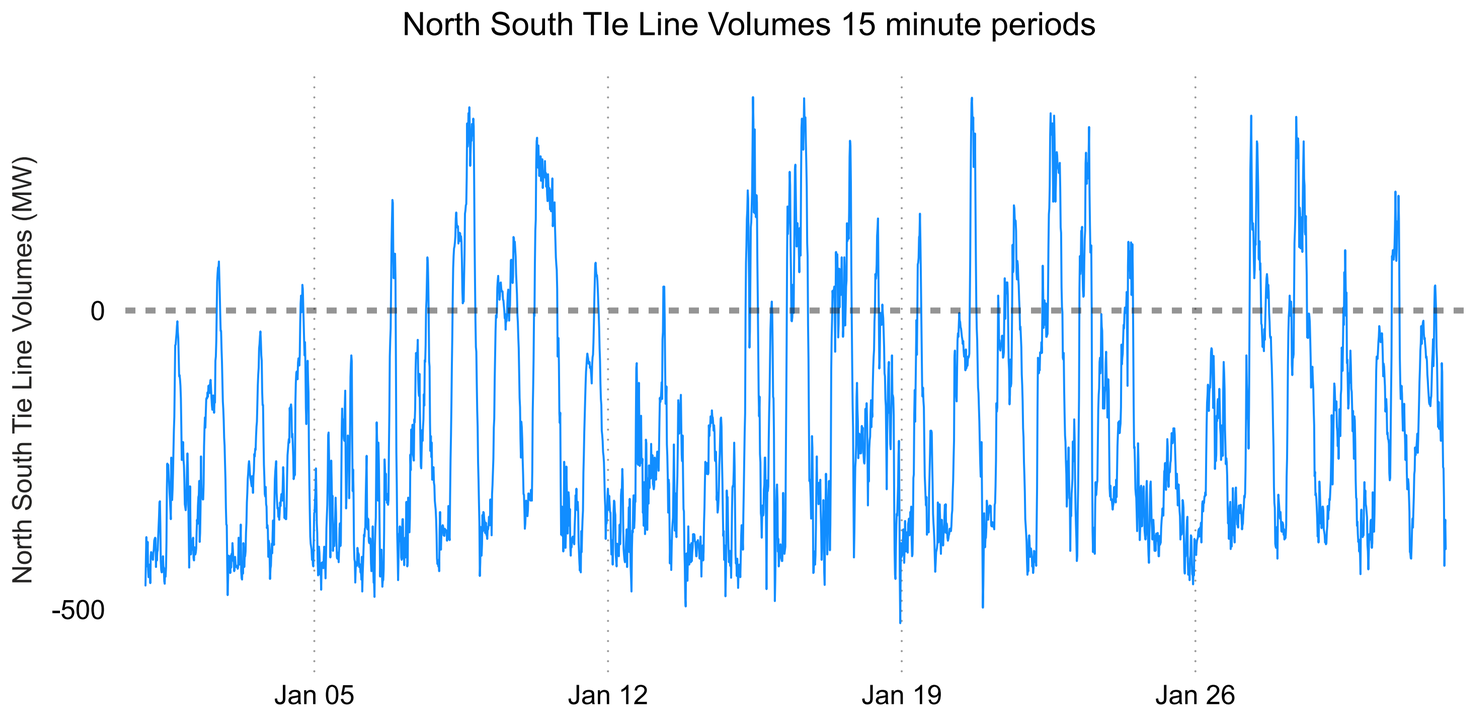
132.32

Average Net Flow NI to ROI (MW)

-196.65

-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.

•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 Moyle Interconnector, due to it's lower physical losses, is allocated first for flows in the GB to NI direction. Similar to what happens when the wind penetration is high or demand is low, the interconnector flows compete with the system constrains. In order to not curtail the interconnection capacity with GB, power flows are directed southwards.

•Finally, the demand in ROI has been growing at a faster pace than in NI.

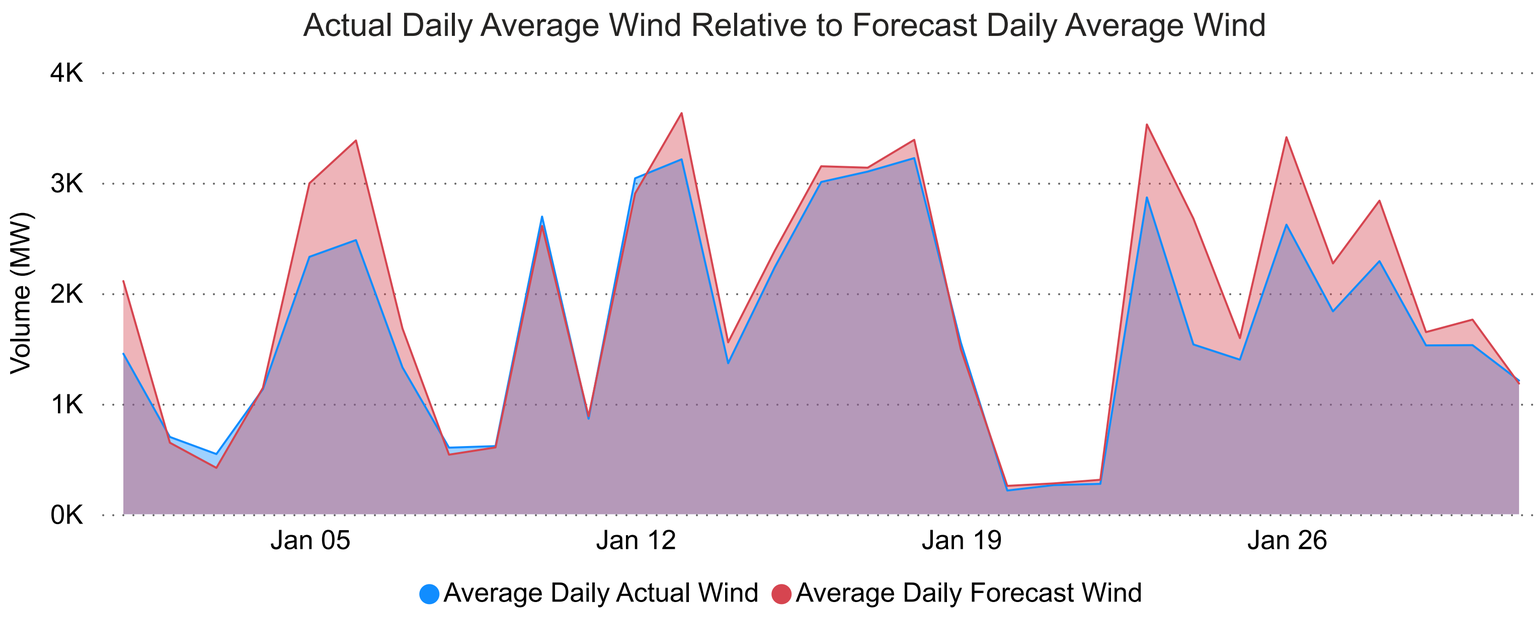
Wind Generation January 2025

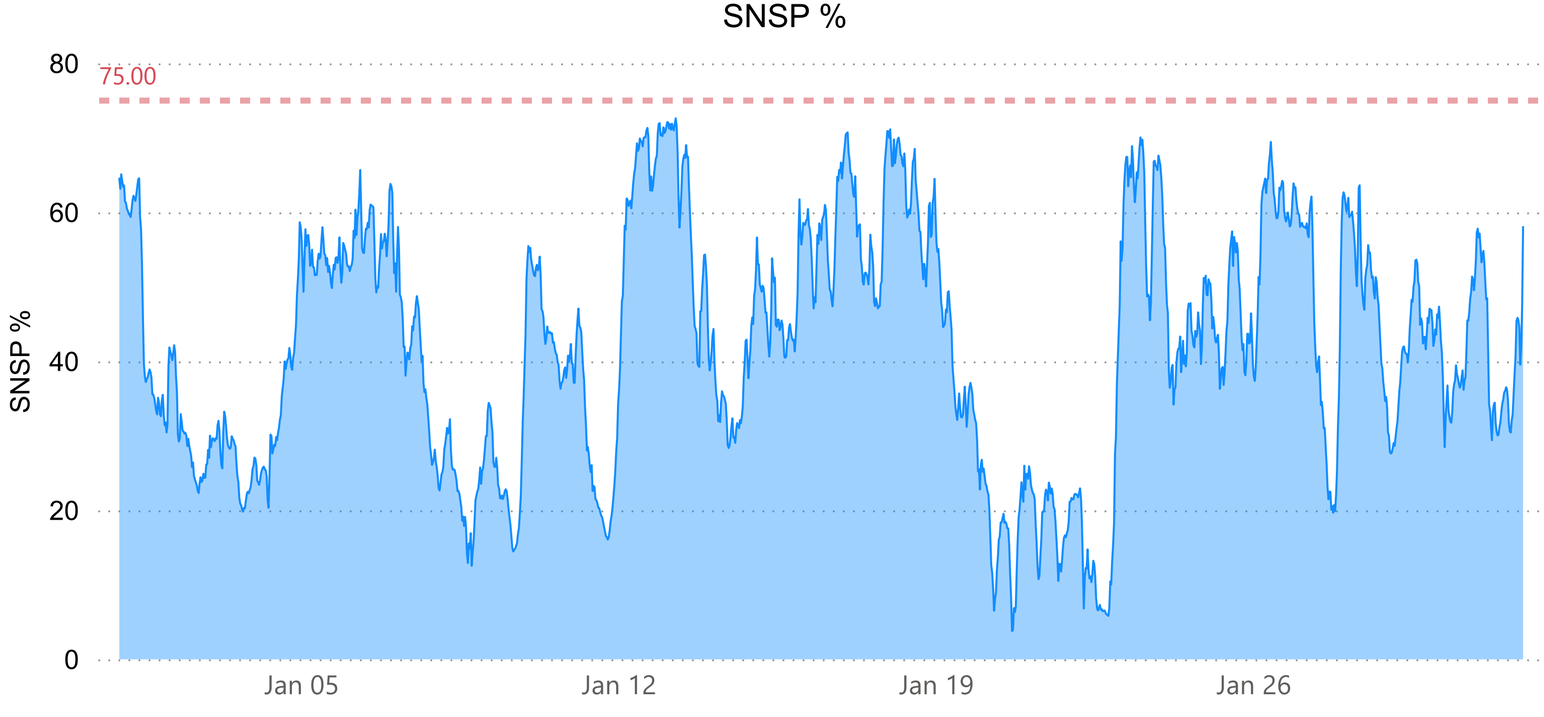
Average Daily Actual Wind (MW)
1,711

Average Daily Forecast Wind (MW)
1,948

Min SNSP%
3.80

Max SNSP%
72.62





SEM committee

Wind Generation

Wind generation decreased 5% compared to previous month and increased 5% from the same period last year.
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SNSP

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

CO_2 January 2025

CO2 Intensity (gCO2/kWh)

216.62
Average

16
Lowest

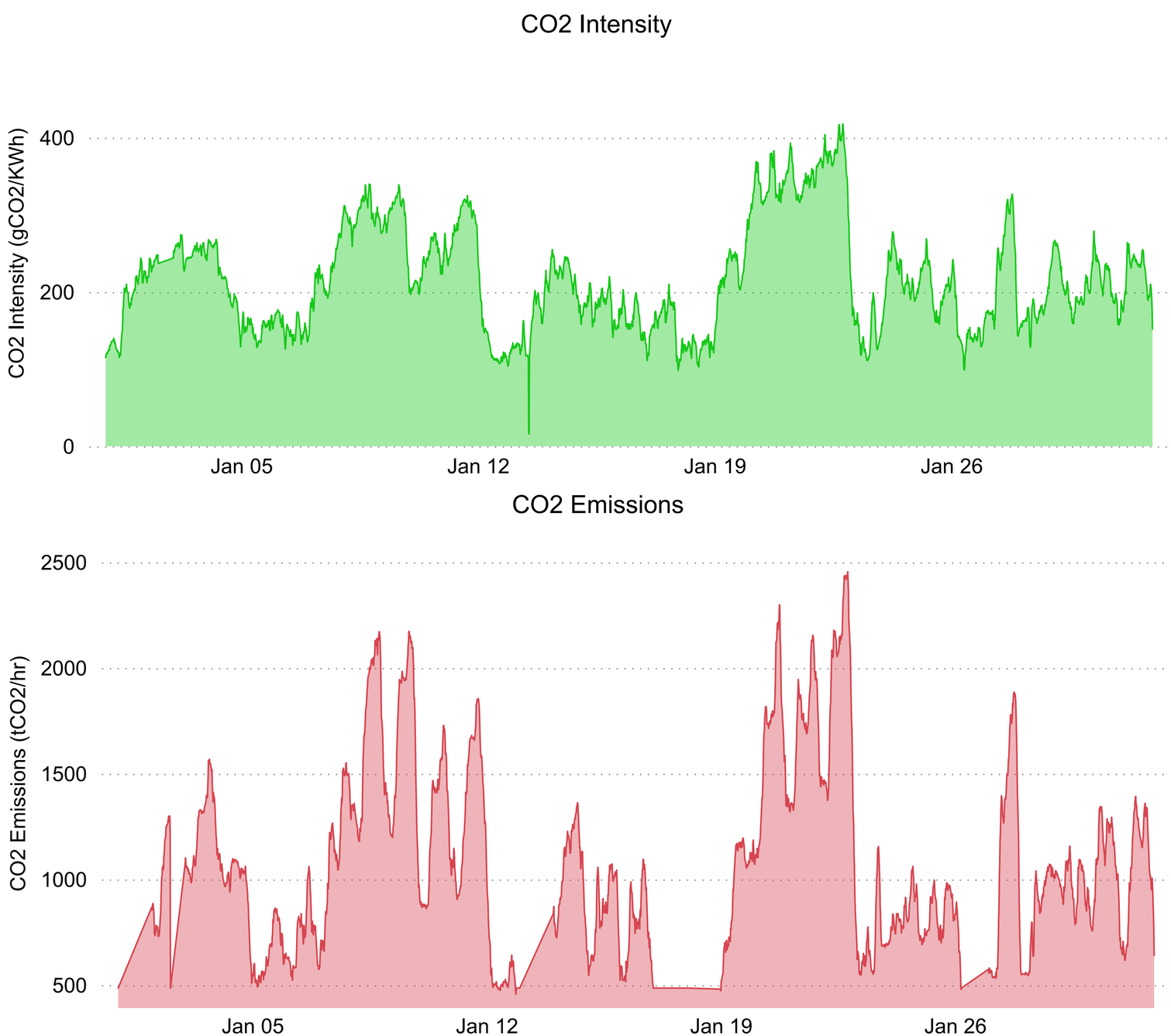
418
Highest

CO2 Emissions (tCO2/hr)

1102
Average

457
Lowest

2455
Highest

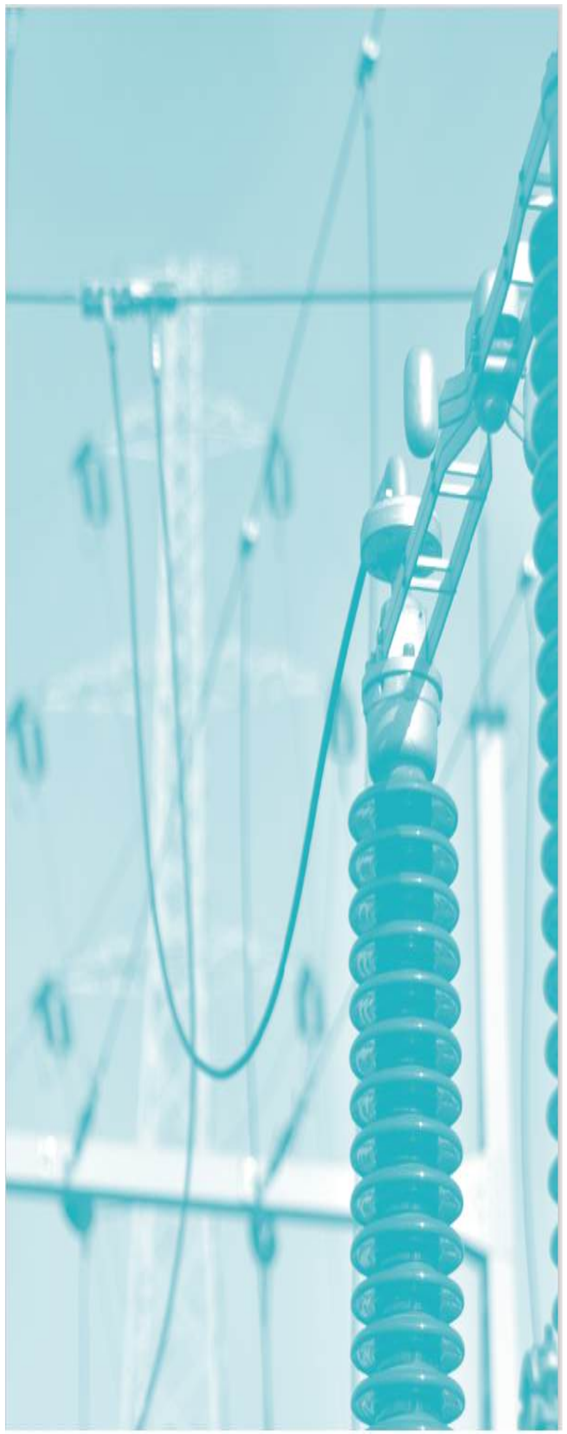


CO_2 Intensity

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.



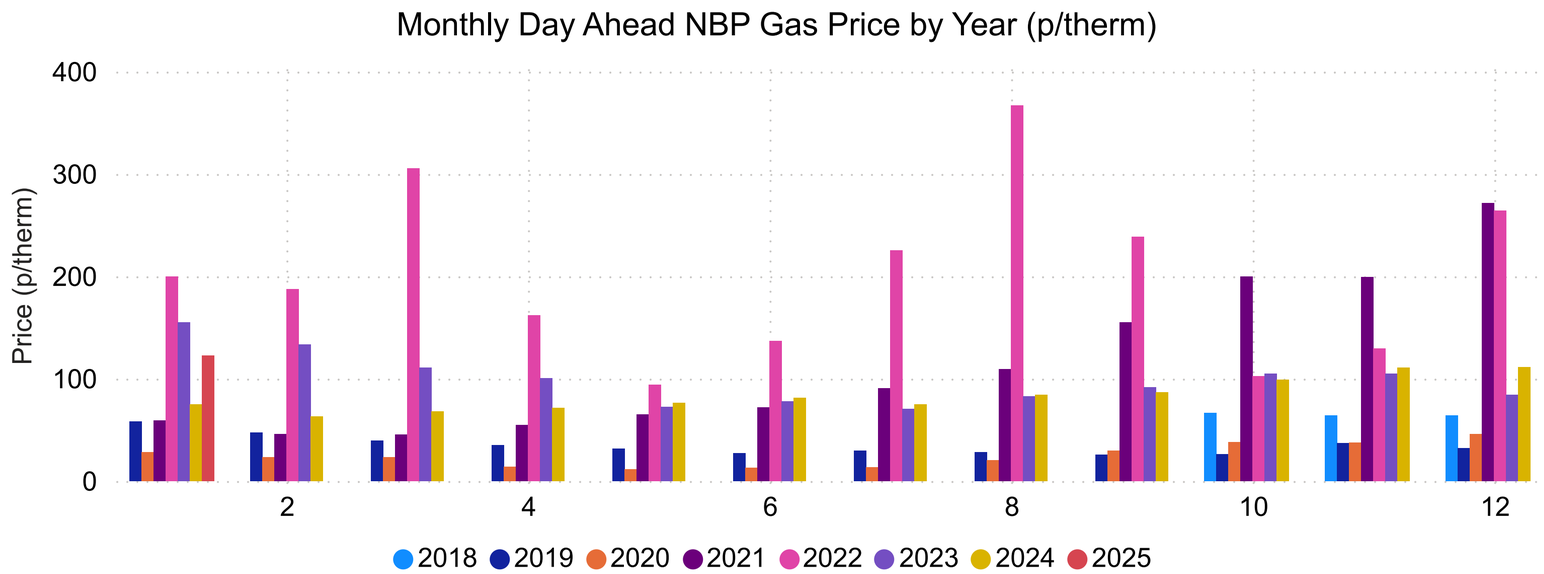
Fuel Costs and Spreads

Gas Price January 2025

122.85
Monthly Average (p/therm)

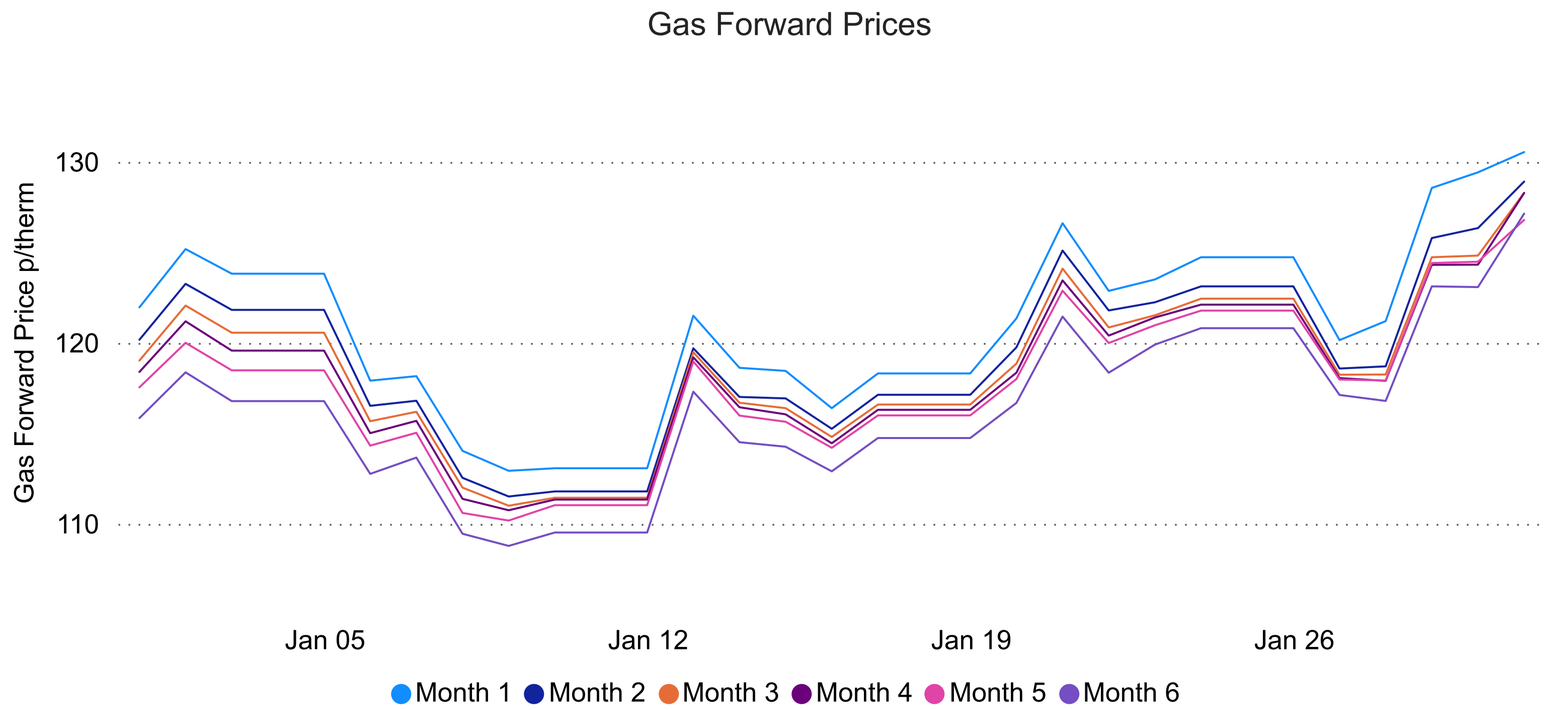
115.05
Monthly Low (p/therm)

133.00
Monthly High (p/therm)



Gas Prices

Gas prices were up from the last month averaging at 122.85p/therm up from 111.22p/therm.



Gas Forward Prices

Forward curves remains high during the month.

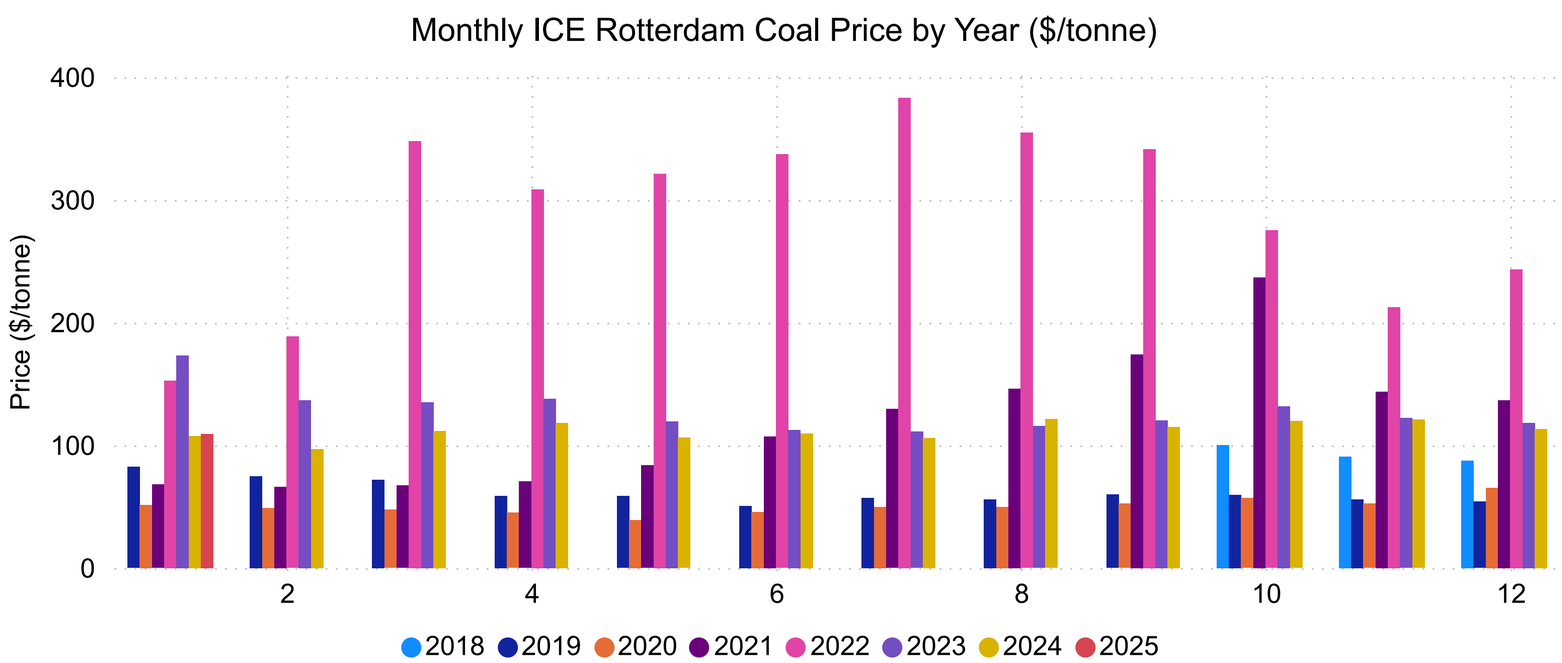
Coal Price January 2025

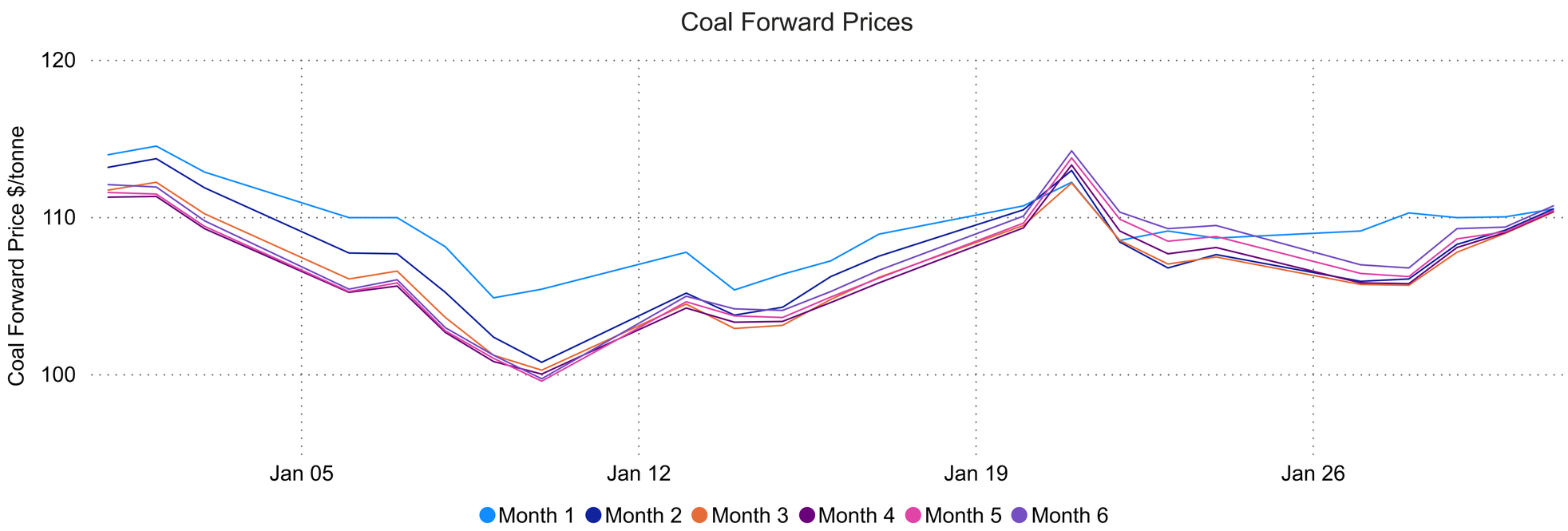
Coal Prices Per Tonne

$109.23
Monthly Average

$104.85
Monthly Low

$114.50
Monthly High





Coal Prices

Coal prices were lower compared to the previous month at $109.23/tonne down from $113.32/tonne (4% decrease from the last month).

Carbon Price January 2025

EU Carbon Prices (€/tonne)

€ 75.87
Monthly Average

€ 70.31
Monthly Low

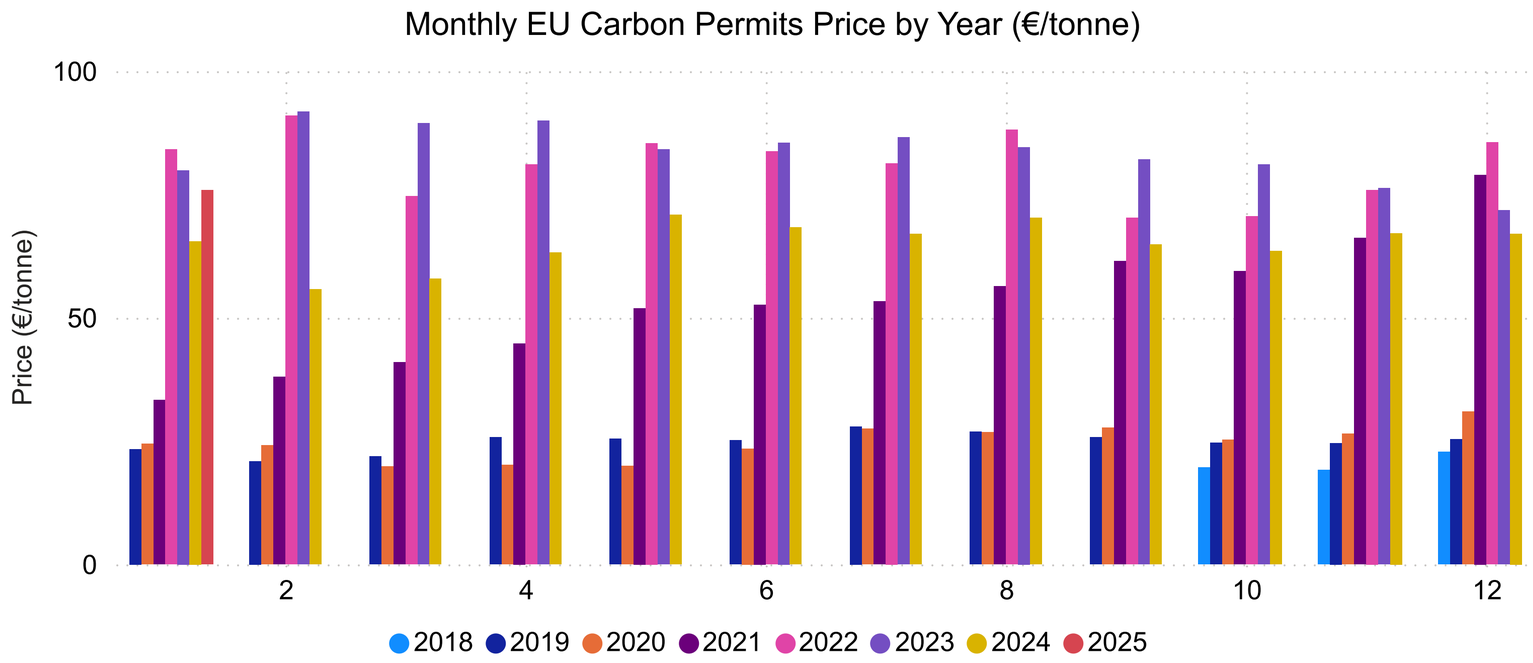
€ 81.63
Monthly High

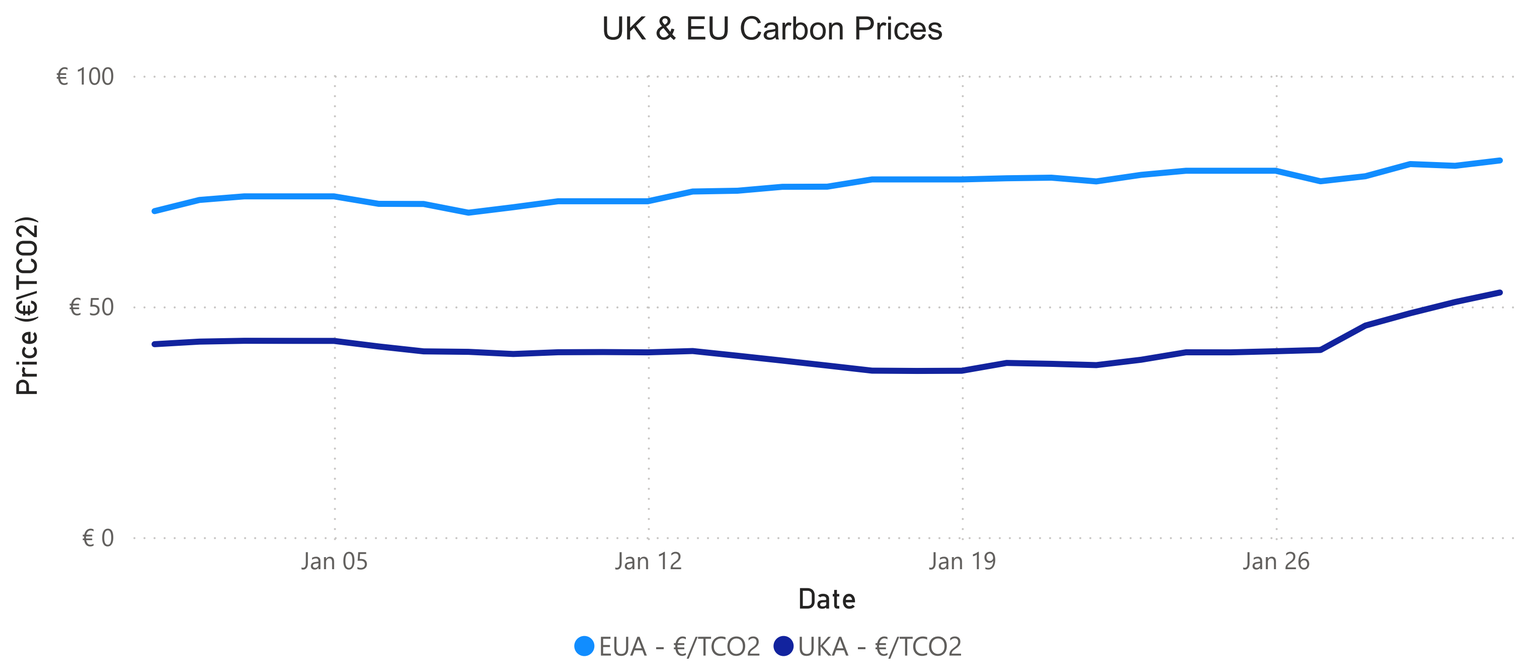
UK Carbon Prices (€/tonne)

€ 40.87
Monthly Average

€ 36.02
Monthly Low

€ 53.01
Monthly High





Carbon Prices

Carbon prices for this month averaged €75.89/tonne, up 13% from the previous month. Throughout the month, prices exhibited a clear upward trend, peaking at €81.63/tonne, the highest level recorded since 2024.

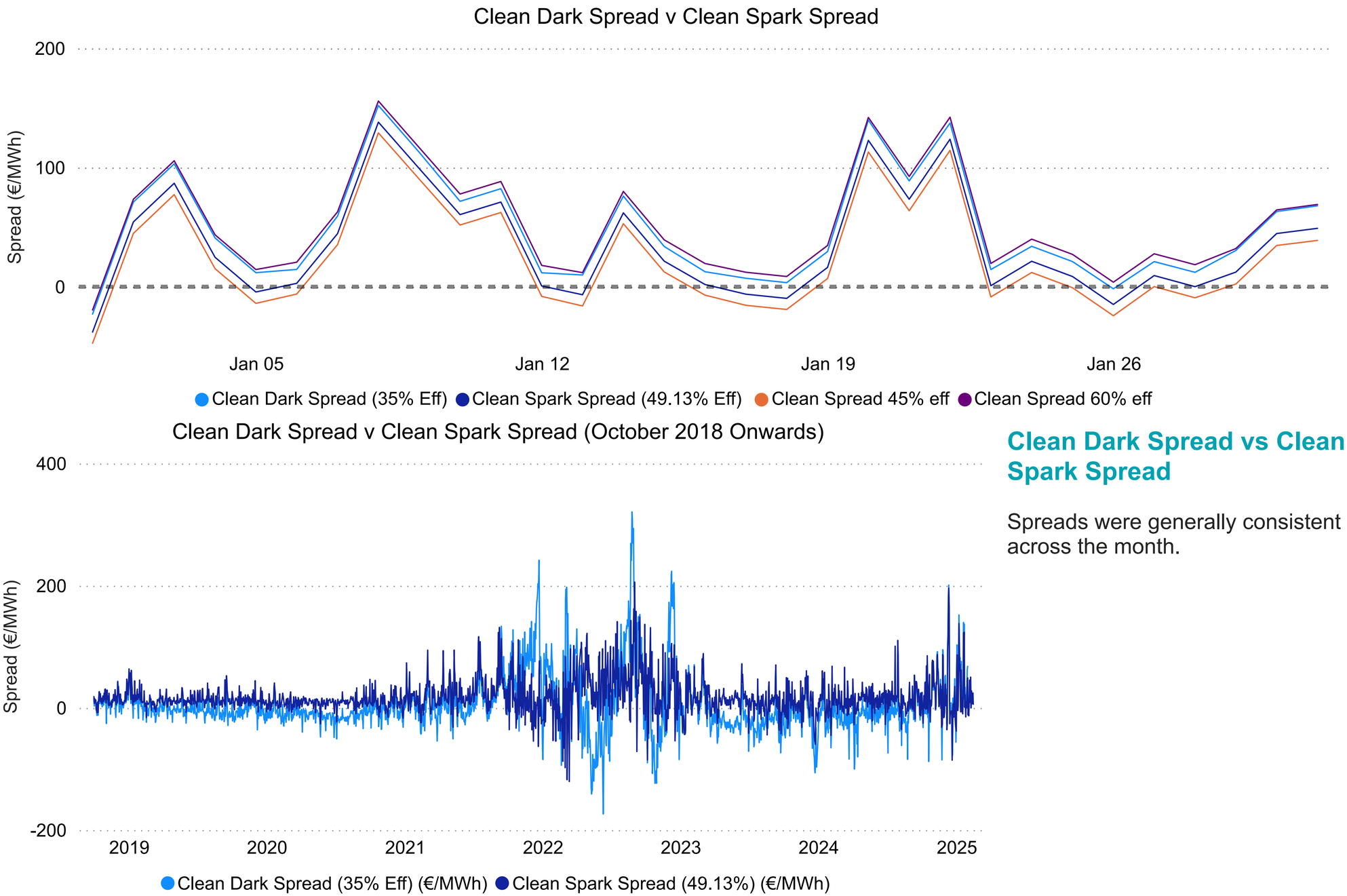
This price surge was primarily fueled by increased winter energy consumption and the tightening of emission regulations in the shipping sector. Additionally, as certain industries experienced a gradual reduction in carbon allowances, concerns over supply constraints intensified, further pushing prices higher.

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
January 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.