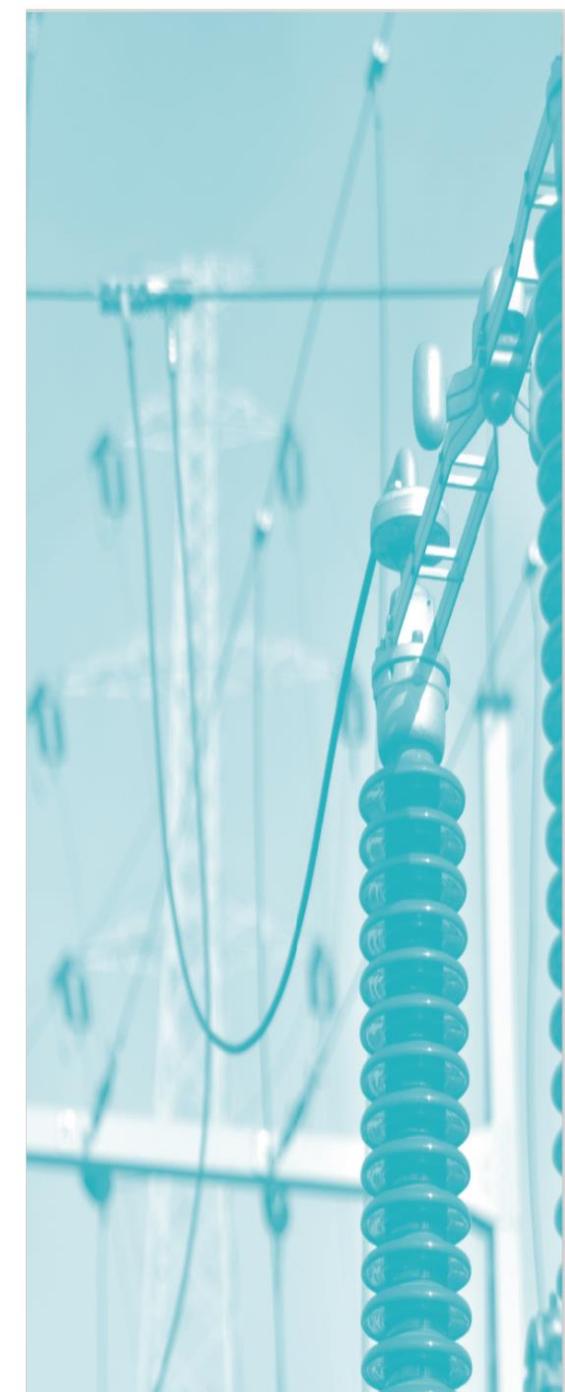


# Energy Market Monitoring Report

December 2023



## **Market Results**

# Summary Dashboard

Monthly Averages	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
DAM (€/MWh)	162.16	159.19	145.25	125.57	105.19	117.11	96.24	106.46	111.62	125.54	122.9	88.97
% Change from previous month	-41%	-2%	-9%	-14%	-16%	11%	-18%	11%	5%	12%	-2%	-28%
% Change from previous year	-20%	-9%	-50%	-42%	-27%	-36%	-64%	-73%	-61%	-8%	-14%	-68%
Actual System Demand (MW)	4885	4782	4833	4469	4276	4189	4101	4185	4335	4516	4873	4862
% Change from previous month	0%	-2%	1%	-8%	-4%	-2%	-2%	2%	4%	4%	8%	0%
% Change from previous year	1%	-1%	3%	1%	2%	0%	0%	2%	3%	4%	5%	0%
Actual Wind Generation (MW)	1987	2026	1748	1545	884	878	1316	1401	1384	1363	1811	2446
% Change from previous month	21%	2%	-14%	-12%	-43%	-1%	50%	6%	-1%	-2%	33%	35%
% Change from previous year	18%	-27%	12%	8%	-38%	-22%	54%	71%	28%	-33%	-19%	49%
Gas Price p/therm	155.16	133.65	110.96	100.32	72.41	77.87	70.76	82.87	91.52	104.88	104.97	84.2
% Change from previous month	-41%	-14%	-17%	-10%	-28%	8%	-9%	17%	10%	15%	0%	-20%
% Change from previous year	-22%	-29%	-64%	-38%	-24%	-44%	-68%	-77%	-61%	3%	-19%	-68%
Carbon Price (€/Tonne)	79.91	91.82	89.41	89.98	84.18	85.51	86.57	84.61	82.09	81.10	76.25	71.79
% Change from previous month	-7%	15%	-3%	1%	-6%	2%	1%	-2%	-3%	-1%	-6%	-6%
% Change from previous year	-5%	1%	20%	11%	-1%	2%	6%	-4%	17%	15%	1%	-16%
Coal Price (\$/tonne)	173.25	136.71	134.95	137.83	119.57	112.56	111.02	115.57	120.40	131.80	122.16	118.31
% Change from previous month	-29%	-21%	-1%	2%	-13%	-6%	-1%	4%	4%	9%	-7%	-3%
% Change from previous year	14%	-27%	-61%	-55%	-63%	-67%	-71%	-67%	-65%	-52%	-43%	-51%
EWIC % Import Periods	49.03%	38.91%	50.00%	50.56%	75.86%	77.72%	67.11%	68.11%	73.75%	86.90%	68.78%	56.38%
EWIC % Export Periods	23.66%	27.19%	16.47%	13.65%	8.28%	4.06%	9.21%	11.96%	8.89%	2.99%	9.11%	20.36%
EWIC % Not Flow Periods	27.32%	33.89%	23.86%	30.80%	15.88%	18.22%	22.68%	19.93%	17.36%	10.11%	22.11%	23.25%
Moyle % Import Periods	62.05%	53.65%	64.68%	77.50%	85.42%	92.22%	84.04%	75.24%	83.33%	92.31%	83.47%	67.81%
Moyle % Export Periods	37.95%	46.02%	25.50%	27.43%	14.58%	7.67%	15.89%	20.33%	16.60%	7.66%	16.50%	32.16%
Moyle % Not Flow Periods	0.00%	0.33%	0.13%	0.07%	0.00%	0.10%	0.07%	4.44%	0.07%	0.03%	0.03%	0.03%

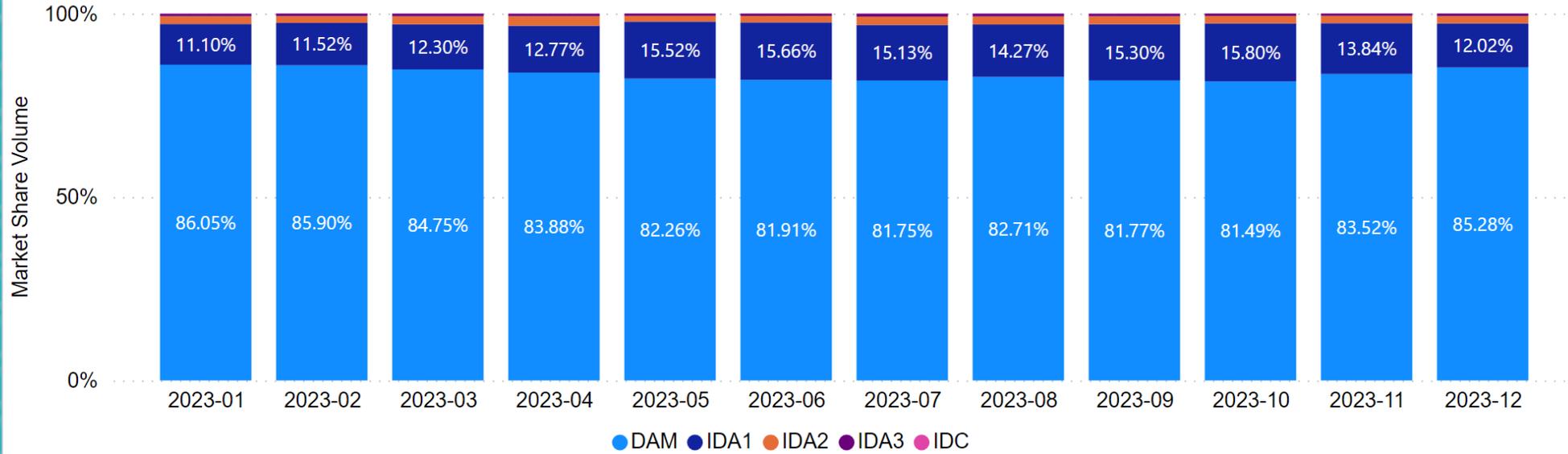
# Market Volumes December 2023

Daily Average Volume	MWh
DAM	119,868
IDA1	16,893
IDA2	2,846
IDA3	932
IDC	39

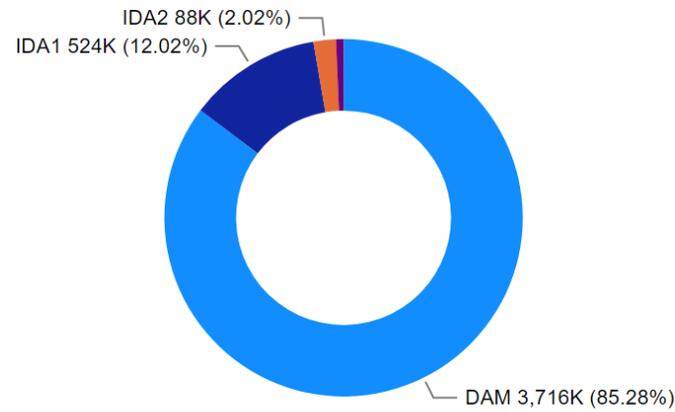
Total Monthly Volume	MWh
DAM	3,715,893
IDA1	523,687
IDA2	88,217
IDA3	28,907
IDC	503
<b>Total</b>	<b>4,357,207</b>

Total Market Value	€
DAM	€ 346,856,504
IDA1	€ 51,353,498
IDA2	€ 8,793,450
IDA3	€ 2,823,515
IDC	€ 92,839
<b>Total</b>	<b>€ 409,919,806</b>

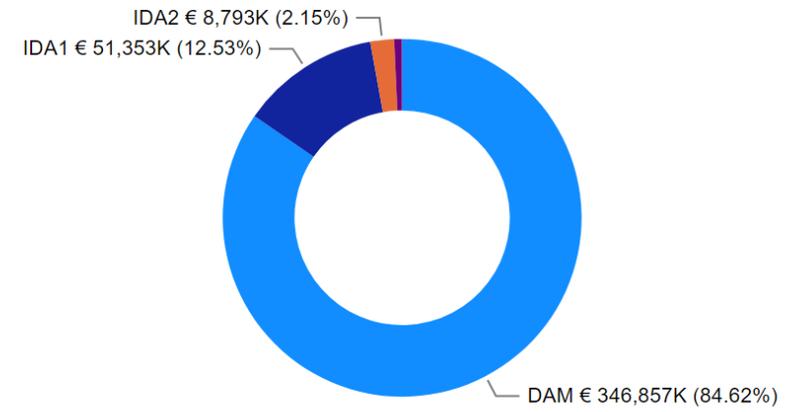
Ex-Ante Monthly Volume by Market



Ex-Ante Volumes (MWh)



Ex-Ante Values (€)

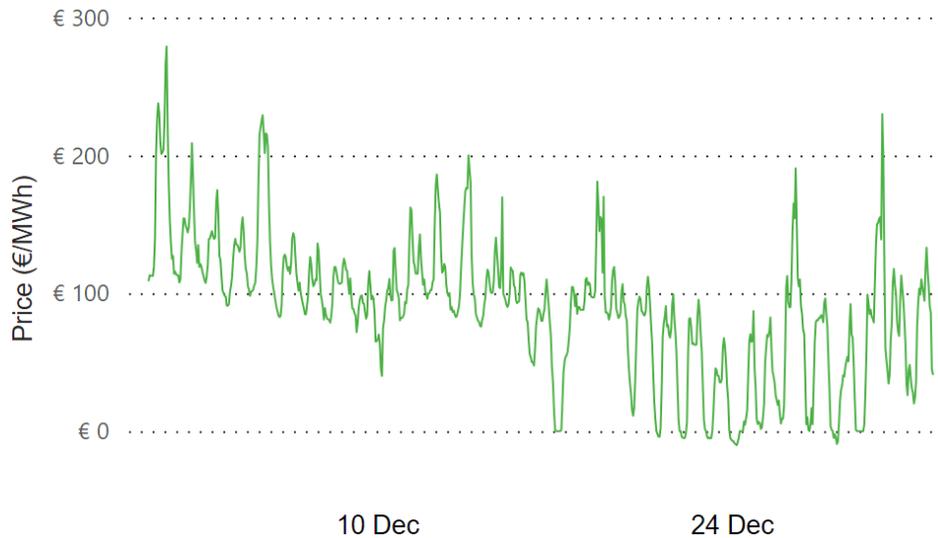


# Day Ahead Market December 2023

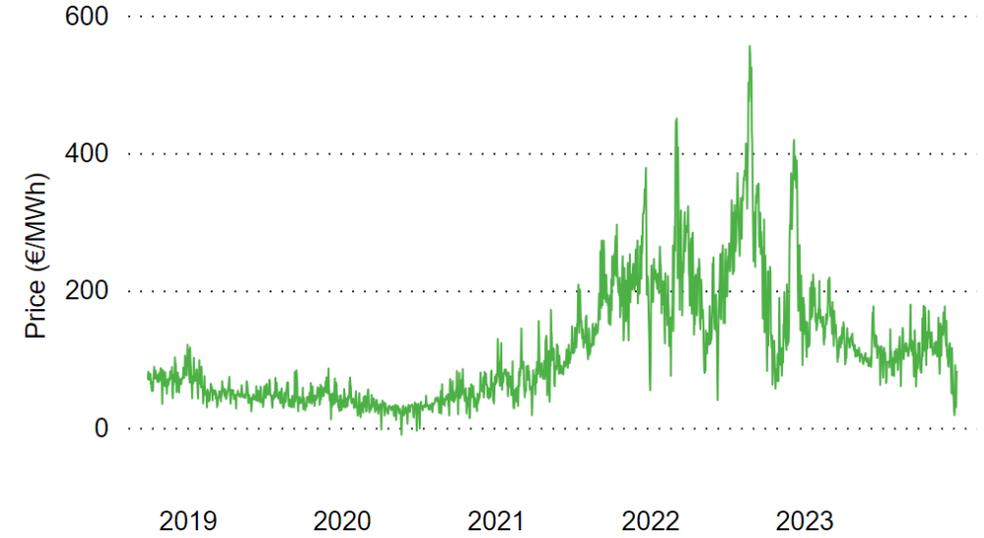
€ 88.97  
Average DAM Price  
-€ 10.19  
Min DAM Price  
€ 278.81  
Max DAM Price

The most frequent price range for December was between €80 and €120

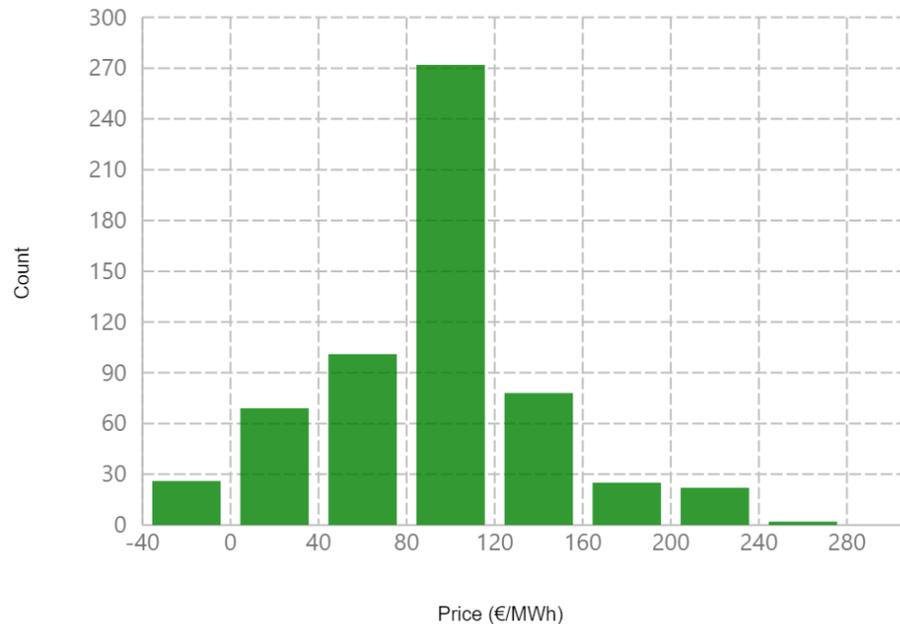
DAM Prices



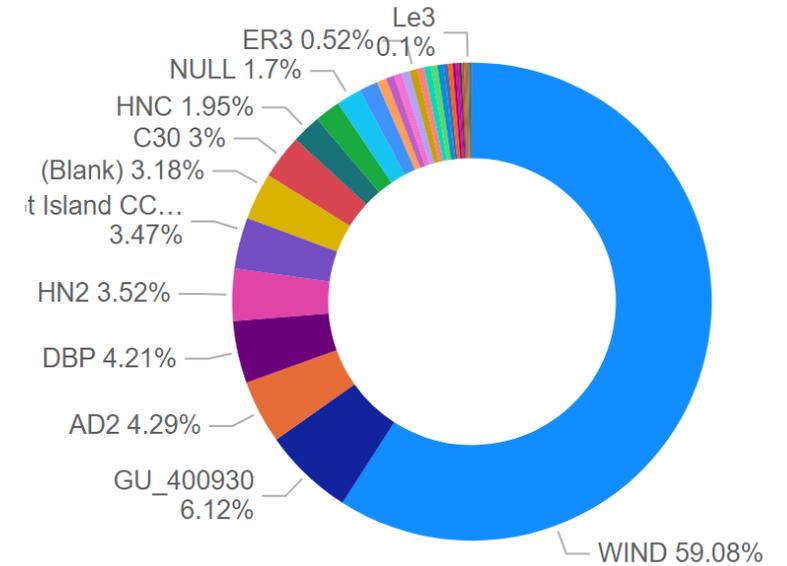
Historic Daily Average DAM Prices



Histogram of DAM Prices



DAM Sell Side Generator Order Results

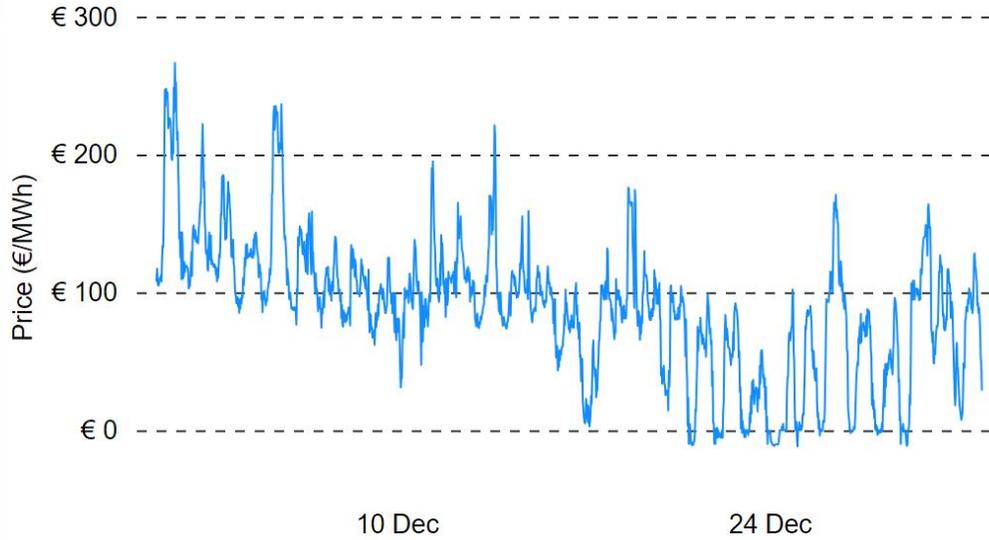


# Intraday Market December 2023

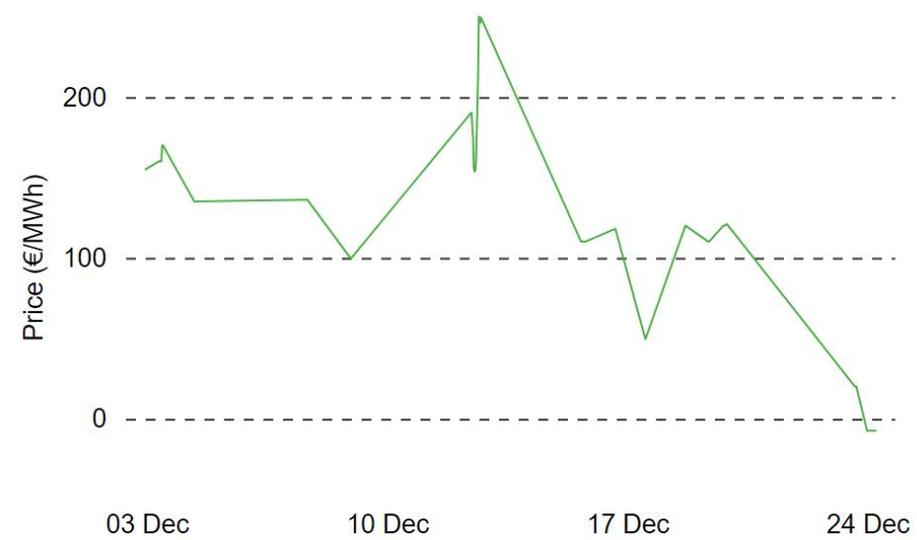
€ 87.61  
Average IDA1 Price  
-€ 11.82  
Min IDA1 Price  
€ 266.25  
Max IDA1 Price

The most frequent price range for December was between €80 and €120

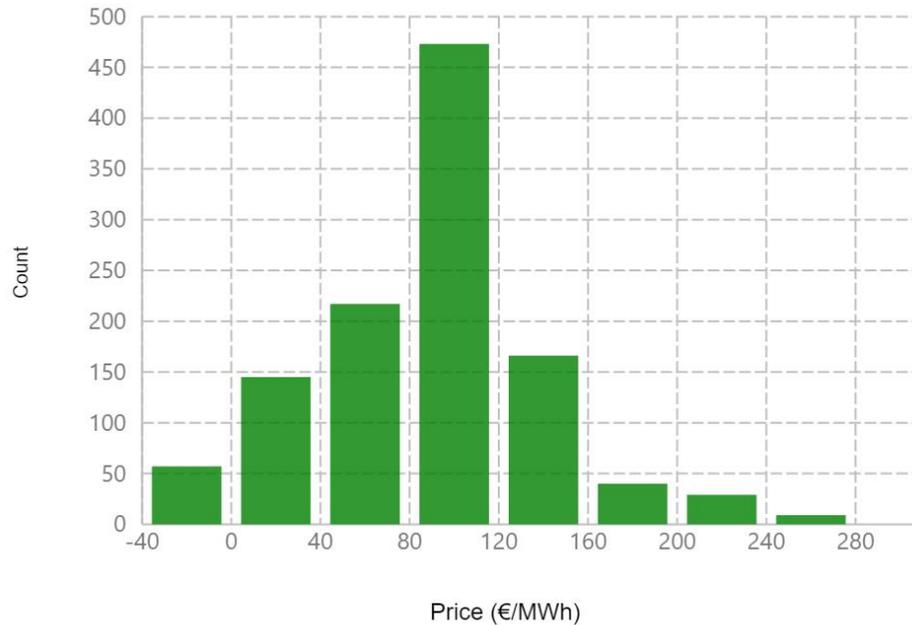
### IDA 1 Prices



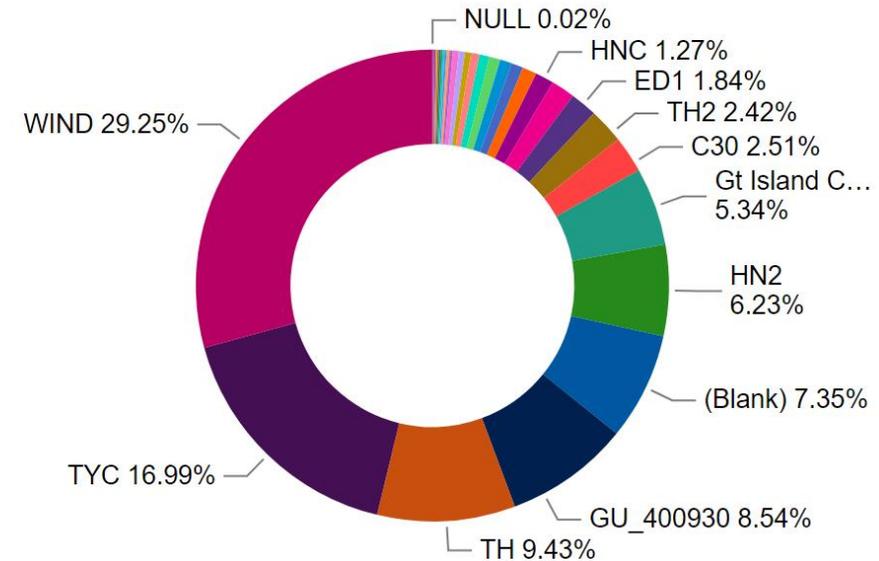
### IDC Prices



### Histogram of IDA1 Prices



### IDA1 Sell Order Results By Market Participant



# SEM vs GB

## December 2023

### SEM Day Ahead Price

€ 89.07  
Average Price  
-€ 10.19  
Min Price  
€ 278.81  
Max Price

### GB Day Ahead Price

€ 80.59  
Average Price  
-€ 13.10  
Min Price  
€ 263.17  
Max Price

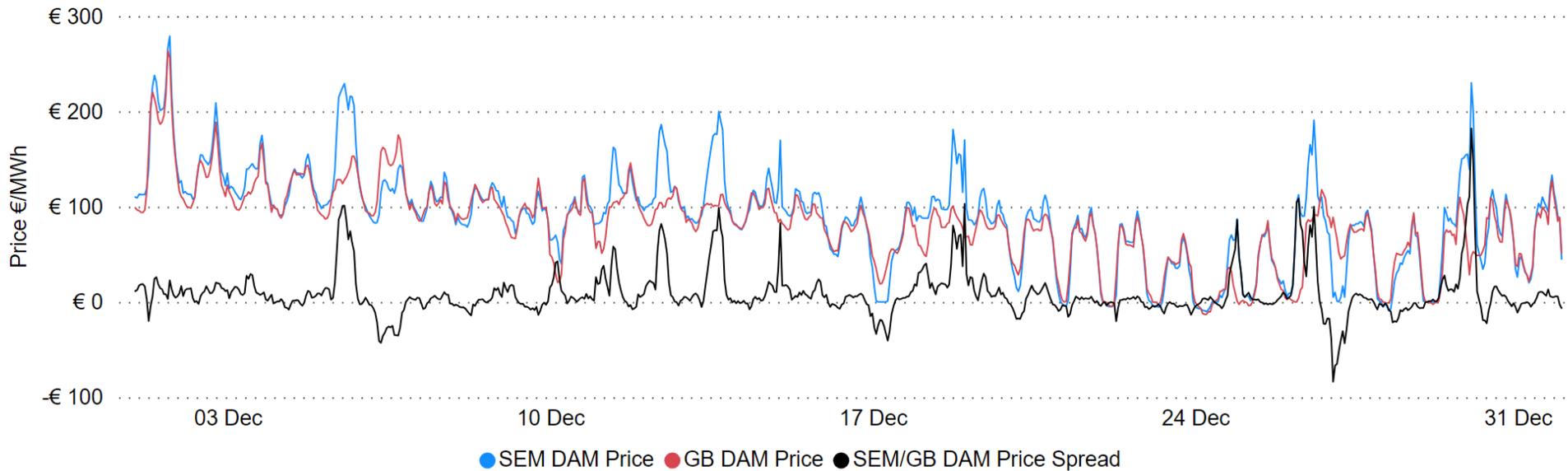
### SEM IDA1 Price

€ 87.61  
Average Price  
-€ 11.82  
Min Price  
€ 266.25  
Max Price

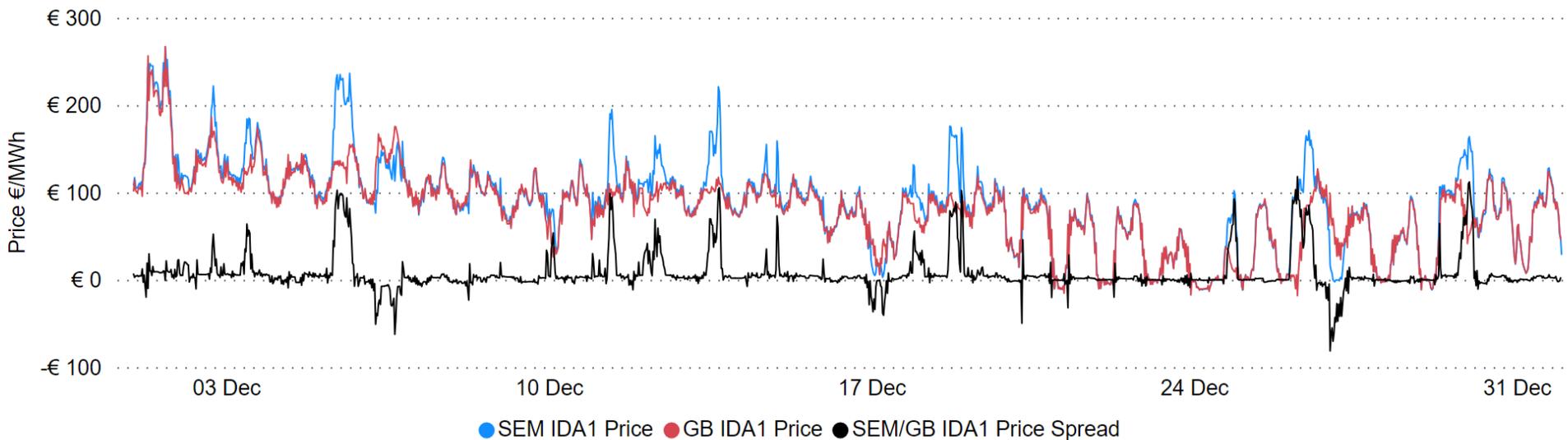
### GB IDA1 Prices

€ 80.33  
Average Price  
-€ 18.13  
Min Price  
€ 266.97  
Max Price

### SEM & GB DAM Prices

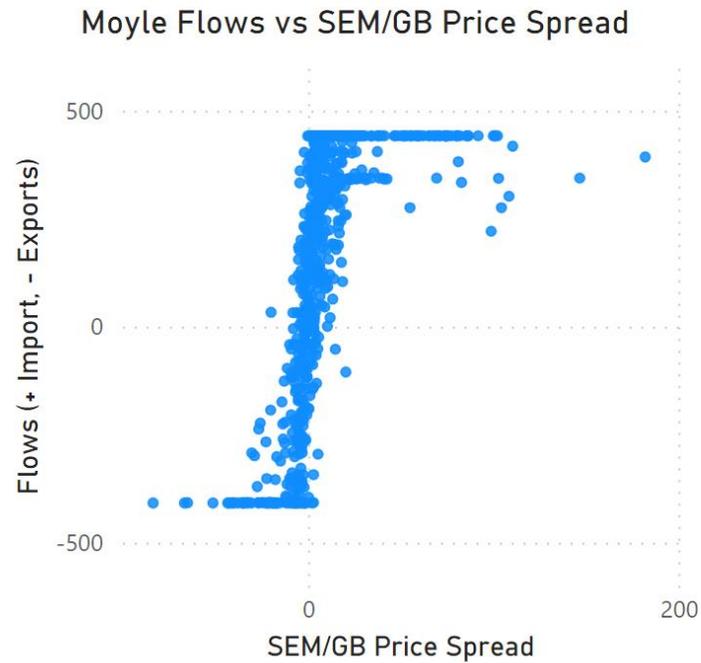
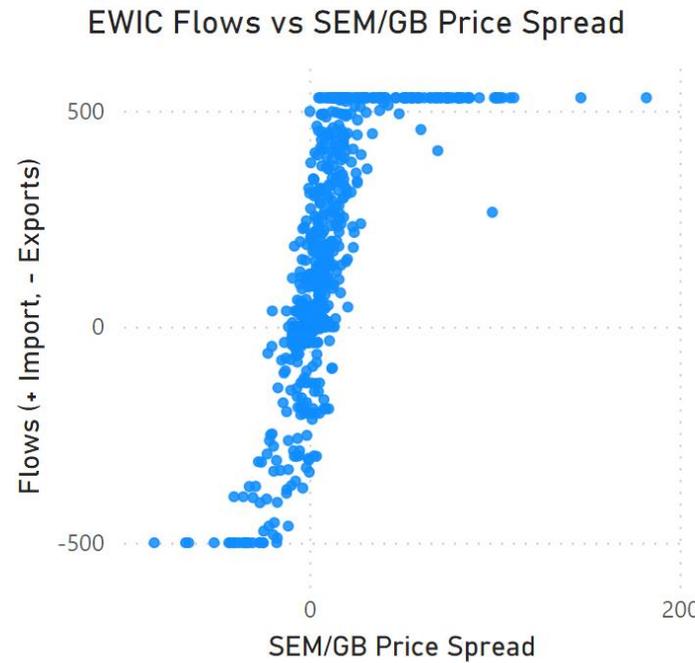
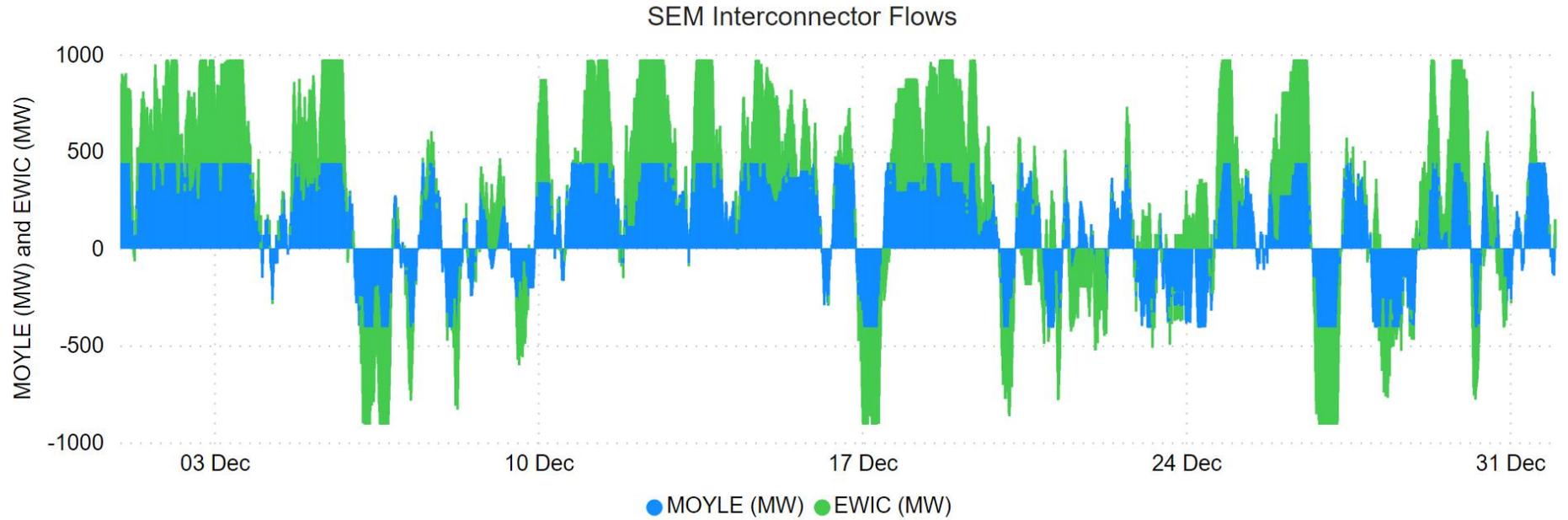


### SEM & GB IDA1 Prices



# SEM Interconnectors

## December 2023



### Interconnector Flows

December 2023	MW
Moyle Imports	318
EWIC Imports	296
Moyle Exports	-221
EWIC Exports	-227
SEM Imports	546
SEM Exports	-346
SEM Net Import/Export	265

# Balancing Market December 2023

30 Minutes Imbalance Price

€ 83.65

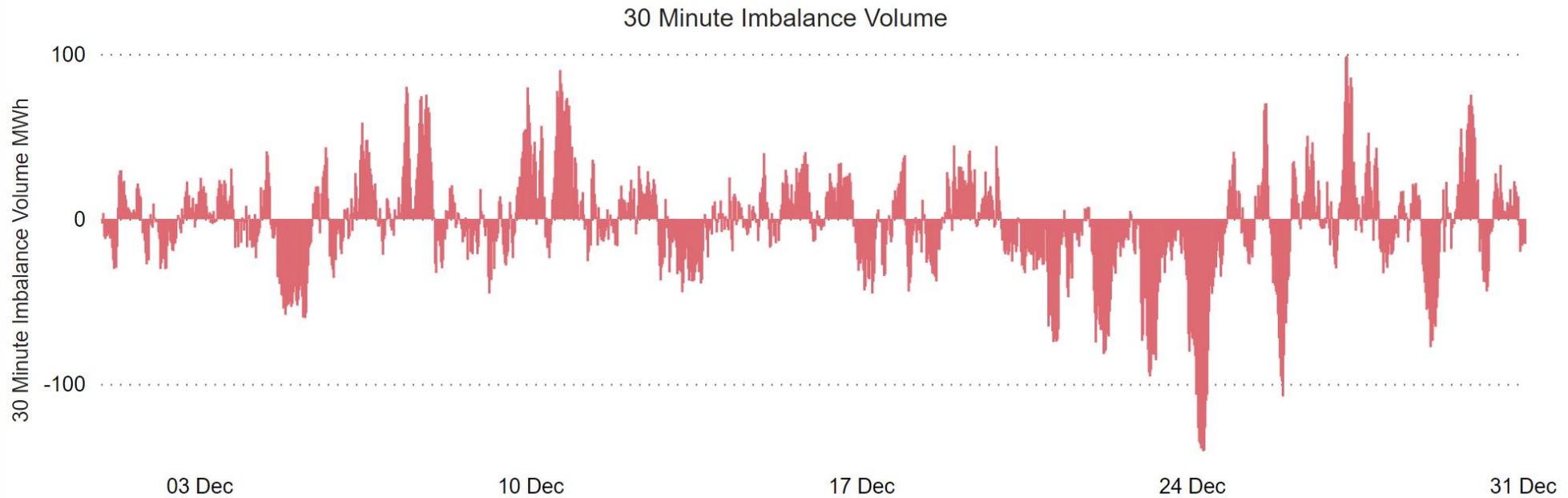
Average Price

-€ 46.63

Lowest Price

€ 257.87

Highest Price



## Demand and Generation Mix

# Demand December 2023

## SEM Demand (MW)

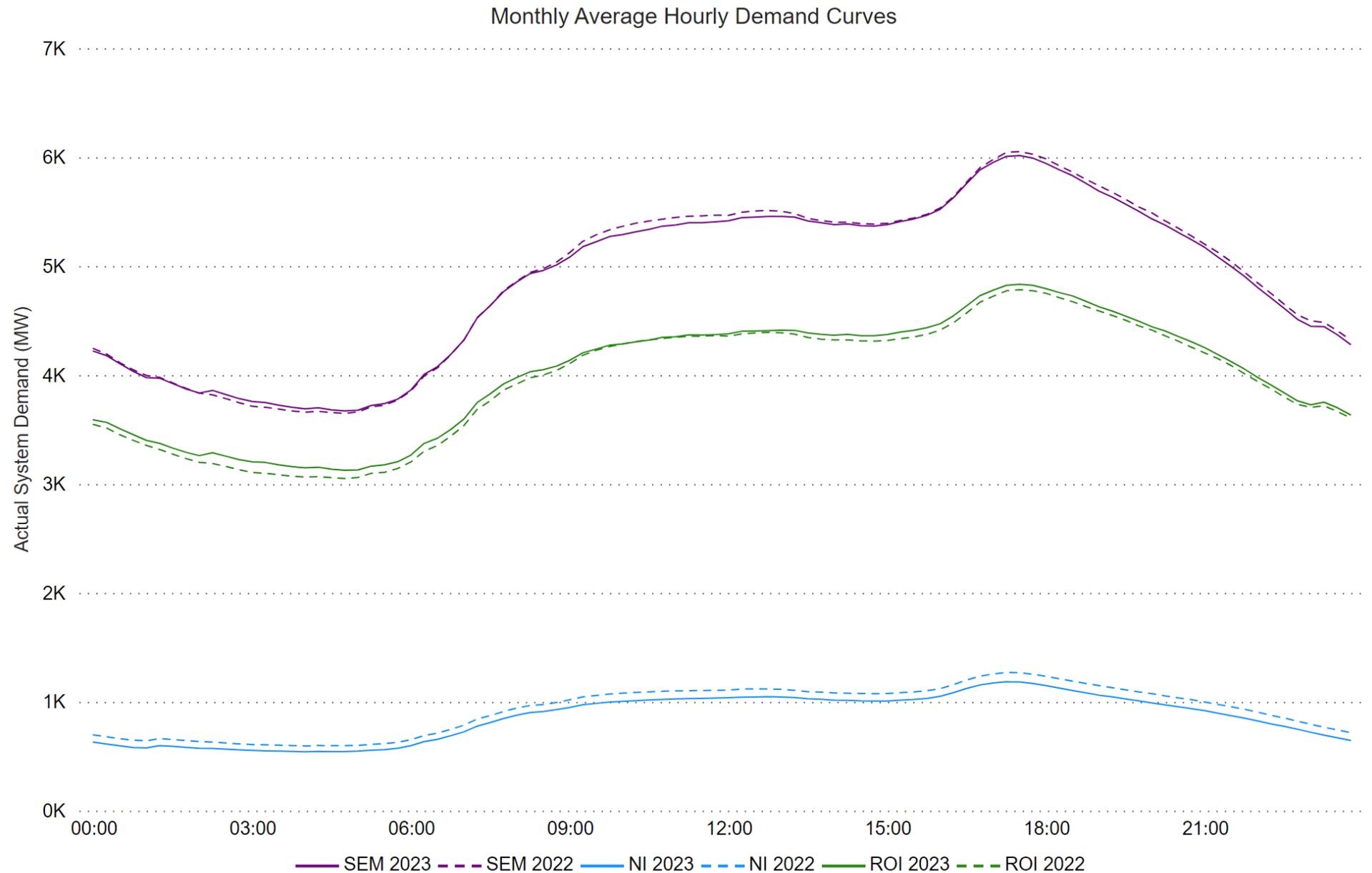
4,863.74	4,885.47
SEM Average 2023	SEM Average 2022
3,670.58	3,647.94
SEM Min 2023	SEM Min 2022
6,015.06	6,051.90
SEM Max 2023	SEM Max 2022

## NI Demand (MW)

859.69	929.41
NI Average 2023	NI Average 2022
542.55	595.35
NI Min 2023	NI Min 2022
1,183.74	1,269.97
NI Max 2023	NI Max 2022

## ROI Demand (MW)

4,004.07	3,956.05
ROI Average 2023	ROI Average 2022
3,126.48	3,050.00
ROI Min 2023	ROI Min 2022
4,832.81	4,784.19
ROI Max 2023	ROI Max 2022



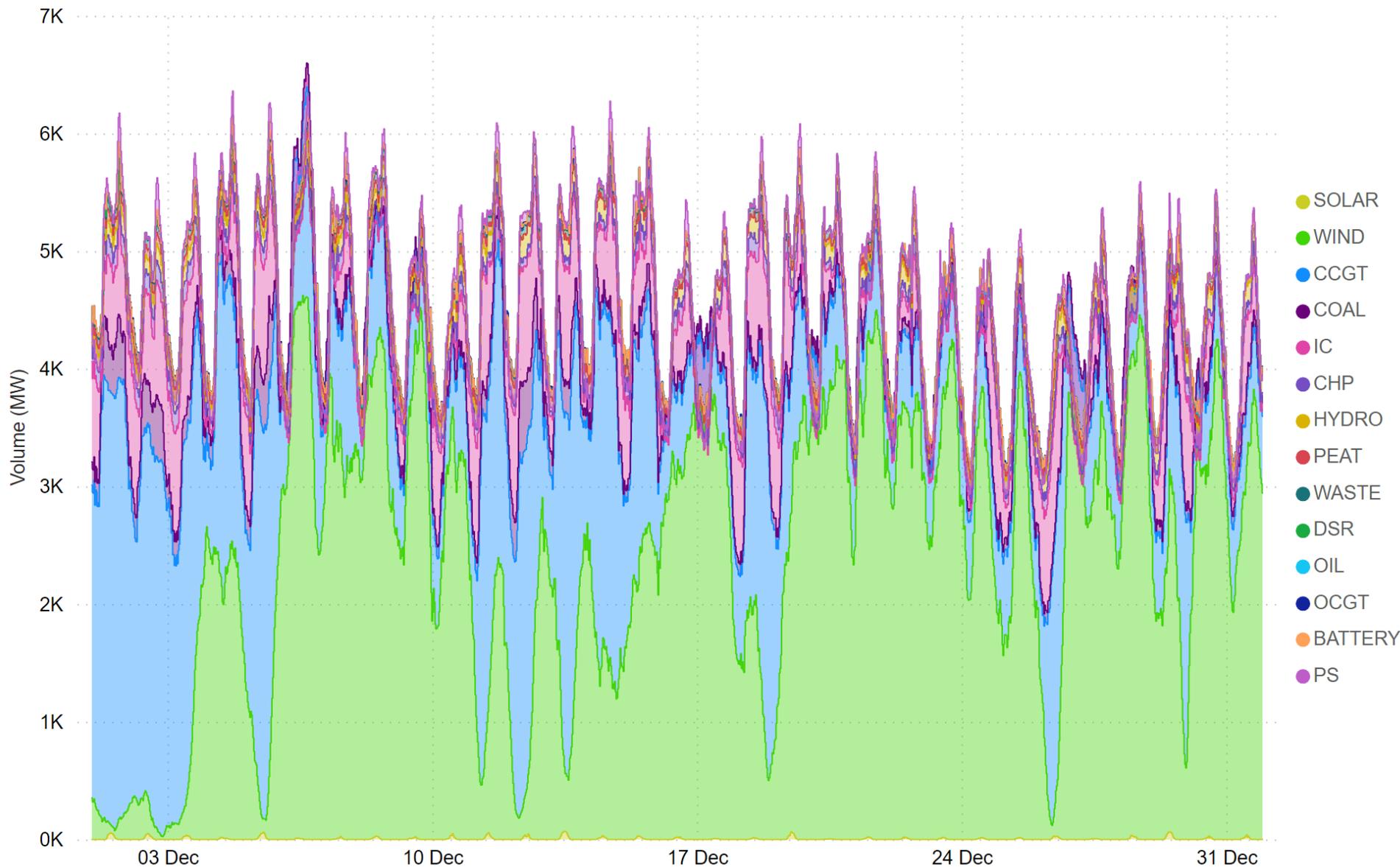
# Fuel Mix

## December 2023

Fuel Type	Monthly Average	Monthly %
CCGT	1,355	29.5%
WIND	2,446	53.2%
INTERCONNECTOR	264	5.8%
COAL	152	3.3%
HYDRO	157	3.4%
CHP	115	2.5%
PEAT	43	0.9%
WASTE	74	1.6%
SOLAR	5	0.1%
DSR	11	0.2%
OIL	1	0.0%
OCGT	1	0.0%
BATTERY	-3	-0.1%
PUMPED STORAGE	-26	-0.6%

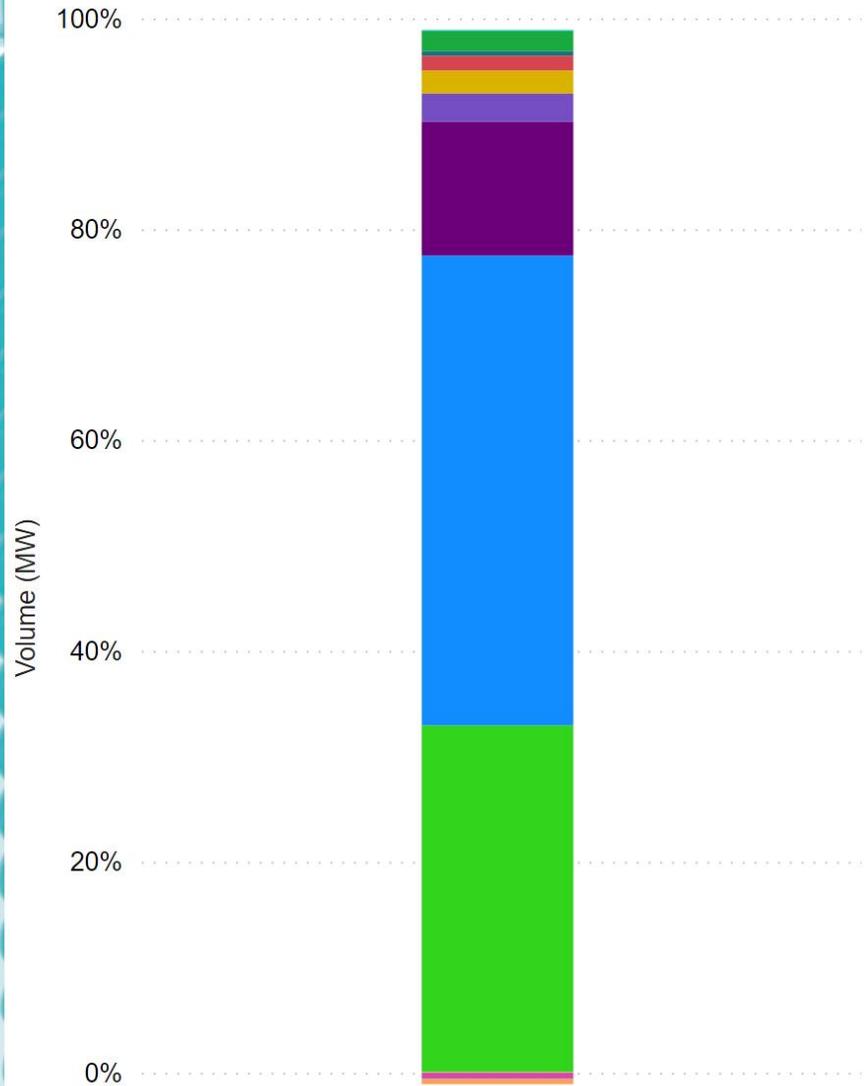
Fuel Type	Max	Min
CCGT	3,770	538
WIND	4,621	24
INTERCONNECTOR	977	-901
COAL	728	84
HYDRO	202	80
CHP	169	39
PEAT	97	0
WASTE	82	0
SOLAR	69	0
DSR	32	0
OIL	154	0
OCGT	61	0
BATTERY	56	-36
PUMPED STORAGE	292	-301

### SEM 30 Minute Fuel Mix

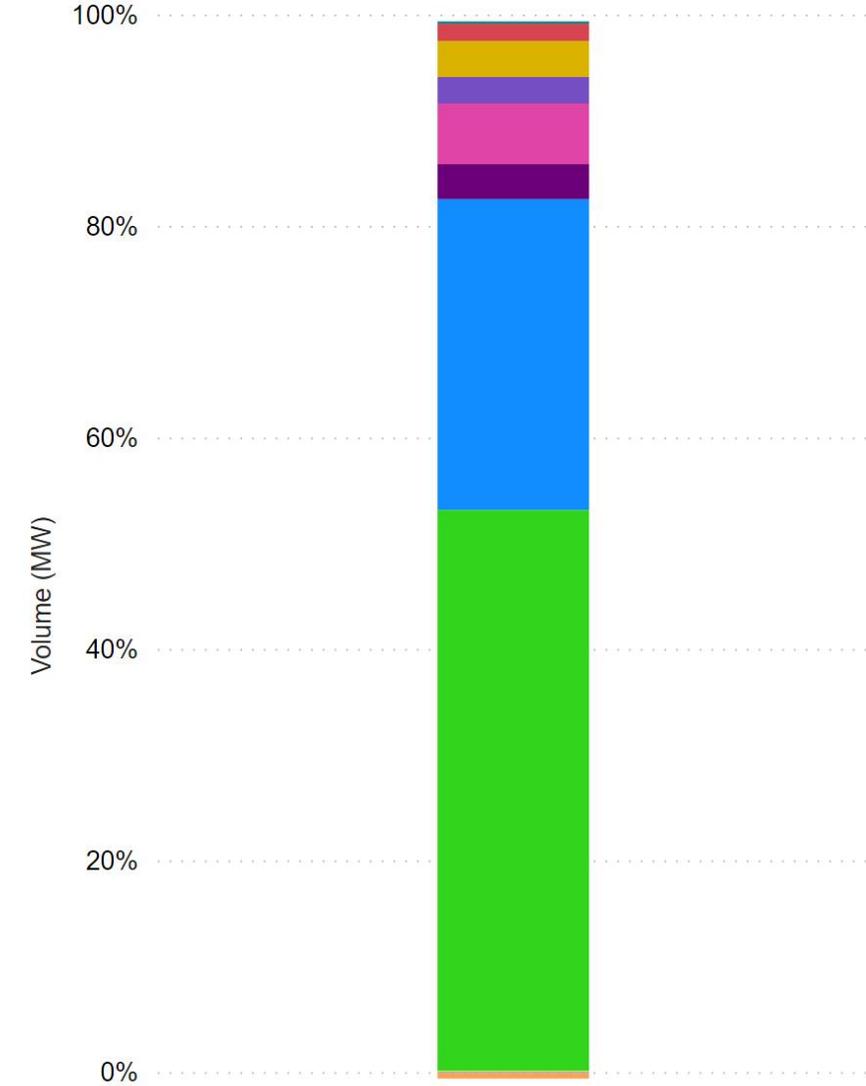


# Fuel Mix Comparison December 2022 & 2023

### SEM Fuel Mix December 2022



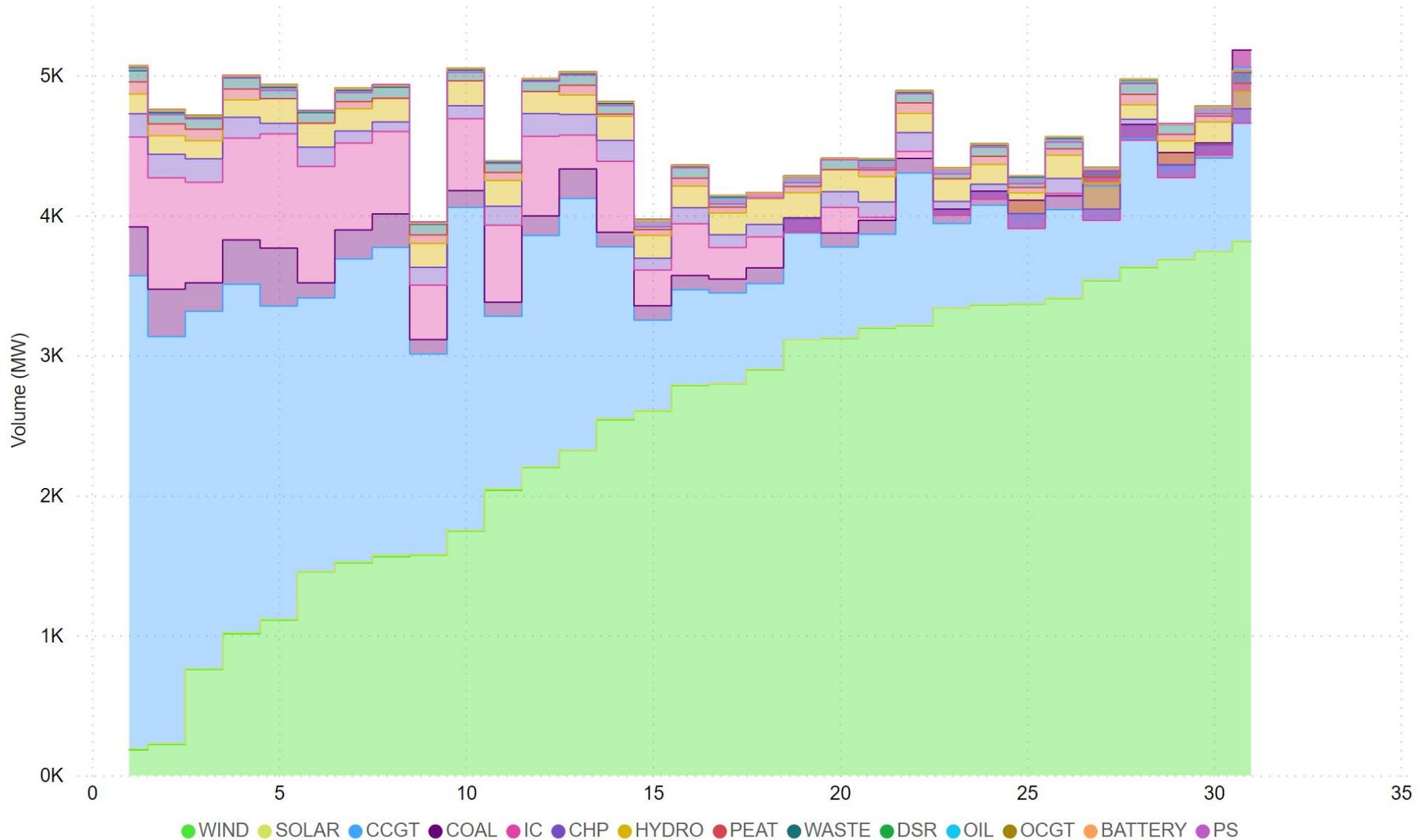
### SEM Fuel Mix December 2023



# Fuel Mix Ranked by Wind Volume December 2023

This chart shows the average daily fuel mix for the month but instead of being a timeline chart it is ranked by level of wind available from smallest to largest.

Daily SEM Fuel Mix Ranked by Wind Volume for the Month



# North-South Tie Line December 2023

Average Flow NI to ROI (MW)

-243.07

Average Flow ROI to NI (MW)

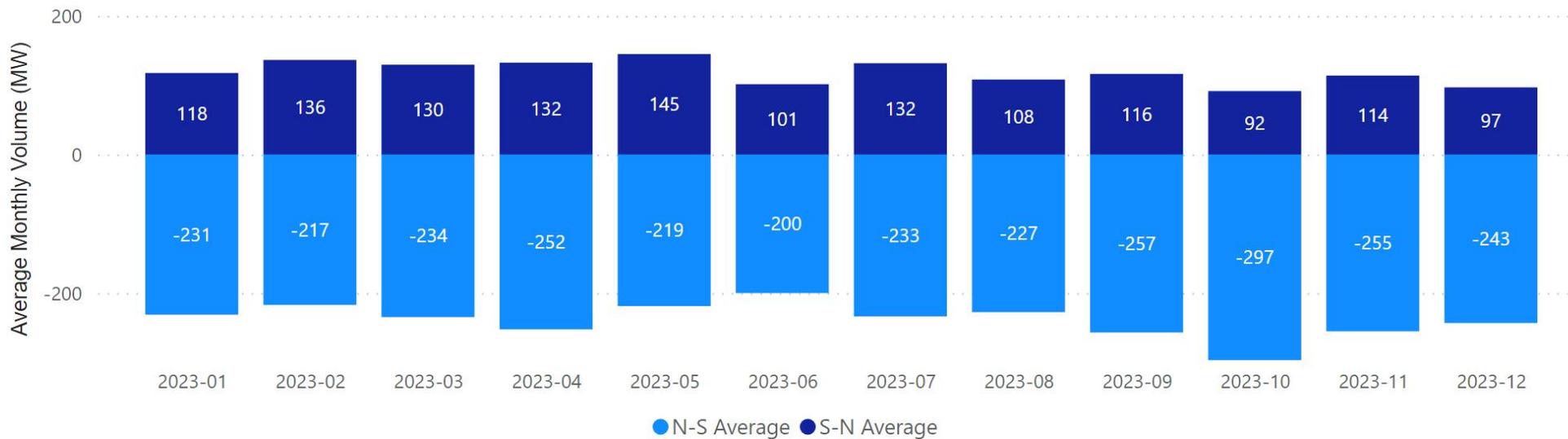
96.89

Average Net Flow (MW)

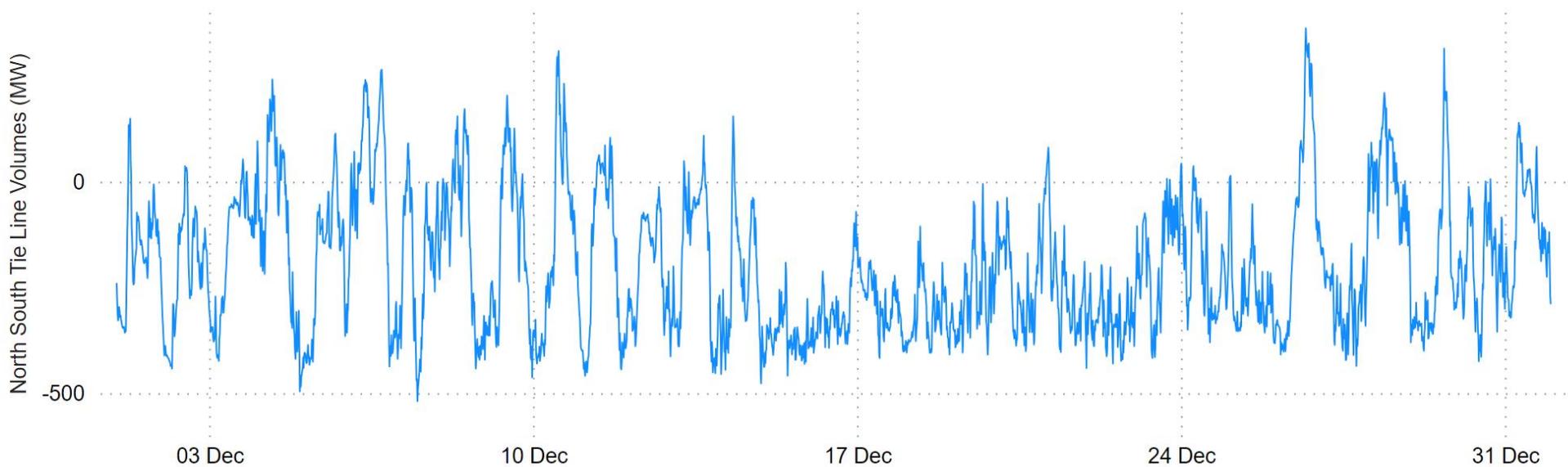
-199.14

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

Average Flows N-S Tie Line Long Term Trend



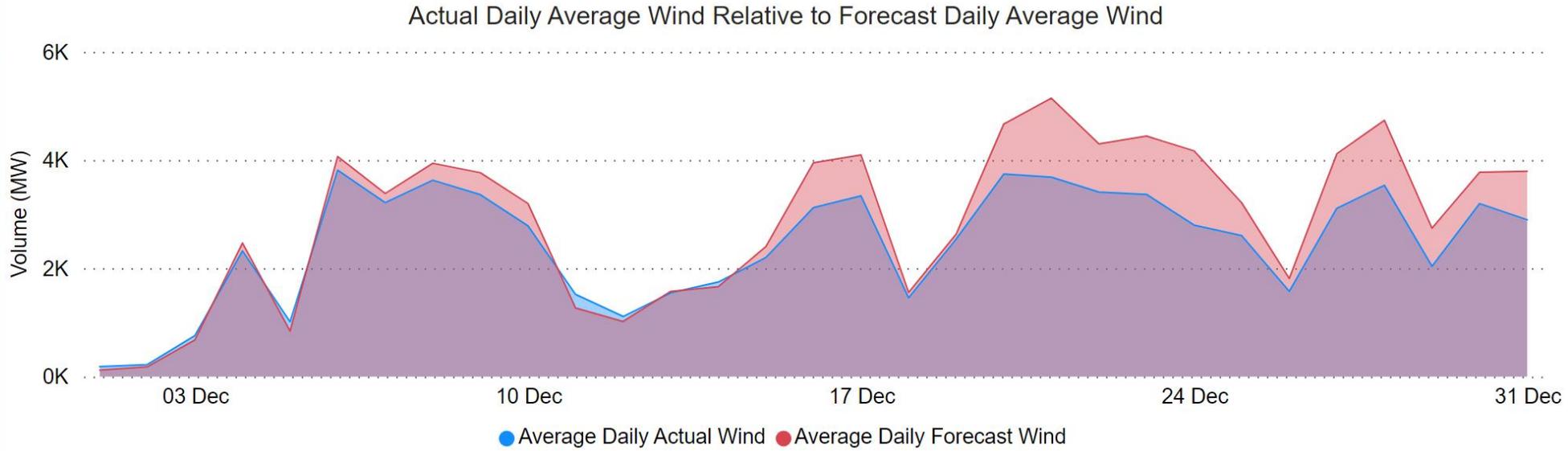
North South Tie Line Volumes 15 minute periods



# Wind Generation December 2023

Average Daily Actual Wind (MW)  
2,446

Average Daily Forecast Wind (MW)  
2,893



Min SNSP%  
2.70

Max SNSP%  
75.80

# CO<sub>2</sub> December 2023

## CO2 Intensity

189.18  
Monthly Average (gCO<sub>2</sub>/KWh)  
82  
Monthly Low (gCO<sub>2</sub>/KWh)  
424  
Monthly High (gCO<sub>2</sub>/KWh)

## CO2 Emissions

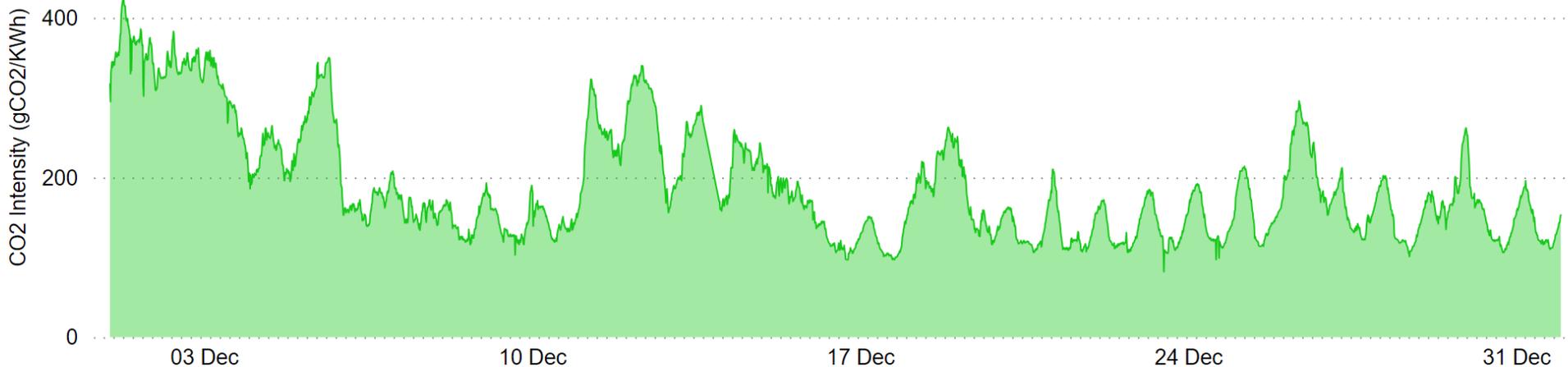
1261.47  
Monthly Average (tCO<sub>2</sub>/hr)  
650  
Monthly Low (tCO<sub>2</sub>/hr)  
2436  
Monthly High (tCO<sub>2</sub>/hr)

### Note

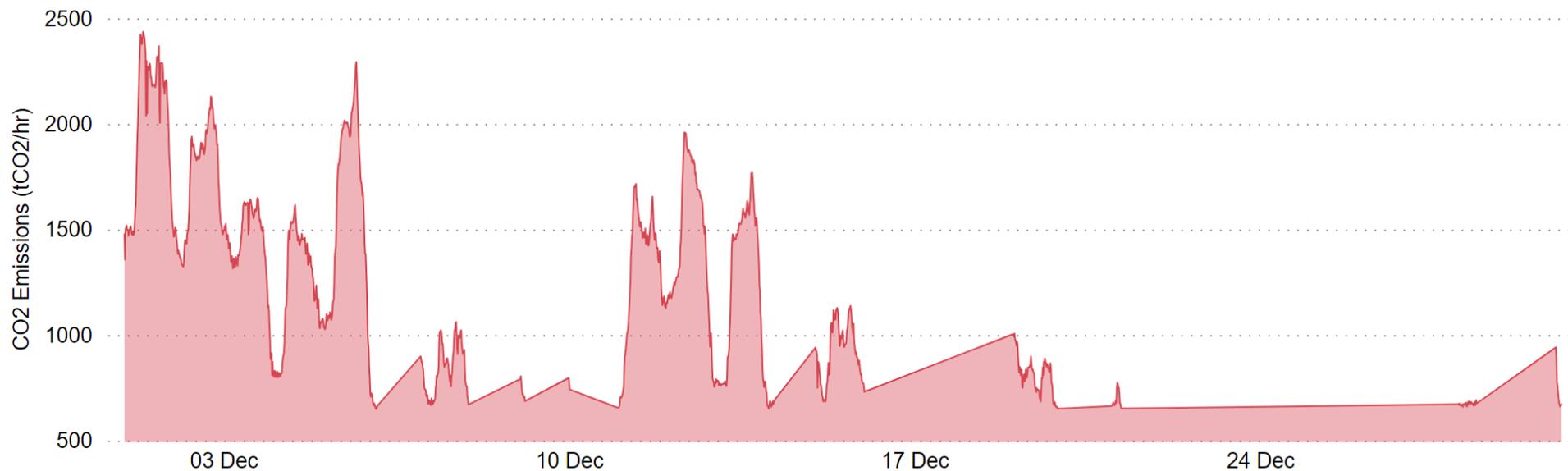
CO2 Emissions data missing  
06/12/23 03:00 to 07/12/23 00:00  
07/12/23 23:15 to 09/12/23 00:00  
09/12/23 02:45 to 10/12/23 00:00  
10/12/23 00:30 to 11/12/23 00:00  
14/12/23 03:45 to 15/12/23 00:00  
15/12/23 23:45 to 19/12/23 00:00  
19/12/23 22:45 to 21/12/23 00:00  
21/12/23 04:45 to 28/12/23 00:00  
28/12/23 09:30 to 30/12/23 00:00

Data sourced from - SONI/ERIGRID

### CO2 Intensity



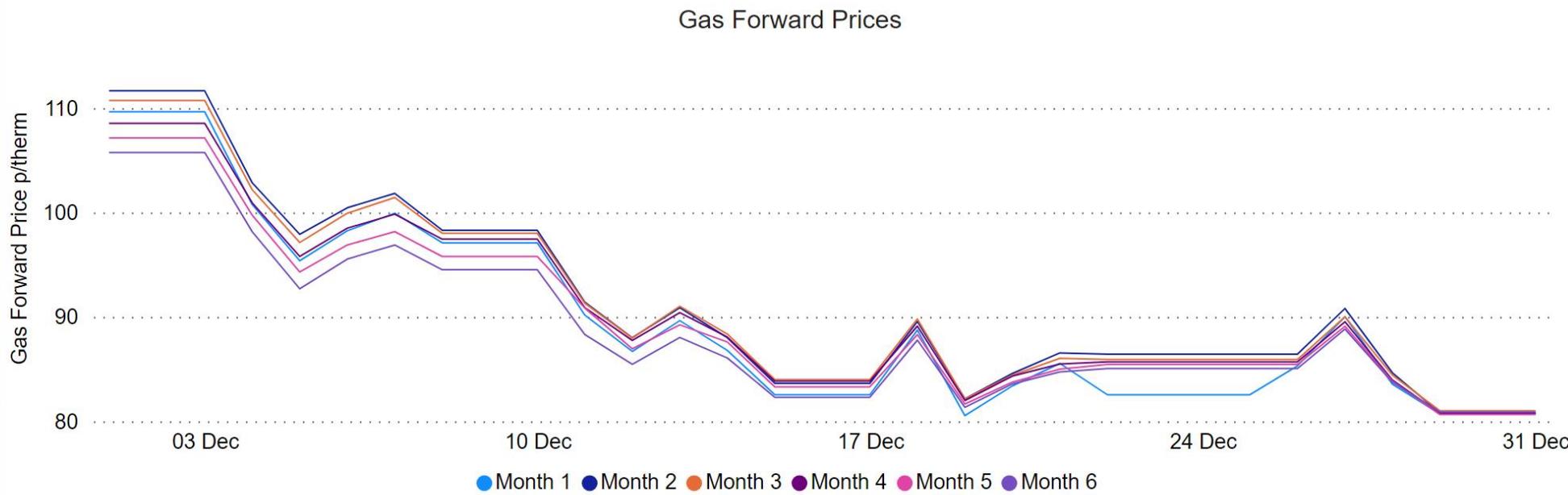
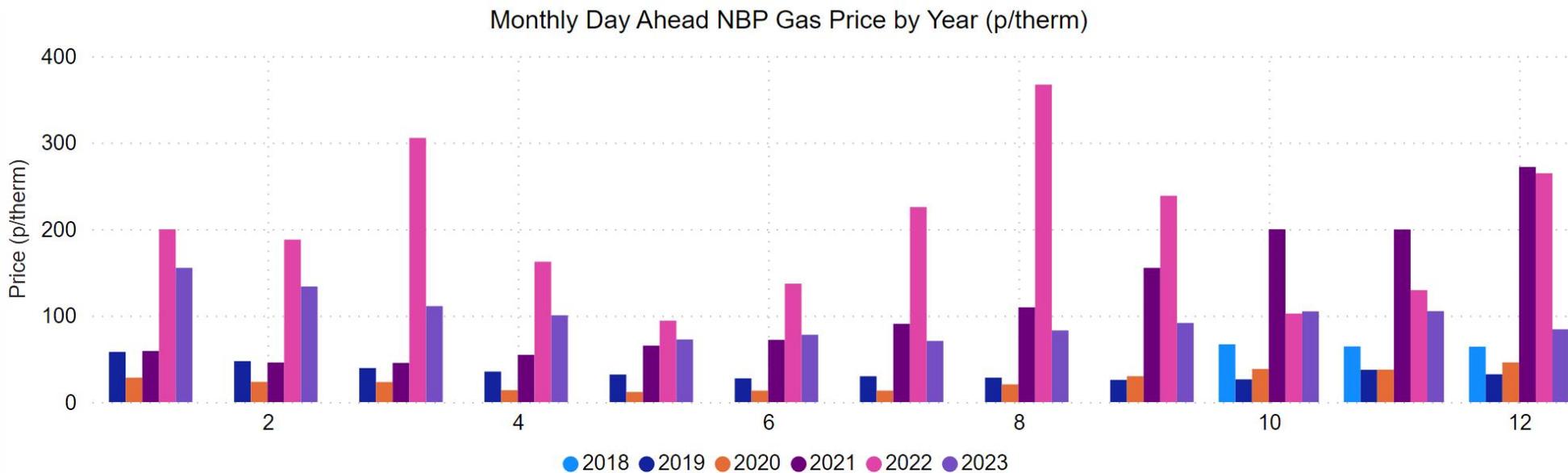
### CO2 Emissions



## Fuel Costs and Spreads

# Gas Price December 2023

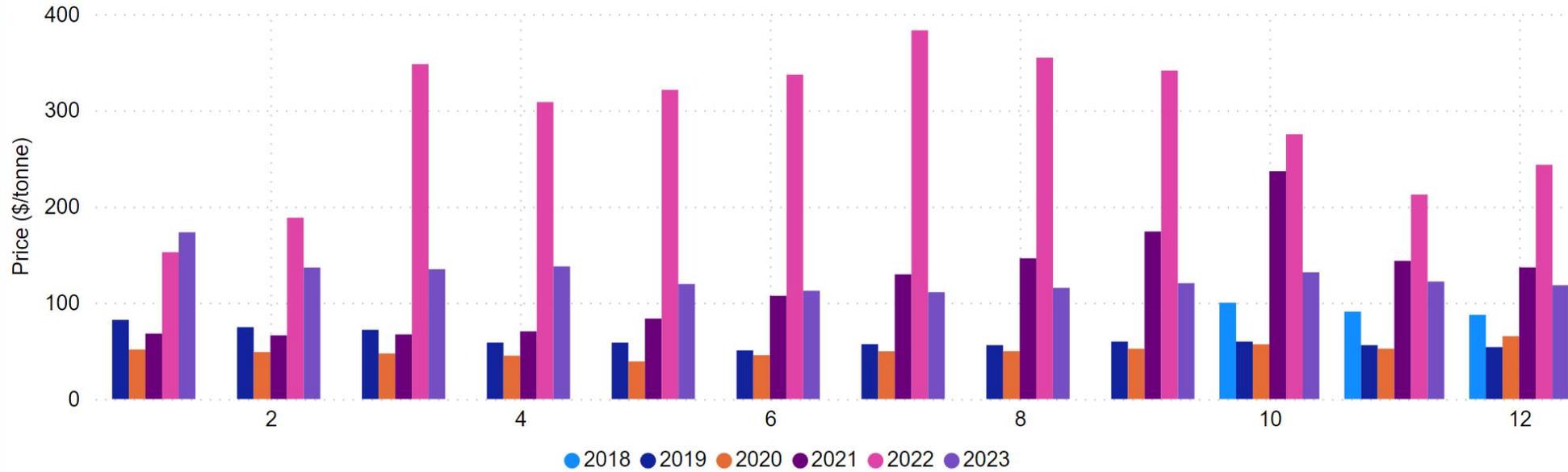
84.20  
Monthly Average (p/therm)  
71.50  
Monthly Low (p/therm)  
107.05  
Monthly High (p/therm)



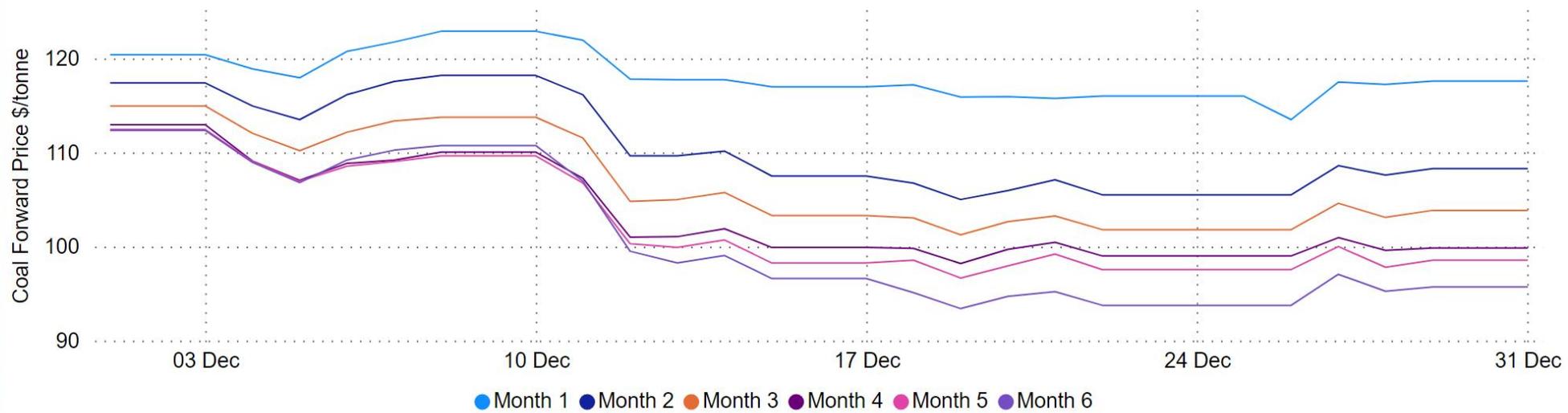
# Coal Price December 2023

\$118.31  
Monthly Average \$/tonne  
\$113.50  
Monthly Low \$/tonne  
\$122.90  
Monthly High \$/tonne

Monthly ICE Rotterdam Coal Price by Year (\$/tonne)



Coal Forward Prices

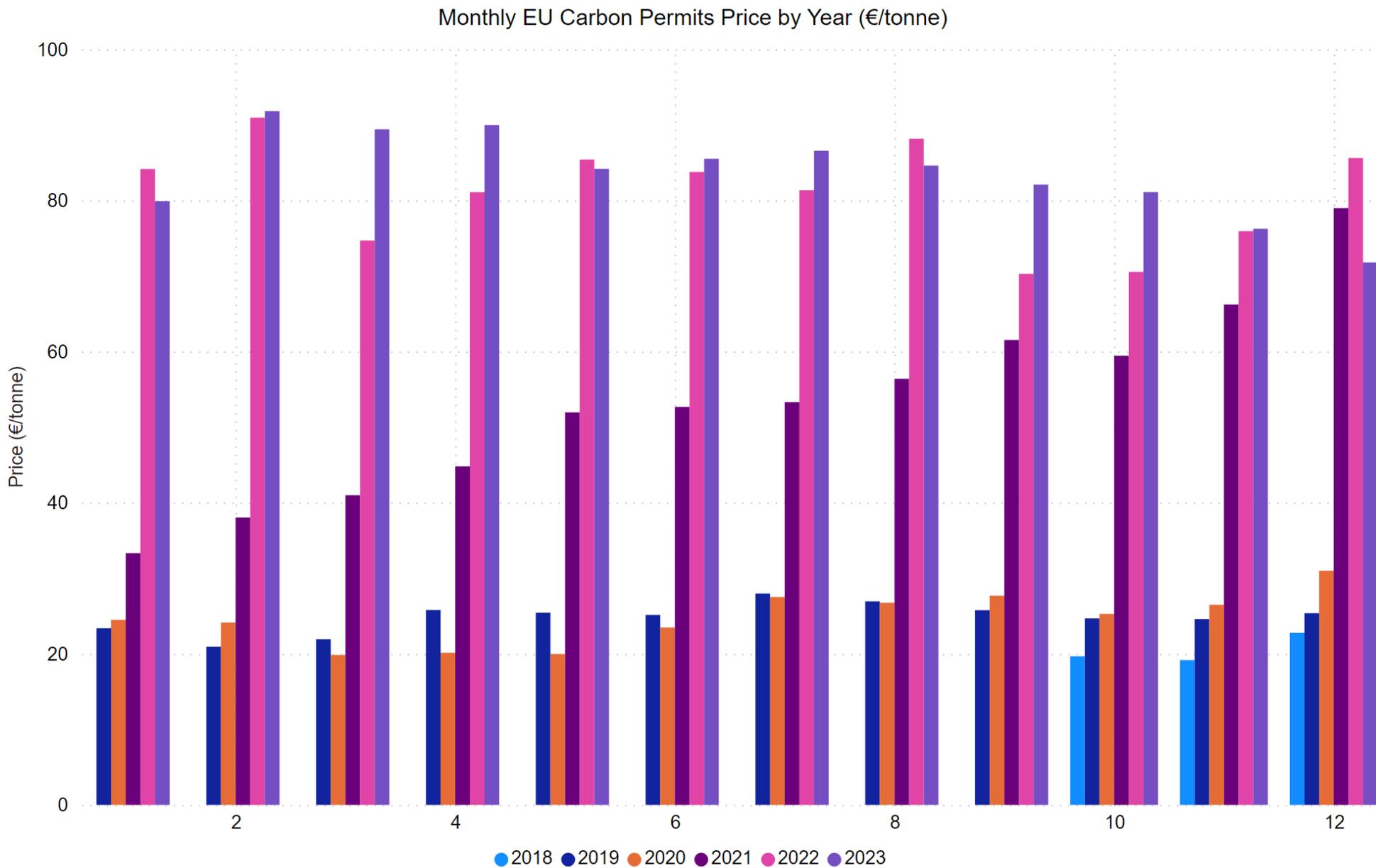


# Carbon Price December 2023

€ 71.79  
Monthly Average €/tonne

€ 66.86  
Monthly Low €/tonne

€ 77.50  
Monthly High €/tonne



# Spark Spreads December 2023

**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.

