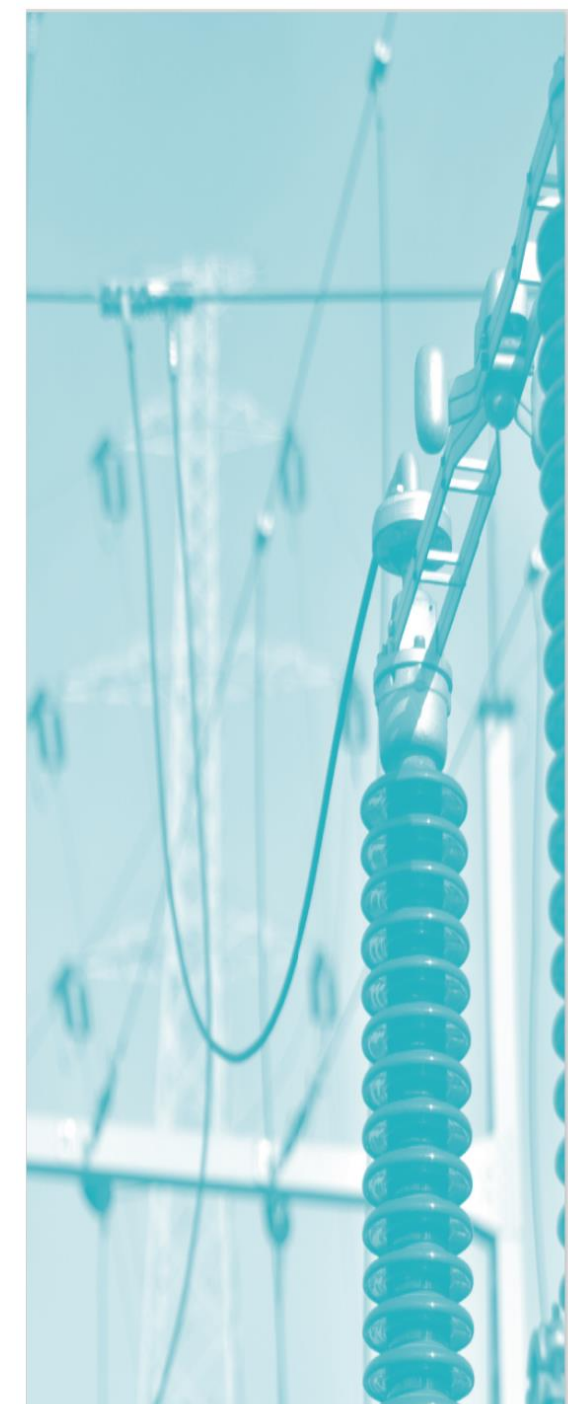




# Energy Market Monitoring Report

April 2023



## Market Results



# Summary Dashboard

Monthly Averages	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23
DAM (€/MWh)	143.27	181.84	267.19	387.64	283.25	136.09	143.12	276.52	162.16	159.19	145.25	125.57
% Change from previous month	-34%	27%	47%	45%	-27%	-52%	5%	93%	-41%	-2%	-9%	-14%
% Change from previous year	48%	91%	86%	195%	45%	-37%	-30%	10%	-20%	-9%	-50%	-42%
Actual System Demand (MW)	4208	4169	4085	4099	4197	4330	4733	4885	4885	4782	4833	4469
% Change from previous month	-5%	-1%	-2%	0%	2%	3%	9%	3%	0%	-2%	1%	-8%
% Change from previous year	0%	2%	-1%	-1%	-2%	-1%	0%	2%	1%	-1%	3%	1%
Actual Wind Generation (MW)	1428	1129	854	817	1081	2047	2233	1647	1987	2026	1748	1545
% Change from previous month	0%	-21%	-24%	-4%	32%	89%	9%	-26%	21%	2%	-14%	-12%
% Change from previous year	34%	13%	90%	-3%	24%	33%	45%	-16%	18%	-27%	12%	8%
Gas Price p/therm	95.13	139.03	222.44	365.79	235.85	102.32	128.91	264.54	155.16	133.65	110.96	100.32
% Change from previous month	-41%	46%	60%	64%	-36%	-57%	26%	105%	-41%	-14%	-17%	-10%
% Change from previous year	45%	93%	145%	234%	52%	-49%	-35%	-3%	-22%	-29%	-64%	-38%
Carbon Price (€/Tonne)	85.41	83.74	81.34	88.20	70.29	70.46	75.84	85.61	79.91	91.82	89.41	89.98
% Change from previous month	5%	-2%	-3%	8%	-20%	0%	8%	13%	-7%	15%	-3%	1%
% Change from previous year	63%	59%	52%	56%	14%	19%	15%	8%	-5%	1%	20%	11%
Coal Price (\$/tonne)	321.33	337.07	383.18	354.67	341.33	275.16	212.52	243.46	173.25	136.71	134.95	137.83
% Change from previous month	4%	5%	14%	-7%	-4%	-19%	-23%	15%	-29%	-21%	-1%	2%
% Change from previous year	284%	214%	196%	142%	96%	16%	48%	78%	14%	-27%	-61%	-55%
EWIC % Import Periods	12.33%	27.16%	33.03%	25.84%	16.25%	30.51%	18.61%	30.58%	49.03%	38.91%	50.00%	50.56%
EWIC % Export Periods	23.49%	43.56%	56.52%	51.92%	41.81%	46.24%	54.10%	35.08%	23.66%	27.19%	16.47%	13.65%
EWIC % Not Flow Periods	64.18%	29.28%	10.45%	22.24%	45.28%	23.25%	27.29%	34.34%	27.32%	33.89%	23.86%	30.80%
Moyle % Import Periods	38.54%	40.44%	24.90%	31.55%	35.35%	40.52%	29.51%	44.19%	62.05%	53.65%	64.68%	77.50%
Moyle % Export Periods	61.46%	59.56%	10.72%	66.26%	63.85%	59.44%	69.83%	55.78%	37.95%	46.02%	25.50%	27.43%

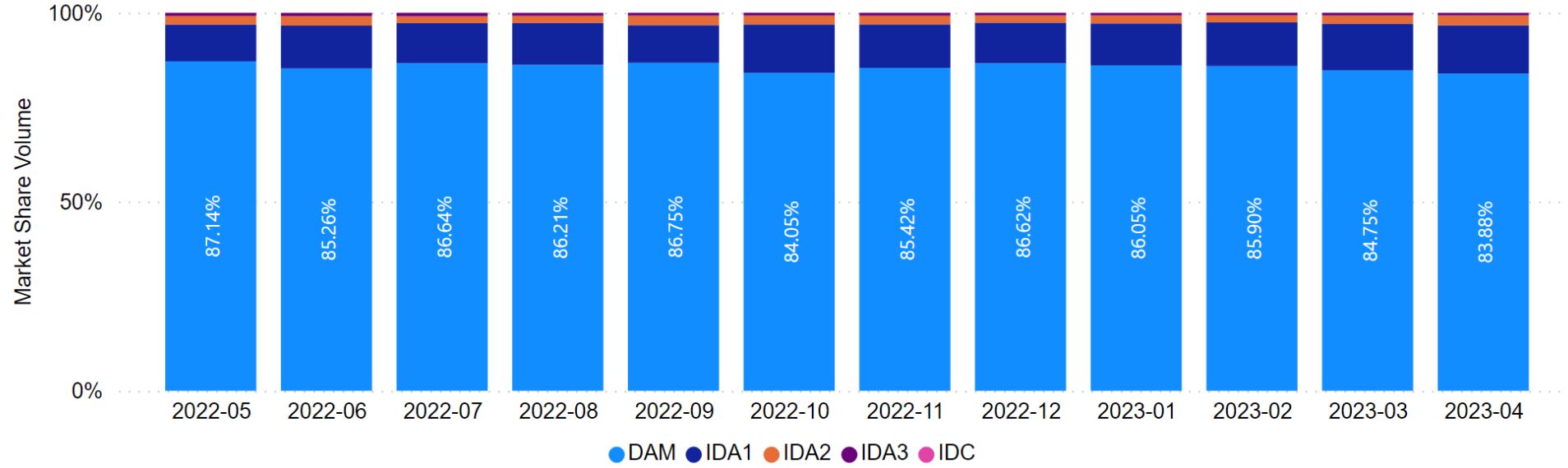
# Market Volumes April 2023

Daily Average Volume	MWh
DAM	113,180
IDA1	17,228
IDA2	3,539
IDA3	919
IDC	72

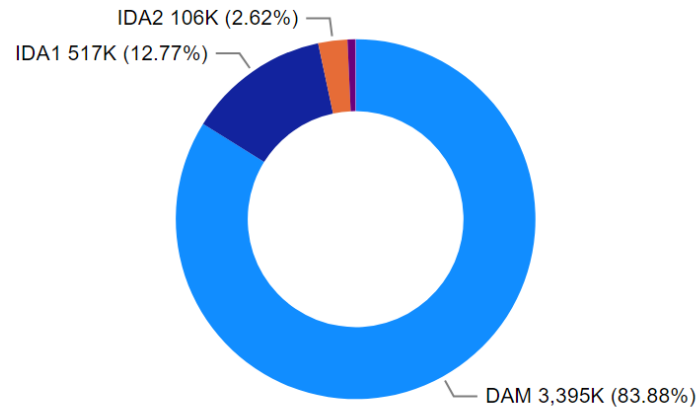
Total Monthly Volume	MWh
DAM	3,395,413
IDA1	516,830
IDA2	106,167
IDA3	27,583
IDC	1,736
<b>Total</b>	<b>4,047,730</b>

Total Market Value	€
IDC	€ 240,186
IDA3	€ 3,839,442
IDA2	€ 13,741,409
IDA1	€ 64,590,095
DAM	€ 431,493,577
<b>Total</b>	<b>€ 513,904,708</b>

Ex-Ante Monthly Volume by Market

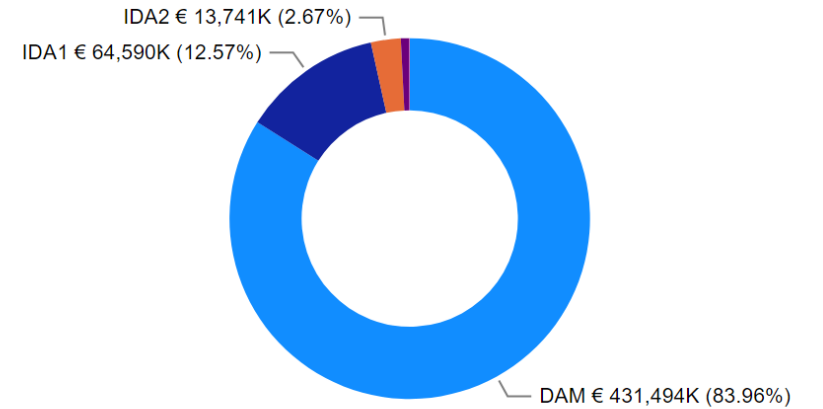


Ex-Ante Volumes (MWh)



● DAM ● IDA1 ● IDA2 ● IDA3 ● IDC

Ex-Ante Values (€)



● DAM ● IDA1 ● IDA2 ● IDA3 ● IDC

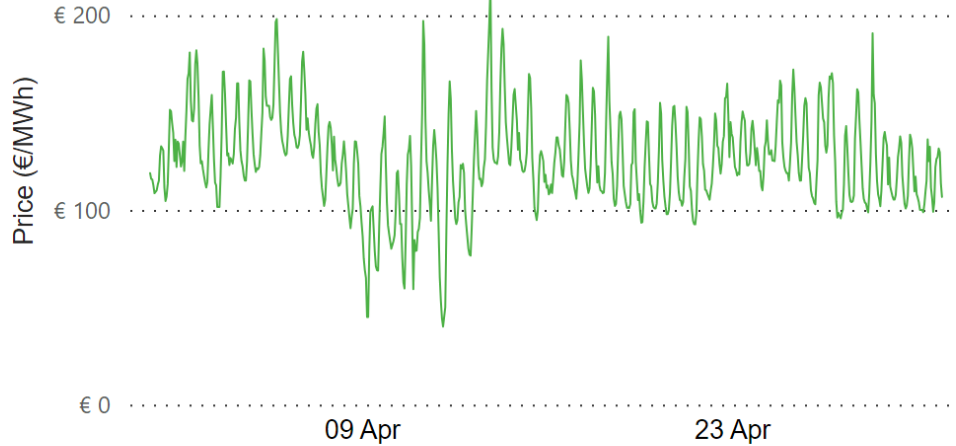


# Day Ahead Market April 2023

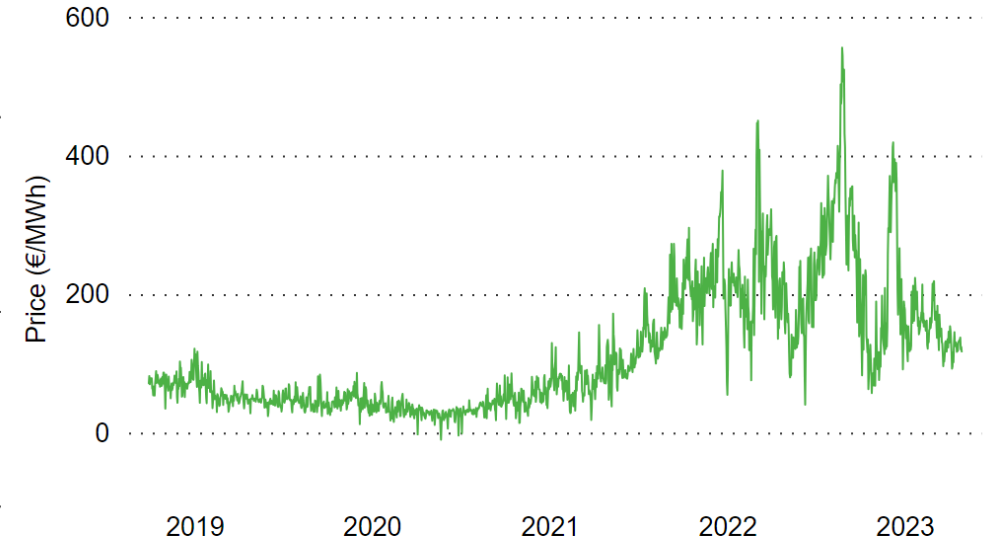
€ 125.57  
Average DAM Price  
€ 40.00  
Min DAM Price  
€ 215.00  
Max DAM Price

The most frequent price range for April was between €120 and €150

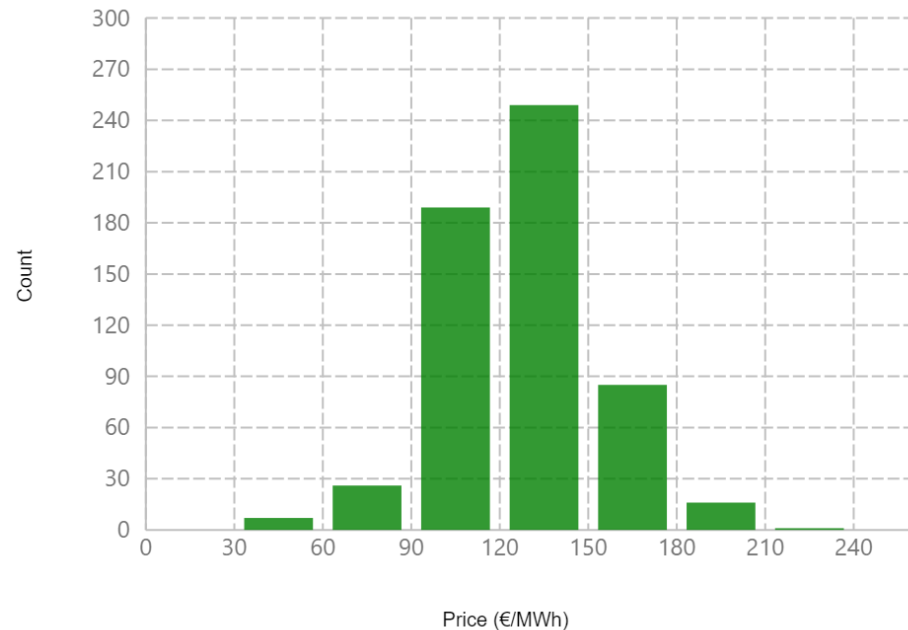
DAM Prices



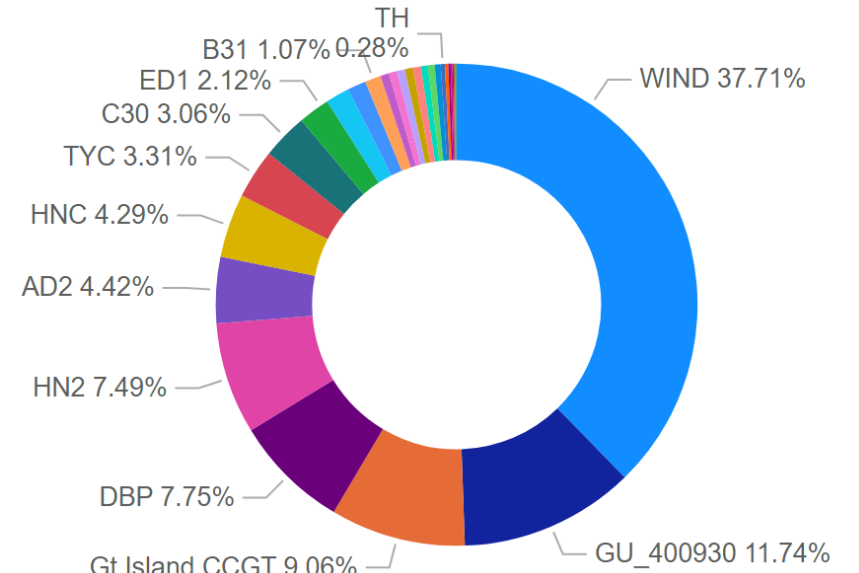
Historic Daily Average DAM Prices



Histogram of DAM Prices



DAM Sell Side Generator Order Results

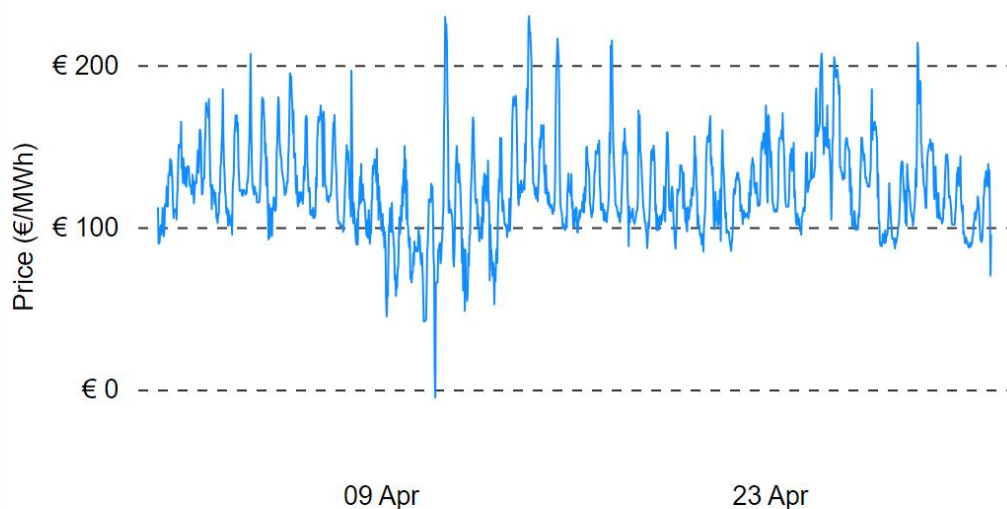


# Intraday Market April 2023

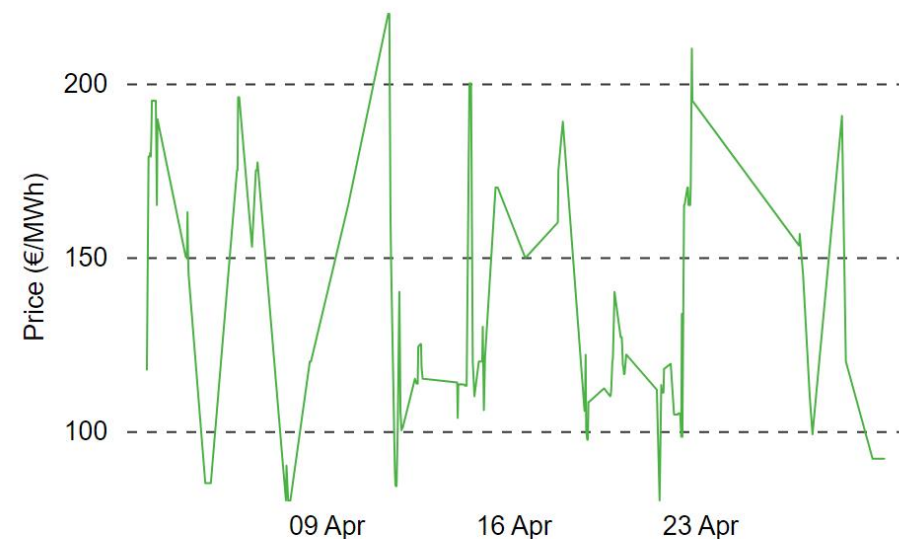
€ 123.08  
Average IDA1 Price  
-€ 5.00  
Min IDA1 Price  
€ 230.00  
Max IDA1 Price

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

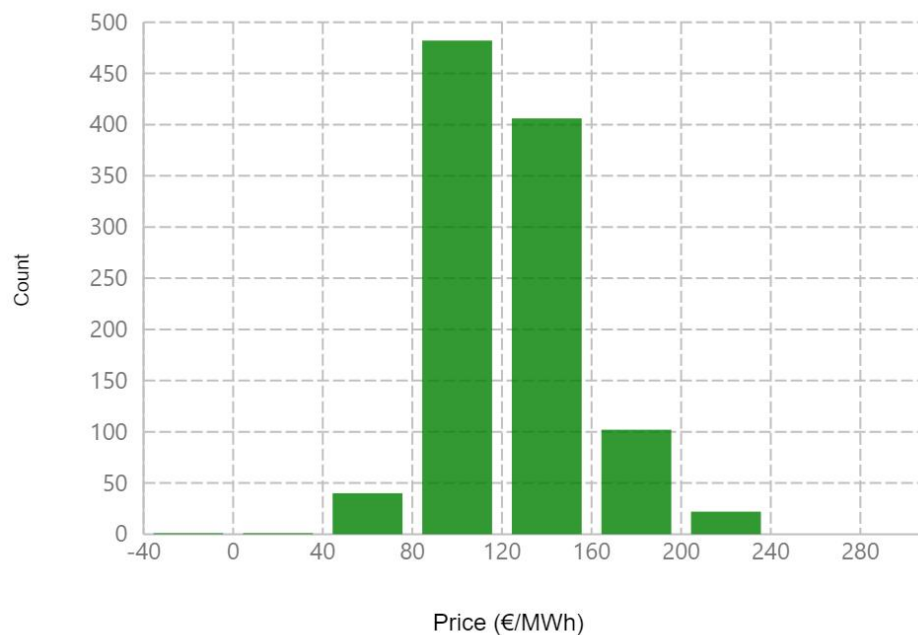
IDA 1 Prices



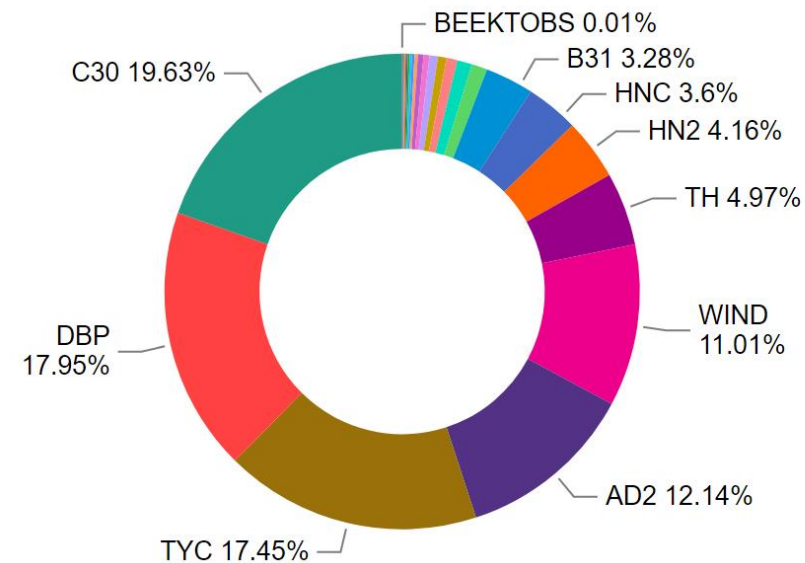
IDC Prices



Histogram of IDA1 Prices



IDA1 Sell Order Results By Market Participant



# SEM vs GB

## April 2023

### SEM Day Ahead Price

€ 125.57  
Average Price

€ 40.00  
Min Price

€ 215.00  
Max Price

### GB Day Ahead Price

€ 116.02  
Average Price

€ 27.48  
Min Price

€ 192.62  
Max Price

### SEM IDA1 Price

€ 123.08  
Average Price

-€ 5.00  
Min Price

€ 230.00  
Max Price

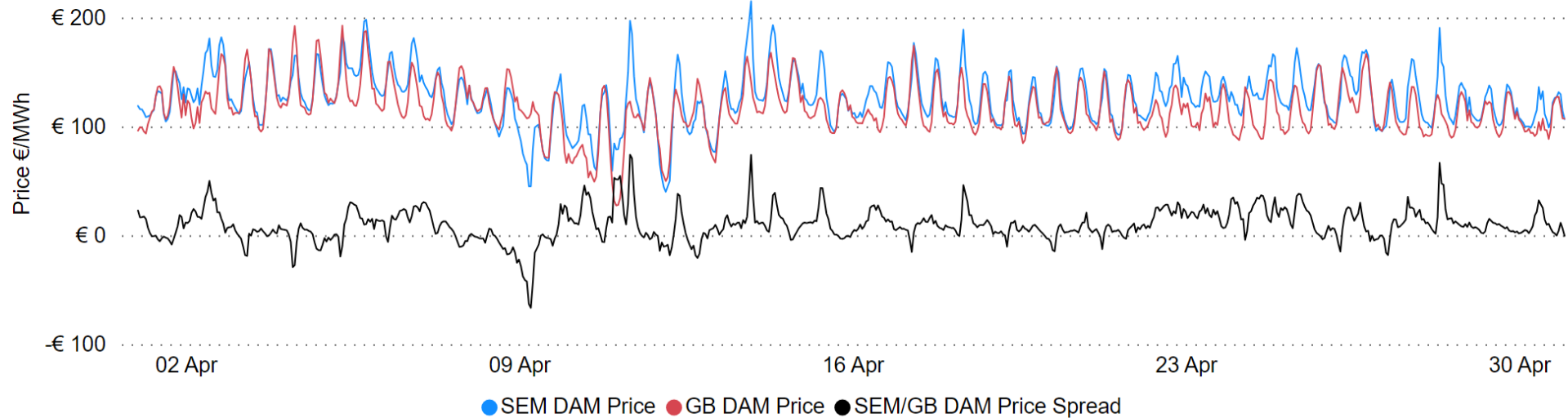
### GB IDA1 Prices

€ 115.40  
Average Price

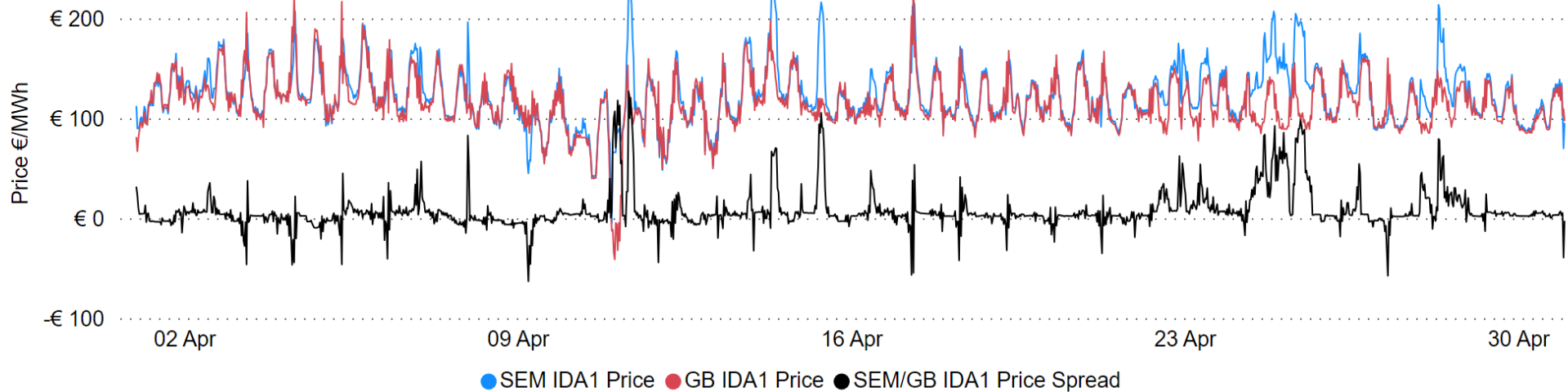
-€ 41.01  
Min Price

€ 240.38  
Max Price

### SEM & GB DAM Prices



### SEM & GB IDA1 Prices

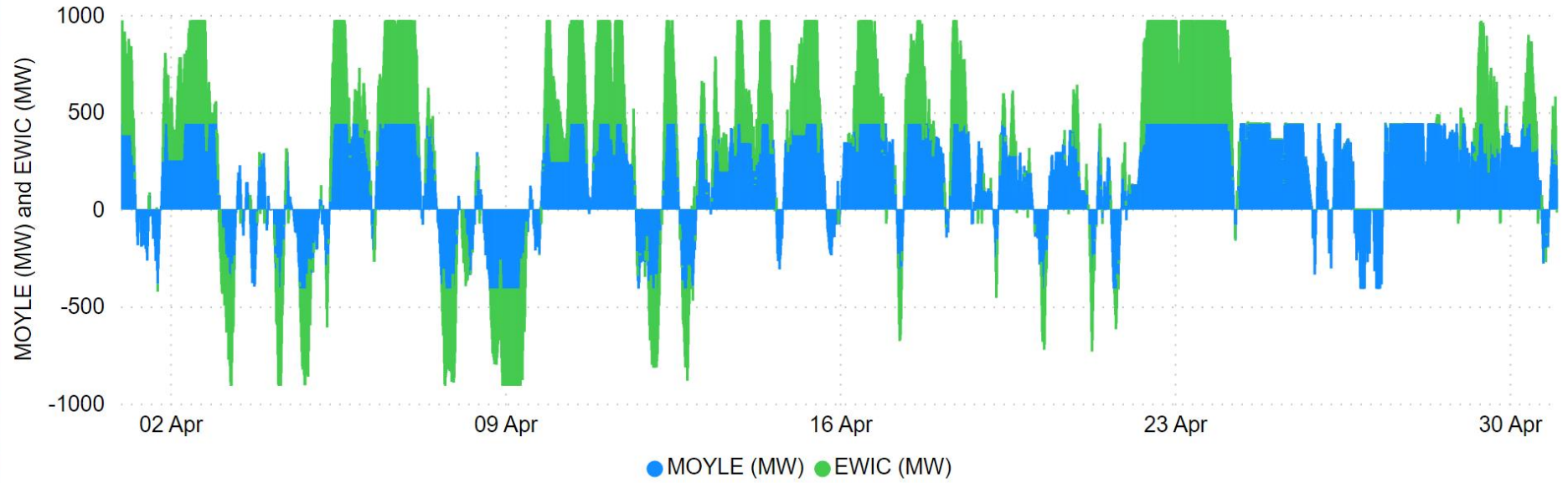




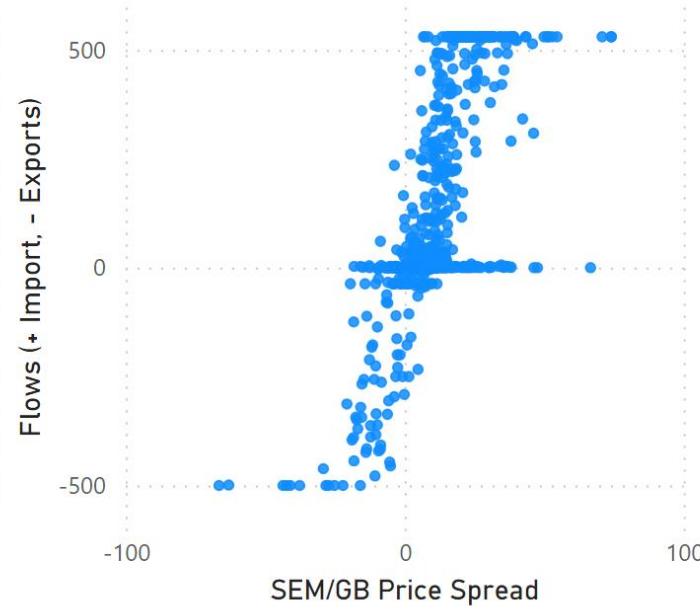
# SEM Interconnectors

## April 2023

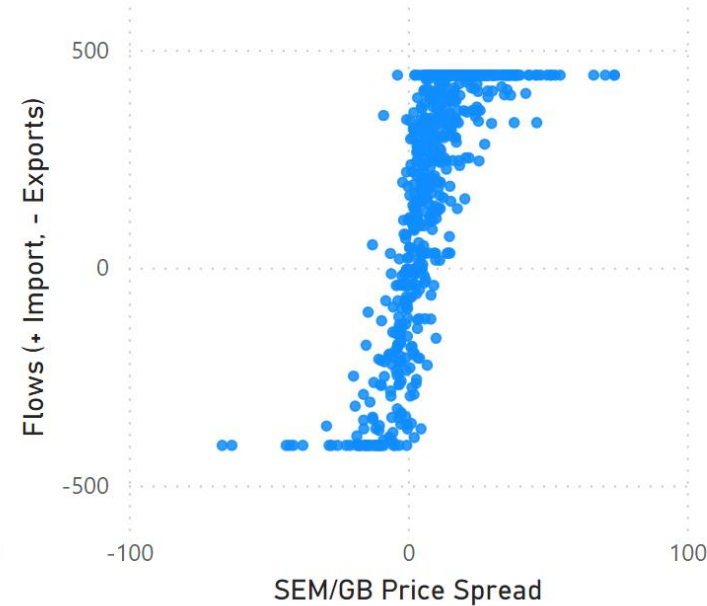
### SEM Interconnector Flows



### EWIC Flows vs SEM/GB Price Spread



### Moyle Flows vs SEM/GB Price Spread



### Interconnector Flows

April 2023	MW
Moyle Imports	335
EWIC Imports	254
Moyle Exports	-207
EWIC Exports	-226
SEM Imports	528
SEM Exports	-318
SEM Net Import/Export	297



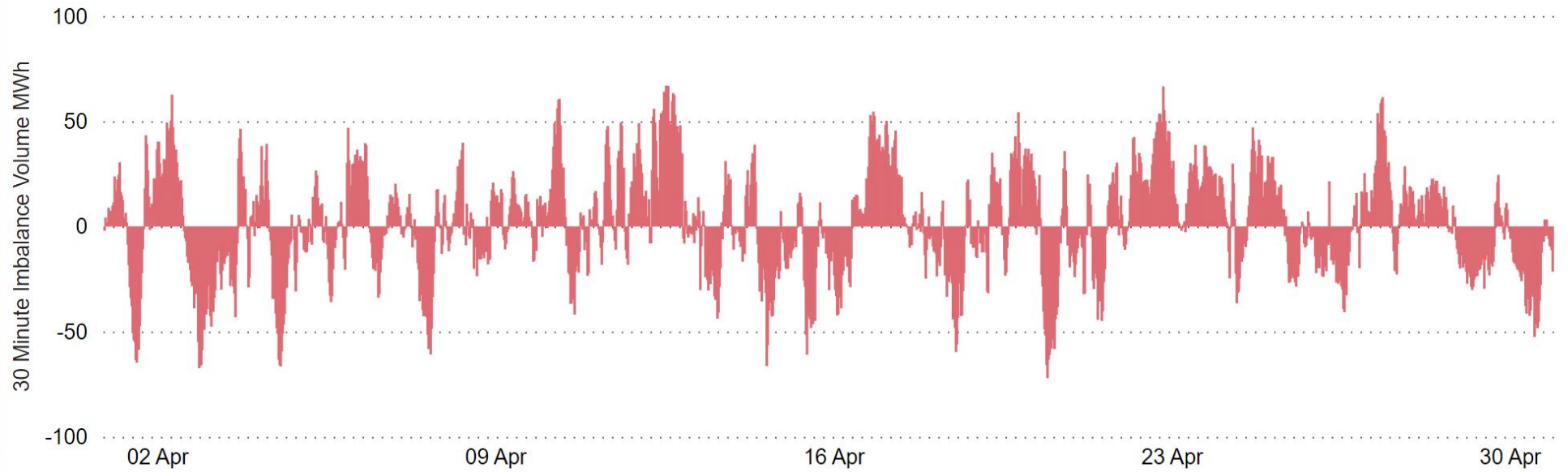
# Balancing Market April 2023

30 Minutes Imbalance Price  
€ 122.63  
Average Price  
-€ 135.49  
Lowest Price  
€ 450.19  
Highest Price

### 30 Minute Imbalance Prices



### 30 Minute Imbalance Volume



## Demand and Generation Mix



# Demand April 2023

## SEM Demand (MW)

4,469.22	4,407.56
SEM Average 2023	SEM Average 2022
3,490.23	3,362.20
SEM Min 2023	SEM Min 2022
5,089.17	5,081.23
SEM Max 2023	SEM Max 2022

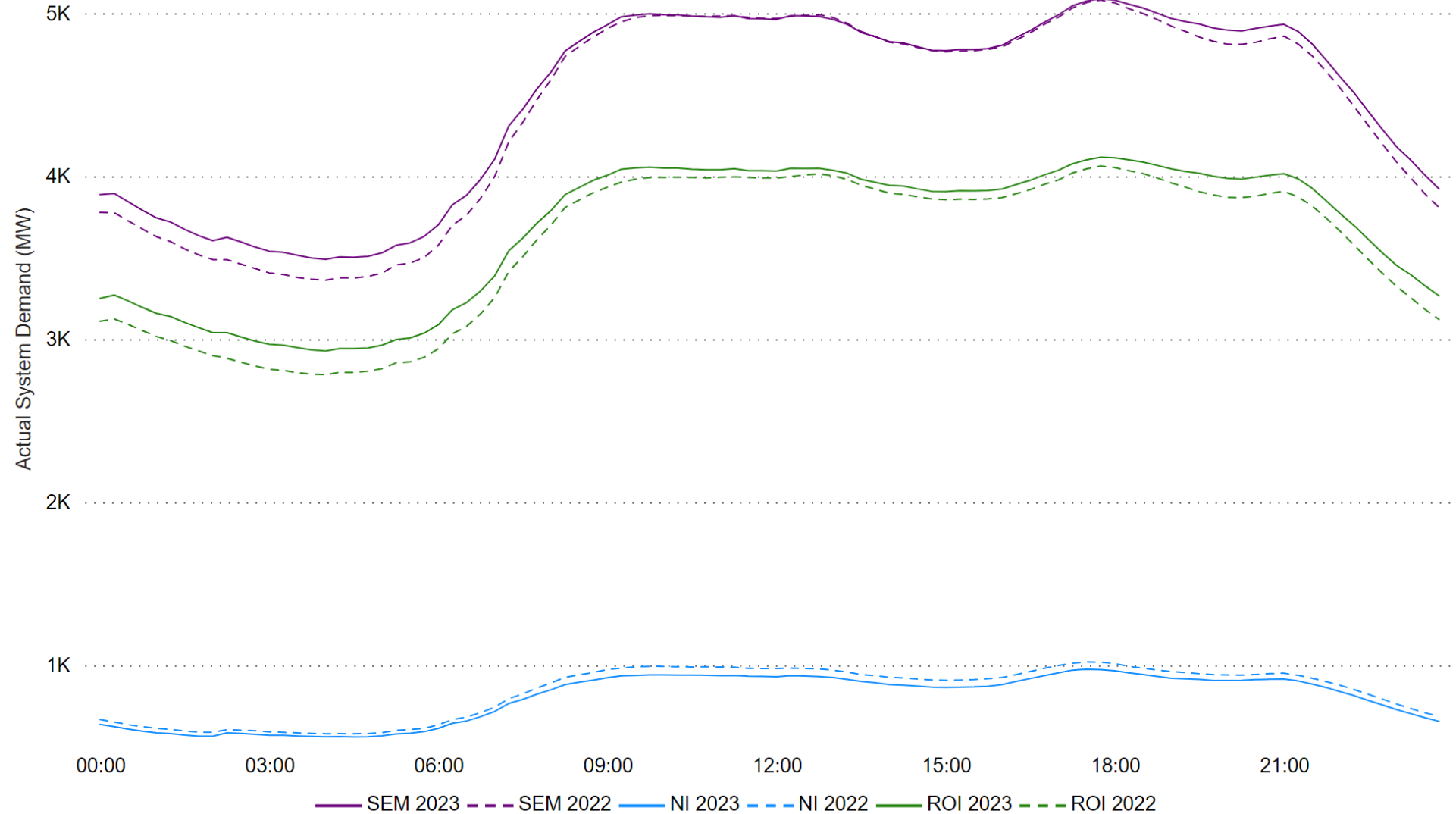
## NI Demand (MW)

800.41	836.60
NI Average 2023	NI Average 2022
560.33	579.80
NI Min 2023	NI Min 2022
975.30	1,020.33
NI Max 2023	NI Max 2022

## ROI Demand (MW)

3,668.64	3,570.96
ROI Average 2023	ROI Average 2022
2,928.43	2,782.23
ROI Min 2023	ROI Min 2022
4,116.43	4,062.77
ROI Max 2023	ROI Max 2022

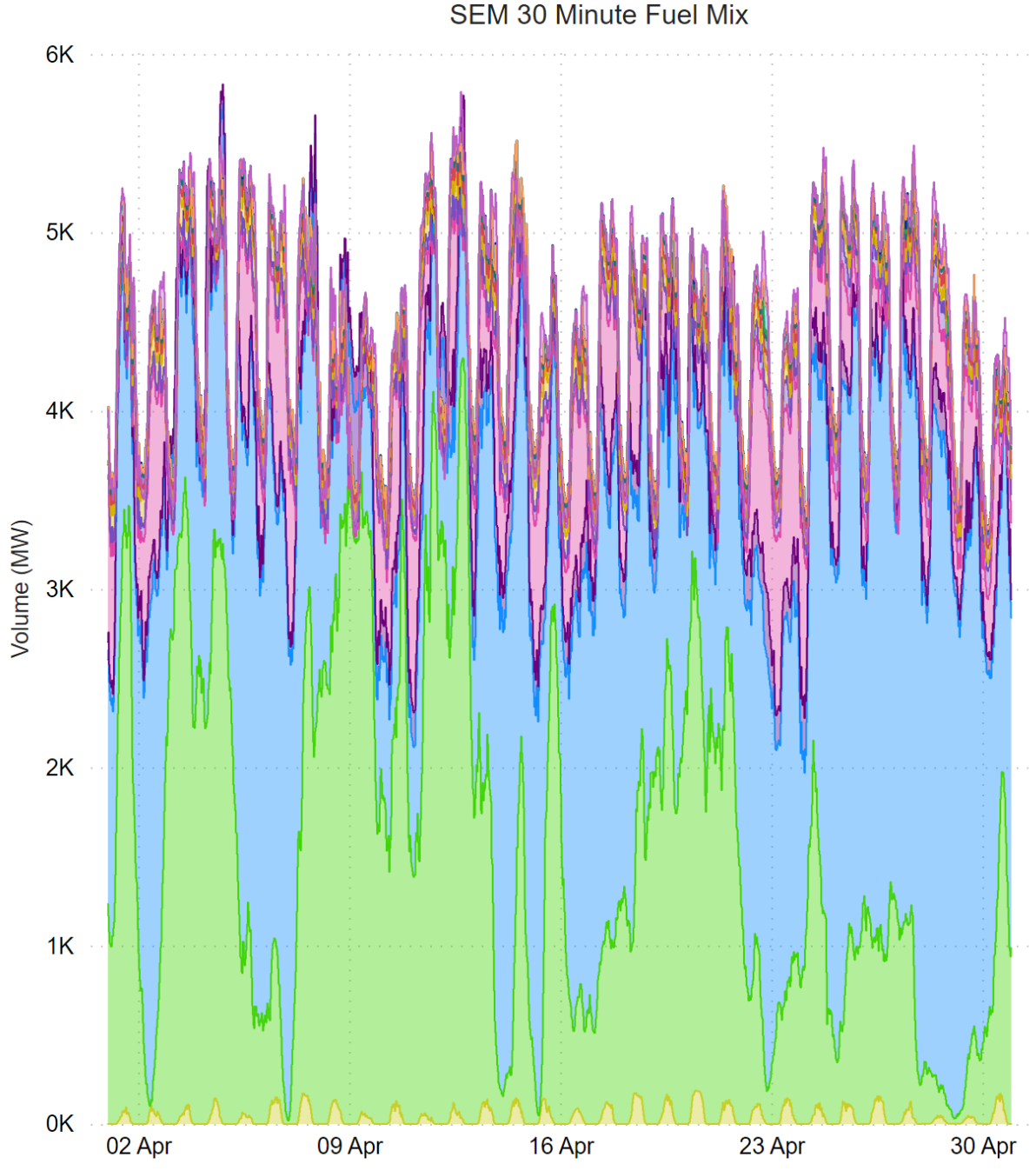
### Monthly Average Hourly Demand Curves



# Fuel Mix April 2023

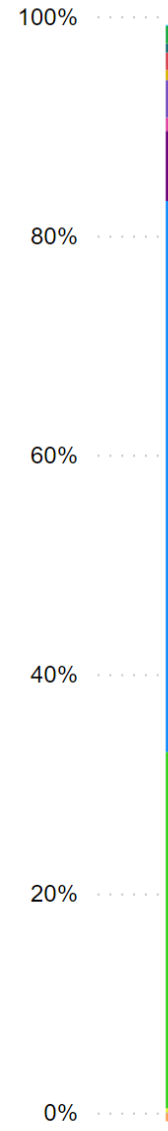
Fuel Type	Average (MW)	%
CCGT	2,044	46.0%
WIND	1,546	34.8%
INTERCONNECTOR	297	6.7%
COAL	174	3.9%
HYDRO	113	2.6%
CHP	85	1.9%
PEAT	71	1.6%
WASTE	65	1.5%
SOLAR	38	0.9%
DSR	28	0.6%
OIL	1	0.0%
OCGT	0	0.0%
BATTERY	-3	-0.1%
PUMPED STORAGE	-20	-0.4%

Fuel Type	Max (MW)	Min (MW)
CCGT	3,762	684
WIND	4,280	17
INTERCONNECTOR	976	-935
COAL	380	94
HYDRO	175	9
CHP	166	0
PEAT	90	0
WASTE	82	16
SOLAR	188	0
DSR	42	0
OIL	154	0
OCGT	12	0
BATTERY	49	-35
PUMPED STORAGE	291	-300

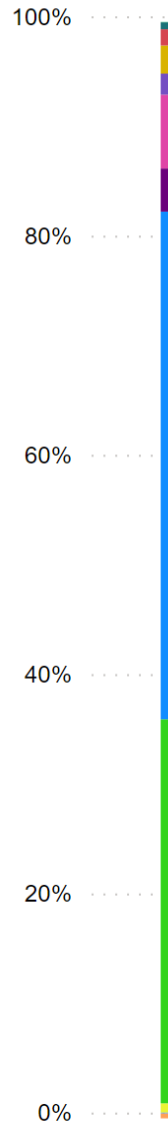


- SOLAR
- WIND
- CCGT
- COAL
- IC
- CHP
- HYDRO
- PEAT
- WASTE
- DSR
- OIL
- OCGT
- BATTERY
- PS

SEM Fuel Mix  
April 2022



SEM Fuel Mix  
April 2023

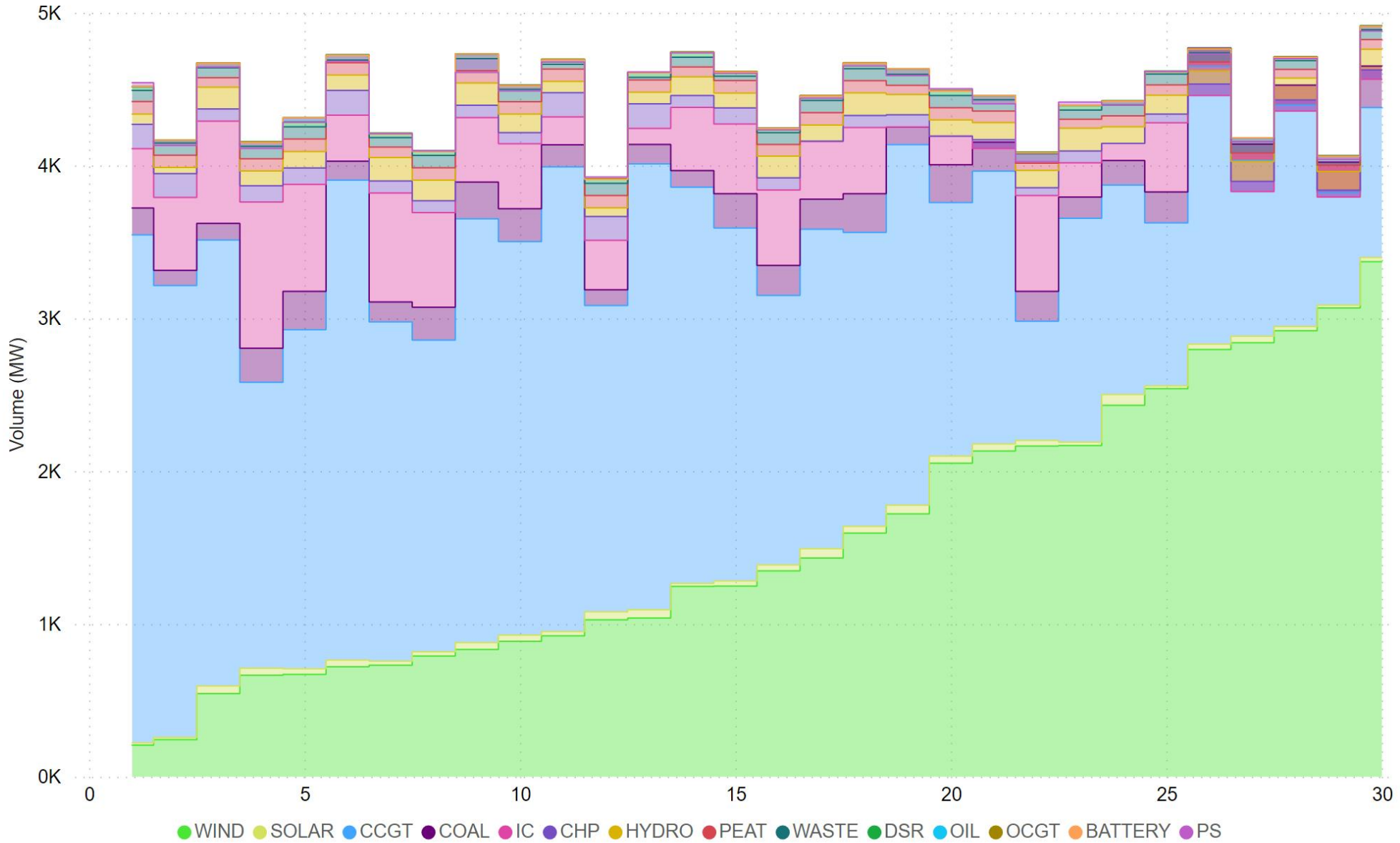




# Fuel Mix Ranked by Wind Volume April 2023

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.

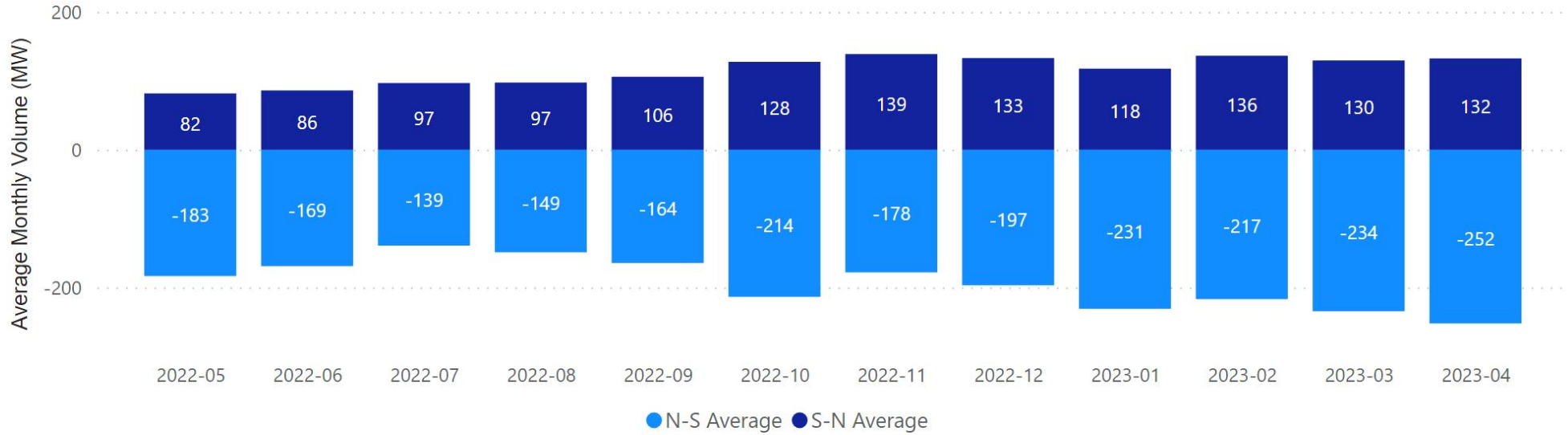
Daily SEM Fuel Mix Ranked by Wind Volume for the Month



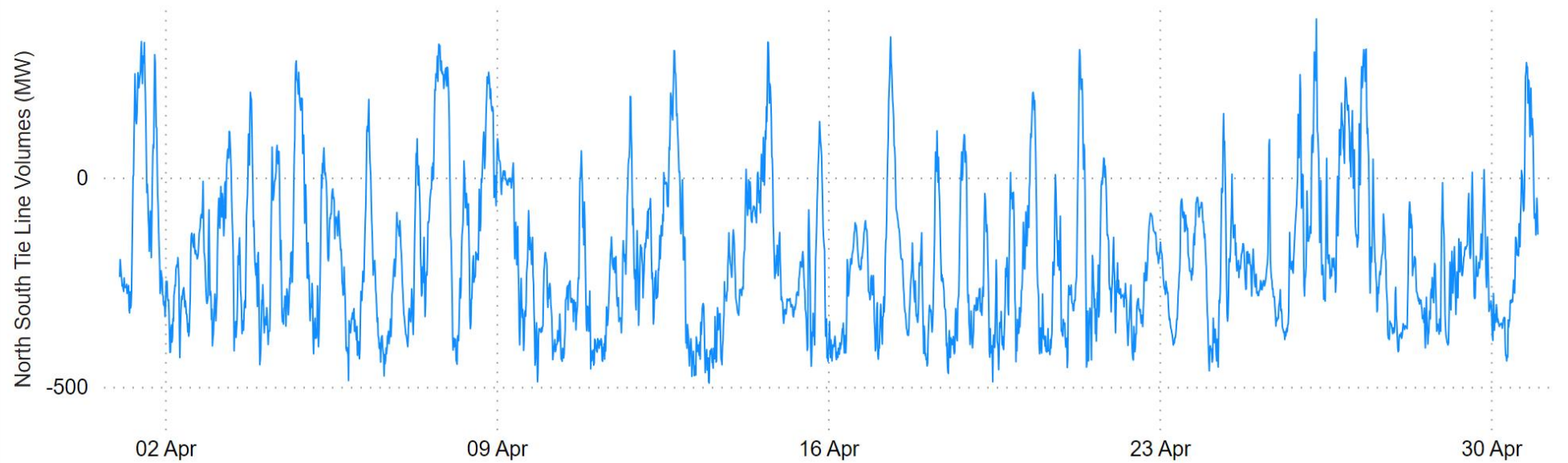
# North-South Tie Line April 2023

Flow Direction (Average)	MW
NI to ROI	252.18
ROI to NI	132.49
NET NI to ROI	194.68

### Average Flows N-S Tie Line Long Term Trend



### North South Tie Line Volumes 15 minute periods



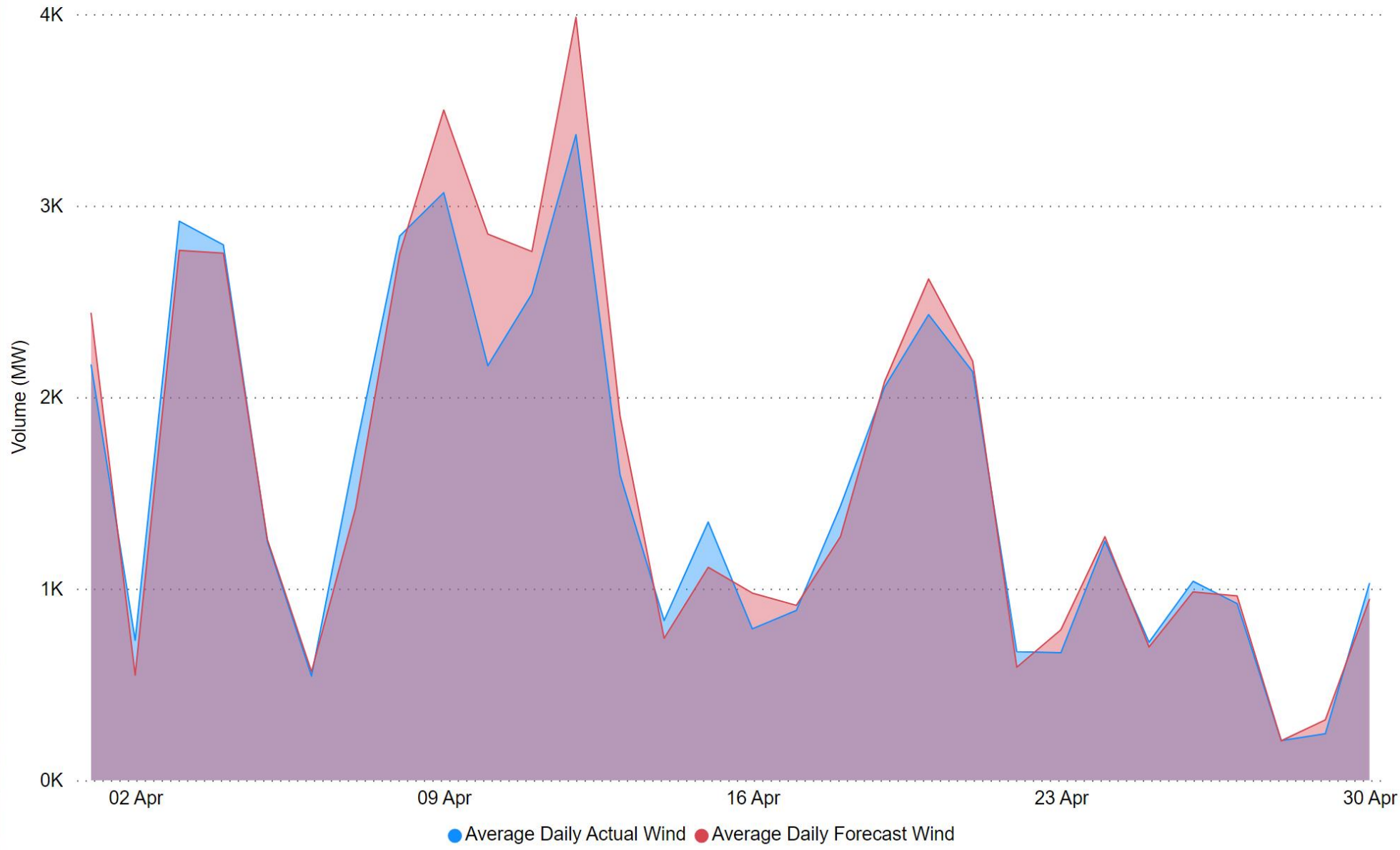


# Wind Generation April 2023

Average Daily Actual Wind (MW)  
1,545

Average Daily Forecast Wind (MW)  
1,605

### Actual Daily Average Wind Relative to Forecast Daily Average Wind

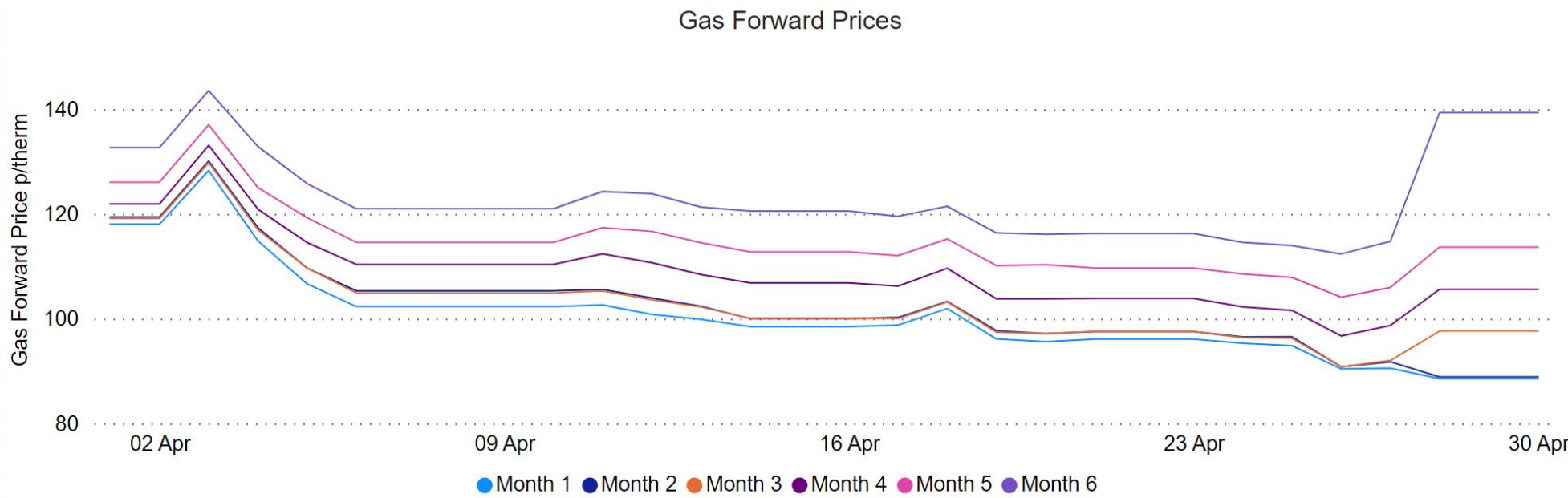
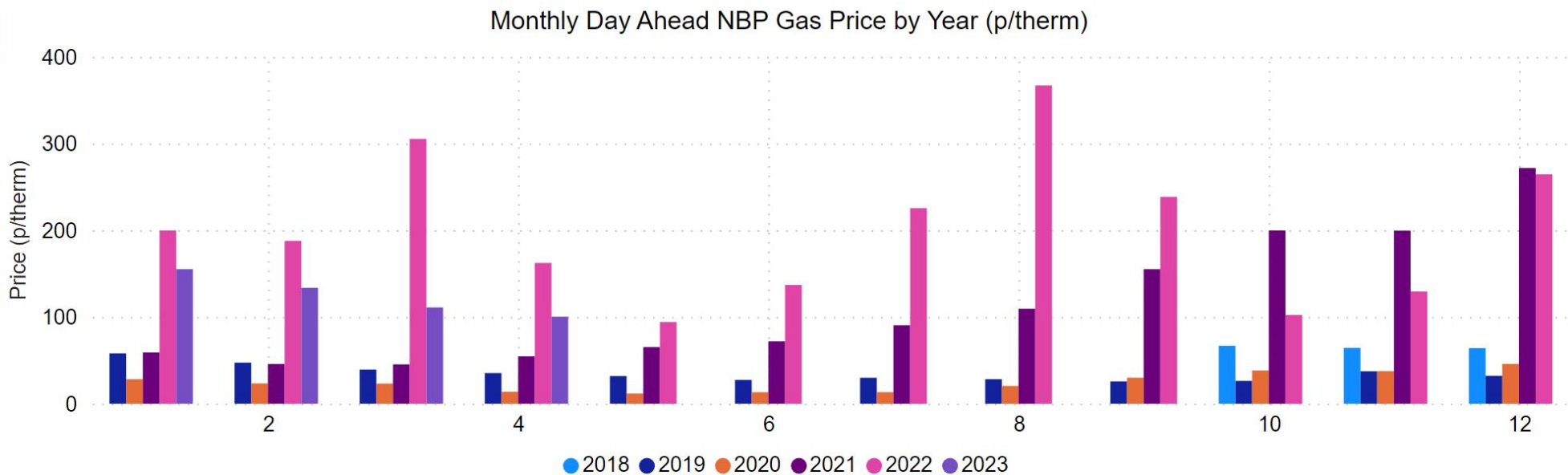


## Fuel Costs and Spreads



# Gas Price April 2023

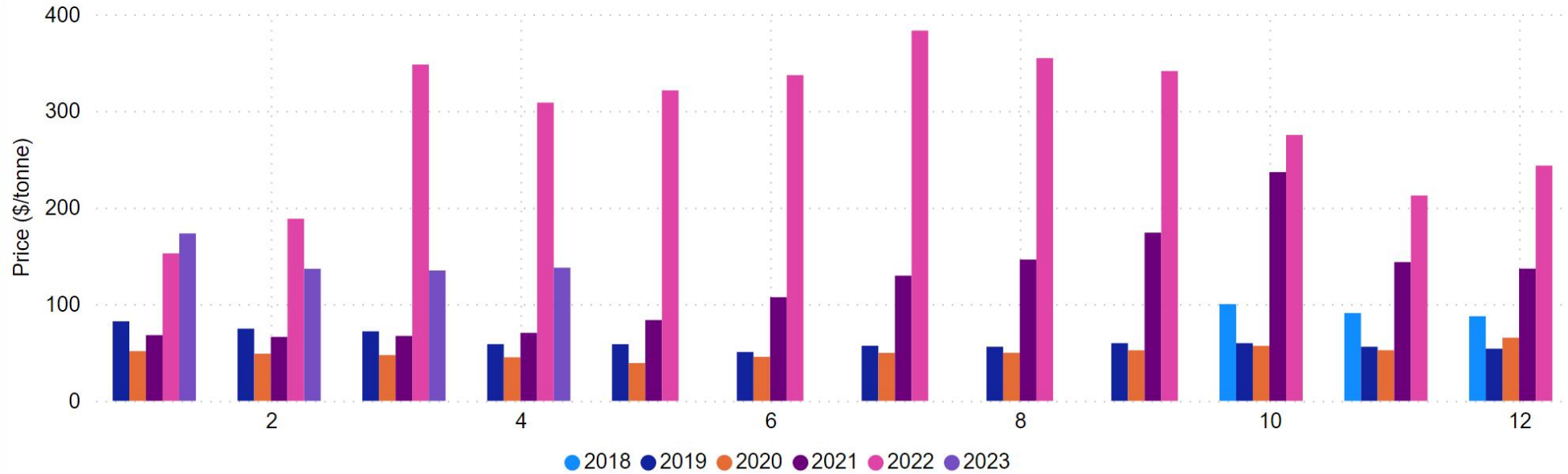
100.32  
Monthly Average (p/therm)  
89.75  
Monthly Low (p/therm)  
127.05  
Monthly High (p/therm)



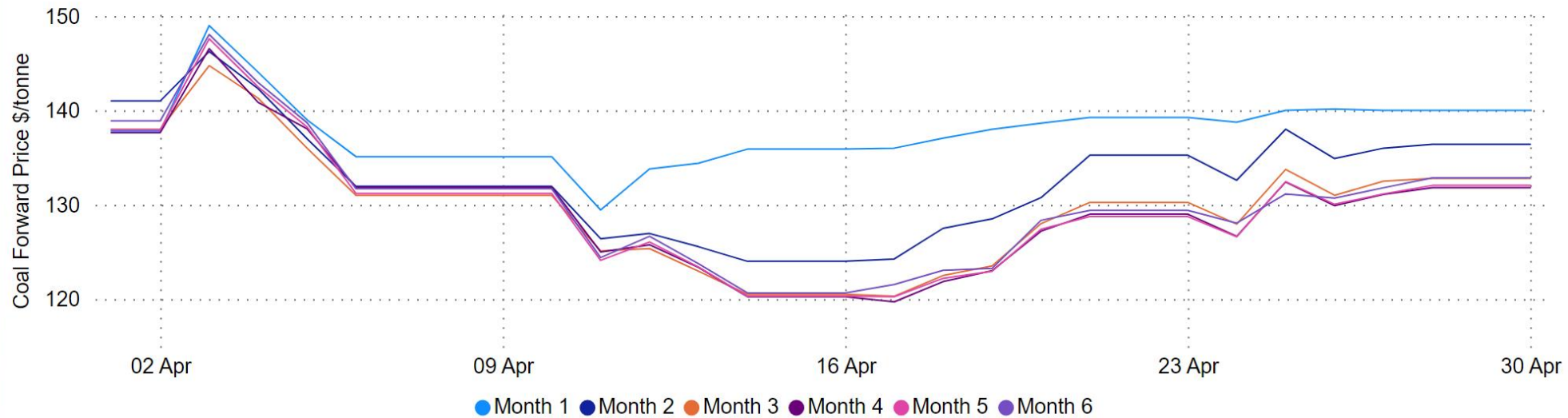
# Coal Price April 2023

\$137.83  
Monthly Average \$/tonne  
\$129.45  
Monthly Low \$/tonne  
\$149.00  
Monthly High \$/tonne

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



Coal Forward Prices

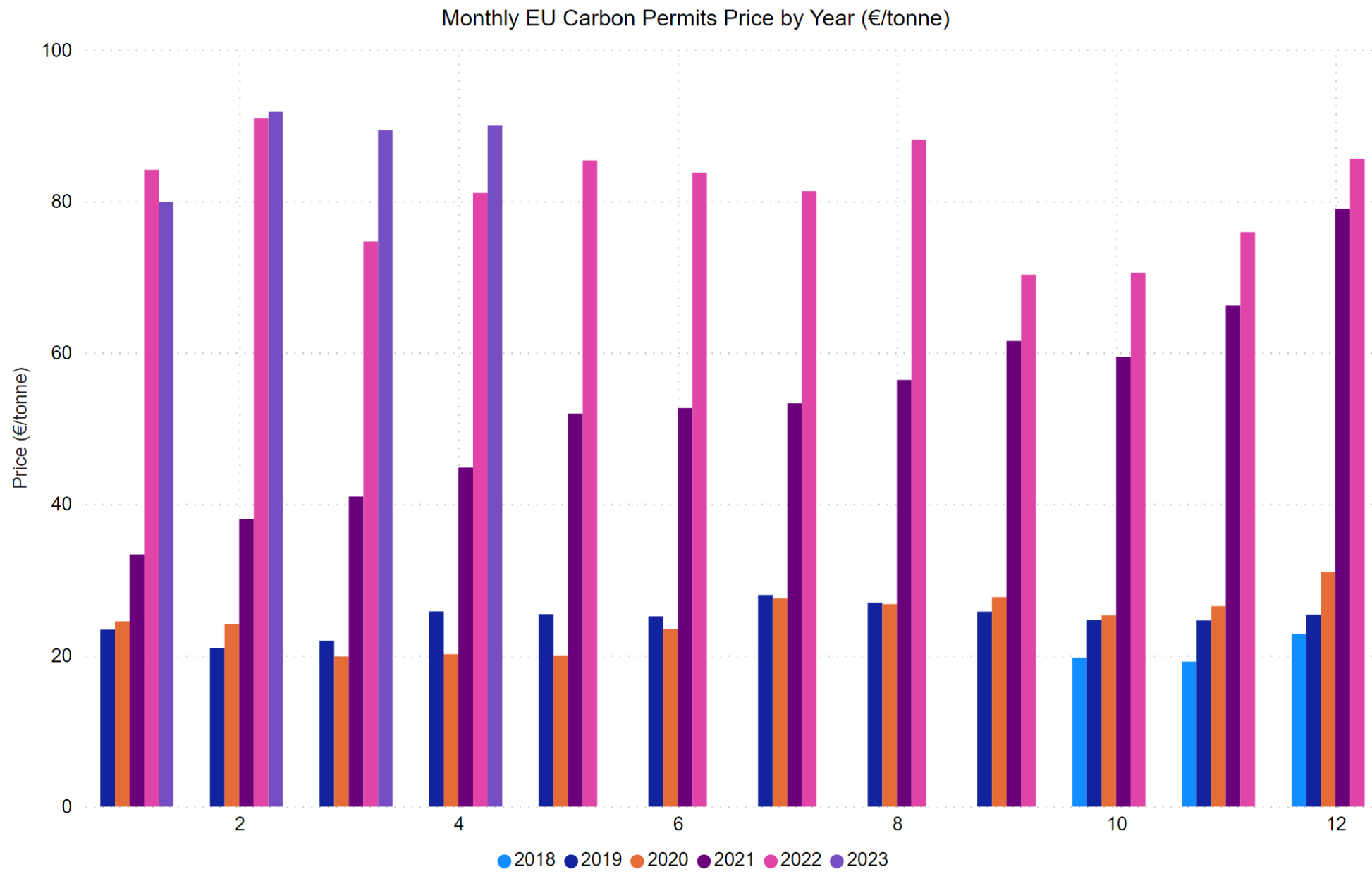


# Carbon Price April 2023

€ 89.98  
Monthly Average €/tonne

€ 83.53  
Monthly Low €/tonne

€ 94.82  
Monthly High €/tonne





# Spark Spreads April 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.

