

2024

# Annual Report



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# Introduction

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Dear Stakeholders, Partners, and Colleagues,

I am pleased to present the 2024 Annual Report of the CROATIAN POWER EXCHANGE Ltd. (CROPEX). This past year has been a transformative one for the energy sector, both within Croatia and across the European Union as for the first time in history wind and solar production in EU in first half of the year overtook the production of electricity from the fossil fuels. As the global energy landscape continues to evolve, CROPEX remains steadfast in its commitment to ensuring a robust, transparent, and efficient electricity market that supports sustainable development and strengthens energy security.

In 2024, Croatia faced an unprecedented summer heat wave, which placed extraordinary demand on the electricity grid and underscored the critical role of well-functioning short-term electricity markets. The extreme weather highlighted the value of real-time market mechanisms that enable rapid responses to changing conditions, ensuring reliable electricity supply and minimizing disruptions. By facilitating efficient price signals and fostering flexibility in the energy system, CROPEX played an important role in maintaining grid stability during these challenging periods.

Our market has grown steadily, with record levels of participation and liquidity, underscoring CROPEX's role as a critical hub in the regional energy ecosystem. Our Day Ahead trading volume rose by almost 40% year on year, Intraday trading volumes almost 20% and we welcomed 4 new companies to CROPEX markets, which presents a significant achievement in the customer relationship management. These successes are not only a testament to our operational excellence but also to the trust and collaboration of our market participants.

During 2024, CROPEX successfully completed a range of impactful projects that have strengthened the Croatian electricity market as well as the European Market.

## **Introduction of 15 MTU on Intraday Market**

In January, CROPEX achieved a significant milestone by introducing 15-minute trading units on the Intraday Market together with cross border market coupling on Croatia – Slovenia and Croatia – Hungary borders. This enhancement marks a pivotal step toward improving market efficiency and aligning with European energy market standards.

The implementation of 15-minute trading intervals provides market participants with greater flexibility and precision in balancing supply and demand, especially in a rapidly evolving energy landscape dominated by intermittent renewable energy sources. This change supports real-time trading, improves grid stability, and enables more efficient integration of renewables into the system

## **Introduction of Spread Block Products on Day-Ahead Market**

In April, CROPEX launched the Spread block product on its Day-Ahead Market. This new order type links a buy and sell block, allowing both to be accepted or rejected together. The product is particularly useful for assets like batteries or storage systems, where charging and discharging periods are managed in tandem. Additionally, the launch increases the number of blocks available per portfolio, enhancing trading flexibility for CROPEX members. This development contributes to more efficient market operations, portfolio management and better optimization of trading strategies.

## **Launch of Intraday Auctions**

In June, CROPEX together with all NEMOs and TSOs has launched the Intraday Auctions (IDA). IDAs represent a new market across the Intraday timeframe enabling the pricing of the cross-border capacity in the Intraday frame. As a new market segment all the IT systems, operational procedures and clearing mechanisms needed to be created in order to establish the new 3 daily auctions at 10:00, 15:00 and 22:00 hours.

## **First hydro GO on CROPEX GO Auction**

In cooperation with the biggest power producer in Croatia, HRVATSKA ELEKTROPRIVREDA d.d. we have delivered the first auction of Croatian hydro guarantees of origin which resulted with a total of 100,000 GOs sold from the hydro power plants with a commissioning date from 05-2016 (electricity produced in January and February 2024 ) at a price of 1.37 EUR/GO.

## Partnership with Iceland Power Exchange ELMA

Supporting the development of other power markets we have achieved a cooperation with ELMA on implementation of the CROPEX Auction System for the purpose of ELMA operation of long term auctions. This represented our second implementation of our Auction System outside of Croatia confirming the quality of the system being developed and used in Croatia.

## CROPEX Educational Workshops

In 2024, CROPEX successfully organized a series of educational workshops to enhance understanding of the Croatian Power Exchange and its role in the energy market with more than 180 participants. The workshops covered topics such as market operations, trading strategies, regulatory developments, guarantees of origin and opportunities within the Croatian and regional energy markets. These events fostered dialogue, shared expertise, and supported market participants, reinforcing CROPEX's commitment to transparency and the development of a competitive energy market in Croatia.

The achievements of 2024 would not have been possible without the unwavering dedication of our team and the support of our partners. Together, we are shaping a sustainable energy future for Croatia and beyond.

Sincerely,



**Ante Mikulić, CEO**

# Chapter 1

## CROPEX MEMBERS

### Overview of New Members in 2024
































The following provides an overview of new members who joined CROPEX markets in 2024.

**Renewable Energy Solutions d.o.o.** joined the Day-Ahead Market and the Intraday Continuous Market, while three members - **Energetick Aps**, **Briz energija d.o.o.**, and **Dynasty Power Europe trgovanje z energenti d.o.o.** - joined the Day-Ahead Market, the Intraday Continuous Market, and the Intraday Auctions Market.

**EPS Trgovanje d.o.o.**, **Vitol Gas and Power BV**, and **MET Austria Energy Trade GmbH** joined the Intraday Continuous Market.

Additionally, twelve members - **Danske Commodities A/S**, **D.TRADING d.o.o.**, **Axpo Trgovina d.o.o.**, **Second Foundation a.s.**, **PETROL d.d.**, **ENNA Next d.o.o.**, **ELEKTRIČNI FINANČNI TIM d.o.o.**, **GEN-I Hrvatska d.o.o.**, **HOLDING SLOVENSKE ELEKTRARNE d.o.o.**, **HRVATSKA ELEKTROPRIVREDA d.d.**, **Interenergo d.o.o.**, and **Vitol Gas and Power BV** - became members of the Intraday Auctions Market.

By the end of 2024, a total of **32** members were active in the Day-Ahead Market, **29** in the Intraday Continuous Market, and **15** in the Intraday Auctions Market. A detailed tabular overview of memberships as of December 31, 2024, is provided below.

	Member		Country	DAM	ID	IDA
1	ALPIQ ENERGY SE		CH	✓	✓	-
2	Axpo Trading Ltd.		CH	✓	✓	✓
3	Briz energija Ltd.		HR	✓	✓	✓
4	Centrica Energy Trading A/S		DK	✓	✓	-
5	ČEZ, a. s.		CZ	✓	✓	-
6	Danske Commodities A/S		DK	✓	✓	✓
7	D.TRADING d.o.o.		UA	✓	✓	✓
8	Dynasty Power Europe trgovanje z energenti d.o.o.		SI	✓	✓	✓
9	ELEKTRIČNI FINANČNI TIM d.o.o.		SI	✓	✓	✓
10	Enel Global Trading S.p.A.		IT	✓	-	-
11	Energetick Aps		DK	✓	✓	✓
12	Energi Danmark A/S		DK	✓	✓	-
13	ENERGOVIA EOOD		BG	✓	✓	-
14	ENNA Next d.o.o.		HR	✓	✓	✓
15	E.ON Energija d.o.o.		HR	✓	✓	-
16	EPS Trgovanje d.o.o.		SI	✓	✓	-
17	GEN-I Hrvatska d.o.o.		HR	✓	✓	✓
18	HOLDING SLOVENSKE ELEKTRARNE d.o.o.		SI	✓	✓	✓
19	HRVATSKA ELEKTROPRIVREDA d.d.		HR	✓	✓	✓
20	Croatian Transmission System Operator Plc.		HR	✓	✓	-
21	CROATIAN ENERGY MARKET OPERATOR Ltd.		HR	✓	✓	-
22	INTERENERGO Ltd.		SI	✓	✓	✓
23	MET Austria Energy Trade GmbH		AT	✓	✓	-
24	MFT Energy A/S		DK	✓	✓	-
25	MVM Partner d.o.o.		HU	✓	✓	-
26	PETROL d.d.		SI	✓	✓	✓
27	RESPECT ENERGY S.A.		PL	✓	-	-
28	Renewable Energy Solutions d.o.o.		HR	✓	✓	-
29	Second Foundation a.s.		CH	✓	✓	✓
30	TrailStone Renewables GmbH		DE	✓	✓	-
31	Vitol Gas and Power BV		NL	✓	✓	✓
32	Winter Wind d.o.o.		HR	✓	-	-

# Chapter 2

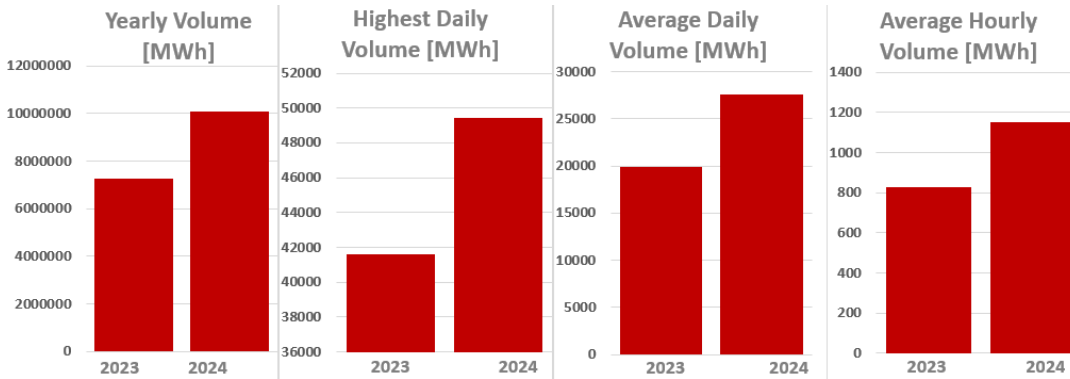
## General 2024 - Trading Data

### CROPEX DAY AHEAD MARKET

Total Traded Volume on Day Ahead Market in **2024** increased compared to **2023**.

In general, an decrease in prices is recorded compared to 2023; both Day Ahead Average Base Price and Average Peak Price.

Volume Traded [MWh]	2024	2023	
Total Volume	10.102.930	7.259.544	39,2 % ↑
Highest Monthly	1.188.751	782.206	52,0 % ↑
Average Monthly	841.911	604.962	39,2 % ↑
Highest Daily	49.432	41.607	18,8 % ↑
Average Daily	27.604	19.889	38,8 % ↑
Highest Hourly	2.728	2.178	25,3 % ↑
Average Hourly	1.150	829	38,7 % ↑



Price [EUR/MWh]	2024	2023	
Base Average	94,69	103,72	8,7 % ↓
Peak Average	95,11	107,01	11,1 % ↓
Highest hourly	902,22	429,78	109,9 % ↑
Lowest hourly	-100,71	-500,00	79,9 % ↑



# CROPEX DAY AHEAD MARKET

## General 2024 data – Monthly Volumes and Prices

### 2024 Volumes [MWh]

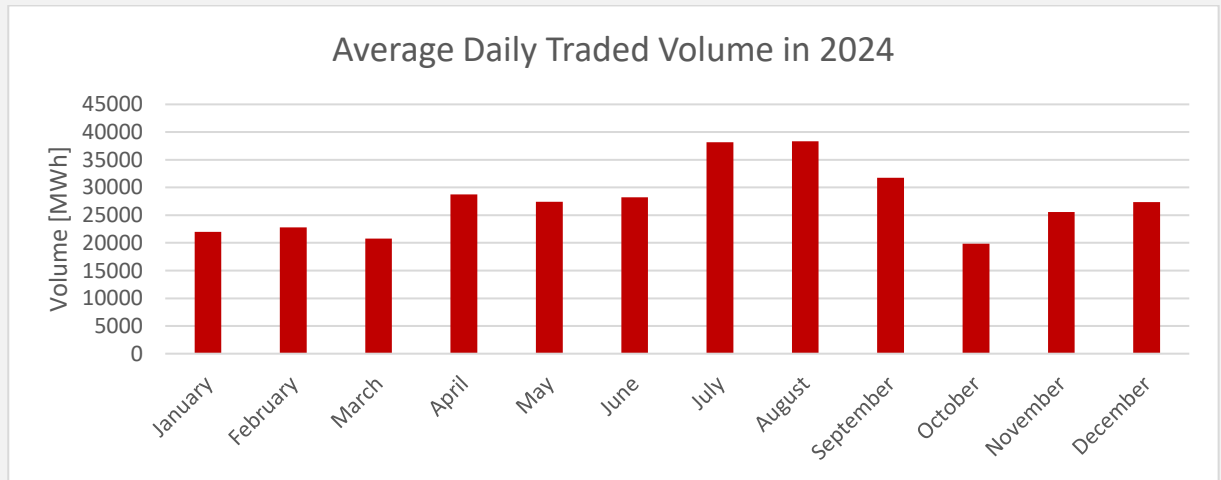
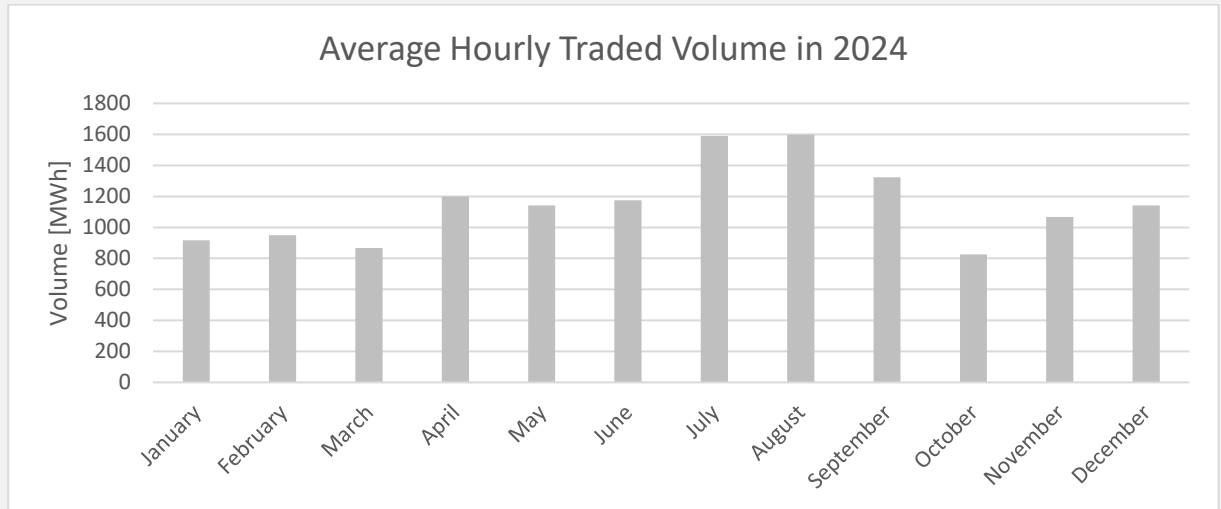
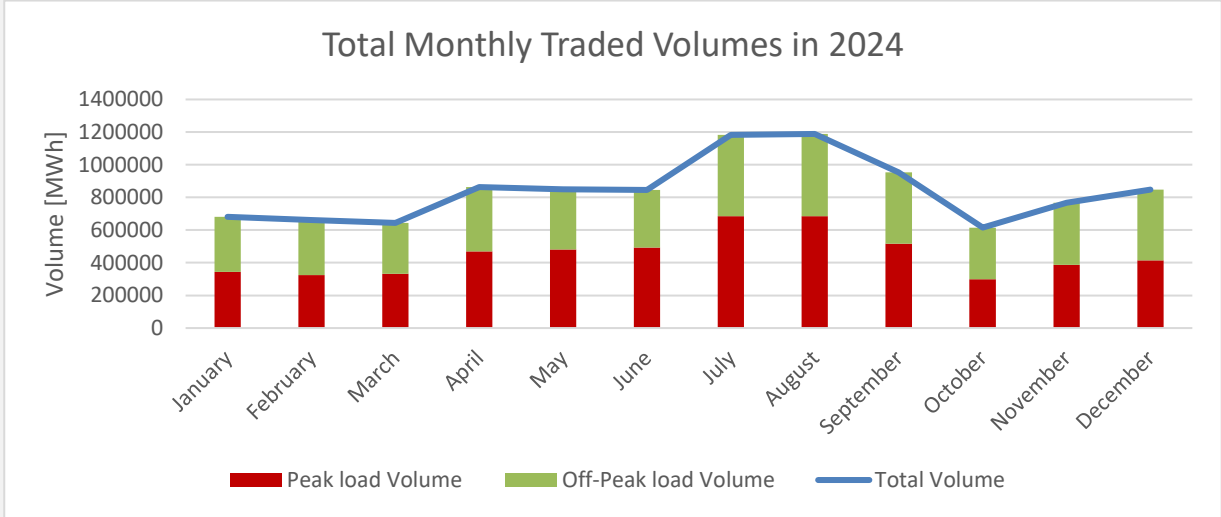
Month	Base Volume	Peak Volume	Off-Peak Volume	Average Daily Traded Volume	Average Hourly Traded Volume
January	681.661,0	344.284,5	337.376,5	21.989,1	916,21
February	660.946,6	324.874,9	336.071,7	22.791,3	949,64
March	643.774,9	332.785,9	310.989,0	20.766,9	866,45
April	863.073,0	469.192,5	393.880,5	28.769,1	1.198,7
May	849.848,8	480.534,5	369.314,3	27.414,5	1.142,3
June	846.304,0	492.314,6	353.989,4	28.210,1	1.175,4
July	1.183.405,5	686.010,6	497.394,9	38.174,4	1.590,6
August	1.188.751,0	684.601,9	504.149,1	38.346,8	1.597,8
September	953.277,0	516.144,0	437.133,0	31.775,9	1.324,0
October	615.393,0	298.561,8	315.942,9	19.851,4	826,03
November	767.787,7	387.955,7	379.832,0	25.592,9	1.066,4
December	848.707,9	414.744,0	433.963,9	27.377,7	1.140,7

### 2024 Prices [EUR/MWh]

Month	Average Baseload Price	Average Peak Price	Average Off-Peak Price	Hourly Minimum Price	Hourly Maximum Price
January	83,98	93,85	74,12	0,00	148,58
February	67,81	72,73	62,88	7,25	127,38
March	64,37	63,08	65,49	-3,01	162,66
April	60,18	49,55	70,81	-65,06	195,88
May	74,54	58,88	90,19	-100,71	200,56
June	96,75	79,83	113,67	-69,34	578,73
July	106,06	90,46	121,69	-64,11	228,60
August	113,66	104,19	123,31	-36,62	887,07
September	97,95	99,80	96,09	-3,95	902,22
October	88,80	95,46	82,17	-11,87	274,56
November	144,79	170,88	118,69	44,92	716,43
December	136,30	162,00	110,59	10,87	822,55

**CROPEX  
DAY AHEAD  
MARKET**

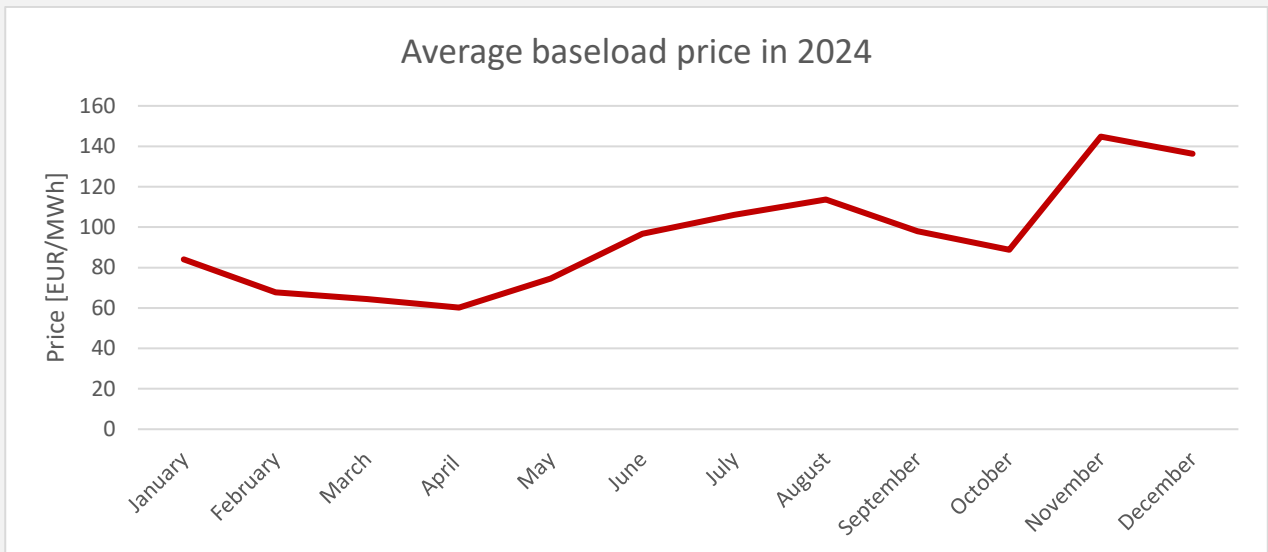
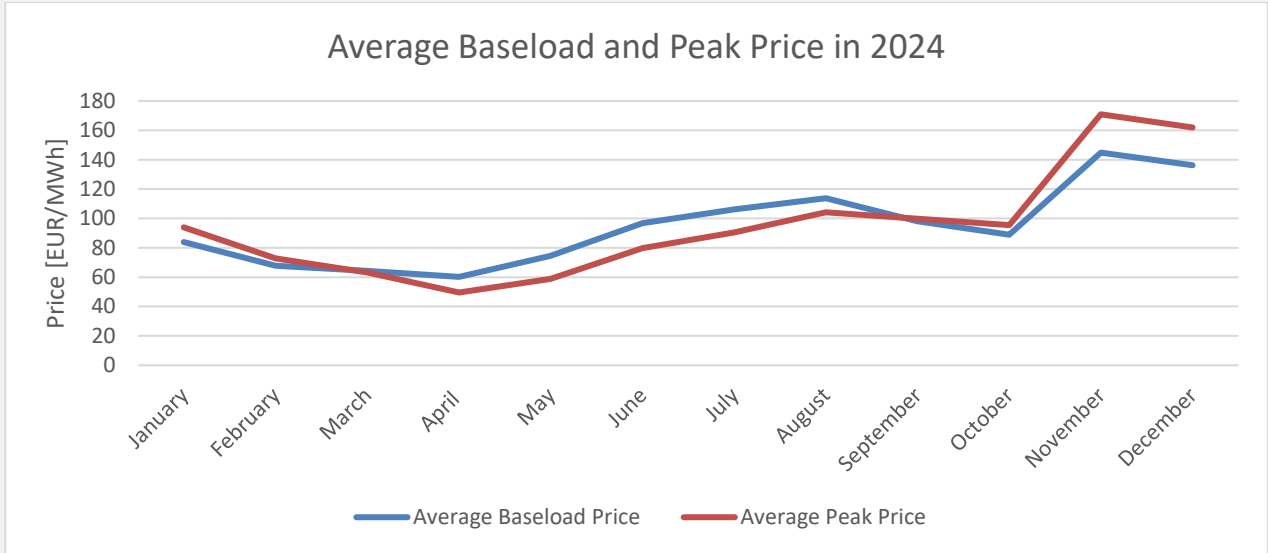
**2024 Charts – Volumes**



# CROPEX DAY AHEAD MARKET

## 2024 Data – Prices

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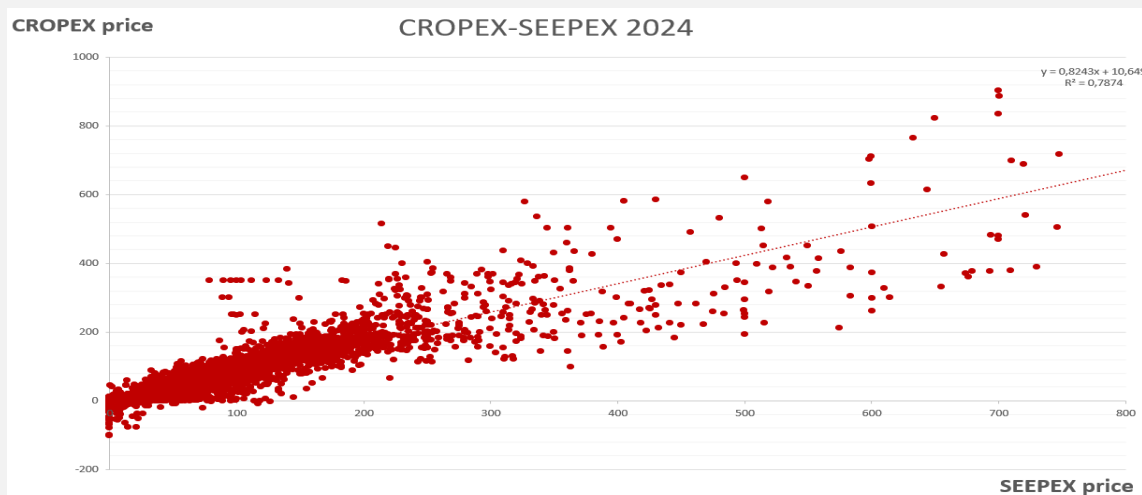
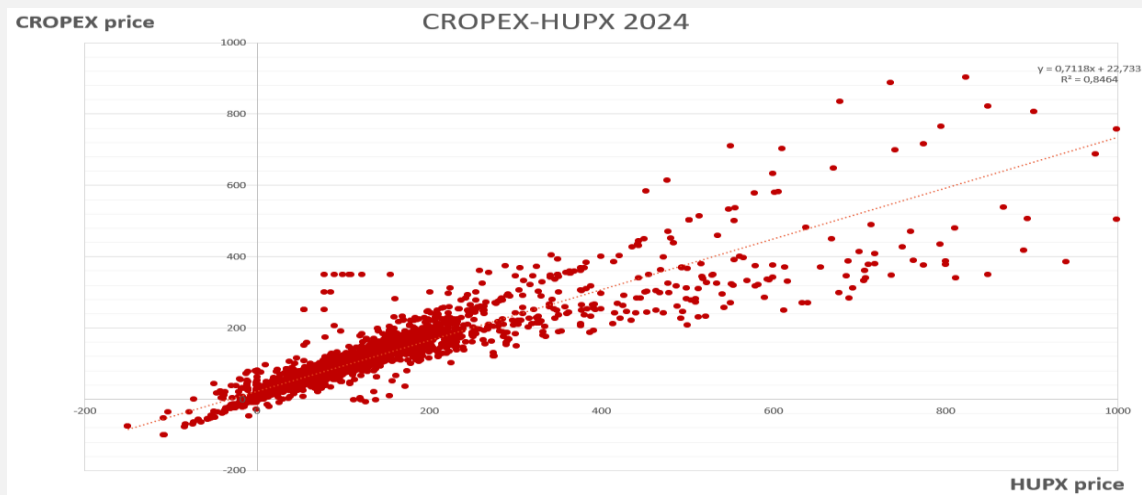
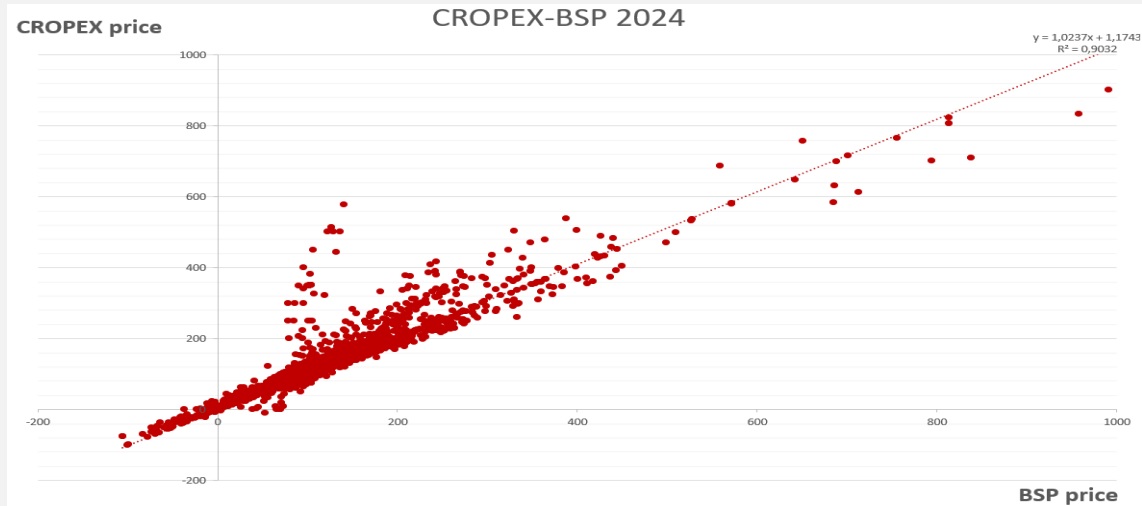


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# CROPEX DAY AHEAD MARKET

## 2024 Data – Price Comparison



## CROPEX DAY AHEAD MARKET

### Liquidity Indicators

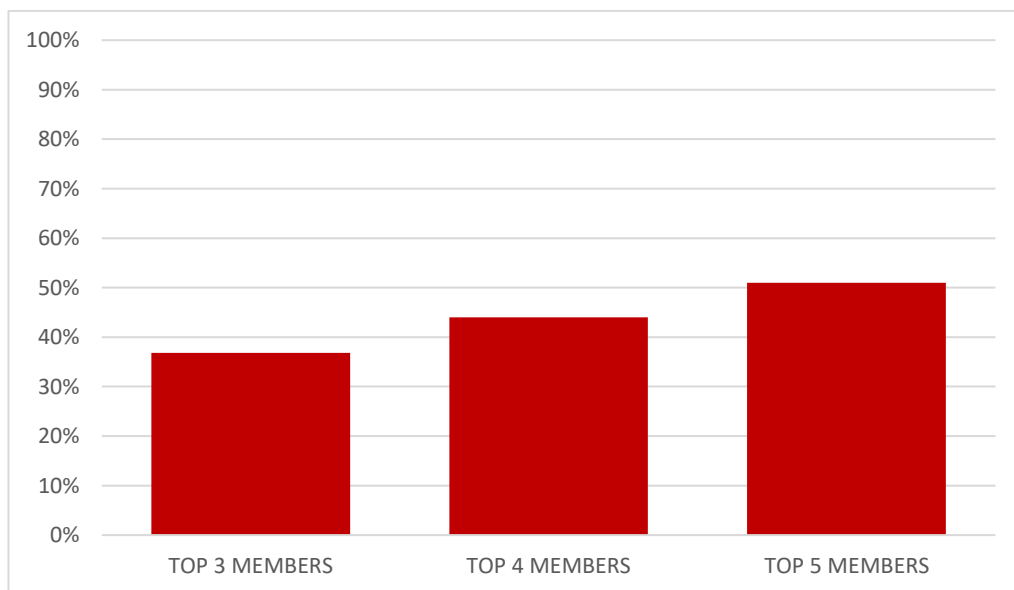
Market with the **Herfindahl–Hirschman Index** of less than 1.000 considers to be a competitive marketplace, an HHI of 1.000 to 1.800 considers to be a moderately concentrated marketplace and an HHI of 1.800 or greater considers to be a highly concentrated marketplace.

Herfindahl–Hirschman Index	
Buy	756
Sell	1.100
<b>Total</b>	<b>755</b>

According to the HHI analysis **CROPEX Day Ahead Market** is a **competitive market**, thus providing all the Members enough liquidity for their trading activities.

**Concentration ratio** (“CR”) is a traditional structural measure of market concentration based on market shares, for the concentration ratio “CR3” measures the total market shares of the top 3 Members, by Trading Volume.

#### Concentration Ratios – CR3, CR4, CR5



A concentration ratio that ranges from 0% to 50% indicates that the market is perfectly competitive and is considered a low concentration.

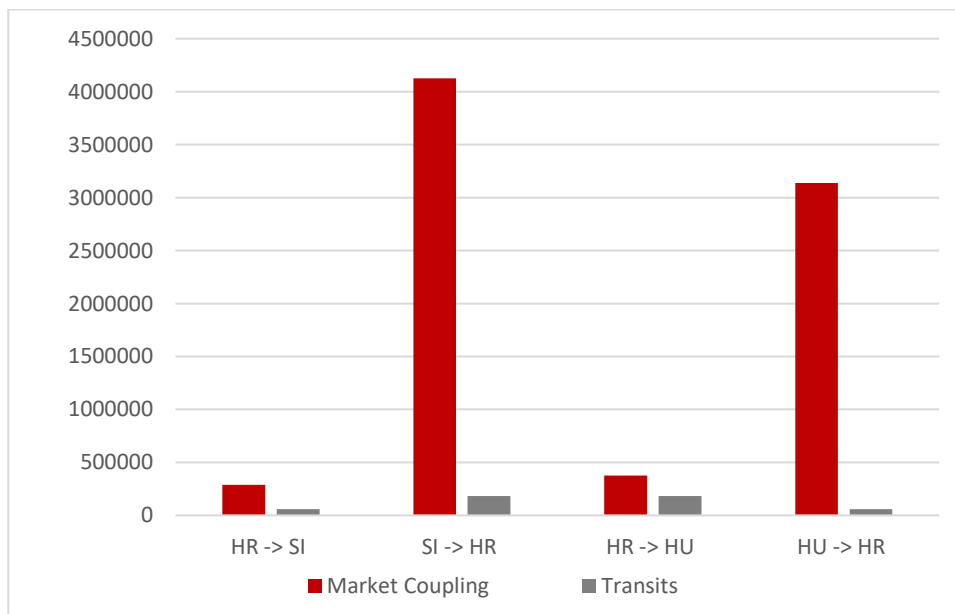
# CROPEX DAY AHEAD MARKET

## Market Coupling

Since **2018**, Croatian Day Ahead Market is coupled to the European SDAC market via **Croatian-Slovenian** border, while from **June 2022**, it is coupled via **Croatian-Hungarian** border as well.

Volume [MWh]	2024
<b>CROPEX Volume Traded</b>	<b>10.102.930</b>
<b>Market Coupling Total Volume</b>	<b>7.929.987,9</b>
Market Coupling flow HR -> SI	289.215,5
Market Coupling flow SI -> HR	4.126.844,8
Market Coupling flow HR -> HU	375.334,4
Market Coupling flow HU -> HR	3.138.593,2
<b>Transit Total Volume</b>	<b>485.520,8</b>
Transit HR -> SI	59.168,5
Transit SI -> HR	183.591,9
Transit HR -> HU	183.591,9
Transit HU -> HR	59.168,5

### Market Coupling and Transit Volumes



# Chapter 3

## General 2024 - Trading Data

### CROPEX INTRADAY CONTINUOUS MARKET

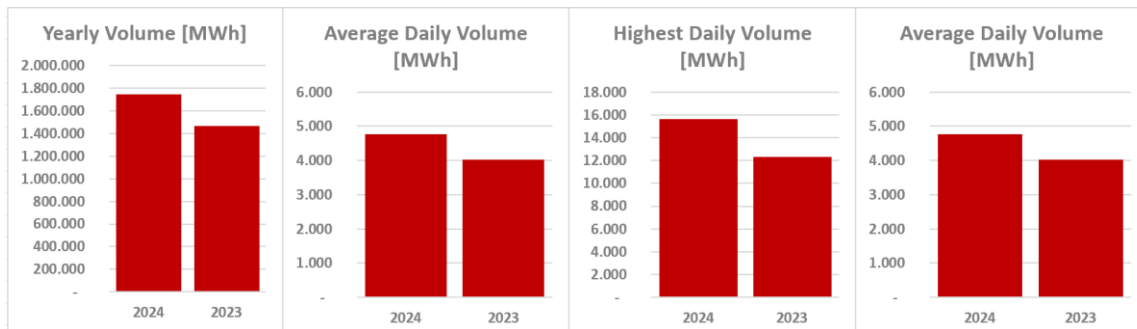
Following the successful coupling through SIDC in 2019, CROPEX Intraday Market continued with its growth in 2024, with record volumes achieved on a yearly, monthly, daily, and hourly basis. 15-minute products were introduced to the Intraday Continuous Market in January.

The total annual Intraday volume for 60-minute and 15-minute products was **1.744.986 MWh**.

Additionally, with the successful introduction of the API service in 2021, an increase in the number of **API trades** was recorded in **2024**, resulting in **75% of API trades out of total trade**.

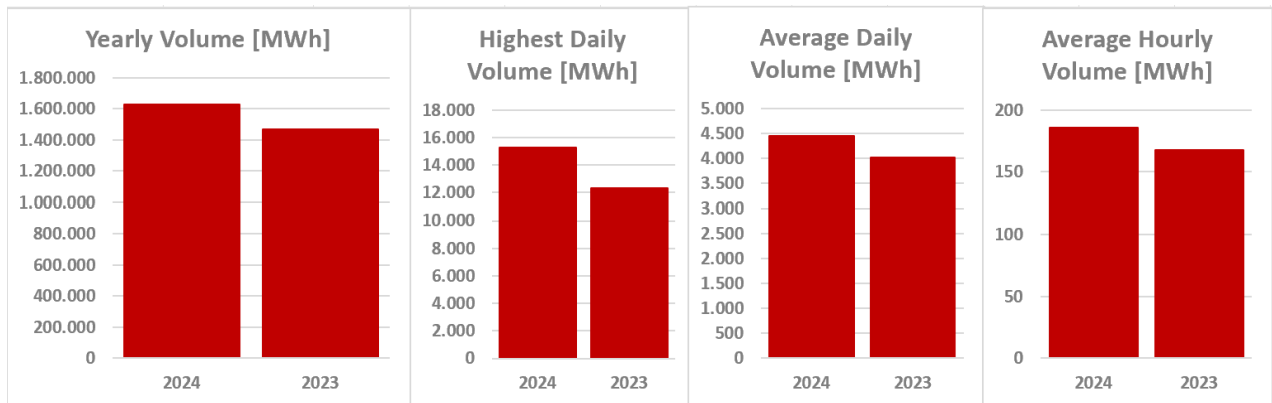
### Total Annual Intraday volume

Volume Traded - [MWh]	2024	2023	
Total	1.744.986	1.468.253	18,8 % ↑
Highest Monthly	204.388	160.247	27,5 % ↑
Average Monthly	145.416	122.354	18,8 % ↑
Highest Daily	15.646	12.341	26,8 % ↑
Average Daily	4.768	4.023	18,5 % ↑



### 60-minute Intraday Products

Volume Traded - [MWh]	2024	2023	
Total	1.628.338	1.468.253	10,9 % ↑
Highest Monthly	188.147	160.247	17,4 % ↑
Average Monthly	135.695	122.354	10,9 % ↑
Highest Daily	15.250	12.341	23,6 % ↑
Average Daily	4.452	4.023	10,7 % ↑
Highest Hourly	1.592	1.093	45,7 % ↑
Average Hourly	186	168	10,7 % ↑



Price [EUR/MWh]	2024	2023	
Volume Weighted Average Price	97,34	105,48	-7,7 % ↓
Highest Trade Price	1.251,90	725,00	72,7 % ↑
Lowest Trade Price	-1.000,00	-379,99	163,2 % ↓
Number of Trades	749.904,00	587.740	27,6 % ↑



**CROPEX  
INTRADAY  
CONTINUOUS  
MARKET**

**General 2024 - 60-minute Data – Monthly  
Volumes and Prices**

**2024 Volumes [MWh]**

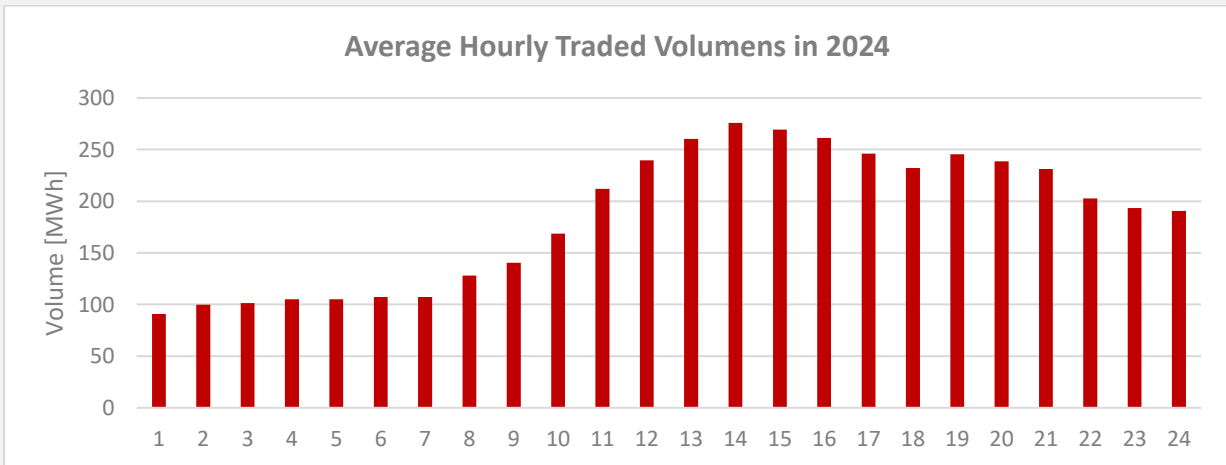
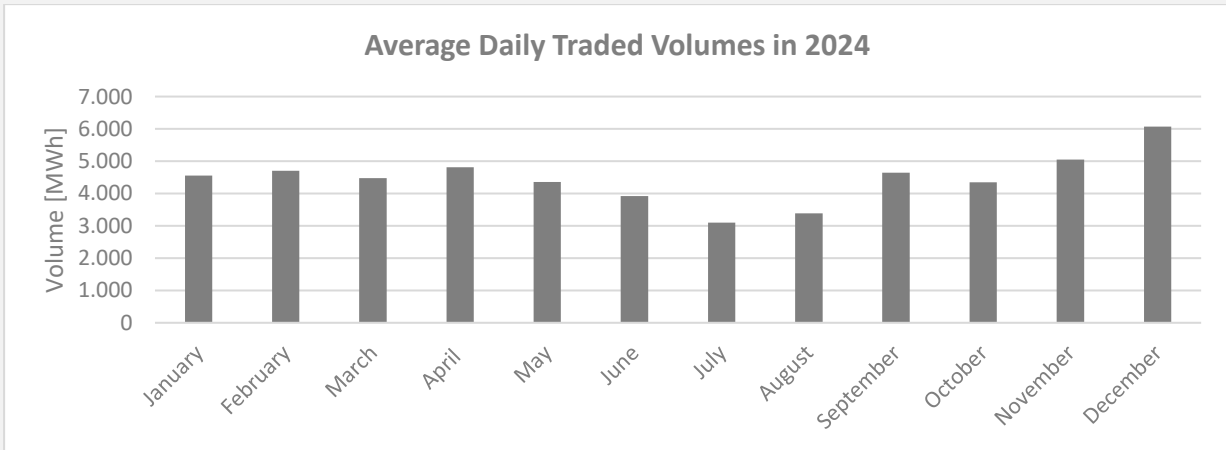
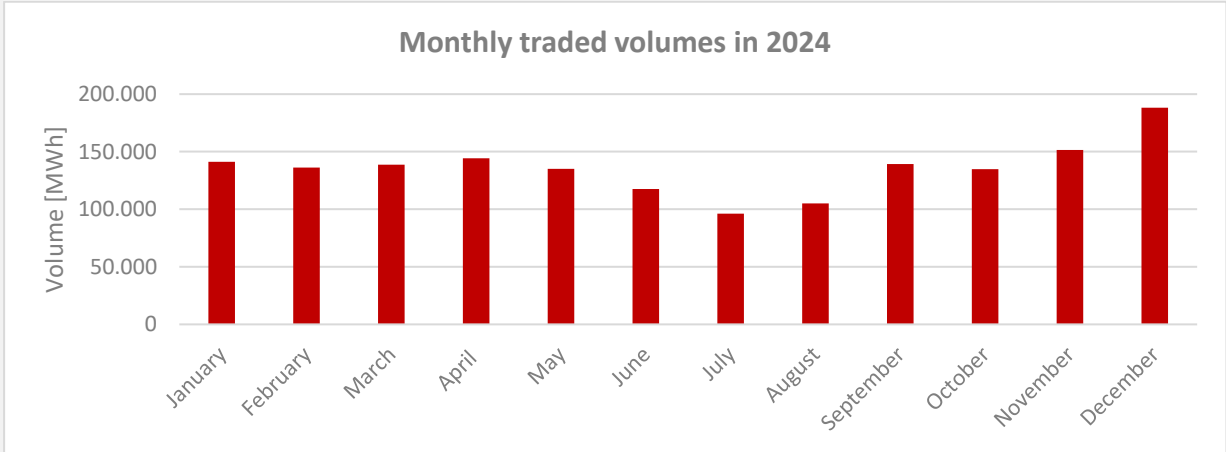
Month	Total Traded Volume	Highest Daily Traded Volume	Average Daily Traded Volume	Highest Hourly Traded Volume	Average Hourly Traded Volume
January	141.275	7.847	4.557	809	190
February	136.306	11.053	4.700	771	196
March	138.774	9.195	4.477	996	187
April	144.385	8.507	4.813	758	201
May	135.067	7.221	4.357	822	182
June	117.698	13.449	3.923	1.592	163
July	96.114	10.671	3.100	913	129
August	104.986	6.619	3.387	637	141
September	139.281	7.645	4.643	751	193
October	134.749	8.309	4.347	1.067	181
November	151.557	8.048	5.052	918	210
December	188.147	15.250	6.069	1.069	253

**2024 Prices [EUR/MWh]**

Month	Weighted Average Price	Peak Weighted Average Price	Off-Peak Weighted Average Price	Lowest Trade Price	Highest Trade Price
January	87,80	97,79	77,81	-10	239
February	69,52	74,33	64,70	-12	177
March	65,50	63,63	67,35	-1000	181
April	60,71	50,20	71,21	-144	268
May	76,69	58,96	94,42	-174	320
June	93,65	78,96	108,33	-29	420
July	110,09	95,50	124,68	-111	999
August	121,40	114,39	128,41	-600	1252
September	99,26	101,32	97,19	-109	1200
October	91,52	99,56	83,53	-45	320
November	152,01	184,68	119,34	30	1055
December	140,00	167,60	112,40	62	201

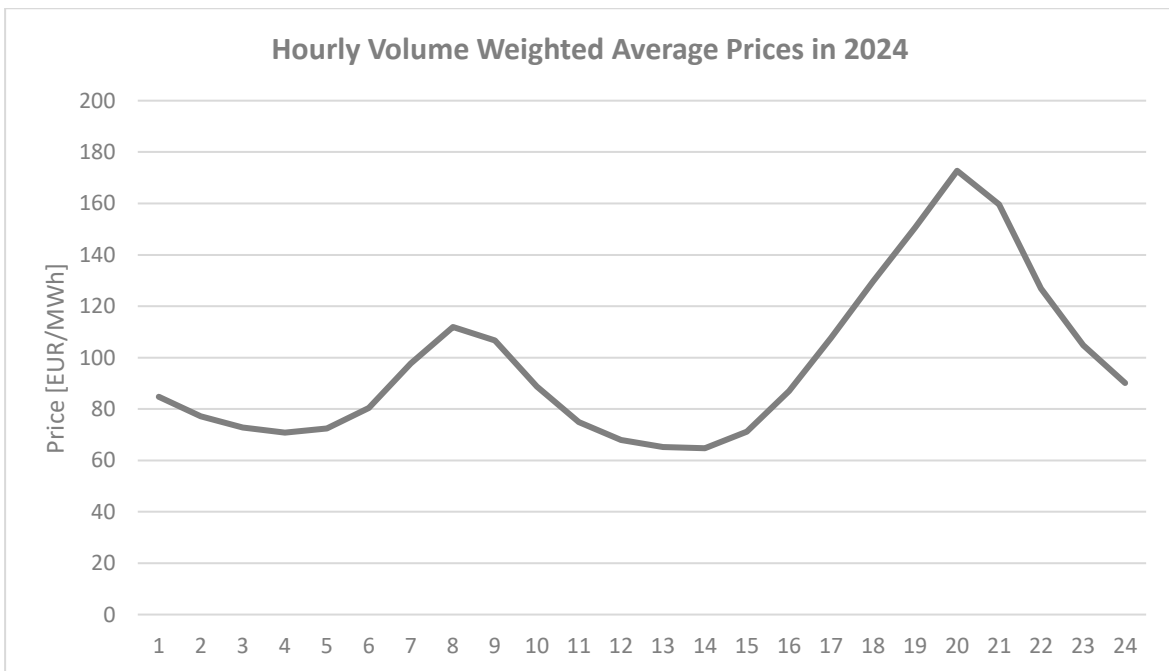
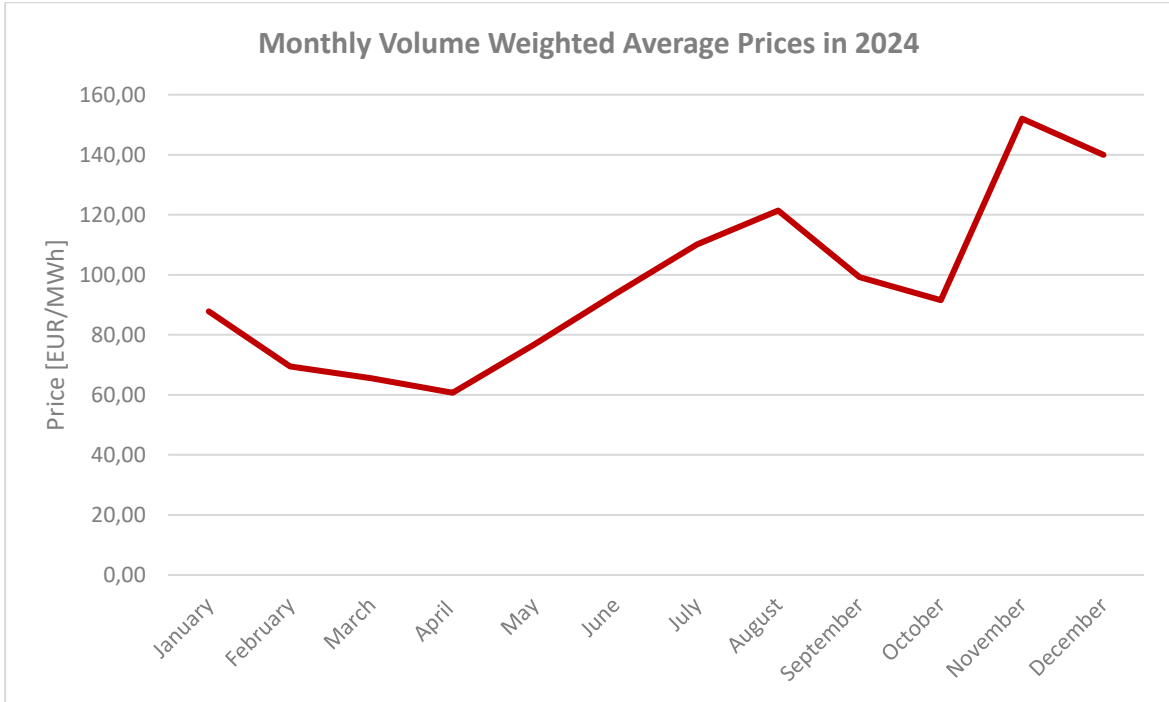
**CROPEX  
INTRADAY  
CONTINUOUS  
MARKET**

**2024 Charts – Volumes - 60-minute**



**CROPEX  
INTRADAY  
CONTINUOUS  
MARKET**

**2024 Charts – Prices - 60-minute**



\* Volume Weighted Average Price for completed trades per product – total sum, calculated as sum of each transaction volume multiplied with corresponding price, divided by the total volume

**CROPEX  
INTRADAY  
CONTINUOUS  
MARKET**

**General 2024 - 15-minute Data – Monthly  
Volumes and Prices**

**15-minute Intraday Products**

Volume Traded - [MWh]	2024
Total	116.648,10
Highest Monthly	16.241,13
Average Monthly	9.720,68
Highest Daily	825,93
Average Quarterly	318,19
Highest Quarterly	98,80
Average Quarterly	3,31

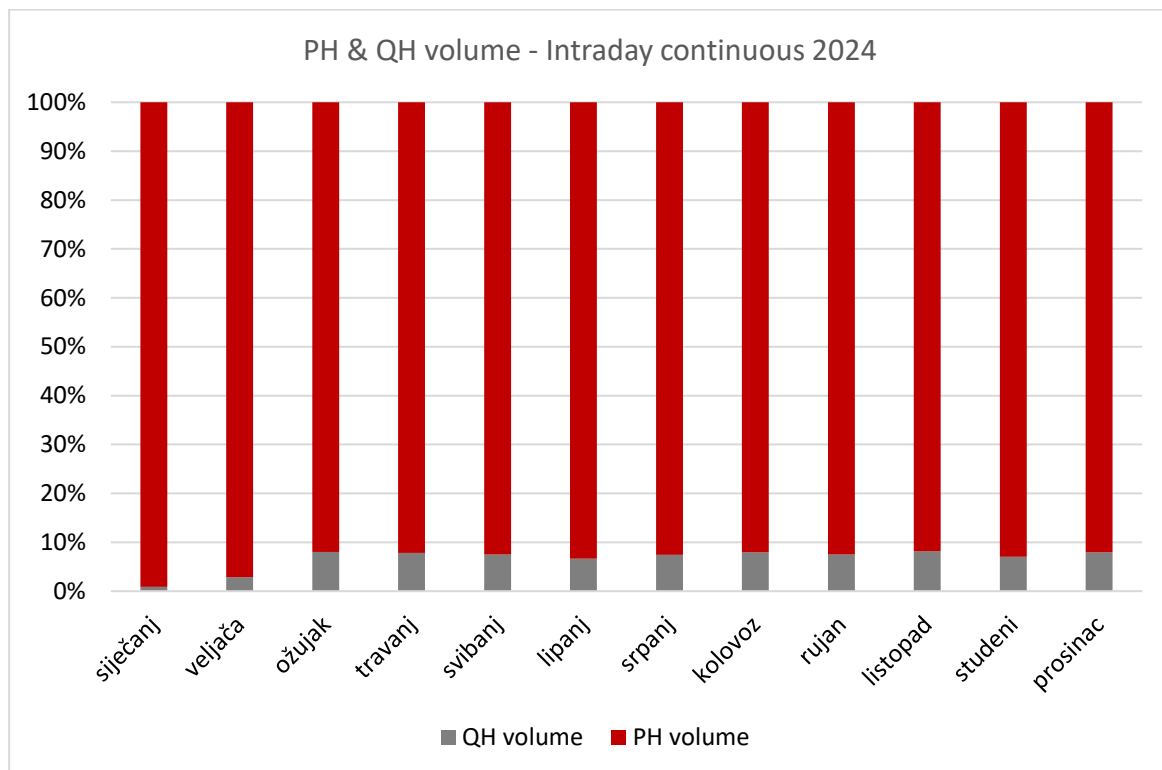
Price [EUR/MWh]	2024
Volume Weighted Average Price	81,57
Highest Trade Price	1.443,50
Lowest Trade Price	-348,99
Number of Trades	677.652,00

**2024 Volumes [MWh]**

Month	Total Traded Volume	Highest Daily Traded Volume	Average Daily Traded Volume	Highest Quarterly Traded Volume	Average Quarterly Traded Volume
January	1.266	141	41	15	0,43
February	3.985	580	137	63	1,43
March	12.101	624	390	73	4,07
April	12.206	687	407	74	4,24
May	10.957	657	353	30	3,68
June	8.349	625	278	23	2,90
July	7.681	467	248	33	2,58
August	9.100	605	294	23	3,06
September	11.306	664	377	26	3,93
October	12.011	570	387	19	4,03
November	11.444	576	381	99	3,97
December	16.241	826	524	30	5,46

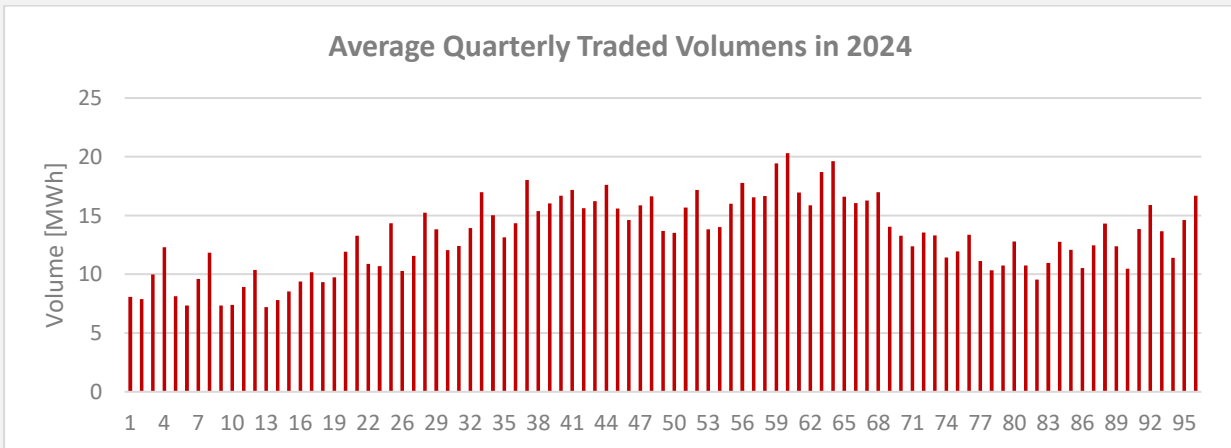
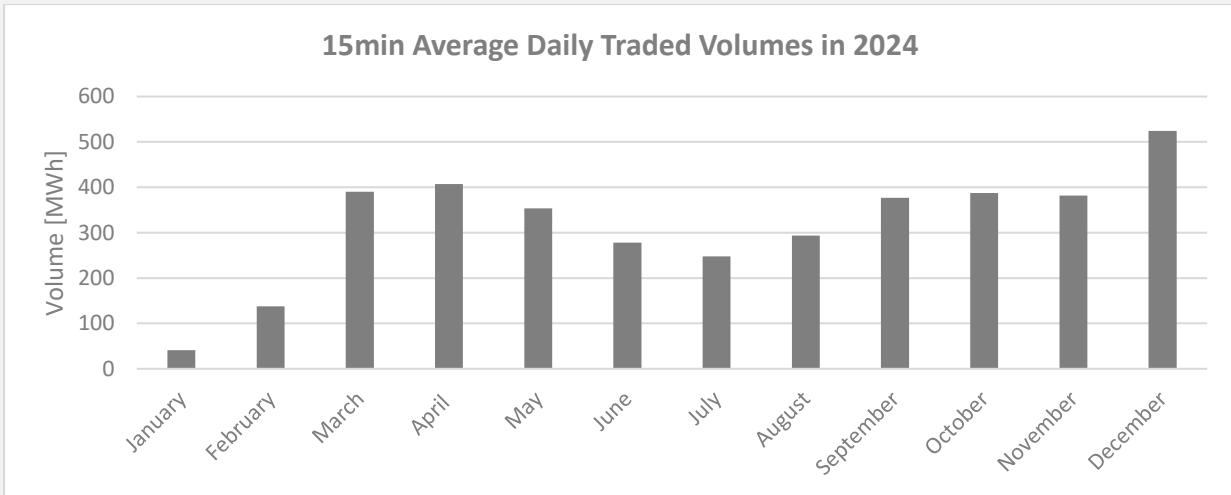
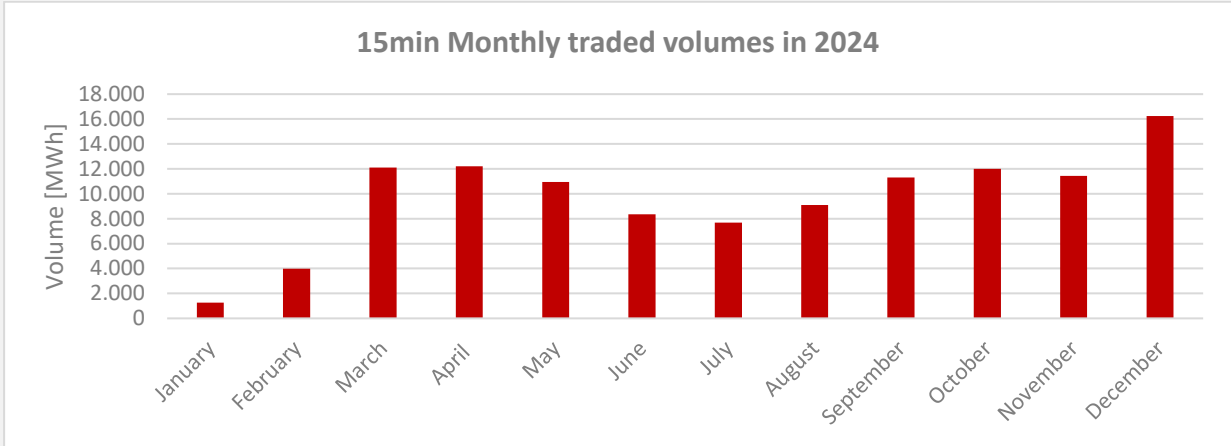
### 2024 Prices [EUR/MWh]

Month	Weighted Average Price	Peak Weighted Average Price	Off-Peak Weighted Average Price	Lowest Trade Price	Highest Trade Price
January	13,49	16,67	10,32	-4	299
February	28,96	34,40	23,52	-90	228
March	67,64	67,18	68,09	-120	249
April	63,57	53,23	73,91	-192	459
May	77,27	60,21	94,32	-349	422
June	85,93	76,78	95,08	-174	900
July	81,09	71,23	90,95	-148	1065
August	103,37	98,43	108,30	-101	1125
September	85,49	87,28	83,69	-200	1156
October	88,83	96,28	81,34	-87	581
November	144,59	172,23	116,94	-1	1444
December	138,68	165,71	111,65	-21	1439



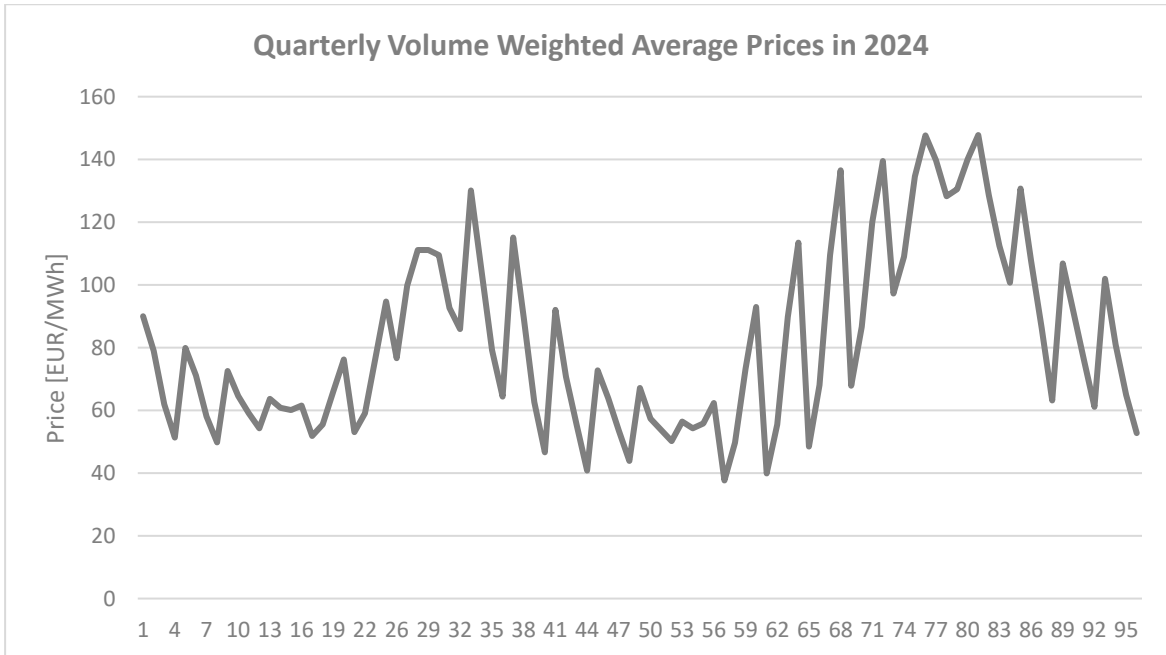
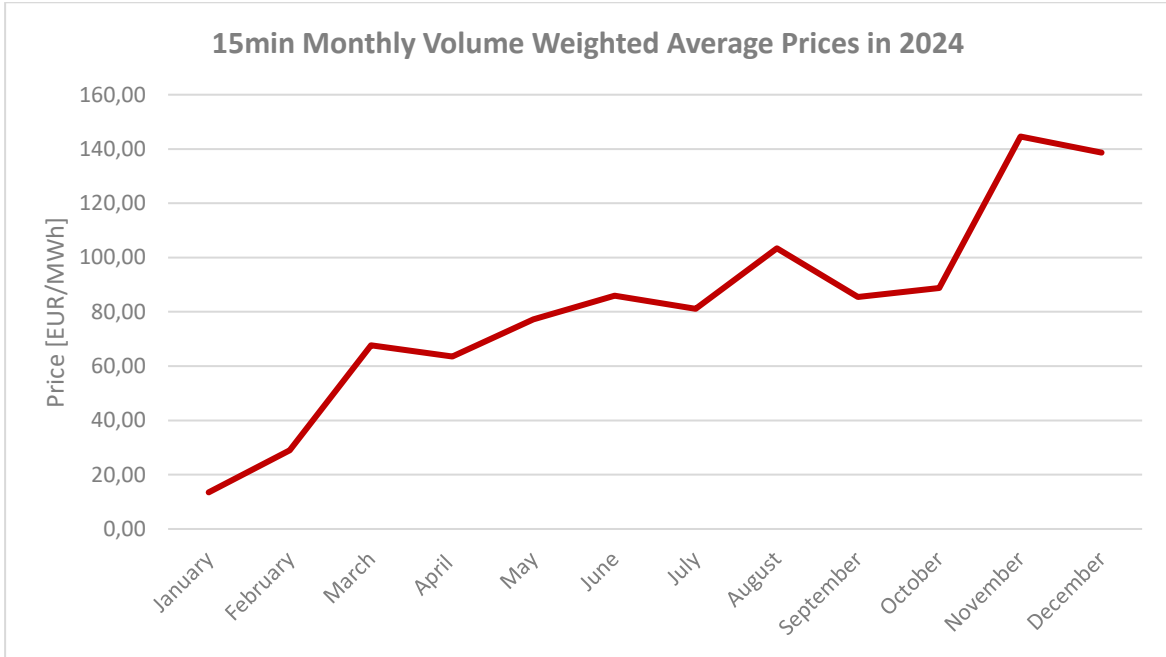
**CROPEX  
INTRADAY  
CONTINUOUS  
MARKET**

**2024 Charts – Volumes – 15-minutes**



**CROPEX  
INTRADAY  
CONTINUOUS  
MARKET**

**2023 Charts – Prices – 15 - minutes**



\* Volume Weighted Average Price for completed trades per product – total sum, calculated as sum of each transaction volume multiplied with corresponding price, divided by the total volume

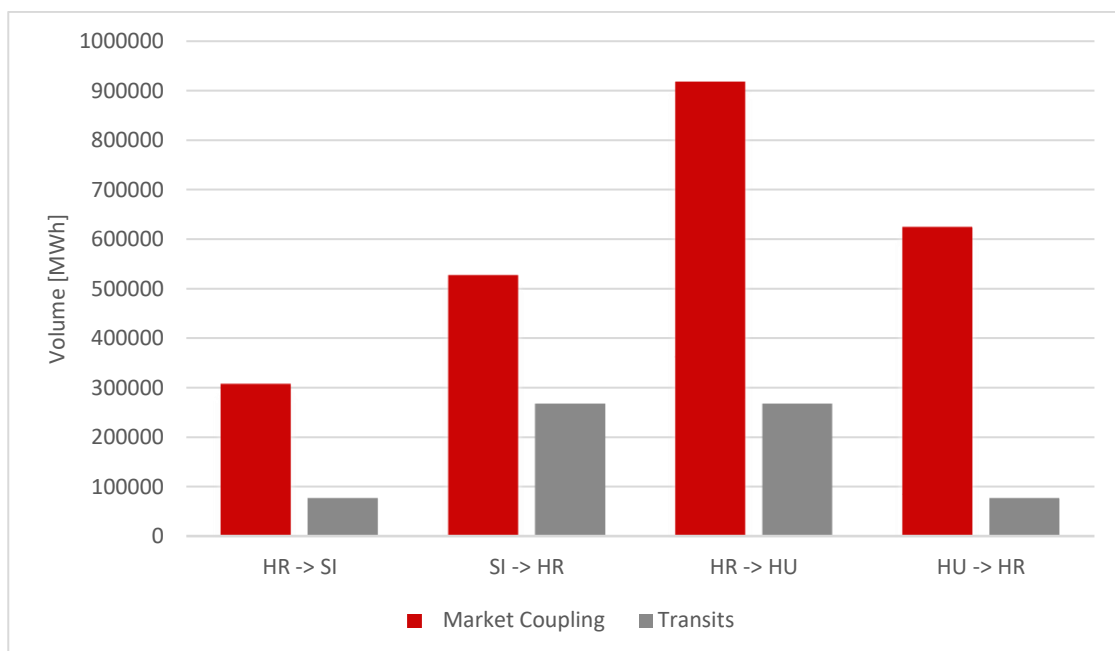
# CROPEX INTRADAY CONTINUOUS MARKET

## Market Coupling

Since **2019**, Croatian Intraday Market is coupled to European SIDC market via **Croatian-Slovenian** and **Croatian-Hungarian** borders.

Volume [MWh]	2024
<b>CROPEX Volume Traded (60 min + 15 min)</b>	<b>1.744.986</b>
<b>Market Coupling Total Volume</b>	<b>2.374.736</b>
Market Coupling flow HR -> SI	307.595
Market Coupling flow SI -> HR	526.698
Market Coupling flow HR -> HU	916.424
Market Coupling flow HU -> HR	624.020
<b>Transit Total Volume</b>	<b>684.117</b>
Transit HR -> SI	76.543
Transit SI -> HR	265.515
Transit HR -> HU	265.515
Transit HU -> HR	76.543

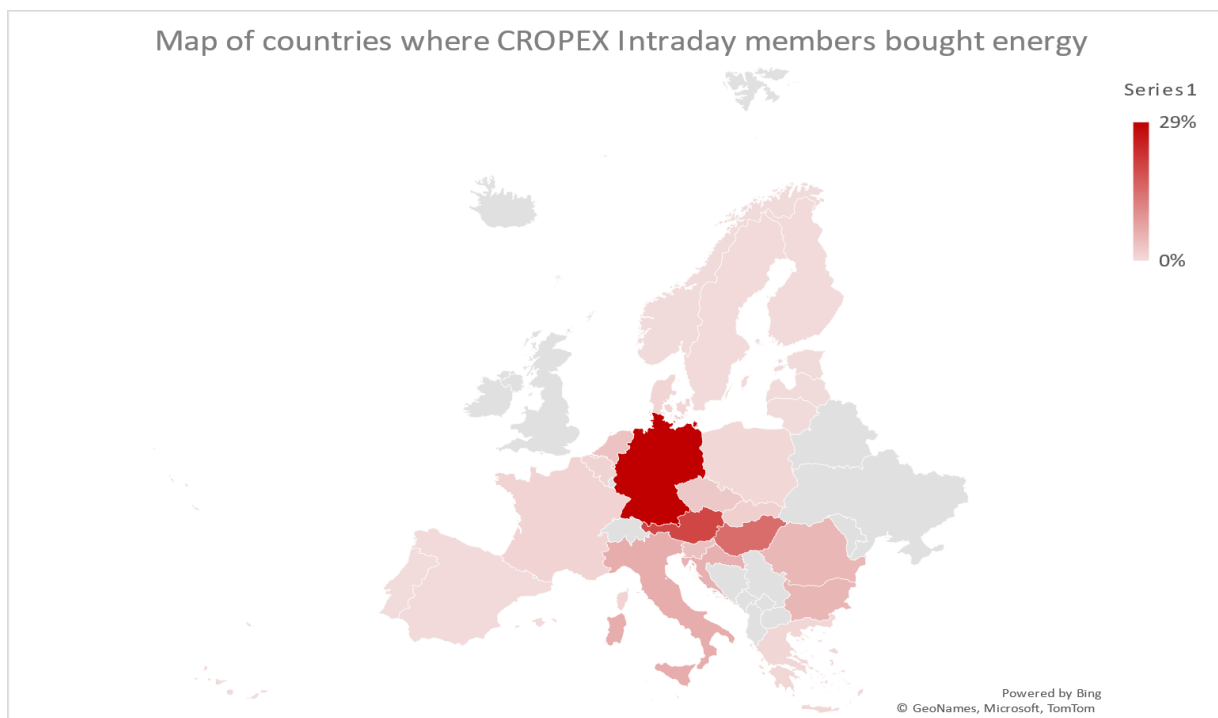
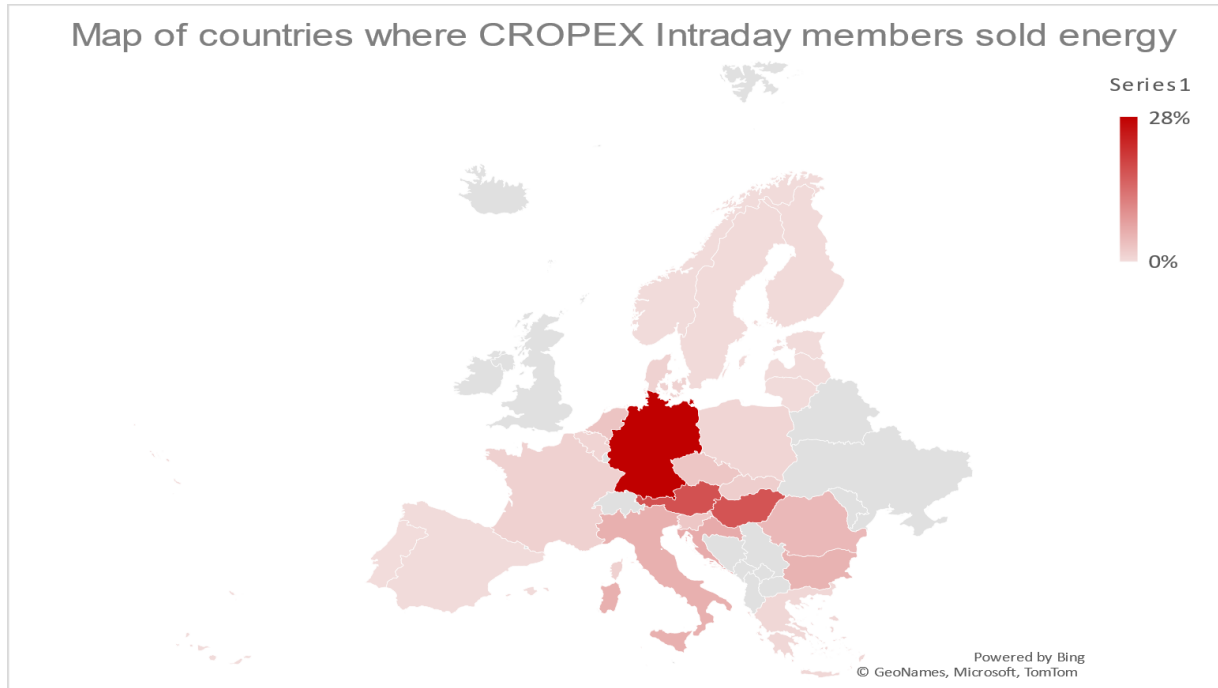
### Market Coupling and Transit Volumes





# CROPEX INTRADAY CONTINUOUS MARKET

## 2024 Map of countries where CROPEX Intraday members sold and bought energy



# Chapter 4

## General 2024 - Trading Data

### CROPEX INTRADAY AUCTIONS

2024 marked the launch of Intraday Auctions on 13<sup>th</sup> of June with delivery day 14<sup>th</sup> of June.

The IDAs enhanced the Single Intraday Coupling (SIDC) by introducing a new pricing mechanism for intraday capacity, complementing the current continuous trading method.

Volume Traded [MWh]	IDA1	IDA2	IDA3
Total Volume	8.316,5	16.008,4	2.526,4
Highest Monthly	1.695,3	2.887,5	465,5
Average Monthly	1.188,1	2.286,9	360,9
Highest Daily	178,7	2.523,5	226,2
Average Daily	43,1	81,4	13,2
Highest Hourly	19	210,5	17,5

Price [EUR/MWh]	IDA1	IDA2	IDA3
Base Average	115,58	109,93	130,01
Peak Average	116,27	114,79	-
Highest hourly	9.999	1.239,81	5.025
Lowest hourly	-120,68	-4.914,50	-4.991

**CROPEX  
INTRADAY  
AUCTIONS**

**General 2024 data – Monthly Volumes and  
Prices**

**2024 IDA1 Volumes [MWh]**

Month	Base Volume	Peak Volume	Off-Peak Volume	Average Daily Traded Volume
June	834,9	428,2	406,7	52,2
July	1.071,6	540	531,6	38,3
August	1.040,1	662,4	377,6	34,7
September	1.695,3	1.111,7	583,6	56,5
October	1.589,1	973,8	615,3	54,8
November	1.121,8	619,6	502,1	40,1
December	963,9	503,8	460,1	32,1

**2024 IDA1 Prices [EUR/MWh]**

Month	Average Baseload Price	Average Peak Price	Average Off-Peak Price	Quarter-hourly Minimum Price	Quarter-hourly Maximum Price
June	163,89	120,08	207,69	-120,68	9999
July	104,79	86,15	123,42	-59,37	653,59
August	109,73	99,72	119,74	-64,72	1.022,14
September	94,72	98,13	91,30	-67,71	1.378,13
October	87,24	92,53	81,96	-36,47	319,08
November	139,43	163,28	115,59	32,3	750,77
December	131,76	156,1	107,41	-14	971,11

**2024 IDA2 Volumes [MWh]**

Month	Base Volume	Peak Volume	Off-Peak Volume	Average Daily Traded Volume
June	2.861,9	1987	874,9	168,4
July	878,7	554	324,7	29,3
August	2.012,9	1.261,6	751,3	67,1
September	1.855,2	1.380,2	475	66,3
October	2.887,5	1.870,7	1.016,9	96,3
November	2.690,1	2.062,9	627,2	89,7
December	2.822,1	1.778,1	1.044	91,1

### 2024 IDA2 Prices [EUR/MWh]

Month	Average Baseload Price	Average Peak Price	Average Off-Peak Price	Quarter-hourly Minimum Price	Quarter-hourly Maximum Price
June	86,41	69,18	103,64	-99,38	419,8
July	95,04	76,28	113,81	-4.914,5	797,07
August	109,01	98,23	119,79	-59,53	1.193,33
September	96,03	99,64	92,42	-49,9	1.239,81
October	90,11	98,39	81,85	-27,49	406,96
November	144,82	173,57	116,06	11,49	822,9
December	135,81	165,67	105,96	-32,84	1.150,03

### 2024 IDA3 Volumes [MWh]

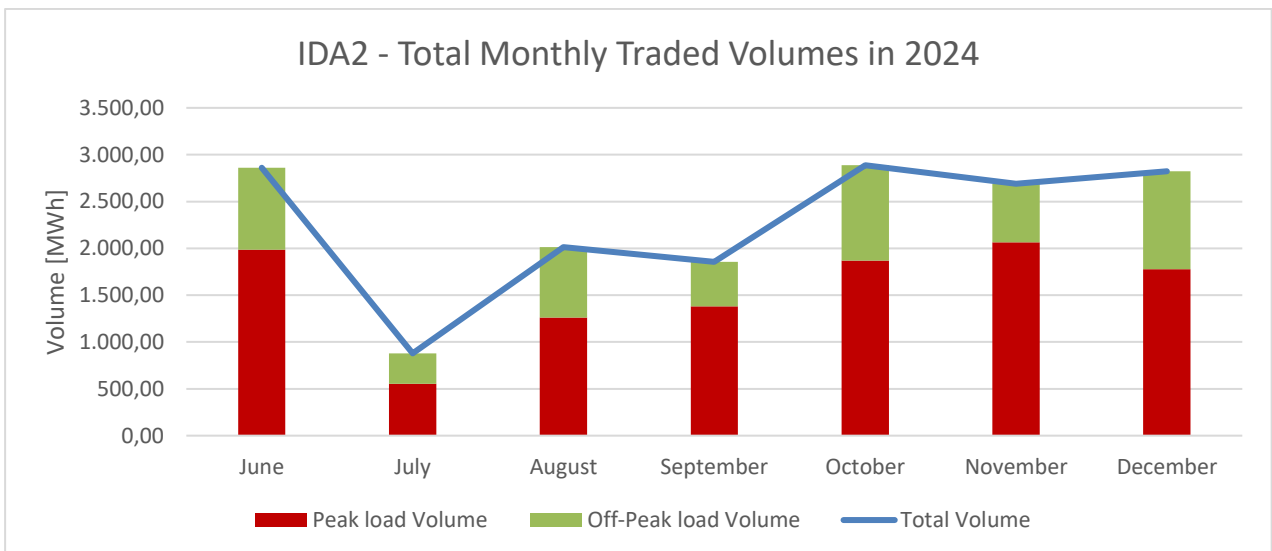
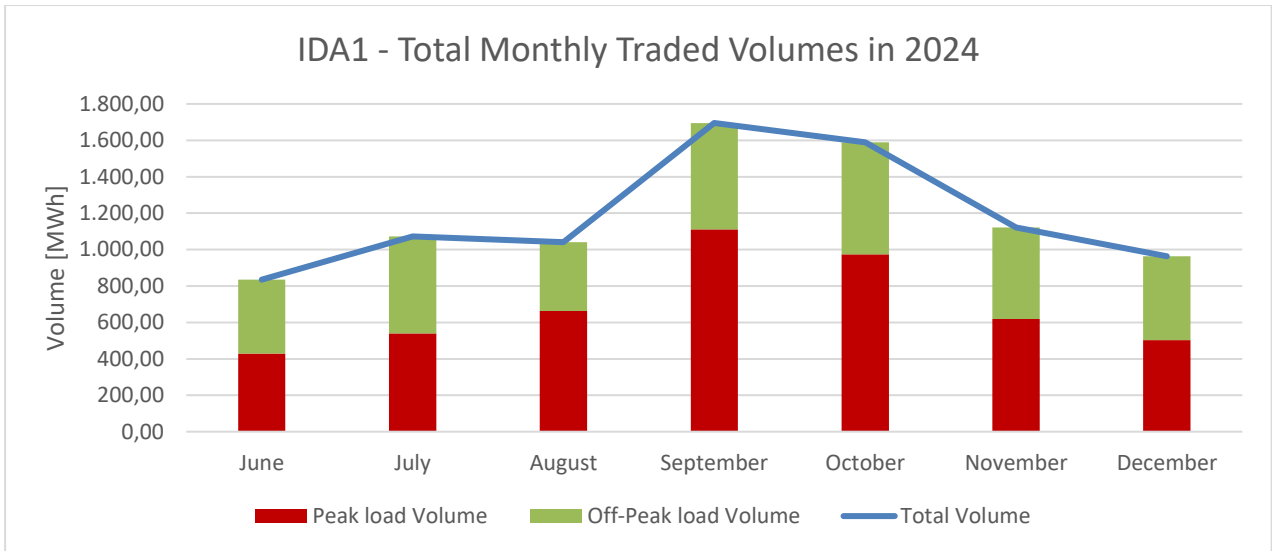
Month	Base Volume	Peak Volume	Off-Peak Volume	Average Daily Traded Volume
June	320,9	-	-	20,1
July	434,9	-	-	14,5
August	331,7	-	-	10,7
September	465,5	-	-	15,5
October	460,4	-	-	15,9
November	238,9	-	-	8
December	274,1	-	-	8,8

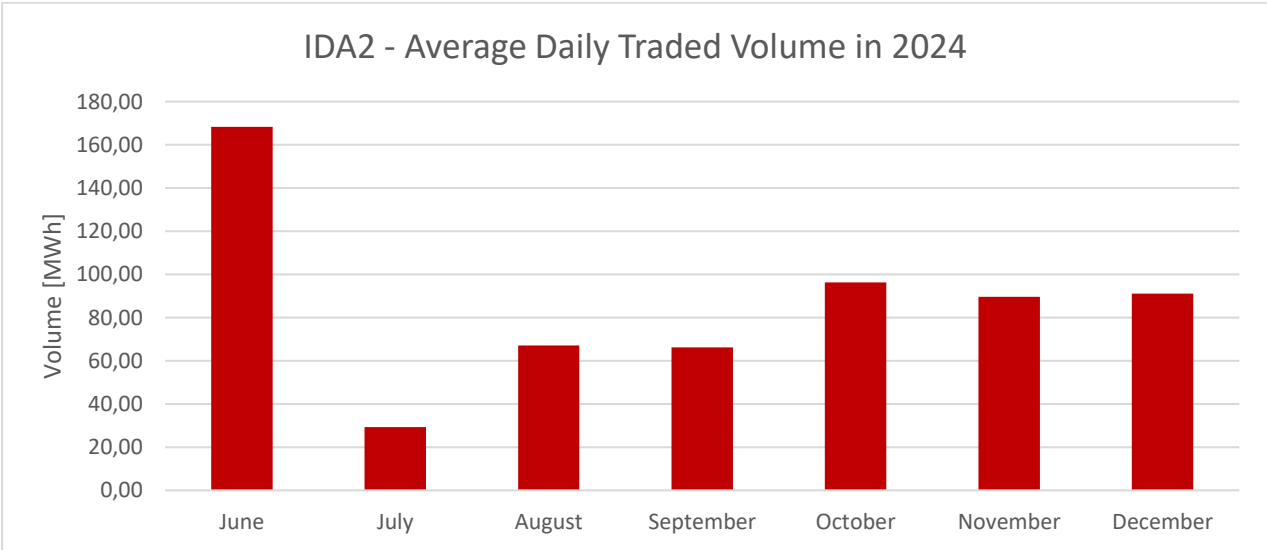
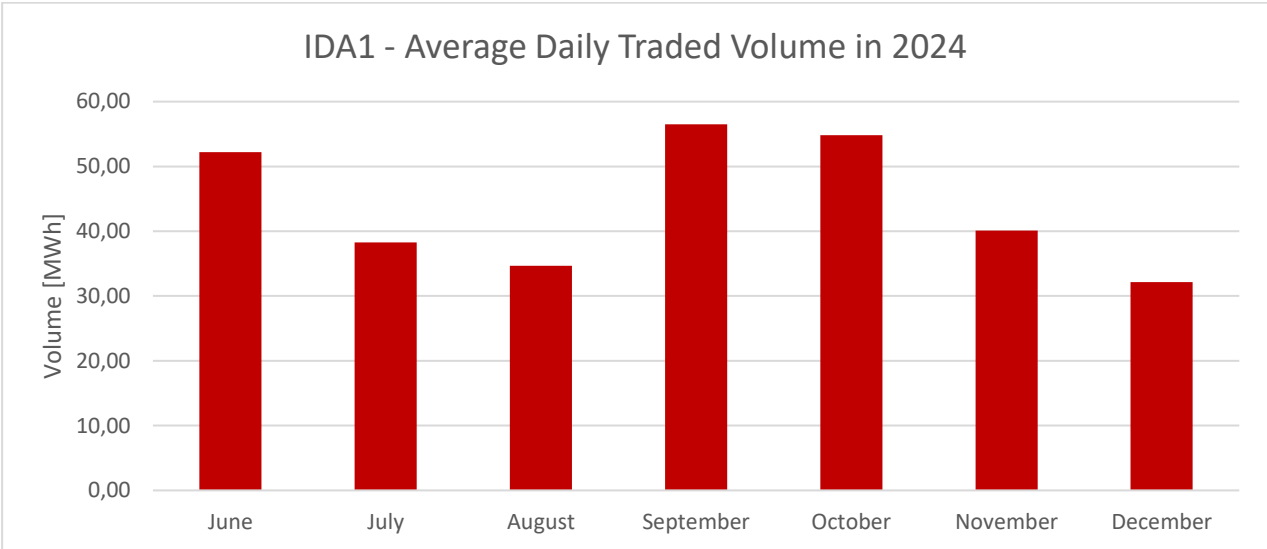
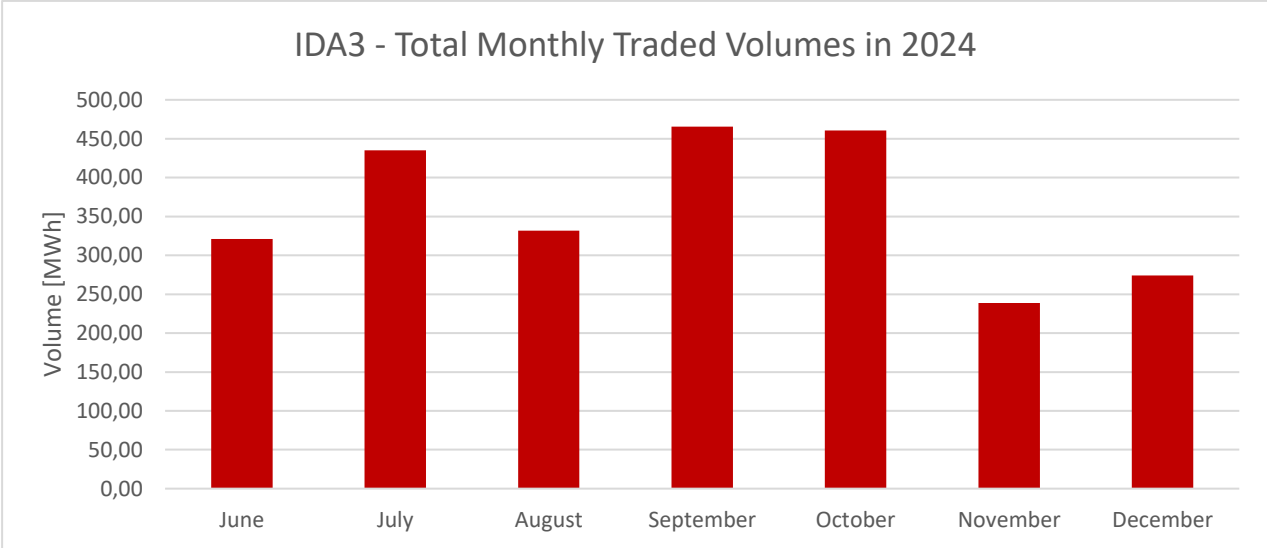
### 2024 IDA3 Prices [EUR/MWh]

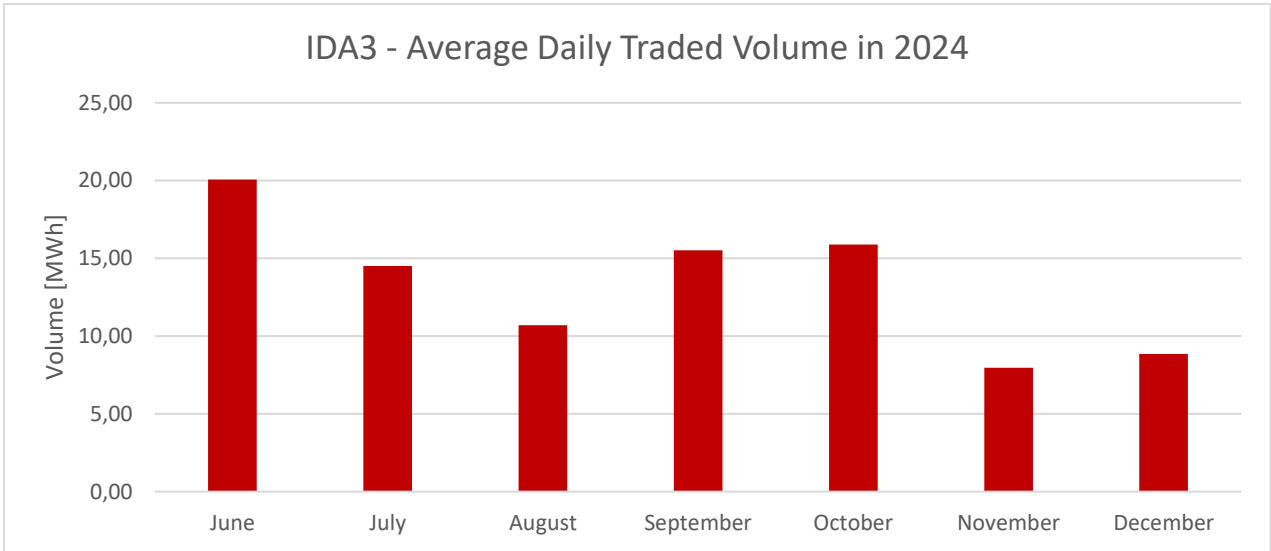
Month	Average Baseload Price	Average Peak Price	Average Off-Peak Price	Quarter-hourly Minimum Price	Quarter-hourly Maximum Price
June	25,61	-	-	-4.991	500,03
July	120,73	-	-	-2.501,5	972
August	166,08	-	-	-81	5025
September	111,67	-	-	-109,13	1.084,05
October	99,08	-	-	-40,2	380,66
November	180,84	-	-	18,87	3.828,43
December	155,24	-	-	36	1.005,71

**CROPEX  
INTRADAY  
AUCTIONS**

**2024 Charts – Volumes**

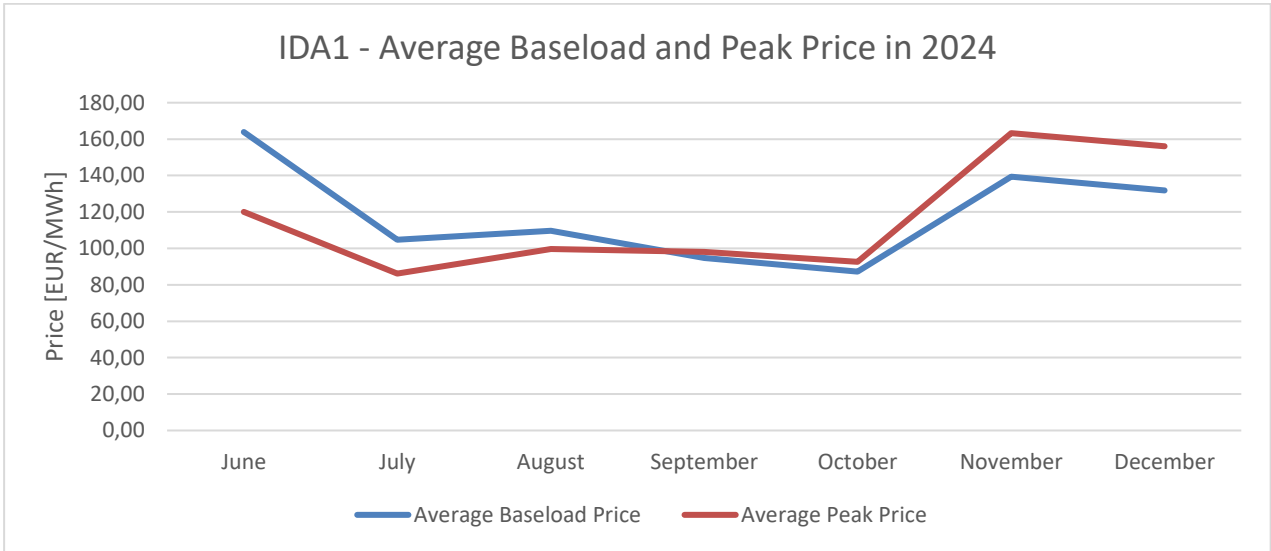


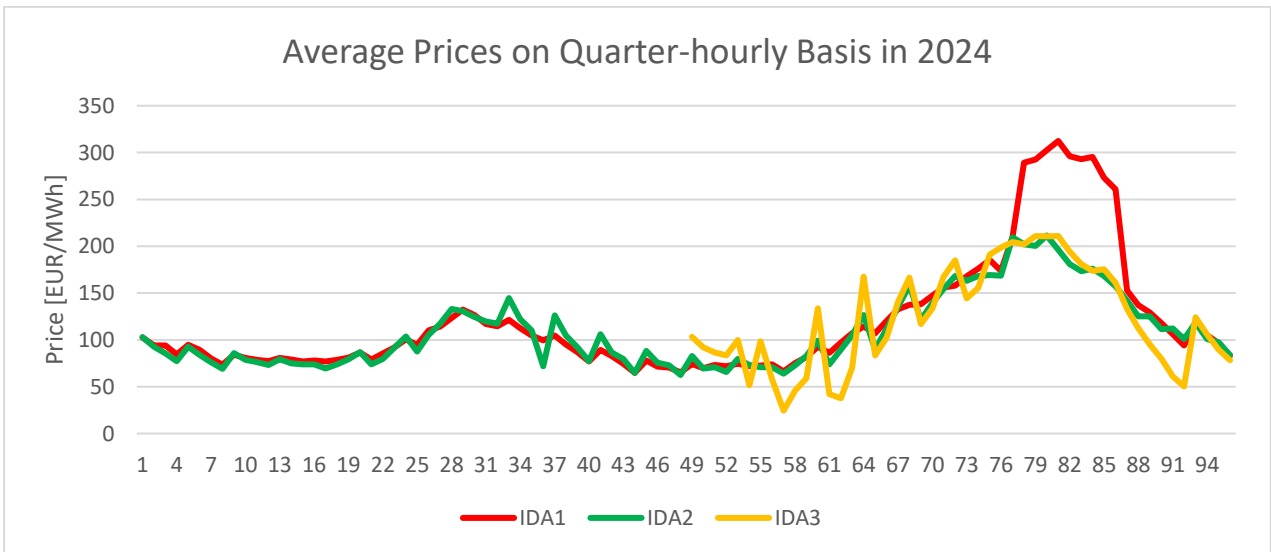
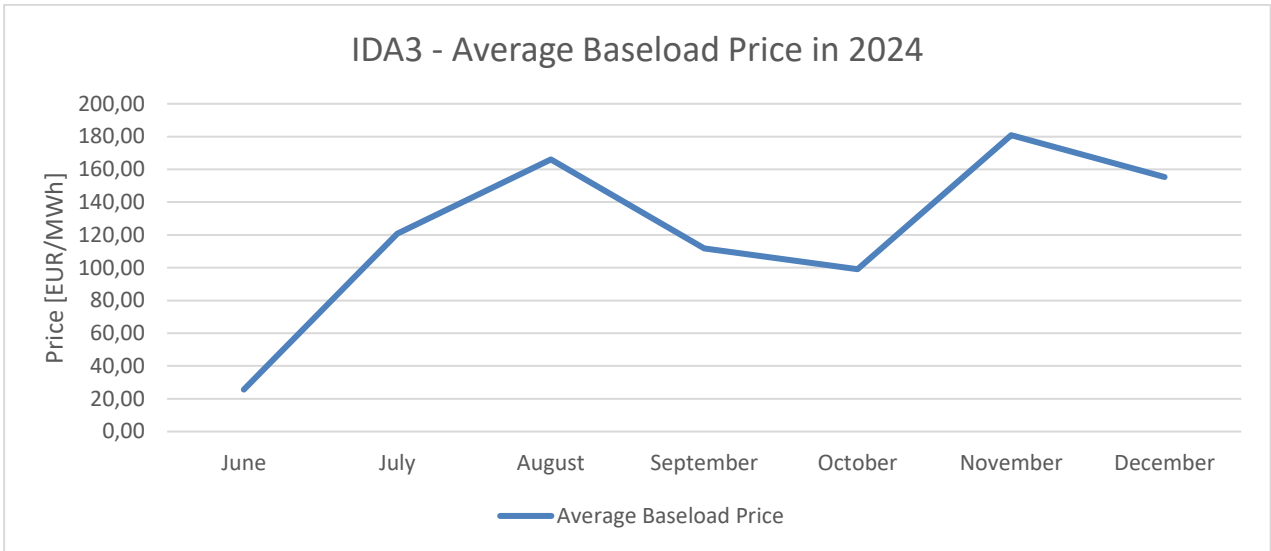
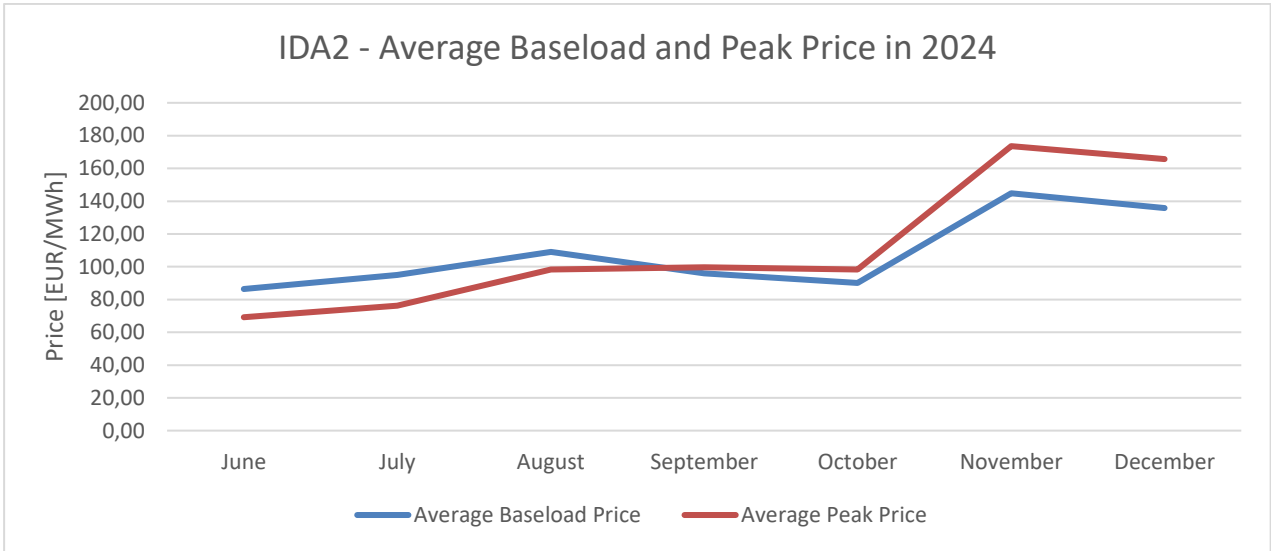




**CROPEX  
INTRADAY  
AUCTIONS**

**2024 Data – Prices**







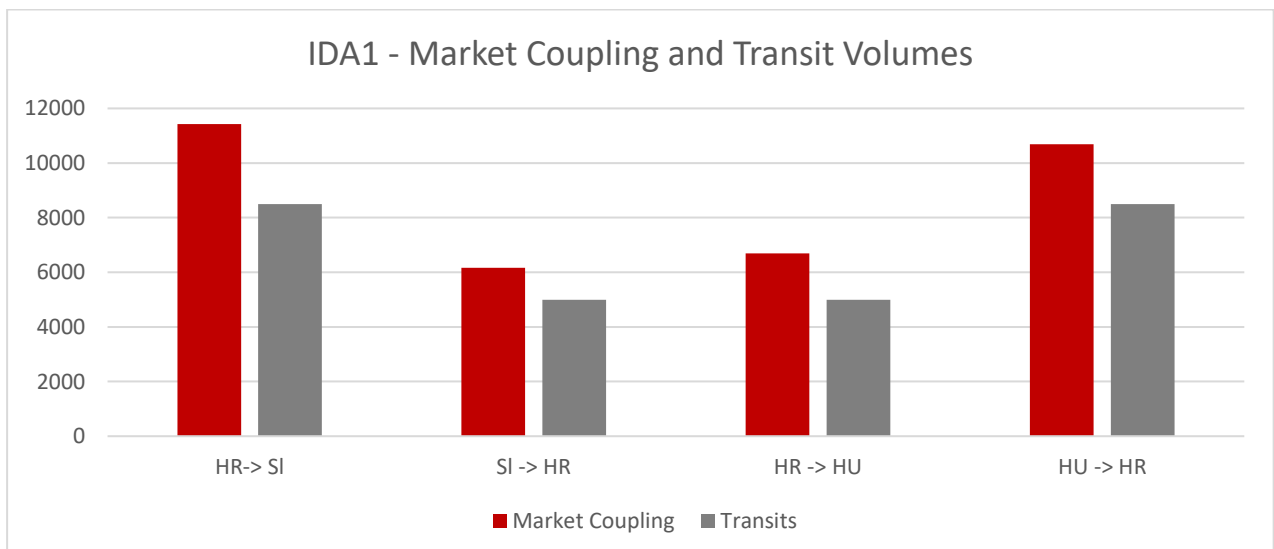
# CROPEX INTRADAY AUCTIONS

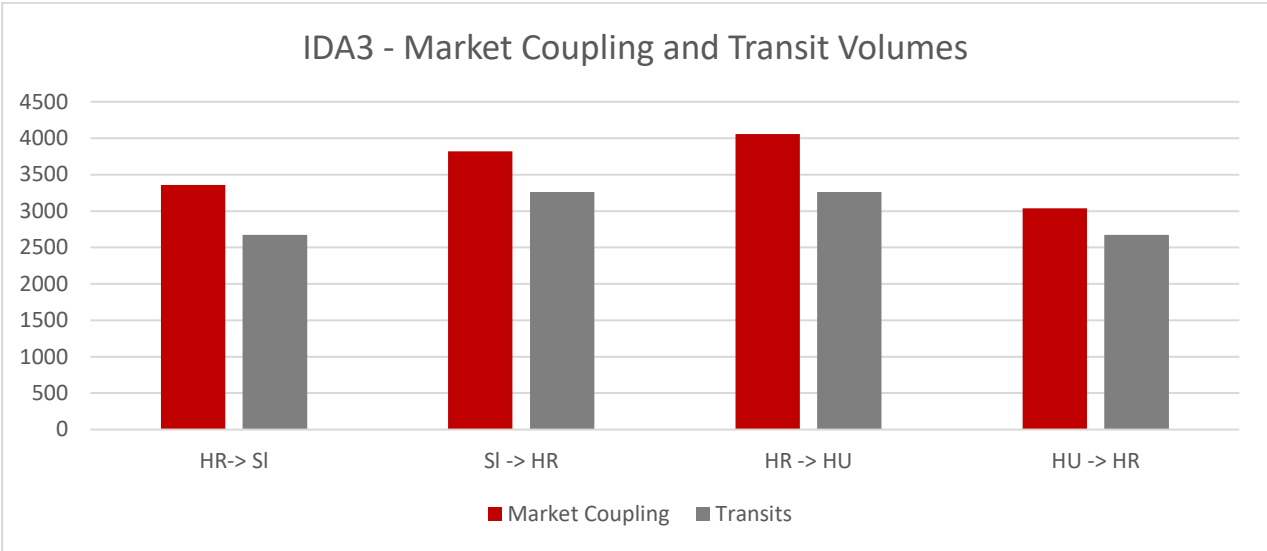
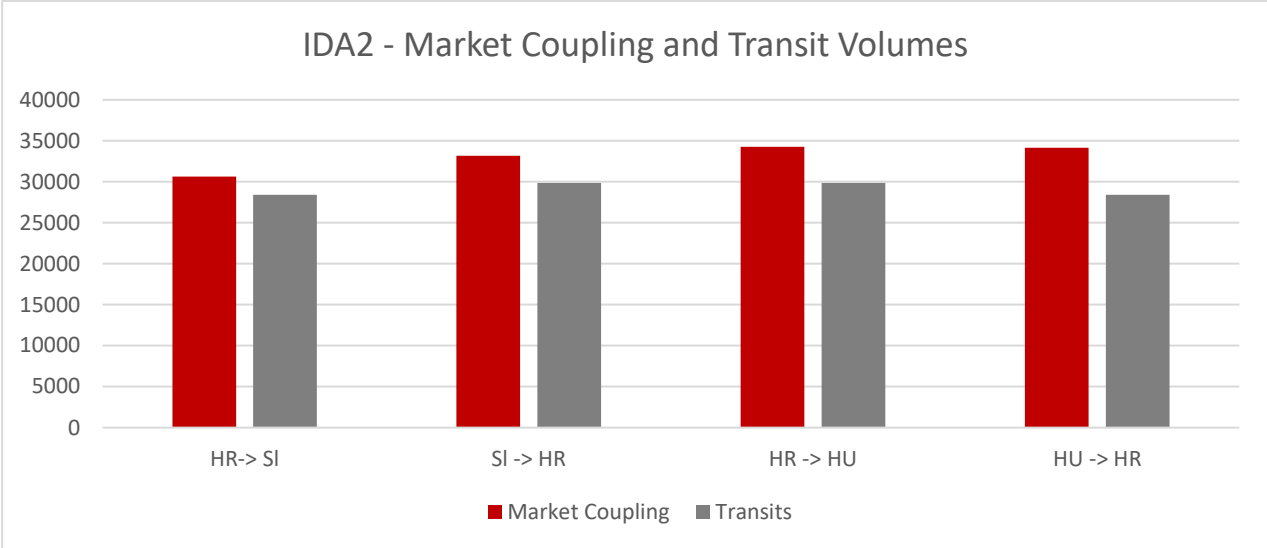
## Market Coupling 2024

Since 2024, the Croatian Intraday Auctions Market has been coupled to the European IDA market through the Croatian-Slovenian and Croatian-Hungarian borders.

Volume [MWh]	IDA1	IDA2	IDA3
<b>CROPEX Volume Traded</b>	<b>8.316,5</b>	<b>16.008,4</b>	<b>2.526,4</b>
<b>Market Coupling Total Volume</b>	<b>34.976,1</b>	<b>132.237,9</b>	<b>14.274,7</b>
Market Coupling flow HR -> SI	11.427,7	30.641,6	3.356,6
Market Coupling flow SI -> HR	6.165,1	33.193,2	3.820,5
Market Coupling flow HR -> HU	6.693,5	34.260,7	4.058,1
Market Coupling flow HU -> HR	10.689,8	34.142,4	3.039,5
<b>Transit Total Volume</b>	<b>26.992,2</b>	<b>116.580,4</b>	<b>11.867,1</b>
Transit HR -> SI	8.497	28.416	2.673,1
Transit SI -> HR	4.999,1	29.874,2	3.260,4
Transit HR -> HU	4.999,1	29.874,2	3.260,4
Transit HU -> HR	8.497	28.416	2.673,1

### Market Coupling and Transit Volumes





# Chapter 5

## AUCTIONS

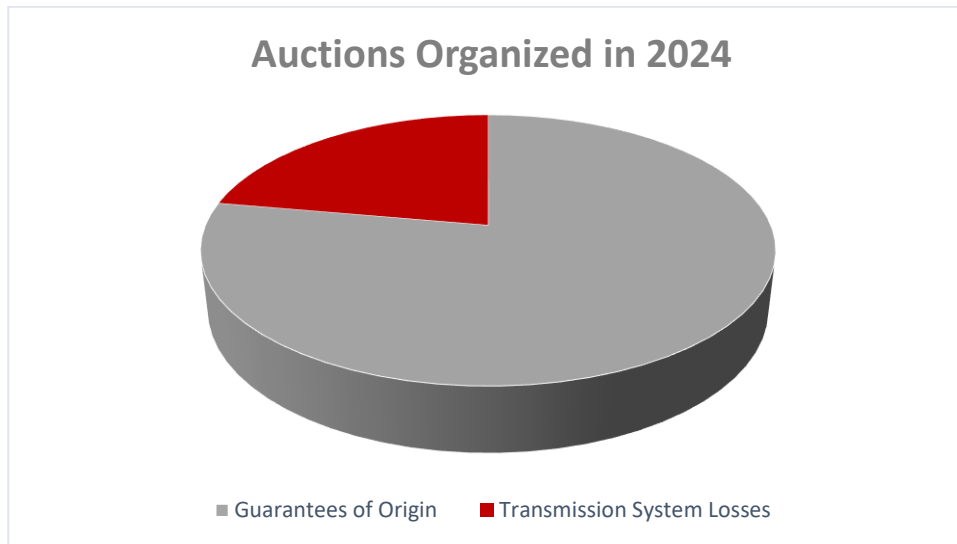
### General 2024 - Data

During 2024 altogether **27** different auctions were organized by CROPEX.

Most of the auctions (**21**) were held for the purpose of selling **Guarantees of Origin (GO)**. CROPEX has continued to successfully hold auctions (**5**) on behalf of Croatian Energy Market Operator (HROTE) and as well for eligible producers outside the incentive system. On behalf of ENNA Next d.o.o, **14** auctions were organized and for ENERGOVIA EOOD 1 auctions. Since April, 2024 CROPEX has also organized one auction on behalf of Hrvatska elektroprivreda d.o.o..

For Croatian Transmission System Operator (HOPS), **6** auctions were organized by CROPEX for the purpose of procurement of energy for covering losses in the Croatian transmission system.

Auction Type	Number of Auctions	Number of Participants
Guarantees of Origin	21	52
Transmission System Losses	6	11


















## AUCTIONS

## Guarantees of Origin Auctions

During 2024 eight new auction participants joined Guarantees of Origin (GO) auctions organized by CROPEX and 99,85% of offered Guarantees of Origin at auctions were successfully sold in the amount of **1.011.920** Guarantees of Origin. By the end of 2024, there were altogether **52** registered auction participants.

### List of CROPEX auction participants (end of 2024)

				Joined2024
1	ACT Commodities B.V.		NL	-
2	AFS Energy B.V.		NL	-
3	AITHER GROUP SA		CH	-
4	AXPO IBERIA SL		ES	-
5	BELEKTRON EKOTRADING d.o.o.		SI	-
6	BKW Energie AG		CH	-
7	Caely Renewables B.V.		NL	-
8	Capitole Energie		FR	-
9	Cenegrise Limited		IE	-
10	Centrica Energy Limited		UK	-
11	Clax Renewables B.V.		NL	-
12	ČEZ, a.s.		CZ	-
13	Danske Commodities		DK	-
14	Dare Sustainable Solutions Limited		GB	✓
15	D.TRADING D.O.O.		HR	-
16	DXT Commoditeies SA		CH	-
17	EDS International SK, s.r.o.		SK	-
18	E.ON ENERGIJA d.o.o.		HR	-
19	ENEL Global Trading		IT	-
20	Energi Danmark A/S		DK	-
21	Energy Delivery Solutions D.O.O. Beograd		RS	-
22	Energy Supply EOOD		BG	-
23	ENNA Next d.o.o.		HR	-
24	Ethora Renewables AB		SE	✓
25	Faraday Trading B.V.		NL	✓
26	GEN-I Zagreb d.o.o.		HR	-

27	GO2-markets GmbH		DE	-
28	HRVATSKA ELEKTROPRIVREDA d.d.		HR	-
29	HOLDING SLOVENSKE ELEKTRARNE d.o.o.		SI	-
30	Holt Global Group International AG		CH	-
31	Hrvatski operator prijenosnog sustava d.d.		HR	-
32	MFT Energy A/S		DK	-
33	MVM Partner Energy Trading Ltd.		HU	✓
34	Naturgy Commodities Trading SA		ES	-
35	NVALUE AG		CH	-
36	Opti-Ment BV		BE	-
37	ORIGO		FR	-
38	OTC Flow B.V.		NL	-
39	Petrol d.d.		SI	-
40	PETROL d.o.o.		HR	-
41	Renefix B.V.		NL	-
42	Renergis d.o.o.		HR	✓
43	Respect Energy S.A.		PL	-
44	Respect Energy Environmental Commodities		PL	-
45	RIGHT POWER, a.s.		SK	-
46	SCB Broker SA		CH	-
47	Shell Energy Europe Limited		GB	✓
48	Statkraft Markets GmbH		DE	-
49	STX Commodities		NL	-
50	TERREMOTO ENERGO-PROJEKT d.o.o.		HR	-
51	TrailStone Renewables GmbH		DE	✓
52	3Degrees Group, Inc.		US	✓

## AUCTIONS

### List of 2024 GOs auctions

From **21** GO auctions organized during 2024, 10 auctions were held for production from the **Wind** power plant, 5 auctions were held for production from the **Biomass** power plant, 4 auctions were held for production from the **Biogas** power plant while on 2 auctions CROPEX organized auctions from **Hydro** power plants.

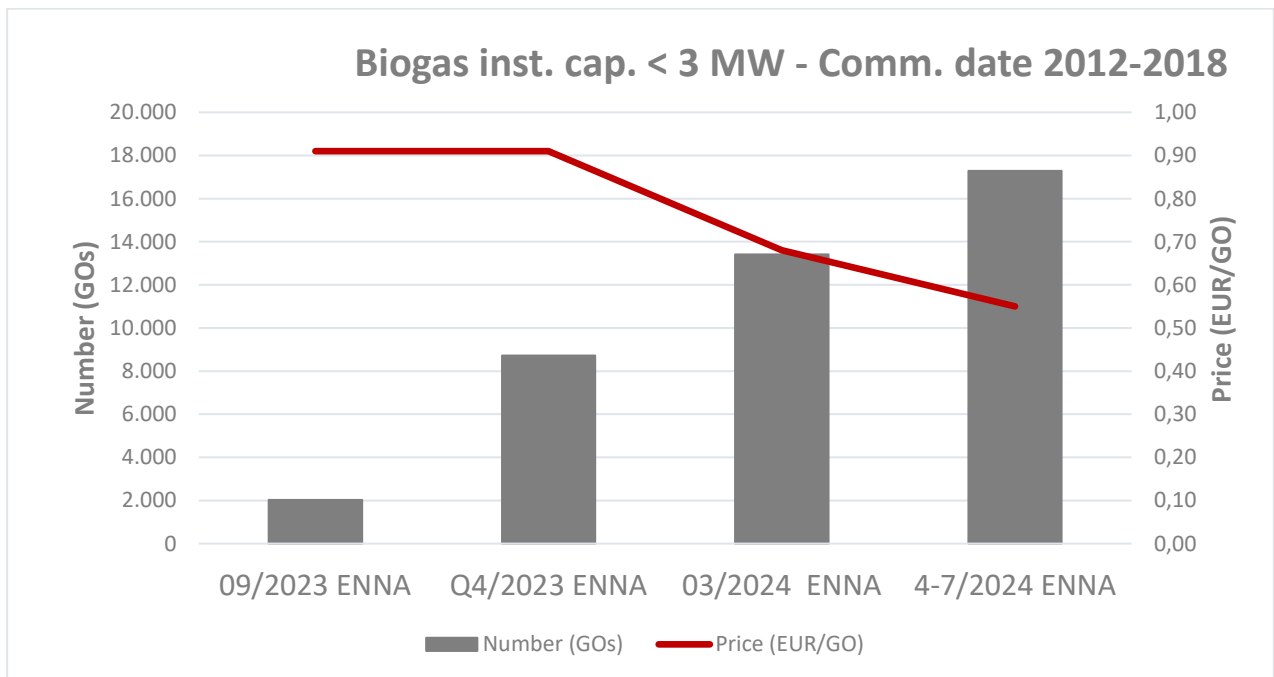
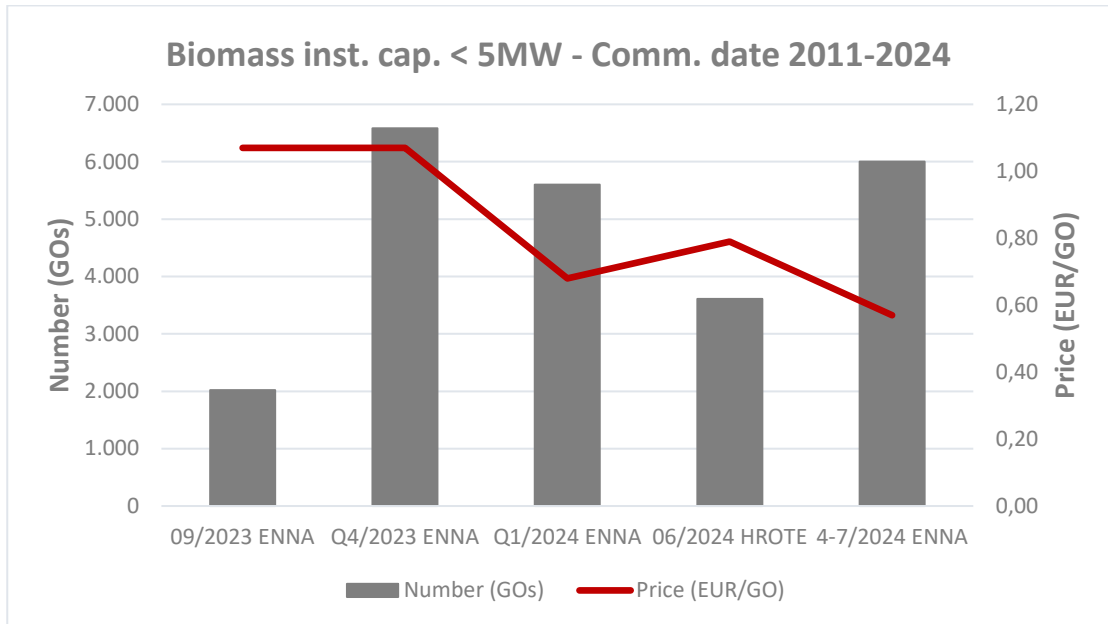
All GO auctions were split depending on the commissioning date of the power plants.

List of auctions in 2024	Auction type	Auction date	GOs sold	Price EUR/GO
HROTE - Croatia - Production 01/10/2023-31/12/2023 (Comm. date 12-2015 to 05-2020)	WIND	2024-01-25	191.901	1,38
ENNA - Croatia - Production 01/09/2023-30/09/2023 (Comm. date from 09/2011) - inst. cap. less than 5 MW	BIOMASS	2024-02-22	2.017	1,07
ENNA - Croatia - Production from 01/10/2023-31/12/2023 (Comm. date from 09/2011) - inst. cap. less than 5 MW	BIOMASS	2024-02-22	6.585	1,07
ENNA - Croatia - Production 01/09/2023-30/09/2023 (Comm. date from 04/2012 to 09/2018) - inst. cap. less than 3 MW	BIOGAS	2024-02-22	2.027	0,91
ENNA - Croatia - Production from 01/10/2023-31/12/2023 (Comm. date from 04/2012 to 09/2018) - inst. cap. less than 3 MW	BIOGAS	2024-02-22	8.715	0,91
ENNA - Croatia - Production 01/09/2023-30/09/2023 (Comm. date from 09/2010 to 02/2012)	WIND	2024-02-22	9.222	1,07
ENNA - Croatia - Production 01/10/2023-31/12/2023 (Comm. date from 09/2010 to 02/2012)	WIND	2024-02-22	30.349	1,07
ENERGOVIA - Bulgaria - Production 01/03/2023-31/08/2023 (Comm. date from 03/2015) - inst. cap. less than 1 MW	HYDRO	2024-02-22	-	-
HEP - Croatia - Production 01/01/2024-29/02/2024 (Comm. date 05/2016)	HYDRO	2024-04-26	100.00	1,37
HROTE - Croatia - Production 01/01/2024-31/03/2024(Comm. date 12-2015 to 05-2020)	WIND	2024-04-29	208.245	1,28
ENNA - Croatia - Production 01/03/2024-31/03/2024 (Comm. date from 04/2012 to 09/2018) - inst. cap. less than 3 MW	BIOGAS	2024-05-20	13.409	0,68
ENNA - Croatia - Production 01/01/2024-31/03/2024 (Comm. date from 09/2011) - inst. cap. less than 5 MW	BIOMASS	2024-05-20	5.602	0,68
ENNA - Germany - Production 01/02/2024-30/04/2024 (Comm. date from 11/2003)	WIND	2024-05-20	8.739	0,85
ENNA - Croatia - Production 01/01/2024-31/03/2024 (Comm. date from 09/2010 to 02/2012)	WIND	2024-05-20	28.911	0,77
HROTE - Croatia - Production 01/04/2024-30/06/2024 (Comm. date 06-2013 to 05-2020)	WIND	2024-07-25	160.473	0,83
HROTE - Croatia - Production 01/06/2024-30/06/2024 (Comm. date 07-2021 to 03-2022)	BIOMASS	2024-07-25	3.610	0,79
ENNA - Croatia - Production 01/04/2024-31/07/2024 (Comm. date from 09/2011) - inst. cap. less than 5 MW	BIOMASS	2024-09-25	6.004	0,57
ENNA - Croatia - Production from 01/04/2024-31/07/2024 (Comm. date from 04/2012 to 09/2018) - inst. cap. less than 3 MW	BIOGAS	2024-09-25	17.285	0,55

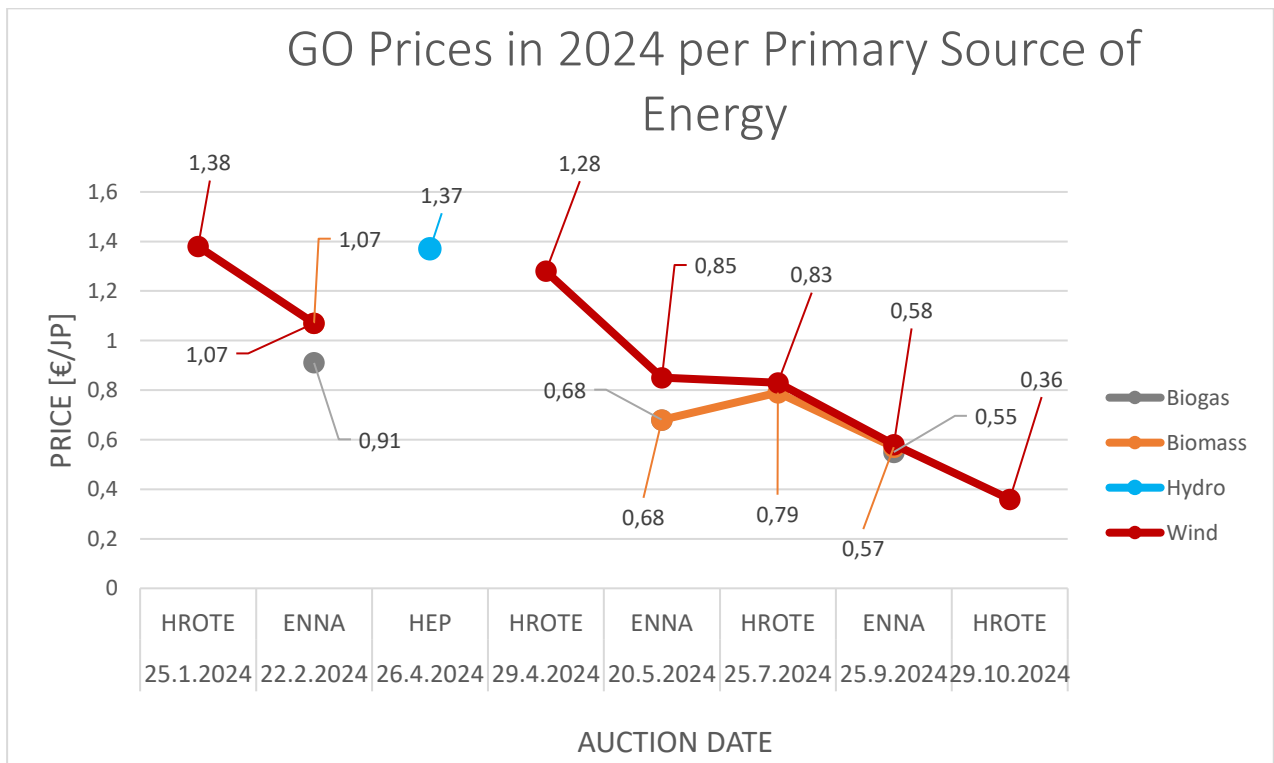
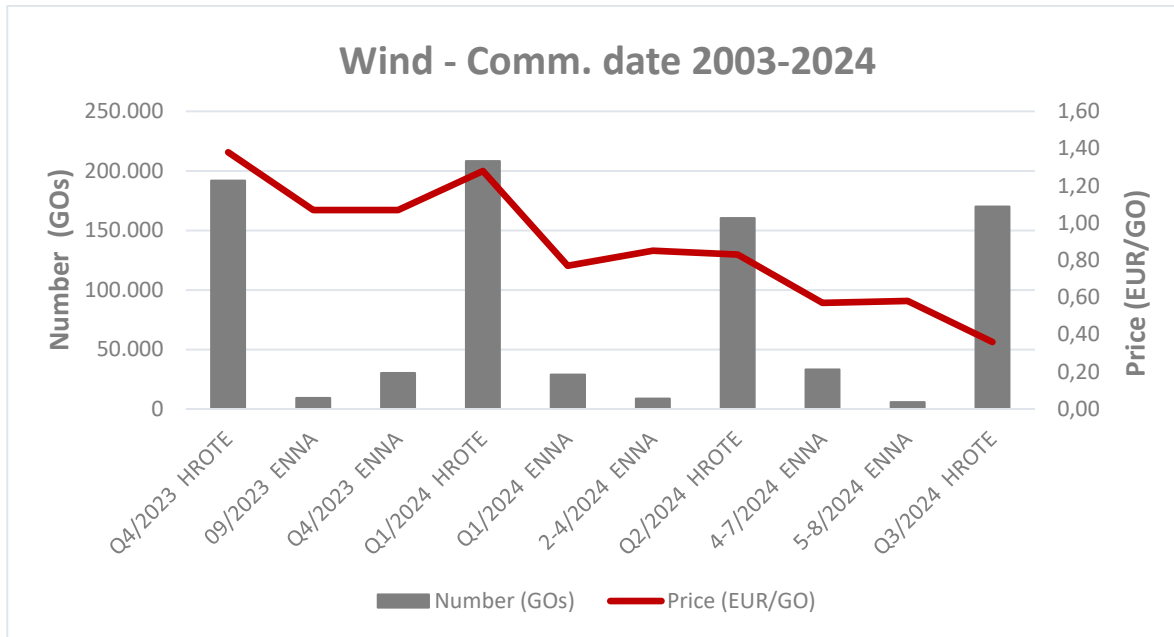
ENNA - Croatia - Production 01/04/2024-31/07/2024 (Comm. date from 09/2010 to 02/2012)	WIND	2024-09-25	33.112	0,57
ENNA - Germany - Production 01/05/2024-31/08/2024 (Comm. date from 11/2003)	WIND	2024-09-25	5.798	0,58
HROTE - Croatia - Production 01/07/2024-30/09/2024 (Comm. date 12-2014 to 05-2020)	WIND	2024-10-29	169.943	0,36

# AUCTIONS

## Guarantees of Origin – 2024 Charts\*







\*The charts show GOs Marginal Price (EUR/GO)

## AUCTIONS

### Losses Auctions

By the end of 2024 CROPEX also organized **six** auctions in which 10 different registered auction participants were selling energy to HOPS for the purpose of covering losses in Croatian transmission system operated by HOPS.

#### *Losses Auctions*

List of auctions	Auction date	Number of participants	Power bought MWh/h
Energy delivery to cover transmission system losses in 05/2024	2024-04-02	10	5
Energy delivery to cover transmission system losses in 06/2024	2024-04-02	10	5
Energy delivery to cover transmission system losses in Q3/2024	2024-04-02	10	5
Energy delivery to cover transmission system losses Q4/2024	2024-04-02	10	5
Energy delivery to cover transmission system losses in 2025	2024-04-02	11	10
Energy delivery to cover transmission system losses in 2025	2024-05-07	9	10



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**Ante Mikulić, CEO**