

2020

# Annual Report



# Table of Contents

<b>CROPEX MEMBERS</b>	<b>1</b>
<b>DAY AHEAD MARKET</b> General data, Volumes, Prices	<b>2</b>
<b>INTRADAY MARKET</b> General data, Volumes, Prices	<b>9</b>
<b>AUCTIONS</b> Guarantees of Origin, ECO BG, Losses	<b>14</b>

# Chapter 1

## CROPEX MEMBERS

### Additional two newcomers during 2020

In 2020 two new members joined CROPEX Markets, both Day Ahead and Intraday; **MFT Energy A/S** from Denmark along with **TrailStone Renewables GmbH** from Germany.

By the end of 2020, there were altogether 22 registered CROPEX members active on Day Ahead Market, of which 15 on Intraday Market.

Member		Country	DAM	ID
1 ALPIQ ENERGY SE		CH	✓	
2 Apxo Trading Ltd.		CH	✓	
3 Centrica Energy Trading A/S		DK	✓	✓
4 ČEZ, a. s.		CZ	✓	
5 Danske Commodities A/S		DK	✓	✓
6 EDF TRADING LIMITED		UK	✓	
7 ELEKTRIČNI FINANČNI TIM d.o.o.		SI	✓	✓
8 Enel Global Trading S.p.A.		IT	✓	
9 Energi Danmark A/S		DK	✓	✓
10 Energy Supply Ltd.		BG	✓	
11 E.ON Energija d.o.o.		HR	✓	✓
12 EPS Trgovanje d.o.o.		SI	✓	
13 GEN-I Hrvatska d.o.o.		HR	✓	✓
14 HOLDING SLOVENSKE ELEKTRARNE d.o.o.		SI	✓	✓
15 HRVATSKA ELEKTROPRIVREDA d.d.		HR	✓	✓
16 Croatian Transmission System Operator Ltd.		HR	✓	✓
17 CROATIAN ENERGY MARKET OPERATOR Ltd.		HR	✓	✓
18 INTERENERGO Ltd.		SI	✓	✓
19 MFT Energy A/S		DK	✓	✓
20 MVM Partner d.o.o.		HU	✓	✓
21 PETROL d.d.		SI	✓	✓
22 TrailStone Renewables GmbH		DE	✓	✓

# Chapter 2

## General 2020 trading data

### CROPEX DAY AHEAD MARKET

In 2020 significant growth has been achieved in all segments of CROPEX Day Ahead Market. Total Traded Volume has risen by almost 16% in comparison to 2019.

In general, an decrease in prices is recorded compared to 2019; both Day Ahead Average Base Price and Average Peak Price.

Volume Traded [MWh]	2020	2019	
Total	6,076,726	5,250,202	15.7 % ↑
Highest Daily	28,024	24,591	13.9 % ↑
Average Daily	16,603	14,384	15.4 % ↑
Highest Hourly	1,605	1,580	1.6 % ↑
Average Hourly	692	599	15.4 % ↑
Highest Monthly	599,377	521,183	15.0 % ↑
Average Monthly	506,394	437,517	15.7 % ↑



Price [EUR/MWh]	2020	2019	
Base Average	38.03	49.27	22.8 % ↓
Peak Average	42.06	54.97	23.5 % ↓
Highest hourly	172.1	200.0	13.9 % ↓
Lowest hourly	-23.5	-20.2	16.3 % ↓

# CROPEX DAY AHEAD MARKET

## General 2020 data – monthly volumes and prices

### 2020 Volumes [MWh]

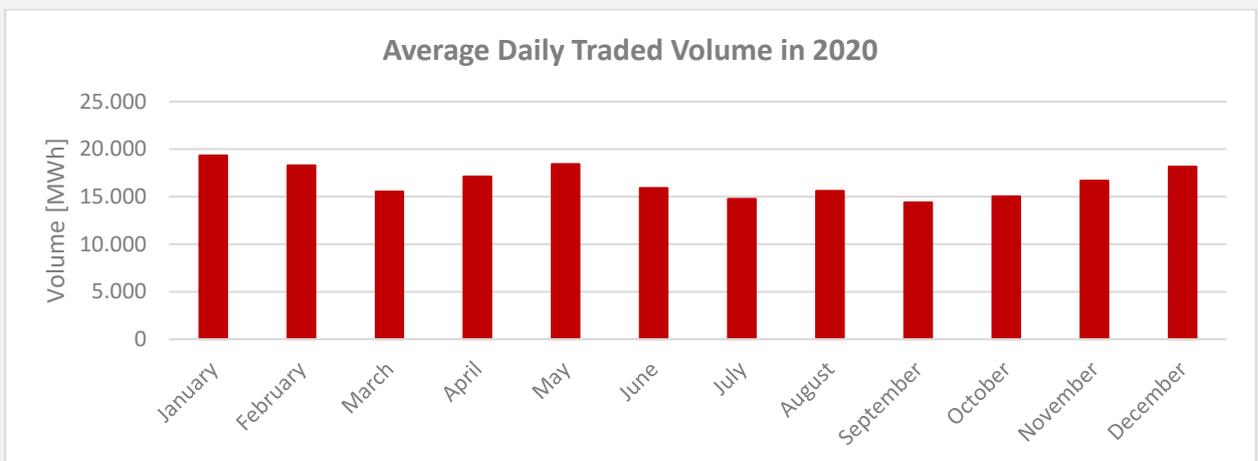
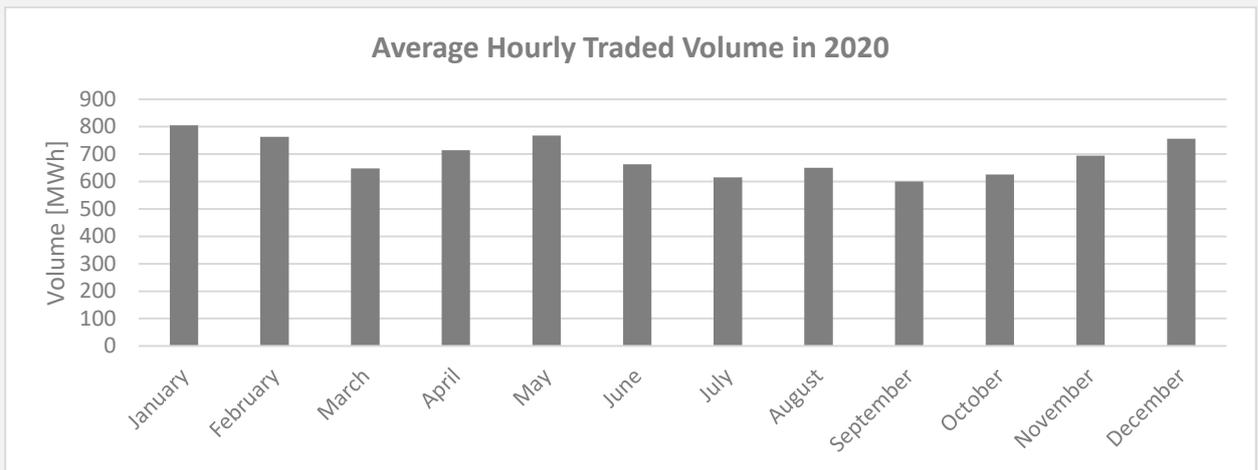
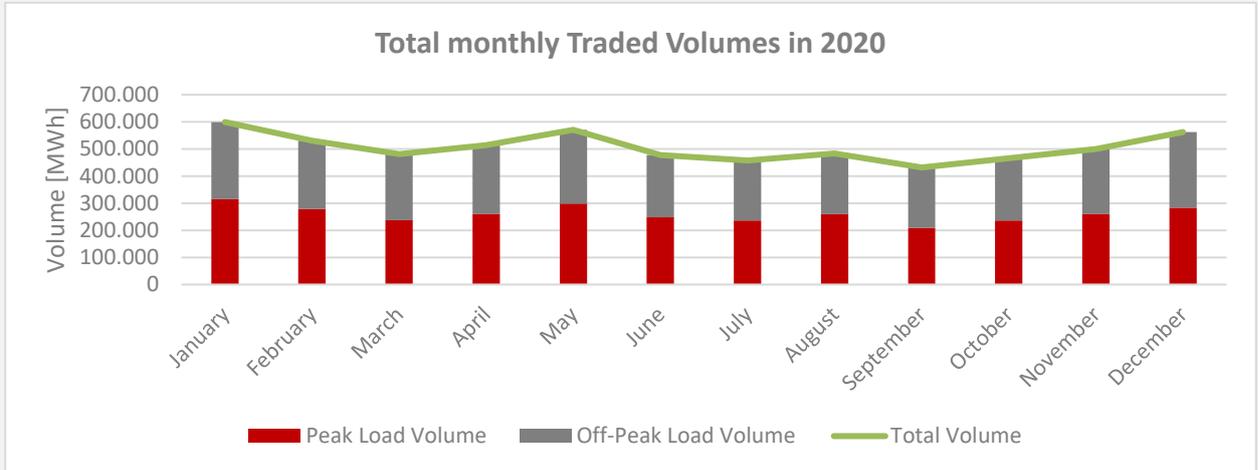
Month	Base Load Volume	Peak Load Volume	Off-Peak Load Volume	Average Daily Traded Volume	Average Hourly Traded Volume
January	599,377	315,435	283,942	19,335	806
February	530,998	278,422	252,577	18,310	763
March	481,633	237,452	244,182	15,537	649
April	513,969	260,805	253,164	17,132	714
May	571,198	299,060	272,138	18,426	768
June	477,504	247,759	229,745	15,917	663
July	457,552	236,819	220,733	14,760	615
August	483,411	260,266	223,145	15,594	650
September	431,910	208,955	222,955	14,397	600
October	466,446	236,810	229,254	15,047	626
November	500,052	261,554	238,498	16,668	695
December	562,676	283,739	278,937	18,151	756

### 2020 Prices [EUR/MWh]

Month	Average Base Load Price	Average Peak Price	Average Off-Peak Price	Hourly Minimum Price	Hourly Maximum Price
January	51.32	57.92	44.72	27.03	150.02
February	39.62	43.60	35.64	10.51	70.35
March	29.41	31.98	26.77	-19.97	66.02
April	23.95	24.25	23.65	-11.03	61.29
May	22.47	23.05	21.88	-23.48	69.03
June	28.77	30.22	27.32	1.35	65.91
July	35.43	37.73	33.13	-14.91	65.00
August	38.13	40.62	35.63	10.00	90.00
September	45.86	49.97	41.75	5.00	163.06
October	38.57	43.87	33.29	1.00	79.03
November	47.21	53.82	40.60	6.00	107.17
December	55.54	67.43	43.66	0.00	172.07

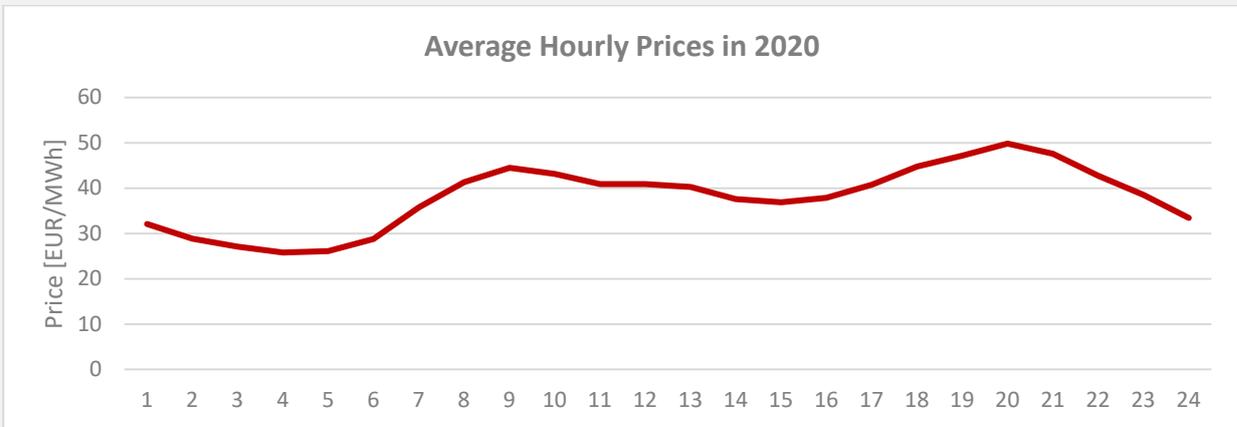
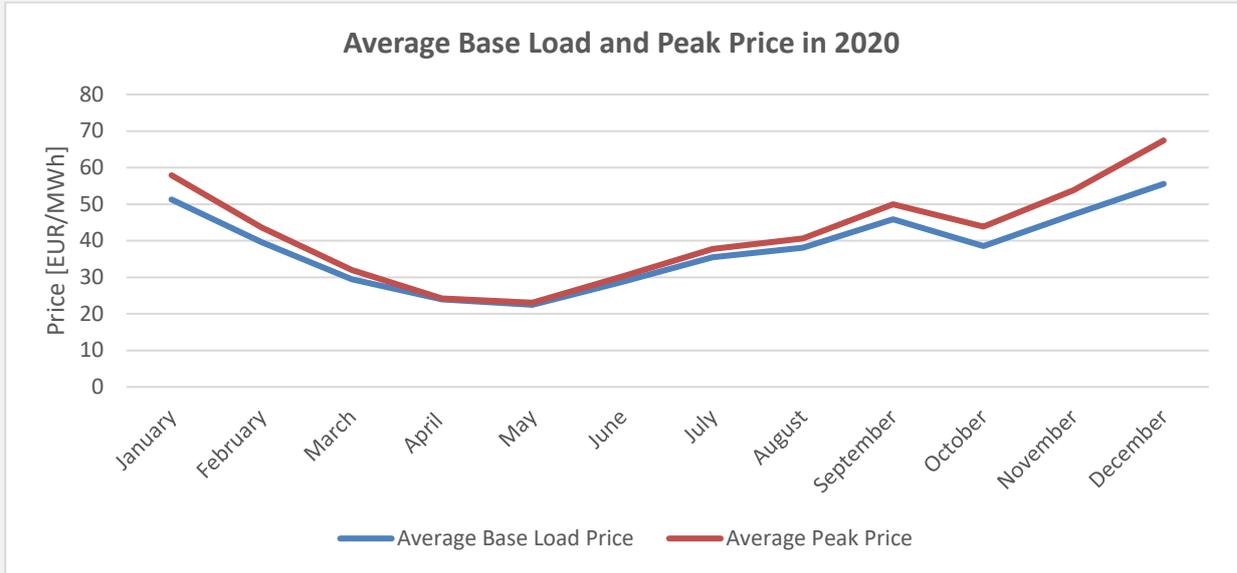
**CROPEX  
DAY AHEAD  
MARKET**

**2020 charts – Volumes**



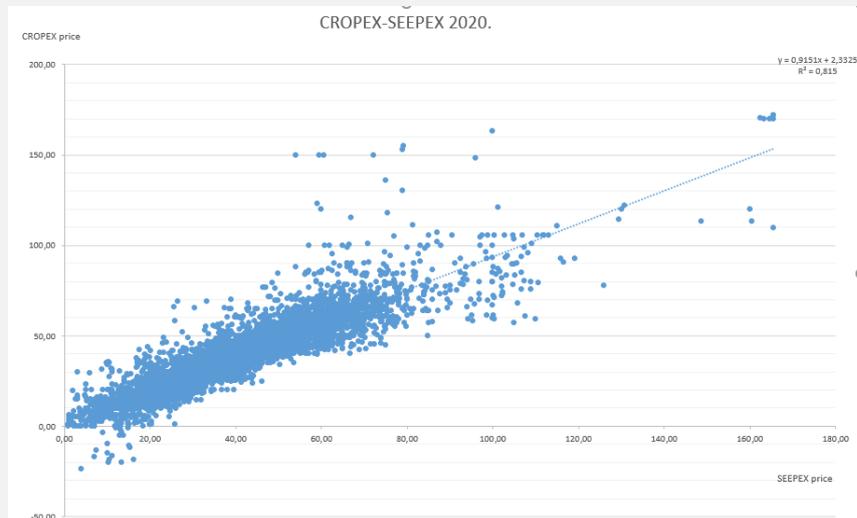
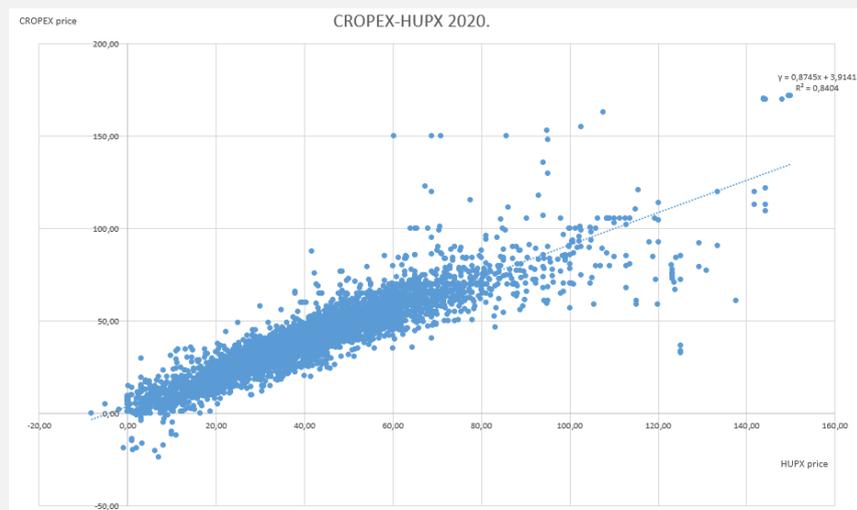
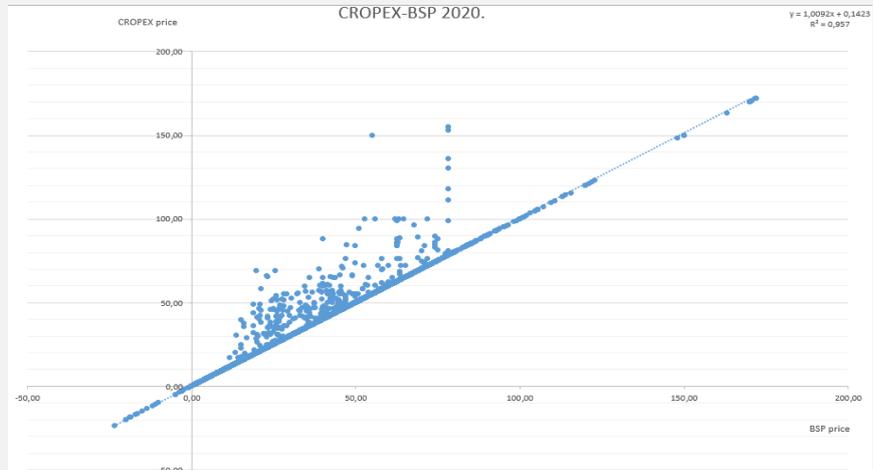
# CROPEX DAY AHEAD MARKET

## 2020 Data – Prices



# CROPEX DAY AHEAD MARKET

## 2020 Data – Price comparison



## CROPEX DAY AHEAD MARKET

### Liquidity Indicators

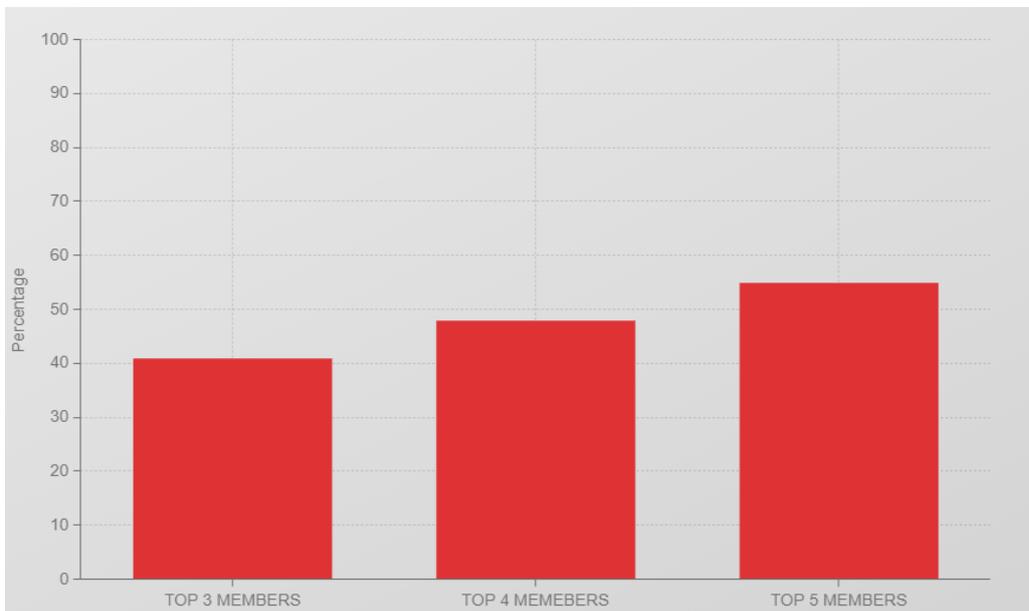
Market with the **Herfindahl–Hirschman Index** of less than 1,000 considers to be a competitive marketplace, an HHI of 1,000 to 1,800 considers to be a moderately concentrated marketplace and an HHI of 1,800 or greater considers to be a highly concentrated marketplace.

Herfindahl–Hirschman Index	
Buy	994
Sell	1,754
<b>Total</b>	<b>839</b>

According to the HHI analysis CROPEX Day Ahead Market is considered to be 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 Ratio – CR3, CR4, CR5



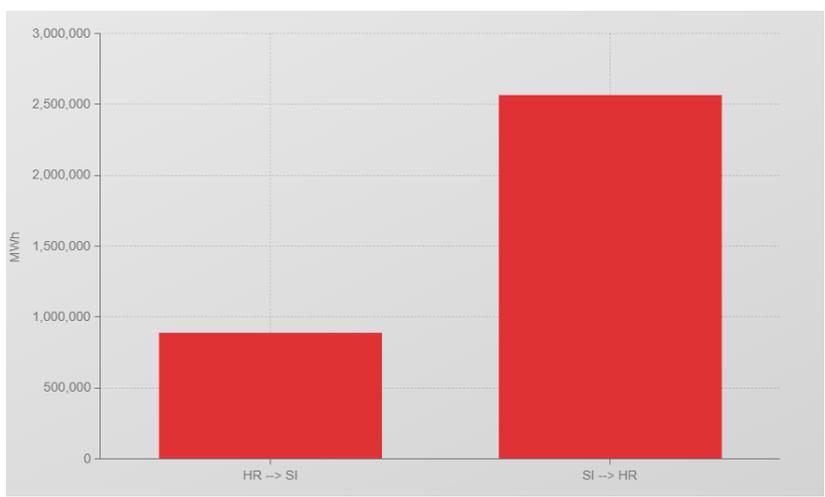
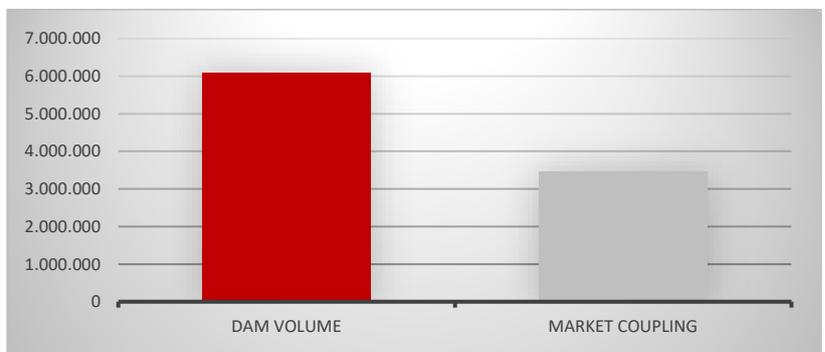
# CROPEX DAY AHEAD MARKET

## Market Coupling

Since 2018, Croatian Day Ahead Market is coupled to the European SDAC market via Croatian-Slovenian border.

Volume [MWh]	2020
DAM Volume Traded	6,076,726
Market Coupling Total	3,461,187
Market Coupling HR -> SI flow	892,392
Market Coupling SI -> HR flow	2,568,795

Market Coupling Volume share within DAM Volume Traded



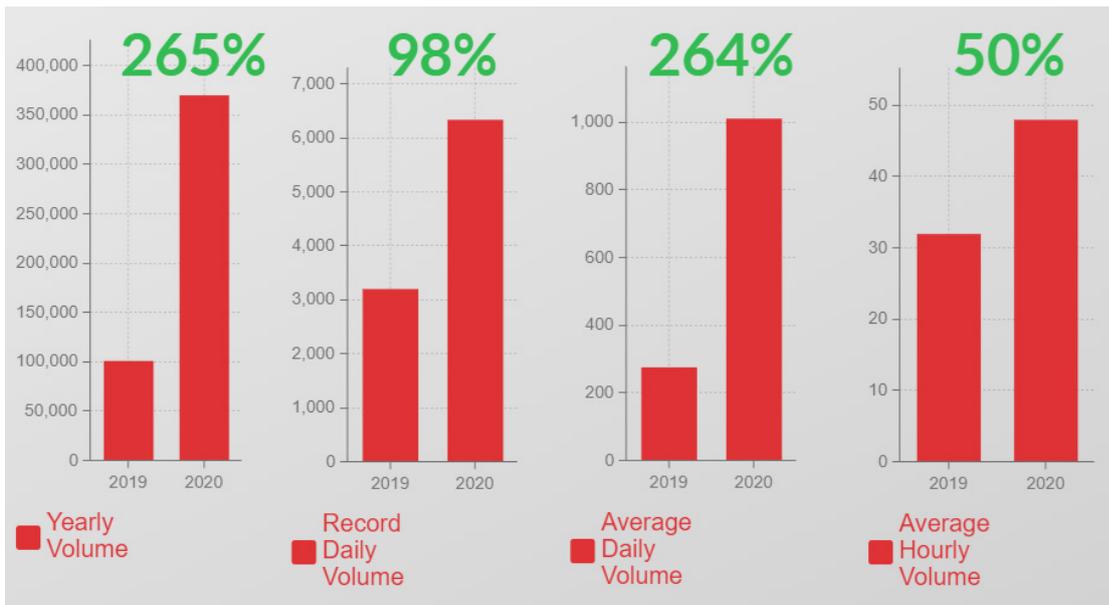
# Chapter 3

## General 2020 Trading Data

### CROPEX INTRADAY MARKET

Following the successful coupling through SIDC, CROPEX Intraday Market achieved significant growth in 2020.

Volume Traded [MWh]	2020	2019	
Total	370,515	101,419	265.3 % ↑
Highest Monthly	49,773	32,874	51.4 % ↑
Average Monthly	30,876	8,452	265.3 % ↑
Average Daily	1,012	278	264.3 % ↑
Highest Daily	6,346	3,210	97.7 % ↑
Average Hourly	49	32	50.6 % ↑
Highest Hourly	601	449	33.9 % ↑



Price [EUR/MWh]	2020	2019	
Volume Weighted Average Price	38.30	50.14	23.6 % ↓
Highest Trade Price	214.83	171.5	25.3 % ↑
Lowest Trade Price	-12.57	-11.7	7.4 % ↓
Number of Trades	70,984	10,697	563.6 % ↑

# CROPEX INTRADAY MARKET

## General 2020 Data – Monthly Volumes and Prices

### 2020 Volumes [MWh]

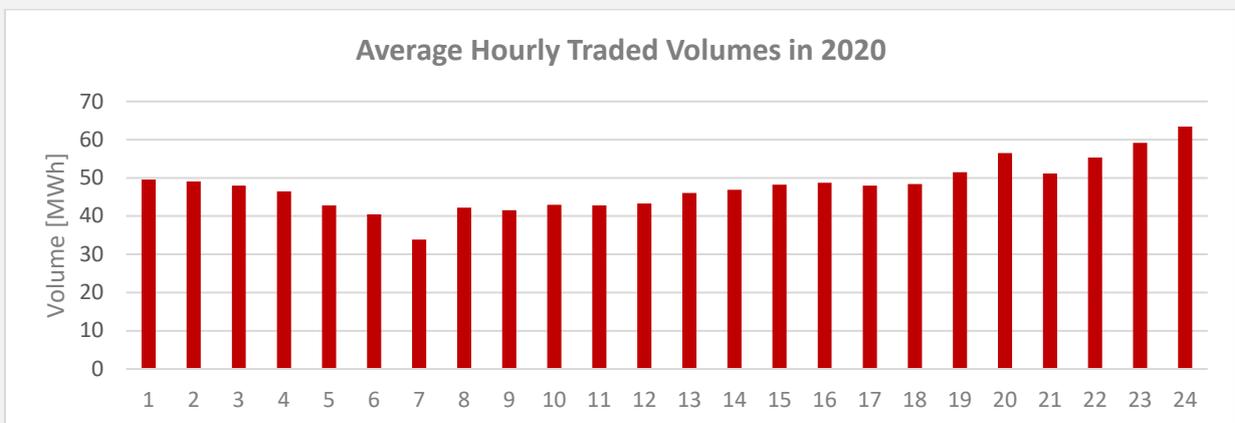
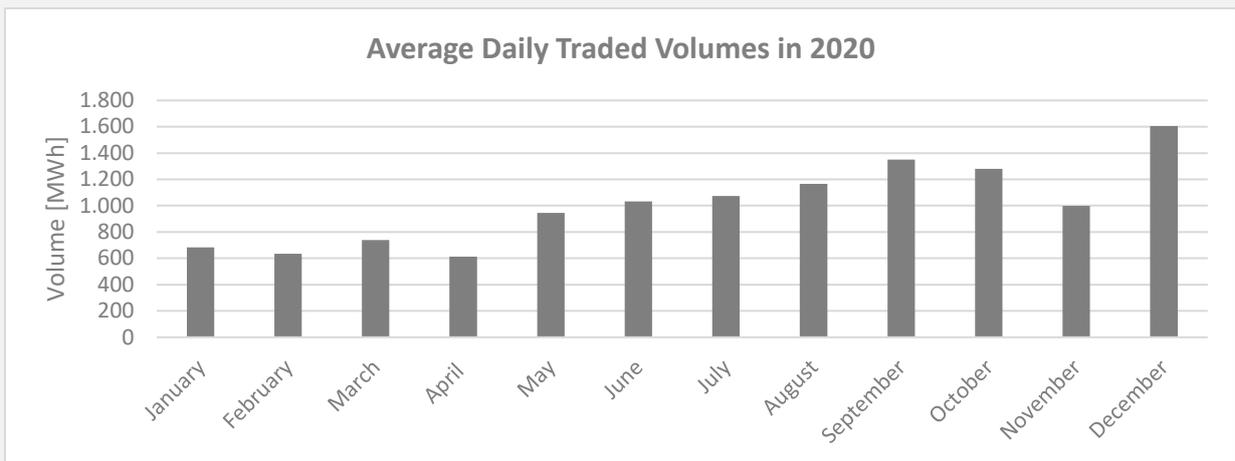
Month	Total Traded Volume	Highest Daily Traded Volume	Average Daily Traded Volume	Highest Hourly Traded Volume	Average Hourly Traded Volume
January	21,206	2,848	684	299	29
February	18,398	2,063	634	249	26
March	22,879	2,236	738	303	31
April	18,383	1,300	613	157	26
May	29,287	2,739	945	242	40
June	30,975	3,008	1033	426	43
July	33,288	6,346	1074	320	45
August	36,135	3,808	1166	382	49
September	40,534	4,278	1351	601	56
October	39,686	3,166	1280	318	53
November	29,970	2,376	999	230	42
December	49,773	3,872	1606	600	70

### 2020 Prices [EUR/MWh]

Month	Weighted Average Price	Peak Weighted Average Price	Off-peak Weighted Average Price	Lowest Trade Price	Highest Trade Price
January	52.21	59.59	45.14	19.36	175.02
February	41.43	44.68	37.74	2.10	140.25
March	28.16	30.20	25.89	-0.17	74.01
April	22.97	23.16	22.62	-12.15	58.00
May	21.22	21.91	20.44	-2.13	63.33
June	31.00	33.01	28.37	1.00	99.00
July	35.77	38.25	32.81	-12.57	99.00
August	38.16	40.32	35.57	7.18	81.07
September	45.69	50.04	40.85	9.00	168.73
October	37.83	43.05	32.27	-2.33	89.94
November	47.00	54.17	38.65	0.80	120.00
December	57.18	70.30	42.79	3.00	214.83

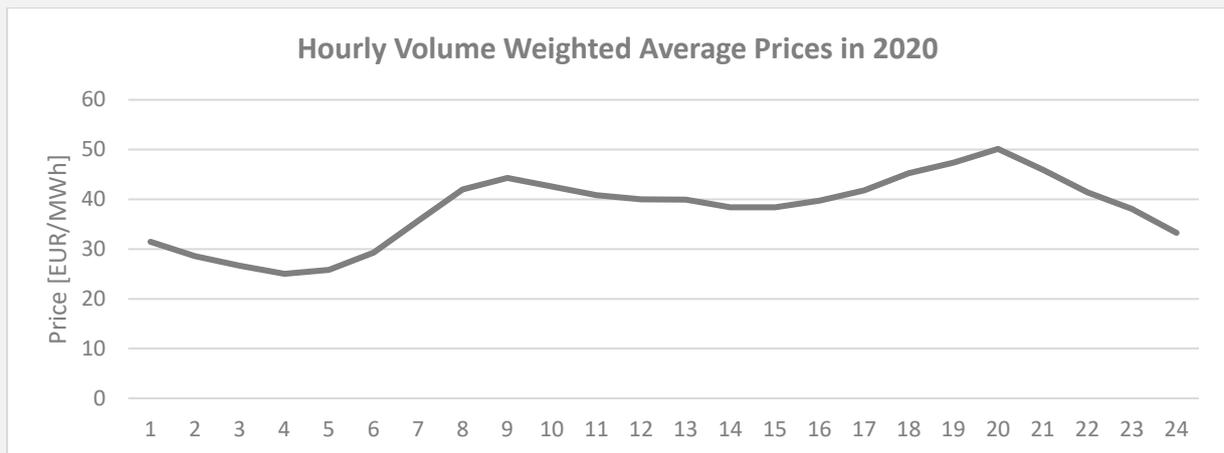
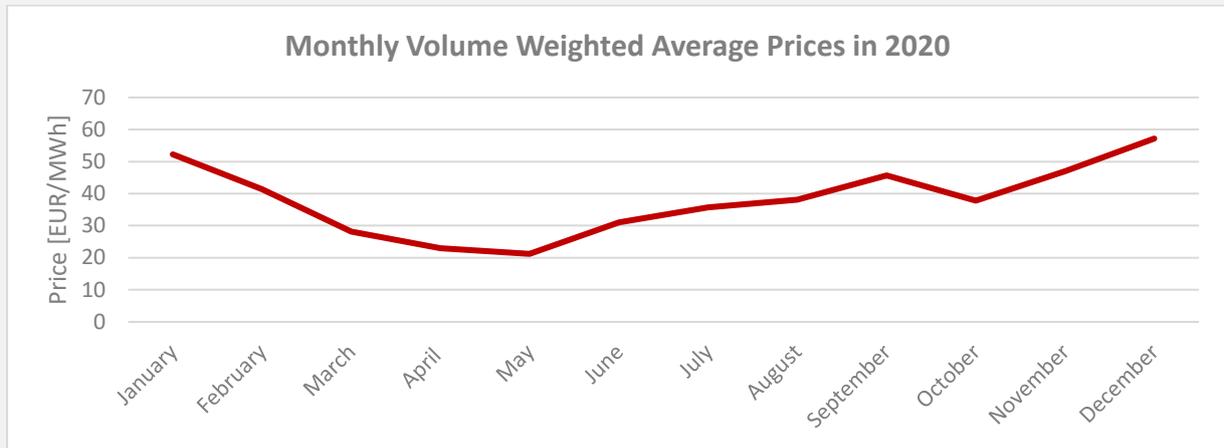
**CROPEX  
INTRADAY  
MARKET**

**2020 Charts – Volumes**



# CROPEX INTRADAY MARKET

## 2020 Charts – Prices



\* Volume Weighted Average Price for completed trades per product – calculated by multiplying price with the volume for every transaction and then dividing by the total volume

# CROPEX INTRADAY MARKET

## Market Coupling

Since 2018, Croatian Intraday Market is coupled to European SIDC market via Croatian-Slovenian and Croatian-Hungarian borders.

Volume [MWh]	2020
CROPEX Volume Traded	370,515
<b>Market Coupling Total</b>	<b>1,594,845</b>
Market Coupling HR -> SI flow	342,424
Market Coupling SI -> HR flow	378,510
Market Coupling HR -> HU flow	502,363
Market Coupling HU -> HR flow	371,548
<b>Transit Total Volume</b>	<b>613,155</b>
Market Coupling HR -> HU flow	333,265
Market Coupling HU -> HR flow	279,890
Market Coupling HR -> SI flow	279,890
Market Coupling SI -> HR flow	333,265



# Chapter 4

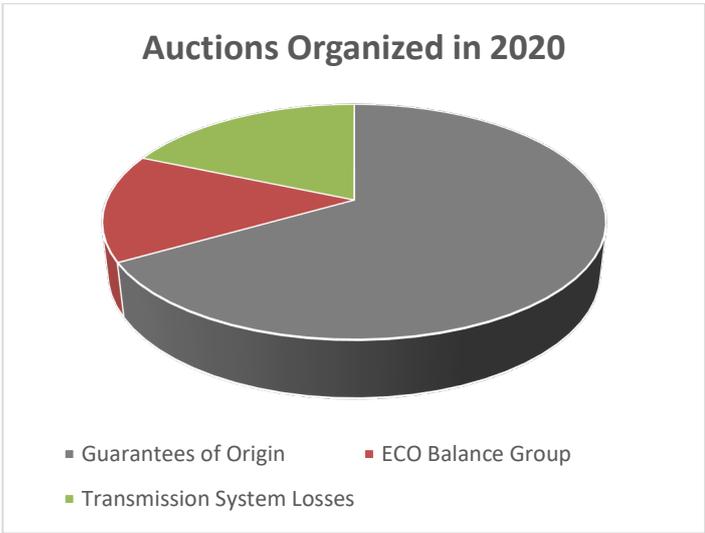
## General 2020 Data

### AUCTIONS

During 2020 altogether 27 different auctions were organized by CROPEX. Most of the auctions (18) were held for the purpose of selling Guarantees of Origin (GO) on behalf of Croatian Energy Market Operator (HROTE), with additional 4 auctions for selling RES energy from ECO Balance Group (HROTE).

For Croatian Transmission System Operator (HOPS), 5 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	18	15
ECO Balance Group	4	9
Transmission System Losses	5	5



## AUCTIONS

### Guarantees of Origin Auctions

During 2020 seven new auction participants joined Guarantees of Origin auctions organized by CROPEX. 100% of offered Guarantees of Origin were successfully sold.

By the end of 2020, there were altogether 20 registered CROPEX auction participants, 15 of which actively participated in the auctions organized during 2020.

#### List of auction participants (end of 2020)

			Joined 2020	
1	ACT Commodities B.V.		NL	
2	AFS Energy B.V.		NL	
3	BELEKTRON EKOTRADING d.o.o.		SI	
4	ČEZ, a.s.		CZ	
5	Danske Commodities		DK	
6	DXT Commoditeies SA		CH	
7	E.ON ENERGIJA d.o.o.		HR	
8	ENEL Global Trading		IT	
9	Energi Danmark A/S		DK	✓
10	Energy Supply EOOD		BG	✓
11	GEN-I Zagreb d.o.o.		HR	
12	HRVATSKA ELEKTROPRIVREDA d.d.		HR	✓
13	Croatian Transmission System Operator Ltd.		HR	
14	NVALUE AG		CH	
15	PETROL d.o.o.		HR	✓
16	RIGHT POWER, a.s.		SK	✓
17	SCB Broker SA		CH	
18	Statkraft Markets GmbH		DE	✓
19	STX Commodities		NL	
20	TERREMOTO ENERGO-PROJEKT d.o.o.		HR	✓

## AUCTIONS

### List of 2020 GOs auctions

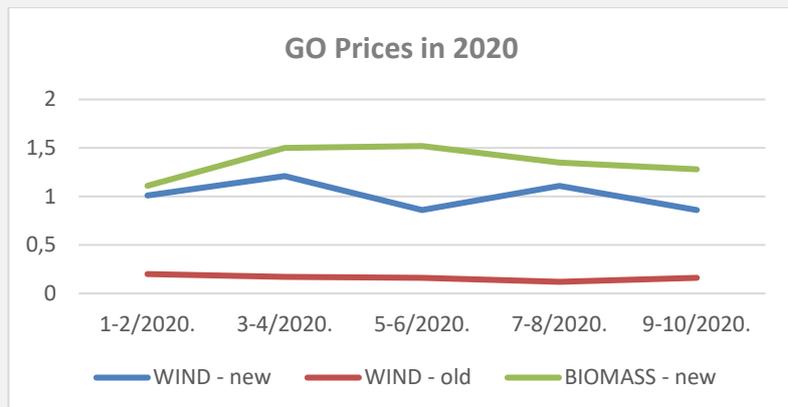
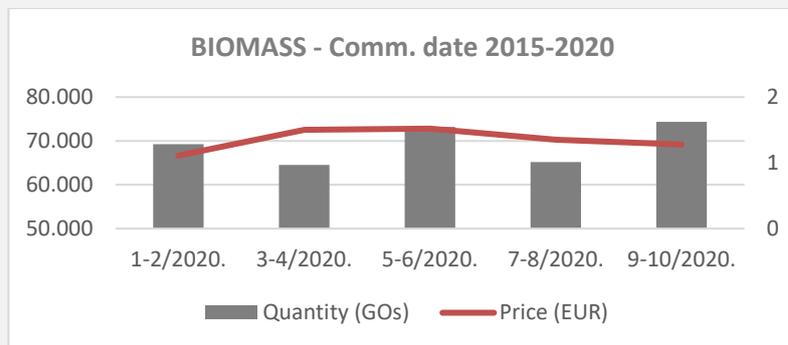
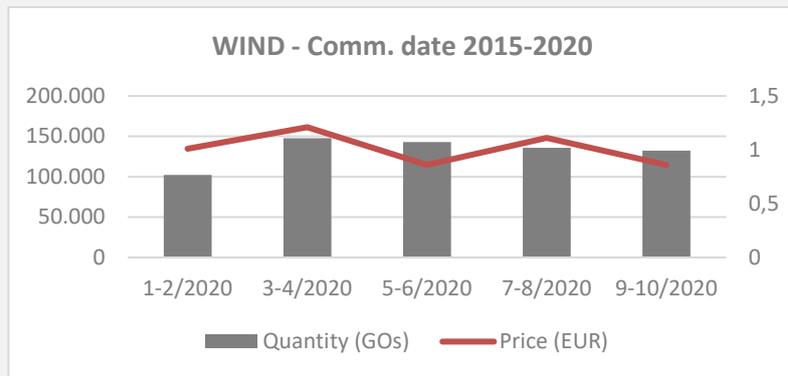
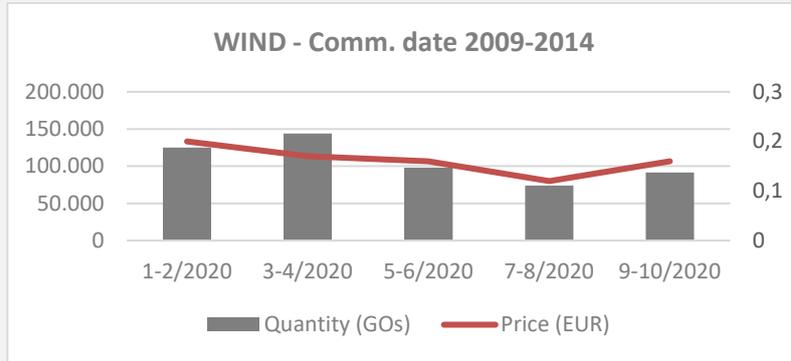
From 18 GO auctions organized during 2020, most of the auctions were held for production from the wind power plants (11). In 2020 HROTE started to sell also GOs from Biomass power plants.

Wind GO auctions were additionally split depending on the commissioning date of the power plants, while an additional split was done for GOs from biomass, depending on the installed capacity of the power plants.

List of auctions	Auction type	Auction date	GOs sold	Price EUR/GO
Production from Q4/2019	WIND	2020-01-21	274,482	0.36
Production January-February 2020	BIOMASS	2020-03-16	69,227	1.11
Production January-February 2020 (Comm. date 12-2015 to 12-2019)	WIND	2020-03-16	102,029	1.01
Production January-February 2020 (Comm. date 12-2009 to 12-2014)	WIND	2020-03-16	125,092	0.20
Production March-April 2020	BIOMASS	2020-05-20	64,486	1.50
Production March-April 2020 (Comm. date 12-2015 to 12-2019)	WIND	2020-05-20	147,806	1.21
Production March-April 2020 (Comm. date 12-2009 to 12-2014)	WIND	2020-05-20	143,961	0.17
Production May-June 2020 (Comm. date 06-2015 to 05-2020)	BIOMASS	2020-07-21	73,197	1.52
Production H1/2020 (Comm. date 09-2010 to 05-2014)	BIOMASS	2020-07-21	6,351	0.14
Production May-June 2020 (Comm. date 12-2015 to 12-2019)	WIND	2020-07-21	142,823	0.86
Production May-June 2020 (Comm. date 12-2009 to 12-2014)	WIND	2020-07-21	97,861	0.16
Production July-August 2020 (Comm. date 06-2015 to 08-2020)	BIOMASS	2020-09-18	65,175	1.35
Production July-August 2020 (Comm. date 12-2009 to 12-2014)	WIND	2020-09-18	73,893	0.12
Production July-August 2020 (Comm. date 12-2015 to 05-2020)	WIND	2020-09-18	135,855	1.11
Production September-October 2020 (Comm. date 06-2015 to 08-2020) - inst. cap. < 5 MW	BIOMASS	2020-11-19	43,850	1.61
Production September-October 2020 (Comm. date 12-2015 to 09-2020) - inst. cap. ≥ 5 MW	BIOMASS	2020-11-19	30,468	0.81
Production September-October 2020 (Comm. date 12-2009 to 12-2014)	WIND	2020-11-19	91,791	0.16
Production September-October 2020 (Comm. date 12-2015 to 05-2020)	WIND	2020-11-19	132,440	0.86

# AUCTIONS

## Guarantees of Origin – 2020 Charts



\*The charts show GOs Marginal Price (EUR/GO) except for Biomass at the auction for production from 9-10/2020 where the GO Volume Weighted Marginal Price is shown. At that auction, GOs from biomass were sold at two auctions (from the biomass power plants whose installed capacity is less than 5 MW / greater than or equal to 5 MW)

## AUCTIONS

### ECO Balance Group and Losses Auctions

During 2020 CROPEX organized 4 different auctions for HROTE where RES energy was being sold on a yearly and quarterly basis. Altogether 7 different market participants participated in the auctions.

By the end of 2020 CROPEX also organized 5 auctions in which 5 different registered auction participants were selling energy to HOPS for the purpose of covering losses in Croatian transmission system operated by HOPS.

#### ECO Balance Group Auctions

List of auctions	Auction date	Number of participants	Power sold MWh/h	Average Weighted Price EUR
Quarterly Auction for the sale of electricity from ECO BG in 2020 (Q4/2020)	2020-07-20	0	50	-
Quarterly Auction for the sale of electricity from ECO BG in 2020 (Q4/2020)	2020-08-04	5	50	45.08
Yearly Auction for the sale of electricity from ECO BG in 2021	2020-11-19	7	110	46.84
Quarterly Auction for the sale of electricity from ECO BG in 2021 (Q1/2021)	2020-11-23	7	20	47.53

#### Losses Auctions

List of auctions	Auction date	Number of participants	Power bought MWh/h
Energy delivery to cover transmission system losses in 2021	2020-04-02	5	10
Energy delivery to cover transmission system losses in 2022	2020-04-02	5	10
Energy delivery to cover transmission system losses in 2023	2020-04-02	4	5
Electricity delivery to cover transmission system losses in 2021	2020-11-30	5	5
Electricity delivery to cover transmission system losses in January 2021	2020-11-30	5	5

---

## CONTACT

### CROATIAN POWER EXCHANGE Ltd.

Slavonska avenija 6/A  
10 000 Zagreb  
Croatia

T: +385 1 55 40 400

E-mail: [info@cropex.hr](mailto:info@cropex.hr)

#### **Management Board:**

**Silvio Brkić** – President of the Board

**Ivica Toljan** – Member of the Board