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The progression of Guarantees of Origin trading in Croatia amidst the European framework

Marko Kelava, Martina Vajdić, Boris Dokmanović

***Summary* — This article explores the progress and development of Guarantees of Origin trading in Croatia, specifically focusing on the regulatory framework implemented by the Republic of Croatia. The responsibility for issuing Guarantees of Origin for electricity and managing the Registry of Guarantees of Origin lies with the CROATIAN ENERGY MARKET OPERATOR Ltd. (HROTE). The Croatian Registry of Guarantees of Origin was established in 2014, and full implementation commenced in February 2015 with the registration of the first users.In alignment with the Law on Renewable Energy Sources and Highly Effective Cogeneration, HROTE, as the leader of the ECO Balance Group for incentivized electricity production, began selling a portion of the energy produced on the trading platforms of CROATIAN POWER EXCHANGE Ltd. (CROPEX) since the beginning of 2019. This shift towards market-based electricity sales created an opportunity to establish a system for trading Guarantees of Origin, specifically for electricity produced by eligible incentivized producers and sold on CROPEX markets by HROTE. The issuance of Guarantees of Origin for relevant power plants occurs within the Croatian Guarantees of Origin Registry, where they are sold to market participants based on market principles through Guarantees of Origin Auctions. CROPEX organizes these auctions using a specially developed IT auction trading platform. Once an auction is successfully completed, the raised funds are transferred to the incentivized system fund, and the sold Guarantees of Origin are transferred from HROTE's account in the Guarantees of Origin Registry to the user accounts of the auction participants. Overall, Guarantees of Origin empower end customers to determine the source of their supplied electricity, enabling them to make informed choices. This energy certification process verifies that consumers have purchased energy from renewable sources. Guarantees of Origin also serve as effective tools for promoting the use of renewable energy sources and attracting investments in renewable energy generation. Consequently, they contribute to achieving targets related to renewable energy utilization. The article also delves into the background and development of Guarantees of Origin trading in Croatia, positioning the country as a leader in this domain within the European context. It includes a comparative analysis of the Guarantees of Origin market in the United Kingdom as a reference point, with consideration given to the impact of Brexit on Guarantees of Origin markets. Additionally, the article explores the segregation of Guarantees of Origin auctions based on specific technologies and their characteristics. For instance, Guarantees of Origin from biomass power plants are sold through two different auctions based on the plant's installed capacity, while Guarantees of Origin from wind power plants are also sold through two auctions, but contingent on the commissioning start date. These distinctions lead to varying prices depending on the technology's age or installed capacity.**

***Keywords* — Guarantees of Origin, Energy certification, trading, auction, renewable energy sources, high-efficiency cogeneration, CROATIAN POWER EXCHANGE Ltd. (CROPEX), CROATIAN ENERGY MARKET OPERATOR Ltd. (HROTE)**

1. INTRODUCTION

Conducting auctions of Guarantees of Origin in Croatia refers to electricity produced in the production facilities of eligible electricity producers who have a valid contract for the purchase of electricity concluded in accordance with the Tariff System for production of electricity from renewable energy sources and cogeneration.[1]

CROATIAN ENERGY MARKET OPERATOR Ltd. (HROTE) determines the number of Guarantees of Origin (GO) it sells at auctions of Guarantees of Origin in accordance with the definitions and provisions of the Decree on the Establishment of the System of Guarantees of Origin of Electricity (Official Gazette 28/23).[1]

Guarantees of Origin HROTE sells at auctions conducted by CROATIAN POWER EXCHANGE Ltd. (CROPEX). CROPEX is the central contracting party that enables the sale of Guarantees of Origin by matching the bids of the auction participants with the offer of HROTE for the sale of the number of Guarantees of Origin at auction through the auction system.

To participate in the auction of Guarantees of Origin at CROPEX, each participant in the auction with an agreement on participation in the auction of Guarantees of Origin must have an account in the Croatian Register of Guarantees of Origin maintained by HROTE or in one of the registers of Guarantees of Origin affiliated to the AIB (Association of Issuing Bodies) system hub. AIB is a Brussels-based organization that regulates the European energy certification system, the so-called EECS (European Energy Certificate System) [2], to which HROTE joined as a full member on 23 May 2014.[1]

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II. Guarantees of Origin in the Wider European Context

Although the paper is dedicated to Guarantees of the Origin of electricity in the Croatian context, this short chapter provides an overview of the wider European context. This context is primarily related to the Clean Energy for All Europeans package, which promotes the three main objectives of European policy:

- putting energy efficiency first,
- achieving global leadership in renewable energy sources,
- providing a fair deal for consumers.[2]

In the energy markets of the future, consumers will play an active and central role, including in the electricity market. Consumers across the EU will have a better basis for supply choices, access to reliable energy price comparison tools and the ability to produce and sell their own renewable electricity. Increased transparency and better regulation give citizens more opportunities to become more involved in the energy system.

Furthermore, the importance of energy policy issues is growing around the world, especially those related to clean energy and energy efficiency. Policy instruments that support the monitoring of energy sources and the disclosure of this information to consumers will play a key role in the transition to a sustainable future.[2]

Within the EU, unique GO issued in accordance with EU directives have the function of proving to the end customer the source of energy from which the energy they consume is produced. Guarantees of Origin can be transferred between account holders regardless of the energy to which they relate.[2]

Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and the subsequent amendment of Directive 2001/77/EC and Directive 2003/30/EC introduced an obligation to establish a system of Guarantees of Origin and specifically for the purpose of publishing data on the primary energy source as referred to in Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 on common rules for the internal market in electricity repealing Directive 2003/54 / EC.[3]

The regulatory framework for the implementation of the guarantees of origin system is defined by the Energy Act (Official Gazette 120/12, 14/14, 102/15), which stipulates that an energy origin guarantee system is introduced to end customers for the purpose of proving the share of energy produced from individual energy sources.

Guarantees of Origin is an electronic document for the purpose of proving the origin of energy to the customer in such a way that a certain share of electricity used for its consumption is produced from a specific primary energy source and should be the standardized size of 1 MWh. A GO shall be issued either for electricity produced from a plant using a renewable energy source or from a high-efficiency cogeneration plant, exclusively at the request of a privileged producer. Eligible manufacturers for incentive system installations entitled to an incentive price are not entitled to participate in the GO system.[3]

For the purposes of the RES Directive, energy from renewable sources is defined as "energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases".

The RES Directive requires the Member States to give producers the opportunity to obtain electronic GOs for energy generated from these sources. The Member States shall as such issue GOs for electricity, gas (including hydrogen) and heating and cooling. Article 19 of the existing Renewable Energy Directive states that each GO should contain information including but not limited to:

- Energy source;
- Start and end dates of production;
- Generator identity, location, type, date of operation, and capacity;
- Whether the GO relates to electricity or heating or cooling;
- Whether the installation benefits from state support;
- Date and country of issue; and
- Unique identification number.

There is no fixed price for a GO, and their value depends on market demand.

III. Organization of the Auction of Guarantees of origin in Croatia

In accordance with the Law on Renewable Energy Sources and High-Efficiency Cogeneration, HROTE, as the head of the ECO balance group consisting of eligible electricity producers for which the electricity purchase agreement is in force from the beginning of 2019, started selling 30% of electricity on the electricity market through CROPEX trading platform.[5]

With the transition of HROTE to the market sale of electricity, the possibility of establishing a system of selling GOs of electricity on a market basis has opened, precisely for electricity produced by eligible producers in the incentive system. Namely, GOs for the production of electricity from the plants in question can be issued within the Croatian Register of Guarantees of Origin and sold according to market principles, i.e., through auctions of GOs. During 2019, HROTE issued GOs for 30% of the electricity of eligible producers in the incentive system sold on the electricity market through the ECO balance group, which were then sold on the market through auctions of GOs, i.e., through CROPEX's auction system.[5]

After the conclusion of the auction and successful purchase and sale of GOs, the collected funds are transferred to the incentive system fund, while on the other hand sold GOs at auctions are transferred from HROTE's account in the Croatian Registry of Guarantees of Origin to the user accounts which buy GOs. For 2019, the percentage or share of electricity of eligible producers in the incentive system sold was 30% or 899,199 GOs. On the other hand, in 2020, the percentage or share of electricity of eligible producers in the incentive system sold was 60%, i.e., a total of 1,546,305 GOs and in 2021 2,030,603 GOs. [5]

Based on metering data from the billing metering point of the production plant, i.e., the control metering point of the production unit of the eligible producer in the incentive system obtained from the transmission system operator and the distribution system operator, HROTE determines the number of GOs be sold at auctions. HROTE also determines the minimum price of the GO offered at the auction for each individual auction. HROTE and CROPEX are obliged to publish on their websites the specification, date and time of the auction.[1]

The list of GOs auctions organized on CROPEX auction platform in 2020 and 2021 are shown in Tables 2 and 3.

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TABLE I.

REGISTER OF GOS IN CROATIA

The registry of Guarantees of Origin (GO): period 1/1/2020-31/12/2020						
Registry activation date	Account holder	Name of account	Address of the account holder	Account holder's code	Account holder's role	The total sum of all transactions GOs on account holder's account in the period 1/1/2020-31/12/2020 (MWh)
21.4.2015.	HEP-Opskrba d.o.o.	643002406600047167	Ulica grada Vukovara 37, ZG	40XX20FR6K	Supplier	5.347.762
21.5.2015.	GEN-I Zagreb d.o.o.	643002406600047716	Radnička cesta 54, ZG	40XY21WN4S	Supplier	16.991
17.8.2015.	Proenergy d.o.o.	643002406600048058	Ulica grada Vukovara 284, ZG	40XL24ST6Q	Supplier	0
20.10.2015.	E.ON ENERGIJA d.o.o.	643002406600048232	Capraška ulica 6, ZG	40XR74MD2Y	Supplier	48.693
27.10.2015.	HEP-Proizvodnja d.o.o.	643002406600048317	Ulica grada Vukovara 37, ZG	40XY25GQ1X	Producer	9.616.786
21.3.2016.	CRODUX PLIN d.o.o.	643002406600049215	Savska Opatovina 36, ZG	40XT29EQ0M	Supplier	198
17.3.2017.	ADRIA WIND POWER d.o.o.	643002406600050990	Varaždinska 61, Sesvete	40XH60AR5M	Producer	10.080
30.11.2018.	VJETROELEKTRANA TRTAR-KRTOLIN d.o.o.	643002406600052567	Bože Pericica 30, Šibenik	40XZ08FJ62	Producer	55.736
22.01.2019.	ZAGREBAČKI HOLDING d.o.o.	643002406600052703	Ulica grada Vukovara 41, ZG	40XK72RM8Y	Producer	40.278
25.01.2019.	HIDRO-WATT d.o.o.	643002406600052710	Ožujska 21, ZG	40XD27KM6C	Producer	7.835
28.08.2019.	HEP d.d.	643002406600062627*	Ulica grada Vukovara 37, ZG	40XH57YZ3L	Trader	56.980
23.12.2019.	PETROL d.o.o.	643002406600063051*	Oreškovićeva 6/h, ZG	40XN18BC4D	Supplier	15.396
28.02.2020.	ENERGIA GAS AND POWER d.o.o.	643002406600063426*	Ulica Alexandera von Humboldta 4 B, ZG	40XZ59SA7C	Supplier	211.900
04.03.2020.	ENERGY SUPPLY EOOD	/	Grafa Ignatijeva 2, BUGARSKA	40XF26BZ8W	Trader	0
16.03.2020.	HOPS d.o.o.	643002406600063563*	Kupska 4, ZG	40XB91KC76	Supplier	183.790
18.05.2020.	Terremoto Energo-Projekt d.o.o.	643002406600063778*	Goricanska 23, ZG	40XK38XC62	Trader	178.928

TABLE II.

LIST OF GOS AUCTIONS IN 2020 [6]

List of auctions in 2020	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

Table III.

List of GOs auctions in 2021 [6]

List of auctions in 2021	Auction type	Auction date	GOs sold	Price EUR/GO
Production H1/2020 (Comm. date 09-2011 to 05-2014)	BIOMASS	2021-01-21	2.574	0,25
Production November-December 2020 (Comm. date 06-2015 to 08-2020) - inst. cap. < 5 MW	BIOMASS	2021-01-21	50.012	1,56
Production November-December 2020 (Comm. date 12-2015 to 09-2020) - inst. cap. ≥ 5 MW	BIOMASS	2021-01-21	33.244	0,55
Production November-December 2020 (Comm. date 12-2015 to 05-2020)	WIND	2021-01-21	174.625	0,65
Production November-December 2020 (Comm. date 12-2010 to 12-2014)	WIND	2021-01-21	100.495	0,09
Production January-February 2021 (Comm. date 06-2015 to 08-2020) - inst. cap. < 5 MW	BIOMASS	2021-03-19	48.108	1,90
Production January-February 2021 (Comm. date 12-2015 to 09-2020) - inst. cap. ≥ 5 MW	BIOMASS	2021-03-19	32.444	0,17
Production January-February 2021 (Comm. date 12-2015 to 05-2020)	WIND	2021-03-19	195.330	0,21
Production January-February 2021 (Comm. date 12-2010 to 12-2014)	WIND	2021-03-19	115.080	0,20
Production March 2021 (Comm. date 06-2015 to 08-2020) - inst. cap. < 5 MW	BIOMASS	2021-04-21	24.961	2,11
Production March 2021 (Comm. date 12-2015 to 09-2020) - inst. cap. ≥ 5 MW	BIOMASS	2021-04-21	15.400	0,28
Production March 2021 (Comm. date 12-2015 to 05-2020)	WIND	2021-04-21	103.100	0,27
Production March 2021 (Comm. date 08-2011 to 12-2014)	WIND	2021-04-21	61.091	0,22
Production April 2021 (Comm. date 06-2015 to 08-2020) - inst. cap. < 5 MW	BIOMASS	2021-05-19	23.394	2,38
Production April 2021 (Comm. date 12-2015 to 09-2020) - inst. cap. ≥ 5 MW	BIOMASS	2021-05-19	16.771	0,51
Production April 2021 (Comm. date 12-2015 to 05-2020)	WIND	2021-05-19	88.006	0,51
Production April 2021 (Comm. date 01-2012 to 12-2014)	WIND	2021-05-19	53.377	0,47
Production May and June 2021 (Comm. date 06-2015 to 05-2021) - inst. cap. < 5 MW	BIOMASS	2021-07-22	48.103	3,25
Production May and June 2021 (Comm. date 12-2015 to 09-2020) - inst. cap. ≥ 5 MW	BIOMASS	2021-07-22	33.796	0,45
Production May and June 2021 (Comm. date 12-2015 to 05-2020)	WIND	2021-07-22	113.363	0,49
Production May and June 2021 (Comm. date 12-2010 to 12-2014)	WIND	2021-07-22	71.789	0,43
Production July and August 2021 (Comm. date 06-2015 to 05-2021) - inst. cap. < 5 MW	BIOMASS	2021-09-22	54.405	2,76
Production July and August 2021 (Comm. date 12-2015 to 07-2021) - inst. cap. ≥ 5 MW	BIOMASS	2021-09-22	32.160	0,76
Production July and August 2021 (Comm. date 12-2015 to 05-2020)	WIND	2021-09-22	134.540	0,78
Production July and August 2021 (Comm. date 02-2012 to 12-2014)	WIND	2021-09-22	59.406	0,78
Production September and October 2021 (Comm. date 06-2015 to 05-2021) - inst. cap. < 5 MW	BIOMASS	2021-11-23	57.958	2,21
Production September and October 2021 (Comm. date 12-2015 to 07-2021) - inst. cap. ≥ 5 MW	BIOMASS	2021-11-23	40.160	0,58
Production September and October 2021 (Comm. date 12-2015 to 05-2020)	WIND	2021-11-23	187.222	0,70
Production September and October 2021 (Comm. date 02-2012 to 12-2014)	WIND	2021-11-23	62.263	0,67

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3.1 Croatian GOs Auction Results

In this chapter, the results of GOs auctions organized by HROTE and CROPEX depending on the source of energy, wind or biomass are shown. Results of GO auctions are divided depending on the commissioning date, while the results for biomass are additionally analyzed dependent on the installed capacity.

3.1.1 Auctions organized in 2020

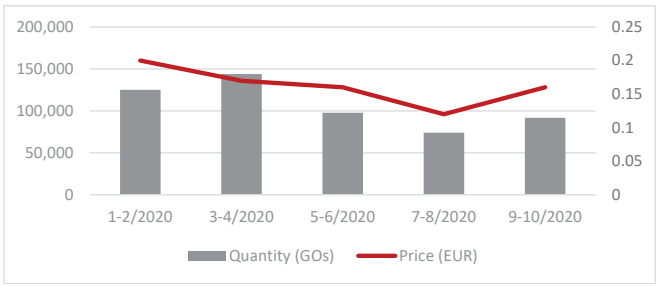

Fig. 1. Wind - commissioning date 2009-2014

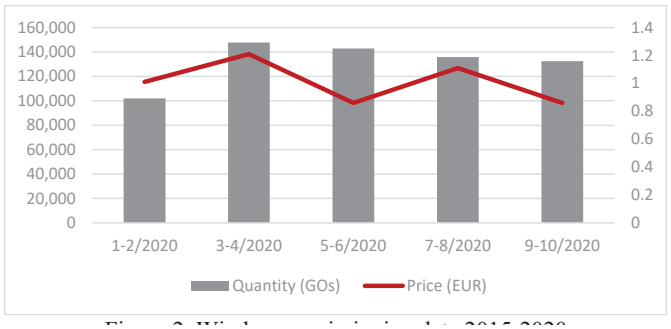

Fig. 2. Wind - commissioning date 2015-2020

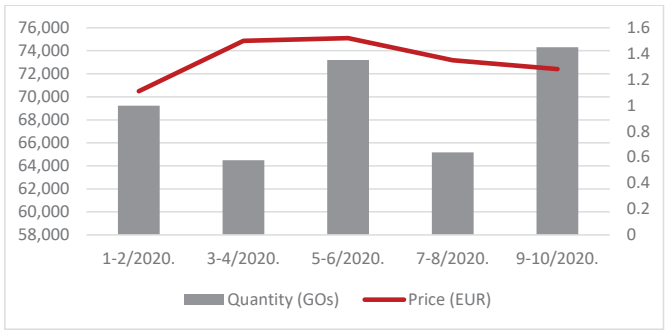

Fig. 3. Biomass - commissioning date 2015-2020

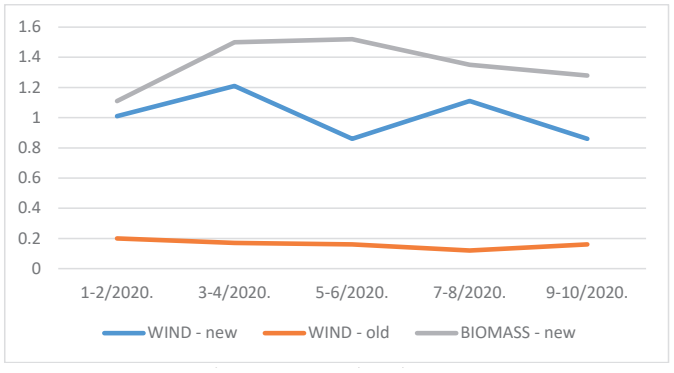

Fig. 4. GO prices in 2020

3.1.2 Auctions organized in 2021

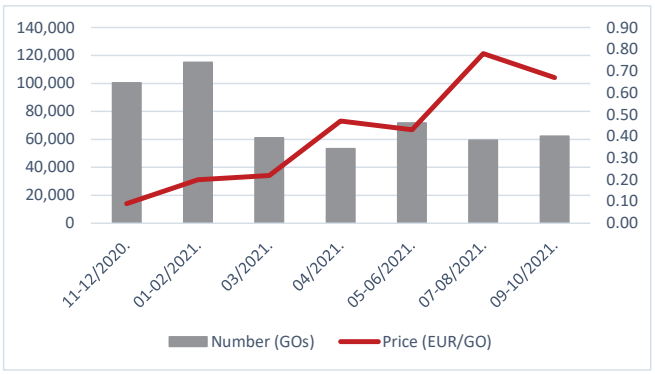

Fig. 5. Wind - commissioning date 2010-2014

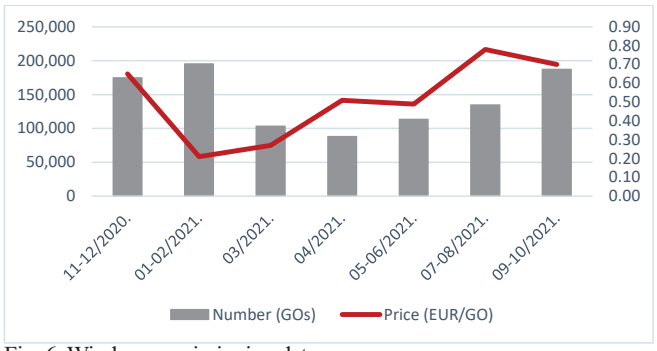

Fig. 6. Wind - commissioning date 2015-2020

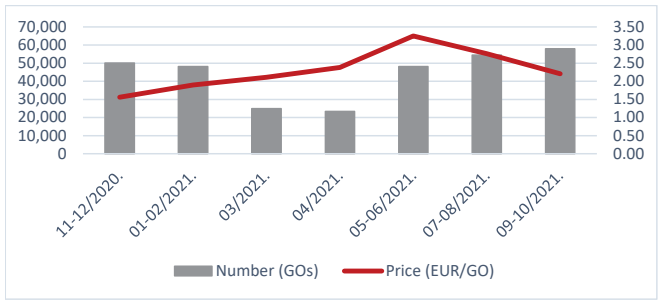

Fig. 7. Biomass - installed capacity <5MW; commissioning date 2015-2021

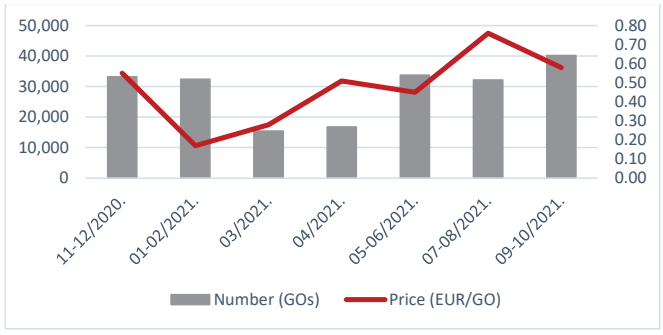

Fig. 8. Biomass - installed capacity >=5MW; commissioning date 2015-2021

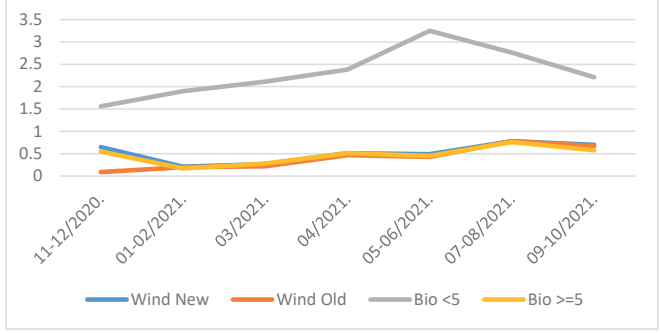

Fig. 9. GO prices in 2021

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IV. Analysis of the Uk Guarantees of Origin Impacted by Brexit

In the United Kingdom (UK) Guarantees of Origin certificates are known as REGOs (Renewable Energy Guarantees of Origin). UK energy regulator Ofgem (Office of gas and electricity market) issues one REGO certificate per megawatt-hour (MWh) of eligible renewable output to generators of renewable electricity.

In line with the activities of BREXIT, which started from 1st of February 2020, The European Commission (EC) has stated that from 1st January 2021 onwards REGOs will no longer be recognized by the EU Member States. Based on the EDC statistics, it appears EU countries have already acted to reduce their import of REGOs prior to the end of the Brexit transition period. On the contrary, Ofgem has stated that they will still be accepting GOs from the EU Member States, which will enable UK electricity suppliers to continue to use them in order to comply with their fuel mix disclosure obligations, which requires licensed electricity suppliers to disclose to potential and existing customers the mix of fuels used to generate the electricity supplied. This has to be done by the 1st July of each year. The indication is that in the long-term, recognition of GOs from the EU Member States will continue only on a reciprocal basis.

REGO auctions are organized by e-POWER, on a quarterly basis. According to e-POWER, prices seem to be on an upward trend, with an increasing number of REGOs required to support more domestic and business green electricity tariffs as well as large corporates using REGOs as part of their ESG (environmental, social and governance impacts) reporting. In the last auction, 15 active bidders bid with over 3,500 bids.

Table IV.

e-POWER REGO Auction Results [7]

e-REGO track record

Auction Date	Biogas	MIW	Landfill	Biomass	Hydro	Wind	PV	Notes
09-Dec-21	£ 4.25	n/a	£ 4.27	£ 4.97	n/a	£ 6.17	£ 6.20	
08-Oct-21	£ 2.10	£ 2.10	n/a	£ 2.05	£ 3.00	£ 2.94	£ 3.00	Apr 21 Certificates onwards
06-May-21	£ 0.09	n/a	£ 0.03	£ 0.08	£ 0.70	£ 0.72	£ 0.70	Apr 20 to Mar 21 Certificates
09-Feb-21	£ -	MIW	£ 0.06	£ 0.05	£ 0.16	£ 0.16	£ 0.16	Notes
08-Oct-20	n/a	n/a	£ 0.06	£ 0.06	n/a	£ 0.14	£ 0.15	
16-Jul-20	n/a	n/a	£ 0.12	£ 0.10	£ 0.19	£ 0.22	£ 0.07	Apr 20 to June 2020 Certificates
05-May-20	n/a	n/a	n/a	n/a	£ 0.10	£ 0.05	£ 0.08	CP18
11-Mar-20	n/a	n/a	n/a	n/a	£ 0.15	£ 0.17	n/a	
30-Jan-20	n/a	n/a	n/a	£ 0.15	£ 0.28	£ 0.26	£ 0.30	
10-Sep-19	£ 0.40	£ 0.53	£ 0.51	£ 0.51	£ 0.50	£ 0.58	£ 0.62	
23-May-19	£ 0.22	n/a	n/a	£ 0.17	£ 0.28	£ 0.22	£ 0.23	

REGOs relating to Compliance Period 19 (April 2020 to March 2021) across all technologies were sold in the auction, but huge demand for "Deep Green" certificates (certifying solar PV, hydro and wind generation) pushed prices up to well over double the current market rates, and up fourfold on the last auction. The auctions helped to deepen the market for REGOs, increasing their value for renewable energy generators.[8]

While UK GOs have effectively been ruled out for usage in the EU, the effect on the overall EU market is expected to be minimal given the small volume exported from the UK. In the interim, while EU GOs are still valid for use in the UK, there is expected to be some administrative burden for traders. However, large changes in activity or prices are unexpected due to Brexit with current arrangements.[9]

V. GOs Price Overview across the Europe

Because the supply of renewable energy has tended to outstrip demand, average prices for European GOs have been relatively low, compared to power prices. During the summer of 2021, prices were quoted around an average of 0.45 EUR/GO for energy generated in 2021 from the main product groups of hydro, wind, solar, and biomass. However, strong market activity in September 2021 has seen these prices almost double, with prices for 2022 and 2023 generation quoted at twice as much – around 1.30 EUR/GO. At present, the GO market is not very transparent, with very little public exchange trading. Most contracts and prices remain private between the parties involved. The most publicly available prices for European GOs come from national auctions set up to sell GOs on behalf of countries that do not issue them to producers who benefit from public support schemes.[10]

However, these prices do not tell the whole story. Some specific GO products sell for up to 10 times the prices seen above. The market for Dutch wind is often noted as being one of the most competitive – Dutch wind was quoted at 2.70 EUR/GO in July 2021 for 2021 supply. The Dutch national rail company has an entirely electric fleet powered by local renewables and coupled with strong local demand from other Dutch consumers, GOs for Dutch wind tend to trade at significantly higher prices than the rest of the market. The value of other GOs, such as those included in PPAs or in domestic renewable electricity offers, may be higher or lower and may not be specified separately from the total cost of each MWh of renewable electricity, i.e., power price + GO price. In general, GO prices will rise in Europe as renewable energy demand catches up with GO supply.[10]

In 2021, unlike in 2020, it can be noticed that there is almost no difference in wind GOs price between GOs from 'old' and 'new' power plants (comm. date before and after 2015). Furthermore, it is noticeable that the only thing that remained the same is a significant difference between 'combo' GOs (small biomass <5 MW) from all other GOs. The reason for this does not lie in Brexit. The

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value of the new power plants >5MW depends on the contract for differences (CFD) value in the United Kingdom (UK). Currently, the power prices are very high and thus the value of those GOs has decreased significantly. The new power plants <5MW are eligible for CFD and FIT exemption at the same time – thus their value is less affected by the lower power prices. The GOs of "new" power plants can be used in the UK by electricity suppliers to offset payments related to CfD levelisation (it's a green subsidy), so until recently, they were bidding at a premium for these GOs. Given that the participants in the auctions of guarantees of origin organized by HROTE and CROPEX come from different European countries, this explains that the price movement of GO at CROPEX is closely related to the price movement in the UK. Separation of auctions depending on the technology, age and installed capacity of the plant has so far proved to be a very good solution that makes it easier for auction participants to obtain a certain certificate (GO) at the desired price.

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