



DISCUSSION PAPER

by the Energy Community Secretariat

on Implementation of the Guarantees of Origin System in the Energy Community

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1. Background

The Ministerial Council of the Energy Community, by Decision 2012/04/MC-EnC of 18 October 2012, incorporated Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources. Based on Article 15 of the Directive, Energy Community Contracting Parties (CPs) have developed legislation and assigned designated bodies to enable the implementation of guarantees of origin (GOs). However, the process to establish an operating GO system continues to stagnate in most Contracting Parties.

In the meantime, the European Union (EU) has adopted the recast Renewable Energy Directive 2018/2001 (RED II) in 2018 that further elaborates on the use of GOs for all energy carriers from renewable energy sources. The recast Renewable Energy Directive (2018/2001/EU) is expected to be tabled for adoption in the Energy Community in 2021.

It is on this ground that the Energy Community Secretariat has conducted consultations with the Contracting Parties (CPs) in order to explore how GO systems could be used to advance their energy and climate goals. This included several calls with relevant institutions and stakeholders and a workshop in November 2020. These consultations led to the development of this paper, which presents the current state of play and options regarding renewable energy certification. Furthermore, the present paper elaborates on the prerequisites for the establishment of a regional certification system at Energy Community level, allowing for trade among the CPs. On the basis of this paper, the Energy Community Secretariat aims to initiate a discussion with the Contracting Parties on the establishment of an efficient renewable energy certification system and facilitate its set-up and implementation.

2. Energy Community and EU Legal Framework

2.1. Renewable Energy Directives

In the EU, the concept of renewable energy certification for electricity (GO) was first mentioned in the Renewable Electricity Directive (2001/77/CE), where it is described as the evidence provided by renewable electricity generators that the electricity sold is produced by renewable sources. The 2001 Directive encouraged establishing reliable GO schemes to be set up by the EU Member States (MSs) without describing in detail how they should look like. Under the 2009 EU Climate and Energy Package, the EU Renewable Energy Directive (2009/28/EC) came into force in June 2009. Article 15 of the Directive requires the issuing of GOs for the purpose of proving to the final consumer that a certain quantity of energy was produced from renewable energy sources (disclosure). The 2018 Renewable Energy Directive (RED II) further elaborates on GOs by strengthening and expanding this system further. The most important changes in Article 19 of RED II include:

- Extending GOs coverage to all energy produced from renewable sources instead of only electricity.
- Where renewable energy producers benefit from a support scheme, the market value of the respective GO must be taken into account in the relevant support scheme. This is in contrast with Article 15 of the previous Directive currently applicable in the Energy Community, which states: “*Contracting Parties may provide that no support be granted*

to a producer when that producer receives a guarantee of origin for the same production of energy from renewable sources”, without posing a strict ban.

- EU MSs and designated bodies must comply with standard CEN-EN 16325 when issuing, transferring and cancelling GOs. CEN EN 16325, which is under revision, is a pared down version of the EECS standard currently in place, which is a voluntary standard created and maintained by the Association of Issuing Bodies (AIB) and its 30 European members, who are all government-appointed issuing bodies for GOs.
- Introducing a threshold for the size of installations (50kWh) below which GOs can provide less detailed information.
- Restrictions on the trading of GOs with third countries, arguably including Energy Community CPs.

Article 19(11) includes a prohibition to recognize GOs issued by a third country except where the Union has concluded an agreement with that third country on the mutual recognition of GOs issued in the Union and compatible GO systems established in that third country, and only where there is direct import or export of energy. Although both the Energy Community Treaty¹ and preamble 40² of REDII seem to indicate that the CPs are not to be considered third countries in general terms, it is unlikely that EU will follow such an interpretation. Allowing access to the EU's market for GOs will have to be addressed in the framework of the upcoming revision of the REDII and its incorporation in the Energy Community. Otherwise, the CPs will be considered as third countries as soon as the REDII comes into force in the EU in July 2021. In that regard, the Energy Community Secretariat submitted its contribution to the Public Consultations on the Review of REDII.

2.1.1. Introduction of GOs for Renewable and Low-carbon Gases

With the introduction of the RED II, the scope of GOs is expanded from electricity to renewable energy sources in general. Because of this, GOs for renewable gases, such as biogas and hydrogen, are currently already being issued in several EU MSs. Cross-border trade for green gas certificates is facilitated by the European Renewable Gas Registry (ERGaR). With GOs having an important role to play in the energy transition, a standardised framework is now needed to unlock their full potential by including renewable and low-carbon gases. Furthermore, another extension of the scope of GOs to all production sources, including non-renewables, is currently under revision in the recast of the RED II.

¹ According to the text of art.41 of the Energy Community Treaty, quantitative restrictions on imports, exports or measures having equivalent effect shall be prohibited between the Contracting Parties with the nuance that this shall not preclude quantitative restrictions or measures having equivalent effect, justified on grounds of public policy or public security, the protection of health and life of humans, animals or plants, or the protection of industrial and commercial property

² Preamble (40) – It should be possible for imported electricity produced from renewable sources outside the Union to count towards Member States' renewable energy shares. In order to guarantee an adequate effect of renewable energy replacing non-renewable energy in the Union as well as in third countries, it is appropriate to ensure that such imports can be tracked and accounted for in a reliable way. Agreements with third countries concerning the organisation of such trade in renewable electricity will be considered. If, by virtue of a decision taken under the Energy Community Treaty (11) to that effect, the Contracting Parties thereto are bound by the relevant provisions of this Directive, the measures of cooperation between Member States provided for in this Directive should be applicable to them.

RED II is not yet mandatory for the Contracting Parties, not to mention its upcoming revision (RED III), currently ongoing in the EU. Nevertheless, the inclusion of renewable gases could be interesting for the Contracting Parties in the long term, seen the fact that renewable gases, produced from different sources and used in different sectors, might become an important instrument for achieving climate targets. Therefore, it is important to already keep this in mind when revising secondary legislation for green electricity certification in order to avoid future administrative burdens and facilitate the inclusion of gases into the GO schemes. The CPs have the advantage of moving ahead with GOs for green electricity at a time when EU MSs are increasingly including renewable and low-carbon gases in the GOs, therefore being able to already merge electricity and gas frameworks in GO secondary legislation.

There are several discussions on guarantees of origin for gasses currently held on the European level as elaborated in the box below.

The Prime Movers group is a group of expert associations from the European gas industry (EFET, Eurogas), transport sector (NGVA) and GO issuing bodies (CertifHy, ERGaR, AIB) with the common goal to create a pan-European GO system facilitating the European market for renewable and low-carbon energy. The group is co-chaired by ENTSOG and GIE.

REGATRACE (REnewable GAs TRAdE Centre in Europe) is a Horizon 2020 project, which aims to create an efficient system for issuing and trading biomethane/renewable gases GOs. This will strongly contribute to the uptake of the European common biomethane market.

CertifHy III will implement a harmonized H2 GO scheme across Europe and beyond, build a market for H2 GO trade in close collaboration with market actors and design a certification scheme for compliance with RED II renewable fuels for transport.

AIB Gas Scheme Group facilitates a forum for issuing bodies who administer a reliable system of internationally tradeable energy certificates. AIB also facilitates independent decision-making by gas issuing bodies on gas related aspects.

To enable prompt implementation, this paper focuses on the introduction of GOs for renewable electricity, however, keeping in mind that once REDII is transposed in the Energy Community and the EU system of GOs for renewable gases is well established, the scope of GOs in the Contracting Parties could also be further widened to renewable and low-carbon gases.

2.2. Directives on Common Rules for the Internal Market for Electricity

Directive 2009/72/EC, which is transposed in the Energy Community, requires in its Article 3 the contribution of each energy source to the overall energy mix to be specified. It was replaced by Directive (EU) 2019/944 on common rules for the internal market for electricity, which in Annex I, point 5, requires Member States to introduce “disclosure of energy sources” schemes for electricity sold to final consumers. This refers to information an electricity supplier is bound to display on its invoice, with regards to the contribution of each energy source to the electricity purchased by the final customer and to the overall fuel mix of the supplier, as well as to inform consumers of the environmental impact, at least in terms of CO₂ emissions and radioactive waste. For non-electrical energy carriers like hydrogen, gas, heating and cooling, the legislative framework for disclosure is not yet equally elaborated.

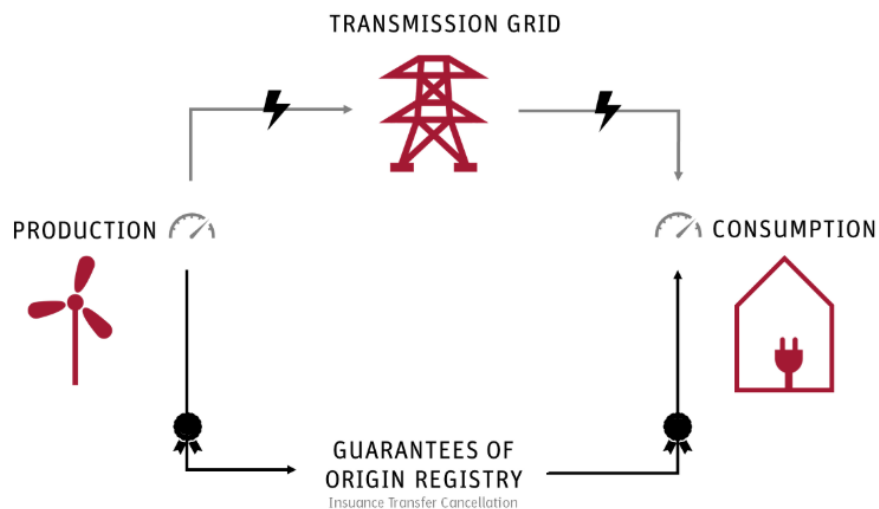
Currently, in the EU each electricity supplier is obliged to disclose to its customers the origin of all electricity sold. In most countries, this information is typically only based on cancelled guarantees of origin for the share of electricity that is explicitly sold as originating from renewable sources. The origin of the remaining supply is covered by the residual mix. The need for a residual mix stems from the fact that electricity disclosure is mandatory for all electricity sold, but GOs typically exist only for a part of the volume, namely the renewable part. Detailed best practice recommendations for disclosure are elaborated by the RE-DISS project³.

Directive (EU) 2019/944 is yet to be transposed in the Energy Community.

3. Renewable Energy Certification

3.1. Introduction

The primary goal of renewable energy certification is to enable disclosure, revealing the origin of energy sold to final consumers, and give consumers more ownership over the choice of the origin of their energy. The source of electricity/energy is not physically traceable once it is injected into the grid, which in turn sends it to the end-users (cf. picture 1). For a consumer, it is not possible to track whether a certain physical amount of electricity/energy withdrawn from the grid is coming from renewable sources or fossil fuels. Therefore, energy certification ensures end-users the possibility to legitimately claim their energy is coming from renewable sources and empower them to contribute to the energy transition. With the share of renewable energy rapidly increasing and the demand from companies for green energy rising, renewable energy certification is also becoming a very attractive market instrument. Once the electricity provider has fed the electricity into the grid, the GO received for that amount of electricity can be sold on the open market as an energy commodity.



Picture 1, Source: EEX, French Guarantees of Origin Registry

³ <http://www.reliable-disclosure.org/>

3.2. Overview of International Certification Schemes

There are multiple complementary and non-competitive internationally recognized certification schemes for green electricity. Picture 2 gives a global overview of the different schemes. The three most common systems are the EU Guarantees of Origin scheme, the International REC Standard scheme and the REC scheme.

The Guarantees of Origin (GO) system is the European-based certification scheme, rooted in EU regulations. GOs are based on the European Energy Certificate System (EECS) rules⁴ (forming the basis of and soon to be replaced by the CEN-EN 16325 standard). The EECS rules lay out the principles and rules of GO certificate operation, to be translated by each country or region in a Domain Protocol. Cross-border trade in the GO market is facilitated by the Association of Issuing Bodies (AIB), created in 2000, with the mission to guarantee the origin of European energy sources and allow trade between national registries. At present AIB has 30 members of 27 European countries⁵ all of which have been appointed by their government to administer their national (in Belgium: regional) GO system.

A second well known green electricity instrument is **Renewable Energy Certificates (RECs)** based in the United States and Canada. The REC system was established both for the mandatory and voluntary market and consists of multiple different tracking systems over the North American market, interacting with one another.

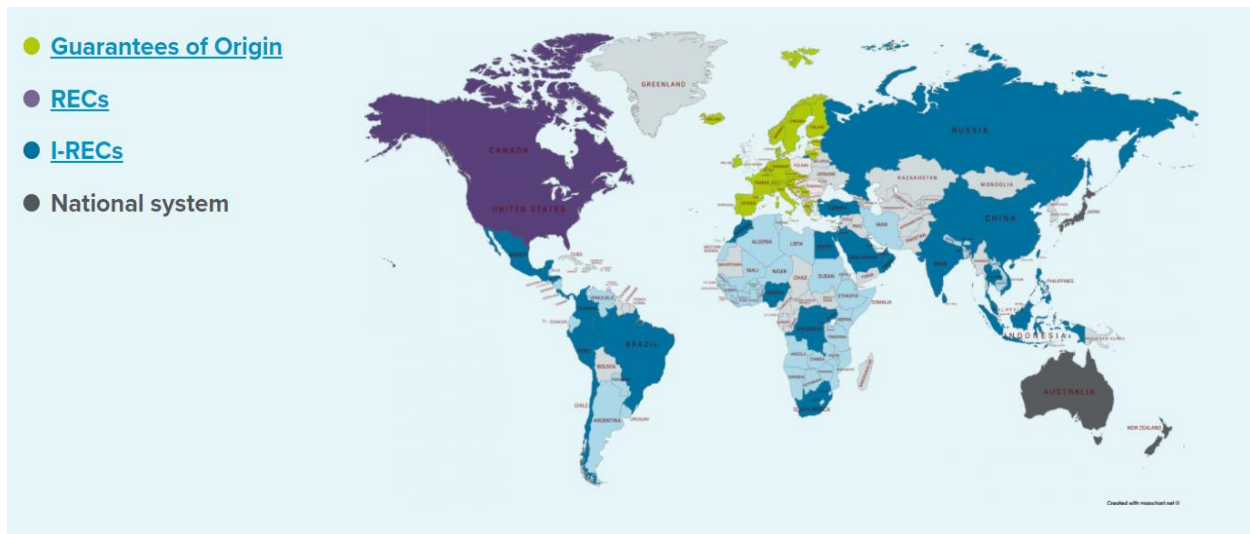
The International Renewable Energy Certification Standard (I-REC) builds on the best practises of the European-based GO system and the North American REC system. I-REC is a global standard introduced in over 30 countries spread over Asia, Africa, the Middle East and Latin America. I-REC is governed by the I-REC Standard, a non-profit organisation launched in 2014, and based on the I-REC code.⁶ The I-REC code provides the basis for a standardized tracking system that can be implemented in any country or region.

Besides this, some countries such as Japan and Australia have established national GO systems. There are also smaller regional systems such as the Norwegian-Swedish green certificate scheme for electricity production established in 2012.

⁴ <https://www.aib-net.org/eecs/eecsr-rules>

⁵ <https://www.aib-net.org/facts/aib-member-countries-regions/aib-members>

⁶ https://gcc.re/documents/The_I-REC_Code_v1.8.pdf



Picture 2, Overview of international certification schemes, Source: ECOHZ

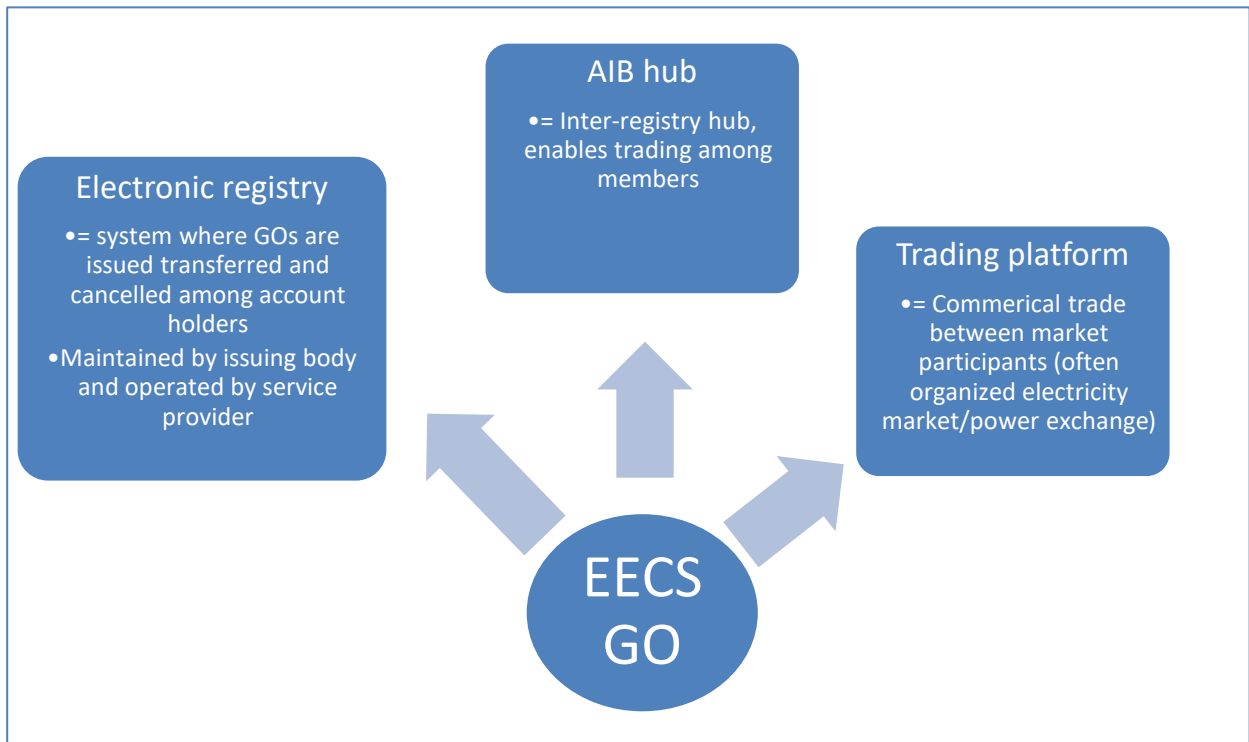
4. Green Electricity Certification⁷ in the EU and Energy Community: State of Play

4.1. EU Member States

All EU MSs have developed GOs systems, however, they are progressing at different speeds. While some countries, such as Lithuania, are already issuing GOs for biomethane and hydrogen, others are still struggling with the demand side of GOs for green electricity. Demand is mainly driven by the market, however, MSs could facilitate the demand side by raising awareness of the energy transition with consumers, while at the same time ensuring a well-established GO system that will enable full disclosure is in place, as laid out in Directive (EU) 2019/944. Although most of the MSs are members of the AIB, GOs have not yet been completely harmonised in the EU, leading to possible burdens for (especially large) energy consumers that want to trade across borders. This is an issue that could be avoided in the CPs by using a coordinated approach at the outset.

Picture 3 gives an overview of the different GO platforms based on the EU example. Besides the electronic registry where GOs are issued, transferred and cancelled among account holders and the AIB hub where AIB members can trade among each other, a certain volume of GOs are commercially traded between market participants on trading platforms. The current price of GOs on the EU markets is rather low (0,2 – 0,8 €/MWh). Nonetheless, several drivers can ensure higher prices in the upcoming years such as the rising awareness of consumers to reduce their environmental footprint and contribute to the global energy transition.

⁷ In this paper, green certificates do not refer to those green certificates used for the purpose of support schemes



Picture 3, GO platforms

4.2. Energy Community Contracting Parties

As required by the Renewable Energy Directive (2009/28/EC) currently applicable in the Energy Community, all CPs have the legal basis in place for governing GOs, while in some cases secondary acts need to be adopted (Georgia) or existing acts need to be updated (Kosovo⁸, Montenegro). At the same time, CPs have designated the competent bodies to manage the schemes. However, implementation of the system has not yet taken place, with the exception of Serbia.

⁸ Throughout this Discussion Paper, this designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

	Legal basis for GOs	Designated competent body for issuance, transfer, cancellation of GOs	Electronic mechanism for issuing, transfer and cancellation of GOs	Observer status in the Association of Issuing Bodies (AIB)	Full member in the Association of Issuing Bodies (AIB)
Albania	RE Law (2017), Decision on approval of the regulation on the release, transfer and cancellation of the GOs for electricity produced from RES (2019)	Energy Regulatory Authority	GOs are issued, but the system is not electronic. The register of GOs is public and available on ERE webpage.	X	X
Bosnia and Herzegovina	Entity RE Laws (2013), Rulebooks (2013 in RS and 2015 in FBiH)	Regulatory Commission for Energy of Republika Srpska and Operator for RES in the Federation of Bosnia and Herzegovina	In Republika Srpska, an Excel based system was implemented, but there hasn't been any demand for issuing GOs <u>till</u> now. GOs are issued but systems are not electronic or publically available in Federation of Bosnia and Herzegovina.	X	X
Georgia	RE Law (2019) defines Certificate of Origin – <i>secondary act in line with Article 15 of the Renewable Directive needs to be adopted</i>	Transmission System Operator	X	X	X
Kosovo*	Rule on the system of certificates of origin for electricity produced from RES (2010) - <i>needs to be amended to transpose Article 15 of the RES Directive 2009/28/EC</i>	Energy Regulatory Office	X	X	X

Moldova	RE Law (2016), Regulation on GOs for the electricity produced from renewable sources (2017)	Single/Central Electricity Buyer – JSC „Energocom” supervised by the Energy Regulatory Agency	X	X	X
Montenegro	Energy Law (2016/ amended 2020), Regulation on the manner of issuing, transferring and withdrawing guarantees of origin produced from RES and high efficiency co-generation (2018) – <i>new rules to be adopted as obligation from the amendments to the Energy Law</i>	Electricity Market Operator	Excel based system, not electronic	√	X
North Macedonia	Energy Law (2018), Rulebook on Renewable Energy Sources (2019)	Energy Agency	X	X	X
Serbia	Energy Law (2014), Regulation on GOs(2017), Disclosure regulation (2017), Domain Protocol (2017,2019)	Transmission System Operator (EMS)	√	N/A	√ (since September 2019)
Ukraine	Decree On approval of the Procedure for issuance, use and termination of the GOs of electricity for economic entities that produce electricity from alternative energy sources (2013)	State Agency on Energy Efficiency and Energy Saving	X	X	X

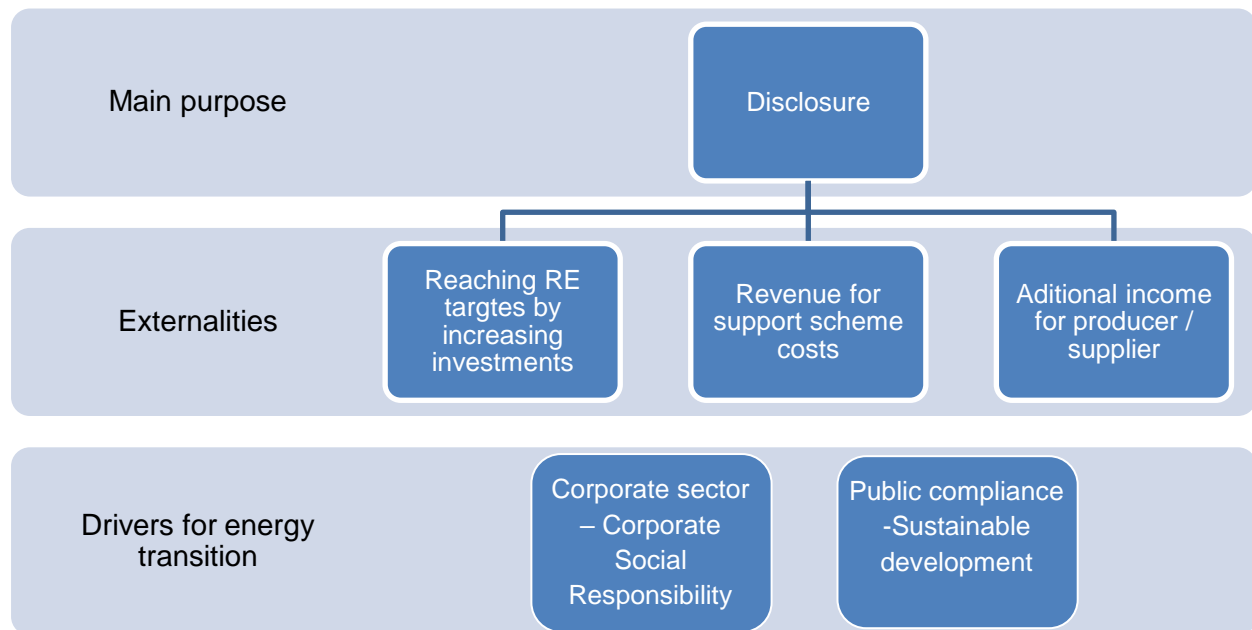
The case of Serbia

Preceded by a lengthy process, Serbia is the first Contracting Party to implement a functional GO system and become a full member of the AIB. EMS AD Belgrade was assigned the role of the Issuing Body and Registry Operator for GOs. In order to comply with Article 15 of RES Directive 2009/28/EC, EMS cooperated with Grexel, a registry provider. Grexel designed the registry of GOs for Serbia compatible with EECS and the RES Directive. Furthermore, Grexel was selected to implement activities under an EU-funded project, which provided technical assistance on GOs of electricity produced from renewable energy sources in 2011/2012 in Serbia. Currently, Serbia is able to trade with the AIB members. An agreement between the EU and Serbia might be needed after the RED II is transposed and implemented in all EU countries from July 2021 on in order to continue cross-border trade with the EU AIB members.

Timeline:

- ✓ Enacted [Energy law](#) compliant with Directive 2009/28/EC – December 2014
- ✓ Observer in AIB – 2014-2015
- ✓ Formal applicant – 2015-2019
- ✓ Registry establishment – July 2016
- ✓ Adoption of secondary regulation: [Decree on Guarantees of Origin](#) – September 2017
- ✓ Adoption of Disclosure Regulation – October 2017
- ✓ Adoption of [Domain Protocol](#) by EMS JSC – December 2017 (version 1) and November 2019 (version 2 after AIB audit)
- ✓ Price Act – December 2017
- ✓ Official application for joining AIB through JSC EMS – May 2018
- ✓ AIB audit – October 2018
- ✓ Acceptance of AIB application – October 2019
- ✓ Obtaining insurance – September 2020
- ✓ GS1 coding scheme application – November 2020
- ✓ Connected to the AIB hub – November 2020

5. Benefits of Using Renewable Energy Certification for Green Electricity



Picture 4, Benefits of renewable energy certification for green electricity

Even though the purpose of using GOs has been restricted to **disclosure** in the EU, to show the final consumer that a given share of electricity is produced from renewable sources, there are several other externalities, as listed in picture 4, making the certificates attractive. In view of the currently diminishing financial support from governments, zero-subsidy and market-driven models for renewable energy project support are increasingly being explored. GOs are in that sense a commodity that can encourage **investments in renewable electricity** generation and indirectly contribute to reaching RE targets.

For the government, GOs can be of great value since they could help decrease costs for support schemes over time. Issuing GOs for supported electricity and selling them on the market through auctioning could help avoiding double subsidies as the revenue gained by the auctions would be used by the state to fund the support system and thereby **offset the cost of renewable support**. Auctioning is becoming increasingly common in EU Member States since it brings a more complete disclosure. Moreover, such auctioned GOs are increasingly popular as the demand for GOs from a specific location, energy source or technology is rapidly rising. As such, Luxembourg, France, Italy, Croatia and Slovakia have already set up auction schemes for GOs from renewable energy producers receiving public support. In most of these cases, the profit from the sale of GOs goes back to the treasury in order to decrease the cost of the public support scheme.

French auctions for GOs: France mandated Powernext (now EEX) to organise GO auctioning from March 2019. Auctions allow the purchase of GOs from production facilities benefiting from a support mechanism. These power plants are registered on the account of the French Climate Authority (DGEC). Only the DGEC can request the issuance of GOs and decide on their auctioning. The auctions are open to account holders of the EECs registry.

While the possibility of auctioning is elaborated in RED II, RES Directive 2009/28/EC does not eliminate this possibility and is in line with the EU State Aid Guidelines.

GOs are in general interesting for producers of renewable electricity, given that there is a market for the certificates. For producers of renewable electricity that do not fall under a support scheme and suppliers, GOs also mean an **additional income**. The supplier uses the GOs to prove the source of renewable electricity on the electricity bill of the consumer. The certificates can improve the competition between different suppliers while boosting the image of the company. In addition, it can provide extra revenue to suppliers when the certificates are sold to customers or traded. As such, it gives end-customers a sense of empowerment since they are able to support the **energy transition** through purchasing electricity with GOs.

Corporate demand for GOs as documentation for renewable energy consumption and production has grown rapidly at the global level. With 317 TWh/yr, RE100 member companies are already driving enough renewable electricity demand to power a medium sized country.⁹ The corporate sector is the main driver for GOs for renewable electricity. Demand for GOs often comes from international companies with targets of sourcing all their electricity from renewables. Therefore, corporations might direct their investments solely to countries that have established green electricity certification systems. Also smaller enterprises can benefit from GOs for Corporate Social Responsibility (CSR) purposes or to increase their competitive advantage by proving the share of electricity from RE sources. GOs can help companies to attract customers and investors. Furthermore, GOs could give companies an advantage when joining trading networks. Trading platforms make it attractive for companies to use GOs since they give information about the market and its market players.

RE100 is a global corporate leadership initiative led by the Climate Group in partnership with the Carbon Disclosure Project bringing together the world's most influential businesses committed to 100% renewable electricity by 2050. Companies obliged themselves to match 100% of the electricity used across their global operations with electricity produced from renewable sources. The RE100 members purchase a huge number of GOs throughout Europe. GOs are an important tool for transparency towards customers for these companies.

Some of the most known members of RE100 include Apple, BMW Group, CHANEL, eBay,

6. Joining an International Certification Scheme

As stated before, there are multiple international certification schemes for electricity. **Guarantees of Origin (GOs)** are best known in the Energy Community. The main advantage of adhering to the GO standard is that it could serve as an opportunity to integrate with the EU market and pave the way for cross-border trade with the neighbouring EU market, thereby giving a boost to renewable investments in the Energy Community. Besides, it is the certification mechanism already mentioned in Directive 2009/28/EC, making it evident for Contracting Parties to mainly consider GOs. In order to use GOs, the Contracting Parties must fulfil several obligations, laid out below. Many CPs have taken first steps to implement GOs with Serbia

⁹ <https://www.there100.org/>

already being a full member of the Association of Issuing Bodies (AIB) and connected to the AIB hub and Montenegro being well underway in the AIB membership application process. On the downside, the robustness of the European-based certification requires additional efforts to comply with the EECS standard, which might make the adoption process lengthy and induce administrative/ regulatory burdens. Furthermore, the Contracting Parties would become part of a well-established system, whereby the influence of individual Contracting Parties in the decision-making process of AIB might be small. Some MSs, which have not yet become members of AIB (Bulgaria, Hungary, Poland, Romania) due to lack of demand for GOs, are now considering to join (Bulgaria is already a formal applicant and Hungary has been granted AIB membership and is going through Scheme membership application).

- Pros: GOs are covered by EU/ECS regulation; CPs could join an already well established inter-registry hub and potentially trade with its members;
- Cons: Joining AIB can be a lengthy application process; there is no guarantee that the certificates will be approved by EU MSs due to the risk derived from the REDII restrictions.

The second well known international certification system is the **REC**, a voluntary system based in the United States and Canada. While it is important to mention this system, the Contracting Parties are out of the geographical scope of this system with no physical link with any of the REC participating countries. While the REC system could potentially serve as an interesting option to be part of an independent and flexible system, REC is based on the national legislation of the United States and Canada. Besides that, REC consists of multiple tracking systems that are interacting with one another. Because of this, opting for a system at the national or regional level could be more interesting rather than establishing a link to the REC system. With the Energy Community being out of REC's geographical scope, this paper will not further elaborate on this option.

- Pro: REC could give regulatory flexibility in the sense that CPs could choose their own tracking system based on national legislation;
- Con: Out of geographical scope.

The third option is the **International Renewable Electricity Certificates Standard (I-REC)**. With I-REC being spread over 34 countries around the world, it mainly aims to create standardised markets. The opportunity for the Contracting Parties would be to create a proper Energy Community regional certification system with certificates that can be traded over a regional inter-registry hub and adhering to the I-REC standard and complying with national and local regulations. Besides that, with I-REC being available in over 30 countries spread over the world, this standard became appealing for multinationals based in multiple continents. The negative side of this system is mainly the fact that there is a gap between the I-REC and EECS standards, with the I-REC standard being a simplified version of the EECS one. This would make it difficult to connect with the EU GO market since the I-REC certificate is not identical to the GO one. Even if the CPs would comply with the EU Renewables Directives, the standard might still not be recognised by the EU or individual AIB members.

- Pro: I-REC gives governance flexibility since the decision-making and registry are mainly based in the respective country or region;
- Con: Barrier to connect with the EU GO market.

6.1. Joining the European Scheme

6.1.1. Guarantees of Origin

As elaborated above, there are several different certification schemes. This chapter focuses on the EU-based system, the GOs, which is described in the Renewable Directives as an electronic document with the sole function of providing proof to a final customer that a given share or quantity of energy was produced from renewable sources. The European Energy Certificate System (EECS) ensures the reliable operation of international energy certificate systems across Europe, since it ensures that national registries are compatible with each other. EECS sets out the rules for the certificates and provided the foundation for the CEN - EN 16325 standard, which was introduced in the RED II Directive. These rules are specifically useful since traders are increasingly trading on European level rather than solely on national level as well as among different sectors rather than solely in electricity sector.

Certification process and market participants

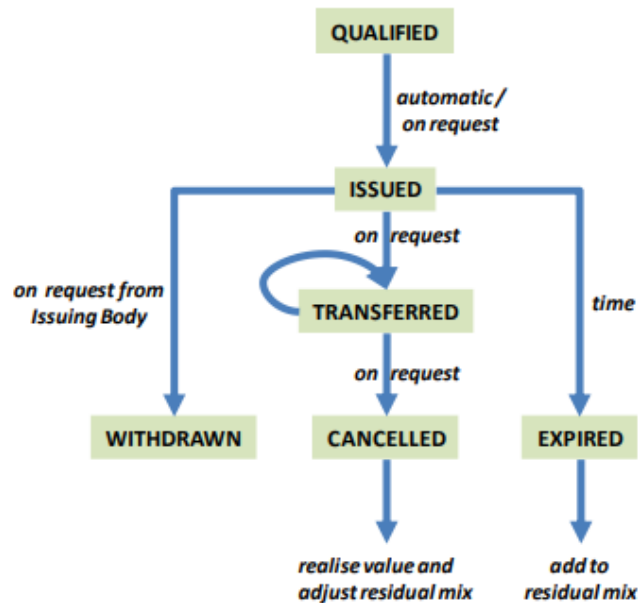
GOs are issued in an electronic registry to electricity producers whereby one guarantee equals 1MWh. The life cycle of an EECS certificate encompasses three phases: issuance, transfer and cancellation (cf. picture 4). Market participants are able to transfer GOs in the registry separately from physical flows of electricity. The certificates can only stay valid for 12 months and will only be issued to the owners of plants that are registered in the system. After 12 months, GOs that are not cancelled are expired and will be added to the national residual mix.

Directive 2009/28/EC obliges the Contracting Parties to ensure that a guarantee of origin is issued in response to a request from a producer of electricity from renewable energy sources. Issuance, transfer and cancellations should be assured by the designated competent body through an appropriate electronic registry. The registry users are mainly, but not limited to, electricity producers from renewable sources, suppliers who use GOs for end-customers or wholesale suppliers who trade GOs. The issuance, transfer and cancellation of GOs happens electronically to ensure accuracy, reliability and fraud-resistance.

The main challenge is assuring that the same unit of energy from renewable sources is taken into account only once, thus avoiding double counting. Therefore, the Contracting Parties or the designated competent body, independent of production, trade and supply activities, shall supervise the issuance, transfer and cancellation process.

The certificates can be traded within the country but also across the border. Cross-border trade can be conducted bilaterally, via brokers or through Power Purchase Agreements (PPAs). For members of AIB, certificates can also be traded through the AIB hub.

EECS Certificates: state transition



Picture 5, Source: [EECS Rules](#)

6.1.2. Membership in the AIB

With the Energy Community CPs being included in the geographical scope of the AIB, the Energy Community Secretariat has recently established formal cooperation with the AIB. As a result, the AIB Board at its meeting held on 5 November 2020 expressed support for the inclusion of the Energy Community CPs within the AIB as soon as possible.

In order to create a functional GO system and aim for full scheme membership of AIB, several conditions need to be fulfilled. Besides the needed Domain Protocol, describing how the GO system has been implemented in that member's country, disclosure legislation, an electronic registry and a liability insurance need to be in place. The latter is especially challenging as insurance companies are in general cautious of insuring GO activities in non-EU countries, a problem experienced by Serbia. However, regional cooperation might simplify this process. With the assistance of the Secretariat, an insurance company willing to provide all CPs with the needed insurance could be found. A regional insurance strategy could not only cut down prices but also avoid troubles with finding the right insurance company and enhance harmonisation.

The AIB is an organization with the mission of guaranteeing the origin of European energy. The benefits of the AIB membership include the possibility to trade certificates with EU countries through one common hub, cutting down prices, reducing the workload, guaranteeing reliability and tailor made advice and expertise and preventing fraud through built-in checks. However, it needs to be taken into account that GO trade with third countries might be restricted after July 2021 with the transposition of the RED II into EU MSs' national laws.

AIB membership consists of two parts:

1. The membership of the association;
2. The membership of the EECS Electricity and/or EECS Gas Scheme.

Membership of the association entails being a member of the international non-profit organisation AIB. Scheme membership is related to the *energy source* for which the issuing body can issue, transfer and cancel GOs, namely electricity or gas. The basics of each Scheme are the same, but the technical details differ.

While the Scheme membership requires setting up a Domain Scheme (legislative and administrative arrangements for issuing, Domain Protocol and members' Standard Terms and Conditions) that satisfies both the general requirements of the EECS Rules and the specific requirements applicable to that scheme, membership of the AIB can be acquired through a formal application. According to the Articles of Association, this application shall be subject to approval by the Board after due verification that the candidate:

- Intends to and is competent to comply with the quality standards set up by the Association;
- Has acknowledged receipt of a copy of the EECS Rules, approved it and agreed to be bound by its terms;
- Has a legal personality according to its national law;
- Must be an Issuing Body;
- Commits itself to pay the annual membership fee;
- Supports the purpose of the AIB; and
- Commits itself to further [this means: "to promote"] the objectives set out in the EECS Rules core principles.

AIB members can participate to internal AIB meetings where they can learn from peer organisations and discuss issues of concern/common interest. Members have a Single Point of Contact for all enquiries and are assisted by the reviewers appointed by AIB during their membership application process. However, for an AIB member to become a member of the EECS Scheme, the provisions applicable in that member's Domain (its Domain Scheme) must satisfy both the general requirements of the EECS Rules and the specific requirements relevant to that scheme. One of the admission criteria for Scheme membership is the existence of a legislative Disclosure Scheme (making sure that no MWh of renewable electricity is being consumed twice). The Scheme membership includes the possibility of transferring EECS Certificates through the AIB hub. Scheme membership is only granted after the member is appointed as an issuing body, review of the Domain Protocol is completed and after the established electronic registry complies with the Hub, the tests of the Hub connection are finalised, a Hub Participant Agreement is signed, the legislation on GOs and disclosure is in place and the Standard Terms and Conditions for the use of the registry are implemented.

Prior to becoming full members of the AIB and EECS Electricity scheme, Contracting Parties could receive the **'import-only' status**, to accelerate the joining process. This means the CPs would be able to attend the internal AIB meetings and import GOs from AIB members. Bilateral trade would already be possible among the Contracting Parties but trade through the AIB hub and issuance of GOs as "EECS Certificates" would only be possible once the CPs are full members of the AIB. Thus, as soon as all the quality checks, functional disclosure legislation and especially the review of the Domain Scheme by the AIB has been successful.

The completion of the procedure to join AIB might take a few years and even if all the steps are implemented and full scheme membership of AIB insured, the Energy Community Contracting Parties are likely to be considered as third countries under RED II, which imposes restriction on

trade of GOs with the EU MSs.

The Energy Community Secretariat and AIB may serve as advisors and facilitators in the process. As such, the Secretariat aims to ensure the system complies with the EU regulations, serving as a go-between to set up the regional electronic registry (software), and assist the Contracting Parties where needed by providing assessment reports and serve as a coordinator between the CPs and the AIB.

Disclosure legislation

A functional disclosure legislation is a crucial step to avoid misconduct of the system. For electricity, this has even a more specific meaning, given the rules from the Third Energy Package. The lack of a solid disclosure legislation has been a hurdle for joining the AIB as a full Electricity Scheme Member and thus to be able to trade GOs through the AIB hub. The Secretariat is ready to assist the CPs with drafting the disclosure legislation.

Domain protocol

The Domain Protocol describes how the EECS Rules are to be implemented in the CPs. It supplements legislative provisions, making sure that the Domain Scheme satisfies the general and specific requirements of the EECS Rules. Standard Terms and Conditions contractually oblige the member's customers to comply with the Domain Protocol. Standard Terms and Conditions also deal with commercial matters such as service provision and the member's fees. Account holders are not bound by the EECS Rules themselves, but by the applicable legislation in their Domain and their contractual obligations to comply with relevant Domain Protocols. The Domain Protocol must be approved by the Electricity Scheme Group of the AIB before certificates can be issued.

Electronic registry

As per RED "Contracting Parties or the designated competent bodies shall put in place appropriate mechanisms to ensure that guarantees of origin shall be issued, transferred and cancelled electronically and are accurate, reliable and fraud-resistant".

6.2. *Joining the International Scheme: I-REC*

I-REC certificates are used in the same way as GOs, and must comply with the I-REC Code and subsidiary documents and national and local regulations. An I-REC standard certificate is created as follows:

- Step 1: One-time registration of the generating facility with I-REC;
- Step 2: Producing the renewable electricity;
- Step 3: Application for I-RECs on voluntary basis or as the result of national regulation;
- Step 4: Submitting meter readings to the issuer;
- Step 5: Issuing I-RECs into electronic registry;
- Step 6: Accounts within the registry: trade account to transfer to other market players / end-consumer, redemption account to redeem the attributes contained within the certificate;

- Step 7: Trading of I-RECs, certificates cannot be in two accounts at the same time;
- Step 8: Redemption of I-RECs;
- Step 9: Claiming the attributes of an I-REC.¹⁰

The I-REC registry is based on a single central registry which can be accessed through the internet. The registry is established by an independent service provider, working on behalf of the I-REC Standard organization and provides access to the I-REC standardized certificate database for all registered market players, end-consumers, generators, issuers, national governments and informed stakeholders. It consists of two primary elements: a register of Accounts held by I-REC participants, and a register of Production Devices and Production Groups. The Production Device or Production Group registration data can be viewed by public access.¹¹

Picture 5 gives an overview of the **I-REC Registry account**. To become an issuer, one should be appointed by governmental order or by the I-REC Standard as elected by the market players involved. The issuer must apply for accreditation to I-REC services, whereby an I-REC QA Auditor will review the application and will make recommendations to I-REC services concerning approval of the application.¹² The issuing body needs above all to be independent, reliable and transparent. The adherence of the issuer to the I-REC Standard is frequently audited by third-parties at the request of the I-REC Standard.¹³ An issuer can be a local, national or regional organisation, ideally the issuer's role is recognised by the authorities but this is not essential. As such, I-REC has several issuers that are issuing for multiple countries, such as for example the Dubai Carbon Centre of Excellence (DCCE) issues certificates for Jordan, Morocco, Oman, Saudi Arabia and UAE.¹⁴

The registrant is the owner of a production device/ group, or a person legally empowered by that owner, to register and receive I-RECs. A participant is an organisation holding one or more trading Accounts on the I-REC Registry.¹⁵

¹⁰ <https://www.irecstandard.org/about-us/#>

¹¹ https://gcc.re/documents/The_I-REC_Code_v1.8.pdf

¹² <https://www.irecstandard.org/download/csd03-the-issuer/?ind=1596029371975&filename=I-REC%20CSD03%20I-REC%20Issuer%20v1.3.pdf&wpdmdl=2790&refresh=5fd0cfe82e4931607520232>

¹³ https://gcc.re/documents/The_I-REC_Code_v1.8.pdf

¹⁴ <https://www.irecstandard.org/issuers/#>

¹⁵ https://gcc.re/documents/The_I-REC_Code_v1.8.pdf



Picture 6, [I-REC Registry Hierarchy](#)

As said before, the connection with the EU GO market might be a challenge. Even though I-REC foresees compatibility with other tracking systems when these satisfy the evidential and unique ownership requirements and are traceable to the originating production device / group by I-REC, the practical acceptance of certificates that do not comply with the EECS rules will not easily enter the EU GO market.

7. A Regional Framework for the Energy Community

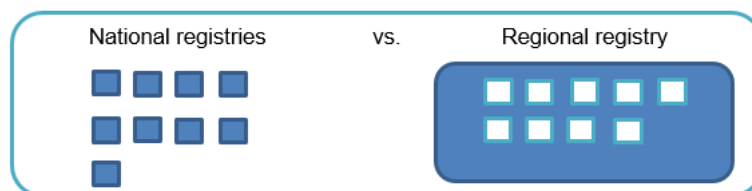
In light of the current electricity market coupling and integration, regional cooperation in green electricity certification would induce several positive externalities. Regional cooperation could be facilitated by the Energy Community Secretariat, who could provide technical support to the Contracting Parties via drafting/ adapting secondary legislation on GOs, setting up the electronic registry and, if agreed, facilitate communication with the international scheme. With the CPs having transposed Directive 2009/28/EC, the first steps towards GO implementation have already been taken. As such, the necessary legislation has been implemented partially and issuing bodies have been assigned to supervise the issuance, trade and cancellation of GOs. In most Contracting Parties, the designated competent body is either a regulator or a transmission system operator (TSO). Some CPs have assigned agencies, but are considering changing the legislation to give the responsibility to bodies with more capacities in terms of knowledge, expertise and human resources. In that regard, it is important to keep in mind the restriction from the RED stating that the *designated competent bodies shall have non-overlapping geographical responsibilities, and be independent of production, trade and supply activities*.

The main advantage of regional cooperation is creating a wider GO market with greater trading possibilities. The most important way to facilitate regional GO integration is the implementation of a **regional electronic registry (software)** with the support of the Energy Community as an international organisation which brings together the European Union and its neighbours to create an integrated pan-European energy market. A regional electronic registry would be beneficial for individual CPs for several reasons, especially in light of entering an international scheme afterwards. A regional electronic registry would:

1. **save costs for individual Contracting Parties and accelerate the connection to an inter-registry hub**, the budget, potentially covered by the Secretariat, for a regional

system would be significantly lower compared to the price of national registries and the timeframe to join an international scheme could be shorter;

2. **encourage a harmonised process and simultaneous progress**, a harmonised process ensures better regional tradability and traceability, less system abuse, more transparency to consumers and finally more liquidity on the market;
3. **enable bilateral trade of GOs among Contracting Parties**, even before joining any international scheme, CPs could trade (import and export GOs) among each other using the regional registry;
4. **ensure a strong CP voice in the international scheme**, the CPs would stand stronger together and have a bigger influence in the decision-making process;
5. **empower a regional agreement and gain political support**, to assure trade with the EU MS regardless of the Art. 19 (11) or/and to aim for a change of this Article in the recast of RED II.



Picture 7, National versus regional registry

To enable trade of GOs among the CPs using a regional registry, a simplified regional scheme with an application procedure, coding standards and structures would be prepared with the support of the Energy Community Secretariat. The application procedure would be light, documenting the national regulations and practices in a uniform manner. The scheme would include a simple model for governance, which would mainly include a template for application for membership, rules for the admission and exclusion of issuing bodies, agreement and (technical) dispute resolution between them, as well as procedures for changing the scheme rules. Although the basis for the scheme would be the EECS and CEN 16325, the scheme would be simplified in terms of financial investment needs, regulatory maturity and human resources.

There are different software providers. If the Contracting Parties opt for a regional scheme and software system, they could jointly launch a tender procedure for software providers to apply (i.e. via the Secretariat). On the website of the AIB a selective list of possible EU-based service providers that are used in the EU MSs can be found:

- Atos (Austria);
- Engineering (Italy);
- DXC (Belgium);
- Grexel (Finland);
- NSI (Belgium);
- PowerNext (France);
- Solita (Finland);
- XLAB (Slovenia);
- Unicorn Systems (Czech Republic).

8. Options for the Way Ahead

There are several options for the Contracting Parties on different levels. To start with the status quo, the Contracting Parties could opt for not changing anything in their current renewable energy certification outlook. While this choice is easy in the short-term, e.g. nothing new has to be adopted, it goes against their commitment to implement the Energy Community acquis and could have negative consequences in the mid- and long-term. As such, the Contracting Parties could miss out on possible new renewable investment opportunities by attracting corporations such as those part of RE100 and an opportunity to further facilitate the energy transition by providing green electricity disclosure.

The first option is adoption of a national GO system. A national GO system could be easier to set up since authorities can decide themselves what kind of standards they see fit for the national framework. Japan and Australia are examples of countries having set up national GO systems. The downside of sticking to the national system might be the size of the market and the difficulty to trade internationally as all connections with other registries would have to be set up bilaterally. Setting up a national system could also be a first step towards integration in regional or international schemes. If the national market goes through a demand shortage or an oversupply, the market participants cannot easily trade with other countries. Setting up bilateral agreements could serve as a solution but having to negotiate multiple bilateral agreements might become an administrative burden for both GO consumers as well as the issuing authority.

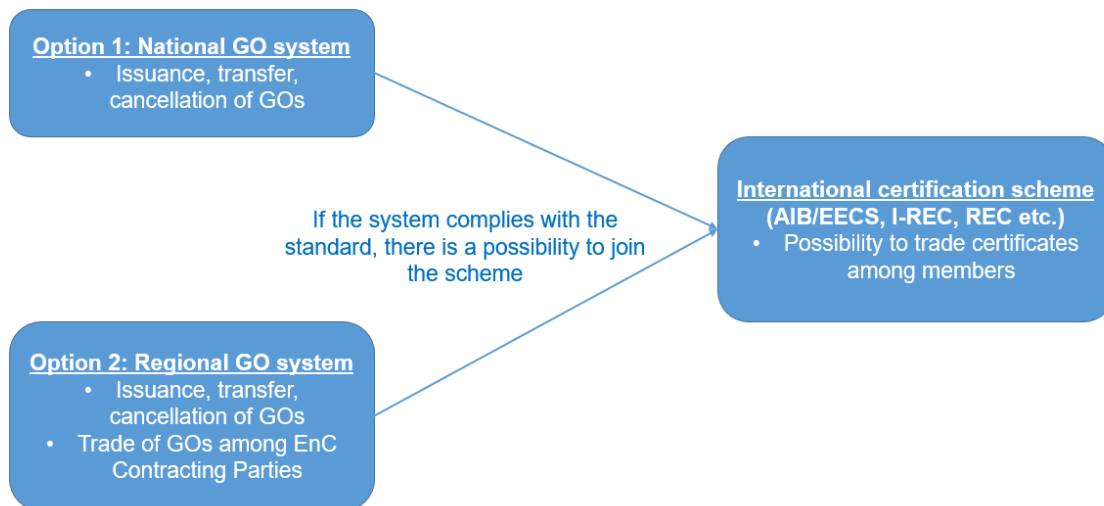
Secondly or additionally to a national GO system, regional cooperation could be considered, as explained in detail in the previous chapter.

Level	Action	Benefits	Challenges
Option 0: Status quo	No change.	<ul style="list-style-type: none"> - No short-term costs. 	<ul style="list-style-type: none"> - Against commitment to implement Energy Community acquis; - Long-term opportunity loss.
Option 1: National GO system	Creation of a national GO system, including a national electronic registry.	<ul style="list-style-type: none"> - Set-up flexibility. 	<ul style="list-style-type: none"> - Higher cost compared to regional/international; - No market integration; - Limited market.
Option 2: Regional GO system	Regional GO integration on Energy Community level through regional electronic registry.	<ul style="list-style-type: none"> - Save costs for the individual CPs; - Encourage a harmonised process and simultaneous progress; - Enable bilateral trade of GOs among CPs; - Facilitate connection to an international scheme. 	<ul style="list-style-type: none"> - Harmonisation and coordination challenge; - Decreased design option flexibility on national level.

Table 1, Overview of the options to implement GO system

In general, both national and regional systems could be integrated into one of the international certification schemes, as shown in the picture below. This could open up the possibility of trading certificates with members of the selected scheme.

It is important to emphasize that if the regional system is to be integrated into one of the international schemes, the system has to comply with the standards of that scheme. That means that in the beginning of the process, it needs to be unanimously decided which international standard the regional system will follow.



Picture 8, Options to implement GO system and join international certification scheme

9. Conclusions

GOs have become an increasingly popular disclosure and market-based tracking instrument in the EU. With Directive 2009/28/EC transposed in the Energy Community, the Contracting Parties have been tasked with the establishment of GO systems to prove to the final consumers that a certain quantity of electricity was produced from renewable energy sources. This paper gives an overview of the different options for the Contracting Parties and digs deeper in the European-based GO system. After evaluating the benefits and the challenges associated with each option, the Secretariat recommends for the Contracting Parties to join the AIB and the EECS scheme. In order to pave the way forward, the current legal and implementation gaps need to be taken into account, the legal gap consisting of the REDII's treatment of the CPs as third countries possibly leading to a trading barrier and the implementation gap being the lack of activation of the GO system in eight of the nine CPs.

Joining AIB could enable the Contracting Parties to trade GOs between each other as well as with EU and EEA countries through the AIB hub, increasing the liquidity on the market – if EU legislation does not block trade with the CPs. An Energy Community stepwise approach would entail the establishment of a regional scheme and registry followed by the preparation and harmonisation of disclosure legislation and domain protocols before joining the AIB. This regional approach would have multiple advantages, such as accelerating the process, saving costs, enabling trading among the CPs and a strong CP voice in the AIB, facilitating the connection to the AIB hub as well as gaining political support for a regional agreement if

needed. In addition, the Contracting Parties could receive an “import-only” status in the AIB until the needed quality checks have taken place. Through this, the Contracting Parties could already trade among one another and import certificates from other AIB members.

Green electricity certification deserves increased attention of the Energy Community Contracting Parties. Not only do GOs provide disclosure to end-customers but also comprise other positive externalities such as offsetting the cost of administrative support schemes, incentivising renewable energy investments and creating an additional revenue for renewable energy producers and suppliers.