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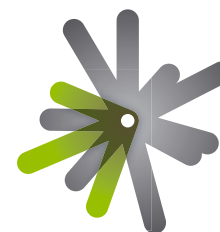
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## ANNUAL REPORT 2017 OUT NOW!



**AIB**

association of issuing bodies



## NEWSLETTER 29

Vol 11 | Issue 1 | 16 July 2018

## SYNOPSIS OF ARTICLES

### SPAIN: Guarantee of Origin system managed by CNMC

In September 2018, CNMC will host the AIB's General Meeting in Madrid. During the same days, the Open Market Committee (OMC) will take place, also in Madrid.

CNMC is the Spanish National Regulatory Authority, and since 2007, CNMC is also the official Issuing Body for Guarantees of Origin of electricity from renewable energy sources and High Efficiency Cogeneration – HEC – in Spain. Read more about the Spanish GO system and disclosure of electricity in Spain.

### EUSEW and AIB

We are very honoured that the European Commission for the third time in a row selected us to become part of the official programme of #EUSEW18. This year, the AIB was asked to co-organise a session with many other thought-leading European organisations, and the event resulted in a dynamic and interactive session with an active audience.

### Germany's System for Regional GOs and the "UBA Fachtagung"

Consumers cannot explicitly buy electricity from the supported plant in their neighbourhood. Learn more about how Germany solves this issue. Also included in this article is a report and comments on the HKNR 5th conference at UBA by Dirk Van Evercooren, the AIB President. The conference took place on 16-17 April 2018 at the German Environment Agency in Dessau-Roßlau. Around 170 participants joined and provided valuable discussions on many issues.

### Re-Source and AIB

RE-Source 2018 is taking place 20-21 November in Amsterdam. Clean energy buyers and suppliers are already gearing up for the event. AIB is honoured to be one of the association partners and looks forward to participate in the session about GOs.



### Statistics

The latest activity statistics, showing continued growth in the market and the effect of the introduction of new members. Again with the new method: the statistics will show a monthly summary by technology group per country.

**SAVE THE DATE: 20 SEPTEMBER 2018**

**The annual 'Open Markets Committee' (OMC) will take place in Madrid!**

The OMC is an important meeting point where AIB and its members – the competent bodies for guarantees of origin across Europe – meet market participants with whom they exchange views and develop a better understanding of each other's needs and wishes. More [information](#) will follow.

# SPAIN: Guarantee of Origin system managed by CNMC

In September 2018, CNMC will host the AIB's General Meeting in Madrid.

CNMC – National Commission on Markets and Competition – is the Spanish National Regulatory Authority, and since 2007 CNMC also the official Issuing Body for Guarantees of Origin of electricity from renewable energy sources and High Efficiency Cogeneration – HEC – in Spain.

In 2009, CNMC became responsible for renewable support schemes settlements and payment system, which involves around 7.1 billion € every year. Therefore it is a top priority for CNMC to have a very accurate database of all production devices as well as the best information about energy generation data.

Additionally, the Audit and Inspection Department in CNMC carries out onsite inspections of renewable and HEC electricity production devices checking technical information, such as metering schemes, administrative data like official documents, and economic issues as support schemes received.

All these tasks and duties are assigned by law to the same Public Body – CNMC, so all information and control remains in the same organization, which finally results in the enhancement of the reliability of the Guarantee of Origin System

## Increasing GO demand from customer side in Spain

According to the information from the latest exercise (year 2017), almost 37 000 Production Devices participated in the GO system, including wind, solar PV, biomass, concentrated solar power plants and HEC.

Furthermore, there is a clear increase in the environmental awareness from the customers' side. This concern includes not only domestic and industrial consumers, but also administrative and public facilities from national, regional and local governments, where a large demand for renewable offers is seen, which sometimes requires the supplier company to participate in public tenders.

As an example of this trend, the Madrid city council request for any electricity supplier company to guarantee that all electricity consumption in the 1350 municipal buildings is 100% coming from renewable sources. These buildings include municipal offices, schools, cultural centres, senior centres, social services and sports, libraries, nursery schools, municipal police headquarters, health services and firefighters.

## Disclosure of electricity in Spain

The national electricity source disclosure system, is also managed by CNMC since 2008. All the electricity supplier companies must include information about the supplier mix, CO<sub>2</sub> emissions and high activity nuclear wastes in all electricity bills, in a mandatory way.

>>

Picture: Madrid City council - EFE



Guarantees of Origin is the only method to provide evidence of the renewable / High Efficient Cogeneration attribute in selling electric energy. There is no other scheme or any other certification system valid in Spain than the GO System, so the disclosure of electricity for every supplier company is calculated in accordance with the information from the Guarantee of Origin system.

CNMC makes these calculations and publish every year the disclosure of all electricity supplier companies participating in the Guarantee of Origin System in the previous year (126 companies in 2017).

The guarantee of Origin is a voluntary system, and some of the supplier companies have decided not to be part of it. For these companies, the so-called “generic supplier”, CNMC calculates a specific mix.

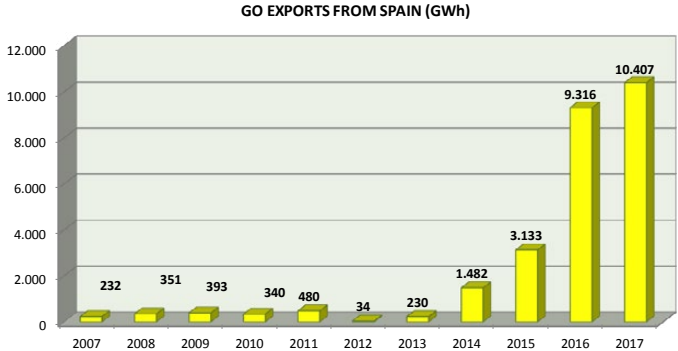
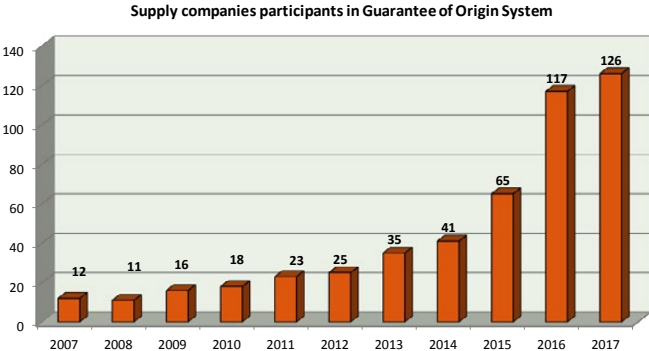
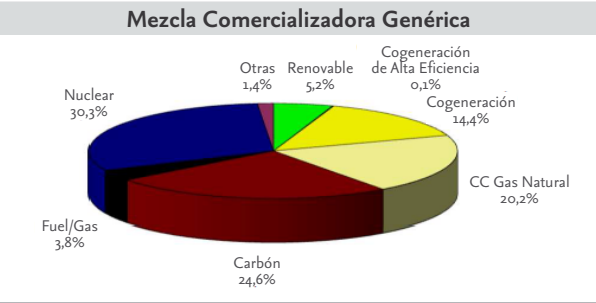
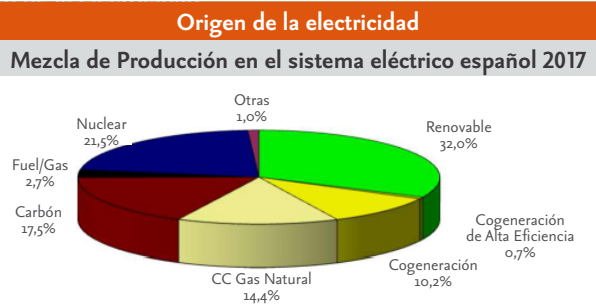
Increasing interest in the GO market

According to recent news about suppliers companies and GO system, an increasing demand for Guarantees of Origin is seen from different stakeholders in order to cover all the electricity demand from their customers with these attributes.

Marketing and communication strategies from supplier companies based on renewable/green electricity offers are becoming more and more popular.

The number of supplying companies involved in the system has increased steadily year by year, growing from 12 suppliers in 2007 to 126 suppliers in 2017, which is an indication of the rise in the interest of these companies to provide renewable offers to their customers.

Since March 2016, CNMC is a full member of AIB, resulting in, the number of international transactions to increase at a very high rate as the last chart shows.



# EUSEW and AIB

Dirk Van Evercooren, AIB President

The Association of Issuing Bodies (AIB) is very honoured to have been selected by the European Commission for the third time in a row to become part of the official programme of #EUSEW18. This is a great recognition of AIB's work by the European Commission! The event, which the AIB co-organised this year, was again part of the official policy event programme, which is the backbone of the EU Sustainable Energy Week. The event was entitled 'Europe's Vision for the Energy System of the Future' and took place on Wednesday 6 June, from 9:00-10:30 hrs in the de Gasperi meeting room, one of the biggest meeting rooms available within the European Commission's buildings in Brussels.

This year, the AIB was asked to co-organise a session with many other thought-leading European organisations such as the Renewable Grid Initiative, REE – the Spanish Transmission System operator, HyER – focussing on the use of hydrogen in transport, Hincio – the consultancy that has the lead in the CertifHy project, which is working on a Guarantee of Origin for hydrogen from renewable sources, EREF, the federation of national renewable energy associations from EU Member States, and the Heinrich Böll Foundation. The lead organiser of the event was ETIP-SNET. European Technology & Innovation Platforms (ETIPs) have been created by the European Commission in the framework of the new Integrated Roadmap Strategic Energy Technology Plan (SET Plan) by bringing together

a multitude of stakeholders and experts from the energy sector. The ETIP Smart Networks for Energy Transition (SNET) role is to guide Research, Development & Innovation (RD&I) to support Europe's energy transition.

Expert speakers from these organisations shared their vision on how the European Energy System should evolve in the coming 30 years and how they plan to contribute to the success of the EU's Energy Transition. They provided perspectives that vary from technical issues such as sector coupling to market focused issues related to energy certification and consumer empowerment to social and environmental challenges, and thus contribute to the definition of Europe's Vision for the Energy System of the Future. The session was dynamic



and interactive, the audience taking an active role in challenging the speakers on their visions.

On behalf of the AIB, I presented the lessons learned from the successful European Guarantee of Origin model for electricity from renewable sources. These points were then picked up by Hincio, the other organisation speaking in the 'market' section of the programme. The whole [event can be replayed](#); the panel with the presentation on behalf of AIB starts around minute 39, and the [presentation](#) itself can be found on the AIB website.

▼ Authenticity matters for more and more consumers!



# au·then·tic

/ôTHen(t)ik/

*adjective*

1. of undisputed origin; genuine.



# Germany's System for Regional GOs

## What is the reason for and the background of the system?

Germany has a very successful supporting system for renewable electricity with one small flaw: prohibition of double marketing prevents plant operators from selling supported renewables as such. Consumers receive supported renewable electricity in their disclosure only on a statistical basis. So, consumers cannot explicitly buy electricity from the supported plant in their neighbourhood.

Since the abolition of the green electricity privilege under the Renewable Energies Act (EEG) of 2014, electricity from renewable energies, which is financially supported by the EEG, cannot be marketed directly to electricity customers as green electricity due to the so-called double marketing ban. The latest amendment of the EEG in 2017 again offers a possibility to link a consumer with a supported plant that is supported with the market premium. This is done by means of the “Regional Guarantee of Origin” (Regional GO) that proves the link between the supported plant and the consumer in the “Regional Green Electricity Disclosure”; a key issue paper prepared by the Federal Ministry of Economics and Energy from 11 March 2016<sup>1</sup> explains in more detail the mechanism behind it.

The aim of this Regional green electricity disclosure is to increase local acceptance of the energy transition. The legislator intends to promote the identification of consumers with renewable energy installations in their region, in particular to avoid negative attitudes to the expansion of renewable energies. Potential customers should be able to purchase electricity from certain renewable energy plants in their region.

## The Regional Guarantee of Origin

The Regional GO, an electronic document very similar to a guarantee of origin, only verifies the Regional origin of electricity from renewable energies – whereas the RES-GO proves the supply of green electricity.

If an electricity supplier wants to sell Regional green electricity, the supplier must show this in its annual electricity disclosure and thus prove the Regional characteristics of the electricity to its customers. The supplier is entitled to disclose the regional characteristic via cancellation of matching Regional GOs. This share of “Regional renewable electricity” in the disclosure is limited to the share of “Renewable energies financed by the EEG levy”.

## How will the system work in practice?

A Regional GO will be issued upon request to any plant operator whose plant receives the market premium for its electricity volumes. One kilowatt hour corresponds to a Regional GO – one obvious difference compared to RES GOs and a consequence of the predominantly small consumptions. The Regional GO can be traded only along the electricity trading chain which ends at the electricity supplier. The supplier can purchase the electricity and the Regional GOs that needs to be cancelled for the respective customer if this customer lives within a radius of approx. 50 km around the respective plant. With Regional GOs the customer can purchase electricity from an installation that he/she knows, maybe because he passes by on his/her daily way to work.



## How is the region defined?

The customer, or more precisely the postcode area in which he lives, opens up the region. A radius of 50 km is drawn from the edges of this postcode area. All postal code areas that are touched on belong to the customer's region. That means a region in the sense of the Regional GO is determined on the basis of postal codes. The electricity supplier who wants to sell Regional electricity to a specific consumer must check in which postcode area the consumer lives. All installations within this defined region can supply this consumer with Regional renewable electricity.

## Reliability is the key

Ultimately, every cancelled Regional GO is reflected in the electricity disclosure and proves to the consumer the Regional origin of the renewable electricity. This instrument for increasing the acceptance of the expansion of renewable energies must satisfy the highest credibility standards. The Regional renewable electricity disclosed must not exceed the amount actually produced. The tasks of issuing, controlling the electricity trading chain, cancellation and verifying the electricity disclosure have been entrusted to the German Environment Agency who is already the issuing body of RES GOs (following the Directive 2009/28/EC, in the following shortly “RES GOs”) in Germany (HKNR). The team of HKNR is currently establishing a special register for Regional GOs, which meets the same standards as the German GO Register, namely fraud and tampering

<sup>1</sup> Bundesministerium für Wirtschaft und Energie: „Regionale Grünstromkennzeichnung Eckpunktepapier“, 11. März 2016, <https://www.bmwi.de/Redaktion/DE/Downloads/P-R/eckpunktepapier-regionale-gruenstromkennzeichnung.html> (German only)

## Relation of Regional GOs to RES GOs

If and to what extent Regional green electricity products will have an impact on the German electricity market is currently unforeseeable.

## German Conference on Guarantees of Origin

Results from a research project “Market Analysis on Renewable Electricity and GOs in Germany” were presented. The project promises to provide knowledge enhancement for the renewable electricity market in many ways: development of the GO market in Germany

Four parallel workshops offered a mixture of interesting topics and the chance for participants to get actively involved. The conference concluded with presentations on future legislation on GOs in Germany, in particular on Regional GOs and a presentation of the map application. This map application will be a graphical implementation of the registered production installations at the Regional GO register. It will be made available to everybody having an interest in Regional GOs and the installations that could deliver renewable electricity into a region.

As in the past, UBA again was very satisfied with the positive feedback on the conference in general and with the valuable input provided by the active participants on many issues.





## Comments on the HKNR 5<sup>th</sup> conference at UBA

Dirk Van Evercooren, AIB President:

Being invited to join the fifth 'German GO-conference' organised by UBA was a pleasure. I was very impressed with the event, both the number of attendants and the high level of discussion including the interaction with the audience. This proved to me the value of Issuing Bodies of Guarantees of Origin meeting with their stakeholders and exchanging views.

The German green electricity system and legislation are – to an outsider like me – quite complex. Although all choices made have their reason, it seems that splitting up between non-supported electricity, which can be marketed as green, and supported power, which cannot, complicates the system and challenges the understanding of the consumer. The Regional GO, while motivated by the will to avoid NIMBY and such syndromes, will in my opinion add further to the complexity of the system and make it even less transparent. Explaining the GO-system itself is already challenging, believe me, I know from experience ...

'Deconstructing' electricity characteristics, not only to prove renewable origin, but also to show regional geographic origin, and doing so by using different instruments will prove a challenge to communicate to consumers. RES-GOs also carry information on the plant where the electricity has been produced and could therefore be suitable to fulfil the purpose of Germany's Regional GOs. I feel that in the future, an integration of both the green and regional GOs should be contemplated to the benefit of the consumer and simplicity of the system.





# RE-Source

European platform for corporate  
renewable energy sourcing

# 2018

20-21 November  
Amsterdam

**Leading corporate buyers & clean energy suppliers will meet in Amsterdam for the biggest European event on corporate renewable power purchase agreement (PPA).**

After the enormous success of last year's inaugural RE-Source event, [SolarPower Europe](#) and [WindEurope](#) are hosting the second edition of the biggest corporate renewable power purchase agreement (PPA) event in Europe: **RE-Source 2018**. The event will allow renewable energy buyers and sellers to connect and unlock huge untapped renewable energy sourcing opportunities in Europe.

The event will provide unique business opportunities as well as valuable policy and market insights with the objective to raise awareness and accelerate renewable investments and corporate renewable Power Purchase Agreements (PPAs) in Europe. Several deals have been signed in Europe in recent years, providing major corporate buyers with reliable and competitively-priced power, but the potential for more is huge. In 2017 more than 1 GW of PPA deals were signed in Europe and therefore the phenomenon is growing.

The recent growth of corporate sourcing in European markets, like Sweden, the Netherlands and Norway sees them positioned as 'PPA-friendly'. In the rest of Europe certain regulatory barriers exist, making it difficult for corporate buyers to procure renewable electricity via PPAs. The Clean Energy Package, currently in the final stages of negotiation, is a unique opportunity to provide an enabling framework for corporate sourcing and unlock this huge untapped opportunity to invest in renewable energy. It also highlights the importance of traceability via a fully functioning 'Guarantees of Origin' market to help underpin corporate PPAs and investments. According to IRENA's [latest study](#), getting the policy framework right on corporate sourcing will be key in helping to drive the energy transition.

[RE-Source 2018](#) is taking place 20-21 November in Amsterdam. Clean energy buyers and suppliers are already gearing up for the event. Register [here](#).

*AIB is honoured to be one of the association partners and looks forward to contribute to the session about Guarantees of Origin.*



# Statistics

## Methodology

### Frequency of reporting

Statistical data is collected and reported quarterly. Where available, data has been collected for all months since 2000, as this permits a high level of reconciliation between individual and total figures.

### Data items recorded

Data is collected for each domain and month, and relates to single energy sources or groups of energy sources. For each domain / month / source the following is recorded:

- a. **By production date:** issued, expired and cancelled - this lets the market know how many certificates of each vintage are available for trade, so informing price setting.
- b. **By transaction date:** transferred within domain, imported, exported, expired and cancelled - this helps in judging the level of market activity, and making certificate expiry dates visible further informs pricing and trading strategy; and also enables AIB to calculate its membership fees.

### Energy source codes

The list of codes has been prepared by reference to the codes used by all registries, and member preferences. EECS Rules Fact Sheet 5 provides the definitive list of energy source codes, aggregating reported codes into higher-level codes where codes are **inactive** (e.g. hydro and wave power will be aggregated until

such time as wave power becomes more widely used); are **unknown** (e.g. sold renewable fuel may be used where conversion between codes has resulted in the original code becoming unknown); are **not demanded** by the market (e.g. Orimulsion is simply reported as “Fossil”).

### Analysis

Where possible, the statistical reports will provide a disclaimer explaining shortcomings in the data. This might include domains that do not provide certain items of data, and those that have not contributed to the latest report. The value of publishing data which contains such shortcomings is felt to outweigh the absence of such data.

Some items may solely be useful at a pan-European level (e.g. domains will not know if certificates they issued and exported have been cancelled). Hence it will be possible to know the length of the market across Europe, but not necessarily for certificates issued in a specific country).

Certificates withdrawn by the issuer (perhaps those issued in the wrong quantities or for the wrong technology) are statistically insignificant, and have therefore been ignored.

Further data is available on our [website](#).

### General

All certificates are 1MWh. As metering data is the basis for issuing certificates, there is always some delay in gaining accurate statistics for the corresponding data for a specific month, so the most recent quarter's issuing activity will always be understated and consequently this information should be treated with caution.

Statistics for certificates issued in a specific month are not presented, as the value of this data is not clear. In general, “issued by transaction date” will be similar to, but slightly later than, “issued by production date”, due to the inevitable delays in processing meter data. Currently, close to 100% of the certificates for energy produced in a month will be issued within the following 6 months.

## Explanatory notes to statistics

### Date of collection of data

These statistics were completed on 16 May 2018 and based on statistics gathered either from statistics published AIB member websites, or where such data is not available, from data provided to the AIB by individual members. The data itself was provided between 3 April 2018 and 3 May 2018 on the following days:

### Aggregation of data

In some cases detailed data has been aggregated. For instance “manure” also refers to “pig manure”, and “fossil” also contains “unknown source”. Further, unspecified renewable energy contains that which originates from technology codes T05000000 (combustion) and T07000000 (known).

### Completeness of data

The Grexel registries (DK, HR, IE, IS, LU, NO and SE) provide all required information. However, information from these domains relating to periods prior to the adoption of this version of the registry is not always available. For instance, the previous registries did not record the quantity of cancellations by production date that had taken place during the life of these registries. The Austrian registry does not currently provide expiry data.

The difference between total exports and imports is the result of absences in the information gathered, and due to exports to Belgium needing to be accepted by the importer, introducing delay registering the transaction (and which is potentially treated differently by different registries).

Country	Collected	Source
Austria	15 April 2018	<a href="#">website</a> (password protected)
Belgium - Federal	16 April 2018	spreadsheet provided by CREG
Belgium - Brussels	27 April 2018	spreadsheet provided by Brugel
Belgium - Flanders	03 May 2018	spreadsheet provided by VREG
Belgium - Wallonia	18 April 2018	spreadsheet provided by CWaPE
Croatia	13 April 2018	<a href="#">website</a>
Cyprus	16 April 2018	spreadsheet provided by TSO-CY
Czech Republic	11 April 2018	spreadsheet provided by OTE
Denmark	13 April 2018	<a href="#">website</a>
Estonia	13 April 2018	spreadsheet provided by Elering
Finland	06 April 2018	spreadsheet provided by FinExtra
France	11 April 2018	spreadsheet provided by Powernext
Germany	02 May 2018	<a href="#">website</a>
Greece		Not yet available
Iceland	13 April 2018	<a href="#">website</a>
Ireland	13 April 2018	<a href="#">website</a>
Italy	24 April 2018	spreadsheet provided by GSE
Luxembourg	13 April 2018	<a href="#">website</a>
Netherlands	03 April 2018	spreadsheet provided by CertiQ
Norway	13 April 2018	<a href="#">website</a>
Portugal		Not yet available
Slovenia	10 January 2012	Only one market party currently, so publication of data would expose their trading position. Data will be published when other market parties commence trading.
Spain	17 April 2018	spreadsheet provided by CNMC
Sweden	25 April 2018	<a href="#">website</a>
Switzerland	17 April 2018	<a href="#">website</a> (password protected)

## Please note

### New data

The latest version of the statistics now provides:

- Relating to electricity produced during a specific year: the number of certificates issued, expired and cancelled
- Relating to the date when transactions actually took place: the number of certificates transferred, exported, imported, expired and cancelled.

The number of domestic and international certificate transfers have not been reported by production year, as this information does not seem to have a use. For the same reason, the number of certificates actually issued during each month is not reported.

### Fuels

The fuels displayed reflect those used by member registries, normally at the most detailed level. Due to the more detailed information now being kept, some information is at a high level. For instance, “Solid - unspecified wood” might contain forestry products, energy crops and so on. Similarly, “liquid - renewable fuels” may contain black liquor. However, when this has been recorded, then it is displayed as such. Hopefully, over time, all registries will provide information at the more detailed level, enabling more accurate analysis.

As other certificates are issued for fuels not on the current list, so these categories will be added and reported against.

### Missing and seemingly contradictory data

A further point for consideration is that the new data has only been collected by registries since last year, so it will be absent in earlier data; and for those countries where the registries have yet to capture and report this information. However, given the recent restriction on the lifetime of certificates, this matter should be corrected in the next year or two.

This explains a number of anomalies - for instance, the difference between the total number of certificates cancelled for all production years, and the total number of certificates cancelled by year of transaction: while all registries report when certificates are cancelled; not all registries report the production year to which they relate.

### Production and Transaction statistics

Production statistics refer to the month and year when the electricity was produced, whereas Transaction statistics refer to the month and year when the transaction took place.

Thus Production → issue is the number of GOs issued for electricity produced in a specific month, while Transaction → issue is the number of GOs issued during a specific month, regardless of when the associated electricity was produced (note that GOs are issued one or more months after the electricity is produced).

Similarly, Production → cancelled is the number of GOs cancelled which relate to electricity produced in a specific month, while Transaction → cancelled is the number of GOs cancelled during a specific month, regardless of when the electricity was issued.

For each of the above (Production and Transaction):

- Issue = GOs created in a month for electricity produced in an earlier month
- Transfer = GOs transferred within a country or region
- Export = GOs transferred to another country
- Import = GOs transferred from another country
- Cancel = GOs which have been made non-transferrable by the holder of the account in which they reside (or its agent)
- Expire = GOs which relate to electricity produced more than a year ago, and which have consequently been cancelled.



## Statistical report

During the first quarter of 2018, market activity continued to increase, as has the use of guarantees of origin (GOs) for disclosure purposes – which is now appreciably higher than it was at this time of the year in any preceding year. These graphs illustrate activity in two ways:

1. **Activity by production date** – this shows the quantity of GOs issued, expired and cancelled which relate to **electricity produced in a given year**; and indicates those which either remain on the market or are otherwise unaccounted for.
2. **Activity by transaction date** – this shows the quantity of certificates **actually** issued, transferred within that country or region, transferred internationally, expired and cancelled in a given year.

Issue, transfer and cancellation continue to increase over preceding years.

Further growth is expected as new countries are connected to the Hub, and as activity increases within existing members.

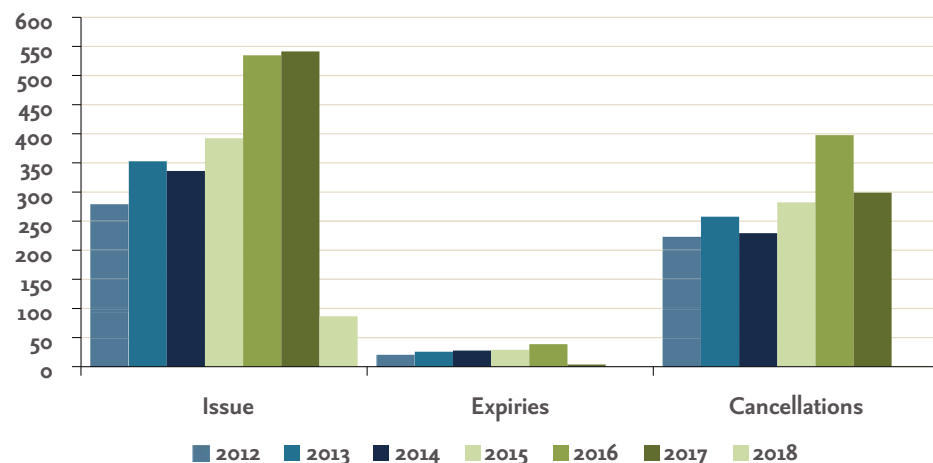
Note that Cyprus continues to test its registry against the AIB Hub and has yet to commence issuing.

Energimyndigheten of Sweden has now replaced Grexel as issuing body for Sweden. LAGIE of Greece, Litgrid of Lithuania and EMS of Serbia have applied for membership, and will probably become active within the next year.

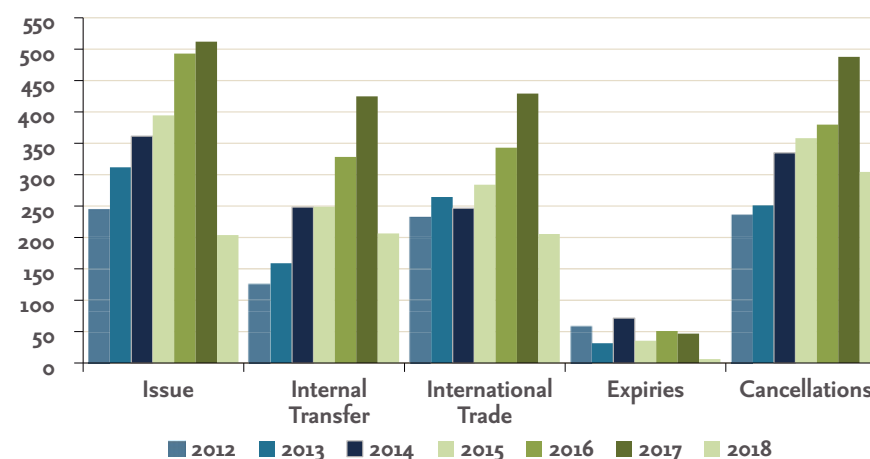
Ofgem of the United Kingdom, RES Operator of Bosnia and Herzegovina, AST of Latvia and DGEG of Portugal are official observers; and contact continues with interested parties in Poland, Kosovo, Hungary, Slovakia and Montenegro. Turkey is also showing an interest in implementing a compatible system of GOs.

Issuance in 2017 exceeded that for 2016, while the number of GOs cancelled and transferred internationally continues to grow markedly and 2018 looks set to exceed the previous year's record levels, demonstrating the increased use of GOs for purposes of selling products for differentiated energy sources.

Annual EECS transactions by production date (TWh)



Annual EECS transactions by transaction date (TWh)

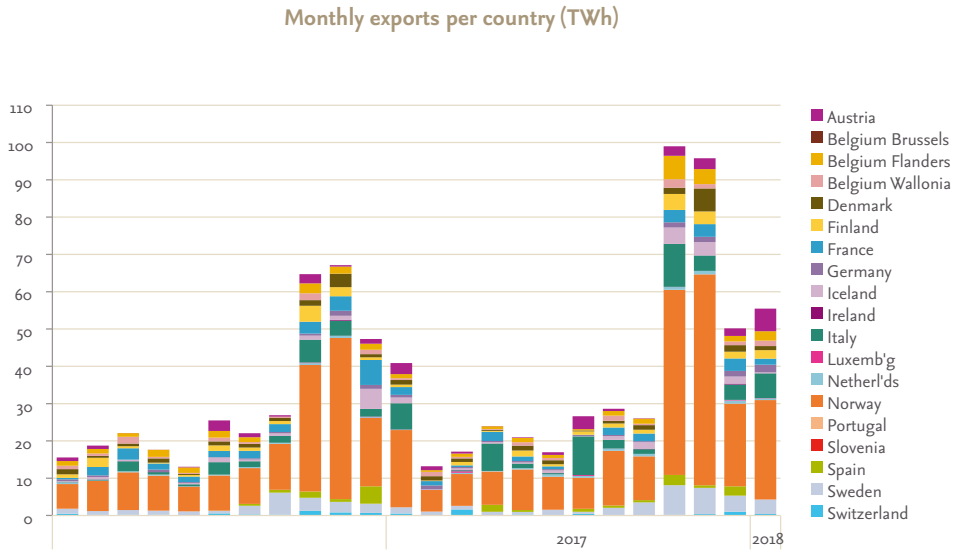
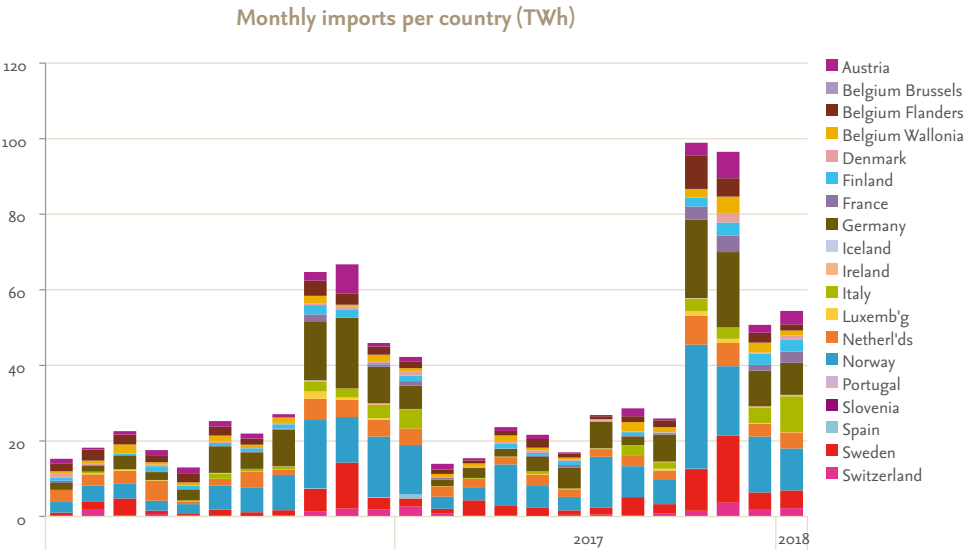


The monthly discrepancy between exports and imports is due to not all transfers being instantaneous, so hence trades which commence in one month can complete the following month; however, the general shape of the import and export graphs is similar.

In 2017, exporting countries are predominantly Nordic plus Italy, France and Benelux; while the Nordic countries, Benelux and Germany as the major importers, followed by Austria. So far in 2018,

the major exporters have been Nordic plus Benelux, Austria and Italy; while the major importers have been Nordic, Germany, Austria, and Benelux. During both years, some countries figure in both exports and imports, suggesting trading activity.

These charts show the large role that the Nordic region has in this market, and the interest in renewable products elsewhere in Europe, particularly Germany and Benelux.



There are still trades where certificates are cancelled in one country for use in another: these are known as “ex-domain cancellations (EDCs)”. The EECS Rules only permit this where transfer is technically impossible, so this does not occur between member countries - less than one percent of all EDCs are between member countries. EDCs may also occur where the account holder either does not reveal (or perhaps conceals) the country for which GOs are being cancelled: this is a matter for individual competent bodies.

EDCs can and do occur between member countries and non-member countries, to the extent that in 2018, almost 99 percent of all EDCs went to non-member countries in Europe, only one percent of EDCs being used outside of Europe. The following table gives an indication of the countries for which ex-domain cancellations were executed in 2018.

EX-DOMAIN CANCELLATIONS BY COUNTRY : 2018							
DESTINATION	SOURCE						
	CH	DK	EE	FI	FR	NO	TOTAL
Albania	0	0	0	0	0	29.685	29.685
Australia	0	0	0	0	0	38	38
Bosnia	0	0	0	0	0	5	5
Brazil	0	0	0	0	0	1.100	1.100
Bulgaria	0	0	0	0	0	26.197	26.197
Chile	0	0	0	0	0	900	900
Greece	0	640	0	0	0	28.475	29.115
Hungary	90.330	0	0	0	0	63.829	154.159
Latvia	0	0	15.339	0	0	5.135	20.474
Lithuania	0	0	347.377	0	0	19.558	366.935
Peru	0	0	0	0	0	8.000	8.000
Poland	0	10.000	0	0	0	182.305	192.305
Portugal	227.799	3.546	0	16.691	0	0	248.036
Romania	0	0	0	0	0	27.022	27.022
Russia	0	0	0	466	0	79.180	79.646
Saudi Arabia	0	0	0	0	0	4.065	4.065
Serbia	0	0	0	0	0	38.484	38.484
Slovakia	131.031	0	0	0	226.680	31.150	388.861
Turkey	0	0	0	0	0	900	900
UK	13.323	720.794	0	231.816	26.883	4.625.392	5.618.208
Ukraine	0	0	0	0	0	2.675	2.675
United Arab Emirates	0	0	0	0	0	37	37
TOTAL	462.483	734.980	362.716	248.973	253.563	5.174.132	7.236.847

	TOTAL		Q1		Q2		Q3		Q4	
EDCs TO MEMBER COUNTRIES	-	0,00%	-	0,00%	-	0,00%	-	0,00%	-	0,00%
EDCs TO EUROPEAN NON-MEMBER COUNTRIES	7.142.161	98,80%	7.142.161	98,80%	-	0,00%	-	0,00%	-	0,00%
EDCs TO EUROPE	7.142.161	98,80%	7.142.161	98,80%	-	0,00%	-	0,00%	-	0,00%
EDCs OUTSIDE OF EUROPE	86.686	1,20%	86.686	1,20%	-	0,00%	-	0,00%	-	0,00%
EDCs TO UNKNOWN DESTINATION	-	0,00%	-	0,00%	-	0,00%	-	0,00%	-	0,00%
	7.228.847		7.228.847		-		-		-	



In 2017, 99,5 percent of all EDCs went to non-member countries in Europe, and less than half a percent of EDCs being used outside of Europe.

The following table gives an indication of the countries for which ex-domain cancellations were executed in 2017.

Note that in some instances, EDCs took place between member countries where technical issues prevented transfer of GOs.

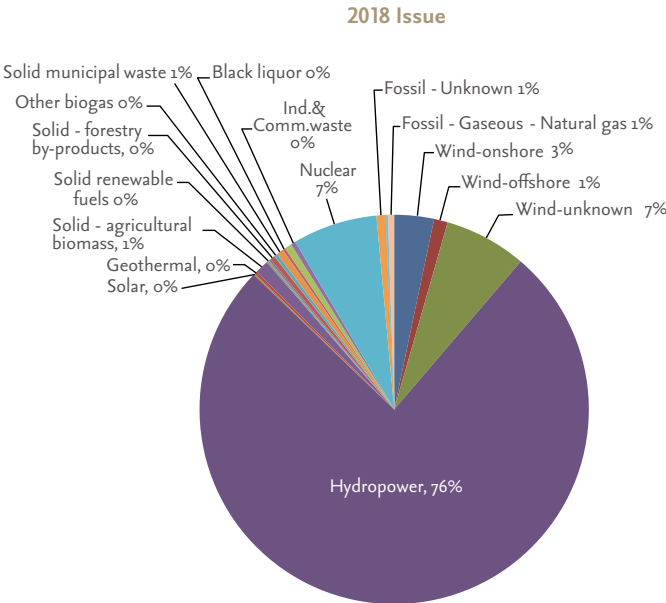
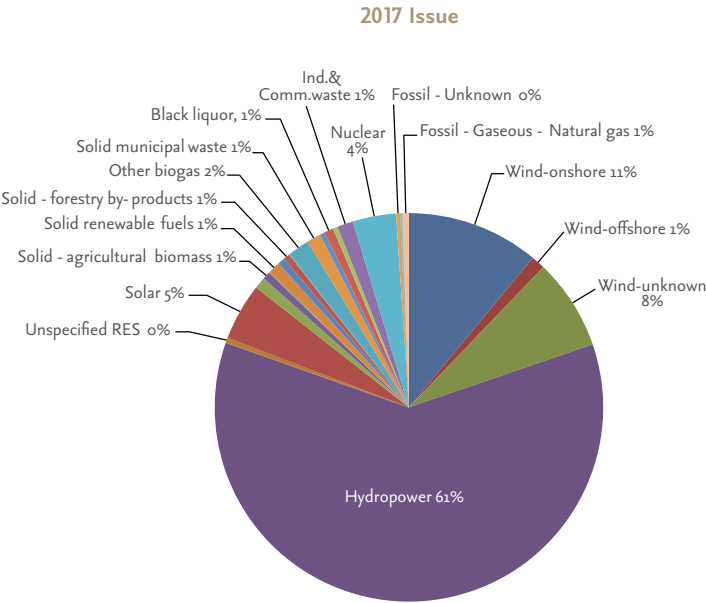
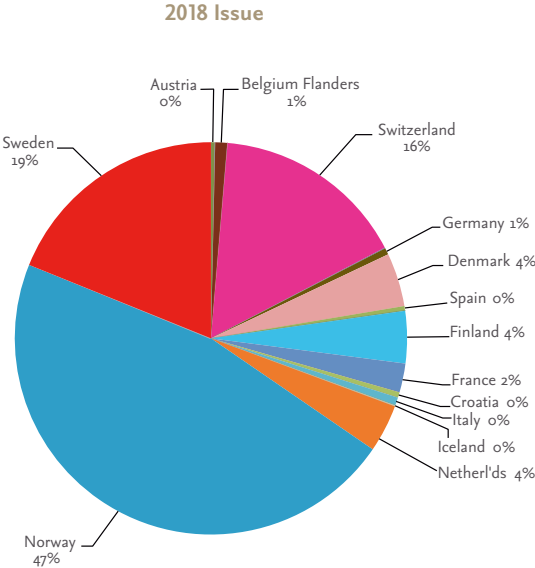
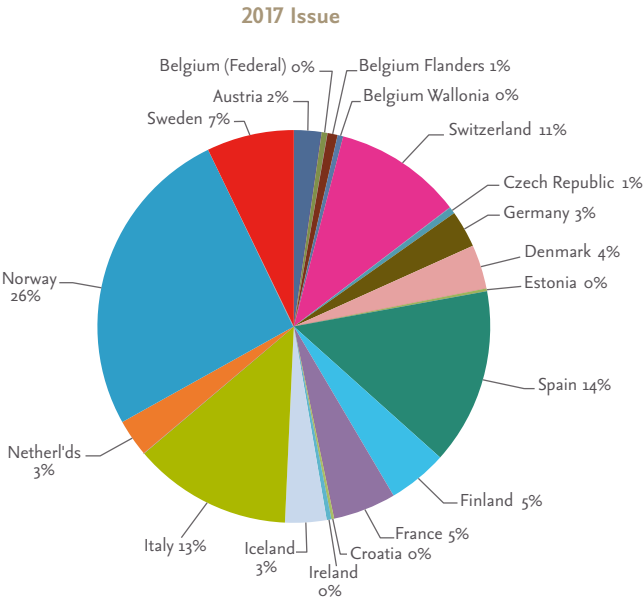
EX-DOMAIN CANCELLATIONS BY COUNTRY : 2017								
DESTINATION	SOURCE							
	CH	DK	EE	FI	FR	NO	SE	TOTAL
Albania	0	0	0	0	0	87.539	0	87.539
Belarus	0	0	0	30	0	0	0	30
Belgium Flanders	0	0	0	0	0	15.000	0	15.000
Bosnia	0	0	0	0	0	5	0	5
Brazil	0	0	0	0	0	1.000	0	1.000
Bulgaria	0	0	0	0	0	21.990	0	21.990
Chile	0	0	0	0	0	1.002	0	1.002
China	0	0	0	0	0	4.615	0	4.615
Cyprus	0	0	0	0	0	0	471	471
Czech Republic	0	0	0	1.465	0	2.226	0	3.691
Greece	50.665	0	0	0	0	55.787	0	106.452
Hungary	282.310	0	0	15.201	0	198.252	5.000	500.763
Latvia	0	0	872.004	0	0	9.263	0	881.267
Lithuania	0	0	1.486.782	0	0	358.644	0	1.845.426
Morocco	0	0	0	154	0	0	0	154
Poland	4.100	0	0	0	122.600	661.578	7.000	795.278
Portugal	647	0	0	0	0	0	209.880	210.527
Romania	0	0	0	0	0	44.308	0	44.308
Russia	0	0	0	6.000	0	78.288	0	84.288
Saudi Arabia	0	0	0	0	0	5.393	0	5.393
Serbia	0	0	0	0	0	16.898	0	16.898
Slovakia	363.660	232.000	0	0	812.657	850.267	89.280	2.347.864
Thailand	0	0	0	0	0	504	0	504
Turkey	0	0	0	0	0	4.000	0	4.000
UK	3.432.878	3.720.456	1	269.277	0	13.174.237	4.523.101	25.119.950
Ukraine	0	0	0	0	0	3.037	0	3.037
United Arab Emirates	0	0	0	0	0	39	0	39
United States	0	0	0	0	0	46.750	0	46.750
TOTAL	4.134.260	3.952.456	2.358.787	292.127	935.257	15.640.622	4.834.732	32.148.241

#### EDCs to member countries

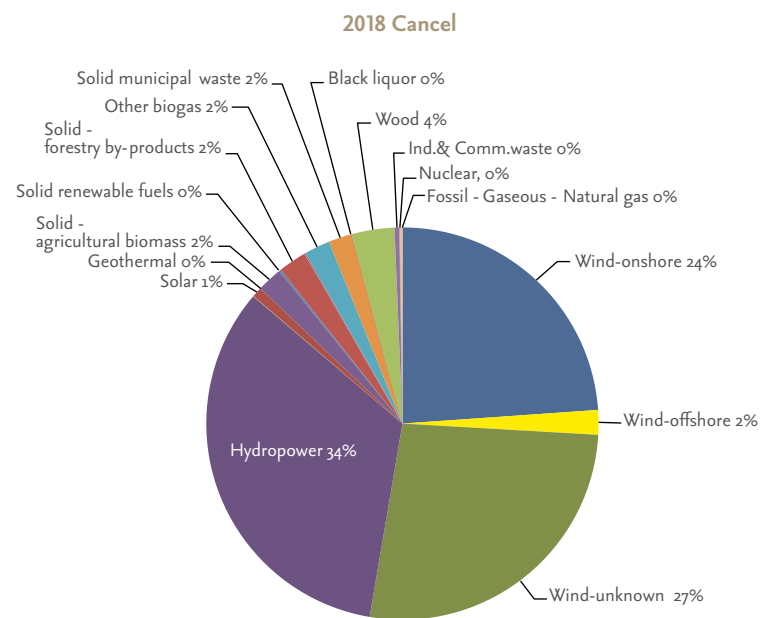
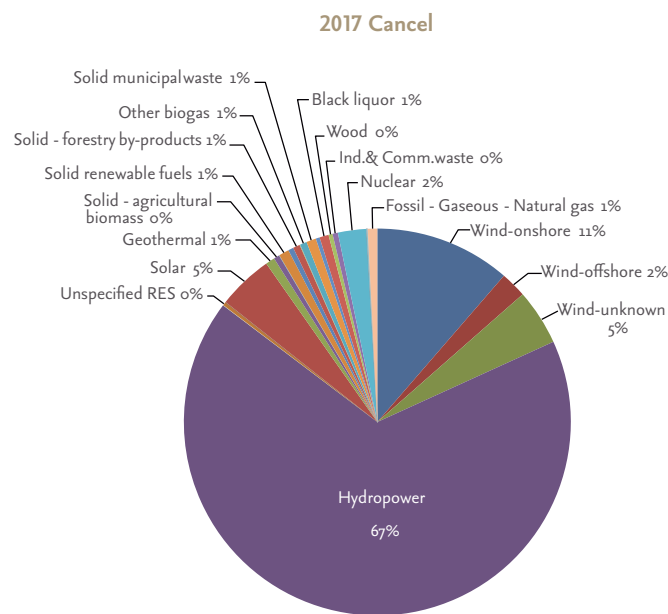
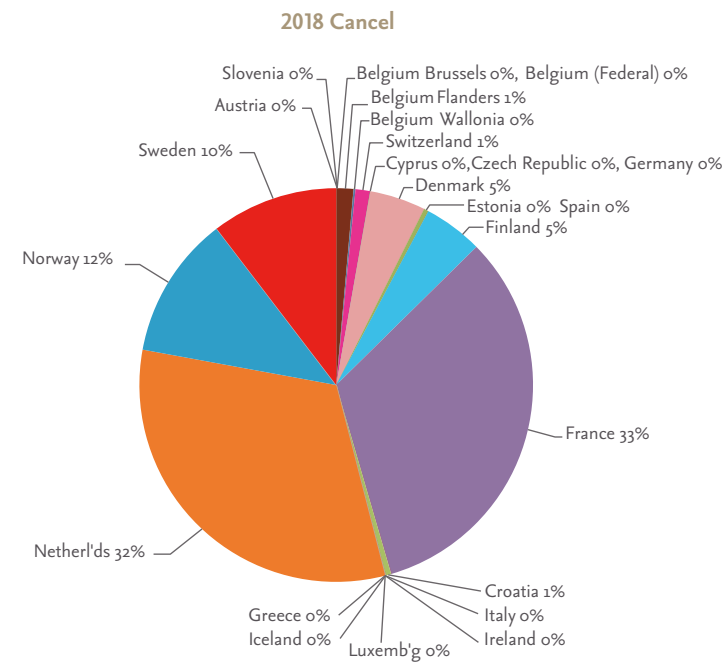
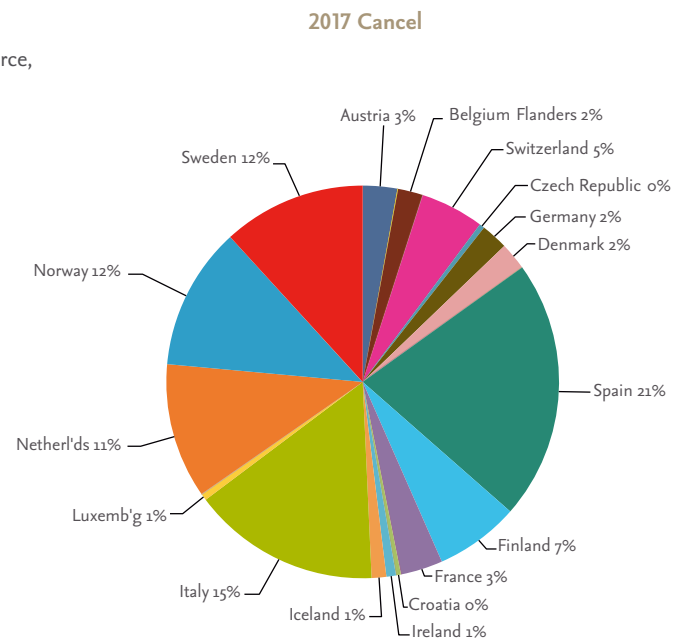
- Ex-domain cancellations to Belgium (Flanders): the Belgian registry does not accept GOs that expire the following day, so EDCs are necessary in such cases
- Ex-domain cancellations to Cyprus: the Cyprus registry has yet to connect to the AIB Hub
- Ex-domain cancellations to Czech Republic: linkage to Czech registry suspended due to EECS Rules infringement, which has now been rectified.

	TOTAL		Q1		Q2		Q3		Q4	
EDCs TO MEMBER COUNTRIES	18.691	0,06%	3.691	0,06%	15.000	0,09%	-	0,00%	-	0,00%
EDCs TO EUROPEAN NON-MEMBER COUNTRIES	31.981.775	99,48%	6.286.566	98,68%	15.848.399	99,83%	1.943.996	97,54%	7.902.814	99,93%
EDCs TO EUROPE	32.000.466	99,54%	6.290.257	98,74%	15.863.399	99,92%	1.943.996	97,54%	7.902.814	99,93%
EDCs OUTSIDE OF EUROPE	147.241	0,46%	80.307	1,26%	12.384	0,08%	49.000	2,46%	5.550	0,07%
EDCs TO UNKNOWN DESTINATION	-	0,00%	-	0,00%	-	0,00%	-	0,00%	-	0,00%
TOTAL	32.147.707		6.370.564		15.875.783		1.992.996		7.908.364	

The following graphs are based on specific “vintages” of certificate (i.e. associated with electricity produced in a particular year), and show the final destination of GOs associated with electricity produced by each member country in a year..



For renewables, hydropower remains by far the prevalent supplied renewable energy source, followed by wind, biomass and then solar.



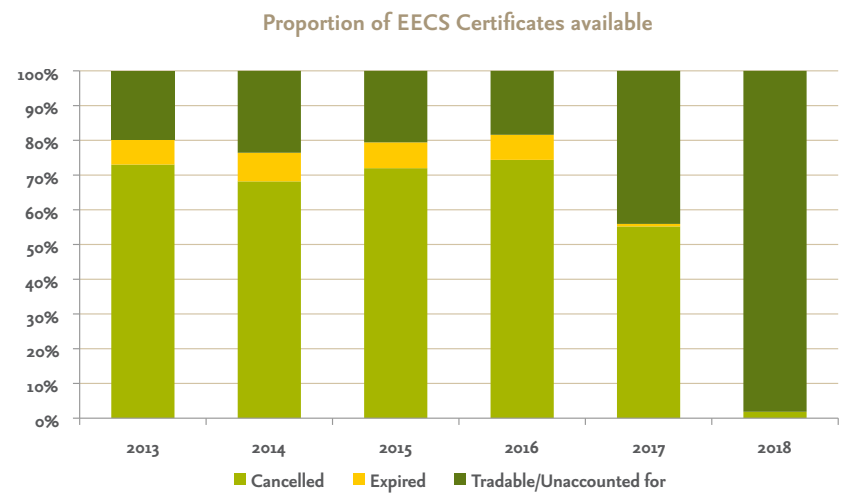
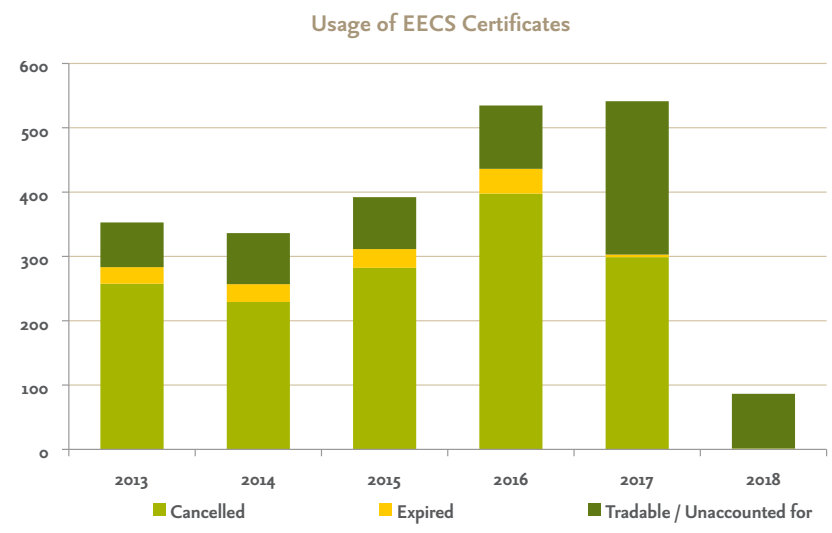


Comparing the status of different vintages of EECS certificate, we can see what has happened to the certificates that were issued for energy produced in the last four years - that is, whether the certificates have:

- been cancelled as evidence of supply;
- expired due to it being more than one year since the associated energy was produced (as required by Directive 2009/28/EC); or
- whether their whereabouts is unknown. This may mean that they remain available for trade, but it could also be that they have been transferred to a registry that does not currently report expiry and cancellation by the date of production.

Two graphs are shown. In the first, actual numbers of certificates are given; while the second illustrates the proportion of certificates in each category.

The picture is becoming clearer as more and more registries support expiry.



The following tables display the raw data by domain at a yearly level. Aggregated totals are given for the period since records began (2000); and for the period from January 2017 until the date of collection of the

data (during April 2018 – although note that not all registries can provide the required information upon request – see also “Explanatory notes to statistics” in this statistical report).

ISSUING, TRADE & REDEMPTION FOR ALL FUELS																		
	TOTAL : 2001 TO 2018									2016 TO 2018								
	PRODUCTION			TRANSACTION						PRODUCTION			TRANSACTION					
	ISSUE	EXPIRE	CANCEL	ISSUE	TRANSFER	EXPORT	IMPORT	EXPIRE	CANCEL	ISSUE	EXPIRE	CANCEL	ISSUE	TRANSFER	EXPORT	IMPORT	EXPIRE	CANCEL
Austria	80.919.186		115.126.978	83.857.408	149.466.855	106.542.444	185.497.732		147.587.218	24.448.556		25.999.710	29.337.886	51.802.416	38.643.438	56.337.215		47.434.108
Belgium (Federal)	7.156.096			6.892.358						5.092.782			5.412.620					
Belgium Brussels	414.855		268.375	77.388	12.029.289	14.800	11.753.516	5.390	23.308.174	253.981		166.334		7.254.256		239.695	5.390	6.129.071
Belgium Flanders	36.400.982	5.302.156	50.698.956	32.713.957	107.081.608	118.409.000	261.370.813	8.057.603	165.256.120	9.533.983	746.745	16.799.370	10.526.219	41.427.837	42.696.855	62.258.611	1.915.490	24.460.574
Belg & Lux RECS	113.390						2.031.496		2.048.355									
Belgium Wallonia	14.665.862	120.406	6.973.632	10.754.551	59.333.817	41.017.920	109.779.676	1.827.142	57.223.384	4.864.718	91.270	3.094.518	6.356.554	28.668.954	21.934.221	36.192.088	723.702	8.776.846
Belgium	58.751.185	5.422.562	57.940.963	50.438.254	178.444.714	159.441.720	384.935.501	9.890.135	247.836.033	19.745.464	838.015	20.060.222	22.295.393	77.351.047	64.631.076	98.690.394	2.644.582	39.366.491
Switzerland	352.011.792	54.160.227	256.209.942	353.487.912	102.015	40.637.596	74.692.294	102.085.883	278.921.836	128.837.877	10.783.708	66.770.284	133.916.415		14.209.801	29.693.054	24.605.438	117.553.004
Cyprus	360.507			304.580				283.636		360.507			304.580				283.636	
Czech Republic	5.664.458	299.489	5.063.859	5.541.203	4.962.862	2.022.153	2.008.428	339.242	5.001.224	4.378.333	53.612	2.254.435	4.305.706	2.843.360	2.022.153	346.331	139.251	3.122.348
Germany	94.664.417	5.061.734	195.709.982	94.142.648	316.989.480	45.441.437	579.299.872	13.108.912	573.095.808	33.783.932	194.784	20.716.757	37.604.026	114.135.838	18.556.475	205.498.344	4.701.864	229.655.396
Denmark	116.796.791	8.614.901	51.128.852	107.002.101	47.222.480	79.869.230	32.722.135	8.614.901	52.955.297	39.444.523	403.916	15.070.875	41.579.191	19.341.272	36.196.344	16.485.600	1.150.840	19.739.095
Estonia	3.482.787		433.112	5.918.428	9.633.411	3.251.219	5.197.731	954.865	3.911.403	2.580.195		322.398	4.114.715	8.281.170	2.506.717	4.926.812	430.519	3.564.386
Spain	178.996.107	4.444.262	137.249.466	127.439.773	137.048.460	24.276.225	1.541.623	9.323.996	147.647.487	164.309.965	4.444.262	137.249.466	124.004.620	137.048.460	18.711.052	1.483.243	9.323.996	141.103.899
Finland	222.617.888	8.373.864	152.612.659	161.083.628	54.267.863	234.773.601	207.309.295	8.373.864	168.069.369	55.585.186	254.300	44.386.836	60.893.587		42.121.259	35.593.004	349.778	58.704.397
France	194.298.910	14.540.322	71.626.928	177.871.039	26.011.402	105.503.501	47.429.319	19.554.275	135.545.526	73.858.883	323.552	30.388.156	91.877.994	10.061.764	59.502.621	21.563.268	1.959.841	54.616.653
Croatia	2.936.475	58.313	2.259.907	2.936.475	2.121.203	553.013	191.766	58.313	2.259.907	2.801.516	50.430	2.121.761	2.868.097	2.121.203	553.013	168.753	57.874	2.237.333
Ireland	7.169.749	55.493	7.849.050	7.007.335	3.331.432	934.410	2.635.544	55.493	7.849.050	4.685.809	49.342	4.989.108	5.031.935	3.136.627	910.371	2.323.544	55.493	7.457.625
Iceland	71.940.413	1.005.856	7.615.903	71.940.413	7.191.011	64.275.522	1.257.447	1.005.856	7.615.903	34.205.660	2.808	6.184.923	37.027.307	4.250.934	30.549.789	239.004	18.750	7.284.949
Italy	265.732.427	31.519.901	147.590.312	243.588.763	339.944.190	112.624.349	76.216.608	53.118.467	244.217.528	143.417.844	19.047.367	86.905.502	166.507.895	215.208.672	88.276.887	47.903.535	48.096.519	124.339.607
Luxembourg	509.909	431.795	19.462.635	509.909	8.010.474	2.542.278	23.254.473	431.795	19.462.635	290.067	10.701	4.947.028	315.325	2.429.418	1.547.953	8.168.661	22.761	7.664.758
Netherlands	146.165.248	5.576.755	254.832.707	60.629.418	99.100.745	39.364.628	348.144.876	5.576.766	429.370.981	33.634.160	697.871	82.756.092	35.579.882	21.985.804	11.050.866	91.625.358	1.400.680	112.858.811
Norway	1.417.739.354	67.677.137	208.409.398	941.690.683	613.056.895	1.318.306.934	382.928.810	67.677.137	345.718.842	316.586.239	5.107.051	71.703.173	324.025.241	231.044.480	478.935.992	251.676.113	7.744.351	94.829.747
Portugal	1.455.576		422.472	477.440		1.064.056	371.468		487.048									
Sweden	484.553.939	28.568.131	249.380.095	215.216.050	79.470.617	254.846.207	264.592.535	28.578.320	427.696.066	79.534.215	310.623	75.257.502	87.165.410	58.404.759	70.256.930	104.988.878	1.001.099	100.472.782
Slovenia	4.002.666					668.004	117.018		1.927.200									
UK	90.158																	
TOTAL	3.710.859.942	235.810.742	1.940.925.220	2.711.083.460	2.076.376.109	2.596.938.527	2.620.344.475	329.031.856	3.247.176.361	1.162.488.931	42.572.342	698.084.228	1.208.755.205	959.447.224	979.182.737	977.711.111	103.987.272	1.172.005.389

Issuing, Trade & Redemption for all Fuels																		
	2018									2017								
	Production			Transaction						Production			Transaction					
	Issue	Expire	Cancel	Issue	Transfer	Export	Import	Expire	Cancel	Issue	Expire	Cancel	Issue	Transfer	Export	Import	Expire	Cancel
Austria	5.949			7.979.235	10.397.566	11.050.570	13.156.543		8.220.982	12.296.540		8.476.513	10.852.721	20.876.381	13.879.422	20.905.980		17.387.018
Belgium (Federal)	263.738			530.993						2.513.932			2.503.789					
Belgium Brussels	31.632				95.395		5.973		1.478	112.521		166.334		4.010.512		14.146		3.101.288
Belgium Flanders	852.149		22.665	1.797.011	4.965.378	8.549.806	9.794.448	130.023	3.166.186	4.495.556	127.927	6.115.539	4.545.514	15.905.949	17.801.789	26.048.300	1.088.120	14.004.404
Belg & Lux RECS																		
Belgium Wallonia	20.074		2.595	687.381	4.844.643	3.571.140	8.316.571	59.098	20.382	2.510.897	42.521	61.420	2.971.077	12.347.852	9.109.856	13.764.476	319.047	3.007.737
Belgium	1.167.593		25.260	3.015.385	9.905.416	12.120.946	18.116.992	189.121	3.188.046	9.632.906	170.448	6.343.293	10.020.380	32.264.313	26.911.645	39.826.922	1.407.167	20.113.429
Switzerland	13.826.178		19.120	19.140.256		1.823.684	8.309.225	982.158	14.692.572	57.197.386		15.613.744	56.383.036		5.211.808	11.559.223	10.746.235	49.817.686
Cyprus	55.927			15.045				59.072		208.400			210.614					224.564
Czech Republic				787.893	541.304	790.421	74.276	6.140	294.745	2.991.241	9.099	1.265.954	2.897.117	2.159.194	1.231.732	144.585	88.541	1.343.365
Germany	468.066		292	6.634.537	23.336.994	4.930.462	37.895.149	318.725	53.898.027	16.534.208	16.644	6.622.188	16.347.808	44.298.553	7.765.002	87.305.142	1.776.004	91.739.136
Denmark	3.814.389		73.992	6.171.069	4.517.486	9.515.276	4.371.517	66.569	4.960.746	19.668.799	30.526	6.679.045	19.371.001	5.491.178	14.285.934	5.139.728	370.556	6.590.533
Estonia	340.574		6.284	391.223	965.562	454.409	511.153	17.124	475.986	1.251.181		110.658	2.031.853	3.822.020	1.398.725	2.095.516	226.842	2.184.793
Spain				37.831.883	46.116.731	3.184.189		1.869.233	66.339.216	78.486.682	1.314.652	63.871.836	38.677.500	71.631.112	12.520.719	1.330.000	7.454.763	74.764.683
Finland	3.715.871		78.199	10.381.708		7.548.743	9.722.594	163.060	16.574.696	26.511.501	155.774	20.715.711	25.603.169		14.554.562	10.577.306	100.166	20.884.867
France	2.065.284		529.195	8.458.274	2.648.348	8.382.527	8.788.784	215.893	16.929.482	28.061.504		10.390.865	43.603.292	4.267.755	26.164.151	8.011.378	1.214.170	21.855.527
Croatia	386.789		8.068	526.531	1.120.854	239.774	19.896	50.068	1.159.591	1.269.074	5.767	1.224.498	1.738.230	979.391	176.952	50.357	362	961.670
Ireland	583.111			833.902	790.425	325.847	621.642	21.049	2.089.097	2.064.629	16.028	2.353.209	2.021.089	941.678	491.224	904.634	34.434	2.287.547
Iceland	33.214			7.749.349	368.328	5.837.589	50.000	2.808	3.601.744	18.428.126	2.808	3.601.748	20.081.290	1.961.511	17.115.364	164.004	14.670	2.583.179
Italy				21.558.508	45.209.098	14.896.186	16.546.767	294.388	44.916.315	70.898.905	294.388	46.255.907	71.273.042	83.592.879	47.854.870	19.753.834	18.752.979	40.626.542
Luxembourg	32.510			61.542	576.198	282.249	1.386.288		1.252.454	119.410		1.724.202	106.055	1.409.839	881.484	3.168.096	10.701	3.018.938
Netherlands	3.400.334		513.202	6.033.708	3.429.307	2.163.752	13.825.161	125.750	15.464.842	16.600.657	104.368	33.219.870	15.708.537	11.062.802	4.930.827	40.275.465	681.877	49.363.455
Norway	40.250.609		188.812	49.962.337	39.262.329	107.461.204	44.990.907	1.833.888	22.879.331	140.223.163	1.807.148	35.182.408	135.603.434	102.795.732	209.602.452	129.013.909	3.295.472	39.280.356
Portugal																		
Sweden	16.333.196		167.261	16.307.321	17.171.018	15.271.596	27.051.620	5.133	27.537.305	38.918.193	9.160	35.215.285	39.473.491	37.284.308	25.681.278	48.971.674	384.730	43.010.681
Slovenia																		
UK																		
TOTAL	86.479.594	0	1.609.685	203.839.706	206.356.964	206.279.424	205.438.514	6.220.179	304.475.177	541.362.505	3.936.810	298.866.934	512.003.659	424.838.646	430.658.151	429.197.753	46.784.233	487.813.405

Similar to the “by country” data above, the following tables display the raw data “by technology” at a yearly level.

See also the AIB website at [Statistics](#) for Excel spreadsheets in Excel 2010 format, containing the detailed data since records

began, summarised by year and by month; and also analysing certificate activity by fuel source grouping per country, and giving details of the number of GOs that have been cancelled for use in other countries (“Ex-Domain Cancellations”), along with their source and destination. Further analysis of market activity can be obtained from

a variety of sources, including those identified at: [https://www.aib-net.org/en\\_US/sources-of-price-information](https://www.aib-net.org/en_US/sources-of-price-information) and from market actors such as those identified at [https://www.aib-net.org/en\\_US/facts/market\\_information/certificate\\_market\\_facilitators](https://www.aib-net.org/en_US/facts/market_information/certificate_market_facilitators) .

Issuing, Trade & Redemption for All Countries																			
		Total : 2001 to 2018										Total : 2016 to 2018							
		Production			Transaction						Production			Transaction					
		Issue	Expire	Cancel	Issue	Transfer	Export	Import	Expire	Cancel	Issue	Expire	Cancel	Issue	Transfer	Export	Import	Expire	Cancel
Wind	Wind - onshore	197.525.488	4.733.355	147.536.491	118.139.562	141.803.054	47.960.213	74.330.901	6.177.108	198.192.806	115.448.762	2.970.933	104.375.454	94.095.444	92.887.117	20.564.834	28.823.306	3.728.363	117.718.575
	Wind - offshore	20.774.257	980.234	25.094.188	15.663.850	18.706.108	8.456.668	23.821.500	1.053.748	30.651.129	11.759.961	200.187	14.744.529	12.307.223	13.909.865	5.594.438	15.454.193	453.557	19.630.502
	Wind - unknown	157.640.698	13.831.579	92.721.399	160.576.858	113.958.310	165.320.013	125.426.647	10.708.739	97.556.768	77.953.733	1.061.672	42.629.227	83.273.148	71.296.872	101.278.329	83.332.003	2.809.959	55.948.196
		375.940.443	19.545.168	265.352.078	294.380.270	274.467.472	221.736.894	223.579.048	17.939.595	326.400.703	205.162.456	4.232.792	161.749.210	189.675.815	178.093.854	127.437.601	127.609.502	6.991.879	193.297.273
Hydro/marine		2.745.081.666	136.210.190	1.377.691.220	1.974.876.704	1.519.273.512	2.160.135.633	2.173.015.277	201.570.706	2.472.320.766	740.025.004	11.650.642	413.573.058	793.822.033	619.770.911	713.702.509	714.612.339	36.084.243	804.373.375
Other	Unspecified mechanical/other	23.126	41.731	194.022	69.580	100.877	28.196	5.980.807	1.561	5.975.709	1.410		7.045	2.086	76.514	10.715	83.764	835	128.597
	Unspecified renewable energy	10.724.613	1.498.336	5.523.394	9.266.659	5.405.987	7.117.833	14.631.893	2.365.682	6.006.597	4.588.241	82.492	2.467.205	4.689.950	3.620.170	5.085.064	5.019.323	670.377	3.729.461
	Unspecified heat	13.335		3.151	4.407		1.167	88		88	13.335		3.151	4.407		1.167	88		88
	Solar	52.470.191	5.236.063	43.460.225	47.957.092	71.724.325	40.023.793	40.083.151	15.578.289	46.191.363	47.376.930	1.568.587	38.510.074	42.889.361	67.635.895	38.125.288	38.153.983	12.130.426	43.332.487
	Geothermal	33.768.478	415.229	17.004.448	28.418.481	17.425.945	30.636.940	30.355.212	426.146	32.796.296	10.388.268	66.615	7.349.887	12.013.482	8.010.914	14.256.835	15.573.885	162.672	14.123.963
		96.999.743	7.191.359	66.185.240	85.716.219	94.657.134	77.807.929	91.051.151	18.371.678	90.970.053	62.368.184	1.717.694	48.337.362	59.599.286	79.343.493	57.479.069	58.831.043	12.964.310	61.314.596
	Solid - agricultural biomass (inc. energy crops)	16.224.394	452.048	12.408.106	13.919.793	5.892.450	16.380.570	18.017.604	499.726	14.615.114	7.074.803	135.100	5.007.144	7.328.930	4.407.226	12.081.014	12.779.843	176.992	6.226.860
	Solid - agricultural products	1.623.511	114.192	1.022.729	1.369.542	449.707	1.499.679	1.329.713	103.386	1.022.631	754.270	30.607	381.917	773.177	262.798	1.213.634	1.025.000	18.322	521.129
	Solid - renewable fuels (inc. For&Ag bp & w)	68.916.829	4.376.036	16.860.702	27.939.620	46.940.723	29.293.971	26.467.728	5.316.331	61.419.123	10.810.893	1.234.238	6.559.708	13.572.049	13.225.548	8.523.733	7.412.833	2.465.799	10.609.512
Solid - forestry products	17.195.990	421.156	10.369.378	12.740.016	7.640.657	5.472.049	4.805.108	677.837	12.301.853	6.874.343	25.986	3.315.668	6.503.634	1.627.053	1.630.028	1.490.313	188.206	4.699.224	
Solid - forestry by-products & waste	17.395.522	719.022	9.764.491	12.523.049	7.878.186	5.904.990	5.434.145	1.000.679	12.881.451	5.715.633	61.171	4.254.000	6.170.408	3.385.253	2.787.965	2.619.625	203.418	5.732.632	
Gas - landfill	4.720.107	139.320	1.371.747	1.463.760	3.364.979	326.838	406.466	179.943	3.620.078	360.473	13.021	303.944	464.031	493.937	74.816	67.868	48.371	516.834	
Gas - sewage	687.513	47.886	184.244	648.415	17.642	30.979	29.779	260.194	215.144	302.613	6.928	93.918	321.951	8.050	26.638	25.438	13.153	142.508	
Gas - other biogas	28.070.937	8.041.893	11.962.363	25.440.279	23.665.587	17.092.661	16.866.524	14.864.020	15.000.962	18.696.323	6.977.538	6.271.067	19.677.823	17.679.354	15.411.052	15.243.632	13.672.221	7.795.852	
Solid - municipal biogenic waste	37.953.137	3.625.877	19.878.529	22.631.018	22.363.318	15.143.949	14.464.664	5.005.442	29.647.039	12.307.155	1.860.859	7.671.943	13.182.194	10.886.258	7.744.099	7.349.993	3.315.728	9.732.911	
Liquid - renewable fuels (inc. Mun.waste)	6.019.756	881.602	4.660.382	6.094.722	6.780.289	5.780.620	6.445.016	1.694.895	5.864.548	4.705.153	750.819	3.241.151	4.824.479	4.818.097	4.890.919	4.949.723	1.210.031	4.073.001	
Liquid - black liquor	17.335.202	121.201	14.363.941	17.251.009	4.104.437	6.276.377	4.945.139	121.143	15.203.121	7.787.312	13.696	6.323.241	8.220.079	2.155.993	4.022.877	3.453.434	22.122	8.615.745	
Solid - unspecified wood	9.658.236	487.327	7.954.837	10.513.610	4.006.985	6.084.140	6.097.614	439.324	8.753.341	4.244.677	85.542	2.932.104	5.698.985	2.519.215	4.179.118	4.078.725	201.129	4.797.049	
Solid - industrial & commercial waste	37.150.080	7.344.402	14.024.167	27.609.692	28.319.820	13.351.957	13.199.193	14.711.497	24.493.607	16.727.105	6.490.356	7.028.376	18.585.486	14.098.171	10.304.490	10.175.962	13.527.052	8.864.414	
Biomass	262.951.214	26.771.962	124.825.616	180.144.525	161.424.781	122.638.781	118.508.694	44.874.417	205.038.012	96.360.753	17.685.861	53.384.181	105.323.226	75.566.953	72.890.383	70.672.389	35.062.544	72.327.671	
RENEWABLE		3.480.973.066	189.718.679	1.834.054.154	2.535.117.718	2.049.822.899	2.582.319.236	2.606.154.170	282.756.396	3.094.729.534	1.103.916.397	35.286.989	677.043.811	1.148.420.360	952.775.211	971.509.562	971.725.273	91.102.976	1.131.312.915
NUCLEAR		200.394.757	41.548.342	89.927.808	145.205.123		1.890.772	400.858	41.556.906	133.489.988	45.801.553	6.201.837	13.931.233	47.787.992		1.702.006	212.092	10.967.451	32.095.741
FOSSIL	Unknown	5.741.983	236.488	94.612	5.460.217	497.631	4.533.020	233.434	193.246	88.214	3.229.752	40.834	1.922	3.231.256		2.636.035	160.004	139.285	3.973
	Solid - Unknown				3.447				3.447					3.447				3.447	
	Solid - Hard coal	2.238.884	1.989.226	1.298.582	2.238.884	1.380.582	249.582	1.339.582	1.989.226	1.298.582			209.000		691.000		650.000	47.714	609.000
	Solid - Brown coal	67			67														
	Solid - Peat	42.830	5.417	17.009	69.987	21.387	26.897	21.750	31.697	29.510	37.712	5.417	11.891	54.662	15.080	23.234	18.087	31.697	23.203
	Solid - Municipal solid waste	3.714.813	1.353.082	1.162.724	3.814.261	41.994	168.825	252.079	1.427.132	1.271.725	2.191.121	507.733	400.040	2.409.358	41.994	165.119	122.848	939.187	733.653
	Solid - Industrial and commercial waste	273.907	25.928	196.489	296.993		27.569	27.560	30.386	196.489	122.882	408	73.033	132.380		21.200	21.200	3.062	100.710
	Liquid - Unknown	13.167		6.968	12.414					6.968	6.254		55	5.501					55
	Liquid - Crude oil	11.074	10.656	418	11.074	418	418	418	10.656	418									
	Liquid - Natural gas	261.476			300.000	40.000	400.281	859.781		944.467	159.621			300.000	40.000	400.281	859.781		944.467
	Liquid - Petroleum products	153.612	6.324	113.709	183.715	113.742			75.062	113.747	129.546	4.185	113.709	115.551	113.742			8.371	113.709
	Gaseous - Unknown	166.352			18.076		2		2.270	167	166.350								
	Gaseous - Natural gas	16.873.954	916.600	14.052.747	18.351.484	24.457.456	7.321.925	11.054.843	955.432	15.006.552	6.727.743	524.939	6.299.534	6.294.698	5.770.197	2.725.300	3.941.826	744.082	6.067.963
	Gaseous - Coal-derived gas																		
	Gaseous - Petroleum products																		
Gaseous - Municipal gas plant																			
Gaseous - Process gas																			



Issuing, Trade & Redemption for All Countries																			
		2018								2017									
		Production			Transaction					Production			Transaction						
		Issue	Expire	Cancel	Issue	Transfer	Export	Import	Expire	Cancel	Issue	Expire	Cancel	Issue	Transfer	Export	Import	Expire	Cancel
Wind	Wind - onshore	2.847.187		384.551	27.603.874	28.928.799	5.183.261	7.007.064	762.627	47.709.577	59.589.585	916.947	52.848.724	30.098.507	42.227.182	10.955.665	12.676.349	2.754.279	55.395.501
	Wind - offshore	985.755		32.655	1.778.520	2.493.602	857.635	1.840.001	39.854	2.451.461	6.215.043	33.642	5.659.236	6.017.649	7.005.694	2.596.234	8.259.806	287.228	10.591.121
	Wind - unknown	5.903.352		430.708	14.815.299	16.780.200	24.361.094	21.563.847	152.804	15.023.012	41.107.410	103.707	20.840.748	38.299.891	28.372.341	44.861.063	37.745.113	1.109.895	22.761.817
		9.736.294		847.914	44.197.693	48.202.601	30.401.990	30.410.912	955.285	65.184.050	106.912.038	1.054.296	79.348.708	74.416.047	77.605.217	58.412.962	58.681.268	4.151.402	88.748.439
Hydro/marine		65.664.107		540.204	123.357.376	120.833.874	138.753.874	138.057.532	3.141.815	188.330.397	328.360.450	2.266.597	162.015.015	339.996.129	274.707.440	301.766.403	301.871.033	16.828.535	327.385.295
	Unspecified mechanical/other							1.616					2.063		70.446	6.438	81.825	835	128.025
	Unspecified renewable energy	84.617		841	854.333	1.192.391	1.974.859	1.851.919	69.327	1.051.960	2.370.604		1.084.370	2.397.451	1.526.911	2.062.195	2.119.394	391.096	1.536.658
Other	Unspecified heat	5.434			3.240												88		88
	Solar	199.578		13.114	7.399.408	11.663.847	4.389.311	4.412.954	593.872	15.578.099	25.692.608	224.166	19.447.157	17.651.664	27.579.007	21.591.785	21.795.764	1.119.078	22.547.946
	Geothermal	2.422			1.821.598	1.218.555	2.787.288	3.497.329	3.704	4.761.227	5.231.356	3.704	3.354.397	4.886.655	2.768.886	6.291.088	6.799.434	77.581	3.761.568
		292.051		13.955	10.078.579	14.074.793	9.151.458	9.763.818	666.903	21.391.286	33.294.568	227.870	23.887.987	24.935.770	31.945.250	29.951.506	30.796.505	1.588.590	27.974.285
Solid - agricultural biomass (inc. energy crops)		965.732		33.456	1.500.435	1.894.253	5.179.142	4.670.610	1.438	2.272.016	3.481.020	10	2.267.691	3.446.472	1.821.504	5.467.834	6.419.054	152.542	2.292.801
	Solid - agricultural products	86.925			155.896	100.294	271.915	195.526		202.338	388.661		259.666	355.005	156.128	842.702	737.356	12.498	184.648
	Solid - renewable fuels (inc. For&Ag bp & w)	105.257			2.032.000	2.156.199	2.192.934	2.317.326	151.899	3.613.589	5.461.186	53.319	2.899.803	6.432.480	5.170.993	4.907.038	4.148.214	1.142.851	4.145.227
	Solid - forestry products	141.414		2.692	938.247	183.540	406.163	357.717	1.204	1.092.858	3.300.144	687	1.629.435	3.531.958	1.274.920	634.330	621.089	46.574	2.160.410
Solid - forestry by-products & waste		338.357		37.368	996.579	731.217	522.792	581.791	1.721	1.258.516	2.868.785	269	2.113.019	2.863.818	1.579.388	1.502.565	1.240.676	121.290	2.806.903
	Gas - landfill	5.575		363	45.044	92.615	8.884	8.884	3.948	116.928	150.127	3.337	116.944	176.525	175.667	27.208	27.192	13.992	199.845
	Gas - sewage	18.567		1.502	51.921	4.630	5.481	4.272	1.526	41.215	140.955	265	47.473	127.142	2.737	11.826	1.934	6.899	55.181
	Gas - other biogas	245.345		33.900	2.105.398	4.909.018	4.743.813	4.726.422	82.565	3.473.277	9.708.928	19.614	4.595.946	8.832.285	10.418.649	10.274.212	10.130.273	7.041.935	2.774.584
Solid - municipal biogenic waste		464.586		31.055	1.872.415	3.848.503	2.981.005	2.984.200	312.037	2.954.305	6.253.711	163.430	4.037.601	5.906.966	4.913.400	3.793.697	3.380.650	1.552.846	3.962.817
	Liquid - renewable fuels (inc. Mun.waste)	29.391			816.259	1.379.457	1.410.257	1.392.828	55.943	1.631.004	2.381.533	13.516	1.651.531	2.197.012	2.353.463	2.463.455	2.417.432	649.298	1.592.530
	Liquid - black liquor	194.845			1.739.729	922.924	1.592.087	1.368.945	5.982	2.437.617	4.045.687		3.138.636	3.711.872	497.683	488.109	488.109	13.696	3.714.998
	Solid - unspecified wood	509.906		56.881	944.695	978.951	1.306.312	1.314.731	70.765	1.520.974	2.183.107	66.633	1.607.681	2.826.299	1.135.879	1.571.743	1.444.515	16.184	1.656.711
Solid - industrial & commercial waste		344.699		6.471	1.559.341	4.624.489	5.229.335	5.185.692	9.587	4.809.289	7.196.319	1.983	4.984.451	7.723.626	7.501.991	4.334.246	4.222.487	6.489.306	2.184.464
	Biomass	3.450.599		203.688	14.757.959	21.826.090	25.850.120	25.108.944	698.615	25.423.926	47.560.163	323.063	29.349.877	48.131.460	37.002.402	36.318.965	35.278.981	17.259.911	27.731.119
RENEWABLE		79.143.051		1.605.761	192.391.607	204.937.358	204.157.442	203.341.206	5.462.618	300.329.659	516.127.219	3.871.826	294.601.587	487.479.406	421.260.309	426.449.836	426.627.787	39.828.438	471.839.138
		6.074.746			7.660.559		22.052	44.995	595.071	1.550.174	19.493.265	2.051	1.550.174	19.202.485		1.594.050	81.193	5.924.807	11.615.038
	Unknown	639.315		10	1.375.098		839.512		2.280	38	1.770.859	2	28	1.249.175		928.382	160.000	41.118	1.884
	Solid - Unknown																	3.447	
NUCLEAR	Solid - Hard coal																		
	Solid - Brown coal																		
	Solid - Peat	3.755			6.742				3.751	4.653	8.164		4.653	11.129	2.439	7.871	7.871	22.591	
	Solid - Municipal solid waste	171.096			328.270		50.356	12.739	53.440	61.736	1.044.668		33.628	1.079.029	41.994	95.596	110.109	493.845	409.786
Solid - Industrial and commercial waste		6.351		1.209	18.040					15.067	63.269		18.968	56.464		21.200	21.200	408	56.651
	Liquid - Unknown	3.359			3.635					55	2.895		55	1.866					
	Liquid - Crude oil																		
	Liquid - Natural gas				300.000	40.000	400.281	859.781		944.467									
Liquid - Petroleum products					61.948	41.478			7.934	60.139	80.609	4.052	60.139	39.306	72.264			236	53.570
	Gaseous - Unknown																		
	Gaseous - Natural gas	437.921		2.705	1.693.807	1.338.128	809.781	1.179.793	95.085	1.509.189	2.771.557	58.879	2.597.702	2.884.799	3.461.640	1.561.216	2.189.593	469.343	3.837.338
	Gaseous - Coal-derived gas																		
Gaseous - Petroleum products																			
	Gaseous - Municipal gas plant																		
	Gaseous - Process gas																		
	Heat - unknown																		
Heat - Process heat																			
FOSSIL		1.261.797		3.924	3.787.540	1.419.606	2.099.930	2.052.313	162.490	2.595.344	5.742.021	62.933	2.715.173	5.321.768	3.578.337	2.614.265	2.488.773	1.030.988	4.359.229
TOTAL		86.479.594	0	1.609.685	203.839.706	206.356.964	206.279.424	205.438.514	6.220.179	304.475.177	541.362.505	3.936.810	298.866.934	512.003.659	424.838.646	430.658.151	429.197.753	46.784.233	487.813.405



## Forthcoming events

19-21 Sept 2018	Madrid, Spain	AIB General Meeting
20 Sept 2018	Madrid, Spain	<a href="#"><u>Open Market Committee</u></a>
20-21 Nov 2018	Amsterdam, The Netherlands	<a href="#"><u>RE-Source 2018</u></a>
28-30 Nov 2018	Namur, Belgium	AIB General Meeting