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Annual Report 2014

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AIB

association of issuing bodies

NEWSLETTER 23

Vol 8 | Issue 1 | 18 June 2015

SYNOPSIS OF ARTICLES

Latest News

New information about new AIB members, a RE-DISS publication and AIB's reflection on the new RES Directive flew in during the production of this newsletter.

Ireland and its Issuing Body SEM-O

The second General Meeting of AIB took place in Dublin, Ireland and we welcomed SEM-O as a member of the AIB. Read more about this island, especially about its GOs scheme and the calculation for fuel mix disclosure.

Recruitment of new EECS members

An article on the news on membership reported in 2014, demonstrating very lively changes and happenings within the organisation. So far, 23 competent bodies from 20 European countries are now linked by the AIB Hub. Almost all are from the EU, and members of the AIB. Included in the article is a map of Europe, which shows the AIB activities and demonstrates the different status of the individual countries.

The role of the AIB in the future of disclosure

AIB took part in the RECS Market Meeting in Oslo, Norway on 28-29 April. Dirk van Evercooren shares his thoughts about how EECS makes a difference and that disclosure information is crucial.

CEER Advice

At the RECS Market Meeting, one of the draftsmen presented the recent CEER deliverable. With this Advice, CEER presents the next 12 recommendations, which should be seen as examples of good practice.

3rd Symposium of the German HKNR

With 110 participants of the German GO registry, the conferences of UBA bring together the authority and a broad range and number of users in fruitful discussions on the topic of GOs and disclosure.

VREG stakeholder workshop

To meet the need for open debate on green electricity a workshop was held for the Dutch speaking community about the existing framework for disclosure in Europe and Flanders, and an insight about future developments was given.

New carbon accounting guidance

AIB is always interested in thinking outside the box. Mary Sotos (Associate, World Resources Institute) explains the new scope 2 carbon accounting guidance (GHG Protocol).

Statistics

The latest activity statistics, showing continued growth in the market and the effect of the introduction of new members.

CALL FOR ARTICLES

Each issue of the AIB newsletter provides a detailed statistical report on market activity and the use of guarantees of origin (GOs) for disclosure purposes. But it is also a possibility to inform about latest developments, discussions and events in the field of GOs and energy certification. The Working Group External Affairs of AIB warmly invites you to contribute by writing an article, provide us with useful links and information, or even an amusing take on the world of renewables is very welcome. Please contact the assistant of the AIB Secretariat, [Andrea Effinger](#).

Latest News

AIB's Reflection Paper on the Forthcoming RES Directive

The Association of Issuing Bodies (AIB) provides the infrastructure and information to support the reliable operation of electricity energy source disclosure in EU Member States, its principal objective being to protect the interests of existing and future electricity consumers. Consequently, the Association acknowledges and endorses the aims of the Commission in empowering European consumers by providing them with more choice in an integrated, competitive European energy market; and providing them with greater energy security and reduced carbon emissions.

The AIB's Reflection Paper on the Forthcoming RES Directive can be downloaded from the [AIB website](#). It sets out our suggestions for provisions regarding guarantees of origin (GOs) and energy source disclosure in the future Renewables Directive referred to recently by the Commissions action item ("Renewable Energy Package: including a new Renewable Energy Directive for 2030; best practices in renewable energy self-consumption and support schemes; bioenergy sustainability policy").

In summary, we encourage the Commission, in revising the current Renewables Directive, to make provision for:

1. Disclosing the source of all consumed electricity to consumers by GOs, regardless of the energy source and the technology employed, and according to a set of common rules
2. Using GOs as a way of providing to consumers evidence of the carbon emissions associated with the production of the electricity they consume and
3. Setting out GOs and Electricity Disclosure in a single Directive, because GOs and Electricity Disclosure are essentially components of the same mechanism.

The main aims of these proposals are to: create a level playing field for renewable, nuclear and fossil power, empower consumers to affect the carbon content of their electricity consumption, and to foster GO market development by harmonising national rules.

Article on the Effect of the RE-DISS Project



At the end of May, the RE-DISS team published in *Energies*, an online open access magazine with peer review, an article, titled "Residual Mix Calculation at the Heart of Reliable Electricity Disclosure in Europe - A Case Study on the Effect of the RE-DISS Project". The article focuses on the explanation of the main problems that were encountered in relation to implicit tracking in 16 countries under focus and how they were leading to double counting of attributes at the beginning

of the RE-DISS project. At the end of phase I of the RE-DISS project, thanks to the improvement of tracking and disclosure frameworks in these 16 countries, the implicit tracking error was reduced by 168 TWh, including a 70 TWh reduction of double counting of renewable generation attributes.

The article can be [downloaded](#) in pdf and is available on the [RE-DISS website](#).

New AIB members

On 19th May, at its General Meeting in Dublin, the AIB conferred unconditional membership upon SEM-O of Ireland and CREG of Federal Belgium. These two members continue the work of AIB in unifying disclosure practices across Europe. AIB currently has 22 members, representing 20 European countries, and one non-member user of its Hub; and is processing membership applications from a further 2 competent bodies and discussing possible membership with competent bodies from a further 5 countries.

Read more about the status of membership to AIB on [page 4](#) and about Ireland on [page 3](#).



Signing: Derek Lawler, Robin McCormick (SEM-O), Jan van der Lee, Phil Moody (AIB)

Ireland and its Issuing Body SEM-O – just welcomed as new AIB member

On the 18 and 19 May 2015, the AIB General Meeting was held in Dublin at the offices of SEMO.

Single Electricity Market operator (SEMO)

The Single Electricity Market (SEM) is the wholesale electricity market for the island of Ireland. SEMO as the Market Operator facilitates the running of the wholesale Single Electricity Market 365 days of the year. SEMO is a contractual joint venture between EirGrid plc and SONI Limited, and is licensed and regulated by the Commission for Energy Regulation (CER) in Ireland and the Northern Ireland Authority for Utility Regulation (NIAUR).

Fuel Mix Disclosure in Ireland

In decision paper [SEM-11-095](#) 'Fuel Mix Disclosure Calculation Methodology', SEMO was named as the competent body for calculating fuel mix disclosure for the island of Ireland (Ireland and Northern Ireland). To comply with EU law, suppliers must publish Fuel Mix information on bills and promotional materials. On an annual basis, suppliers are required to submit declarations of production they wish to claim, and SEMO calculates the All Island Fuel Mix, individual Supplier Mixes and Emissions Factors. The Supplier Fuel Mix Disclosure (FMD) calculation is based on cancelled GOs and Contract

Based Tracking and the European Residual Mix. The objective of FMD is to provide consumer information and increase market transparency.

Guarantees of Origin in Ireland

Following the transposition [No. 147 of 2011](#) (replaced by S.I. [No. 483 of 2014](#)) SEMO was named as the issuing body for Guarantees of Origin (GO) for electricity from renewable energy sources. The Commission for Energy Regulation (CER), after consultation with SEMO and the industry, published a supervisory framework for the issuance, registration, transfer and cancellation by electronic means, of guarantees of origin to producers of electricity from renewable energy sources. SEMO is the issuing body for GOs in Ireland only. Ofgem is the issuing body for GOs in Northern Ireland.

Currently, there are 102 production devices registered for the GO scheme in Ireland. The dominant fuel type for registered production devices is wind (58%); hydropower and landfill gas account for 36% and 6% respectively.

The Irish GO registry was rolled out at the end of 2011 and the first GOs were issued in early 2012. Until December 2014, SEMO utilised a manual registry for the generation and tracking of GOs in Ireland.

In 2014 SEMO initiated a two phase project:

- **Step 1:** Procure an Online Registry; a web based user interface to assist with the administration of the GO scheme.

SEMO commenced a public eTender process in July 2014. In September 2014, [CMO.grexel](#) was selected for the Online Registry in Ireland. CMO.grexel is an off the shelf registry service that could be customised, and implemented by early 2015, the system is also 100% compliant with the European Energy Certificate System (EECS). It allows for greater ownership and participation for users, and increases the transparency of the GO lifecycle from issuance to cancellation.

- **Step 2:** Become a member of the Association of Issuing Bodies (AIB); to ensure full import and export functionality for GO scheme participants.

SEMO applied for membership of the AIB in November 2014. The application was accepted at the AIB General Meeting in March 2015. The Domain Protocol was approved at the AIB General Meeting, on 19 May in Dublin, Ireland.

SEMO is looking forward to opening up the European market to its participants and working with the other representatives of AIB as a full member.



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Recruitment of new EECS members

By the end of 2014, the members of the AIB (including users of the AIB Hub) numbered 22 Issuing Bodies from 19 European countries (including 16 Member States of the EU). These competent bodies are – in terms of implementation of the system of Guarantees of Origin, Directive 2009/28/EC - mainly transmission system operators; however, several of them are market operators or authorities such as regulatory agencies.

The current status as of June 2015 includes the following members:

Country	AIB Member
1. Austria	E-Control
2. Belgium	Federal – CREG
3. Belgium	Brussels - Brugel
4. Belgium	Flanders - VREG
5. Belgium	Wallonia - CWaPE
6. Croatia	HROTE
7. Cyprus	TSO-CY
8. Czech Republic	OTE
9. Denmark	Energinet.dk
10. Estonia	Elering
11. Finland	Finextra
12. France	Powernext
13. Germany	UBA (non-member Hub user)
14. Iceland	Landsnet
15. Ireland	SEM-O
16. Italy	GSE
17. Luxembourg	ILR
18. Netherlands	TenneT - CertiQ
19. Norway	Statnett
20. Portugal	REN
21. Slovenia	Energy Agency Slovenia
22. Sweden	Grexel
23. Switzerland	Swissgrid

A few IBs have open issues (legal or technical matters) which they must solve within a certain period of time.

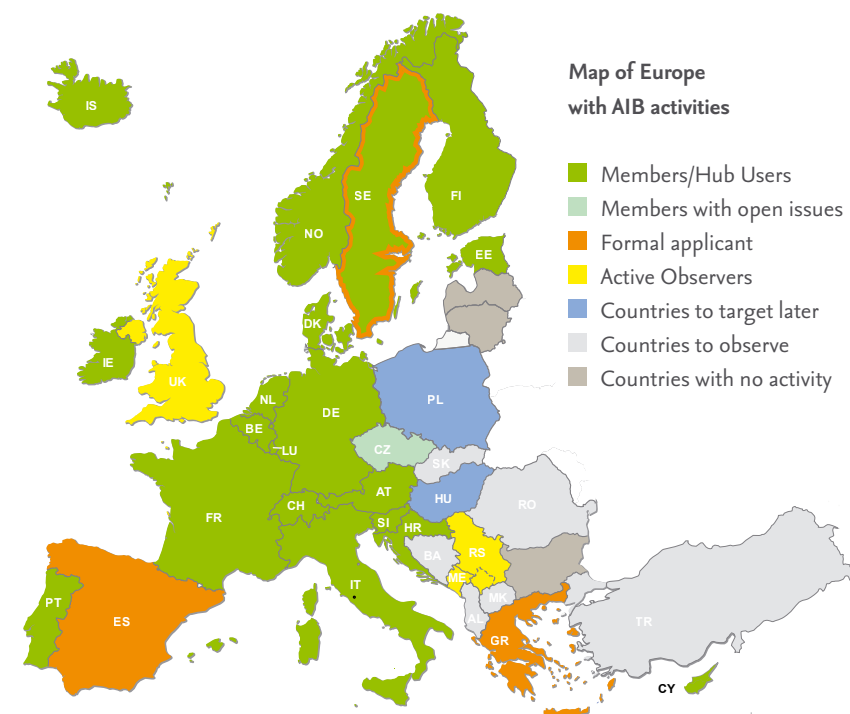
The German issuing body (UBA) is the only participant that has the status of HUB user, which means that UBA is not a member of the AIB, but has a special status allowing it to use the Communication HUB in order to facilitate the transfer of GOs to and from the other registries within the AIB network. UBA is now seeking to become a member of the AIB.

This is the news reported in June 2015, demonstrating very lively changes and happenings within the organisation.

In 2014, three competent bodies from three Member States of the EU joined the AIB: HROTE from Croatia, TSO-CY from Cyprus and Elering from Estonia. Elering is now active, but HROTE and TSO-Cy have yet to become so. Also, GCC resigned its membership for Spain, where it issued RECS certificates. The AIB will cease to support RECS certificates from the end of 2015. In addition, at the start of the year Finextra replaced Grexel as the member for Finland.

More countries are joining the AIB:

- So far in 2015, SEM-O of Ireland and CREG of Federal Belgium have become members in May.
- The AIB has received official applications for membership from Energimyndigheten, the Swedish Energy Agency, which will replace Grexel as member for Sweden; CNMC, the Spanish electricity regulator, which will replace GCC as member for Spain; and LAGIE, the Greek TSO.
- EMS (IB) from Serbia attended the meetings in Split and Prague; and among all the newcomers who met at the GM in Split, EMS showed most interest and willingness to proceed with the procedure of joining the AIB; and we are also in discussion with Ofgem of the UK, which is an official observer.



The map of Europe, showing AIB activities, demonstrates that the countries have different status - whether it is a member, a formal applicant for membership or a country which has shown an interest in the AIB work, or a country to which the AIB has made a first step of approach. However, there are a few countries with no activity as the AIB has had no contact with them so far, or discussions are not currently in progress.

As described in our last Newsletter (newsletter 22, published in November 2014), WGEA organised meetings during the GM in Split where representatives from the AIB Board and Working Groups met with potential members from Slovakia, Bosnia & Herzegovina, Montenegro and Serbia. The outcome of these meetings was very positive, and the newcomers showed interest in becoming AIB observers.

WGEA will continue its work attracting newcomers in Europe in order to invite them to become part of the AIB organisation.

The role of the AIB in the future of disclosure

Recently, I found myself explaining the work of the AIB and the concept of the Guarantee of Origin (GO) to an energy expert. When I was done, he said: “But that is mere bureaucracy, you are pushing around paper in Europe, but you are not changing anything in the real world.”

I was not happy with his comment, as it clearly is not AIB's ambition to merely sustain bureaucracy, but indeed to facilitate change towards a sustainable electricity market!

So this comment got me thinking: who is really making a difference?

Who makes a difference?

Do electricity producers make a difference? Probably everyone will agree that changes in the behaviour of electricity producers (turning down existing plants, or even turning them off; or building new plants) does make a difference, and can push the electricity market on the path to sustainability.

Do electricity suppliers make a difference? That is harder to argue: anyone who is familiar with basic physics understands that energy suppliers cannot influence the physical flow of electricity; and that their activity is more financial than physical in nature.

Do electricity customers make a difference? Again, the laws of physics mean that when households or corporate electricity customers switch to a new

electricity supplier, this has zero impact on the physical flow of electricity that is delivered through the grid to this customer!

So this still leaves us with the question: “does the (green) electricity market make a difference?”

How EECS makes a difference

The AIB has created the European Energy Certificate System (EECS), which standardises Guarantees of Origin, and created an exchange HUB so that GOs can be traded in an efficient and reliable way between EU Member States. The EECS GO has been very successful, as it provided leverage for the international recognition of the GO and spurred continuous growth in the GO market. But are we making a difference by doing all this? Yes we are!

By facilitating reliable transparency through standardisation, we empower customers to make an informed choice of guaranteed electricity from renewable sources. In other words, we help customers to make a trusted commitment to green.

Empowered electricity customers, who choose a contract which guarantees them electricity from renewable sources, give a strong and clear signal to the market via their supplier. As electricity suppliers are not at the end of the value chain, they pass on this signal to electricity producers, thus influencing future investments and pushing for more renewables.

Of course, support mechanisms for investment and production of renewables have provided a bigger driver of generating electricity from renewable sources in the past, but this does not mean that GOs will have no effect in the future!

But will this lead to more renewable production?

Please note that when I say demand for GOs passes on a signal for more investment in renewables, that is not the same as calling for additionality! >>



>> Additionality is ensuring a direct link between buying green electricity and new RES investment. More demand for GOs simply means that demand for electricity from RES is rising and this will positively affect investment in renewable generation. This is not additionality, it is basic economics! But please also note that GOs are perfectly compatible with additionality, through the use of an Independent Criteria Scheme, such as EKOenergy or GO2 by ECOHZ, to name just two examples.

Disclosure information empowers customers by providing them with trustworthy information, and thereby bringing transparency to the market.

But is saying that 'Disclosure = transparency' sufficiently convincing to justify the costs and burdens which the disclosure system imposes on the energy system?

The importance of carbon, price information and uniqueness

How about stating that 'Disclosure = Carbon'? That could be more convincing: after all, Disclosure = Carbon = value! Carbon represents a more direct economic value than transparency does. Linking

GOs with the Carbon issue could therefore be a great way of adding value to the concept of the GO.

Also, could the link with carbon fix one of the problems which the GO market faces and help to tackle the problem that there is too much on offer, and too little demand for GOs? We find that this is a real possibility and we want GOs to be linked with carbon in depth. We therefore established a Carbon Task Force which amongst other things is preparing AIB's input to the new Energy Union and Climate Change packages of the European Commission.

We also need to pay attention to some other problems in the GO market. We see that the value of a GO can vary greatly and that there is a lack of transparency concerning which GOs are traded at what price. And there is the problem of double perception, even if double disclosure is being successfully eliminated by the actions of the Concerted Action on the Renewables Directive and the RE-DISS project.

The need for a complete picture

Another way of fixing the supply-demand problem is to raise awareness of disclosure. We need to find a better way to explain that when a country exports its RES GOs, it exports its greenness, making electricity production ever more grey - no matter what the production mix is like!

But GOs are not all there is to disclosure. In most countries, the electricity mix is still guaranteed much more by non-GOs than it is by GOs. Full Disclosure, extending issuing of GOs to all sources of electricity, would be more efficient and much more reliable!

So disclosure information is crucial, both for empowering electricity customers and for a properly functioning GO market. RE-DISS II (the Reliable Disclosure Systems for Europe project, part II) will end in September, and with it the calculation of the European Attribute Mix (EAM) - aka 'European Residual Mix'. The EAM is a cornerstone of reliable and trustworthy disclosure information and therefore of great value to Europe's electricity customers; so the AIB needs to step up for Europe's electricity customers.

AIB's commitment

The AIB will take over the calculation of the residual mix / European attribute mix currently executed by the RE-DISS II project, along with the provision of relevant information for decisions on the recognition of foreign GOs and the regular update of country profiles. The two remaining tasks (the maintenance of Best Practice Recommendations and the hosting of workshops to exchange experiences between Competent Bodies for GOs and disclosure) will not be taken over by the AIB, due to their strategic nature.

The AIB thus commits itself to facilitating better disclosure information to empower electricity customers. Our goal is to put the energy customers in the driving seat; and to help them to make the electricity market more sustainable - more "green". After all, the AIB's mission is "guaranteeing the origin of European energy"!

Dirk Evercooren, AIB President

[This article is based on the presentation given in the RECS Market Meeting 2015 that took place in Oslo on 29 and 30 April]

CEER Advice on customer information on sources of electricity

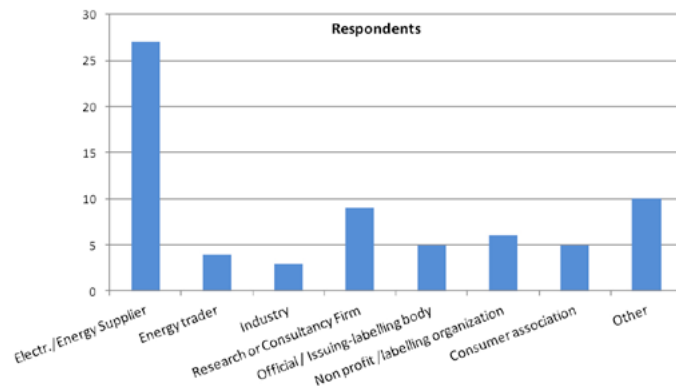
During the last RECS Market Meeting 2015 in Oslo, José Miguel Unsión from CNMC, Spain, and one of the draftsmen of this document, presented this recent CEER deliverable during one of the meeting's sessions.

With this Advice, CEER presents recommendations on disclosure issues, with the aim of empowering electricity customers. CEER seeks to put electricity consumers at the centre of its work, so the disclosure system is analysed from the customer's perspective.

The elaboration of the document started in 2013 as a result of a broad discussion during a CEER workshop held in April 2013 (where stakeholders were given the opportunity to bring forward their perspectives on disclosure systems and on how to present that information to customers). There was also a public consultation between December 2013 and February 2014, where CEER received comments submitted by 69 stakeholders, including Energy suppliers, energy traders, industry, issuing bodies, consumer associations etc.

After a public hearing, held in Brussels on 7 March 2015 and several discussions, the document was finally published on [CEER website](#) on 4 March 2015.

Respondents of the Public Consultation



With this Advice, CEER presents the next 12 recommendations, which should be seen as examples of good practice. CEER wants to emphasise that these non-binding recommendations should be implemented with some flexibility:

- **Recommendation 1:** In order to guarantee neutrality, it is of great importance to display information in a clear manner. This way, customers will be able to make a choice that is not based solely on price, and should also be able to take into account the energy sources of the electricity supplied. So, where available, all regulated Price Comparison Tools (PCTs) should provide customers with an overview of electricity products, and provide a clear indication of whether the electricity contract guarantees that the source of electricity to be supplied is renewable or not. Private PCTs should be encouraged to follow this practice.
- **Recommendation 2:** The National Regulatory Authorities (NRAs) must ensure that all electricity suppliers use the same methodology when providing information to their customers on the origin of their electricity. Therefore, it is of great importance to display this information in a comprehensive and clear manner. NRA (or other competent body) should ensure that there is a harmonised format proposing a minimum standard for displaying information concerning the origin of electricity supplied from renewable sources, and should specify the level of detail required for this information.

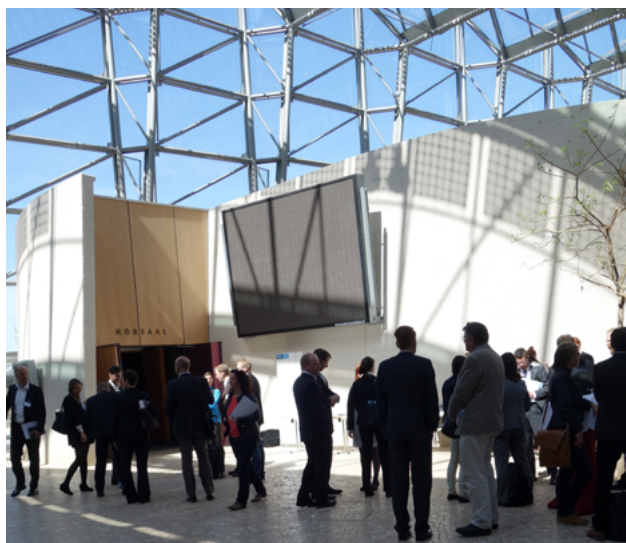
- **Recommendation 3:** Electricity customers are not a homogeneous group, and have different levels of knowledge on these topics. In order for customers to be thoroughly informed, two levels of information could be provided. Level 1 refers to the mandatory information that is already provided on the energy bill as required by European Directives. Level 2 would then provide additional information that is already available on the GO, such as the geographic origin, the specific renewable energy source(s) and electricity production technology(ies), as well as the product mix. This information would then be displayed to consumers, clearly separated from the mandatory disclosure statement, and could therefore be made available on the website of the supplier and/or of the competent body for disclosure.
- **Recommendation 4:** The fact that the supplier mix may differ from the product mix (depending on the different offers a company provides) creates a high risk of confusion for consumers. To make the disclosure information reliable, either only the supplier mix should be disclosed, or both the supplier and the product mix should be disclosed to all customers of an electricity supplier.
- **Recommendation 5:** As GOs are the only system with a clear legal basis at European level, when and where available, GOs should be used as the only instrument for tracking electricity from renewable sources within disclosure systems. The CEN/CENELEC and EECS standards for electricity GOs should be used as a basis for further harmonisation of disclosure systems.



- >> • **Recommendation 6:** Although disclosure might appear to consumers as an abstract and complicated topic, it is important that they can trust the system. The competent body for disclosure must ensure that customers should easily be able to find clear information about the functioning of the disclosure system. The publication of an annual disclosure report by the relevant, competent body is a good practice that can further increase transparency in the field of the origin of supplied electricity at national level.
- **Recommendation 7:** All electricity suppliers should be encouraged to use GOs to prove to consumers the renewable origin of the electricity supplied under contracts that guarantee the supply of electricity produced from renewable sources. To promote the issuing of RES-GOs, on a long term perspective, the issuing of GO should no longer be voluntary, but be mandatory for all electricity produced.
- **Recommendation 8:** Currently, GOs are defined in the RES Directive as an instrument solely for electricity generated from renewable sources and high-efficiency cogeneration, but in order to make the disclosure information for customers more coherent, efficient and reliable, it is worth considering whether the issuing of GOs should be extended to all sources of electricity. This extension would help also to provide opportunities for marketing electricity products based on specific non renewable sources in a trustworthy manner. In order to avoid imposing an administrative burden and costs on electricity producers, it could, as a first step, be introduced on a voluntary basis.
- **Recommendation 9:** As cross-border transactions in the electricity sector are growing rapidly due to the completion of the internal energy market, the further integration of electricity markets at European level should be accompanied by actively continuing the development of the European GO market. European RES GO market supported by technical harmonisation of the GO system and the possibility of international electronic transfer of GOs between national registries, facilitated by a common platform (such as the AIB Hub) would be very welcome.
- **Recommendation 10:** While GOs are defined as the instrument for disclosure of the source of electricity, feed-in tariffs, green certificates, investment support, etc. are instruments for RES investment and/or production support. RES support schemes and disclosures should be dealt with as two separate issues, so, all electricity from renewable sources should be disclosed to the customer, irrespective of whether or not it has received support from a renewable investment or production support scheme.
- **Recommendation 11:** The RES Directive permits member states to opt not to issue GOs for electricity that benefits from RES subsidies. As a result, in some countries subsidised RES production receives GOs, but not in others. While RES support is a national policy decision, disclosure is an EU-wide requirement and should, therefore, be harmonised at European level. It would be recommended that disclosure information is not influenced by renewable support schemes.
- **Recommendation 12:** Customers are showing an increased interest in electricity originating from renewable sources, and as an answer to this growing awareness, a number of private renewable labels were introduced into the market. Each label system has its own range of criteria. In order to use minimum criteria for these labels, private “green electricity” quality labels should be encouraged to use RES GOs as their unique tracking mechanism, in order to be reliable and trusted by electricity customers. Private label models can – under certain circumstances – be considered as creating added value for more demanding customers, if it can be guaranteed that additional impact is associated with the contract.

Report on the 3rd Symposium of the German HKNR

More than two years ago, in January 2013, the new German Register of Guarantees of Origin for electricity from renewable energy sources (German abbreviation: HKNR) at the Federal Environment Agency (German abbreviation: UBA) went online. Since then it has already become a kind of tradition for the HKNR-Team to invite all interested parties to yearly conferences about Guarantees of Origin (GO) and disclosure. The third conference took place on 21 and 22 April in Dessau, where UBA is located. About 110 participants involved in the electricity and commodity market in Germany and Europe, software developers, environmental verifiers and lawyers came together and discussed numerous of issues regarding the specialties of the German GO-system, the GO-market as a whole, and the future developments of the voluntary green power market in Germany.



After a warm welcome by Dr. Holzmann, the Vice-President of UBA, two representatives of the HKNR-Team informed in a keynote presentation about the milestones and the development of the German system in 2014. Important information about the user advisory board

was disclosed; the board was founded straight after the last conference in January 2014 and had already held five very fruitful meetings. In this board users of the registry discuss together with UBA possible enhancements of the registry software and its usability. The introductory presentation also highlighted the results of several meetings held during 2014 and 2015 with different stakeholders, e.g. Green Power Label organizations, or a meeting concerning GOs directly linked to the energy referred (=“linked GOs”). They also explained how the new Renewable Energy Sources Act affects the German GO-system after it came into force in August 2014.



Based on the fact that in November 2014 disclosure of renewable energy for the first time included GOs, experts reflected on the experiences gained on the changes made to disclosure rules in a panel discussion chaired by Michael Marty, the head of the HKNR-Team. Panellist Oliver Germeroth from Bischoff & Ditze Energy, participating as a representative of traders and service providers explained in the discussion that: “Disclosure is no marketing tool. Companies sell their products and themselves.” Volker Schulten from the Stadtwerke Duisburg reported on new the products they had invented. The company recorded a growth from very few costumers for renewable energy products to a share of 20 % today. Being asked for a wish, if he had to choose, Winfried Vaudlet, one of the main authors of the German Disclosure Guidelines from the German Association of

Energy and Water Industries (bdew), answered: “Full disclosure with GOs for all kinds of electricity, and a software providing disclosure with one click.” Talking about disclosure with GOs in Germany they came to the conclusion: The effort of the disclosure of “other renewable energy” with GOs is reasonable and manageable when taking into considering that the consumer trust has risen substantially due to legal regulation and its monitoring by the authorities. However, it remains uncertain to what extent consumers take notice of the disclosure notification in their bills at all.



In the next session of the conference the participants had to choose between five parallel workshops which were provided by the HKNR-Team and supported by external speakers. The topics were:

- Acceptance of GOs in Germany and discussion on what German consumers expect if they buy green power. What relevance do green power products have with respect to, in particular, the calculation of greenhouse gas emissions for companies and products?
- (new) Business models and legal requirements regarding renewable electricity, covering, for example, cancellation for other purposes than disclosure, such as grid losses.
- EDIFACT, a special IT-dialect used by HKNR. This small workshop dealt with the data management of electricity production, which still needs to be further developed. >>

- >> • Usability of the HKNR was the main topic of a very practice-related workshop for users. They talked about the frequently asked questions on the hotline and the results of the work of the user advisory board.
- Linked GOs – a special feature in the German register and how it can be further developed. A demand for linked GOs has emerged but the regulation is not very suitable for the current marketing models and should be adjusted to the market requirements.



The results of these workshops were presented to every workshop group in the morning on the second conference day. On this occasion all participants got the chance to comment on the results of the other workshops and to provide more input on the relevant issues.



On the agenda of the second day was a panel discussion on the future development of GOs in Germany, which was chaired by Robert Werner (Hamburg Institut Consulting). Market participants - Kathrin Heise from Repower (Switzerland) and Marcel Keiffenheim from Greenpeace Energy - discussed with Michael Marty (HKNR), Jens Lukas, a representative of the Ministry of Economics and Energy and Dominik Seebach, representing the consultant Öko-Institut. The first part of the discussion referred to the fact that Germany has a customer demand for renewable electricity which rarely can be fulfilled by GOs issued in Germany because of the support-system. This could be solved by a new ordinance within the Renewable Energy Sources Act, which allows direct sale of electricity produced from supported plants. However, such a direct sale model implies some conditions to be fulfilled: This amount of electricity should not be supported, the system should be compatible with European Law and it should include advantages for the whole electricity system in Germany. When asked about the state of affairs at the Ministry of Economics and Energy, Jens Lukas explained that the Ministry expects some research results on this question in May and depending on these results the decision on this issue will probably be made in June.

This ordinance would allow the sale of local products. A vote in the audience conducted by Robert Werner showed that about 30 % of the participants see regional electricity products as being important for the future. In the further discussion Kathrin Heise stressed that some customers ask for electricity products from a special plant and would therefore like to have linked GOs. Marcel Keiffenheim confirmed this statement with an example from the commercial sector. "The quality debate demonstrates great commitment especially within Germany", Dominik Seebach stated. From his point of view the integration of renewable electricity is a major challenge which we should concentrate on mainly.

Concerning the question of a full disclosure system with GOs as a future model, Michael Marty stated: "If the legislator gives us the order we will be able to implement GOs for all electricity sources because the software is expandable."



The last agenda on the conference was the presentation of the new draft of the Guarantees of Origin Implementing Ordinance. Two years of experience flowed into this new version of our important regulation was presented to its users.

What are the outcomes? The conferences of UBA bring together the authority and all kinds of users in fruitful discussions on the topic of GOs and disclosure. On the one hand, users get an insight into the GO system run by UBA. On the other hand, the HKNR-Team gains lots of input and new ideas on how to improve the German GO- and disclosure system. The idea of a very close relationship between users and the authority works – and UBA will keep it alive!

Report of the VREG stakeholder workshop on disclosure

On 26 February VREG, the electricity and gas retail markets regulator and issuing body for GOs in Flanders/Belgium, organised a stakeholder workshop on disclosure.

In addition to speakers from VREG on the existing framework for disclosure in Europe and Flanders, and an insights about future developments, these speakers presented at the workshop: Jan Vande Putte (Greenpeace) on the ranking of electricity suppliers; Peter Niermeijer (RECS International) on the public debate in the Netherlands about green power; 'Low Impact Man' Steven Vromman on the Power Dare parties (public events to convince household customers to buy electricity from renewable sources); Alex Polfliet (Zero Emission Solutions) on the motivations and needs of professional green power customers and Tom Willems (Ecopower) on the concerns of an electricity supplier in the supply of green electricity. This was followed by a panel discussion led by Alma De Walsche from MO Magazine with Alex Polfliet, Jan Vande Putte, Chris Elbers (CEO of electricity supplier Belgian Eco Energy) and Pierre-Yves Cornelis (CWaPE).

During the workshop, we referred to the recommendations on disclosure from CEER (the Council of European Energy Regulators). The CEER Advice has been published: Advice on Customer Information Regarding the Sources of Electricity, and can be found on the [CEER website](#).

Purpose of the Workshop

Why did VREG organise this workshop? We see a need for open debate on green electricity. This debate is now very fragmented (occasional – negative - attention in the media, on the Internet: blogs, social media).

However, meaningful questions we wanted to discuss at the workshop included: Is green electricity really green? Is green energy reliable? Can coal power be greenwashed? After all, "Is my energy supplier sustainable?" is a legitimate question from the customer's side. Is there information on the origin of electricity that can be trusted, is the information objective and reliable?

Furthermore, the environmental/consumer movement expresses a demand for additionality (by which we mean that you not only know that you buy electricity from renewable sources, but you also contribute to new investments in production capacity based on renewable resources).

The aim of the workshop was therefore to facilitate for the first time a direct debate between consumers, environmentalists, government and stimulate the electricity sector in Flanders. The subtitle of the workshop illustrates the general motivations: 'Towards a platform for delivery of green power - Confidence in the origin of electricity supplied'.

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>> Main conclusions

- The various stakeholders, the electricity suppliers and the regulator should work towards similar objectives, but come from different starting points and use different instruments and communication strategies. It will therefore never be possible for everyone to bring the same message. This makes it even more important to communicate with understanding and respect for each other's viewpoints. The Dutch example of 'sjoemelstroom' as a way of trying to get the message across is counterproductive, because ultimately it sows more doubts than it clarifies and convinces.
- It is clear that the starting points are different: The ranking by Greenpeace e.g. looks at investment profiles of the producers and suppliers of electricity, while the fuel mix and Green Check approaches developed by VREG look at electricity contracts. VREG will not make qualifying statements about the sustainable strategy of the electricity suppliers, because that is not entirely objectively. The approach of the NGOs makes such trade-offs though. NGOs can draw up their own sustainability criteria for testing supplier/producer profiles. VREG aims to inform customers as fully as possible, but to inform objectively, so that they themselves can decide what is important, rather than make the choice for the customers;
- There are many analogies that were used to clarify the green electricity market: trousers and the clean clothes campaign, coffee and the Max Havelaar label, tomatoes and potatoes ... All of these comparisons fail to a certain extent, because of the physical aspect, which is absent for electricity (see next point).
- While trying to establish a link between the physical flow of electricity and the supply sure is tempting, it does not work! Electricity is tasteless, odourless and colourless. The only way to efficiently ensure that electricity from renewable sources is supplied, is a book and claim-system that is separate from the physical flows: that system is the GO. If you do not accept the GO concept, not only is a market in green electricity impossible, but also the electricity market itself becomes impossible. Then why do so many people so badly want to make a physical link when green electricity is being

sold? It is indeed challenging to explain that Icelandic electricity is being sold in Belgium, but the installation of physical elements in the fuel mix would just make it more complicated, not more reliable, simpler or clearer. Unfortunately, this is difficult to explain to customers.

- It is stated that GOs are too cheap, that they certainly should not become more expensive and that they should not have a price at all and should not be allowed to be traded separately. This diversity of viewpoints among stakeholders illustrates the different approaches that exist! GOs are cheap because of oversupply from Scandinavia, where not all customers realise that they actually are not all that 'green' anymore. This blocks the potential added value of the GO as an incentive for new investment. GOs are intended as a disclosure mechanism, not as a support system for new production. Due to a high demand for a specific type of GOs, this production would, however, receive an incentive, but if the 'financial gap' for a particular technology is too large, the GO cannot make significant contribution and bring the technology to competitive levels. For technology that is almost competitive, a more expensive GO would be able to make a difference, provided that the excess supply is eliminated. Regardless of the debate about overproduction and the incentive for investment, the disclosure system has added value, because it avoids double counting and creates transparency;
- The GO is the cornerstone of reliable information for electricity customers, but is not sufficient in itself. A number of customers (not all!) ask for 'additionality' and this can be achieved by building a label on top of the GO system: you can, for example, guarantee the customer that every year a certain amount will be invested in new renewable resources. Also, a label can select or exclude certain technologies, because the GO provides this information. A label could e.g. give a guarantee to the customer that Danish wind and Flemish solar are supplied, but not allow Norwegian hydro. The customer who chooses electricity which is guaranteed by a label, in this way receives the desired reassurance. But these labels should rely on GOs;

- VREG has listened to stakeholders and clearly see a number of needs, which he wants to respond to by providing more differentiated information by disclosing certain details on the GOs in the web based Green Check and elsewhere, in a more informative and better communicated fuel mix report;
- Finally, VREG will send an advice on Disclosure to the Flemish government which will include the proposal for a full disclosure approach.

Next steps and actions

We're going to work on these next steps:

- Better communication of the Fuel mix report so it becomes a tool for customers to choose an electricity supplier;
- An Advice on Disclosure for the Flemish minister responsible for energy;
- A Green Check 2.0 project: expand the existing Green Check with more detailed information about type of green electricity;

Groencheck – Is mijn groene stroom wel echt groen?

Resultaat van uw opzoeking



- Advice to introduce Green Gas GOs to prevent leakage of electricity GOs to virtually create green gas;
- Examine whether CO₂ information can be put on the GO, this needs to be investigated at international level.

Dirk Evercooren, AIB President

New carbon accounting guidance for corporate renewables purchasers

This January 2015, the GHG Protocol program issued a critical update to their Corporate Standard (2004), the standard used globally for voluntary corporate carbon accounting (or “carbon footprinting”). This update addressed “scope 2,” the category covering emissions from purchased and consumed electricity, heat, steam and cooling. The GHG Protocol program underwent a 4 year international consultation process to develop the new Guidance. The update sets new accounting and reporting requirements which apply to thousands of companies, and it has already been integrated into reporting platforms like CDP and energy purchasing guidance like the Sustainable Purchasing Leadership Council and the RE 100 campaign.

As mentioned in the Guidance, Scope 2 represents one of the largest sources of GHG emissions globally: the generation of electricity and heat now accounts for at least a third of the global GHG emissions. Electricity consumers have significant opportunities to reduce those emissions by reducing their electricity demand, and playing an active role by shifting energy supply to alternative low-carbon resources. The methods used to calculate and report scope 2 emissions have a critical impact on how a company assesses its performance and what mitigation actions are incentivized.

Why new Guidance?

Renewable markets around the world are premised on systems for tracking. The AIB is well aware of this connection: directives on consumer choice, tracking information following key criteria, for the benefit of consumers driving market development and new renewables—and for the sake of the climate, reduced emissions.

But prior to the Guidance, it was not clear how this contractual definition of electricity consumption lined up for scope 2 accounting. Companies were reporting their scope 2 emissions differently—some based on local or national grid energy production data (what we now call the “location-based method”), and some reporting emissions from selected energy purchases based on contractual information (now called the “market-based method”). Companies have defined and purchased energy in all kinds of ways—through differentiated products like “green tariffs” from their suppliers, entering into long-term contracts with specific generators, or purchasing certificates to match their consumption. In all these cases, the core accounting needs are the same: emissions from contractually purchased electricity need to be quantified in a consistent way, based on robust systems that ensure unique claims and prevent double counting of emissions between end-users.

What are the changes in the new Guidance?

Companies reporting scope 2 have two new major accounting and reporting requirements, including:

- **Dual reporting:** A company is now required to report two scope 2 figures, one calculated based on the location-based method, and one based on the market-based method. The location-based method is familiar to most organizations as it is just the production-mix of the countries or states where they have operations. The market-based method however is now a mandated reporting tool as well, meaning that companies have to report their renewable purchases (in Europe EECS-GOs) or the residual mix if they don't purchase renewable.
- **Quality Criteria:** Any electricity tracking instrument needs to meet a set of 8 Quality Criteria in order to be used in the market-based method calculation. These policy-neutral criteria build on existing best practices to ensure unique claims and no double counting.

The Guidance also identifies how companies can use their electricity purchasing power to urge the production of more new renewable energy, which will help reduce emissions throughout the sector.

What are the Next Steps?

The Guidance takes effect for 2015 data, allowing most companies to start gathering data in conformance with the new requirements as from this year. Likewise, CDP will be updating their annual survey later this year to achieve full alignment. There are three things the companies can do today in order to get started:

1. Read the new Guidance – companies can download it, the Executive Summary and other resources [here](#). The GHG Protocol presented a session on the new Guidance at the annual RECS Market Meeting in Oslo (April 29-30), and via a webinar (dates TBD).
2. Identify your internal electricity purchases, and see how they match the Guidance — does your company buy GOs, or participate in a green tariff scheme offered by your supplier, or have other specified contracts for electricity? If so, these are the starting point for deriving the emission rate associated with your purchase.
3. Start up conversations between GHG reporting/CSR teams and energy teams—for many companies, energy procurement teams have never directly interacted with GHG reporting teams except on determining consumption (MWh) numbers. The discussion will likely expand from *how much energy are we buying?* to *what kind of energy are we buying, and how do we know what it is?*

To some companies the new Guidance may be a big change (particularly multi-national companies with global operations and multiple facilities), but a small adjustment for others. Feel free to ask questions to mary.sotos@wri.org.

Mary Sotos, Associate, World Resources Institute

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.

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 7th May 2015 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 on the following days:

Country	Collected	Source
Austria	07 May 2015	website (password protected)
Belgium - Brussels	22 April 2015	spreadsheet provided by Brugel
Belgium - Flanders	23 April 2015	spreadsheet provided by VREG
Belgium - Wallonia	23 April 2015	spreadsheet provided by CWaPE
Czech Republic	21 April 2015	spreadsheet provided by OTE
Denmark	27 April 2015	website
Estonia	05 May 2015	spreadsheet provided by Elering
Finland	01 May 2015	spreadsheet provided by FinExtra (replaced Grexel from January 2015)
France	30 April 2015	spreadsheet provided by Powernext
Germany	04 May 2015	website
Iceland	27 April 2015	website
Italy	27 April 2015	spreadsheet provided by GSE
Luxembourg	27 April 2015	website
Netherlands	21 April 2015	spreadsheet provided by CertiQ
Norway	27 April 2015	website
Portugal	02 May 2015	website
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	27 January 2015	website Resigned as member 31 December 2014
Sweden	26 April 2015	website
Switzerland	06 May 2015	website (password protected)

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, FI, IS, LU, NO and SE) provide all required information, and have done for a number of months. 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 LogActiv registries (ES and PT) do not currently provide facilities for the expiry of certificates; and 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).

Change to pie-charts

The basis of the pie charts has changed since the last statistics report: in the past, issued certificate referred to those certificates issued for electricity produced in a year, but cancellation referred to certificates cancelled in a year, regardless of when the associated electricity was produced. Now, both refer to the date of production of the associated electricity.

Further, to make the charts more clear, only contributions of 1% or greater are shown.

Statistical report

During the first quarter of 2015, market activity continued to increase, as has the use of guarantees of origin (GOs) for disclosure purposes.

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 and cancellation continue to increase, although international transfers decreased a little, perhaps due to countries cancelling GOs more for their own internal use. Note that the slight dip in production/issue is probably due to late issuance, and by the end of the next quarter this well might increase.

Further growth is expected as new countries are connected to the Hub, and as member countries continue to replace RECS certificates with GOs – the last issuers of RECS certificates (at the end of 2014) were Spain and Portugal: Spain ceased transferring RECS certificates

at this point; while Portugal will continue to transfer them until the end of 2015.

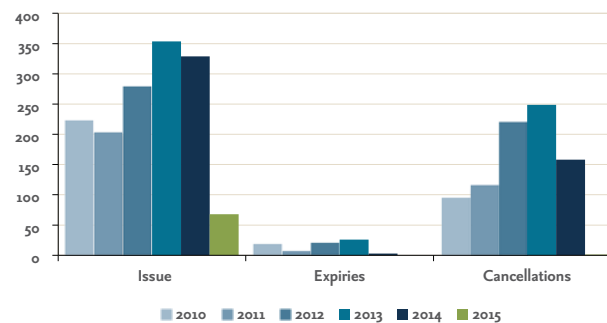
Ireland (SEM-O) and Federal Belgium (CREG) became members in May 2015, and expect to become active soon.

Spain (CNMC) has now applied for membership, replacing GCC (but issuing GOs rather than RECS certificates), and expects to become active at the end of 2015. Also, Energimyndigheten of Sweden has applied for membership, and expects to replace Grexel and become active early in 2016. Finally, Greece has also applied for membership, and will probably become active later in 2016.

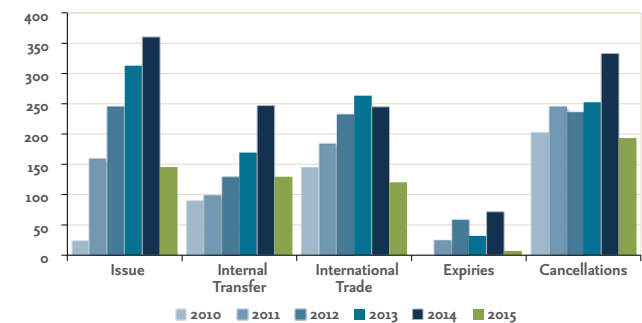
Croatia has now completed its changes in legislation, and should become active soon. Cyprus is awaiting changes to its disclosure regulations, and it is hoped that it will connect to the Hub soon; although the changes to Czech legislation have been delayed, and hence it remains impossible to export EECS GOs from the Czech Republic via the Hub.

Estonia has commenced issuing and transferring EECS certificates, and Finextra has replaced Grexel as issuing body for Finland.

Annual EECS transactions by production date (TWh)



Annual EECS transactions by transaction date (TWh)



The United Kingdom and Serbia are now official observers; while contact continues with interested parties in Poland, Hungary, Slovakia, Bosnia and Herzegovina and Montenegro.

It is also interesting to see how the market has developed since its inception, in 2001. Note that the issuing statistics are now based on transactions dates, whereas previous newsletters used the production dates for these.

Cancellation continues to grow, and looks like exceeding last year's record levels; demonstrating the increased use of GOs for purposes of selling products for differentiated energy sources. Note that issuing tends to be 20% understated over the past quarter, due to delays in capturing metering data.

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.

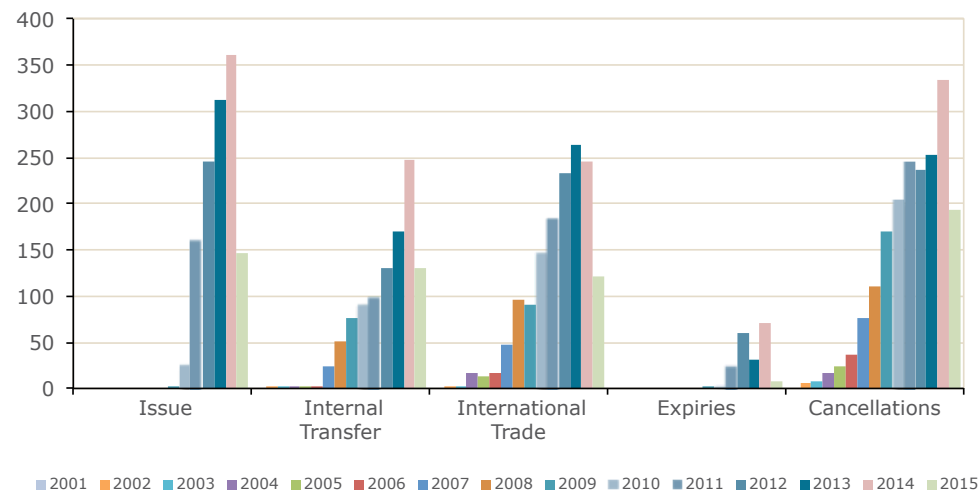
In 2014, Norway, Sweden, Finland and Austria continued to be the major exporters, closely followed by France and Belgium; while Germany, Netherlands, Sweden, Norway and Belgium remained the main importers. It is a little too early to conclude anything about 2015, although Switzerland and Denmark have so far replaced Sweden and Finland as exporters. The picture for importers seems unchanged. During both years, some countries figure in both exports and imports, suggesting trading activity.

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 (or should not) occur between member countries.

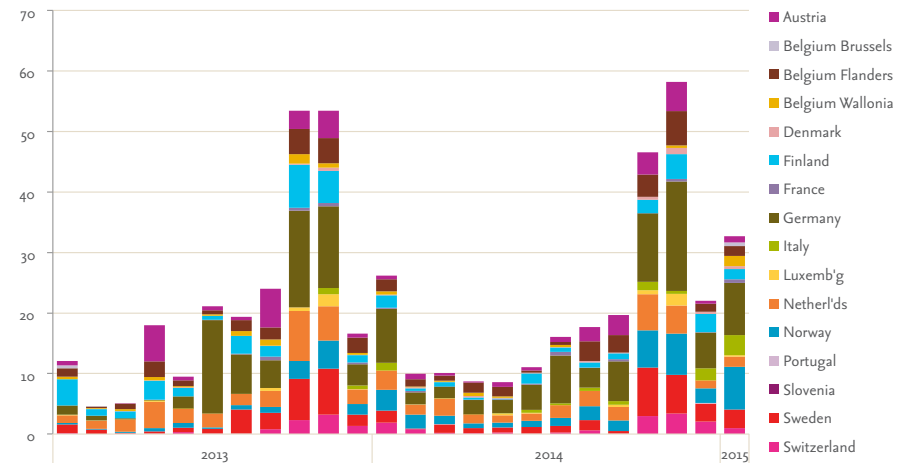
EDCs can and do occur between member countries and non-member countries; and AIB is currently seeking to quantify the size of this market sector, and to agree with market parties whether such information can be published without compromising their activity and trading positions.

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.

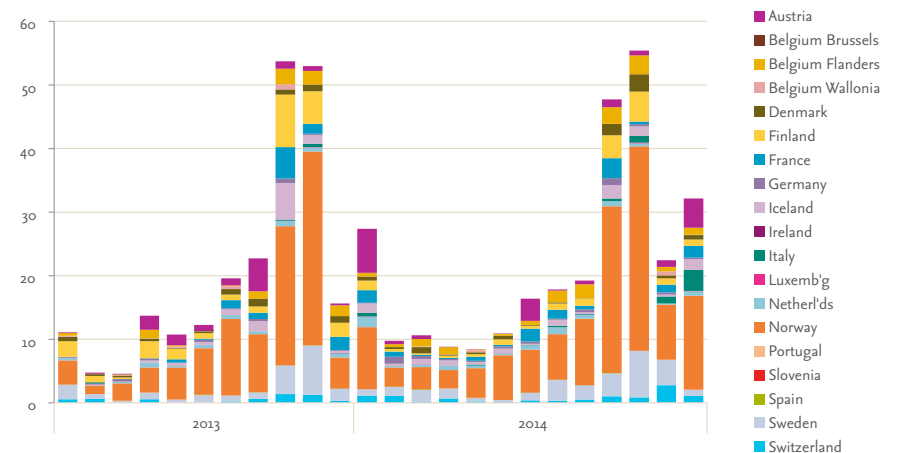
Annual EECS transactions by transaction date (TWh)



Monthly imports per country (TWh)



Monthly exports per country (TWh)



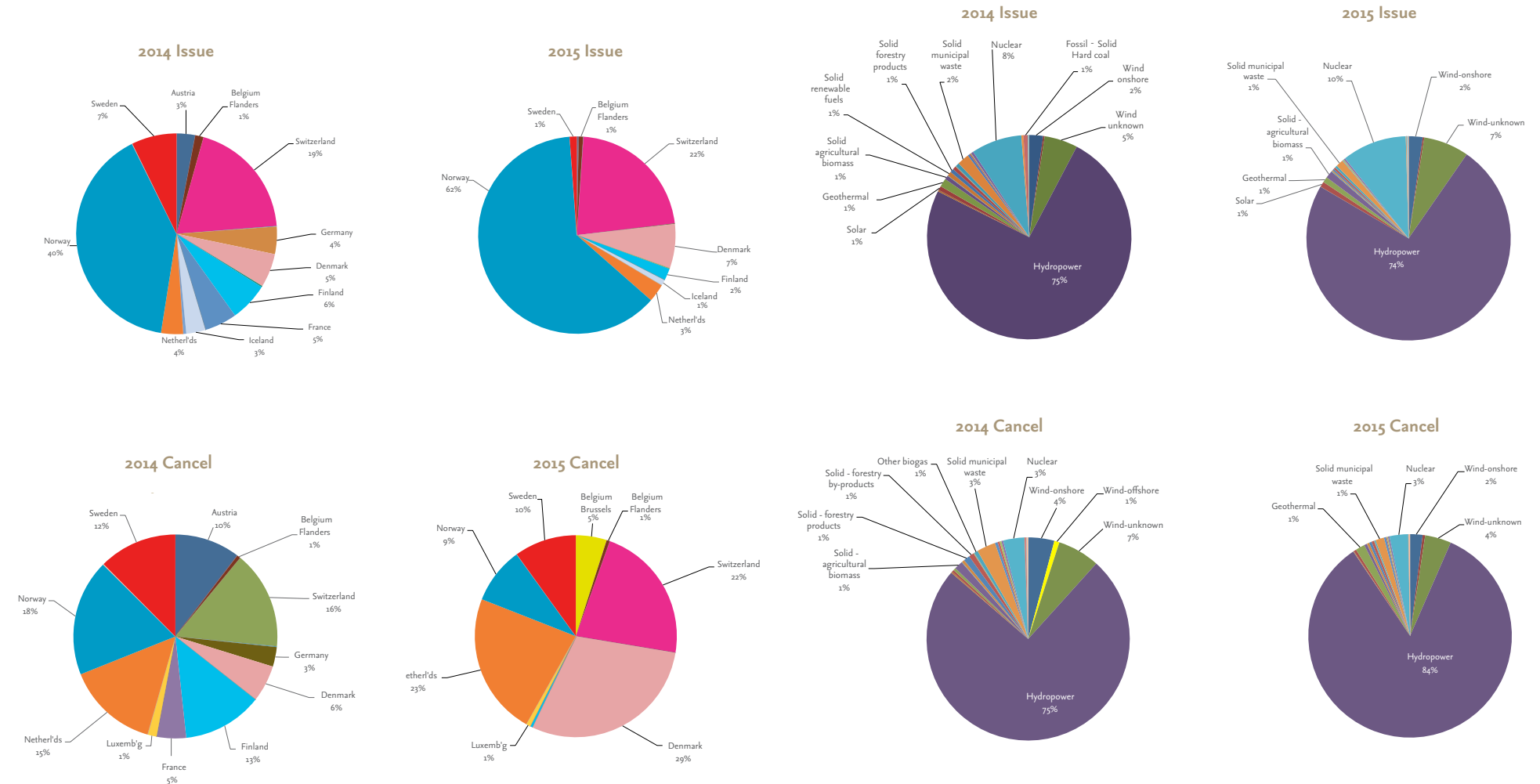
These charts show the large role that the Nordic region has in this market, and the interest in renewable products elsewhere in Europe, particularly Germany and the Benelux countries.

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.

Finnish law and regulation changed last year. In the past, GOs had infinite life but could only be used for the first year of their existence; they now expire one year after production of the associated electricity. This has led to the expiry of all GOs which are more than one year old – in practice, this meant that GOs were expired for electricity produced from 2004 until spring 2013. This may have led to last year’s rise in expiries.

So far, the contribution of the various fuel sources remains broadly similar to last year: for renewables, hydropower remains by far the prevalent renewable energy source, followed by wind and then biomass.

Certificates for fossil and nuclear are increasingly being issued, as countries increasingly certify all sources of energy, and not just renewable energy.

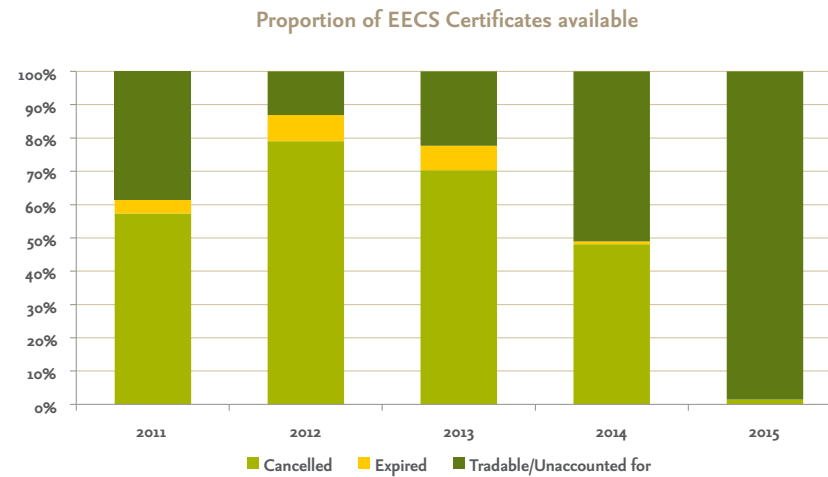
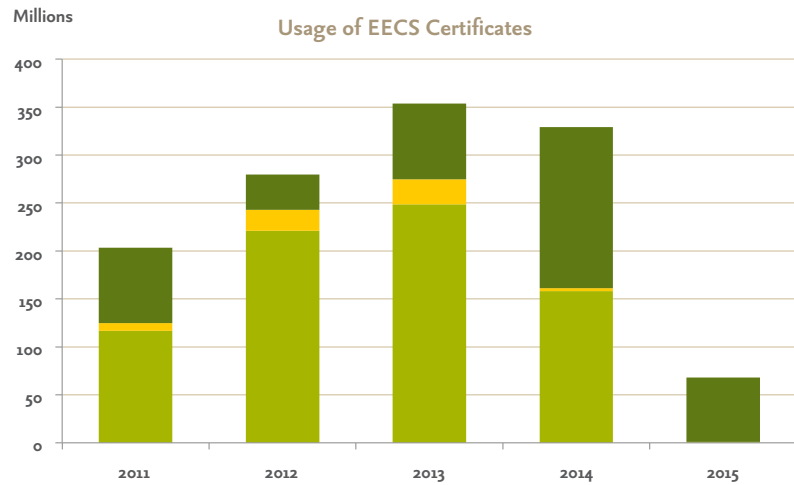


Comparing the status of different vintages of EECS certificate, we can see what has happened to the certificates that were issued for energy produced in the last four years - that is, whether the certificates have:

- 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 2013 until the date of collection of

the data (during April/May 2015 – 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 2015									2013 TO 2015								
	PRODUCTION			TRANSACTION						PRODUCTION			TRANSACTION					
	ISSUE	EXPIRE	CANCEL	ISSUE	TRANSFER	EXPORT	IMPORT	EXPIRE	CANCEL	ISSUE	EXPIRE	CANCEL	ISSUE	TRANSFER	EXPORT	IMPORT	EXPIRE	CANCEL
Austria	45.854.766		63.722.510	48.792.988	90.152.688	61.599.705	116.448.276		96.205.706	23.031.010		31.850.132	28.768.726	44.336.944	34.251.200	47.264.720		48.531.640
Belgium (Federal)																		
Belgium Brussels	160.874		102.041		4.584.934	14.800	11.513.821		17.179.103	150.080		102.041		4.584.053	14.800	3.651.437		9.740.965
Belgium Flanders	25.257.368	3.063.191	13.253.098	21.337.007	87.122.694	35.386.388	191.961.565	5.954.642	132.261.740	9.543.605	1.580.192	3.553.619	10.294.447	47.408.256	28.557.597	59.713.573	4.725.842	25.648.008
Belg & Lux RECS	113.390						2.031.496		2.048.355									
Belgium Wallonia	6.560.296	5.706	2.267.931	1.130.282	21.577.063	10.444.555	62.270.701	817.131	42.131.017	1.504.934	5.706	879.712	1.130.282	11.909.227	4.023.094	17.175.471	545.365	9.177.025
Belgium	32.091.928	3.068.897	15.623.070	22.467.289	113.284.691	45.845.743	267.777.583	6.771.773	193.620.215	11.198.619	1.585.898	4.535.372	11.424.729	63.901.536	32.595.491	80.540.481	5.271.207	44.565.998
Switzerland	177.464.698	13.309.943	109.940.567	178.951.963	102.015	24.016.126	40.894.349	61.237.869	134.819.466	140.804.195	13.309.943	79.429.088	144.737.692		17.040.552	27.686.349	61.237.869	110.376.842
Czech Republic	1.144.339	181.165	900.810	1.113.805	1.272.182		187.671	171.031	899.914	1.144.339	181.165	900.810	1.113.805	1.272.182		187.671	171.031	899.914
Germany	42.264.218	3.717.235	156.926.492	43.936.364	175.403.336	21.480.647	325.810.428	5.336.018	301.278.709	36.795.307	3.717.235	24.330.525	39.542.840	126.935.553	10.105.926	168.811.425	5.336.018	175.797.481
Denmark	65.722.444	5.146.507	22.641.004	55.927.754	23.492.021	39.535.034	12.922.726	5.146.507	24.467.449	35.589.467	1.392.977	15.415.649	37.521.909	16.900.677	20.508.589	6.195.395	2.374.543	17.808.962
	281.878		56.994	527.735	117.842	42.763	21.123	127.116	172.585	281.878		56.994	527.735	117.842	42.763	21.123	127.116	172.585
Spain	14.686.142			3.435.153		5.409.210	58.380		6.543.588	1.546.358			2.648.299		626.743	58.377		
Finland	143.272.311	7.852.209	86.079.760	81.738.051	54.267.863	184.046.920	165.422.035	7.852.209	101.536.470	40.323.373	758.325	39.573.207	43.066.533	29.736.823	56.214.831	60.147.600	7.852.209	55.454.654
France	86.855.897	13.290.263	27.909.153	65.544.616	14.391.680	28.323.185	23.076.155	17.195.546	75.048.502	37.634.139	1.349.068	14.455.664	45.689.125	6.087.643	26.285.687	5.061.314	13.290.263	22.146.910
Croatia																		
Ireland	162.414					10.001												
Iceland	31.845.024	985.217	328.694	31.845.024	2.174.967	31.329.532	1.018.443	985.217	328.694	22.551.840	46.397	75.949	26.475.823	2.174.967	26.982.636	718.432	985.217	328.694
Italy	88.007.108	1.434.278	28.841.737	61.304.436	115.609.706	18.458.485	22.881.389	2.354.970	118.753.353	31.985.611	1.434.278	28.801.988	61.304.436	94.627.212	7.987.825	13.084.508	2.354.970	68.406.731
Luxembourg	117.914	382.649	10.050.998	117.914	4.847.679	934.714	12.714.750	382.649	10.050.998	117.181	92.023	5.589.530	117.187	4.446.048	610.008	9.501.417	382.649	8.413.641
Netherlands	100.989.616	3.605.857	111.502.112	15.453.780	71.631.362	25.484.497	229.924.428	3.605.862	286.040.386	25.038.381	1.373.536	63.504.944	15.453.780	21.625.198	15.723.162	80.062.610	3.163.324	90.127.829
Norway	1.008.926.970	58.481.986	101.506.828	532.878.299	340.057.751	761.829.840	105.725.213	58.479.388	238.816.272	299.099.675	2.409.323	55.750.153	308.206.338	126.250.621	292.127.588	59.415.686	6.095.521	74.966.035
Portugal	1.455.576		406.839	477.440		1.058.756	371.468		471.415	362.933		379.954	391.008		101.500	312.766		402.989
Sweden	373.239.522	27.454.825	142.508.891	109.205.980	19.560.345	166.350.444	148.381.798	27.454.825	319.357.773	43.182.883	1.072.914	43.369.200	51.672.429	7.566.747	64.470.619	69.569.396	1.811.334	60.626.292
Slovenia	4.002.666					668.004	117.018		1.927.200									
UK	90.158																	
TOTAL	2.218.475.589	138.911.031	878.946.459	1.253.718.591	1.026.366.128	1.416.423.606	1.473.753.233	197.100.980	1.910.338.695	750.687.189	28.723.082	408.019.159	818.662.394	545.979.993	605.675.120	628.639.270	110.453.271	779.027.197

ISSUING, TRADE & REDEMPTION FOR ALL FUELS

	2015									2014								
	PRODUCTION			TRANSACTION						PRODUCTION			TRANSACTION					
	ISSUE	EXPIRE	CANCEL	ISSUE	TRANSFER	EXPORT	IMPORT	EXPIRE	CANCEL	ISSUE	EXPIRE	CANCEL	ISSUE	TRANSFER	EXPORT	IMPORT	EXPIRE	CANCEL
Austria	133.547			6.009.568	8.788.876	6.977.589	9.785.445		14.549.828	9.778.664		16.430.972	11.933.527	20.802.434	14.642.930	18.926.148		15.739.673
Belgium (Federal)																		
Belgium Brussels	74.681		50.295		1.500.186		623.835		2.392.283	75.399		51.746		3.077.384				2.782.754
Belgium Flanders	491.535		5.396	1.654.140	10.583.076	5.079.097	9.521.789	455.964		4.432.876	189.750	907.548	4.560.744	22.929.637	15.059.446	24.661.839	1.927.406	12.073.089
Belg & Lux RECS																		
Belgium Wallonia	41.514			1.130.282	3.116.388	712.238	2.132.682	283.456	97.396	23.594	5.706			2.851.212	384.593	3.024.105	162.851	1.301.008
Belgium	607.730		55.691	2.784.422	15.199.650	5.791.335	12.278.306	739.420	2.489.679	4.531.869	195.456	959.294	4.560.744	28.858.233	15.444.039	27.685.944	2.090.257	16.156.851
Switzerland	14.992.323		224.874	21.709.633		5.130.572	7.209.943	1.204.815	24.738.992	63.858.453		24.637.416	63.374.048		7.149.683	11.774.398	50.369.436	54.229.031
Cyprus																		
Czech Republic				58.576	230.582		181.334	13.621	117.902	267.825	23.724	180.673	810.356	820.118		6.337	157.410	778.105
Germany	52.317			7.019.074	22.745.399	965.588	32.627.140	1.215.507	45.424.526	14.528.623	185.977	4.924.865	18.402.937	53.838.657	4.824.014	67.430.491	4.120.511	80.439.277
Denmark	4.931.212		299.164	8.299.516	4.805.307	4.544.182	2.123.136	451.647	5.480.178	17.831.910	304.176	9.214.352	16.533.662	8.607.918	7.176.803	2.363.459	987.700	8.330.499
Estonia	95.394		4	319.239	117.842	42.763	21.123	79.352	72.452	186.484		56.990	208.496				47.764	100.133
Spain										529.595			849.587		228.546	38.377		
Finland	1.367.860		3.443	6.475.289		6.707.483	8.740.115	132.919	13.000.141	20.419.657	68.948	20.053.815	20.874.102	15.330.358	17.177.936	16.582.922	7.719.290	25.429.302
France			530	5.891.216	1.765.152	3.457.131	1.101.258	418.225	3.643.228	17.320.080	418.225	7.395.801	20.178.649	2.278.514	14.952.064	2.710.031	930.843	7.927.689
Croatia																		
Ireland																		
Iceland	618.914			3.379.985	1.168.380	3.429.640		21.082	5.701	10.142.345	21.082	6.681	10.041.952	25.747	10.072.162	68.000	25.315	70.228
Italy				19.933.202	42.767.171	5.475.000	5.782.274	773.960	33.590.376	1.589.962		261	27.435.216	45.611.330	2.104.246	6.430.277	1.581.010	31.614.057
Luxembourg	34.988		7.087	57.793	987.450	169.509	2.508.782	86.328	2.275.789	60.674	85.021	2.287.702	47.010	1.647.211	165.981	3.514.224	296.321	3.317.580
Netherlands	1.997.232		231.523	3.829.440	2.367.466	1.424.370	7.731.213	737.294	12.230.326	11.654.683	285.061	23.002.953	11.624.340	8.959.120	7.944.970	32.496.071	1.015.168	37.941.424
Norway	42.452.871		92.363	49.897.994	27.308.936	59.806.224	17.419.550	547.096	20.301.492	132.196.066	442.763	29.273.980	130.513.251	58.137.703	116.935.996	27.670.840	1.872.262	29.917.140
Portugal						6.500	155.963		190.026	173.524		209.603	186.341			155.446		181.287
Sweden	802.884		100.957	10.057.055	1.285.915	12.929.443	12.881.699	707.415	15.211.643	23.891.443	683.246	19.670.874	22.633.802	1.934.611	26.903.557	26.912.797	419.372	20.885.508
Slovenia																		
UK																		
TOTAL	68.087.272	0	1.015.636	145.722.002	129.538.126	116.857.329	120.547.281	7.128.681	193.322.279	328.961.857	2.713.679	158.306.232	360.208.020	246.851.954	245.722.927	244.765.762	71.632.659	333.057.784

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 both Excel 2003 and Excel 2010 formats, containing the detailed data since records began, summarised by year; and also by month.

		ISSUING, TRADE & REDEMPTION FOR ALL COUNTRIES																	
		TOTAL : 2001 TO 2015									TOTAL : 2013 TO 2015								
		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	72.936.279	1.169.503	26.948.288	16.812.352	45.720.843	24.621.801	40.947.704	2.007.093	71.914.265	18.786.589	720.826	17.471.026	15.059.434	22.047.654	5.042.665	12.247.271	1.480.053	26.335.681
	Wind - offshore	5.879.433	508.055	4.487.187	1.032.764	4.424.299	1.623.255	7.202.611	579.379	8.498.251	1.721.112	184.726	3.289.441	1.032.764	2.432.714	1.188.216	5.968.090	513.240	4.932.123
	Wind - unknown	56.501.615	5.915.062	26.696.710	59.130.863	31.728.651	49.989.295	29.993.522	6.388.898	28.723.630	35.548.173	1.267.190	18.052.229	39.089.080	25.851.922	31.879.441	21.309.893	3.020.812	23.954.396
		135.317.327	7.592.620	58.132.185	76.975.979	81.873.793	76.234.351	78.143.837	8.975.370	109.136.146	56.055.874	2.172.742	38.812.696	55.181.278	50.332.290	38.110.322	39.525.254	5.014.105	55.222.200
Hydro/marine		1.757.222.647	100.837.077	708.983.141	994.668.645	837.055.216	1.276.526.413	1.316.016.907	154.913.546	1.555.575.875	565.332.733	15.996.073	301.184.075	628.696.711	439.020.572	530.525.791	541.519.019	88.963.949	632.155.581
	Unspecified mechanical/other	13.432	41.731	176.344	45.311	14.551	10.657	5.896.381	726	5.846.407	13.432	8.237	9.501	45.311	13.670	10.657	3.757	726	32.195
	Unspecified renewable energy	1.886.575	835.774	1.016.684	2.986.385	1.161.309	1.155.976	8.814.735	969.840	1.139.324	1.886.575	835.763	905.944	2.986.385	1.077.232	1.147.788	8.567.713	969.829	1.018.268
	Unspecified heat																		
	Solar	6.492.315	2.563.313	1.884.585	6.356.729	2.248.363	1.156.300	1.479.757	2.928.612	2.434.954	4.658.858	1.459.867	1.363.792	4.713.218	1.912.802	1.034.325	1.366.268	2.805.322	2.078.739
	Geothermal	18.844.835	226.726	4.625.388	13.494.838	9.340.714	12.180.265	12.188.535	271.006	15.888.192	11.193.578	207.511	4.214.343	13.031.889	9.113.081	11.989.087	11.997.346	271.006	10.269.988
Other		27.237.157	3.667.544	7.703.001	22.883.263	12.764.937	14.503.198	28.379.408	4.170.184	25.308.877	17.752.443	2.511.378	6.493.580	20.776.803	12.116.785	14.181.857	21.935.084	4.046.883	13.399.190
	Solid - agricultural biomass (inc. energy crops)	7.932.453	270.516	4.416.840	5.627.601	1.366.464	3.993.941	4.529.728	298.625	6.112.791	4.970.157	44.388	4.129.777	5.289.409	234.934	3.157.180	3.690.666	294.135	4.726.165
	Solid - agricultural products	714.887	47.799	354.665	459.410	160.980	234.445	255.636	51.211	309.949	429.706	19.310	226.386	449.713	132.721	143.529	141.844	44.482	236.994
	Solid - renewable fuels (inc. For&Ag bp & w)	55.754.412	2.408.990	8.117.238	11.667.970	30.186.196	19.092.009	18.419.844	2.401.628	49.176.416	5.109.772	1.266.483	2.780.011	6.302.699	7.514.180	1.941.902	1.520.109	2.237.328	4.574.048
	Solid - forestry products	6.650.011	209.822	5.293.695	4.446.052	5.150.624	3.172.414	2.969.924	304.765	6.452.350	4.733.084	84.095	3.782.851	3.520.809	4.024.909	1.908.788	1.766.461	277.538	5.322.141
	Solid - forestry by-products & waste	9.710.260	549.857	3.255.426	4.714.241	3.954.721	2.831.872	2.546.847	718.996	5.880.248	3.888.164	370.974	2.694.783	3.702.957	1.999.307	1.395.569	1.537.907	607.213	4.088.430
	Gas - landfill	4.056.584	76.925	863.742	743.178	2.758.392	229.800	250.995	98.811	2.946.771	557.243	20.829	413.885	518.703	579.292	54.046	46.186	67.242	581.816
	Gas - sewage	353.495	41.006	158.962	303.149	257.268	1.024.374	1.141.920	254.146	187.306	231.483	28.289	87.044	244.512	26.799	441.808	472.315	254.146	119.534
	Gas - other biogas	8.172.248	660.611	3.826.581	4.432.112	4.346.858	1.137.346	1.164.868	1.095.301	5.758.389	3.863.582	298.258	2.280.266	3.262.137	2.394.861	871.132	946.550	959.651	3.067.500
	Solid - municipal biogenic waste	29.185.942	1.366.868	13.087.133	13.742.599	10.459.117	6.573.980	5.280.132	1.477.971	22.627.586	13.162.405	337.620	10.100.161	11.629.377	5.470.118	4.329.737	3.662.461	1.146.260	12.073.340
	Liquid - renewable fuels (inc. Mun.waste)	2.955.687	93.217	2.033.985	3.198.183	2.387.036	1.407.095	1.588.227	424.387	3.007.093	2.514.159	80.550	1.729.113	3.057.004	2.218.390	1.291.613	998.330	108.797	2.637.451
	Liquid - black liquor	1.345.992	16.620	1.069.729	1.336.992	1.279.514	1.466.170	1.457.578	17.748	1.100.707	987.937	16.281	1.024.528	1.045.588	937.088	818.581	925.326	17.748	1.089.105
	Solid - unspecified wood	981.210	93.043	1.053.014	1.064.697	388.054	549.280	1.098.276	114.677	1.221.904	869.199	43.144	972.181	1.064.697	387.426	549.149	1.088.145	114.677	1.211.904
	Solid - industrial & commercial waste	16.693.902	414.604	4.886.051	6.152.403	11.671.773	1.405.839	2.330.169	1.006.533	13.966.528	2.752.651	277.035	1.378.239	3.080.449	2.976.791	383.166	1.184.341	918.703	2.869.630
	Biomass	144.507.083	6.249.878	48.417.061	57.888.587	74.366.997	43.118.566	43.034.144	8.264.799	118.748.038	44.069.534	2.887.256	31.599.225	43.168.054	28.896.816	17.286.200	17.980.641	7.047.920	42.598.058
RENEWABLE		2.064.284.214	118.347.119	823.235.388	1.152.416.474	1.006.060.943	1.410.382.527	1.465.574.296	176.323.899	1.808.768.936	683.210.584	23.567.449	378.089.576	747.822.846	530.366.463	600.104.170	620.959.998	105.072.857	743.375.029
NUCLEAR		139.496.850	20.145.500	48.367.784	84.307.218		145.857	145.857	20.146.183	92.285.695	58.263.881	4.748.833	26.094.663	58.263.883		145.855	145.855	4.749.516	26.450.394
	Unknown	1.418.783	720	87.842	1.190.555	497.631	1.184.006	33.430	720	81.482	1.409.115	717	56.352	1.185.431	497.631	1.174.006	3.893	720	77.842
	Solid - Unknown	20.757			565.141	1.558.194	356.119	1.066.341	141.728	48.698	20.757			565.141	1.558.194	356.119	1.066.341	141.728	48.698
	Solid - Hard coal	2.238.884		440.000	2.238.884	440.000		440.000		440.000	2.238.884		440.000	2.238.884	440.000		440.000		440.000
	Solid - Brown coal	67			67						67			67					
	Solid - Peat																		
	Solid - Municipal solid waste	1.028.031	236.513	202.800	1.028.030			5.897	278.824	202.800	985.720	236.513	202.800	1.008.520		5.897	278.824	202.800	
	Solid - Industrial and commercial waste	126.609	21.161	75.185	149.694		6.369	6.360	25.619	75.186	108.776	9.553	71.011	148.628		6.369	6.360	25.619	75.186
	Liquid - Unknown	1.854		1.853	1.854					1.853	1.854		1.853	1.854					1.853
	Liquid - Crude oil	11.074			11.074						11.074			11.074					
	Liquid - Natural gas																		
	Liquid - Petroleum products	79.374	22.389	889	79.372				44.005	889	57.760	22.389	889	79.372				44.005	889
	Gaseous - Unknown	2			37.825		2	2.270	1.325		2			37.825		2	2.270	1.325	
	Gaseous - Natural gas	9.769.090	137.629	6.534.718	11.692.403	17.809.360	4.348.726	6.480.952	137.732	8.431.831	4.378.715	137.628	3.062.015	7.298.869	13.117.705	3.888.599	6.010.826	137.732	8.353.181
	Gaseous - Coal-derived gas																		
	Gaseous - Petroleum products																		
	Gaseous - Municipal gas plant																		
	Gaseous - Process gas																		
	Heat - unknown							100								100			
	Heat - Process heat																		
FOSSIL		14.694.525	418.412	7.343.287	16.994.899	20.305.185	5.895.222	8.033.080	630.898	9.284.064	9.212.724	406.800	3.834.920	12.575.665	15.613.530	5.425.095	7.533.417	630.898	9.201.774
	TOTAL	2.218.475.589	138.911.031	878.946.459	1.253.718.591	1.026.366.128	1.416.423.606	1.473.753.233	197.100.980	1.910.338.695	750.687.189	28.723.082	408.019.159	818.662.394	545.979.993	605.675.120	628.639.270	110.453.271	779.027.197

ISSUING, TRADE & REDEMPTION FOR ALL COUNTRIES																			
		2015								2014									
		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	1.515.679		160.872	3.140.743	2.455.066	722.501	1.774.752	172.672	3.834.123	7.176.075	96.784	6.581.762	10.265.699	12.354.432	2.759.961	5.036.330	925.797	13.281.419
	Wind - offshore	162.051		6.024	312.340	231.047	356.927	1.294.490		766.267	788.588		1.294.546	720.424	1.198.011	254.074	2.540.479	208.401	2.780.706
	Wind - unknown	4.885.835		203.421	9.425.810	8.546.253	8.165.465	6.060.458	739.091	8.046.221	17.359.664	301.840	10.629.249	18.106.336	11.378.020	12.692.117	7.805.767	1.565.715	10.695.301
		6.563.565		370.317	12.878.893	11.232.366	9.244.893	9.129.700	911.763	12.646.611	25.324.327	398.624	18.505.557	29.092.459	24.930.463	15.706.152	15.382.576	2.699.913	26.757.426
Hydro/marine																			
	Unspecified mechanical/other	1.600			33.699	472	2.457	1.985		29.974	5.538		1.280	5.953	6.640	6.428		726	2.100
	Unspecified renewable energy	12.639		3	481.027	159.289	158.966	298.152	229.993	199.948	764.482	72.216	313.698	1.929.038	575.546	872.201	412.506	739.836	715.415
	Unspecified heat																		
	Solar	574.432		807	676.960	1.020.102	419.442	452.342	189.155	762.981	2.190.419	118.272	554.353	2.245.815	837.970	251.694	337.482	1.535.201	798.235
	Geothermal	602.264			3.348.220	2.589.976	3.337.754	3.059.237	209.164	2.865.382	4.352.029	23.505	658.162	5.471.450	4.987.368	4.481.584	4.395.655	42.638	4.481.949
Other		1.190.935		810	4.539.906	3.769.839	3.918.619	3.811.716	628.312	3.858.285	7.312.468	213.993	1.527.493	9.652.256	6.407.524	5.611.907	5.145.643	2.318.401	5.997.699
	Solid - agricultural biomass (inc. energy crops)	795.107		135.195	1.113.804	40.166	116.005	323.399	13.806	833.606	2.045.351	7.216	2.130.426	1.975.107	52.372	625.392	725.401	41.249	2.778.958
	Solid - agricultural products	75.810		6.269	117.996	20.496	67.282	67.282	4.456	67.397	236.633	11.004	113.335	213.113	69.525	2.948	2.948	21.845	133.174
	Solid - renewable fuels (inc. For&Ag bp & w)	124.283		100	1.793.074	1.837.537	540.257	243.127	132.980	716.883	2.286.914	67.438	697.245	3.316.714	3.385.644	986.643	632.775	1.941.878	2.036.537
	Solid - forestry products	172.517		18.499	795.179	171.455	286.638	324.577	63.240	794.016	1.940.502	8.313	1.574.569	1.863.100	1.433.411	649.098	649.098	83.688	1.855.611
	Solid - forestry by-products & waste	208.027		2.690	632.449	105.515	192.946	178.725	95.616	786.317	1.793.113	46.820	1.293.595	2.188.817	912.321	437.341	556.101	410.351	2.152.679
	Gas - landfill	7.857		1.132	51.909	89.507	2.126	2.234	4.052	107.245	227.151	1.143	170.923	326.487	311.738	18.540	18.540	40.335	282.786
	Gas - sewage	5.301		2	63.933	4.162	1	1	1.531	46.649	154.774	190	78.619	121.492	4.318	6.647	2.756	199.618	39.778
	Gas - other biogas	250.891		11.083	620.535	560.466	95.226	94.213	70.844	374.845	1.911.868	54.365	938.160	1.845.819	1.160.295	389.163	368.456	572.953	1.495.267
	Solid - municipal biogenic waste	798.511		76.270	2.484.477	868.100	583.181	547.872	315.769	2.634.846	6.214.879	82.583	4.743.858	7.067.507	2.430.109	2.139.648	1.500.982	442.540	6.685.794
	Liquid - renewable fuels (inc. Mun.waste)	61.190		7.215	558.102	473.427	402.981	366.633	4.466	650.846	1.119.205	92	678.493	1.338.447	1.016.191	512.071	231.019	86.161	1.401.284
	Liquid - black liquor	13.038			55.842	104.730	134.051	124.745	4.806	253.938	559.974	4.739	518.202	706.073	585.542	341.188	546.359	12.942	642.505
	Solid - unspecified wood	119.307		26.355	215.032	67.687	61.141	96.548	27.650	331.685	369.304	6.651	454.497	422.111	129.268	199.464	491.936	37.500	583.675
	Solid - industrial & commercial waste	188.620		743	484.170	749.188	24.721	51.816	41.909	489.744	1.261.580	18.692	466.268	1.161.662	1.261.706	94.278	453.955	644.760	995.372
	Biomass	2.820.459		285.553	8.986.502	5.092.436	2.506.556	2.421.172	781.125	8.088.017	20.121.248	309.246	13.858.190	22.546.449	12.752.440	6.402.421	6.180.326	4.535.820	21.083.420
RENEWABLE		60.818.812		1.014.751	133.539.238	127.879.932	116.387.840	119.078.757	6.468.335	187.036.354	298.519.664	2.688.013	152.029.723	331.577.309	245.111.335	244.608.522	243.646.277	66.973.277	311.801.702
NUCLEAR		6.969.163			9.716.582		63.370	63.370	487.262	5.738.702	26.378.385	25.666	5.382.970	26.115.593		82.485	82.485	4.262.254	20.159.692
	Unknown	81.295			183.107		50.000				1.100.054			998.242	440.716	945.908		719	55.994
	Solid - Unknown	20.757			565.141	1.558.194	356.119	1.066.341	141.728	48.698									
	Solid - Hard coal				1.397.144						2.238.808		440.000	841.664	440.000		440.000		440.000
	Solid - Brown coal																		
	Solid - Peat																		
	Solid - Municipal solid waste	96.486			174.923				24.110	59.742	513.671		65.639	484.222		5.897	231.441	143.058	
	Solid - Industrial and commercial waste	5.249			8.430				1.148	22.745	45.709		22.745	46.769		9		9.390	48.267
	Liquid - Unknown				1								1						1.853
	Liquid - Crude oil				5.541						11.074			5.533					
	Liquid - Natural gas																		
	Liquid - Petroleum products	7.225			9.897				1.887		27.120			26.784				22.077	889
	Gaseous - Unknown				19.749					1.158				2		2			
	Gaseous - Natural gas	88.285		885	102.249	100.000		338.813	4.211	414.880	127.371		365.155	111.902	859.903	86.001	591.003	133.501	406.329
	Gaseous - Coal-derived gas																		
	Gaseous - Petroleum products																		
	Gaseous - Municipal gas plant																		
	Gaseous - Process gas																		
	Heat - unknown																	100	
	Heat - Process heat																		
FOSSIL		299.297		885	2.466.182	1.658.194	406.119	1.405.154	173.084	547.223	4.063.808		893.539	2.515.118	1.740.619	1.031.920	1.037.000	397.128	1.096.390
	TOTAL	68.087.272	0	1.015.636	145.722.002	129.538.126	116.857.329	120.547.281	7.128.681	193.322.279	328.961.857	2.713.679	158.306.232	360.208.020	246.851.954	245.722.927	244.765.762	71.632.659	333.057.784

Forthcoming events

2015

19 June	Brussels, Belgium	CEER conference 'Guaranteed Green'
29-30 June	Berlin, Germany	European Conference on Green Power Markets
23 Sept	Bruges, Belgium	RE-DISS Final event
24-25 Sept	Bruges, Belgium	AIB General Meeting
3-4 Dec	Arnhem, The Netherlands	AIB General Meeting