



Report on the work carried out regarding the Proposal for an EU Green Gas Certificate Scheme

Work Package 3 Working Group 3 / D 3.4

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Content:

1 Introduction

2 Renewable energy certificates

- 2.1 Definition of Certificates
- 2.2 RECS - Renewable Energy Certificate System
- 2.3 EECS – The European Energy Certificate System
- 2.4 Conclusion regarding tradeable Certificates

3 Constrains

- 3.1 Mass-balancing requirement
- 3.2 Sustainability requirement
- 3.3 National character of support systems
- 3.4 Difficulties in registering cross border physical flow
- 3.5 Market size

4 Proposed measures and actions

- 4.1 Establishment of national biomethane registries
- 4.2 Cooperation among the national biomethane registries
- 4.3 Establishment of single, unified European biomethane mass-balance circle
- 4.4 Access to biomethane financial support/incentives systems for the imported product
- 4.5 Joint European Biomethane registry

1. Introduction

The IEE (Intelligent Energy Europe) GGG (GreenGasGrids) project supports the upgrading of biogas to biomethane for injection into the natural gas grid. So far the full potential of biomethane cannot be unfolded - above all due to a lack of cooperation between the involved stakeholders as well as cross-border trade barriers.

Within the GGG project the biomethane trade issues are addressed by a working group that is led by the European Biogas Association (EBA). The main objectives of this working group is to develop a roadmap to create a European trade scheme and a proposal for an EU Green Gas Certificate Scheme.

The activities of the working group started with understanding and evaluating the existing renewable energy and biomethane certification schemes. Thereafter the working group analyzed the specifically biomethane related issues and – upon extensive exchange of information and views with different stakeholders – formulated its position and proposals as summarized in this report.

2. Renewable energy certificates

2.1. Definition of Certificates

In the context of this report it is essential to differentiate between tradeable *Certificates* and all other documents which (whether named certificate or not) serve as a proof of origin or other quality for a product but do not have their own market value and cannot be traded independently from the physical product they are connected with. Tradeable certificates are documents having their own inherent market value, which can be sold, purchased, traded independently from the product itself - like the EECS green electricity certificates). So further in this Report we will call "*Certificate*" only the tradeable documents (whether printed or electronic).

Certificates are the key tools for operating electronic trading systems. In Europe, the Renewable Energy Certification System RECS and the European Energy Certification System are well known trading systems.

2.2. RECS - Renewable Energy Certificate System

RECS is a European trading system for energy issued from renewable sources based on energy certificates which are traded in the participating countries. A REC usually represents one megawatt-hour (MWh) of electricity generated from renewable energy resource. There is no further ecological quality in a REC other than that it originates from a renewable source.

In 1999, a voluntary association of market players founded RECS. The aim was to harmonise the trading certificates market for electricity from renewable resources by providing a standard and thereby stimulating a pan-European market for renewable electricity. RECS had 200 members in 2007 in 24 European countries. It has established common rules to ensure the application of the same standards and processes throughout Europe for the trade of electricity from renewable energy sources. A RECS Certificate has a unique trading certificate number and specifies the name of the certificate's Issuing Body, the specification of the utility, the time of issue, the underlying technology, the installed capacity and mentions any receipt of public subsidies.

2.3. EECS – The European Energy Certificate System

The European Energy Certificate System (EECS) is a European trading system for electricity based on energy certificates which are traded in the participating countries initiated and accepted by the European Commission.

EECS was established in 2005, largely based on RECS. As stated by the Association of Issuing Bodies (AIB), EECS builds an "integrated European framework for issuing, holding, transferring and otherwise processing, electronic records (EECS Certificates) certifying, in relation to specific quantities of energy output, attributes of its energy source or the method and quality of its production." EECS now supports RECS Certificates, Guarantees of Origin for electricity from renewable energy sources (RES-GO), Guarantees of Origin for electricity from cogeneration (CHP) and generic Guarantees of Origin into one coherent certificate system. As all kinds of energy (fossil, nuclear, renewable) can be registered under the EECS, a Renewable Energy Declaration is needed. If all requirements are met, the

production facility will be registered as renewable in the EECS database.

The trading *Certificates* issued for green energy represent all the attributes for a specific unit of energy. Transferral of the trading *Certificate* from one owner (the producer) to another (the reseller) to a third (the consumer), transfers the attributes too. The final owner (normally the consumer) hence knows, based on the trading *Certificate*, the origin of the green electricity. As soon as this specific unit of electricity is consumed, the trading *Certificate* is transferred to a redemption account.

2.4. Conclusion regarding tradeable Certificates

The obvious solution for setting up a system of Green Gas *Certificates* would be to follow the example of the EECS (green electricity) *Certificates*. Such approach could be realised through close cooperation with the Association of Issuing Bodies (AIB) working within the EECS framework; the EECS system could be expanded to cover biomethane. Discussions with AIB have shown that it would be possible to expand the EECS system covering biomethane through creating a biomethane specific Association of Issuing Bodies (Biomethane AIB) within the EECS framework.

Nevertheless, in view of the existing circumstances and constraints, as discussed below, a system with tradeable *Biomethane Certificates* - which are handled, marketed and traded detached and independently from the product - would have no practical use at the prevailing market conditions. For these reasons the creation of a European-wide *Biomethane Certificate Trade System* (of issuing, registration, handling and cancelling tradeable biomethane certificates) cannot be recommended at the time being. This may remain an ultimate, long-term objective but realistically it is not achievable in short and medium term.

3. Constrains

The Working Group 3 within Work Package 3 in the GGG Project has identified several existing constrains which have to be addressed for moving forward. The most important among these factors are:

3.1. Mass-balancing requirement

In accordance with the relevant EU legislation all biofuels are subjected to a mass-balancing procedure if the volumes are to be booked against the biofuel quota commitment. When handling biomethane a mass balance has to be understood as an energy balance (expressed in MJ or MWh) - as it is defined e.g. by the German and Austrian governments. At this moment this does not relate mandatory to biomethane used for generating electricity or for heating/cooling purposes but does directly relate to biomethane used as vehicle fuel. Nevertheless, we should reckon with extending the mass balancing requirement to all applications in not too distant future (the European Commission is addressing this issue and Germany, for example, already implemented mass-balancing requirements also for electricity and heat applications in 2012).

Independent auditing is integral, mandatory part of the balancing procedure. Energy-balancing can be done only by means of registries (data banks) which register and document the complete process from production till end-use. Note: the existing biomethane registries consider the national natural gas grid as one closed accounting balance (Bilanzkreis). The dilemma can be described as follows: those volumes of biomethane which bypass the mass-balancing (through - for example - EECS like *Biomethane Certificate* trade) would not qualify for support (in form of feed-in tariffs (FIT), tax benefits etc.). In other words: we can organise trade with *Biomethane Certificates* but it would be of nobody's avail if the biomethane volume so purchased does not get the support benefits in the country of final use.

3.2. Sustainability requirement

The compliance with the sustainability requirements of the EU (and national) legislations calls for another confirmation-certification. That is why the future tradable biomethane certificate has to carry this information also. Presently biomethane producers need two type of certification: one is a kind of Guarantee of Origin, the other one is a kind of Guarantee of Sustainability, dealing with sustainability. On the other side, sustainability for biofuels is the one requirement all European countries already have in common. It is therefore a good starting point on the way to standardised biomethane products tradable all over Europe.

3.3. National character of support systems

First of all, a free European market is needed for (cross-border) international trade. Contrary to this, the markets seem to be strictly national in the sense of support granted to domestic production only. Take the example of Germany and Austria: only biomethane produced on German (respectively Austrian) territory is qualified for green electricity FIT and only biomethane produced in Germany (respectively in Austria) can get tax and other benefits if used as vehicle fuel.

Furthermore, most nations have implemented different requirements which need to be fulfilled in order to be qualified for subsidies. It is therefore difficult to establish common biomethane commercial quality criteria which would cover all countries involved. For the time being, international trade will therefore be made up of individual products tailor-made for the country of final use.

3.4. Difficulties in registering cross border physical flow

As a matter of fact, biomethane flow cannot be physically tracked in the natural gas pipeline systems, while biomethane molecules cannot be differentiated from the methane molecules contained in natural gas. The transmission system operators can register and confirm only the overall balance of the natural gas+biomethane deliveries of a given company over a given period of time and over a certain border-crossing point.

For this reason there is no way of measuring, registering and confirming the fact that certain volumes of biomethane have been transported from one country to an other over the natural gas pipeline network. Such registration/confirmation gets even more complicated if the country(ies) of production have no common border with the country(ies) of end-use.

The situation in cross-border transactions is not different from the situation in transactions within national borders. Biomethane injected into the natural gas pipeline network somewhere in Austria

(for example) can not be physically tracked through the pipelines to the customer/enduser located in a different part of Austria.

In case of Austria (for example) such lack of physical tracking is easily solved by the operation of the Austrian biomethane registry, which will register the transactions, take care of exclusion of double counting and of cancelling the volumes when taken out from the pipeline. The national biomethane registry in this way directly replaces the physical tracking of volumes.

Exactly the same could and should happen in the European level: the system of cooperation of the national biomethane registries should replace the physical tracking and smooth the way for flow of biomethane over the pipelines blended into natural gas.

3.5. Market size

The volume of biomethane trade today is small. Even a strong growth over the next 2 to 3 years would not be high enough for financing the establishment of a joint server for operating the hub of an electronic certificate trading system.

4. Proposed measures and actions

A step-by step approach is proposed, which would consist of the following activities and stages:

4.1. Establishment of national biomethane registries

The establishment of national biomethane registries in all EU member countries producing biomethane or intending to produce this product in medium term should be encouraged and facilitated.

It is advisable that the national biomethane registries are mandated by the national government and are recognised in their own country as the exclusive cooperation partners of the national biomethane registries acting in other countries.

The national biomethane registries should be seen as the most suitable nuclei for a future Europe-wide biomethane trade system., National biomethane registries provide trustworthy documentation which certifies the special (renewable) features of the product. The national biomethane registries are the competent bodies to provide for such documentary confirmation within the boundaries of their

national borders in accordance with the domestic legal, regulatory and market requirements.

4.2. Cooperation among the national biomethane registries

The establishment of a national biomethane registry possibly in all European countries producing biomethane and the broad cooperation and coordination among them will be the first important steps towards creating the conditions for a free cross-border biomethane trade in Europe.

The key pre-condition of requirements of biomethane import is that the "green" (renewable, sustainable) property of biomethane should be recognized in the importing country and – correspondingly the imported biomethane should be accepted for counting towards national quotas and targets in the importing country.

The relevant certification/confirmation cannot be provided in the importing country, it must come from the country of production. On the other hand, the relevant documentation of the producing country has a real value only if it contains and certifies all those attributes which are necessary in the importing country. This requires the definition of a standardised set of data to be exchanged with involvement of the national registries whenever biomethane is transferred across borders. The cooperation system should enable that Guarantees of Origin, issued by the biomethane registries of the exporting country should be recognized by counterpart registries in the importing countries.

The term "Guarantees of Origin" (GoO) is used here to refer to electronic documents which serve as a proof of origin and other qualities for biomethane but do not have an own market value. The GoO cannot be traded independently from the physical product thus excluding double-counting. Nevertheless, the „European Biomethane Guarantee of Origin" will contain all information needed for qualifying imported biomethane as „green".

A functioning European biomethane market is highly dependent on a transparent, reliable and effective system of comprehensive information transfer among the national biomethane registries. The cooperation between the national registries is needed to create the

necessary framework conditions for such a transfer of information. For this purpose the national registries cooperating in the creation of the European biomethane trading scheme should agree on a coordinated set of criteria/attributes all of them apply in the same way and thus harmonise their procedures.

The main aim of the cooperation among the national biomethane registries is to create the compatibility between the registries and to set the conditions for mutual acceptance of Guarantees of Origin for biomethane.

4.3. Establishment of single, unified European biomethane mass-balance circle

In order to opening the way for cross-border biomethane trade it is essential to solve the task of mass-balancing on European level. Similar to the prevailing practice in Germany and Austria, where the natural gas pipeline network within the national borders is recognised as a single, closed mass-balancing circle (Bilanzkreis) the European natural gas network should be recognised as a single, closed, European mass-balancing circle. This would mean that the mass-balancing requirement is fulfilled as soon as the respective volume of biomethane has been taken out of the European natural gas network (and this transaction has been properly certified).

In a system where the European natural gas network is recognised as a single, closed mass-balancing unit the national biomethane registries will have to certify and confirm two key facts:

- a) the specified volume of biomethane (expressed in energy equivalent) has been produced and injected into the natural gas pipeline network in accordance with all related regulations on the territory of their country AND
- b) the specified volume of biomethane has not been taken out from the natural gas pipeline network on the territory of their country.

4.4. Access to biomethane financial support/incentives systems for the imported product

The cross-border biomethane trade will broadly develop only if imported biomethane will be treated the same way as the

biomethane produced domestically. Any support provided in a Member State to locally produced biomethane (FIT, tax benefit, etc.) should be provided to biomethane imported from another EU Member State in the same way and extent - always under the condition that the imported biomethane carries all necessary attributes and this is confirmed by the mandated national registry in accordance with the rules agreed among the registries.

While addressing the issue of equal treatment on the market of the importing country it has to be made clear that any support provided to the producer of biomethane in the producing (exporting) country must also be considered. By other words: double support (one on the producing and one in the consuming country) should be avoided in order not to put the domestic production in the importing country under unfair competitive pressure. The tool to handle this issue is also in the hands of the national biomethane registries – the information flow should contain the data about support and financial incentive received in the producing country (for example in form of non-returnable investment subsidy).

In any case, biomethane will flow from one country to an other only if the costs of production are lower and the imported product is competitively priced. Care should be taken that such production cost comparisons are not distorted by the national support systems, in contrary: the support system enables the flow of biomethane which could be produced at lower costs in another European state.

4.5. Joint European Biomethane registry

The national registries should jointly develop a common, transparent electronic platform for registering and transferring all related information among themselves. This will require investment both for hardware and software. Such electronic platform would serve all-European interests and – as such – should get financing from EU funds as long as the European cross-border biomethane trade does not reach the magnitude where the system could be financed from the turnover.