

Biodiesel, glycerol and the Renewables Obligation



Document Type: Decision Document

Ref: 22/09

Date of Publication: 10 March 2009

Target Audience: This document will be of interest to generators using biodiesel and glycerol, trade associations, fuel suppliers and other interested parties.

Overview:

This document explains the approach Ofgem will take with respect to the use of biodiesel and glycerol when considering generation using these substances under the Renewables Obligation.

It has been informed by the responses submitted as a result of consultation document 128/08 and reflects our discussions with the Department of Energy and Climate Change.

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Context

The Government's aim is that renewable energy will make an increasing contribution to energy supplies in the UK, with renewable energy playing a key role in the wider Climate Change Programme.

The Renewables Obligation, the Renewables Obligation (Scotland) and the Northern Ireland Renewables Obligation are designed to incentivise renewable generation into the electricity generation market. These schemes were introduced by the Department of Trade and Industry (now Department of Energy and Climate Change), the Scottish Executive and the Department of Enterprise, Trade and Investment respectively and are administered by the Gas and Electricity Markets Authority (whose day to day functions are performed by Ofgem). The schemes are provided for in secondary legislation.

The first Renewables Obligation Order came into force in April 2002, as did the first Renewables Obligation (Scotland) Order. These Orders were subject to review in 2004, 2005, 2006 and 2007. The first Renewables Obligation Order (Northern Ireland) came into force in April 2005. A new order came into force on 1 April 2006 and was subject to review in 2007. In April 2009 Orders that will introduce banding and grandfathering and other changes will come into force.

The Orders place an obligation on licensed electricity suppliers in England and Wales, Scotland, and Northern Ireland respectively to source an increasing proportion of electricity from renewable sources. In 2008-09 it is 9.1 per cent for England and Wales and for Scotland (3.0 per cent in Northern Ireland). In 2009/2010 it will be 9.7 ROCs for every 100 Megawatt hours (MWh) in England & Wales and Scotland (3.5 ROCs/100MWh in Northern Ireland). Suppliers meet their obligations by presenting sufficient Renewables Obligation Certificates ("ROCs") to cover their obligations. Where suppliers do not have sufficient ROCs to meet their obligation, they must pay an equivalent amount into a fund, the proceeds of which are paid back on a pro-rated basis to those suppliers that have presented ROCs.

Accredited generators are issued ROCs (which they can then sell on to suppliers) for eligible electricity generated each month. For a generator using fuel only the electricity generated from eligible fuels (and fuel mixes) will receive ROCs.

Associated Documents

Readers should be aware of the following documents which support this publication. These documents are available on our website at www.ofgem.gov.uk.

- Biodiesel, glycerol and the Renewables Obligation (consultation document). (ref: 128/08)
- Renewables Obligation: guidance for generators over 50kW (70/07).
- Renewables Obligation : guidance for small generators (50kW or less) (77/07)
- Renewables Obligation: fuel measurement and sampling guidance (57/07).
- Renewables and CHP Register User Guide.

Table of Contents

Summary	1
1. Background	2
A typical methanol manufacture process	2
A typical biodiesel (and glycerol) manufacture process	2
2. The Decisions	3
Limitation of scope of this decision document	3
Guidance on biodiesel eligibility	5
Ability for stations to claim ROCs on biodiesel used	5
Guidance on glycerol eligibility	5
Eligibility of stations using glycerol	5
Ability for stations to claim ROCs on glycerol used in thermal conversion (Combustion/ gasification etc.)	6
Ability for stations to claim ROCs on glycerol used in anaerobic digestion	6
3. Introduction of the Renewables Obligation Order 2009	7
Appendices	1
Appendix 1 - Consultation Questions	2
Appendix 2 - List of Respondents	3
Appendix 3 - Summary of Responses	4
General Comments	4
Appendix 4 – The Authority’s Powers and Duties	11
Appendix 5 - Feedback Questionnaire	14

Summary

Biodiesel is a fuel that is obtained from a manufacturing process that converts biomass (e.g. plant oils or animal fats) along with an alcohol into a fuel that can be used in an internal combustion engine. One process used to create this fuel is the conversion of the biomass with an alcohol to produce biodiesel and a by-product, glycerol (otherwise known as glycerine).

Under the Renewables Obligation (RO) 2006 (as amended) generating stations are able to claim ROCs on eligible renewable generation. This includes generation from biomass but not from fossil fuel or fossil fuel derived sources.

In 2008 it was identified that one of the reagents used to produce biodiesel, methanol, was frequently obtained from the methane within natural gas (a fossil fuel¹). The use of methanol directly produced from natural gas implied that these fuels could be seen as being indirectly derived from a fossil fuel.

After identifying that there was an issue when this fuel was assessed against the RO, we obtained independent expert technical advice on the manufacturing process used to create these fuels and we undertook a process of consultation which concluded in October 2008. This document is informed by the responses we have received and by discussions with the Department of Energy and Climate Change. We have concluded that the use of biodiesel manufactured in such a way is not eligible for ROCs.

This decision document refers to biodiesel or fatty acid methyl ester (FAME) produced using methanol manufactured from fossil fuel and the co-product of this biodiesel manufacture process (glycerol). There are alternative methods that produce other fuels that are also termed as biodiesel. If a generator approaches Ofgem with a request to use fuels from other processes we will assess these on a case by case basis.

We consider that it will be possible to issue ROCs on electricity generated from biodiesel and glycerol manufactured from biomass and biomass-derived alcohols (bio-methanol and bio-ethanol).

We do not consider that we have sufficient evidence to either fully exclude or fully include glycerol produced as a by-product of making biodiesel as described above. We therefore will work with industry and their representatives to either allow us to include this fuel fully or issue ROCs on a proportion of the electricity produced from this product.

The use of 'Ofgem', 'us', 'our' and 'we' are used interchangeably when referring to the exercise of the Authority's powers and functions under the Orders. Unless apparent from the context. Where "RO" is used it denotes the RO, ROS and NIRO and where "ROC" is used it denotes ROCs, SROCs and NIROCs.

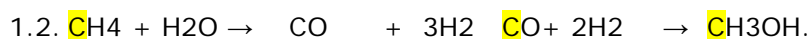
¹ Natural gas is defined as a fossil fuel under the electricity act 1989.

1. Background

We have concluded that the use of methanol, derived from natural gas, in the production of biodiesel represents the inclusion of a fossil fuel (Methane) in its production. This is explained further in this chapter.

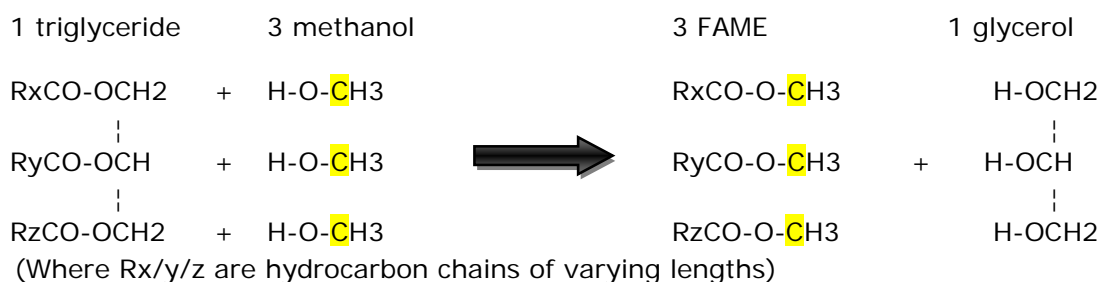
A typical methanol manufacture process

1.1. Methane (with the fossil carbon highlighted) and steam (water) firstly react to form carbon monoxide and hydrogen this carbon monoxide then reacts with some of the hydrogen to form methanol.



A typical biodiesel (and glycerol) manufacture process

1.3. The methanol is then reacted with a triglyceride in the presence of a catalyst. Typically a basic substance such as potassium hydroxide (KOH).



1.4. These sets of equations are not the only methods of producing methanol, or biodiesel. However, this is a system that we have been informed is most frequently used by biodiesel producers (both on the large and small scale).

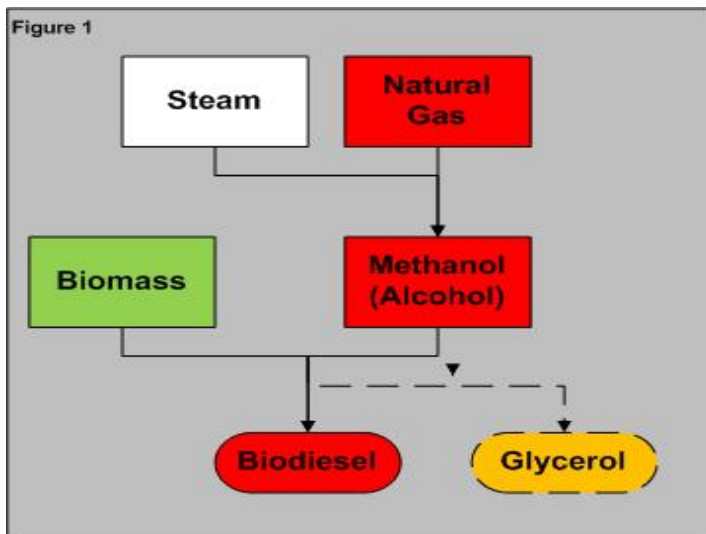
1.5. As can be seen from the above, the reaction of the methanol with the triglyceride results in there being a methoxyl (-O-CH₃) group in each of the FAME molecules (alternative reactions suggest a methyl (-CH₃) group coming from the methanol). The only source of the carbon atom within this group is from the methane that originally produced the methanol. Without the reaction of the oil with the alcohol there would be no biodiesel.

1.6. In the case of the glycerol, hydrogen atoms have been transferred to form the molecule (alternate reactions suggest that a hydroxide (-OH) group has been transferred). Whilst without the reaction of the oil with the alcohol there would be no biodiesel there are many sources of hydrogen atoms within the reaction including the methane, the catalyst, the steam and the oil.

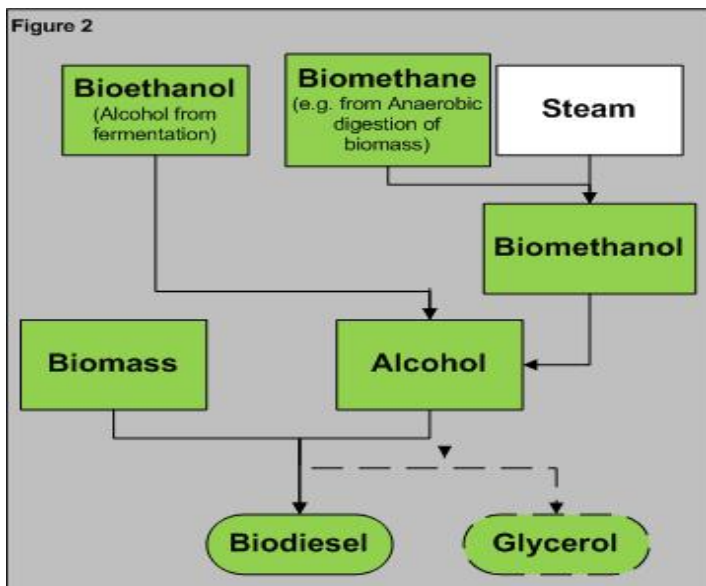
2. The Decisions

Limitation of scope of this decision document

2.1. This decision document refers to biodiesel or fatty acid methyl ester (FAME) produced using methanol manufactured from fossil fuel, and the co-product of this biodiesel manufacture process, glycerol (See figure 1).



It doesn't refer to biodiesel obtained from other manufacturing processes or reagents (e.g. see figure 2).



2.2. Other biodiesel manufacture processes/ reagents that we consider are not covered by this decision document include:

- the use of bio methanol (derived from non fossil fuels. e.g. created using the steam reformation of biogas from anaerobic digestion)
- the use of bio ethanol (derived from non fossil fuels. e.g. from the fermentation of biomass)
- biodiesel created from direct biomass-to-liquid conversion.
- biodiesel created via the Fisher-Tropsch process.

2.3. If a generator is wishing to claim ROCs electricity generated by biodiesel and glycerol manufactured as described in paragraph 2.2, they will need to provide evidence to show the sources used. However, it is likely that this electricity will be eligible to receive ROCs.

2.4. We accept that this list is not exhaustive and as such if a generator wishes to use biodiesel manufactured in another way they should discuss their plans with us.

2.5. As with any fuel it is up to the generating station to prove the renewability of the fuels used. Ofgem will assess the renewability of any biodiesel type fuel derived from any other reagents on the basis of the evidence provided by interested generators.

2.6. Our role is to look at the eligibility of a generation station under the Renewables Obligation and decide what fraction of the total electricity generation is eligible for ROCs. We are therefore not able to approve fuels other than when specific generating stations apply to use these fuels.

2.7. Article 9 of the RO sets out how the amount of electricity generated from eligible renewable sources is determined. This in turn determines the number of ROCs that will be issued to a generating station. This is due to Article 18(2) which states:

" where it issues ROC's pursuant to this part the Authority shall- Determine the amount of electricity which is to be regarded as having been generated from eligible renewable sources by a generating station in a particular month ("the relevant month") pursuant to article 9;"

2.8. Article 9(7) (a) states;

"Fossil fuel" has the meaning given to it by section 32² of the Act except that the expression also includes any substance which is derived directly or indirectly from fossil fuel (whether or not such substance is waste or a component of biomass)".

² Electricity Act 1989; The definition of "fossil fuel" under Section 32 of the Act means "coal, substances produced directly or indirectly from coal, lignite, natural gas, crude liquid petroleum, or petroleum products (and "natural gas" and "petroleum products" have the same meaning as in the Energy Act 1976)";

2.9. For the purpose of calculating the number of ROCs an eligible station can claim we have to look at whether how each fuel fits the definition of "fossil fuel" given in article 9 of the RO.

2.10. In the case, as described in 1.1, the methanol is directly derived from natural gas which is a fossil fuel. This would result in the biodiesel produced from this reagent, as in 1.2, will in turn fall within the term "fossil fuel" for the purposes of article 9. This means no ROCs can be issued on the electricity generated from the use of this fuel.

Guidance on biodiesel eligibility

Eligibility of stations using biodiesel

2.11. Stations using biodiesel as part of their fuel mix are not excluded from receiving Renewables Obligation Certificates (ROCs) by virtue of article 7(1). This means that a station will still be eligible to claim ROCs on the eligible renewable electricity generated in any month that biodiesel features in its fuel mix.

Ability for stations to claim ROCs on biodiesel used

2.12. After reviewing the consultation responses we still consider that the legislation requires us to treat any contribution from biodiesel to be classed as fossil fuel generation within articles 9 and 18 of the RO and as such a station would not be able to receive ROCs on electricity produced from this fuel.

2.13. We note that this runs contra to the desires of the majority of respondents and as such we have used these responses to inform the Department of Energy and Climate Change (DECC) of the level of interest in this fuel to power electricity generation.

Guidance on glycerol eligibility

Eligibility of stations using glycerol

2.14. Stations using glycerol as part of their fuel mix are not excluded from receiving Renewables Obligation Certificates (ROCs) by virtue of article 7(1). This means that a station will still be eligible to claim ROCs on the eligible renewable electricity in any month that glycerol features in its fuel mix.

Ability for stations to claim ROCs on glycerol used in thermal conversion (Combustion/ gasification etc.)

2.15. After reviewing the consultation responses we are comfortable with accepting that total exclusion of glycerol from receiving ROCs, whilst simplifying the process of ROC claims, would be unwelcome and was seen as disproportionate.

2.16. We therefore consider that the total exclusion of glycerol should not be introduced and will work with interested parties to identify a pragmatic solution to identifying the fraction of the glycerol that can receive ROCs.

2.17. We will not rule out a total inclusion if the evidence produced by industry satisfies us that this is a valid legislative interpretation.

2.18. As stated in our consultation document, we will review any output from stations which had previously been approved to use this fuel product in light of this decision. We will award ROCs to them for this generation if applicable.

Ability for stations to claim ROCs on glycerol used in anaerobic digestion

2.19. The consultation process has identified that there is a great deal of interest in the use of glycerol within anaerobic digestion. A number of interested parties provided further information on the role that it plays within the biological process of anaerobic digestion, but not on the level of gas evolved from the fuel.

2.20. The complexity of the biological process indicates that it will be difficult to identify whether any of the biogas evolved from this process falls under the definition of fossil fuel. We again would hope that we can be guided by industry as to the level of usage of glycerol within digesters and as such would suggest that it would be possible for generators to demonstrate that the biogas fuel used will meet the biomass definition.

3. Introduction of the Renewables Obligation Order 2009

3.1. Once the Renewables Obligation 2009 has been passed by parliament we will review the decisions contained within this document to ensure they are still correct interpretations and amend our guidance documents to prevent any confusion.

3.2. Our current expectation based on the draft order³ is that the decision on the issue of ROCs to biodiesel generation will remain valid under the forthcoming legislation.

3.3. Once the new legislation has been finalised we are minded to partake in a working group to identify if it is possible to produce evidence that will give us the confidence that we can issue ROCs for glycerol use. We are currently in discussions with industry concerning the possible scope of such a group.

³ Obtainable from www.opsi.gov.uk

Appendices

Index

Appendix	Name of Appendix	Page Number
1	List of consultation questions	5
2	List of respondees	6
3	Consolation Responses	7
4	The Authority's duties	14
5	Feedback Questionnaire	15

Appendix 1 - Consultation Questions

1.1. In its consultation document(s) (title and reference number) Ofgem sought the views of respondents about a number of questions as set out below:

CHAPTER: One

Question 1: Chapter 1 summarises the most frequently used manufacture process for biodiesel. Are there any other techniques used, available or foreseen in the near future that should be taken into account?

Question 2: Can any further evidence be provided to show that the source of the transferred hydrogen atoms within the glycerol cannot come from the methane used in the manufacture of the methanol?

CHAPTER: Three

Question 1: Are there circumstances in which biodiesel (produced using methanol derived from natural gas) would not contain atoms from the natural gas?

Question 2: What are your views on this approach to the eligibility of biodiesel?

CHAPTER: Four

Question 1: What are your views on the proposed interpretations?

Question 2: Do you agree with our preferred option of adopting the total exclusion interpretation?

Question 3: Do you agree with our assessment of the benefits and consequences of each interpretation, and do you foresee any others for either interpretation provided in this chapter?

Question 4: Are there any other valid interpretations that should be evaluated in order to determine Ofgem's policy on glycerol?

Question 5 (glycerol's use in Anaerobic Digestion): Would there be any impact on Anaerobic Digestion if either interpretation for glycerol was adopted? If so would this be significant?

Question 6 (glycerol's use in Anaerobic Digestion): Is there any information that would show glycerol's methane producing ability which Ofgem could use to form our policy and allow us to determine the renewable fraction of the biogas from an anaerobic digester using glycerol?

Appendix 2 - List of Respondents

2.1. Responses received by Ofgem which were not marked as being confidential have been published on Ofgem's website www.ofgem.gov.uk. Copies of non-confidential responses are also available from Ofgem's library.

2.2. The following is a list of those responses which were received.

List	Organisation
1	Aircogen CHP Solutions
2	aph Developments Ltd
3	Aquafuel Research Ltd
4	Argent Energy
5	Beta Analytic Limited
6	Colin Warburg (individual)
7	Croda and APAG - European Oleochemical & Allied Products Group (a sector group of CEFIC) UKCPI - UK Cleaning Products Industry Association BACS - British Association for Chemical Specialities
8	E.ON
9	EDF Energy
10	European Biodiesel Board
11	Green Frog Power
12	Greenfinch Ltd
13	J F Temple & Son Ltd
14	John Beeny (individual)
15	Kemble Farms Ltd
16	Longma Clean Energy Ltd
17	PDM Group
18	Peter Sandham Associates
19	Renewable Energy Association
20	RWE npower
21	Scottish and Southern Energy
22	Southern Golfscaping Ltd
23	THE CARE DIVISION LTD
24	Wales and West Utilities

Appendix 3 - Summary of Responses

3.1. Responses received by Ofgem which were not marked as being confidential have been published on Ofgem's website www.ofgem.gov.uk. Copies of non-confidential responses are also available from Ofgem's library.

3.2. The following is a summary of those responses to the questions which were received and our comments on these. Due to the number of responses these have not been listed individually but are grouped together.

General Comments

3.3. We wish to clarify that the policy interpretation is with regard to a specific article within the Renewables Obligation and that the terms used are limited to the definitions given within this specific legislation. As such, when describing waste biomass and fossil fuels, the interpretation is limited to those parts of the order that contain specific definitions of these terms. We are not suggesting that biodiesel or glycerol are fossil fuel in the general sense of the expression, but that biodiesel must be classified as such under the specific definition of Article 9 of the order if it is manufactured using a direct derivative of natural gas.

3.4. Almost all of the respondents were strongly opposed to the exclusion of biodiesel and glycerol. Some respondents pointed to the greenhouse gas and societal benefits that the use of biodiesel can claim over fossil fuel.

3.5. The issues raised by many of the respondents are policy decisions that are the responsibility of the Department of Energy and Climate Change (DECC), and are outside the remit of Ofgem in its role as administrators of the scheme. We have discussed our interpretation with DECC who drew the same conclusion. We have had confirmation that they are not minded to change the legislation to specifically include biodiesel; this is re-iterated within the government's recent response to the statutory consultation on the Renewables Obligation reforms.

3.6. Others pointed to the discussion of biodiesel contamination mentioned within Ofgem guidance. The example given in our guidance document looked at the 'free' contamination of the biodiesel fuel rather than the intrinsic contamination from the manufacture of the fuel. We did not consider that it was appropriate to amend the guidance document until we had completed this consultation process.

3.7. We will be reviewing all relevant guidance documents to ensure that they are consistent with the forthcoming changes to the orders.

3.8. The level of responses from industry is higher than we had expected from our earlier discussions regarding biodiesel with fuel manufacturers and trade bodies. We have modified our original intentions where we consider we have the ability to do so given this level of interest. However, we acknowledge that our decisions will impact on a number of developers who are not yet at a stage of seeking our official decisions on eligibility.

3.9. It is important to note that it is the responsibility of generators to ensure that their generating station is eligible for ROCs under the Renewables Obligation. Should they wish to apply for this benefit, we can only give a formal indication of eligibility when a generator applies for accreditation or preliminary accreditation. Our guidance documents can only be general guidance and are not intended to be definitive legal guides. Generators should obtain their own legal advice if they are in any doubt as to whether they will be eligible, but do not yet wish to apply for accreditation.

3.10. The REA (on behalf of its members) provided a response to our consultation and provided further information as to the interpretation that they arrived at from the legislation. We have chosen to respond to this submission individually due to the number of respondents who have contributed to this submission.

3.11. The REA indicate that they believe the exclusion of these fuels is through poor drafting and therefore we should not adhere to the legislation in determining eligibility of these fuels for ROCs. However, we are bound to adhere to the legislation in such cases, otherwise we would be acting outside of our powers. We are of the view that we have no choice to implement the legislation in this way.

3.12. The REA also discuss the implications of the EU Renewable Energy Directive. However, this interpretation relates to the Renewables Obligation Order 2006 (as amended) and cannot relate to other National or European legislation, particularly if it is not yet in force in the UK. We will continue to review this, in light of future Renewables Obligation legislation and any other relevant UK legislation that comes into force.

3.13. We acknowledge that we have previously issued ROCs for biodiesel. However, the issuing of these ROCs was based on the best information given at the time, which we have only now found was incorrect. We must ensure that we are adhering to our remit within the RO which includes ensuring that ROCs are only issued on accurate information and administering the scheme in accordance with the legislation.

3.14. We agree that we can find no evidence within previous consultations that BERR (now DECC) wished to specifically exclude biodiesel or glycerol. However, we can also find no evidence that they wished to specifically include these fuels. Therefore, this does not indicate a specific policy intent to include the fuels. We have throughout the process of consultation informed BERR of the issues we had identified and are content that the exclusion of biodiesel is consistent with their current policy intent.

3.15. We have reviewed the interpretation given by REA on the meaning of "derived from", a key term used within legislation and within our interpretation of the legislation. We consider that using the description of "derivative" to interpret "derived from" is not correct. We must use the definitions of "derived" and "from". Having said this, we also consider that the definition of "derivative" as "a compound derived from some other compound" will result in the same outcome as it contains the word "derived" within it.

Chapter 1

Question 1: Chapter 1 summarises the most frequently used manufacturing process for biodiesel. Are there any other techniques used, available or foreseen in the near future that should be taken into account?

3.16. Of the responses received the majority indicated that the main process used for biodiesel manufacture is as described in the consultation document. Other techniques described include variations of the transesterification process and the *Fisher-Tropsch process*⁴. In a situation where a fuel is produced within this process we would need to look at the sources of the hydrogen and carbon monoxide as such the onus would be on generators to provide evidence of whether this was from a renewable source. Another method mentioned in responses was *direct biomass-to-liquid conversion*⁵. In this situation we would need to look at the renewability of the feedstock of the gasifier and if any other substances were introduced into the production pathway.

3.17. There were calls for a general definition of the eligibility of biodiesel, whilst it would be attractive to provide a single classification for all biodiesels this would not fit with the legislation and the interpretation as explained in this decisions document. This may also limit the eligibility of specific fuels and as such we are not able to do this.

Chapter 1

Question 2: Can any further evidence be provided to show that the source of the transferred hydrogen atoms within the glycerol cannot come from the methane used in the manufacture of the methanol?

3.18. The majority of respondents answered that it was difficult or not possible to identify whether the hydrogen atoms within the glycerol were transferred from the methane or another source. One recipient explained that the chemistry indicated that the hydrogen was likely to have come from the methanol but that there was more difficulty in identifying whether the hydrogen within the methanol came from the methane or the steam used in the reformation process.

⁴ which is the reaction of a carbon monoxide and hydrogen in order to obtain a hydrocarbon, the synthetic fuel

⁵ Biomass-to-liquid (BTL) is a pathway of obtaining renewable fuel through gasification of biomass.

3.19. The lack of a clear experimental method to determine the origin of the hydrogen means that we will need to work with industry in order to establish whether there is an alternative method (for example a reaction path or statistical analysis technique) that could be agreed to provide a conservative estimate of the percentage of glycerol that could attract ROCs (without falling under the fossil fuel definition as laid out in Article 9 of the RO.)

3.20. Some respondents questioned whether the presence of the hydrogen was the issue or the level of energy contribution any hydrogen gave to the molecule. We continue to consider that the legislation requires us to look at whether the glycerol is indirectly derived from fossil fuel before looking at the energies of any part of this molecule.

Chapter 3

Question 1: Are there any circumstances in which biodiesel (produced using methanol derived from natural gas) would not contain atoms from the natural gas?

3.21. Of the small number of respondents who provided an answer to this question all identified that they were not aware of any circumstances in which the biodiesel produced in this manner would not contain carbon atoms from natural gas. However a number of these respondents pointed out that that this was only a small fraction of the energy within the biodiesel molecule. As per our response to the previous question we consider that in the case of a fuel which is indirectly derived from fossil fuel, we need to classify the fuel before we can look at whether it can contribute any renewable energy to a station's electricity generation.

3.22. One respondent suggested that there would always be a fossil element within a biofuel that had gone through an industrial process, giving the example of lubrication. We do not disagree with this point of view, however we consider that in the case of biodiesel the presence of fossil carbon is different from the example given. The fuel would not be described as biodiesel if there had been no reaction of oil and alcohol. Whilst there may be other contaminants (from lubrication, excess methanol etc) it would be possible to identify a pure biodiesel distinct from these components. However, it would not be possible to identify the vegetable oil within the biodiesel.

Chapter 3

Question 2: What are your views on this approach to the eligibility of biodiesel?

3.23. A number of respondents concurred with our interpretation of the legislation that if biodiesel is manufactured using natural gas derived methanol then this would mean that the fuel would be seen as fossil fuel for the purposes of ROC issue.

3.24. Almost all the respondents expressed the fact that this was either counterintuitive to call biodiesel a fossil fuel when it is generally seen as a renewable fuel or the conclusion was against the policy intent.

3.25. Some respondents highlighted that there were inconsistencies between the policy for renewable transport fuel and electricity rewards, such that the biodiesel would be seen renewable in a car but not in a static generator. The REA highlighted that should the European Renewable Energy Directive be adopted then the exclusion of biodiesel would need reviewing.

3.26. We acknowledge that the interpretation under the Renewables Obligation differs from that under other legislation. However, there are other technologies that are excluded from receiving ROCs under the RO but are supported by other schemes (for example waste incineration receives exceptions under the Climate Change Levy but is not rewarded under the RO). Regardless of this we are bound to administer the RO in accordance with the Renewables Obligation Orders and cannot consider legislation for unrelated schemes or legislation which has not yet come into force.

Chapter 4

Question 1: What are your views on the proposed interpretations?

3.27. Some respondents agreed that the interpretation matched the legislation. However, the majority of those that responded were against the exclusion of glycerol with some pointing to the small level of energy contributed by any fossil elements that were transferred to the glycerol from methanol. One respondent commented that it was not logical to penalise glycerol as the intention was to contain the fossil element within the biodiesel and as such it should not be penalised as it was 'effectively a material that was purified of fossil contamination'.

3.28. We have reviewed our decision in light of the responses received and the level of interest shown in the use of this fuel, as described earlier in this document.

3.29. One respondent asked for clarification as to why in one section we had interpreted glycerol as fossil fuel and another as an eligible. The RO contains different definitions of fossil fuel which apply to different parts of the scheme. As such both biodiesel and glycerol do not fall into the definition of fossil fuel for station accreditation purposes, but may do for the issuing of ROCs.

Chapter 4

Question 2: Do you agree with our preferred option of adopting the total exclusion interpretation?

3.30. Only two respondents agreed with the proposed total exclusion on the basis that it was the correct legislative interpretation and that it would prevent a flood of the ROC market by this fuel. The vast majority of the rest of the respondents were strongly opposed to the total exclusion proposal.

3.31. We are happy that the adoption of a total exclusion policy for glycerol may be seen overly conservative and therefore would welcome input from industry to clarify if it would be possible to produce a simple model that would allow us to issue ROCs on an appropriate proportion of glycerol in a way that is acceptable to all parties, or provide us with the confidence that we can include glycerol fully.

3.32. If it is not possible to establish an appropriate model for glycerol combustion then the onus will be on those generators wishing to use the product as fuel to agree with us the level of ROC eligibility. Failure to do this before claiming ROCs on this fuel will prevent us from issuing ROCs for the whole month of generation.

Chapter 4

Question 3: Do you agree with our assessment of the benefits and consequences of each interpretation, and do you foresee any others for either interpretation provided in this chapter?

3.33. The answers to this question crossed a range of opinions from acceptance to strong disagreement. There were calls for deemed levels of renewability to be agreed and comments that total exclusion was only the best option from a regulation point of view. One of the strongest arguments was that it should be left to individual generators to decide if the reward was worth extra proof.

3.34. We have reviewed our original position on total exclusion and agree with respondents that this should be amended to allow for the partial exclusion option. We do not conclude that total inclusion is an option that matches the current legislation.

Chapter 4

Question 4: Are there any other valid interpretations that should be evaluated in order to determine Ofgem's policy on glycerol?

3.35. The few respondents who commented said that they had alternative interpretations based on the energy contribution of the hydrogen to the glycerol. While we initially sought to take this approach when first dealing with biodiesel in 2008 our legal advice is that we are not able to because we consider that this does not meet with the legislative interpretation that we have drawn from further investigation of the Orders.

Chapter 4

Question 5 (glycerol's use in Anaerobic Digestion): Would there be any impact on Anaerobic Digestion if either interpretation for glycerol was adopted? If so would this be significant?

3.36. The responses to this question identified both limited and widespread impact on anaerobic digestion, with one respondent identifying that glycerol's use and

therefore the impact of excluding glycerol varied with the feedstock of the digester. Other respondents were concerned with the downstream products of glycerol and the complexity that any exclusion would provide for users of anaerobic digesters.

3.37. One respondent commented on the fact that the interpretation was too heavily focused on the letter of the legislation rather than the policy intent behind it.

3.38. We agree that the interpretation is formed on the letter of the legislation, however as administrators we have to ensure that our issuing of ROCs is in line with the legislation and where we consider it is appropriate highlight to the policy owners (DECC) the limitations imposed by this legislation. As stated earlier, we have found no evidence to suggest that there was any policy intent to include or exclude these fuels under the RO.

3.39. Given the level of usage that has been described within the consultation responses we consider that the provisions given within article 9(2) will be able to be used by the large majority of generators to claim ROCs on at least 90% of their eligible output.

Chapter 4

Question 6 (glycerol's use in anaerobic digestion): Is there any information that would show glycerol's methane producing ability which Ofgem could use to form our policy and allow us to determine the renewable fraction of the biogas from an anaerobic digester using glycerol?

3.40. The responses provided in answer to this question clarified the position that the level of methane evolved from a digester using glycerol within its feed mix is dependent on a number of factors. As such this means that it may be complex to identify what has been digested to produce the resultant biogas.

3.41. Given the level of complexity of this biological reaction we hope that interested parties will be able to provide methods that will ensure that Ofgem can issue ROCs. In the absence of accurate and reliable data it will be possible to use estimates such that we do not overissue ROCs. We would suggest that this could build on any work done to evidence the level of renewability for glycerol combustion but may be separate due to the need to look at the contribution made to the biogas by the glycerol.

3.42. We would therefore ask interested parties to provide these methodologies at an early stage in their application for ROC accreditation.

Appendix 4 – The Authority's Powers and Duties

4.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority ("the Authority"), the regulator of the gas and electricity industries in Great Britain. This Appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).

4.2. The Authority's powers and duties are largely provided for in statute, principally the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Act 2004, as well as arising from directly effective European Community legislation. References to the Gas Act and the Electricity Act in this Appendix are to Part 1 of each of those Acts.⁶

4.3. Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This Appendix must be read accordingly⁷.

4.4. The Authority's principal objective when carrying out its functions under the Gas Act and the Electricity Act is to protect the interests of consumers, present and future, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the shipping, transportation or supply of gas conveyed through pipes, and the generation, transmission, distribution or supply of electricity or the provision or use of electricity interconnectors.

4.5. The Authority must when carrying out those functions have regard to:

- The need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- The need to secure that all reasonable demands for electricity are met;
- The need to secure that licence holders are able to finance the activities which are the subject of obligations on them⁸; and
- The interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.⁹

4.6. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

⁶ Entitled "Gas Supply" and "Electricity Supply" respectively.

⁷ However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.

⁸ Under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Act in the case of Electricity Act functions.

⁹ The Authority may have regard to other descriptions of consumers.

- Promote efficiency and economy on the part of those licensed¹⁰ under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;
- Protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity;
- Contribute to the achievement of sustainable development; and
- Secure a diverse and viable long-term energy supply.

4.7. In carrying out the functions referred to, the Authority must also have regard to:

- The effect on the environment of activities connected with the conveyance of gas through pipes or with the generation, transmission, distribution or supply of electricity;
- The principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed and any other principles that appear to it to represent the best regulatory practice; and
- Certain statutory guidance on social and environmental matters issued by the Secretary of State.

4.8. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation¹¹ and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

4.9. The Energy Act 2008 contains provisions which, once commenced, will modify the general duties of the Authority in carrying out its functions under the Gas Act and the Electricity Act. In particular, those changes will mean that, when carrying out its functions in the manner which it considers is best calculated to further its principal objective, the Authority must do so by having regard to the need to contribute to the achievement of sustainable development equally with the need to have regard to the need to secure that all reasonable demands for electricity and gas are met and that licensees are able to finance their regulated activities.

4.10. It has also been highlighted within the text of the principal objective that the Authority's consideration of the interests of consumers includes both future as well as existing consumers.

¹⁰ Or persons authorised by exemptions to carry on any activity.

¹¹ Council Regulation (EC) 1/2003

4.11. The Energy Act 2008 received Royal Assent on 26 November 2008 but these provisions do not have legal force until they are commenced. We do not yet have a commencement date for the new provisions but it is likely to be early in 2009.

4.12. During the period between the Energy Act 2008 having received Royal Assent and commencement of the provisions which affect its duties, the Authority must continue to apply the principal objective and its statutory duties in accordance with the Gas Act and the Electricity Act as they currently stand (i.e. prior to the Energy Act 2008 amendments taking effect), although it will be mindful of the changes that are forthcoming. The Authority already takes account of sustainable development in its decisions but with the change in duties the weight that is attached to such considerations will be increased.

Appendix 5 - Feedback Questionnaire

Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

- Does the report adequately reflect your views? If not, why not?
- Does the report offer a clear explanation as to why not all the views offered had been taken forward?
- Did the report offer a clear explanation and justification for the decision? If not, how could this information have been better presented?
- Do you have any comments about the overall tone and content of the report?
- Was the report easy to read and understand, could it have been better written?
- Please add any further comments?

Please send your comments to:

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