



EUROPEAN COMMISSION

Competition DG

Markets and cases I: Energy and Environment  
The directorBrussels, 13 SEP. 2011  
B2//YG/ DB/mku\*2011/097044Permanent Representation of  
the United Kingdom to the EU  
Avenue d'Auderghem 10  
B-1040 Bruxelles**Subject: State aid case SA.32125 – Renewable Heat Incentive (RHI)**

Dear Sir/Madam,

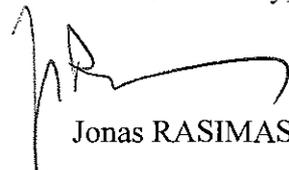
By electronic notification of 7.7.2011, the authorities of the United Kingdom informed the Commission of the above-mentioned measure, following a pre-notification phase. Following the notification, the UK authorities provided further clarifications concerning the notified measure on 29.7.2011 and 30.8.2011. After examination, the Commission has found the notification incomplete in that the following information is missing:

**Support tariff levels for large biomass (more than 1000 kW)**

1. *Please undertake that the support tariff level for large biomass will be lowered from the current level of 26 GBP/MWh to a support level covering the extra costs for 50% of the heat potential of this subcategory, to put it in line with your methodology for other subcategories.*
2. *Please specify which support level will be retained for large biomass and justify on the basis of the previously submitted heat potential calculations that it covers extra costs for 50% of the heat potential. Please detail your calculations.*

Without this information, the Commission is unable to define its position on the proposed measure. Consequently, the period of two months within which it is required to do so will only start after the additional information is received. This should reach the Commission within 20 working days of the date of this letter.

Yours faithfully,



Jonas RASIMAS

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EUROPEAN COMMISSION

SECRETARIAT-GENERAL

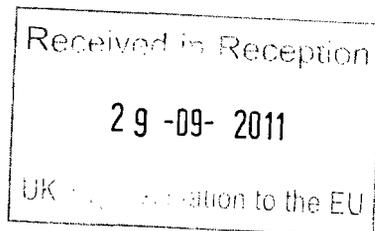
Brussels, 29 IX 2011  
SG-Greffe (2011) D/ 15926

OFFICE OF THE UNITED KINGDOM  
PERMANENT REPRESENTATIVE TO THE  
EUROPEAN UNION  
10 Avenue d'Auderghem

1040 Brussels

**Subject:** State Aid n° SA.32125 (2011/N) – United Kingdom

The Secretariat-General would be obliged if you would forward to the Secretary of State for Foreign and Commonwealth Affairs, the enclosed decision from the Commission on the subject specified above.



For the Secretary-General,

Valérie DREZET-HUMEZ

Encl.: C(2011) 7074 final

Commission européenne, B-1049 Bruxelles / Europese Commissie, B-1049 Brussel - Belgium. Telephone: (32-2) 299 11 11.

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EUROPEAN COMMISSION

Brussels, 28.9.2011  
C(2011) 7074 final

**Subject: State aid SA.32125 (2011/N) – United Kingdom  
Renewable Heat Incentive (RHI) scheme**

Sir,

**1. PROCEDURE**

1. By electronic notification, registered by the Commission on 8 June 2011, the UK authorities, in accordance with Article 108(3) of the Treaty on the Functioning of the European Union (thereinafter "TFEU") notified the above mentioned measure<sup>1</sup>. The UK authorities provided additional information in submissions registered on 29.8.2011 and 20.9.2011.

**2. DESCRIPTION****2.1. Objective**

2. The primary objective of the notified measure is environmental protection: the UK authorities want to increase the share of renewable heat from 1.5% of the total demand currently to 12% by 2020. Renewable heat would help the UK reach its mandatory target of 15% of energy generated from renewable sources by 2020 set by Directive

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<sup>1</sup> The notified measure was pre-notified on 21.12.2010.

The Rt Hon William HAGUE  
Secretary of State for Foreign Affairs  
Foreign and Commonwealth Office  
King Charles Street  
London SW1A 2AH  
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Europese Commissie, B-1049 Brussel – België  
Telefón: 00-32-(0)2-299.11.11.

2009/28/EC<sup>2</sup> on the promotion of the use of energy from renewable sources (hereinafter "the Renewable Energy Directive")<sup>3</sup>.

3. The UK estimates that the support to renewable heat through the notified scheme will result in avoided CO<sub>2</sub> emissions of 44 million tonnes by 2020<sup>4</sup>. Through the scheme, the UK reckons that 57 TWh of renewable heat will be produced in 2020, representing 11% of the UK's energy demand, close to the 12% target. The counterfactual scenario (without the Renewable Heat Incentive, hereafter RHI) estimates that only 10 TWh would be produced from renewable heat in 2020.

## 2.2. Scope of the notification, legal basis, granting authority

4. The current notification covers the four following renewable energy sources:
  - biomass (including solid municipal waste)
  - ground-source (deep geothermal and ground and water source heat pumps, but not air source heat pumps)
  - biogas (biomethane injection and biogas combustion, except from landfill gas).
  - solar (solar thermal)
5. These sources are defined as renewable in the Renewable Energy Directive. Size restrictions apply to the eligible sources (see the tariff levels in the table below). Eligibility to the RHI includes cogeneration heat boilers when heat is produced from one of the above sources. To the contrary, it does not cover cogeneration from fossil fuel sources.
6. The legal basis is Section 100 of the Energy Act 2008<sup>5</sup> (primary legislation giving power to introduce the Renewable Heat Incentive). The secondary legislation is the Statutory Instrument on the Renewable Heat Incentive Regulations 2011<sup>6</sup>.
7. The scheme is designed by the UK Department of Energy and Climate Change (hereafter DECC) but will be administered by the UK regulator for energy, the Gas and Electricity Market Authority (Ofgem). In particular, Ofgem is the granting authority and will determine which individual beneficiary is eligible for RHI support and it manages the scheme.
8. The RHI scheme will provide support for eligible heating installations in England, Wales and Scotland<sup>7</sup>. Installations in Northern Ireland are currently not covered by this scheme.

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<sup>2</sup> This 15% target is an average across sectors and the sectoral targets vary: 12% renewable heat, around 30% renewable electricity and 10% renewable energy in transport.

<sup>3</sup> Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ L 140, 5.6.2009, p. 16.

<sup>4</sup> 36 MtCO<sub>2</sub> for installations outside the EU Emission Trading System and 8 MtCO<sub>2</sub> inside the EU ETS. Source: UK authorities.

<sup>5</sup> See [http://www.legislation.gov.uk/ukpga/2008/32/pdfs/ukpga\\_20080032\\_en.pdf](http://www.legislation.gov.uk/ukpga/2008/32/pdfs/ukpga_20080032_en.pdf)

<sup>6</sup> Draft version of 16.5.2011 submitted to the Commission.

<sup>7</sup> Section 100 of the Energy Act 2008.

### 2.3. Duration, budget

9. The UK authorities plan to apply the RHI until 30.6.2040, which is the final date of payments to the beneficiaries. New beneficiaries will be allowed into the scheme until 2020. For each beneficiary, payments will be guaranteed for 20 years. As for the current notification, which cannot receive approval for more than 10 years, the UK authorities undertook to notify the scheme again to the Commission after 10 years following the Commission approval, should they wish to continue to grant aid after this period.
10. The scheme is intended to be put into effect on 1.7.2011, but no aid will be granted before the date of the present Commission decision.
11. As regards the budget of the notified measure, the UK authorities estimate in their Impact Assessment that the total subsidy costs of the RHI (in 2010 GBP prices, discounted at 3.5% a year) are GBP 22,000 million over the 2011-40 period, and GBP 5,400 million over the 2011-20 period. The annual aid over the period 2011-20 will gradually increase, with new companies entering the scheme and is expected to imply a yearly subsidy cost of GBP 1,400 million in 2020.
12. The RHI will be funded from the UK general Government spending (not through any special levy).

### 2.4. Beneficiaries

13. The RHI tariffs can apply to non-domestic beneficiaries owning renewable boilers<sup>8</sup>. This includes multiple residential dwellings served by one renewable heating installation (e.g. district heating), or single residential dwellings which have been significantly adapted for non-residential use, such as a house converted into a bed and breakfast. On the contrary, the scheme does not cover domestic installations, defined as a renewable heating installation serving a single private residential dwelling only. For instance, a company installing single renewable boilers in residential dwellings will not be eligible for support.
14. The beneficiaries are limited to owners of the renewable boilers, which are defined as those with exclusive rights and liabilities in respect of a renewable heat installation.
15. To be eligible, beneficiaries should show that heat is supplied to meet an economically justifiable heating requirement that would otherwise be met by an alternative form of heating such as a gas boiler. In addition, heat load should be an existing or new heating requirement, not created artificially purely to claim the RHI.
16. Only installations that are completed and first commissioned on or after 15.7.2009 are eligible for support. This date corresponds to the publication of the UK Renewable Energy Strategy, which included the announcement of the RHI support scheme. The installations completed and first commissioned on or after 15.7.2009 and before the introduction of the RHI scheme are subject to transitional arrangements (they will be allowed to enter the RHI tariff by paying back capital grants they may have received). Irrespective of these arrangements, all eligible installations commissioned as from

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<sup>8</sup> The UK authorities also plan to grant Renewable Heat Premium Payments for domestic owners of renewable installations, but this is not part of the present notification.

15.7.2009 (whether before or after adoption of the RHI regulations) will be subject to the same RHI tariffs.

17. Renewable heat systems that replace existing renewable heat boilers are also eligible to the scheme if they fulfil the relevant conditions.
18. The beneficiaries are companies of all sizes (large companies as well as SMEs). The UK authorities expect that RHI support will be granted to 13,000 industrial and 11,000 commercial and public sector installations by 2020.

### **2.5. Form of support and its levels**

19. The beneficiaries receive support based on metered output. The support is meant to compensate the additional costs of renewable heat compared with the cost of a conventional fossil fuel boiler. Beneficiaries have to get their installation accredited by the UK authorities as eligible (e.g. acceptable heat-use, metering arrangements), and then receive payments directly from the UK authorities that correspond to the relevant tariff multiplied by the amount of eligible heat metered.
20. Payments occur on a quarterly basis, and are guaranteed for 20 years. This duration is based on evidence collected by the UK that the operational lifetime of installations is roughly of 20 years.
21. The support levels vary according to three parameters:
  - Type of renewable technology;
  - Size of the installation;
  - (For small and medium biomass): amount of MWh generated per year (two-tier system).
22. The tariff levels are presented below. According to the UK authorities, they indicate that there is no overcompensation as the extra costs for producing from renewables as compared to fossil fuel are still higher than the RHI tariff for every category. For small and medium biomass, the UK authorities introduced two tiers instead of a single tariff: this is meant to reduce incentives to overgenerate (and possibly waste) renewable heat in order to secure more payments from the RHI. To this end, heat generation up to a reasonable capacity use threshold is subject to a higher tariff (Tier 1), while all generation beyond is subject to a lower tariff (Tier 2). As compared to a situation where all MWh would be subject to a single tariff (average of Tier 1 and 2), this provides incentives to keep close to the reasonable capacity use (and not much higher). The UK authorities consider that the risk of overgeneration is much lower for the other categories eligible to the RHI and therefore did not foresee a two-tier system for them.

**Table 1 – RHI tariff level, costs and support periods, support level: 20 years**

RES	Eligible size	RHI tariff (GBP/MWh)	Extra costs (GBP/MWh)
1. Biomass: solid biomass, municipal solid waste, including cogeneration	Small: less than 200 kW	61.4 (Tier 1: 76 Tier 2: 19)	64
	Medium: between 200 and 1000 kW	40.2 (Tier 1: 47 Tier 2: 19)	41.9
	Large: more than 1000 kW	10	10.3
2. Ground-source: water-source and ground –source heat pumps, deep geothermal	Small: less than 100 kW	43	44.3
	Large: more than 100 kW	30	31.4
3. Biogas production: biomethane injection and biogas combustion, except from landfill gas	Biomethane: all sizes; biogas combustion: less than 200 kW	65	68.1
4. Solar thermal	Less than 200 kW	85	173

Source: UK authorities

Note: As the tariffs are paid quarterly, the tariff levels (presented in the table) are slightly below the annual payable tariffs.

## 2.6. Functioning of the system

23. The tariffs above are based on 2010 prices and will be adjusted to take into account 2011 prices. Tariff levels for existing and new projects will be adjusted each year based on the Retail Price Index (RPI), to take inflation into account.
24. The UK authorities intend to keep the scheme open to new installations until at least 2020.
25. The RHI scheme is subject to scheduled reviews and tariff degressions<sup>9</sup>. Scheduled review of the scheme will take place every four years. The first scheduled review is foreseen to start in 2014 for implementation in April 2015.

<sup>9</sup> The UK authorities explained that they expect the costs of renewable heat equipment to fall as the industry matures and economies of scale are achieved, both in the UK and globally. As a result they intend to reduce RHI support levels for new projects, to ensure that the scheme delivers value for money. They envisage two ways of reducing support levels: firstly, through scheduled or early reviews and secondly, through degression. Under the degression approach, once triggered, support levels would automatically drop by a given percentage for new projects accredited under the scheme.

26. In addition, an early review may be implemented in case of any significant change to the underlying assumptions of the RHI. The UK authorities mentioned an unexpected uptake of a particular technology or a significant change to the relative cost of renewable and fossil fuels as justifying an early review. The UK authorities intend to detail the specific conditions for early review in 2012.
27. Scheduled or early reviews may concern tariff levels or other aspects such as eligibility or metering for instance.
28. If the support levels are modified, the revised levels only apply to the new installations entering the RHI scheme. This 'grandfathering' principle where levels are guaranteed for existing installations is intended to provide investor certainty.

## **2.7. No overcompensation**

### *Reference installation*

29. The UK authorities compare the cost of producing heat from renewables to the cost of producing heat from gas (reference cost). They considered production costs as the reference scenario, as the heat is mostly produced for consumption by the owners themselves: the UK authorities estimate that only 2% of UK heat is sold from producers to consumers (e.g. in district heating systems), while most of the heat is generated by the consumers themselves through a boiler.

### *Relevant production costs*

30. The production costs feature capital expenditure, operating expenditure (fuel costs, other operating costs), and non-financial barriers for renewable heat production such as administrative costs (for instance permitting costs). As for the latter category of costs, the UK authorities explained that according to the evidence provided by independent consultants, if such additional costs were not compensated, the fossil fuel alternative would still be more attractive from a financial point of view, undermining the uptake of renewable heat technologies.

### *Calculation methodology*

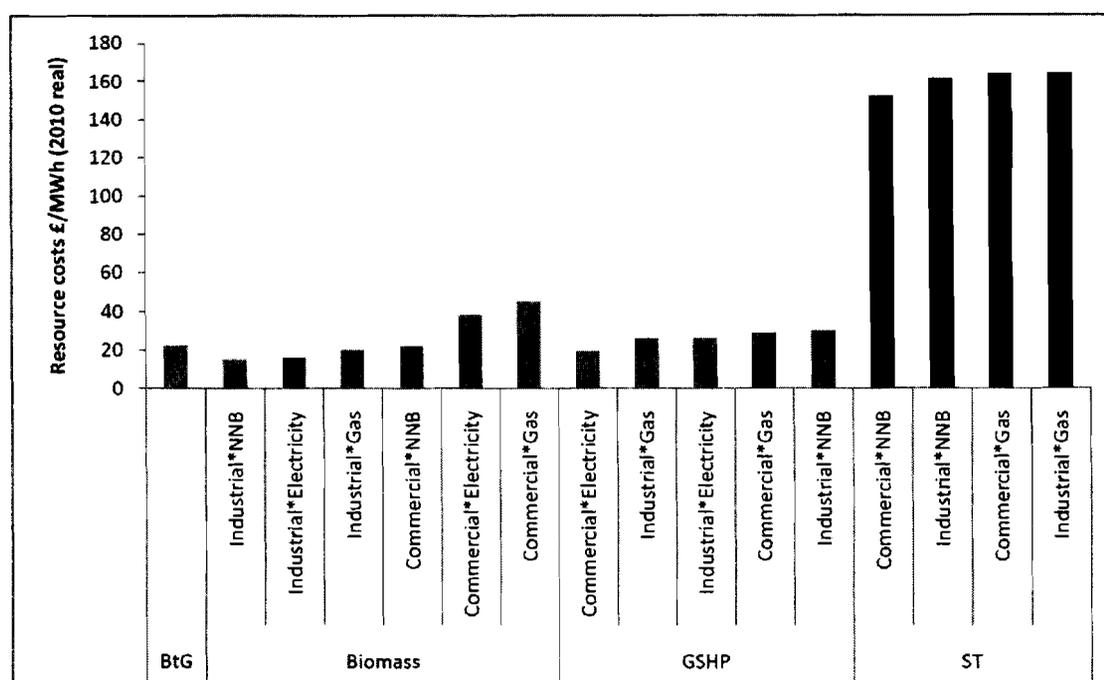
31. The production costs of the reference installation depend on a series of factors, for instance whether the building is in a rural or urban area, the size of the boiler, the type of fossil fuel used (oil, coal, gas). For instance, as gas is a currently cheaper fuel for heating purposes than oil or electricity, an investor would need less public support to switch to a renewable boiler from an oil-fired one than from a gas-fired one. On the other hand, coal-fired boilers are less expensive than gas-fired boilers, and the owners would in principle need more support for switching to a renewable boiler. It can be noted that the cost of electrical heating is much higher than the cost of other conventional forms of heat generation (even higher than the costs of most forms of renewable heating). The UK authorities argue that this situation is likely to be determined by particular operational circumstances or high barrier costs (such as space limitations) that prevent the respective owners from using a cheaper fuel such as gas or coal to generate the required heat, and owing to these factors, these installations are highly unlikely to have the capability to switch from electrical heating to renewable heat.

32. The calculation methodology varies depending on the renewable technology:
- For biomass, ground-source and biomethane, support levels are set to match the additional cost of renewable heat, as compared to the fossil fuel alternative, which is a gas-fired boiler. They also feature a 12% rate of return<sup>10</sup>.
  - For solar thermal, the UK authorities considered that there is normally no conventional investment as an alternative, as solar thermal do not usually replace a primary heating system. Accordingly, the tariff compensates the full cost of the solar thermal installation. As for the rate of return, a 12% rate would have concentrated too much of the total budget of the RHI on solar thermal. Therefore the UK authorities set the tariff at a level which is equivalent to the level allocated to offshore wind, which is the marginal cost-effective technology for reaching the 15% UK renewable target.
33. The UK authorities have selected the mid-point of all renewable installations covered by the tariffs, as compared to the counterfactual installation. By way of exception, for large biomass, the tariffs were initially set by the UK so that also the most expensive biomass boilers are covered by the tariff. In order to address the risk of overcompensation, the UK authorities have provided a sensitivity analysis. The results are that under a low fossil fuel assumption, extra costs are higher than the tariff (hence no overcompensation) for 41% of the heat potential; under a high primary biomass cost assumption, this figure is 21%. On the other hand, when fossil fuels are high or when primary biomass costs are low, the tariff is higher than extra costs for 100% of the heat potential. The UK authorities also argued that for investors variable costs are the most relevant factor as compared to capital costs; therefore, investments decisions for biomass installations are very sensitive to biomass price assumptions.
34. In addition, the UK authorities have submitted that large biomass is considered as a major and cheap contributor for the renewable heat objectives. According to the UK authorities, large biomass should represent 50% of the 2020 renewable heat generation, and it is the most cost-effective renewable technology within those supported through the RHI, as evidenced in the figure below. However, finally, in order to eliminate the risk of overcompensation, the UK authorities have decided to set the tariffs for large biomass to 10 GBP/MWh so that they cover extra costs for 50% of the heat potential, see table 1.

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<sup>10</sup> Independent consultants commissioned by the Department of Energy and Climate Change have calculated that the rate of return should range between 8 and 20% for renewable heat investments to sufficiently incentivise investments.

**Resource costs, renewable heat generation in 2020 per technology supported under the RHI, in GBP per MWh generated, 2010 real prices, per sector where heat is installed (industrial or commercial)**



Source: UK authorities

Notes: BtG stands for biomethane sold to the grid, GSHP for ground-source heat pumps, and ST for solar thermal. The calculation represents the costs to society for every MWh renewable heat generated in 2020, as compared to the fossil fuel substituted: electricity, gas or non net bound (NNB) such as heating oil or coal.

35. The UK authorities submitted cost calculations and extra cost ranges, presented in the annex.

#### *Calculation methodology*

36. According to the UK authorities, as illustrated by the calculations in annex, all RHI tariffs are set in such a way that they do not overcompensate between renewable heat and conventional heat production, as the tariff have been set so that. Even for large biomass, the UK authorities consider that there is no overcompensation in view of the sensitivity analysis.

#### **2.8. Cumulation**

37. The UK authorities clarified that it is not possible to receive a grant contributing to the direct costs of a heat production installation and to receive the RHI tariffs as well. Installations which started operation between 15.7.2009 and the date when RHI regulations come into force have the possibility to pay back the grants they received and receive instead the RHI. The UK authorities mentioned the Low Carbon Building Programme II and Bio Energy Capital Grants, among other grants, as potentially concerning heat installations eligible to the RHI.

38. Regarding the cogeneration, the UK authorities explained that the combined heat and power (CHP) installations that are eligible under the RHI scheme and under the Renewable Obligation (RO) scheme will have to choose one of the support schemes. More specifically, CHP installations completed after 15.7.2009 can choose either to receive the basic RO level (which corresponds to the electricity generation) plus the RHI tariff (for the heat generation) or the higher RO level for CHP (heat and electricity generation together) and no RHI tariff. The RHI scheme is also open to CHP that benefit from Feed-In Tariffs (FIT) for the electricity produced. However, in this case, no support can be granted for the heat used for electricity generation.

### **2.9. Other information**

39. The UK authorities confirm that they will comply with the annual reporting and monitoring obligations as laid down in Sections 7.1 and 7.3 of the Environmental aid guidelines.
40. Furthermore, the UK authorities confirmed that in case the resulting renewable electricity generation capacity of an installation exceeds the individual notification thresholds set in points 160(b)(iii) and (v) of the Environmental aid guidelines (125 MW or, for cogeneration installations, 200 MW), the aid will be notified individually to the Commission.

## **3. ASSESSMENT**

### **3.1. Existence of aid within the meaning of Article 107(1) TFEU**

41. State aid is defined in Article 107(1) TFEU as any aid granted by a Member State or through State resources in any form whatsoever, which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods in so far as it affects trade between Member States.
42. In the case at hand, the measure is funded from the general Government budget and therefore involves State resources. It selects only certain technologies for heat production, as opposed to conventional or other renewable heat production technologies. Through the tariffs, it provides renewable heat producers with an advantage that cannot be found under normal market conditions. Finally, as the beneficiaries include undertakings involved in intra-EU operations, it threatens to distort competition and affect trade between Member States.
43. The Commission therefore concludes that the notified measure does involve State aid within the meaning of Article 107(1) TFEU.

### **3.2. Lawfulness of the aid**

44. By notifying the aid measure before its implementation, the UK authorities fulfilled their obligation according to Article 108(3) TFEU.

### 3.3. Compatibility of the aid

45. The Commission has assessed the compatibility of the notified scheme according to Article 107(3)(c) TFEU and in the light of the Environmental aid guidelines.
46. Given the fact that the notified measure concerns operating aid for heat produced from renewable energy sources, based on the difference between renewable and conventional heat production costs, the compatibility conditions laid down in point 109 (Option 1 for operating aid to renewable energy sources) of the Environmental aid guidelines apply.
47. Firstly, the Commission notes that the supported energy sources comply with the definition of renewable energy sources and biomass as laid down in point 70(5) and 70(6) of the Environmental aid guidelines.
48. Point 109 of the Environmental aid guidelines for market mechanism lays down three conditions for the compatibility of operating aid<sup>11</sup> (absence of overcompensation, no cumulation with investment aid, biomass exception), which are examined in turn below.

#### *Absence of overcompensation*

##### *Calculation methodology*

49. As regards the first condition (absence of overcompensation), the Commission considers that there is no relevant market price for heat, since more than 98% of heat is generated on-site by its consumers, according to UK data. Therefore, the Commission takes the view that the relevant comparison is between the renewable and conventional heat production prices.
50. As for the selection of the counterfactual installation:
  - For biomass, biomethane and ground-source heat pumps, the Commission notes that the choice of gas may result in a lower conventional production cost, and therefore a higher tariff level, than if oil or coal would have been selected. However, gas is currently the main energy source for heat production in the UK

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<sup>11</sup> a) Member States may grant operating aid to compensate for the difference between the cost of producing energy from renewable sources, including depreciation of extra investments for environmental protection, and the market price of the form of energy concerned. Operating aid may then be granted until the plant has been fully depreciated according to normal accounting rules. Any further energy produced by the plant will not qualify for any assistance. However, the aid may also cover a normal return on capital.

b) Where aid is granted in accordance with point (a) any investment aid granted to the undertaking in question in respect of the new plant must be deducted from production costs when determining the amount of operating aid. When notifying aid schemes to the Commission, Member States must state the precise support mechanisms and in particular the methods of calculating the amount of aid.

c) Unlike most other renewable sources of energy, biomass requires relatively low investment costs, but higher operating costs. The Commission will, therefore, be amenable to operating aid for the production of renewable energy from biomass exceeding the amount of investment where Member States can show that the aggregate costs borne by the undertakings after plant depreciation are still higher than the market prices of the energy.

(68% of heat is produced from gas in 2008), and the Commission considers that it is the most likely counterfactual in the majority of situations.

- For solar thermal: the UK authorities have also explained that for there is no counterfactual to solar thermal, as it does not generally correspond to primary heat production. Therefore the eligible costs correspond to the full installation costs of a solar thermal system. However, the UK authorities also provided information on a potential counterfactual for these systems upon Commission request. Therefore the Commission will assess below the overcompensation for solar thermal based on its comparison with a counterfactual installation.

51. As for the selection of cost data:

- As for all technologies but large biomass, the Commission notes that the UK authorities have presented ranges of extra costs (as compared to the counterfactual scenario) and positioned the tariff at the mid-point of extra cost calculations for every installation concerned by a given tariff level. Even if it may result in over- or underestimating the actual production costs of some individual beneficiaries, the Commission considers that in the aggregate this is a fair approach that avoids systematic overcompensation.
- As for large biomass, the Commission considered that the initial choice by the UK of a higher tariff level does not correspond to mid-range extra cost estimate, but to the most favourable end for the investor, presents risks of overcompensation. Therefore the Commission welcomes the decision of the UK authorities to set the support level at 10 GBP/MWh, so that the tariff covers extra costs for 50% of the heat potential of large biomass, in order to eliminate the risk of overcompensation. The Commission considers that this support level is in line with the approach retained for other subcategories and avoids systematic overcompensation.

52. As regards the discount rate of 12% applied in the calculations of levelised production costs for biomass, biogas and ground-source heat production, the Commission notes that the UK authorities submitted a detailed report from an independent consultant; the report concludes that the necessary rate of return to incentivise renewable heat production ranges between 8 and 22%. As for the solar thermal, the rate of return resulting from the methodology proposed by the UK authorities is significantly lower. In the light of the above, the Commission considers the discount rate applied in the production costs calculations as a reasonable profit margin, as it is located within the lower range of the rates of return accepted by investors, based on the information provided above. It also notes that the non-financial barriers described above could be integrated to the rate of return (as remuneration of risks undergone and possible delays in installing a renewable boiler, which may involve more uncertainties than installing conventional one). If the rate of return was only calculated on the financial costs, considering the non-financial barriers as part of the profit margin, the rate of return would only be slightly above 12% (as the non-financial costs mentioned are not significant as compared to total costs, see in annex), which in the view of the Commission would still be a reasonable remuneration of the project risks.

53. The Commission welcomes the two-tier approach for the small and medium biomass installations, which indeed are likely to reduce the perverse incentives to increase heat

production beyond reasonable use in order to claim the RHI tariffs. It also notes that according to the information submitted by UK, most biomass installations are above the reasonable use load factor, and therefore it is unlikely that the two-tier system would lead to overcompensation, especially when considered in the aggregate. The Commission also considers that limiting the two-tier system to small and medium biomass is justified in view of the explanations provided by the UK authorities.

54. With respect to the absence of overcompensation in time, the UK authorities confirmed that the production costs will be monitored on a four-year basis (scheduled reviews), or even subject to early reviews in case of significant changes in production costs. The UK authorities also confirmed that the support levels for new beneficiaries will be adapted in case a risk of overcompensation is identified.
55. Moreover, the operating aid is limited to the depreciation time of the installations concerned (20 years), which corresponds to their lifetime.
56. Therefore, the Commission considers that the methodology used by the UK authorities to present overcompensation calculations is equivalent to or not more favourable than the methodology presented in point 109(a) of the Environmental Aid Guidelines.

#### *Compensation levels*

57. The Commission refers to the table 1 above, which compares production costs (over the period of 20 years, which represents approximately the lifetime of the installations concerned) with the revenues of the beneficiaries stemming from the tariff levels. The data presented show that the total tariff payments do not exceed the difference between renewable and heat production costs.
58. In the light of the above mentioned considerations, including the commitment of the UK authorities to adapt the notified measure in time in order to avoid overcompensation (see paragraph 25 to 27 above) the Commission finds that the notified measure is in line with the condition of absence of overcompensation.

#### *Other compatibility criteria*

59. As regards the two other conditions of point 109 (letters (b) and (c)), the Commission notes that no RHI tariff can be cumulated with investment grants, and that for biomass operating aid does not exceed the investment costs of a biomass installation.
60. In addition, in line with the condition regarding the limitation of Commission authorisation, the duration of the notified measure does not exceed 10 years.
61. The UK authorities also confirmed that in case the renewable electricity generation capacity of an installation will exceed the individual notification thresholds, the aid will be notified individually to the Commission. Furthermore, the UK authorities confirmed the respect of annual reporting and monitoring provisions of the Environmental aid guidelines as laid down in Sections 7.1 and 7.3.
62. The Commission notes that the calculations provided by the UK authorities show that the production costs of heat from renewable energy sources are higher than heat

production costs from conventional sources, and that market mechanisms such as the Emission Trading System will not suffice to develop heat in the range foreseen by the UK authorities. Hence, without the notified aid, there would be an insufficient incentive to undertake or carry on generation of heat from renewable energy sources as such activity would be unlikely to be economically viable. The Commission accepts the arguments provided by the UK authorities that unlike the installations commissioned before the announcement of the RHI scheme (15.7.2009), most of the investments in renewable heating installations completed and commissioned between 15.7.2009 and the introduction of the RHI scheme (covered by transitional agreements) were motivated by the promise of the support granted under this scheme and would have not been performed in the absence of such a promise.

63. Accordingly, the Commission comes to the conclusion that the notified scheme complies with the Environmental guidelines and is therefore compatible with the internal market in accordance with Article 107(3)(c) TFEU.

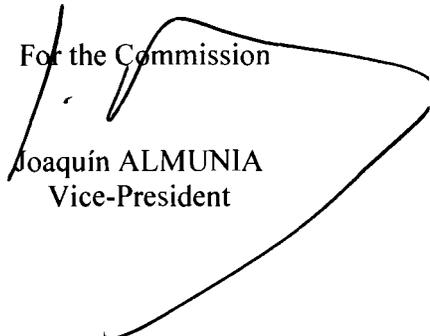
#### 4. DECISION

64. The Commission finds that the RHI aid scheme is compatible with the internal market in accordance with Article 107(3)(c) TFEU and has therefore decided not to raise objections to the notified measure.
65. The Commission reminds the UK authorities that, in accordance with Article 108(3) of the TFEU, plans to refinance, alter or change this scheme have to be notified to the Commission pursuant to the provisions of Commission Regulation (EC) No 794/2004 implementing Council Regulation (EC) No 659/1999 laying down detailed rules for the application of Article 93 of the EC Treaty.<sup>12</sup>
66. If this letter contains confidential information, which should not be disclosed to third parties, please inform the Commission within 15 working days of the date of receipt. If the Commission does not receive a reasoned request by that deadline, you will be deemed to agree to the disclosure to third parties and to the publication of the full text of the letter in the authentic language on the Internet site:  
[http://ec.europa.eu/eu\\_law/state\\_aids/state\\_aids\\_texts\\_en.htm](http://ec.europa.eu/eu_law/state_aids/state_aids_texts_en.htm)

Your request should be sent by registered letter or fax to:

European Commission  
 Directorate-General for Competition  
 State Aid Registry  
 B-1049 Brussels  
 Fax No: + 32-2-296 12 42

Yours faithfully,

For the Commission  
  
 Joaquín ALMUNIA  
 Vice-President

<sup>12</sup> OJ L 140, 30.4. 2004, p.1.

## ANNEX – DETAILED COST CALCULATIONS AND EXTRA COST RANGES, PER TARIFF CATEGORY

## 1. Ground-source heat pumps

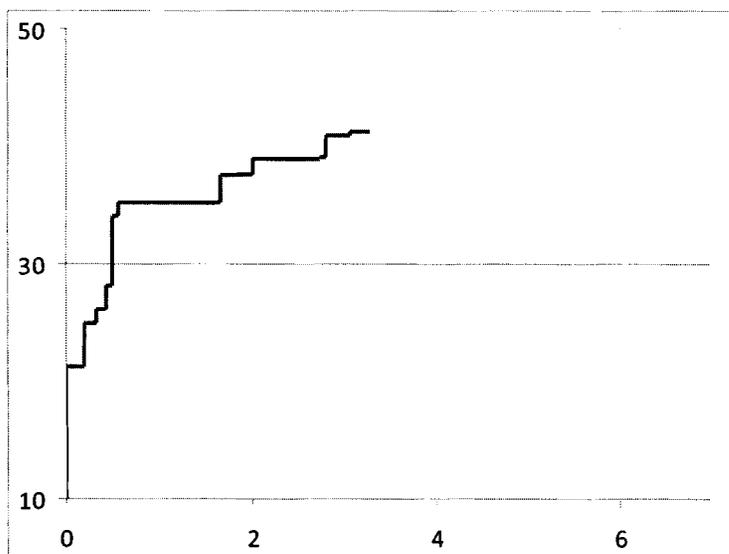
The counterfactual is a gas-fired boiler with the same annual heat production<sup>1</sup>. The results are presented on an annual basis below:

*Small ground-source heat pump, annualised production costs and tariff levels - lifetime: 20 years, rate of return: 12%, counterfactual: gas boiler with the same production*

In GBP/MWh	Renewable	Fossil fuel	Difference
Annualised capital cost , 12% rate of return	5269	1119	4151
Annualised upfront barrier costs	317	0	317
Annual fuel costs	3040	3322	-282
Annual barrier costs	16	0	16
Other annual operating costs	210	332	-122
<b>Maximum payment per year</b>			<b>4079</b>
<b>Maximum annual tariff level per MWh (92 MWh production)</b>			<b>44.3</b>
<b>Final tariff level per MWh in the RHI (paid quarterly)</b>			<b>43.0</b>

Source : UK authorities

*Extra cost range (in GBP/MWh) and heat potential (in TWh), small ground-source heat pumps, tariff for a 12% rate of return: 43.0 GBP/MWh*



Source : UK authorities

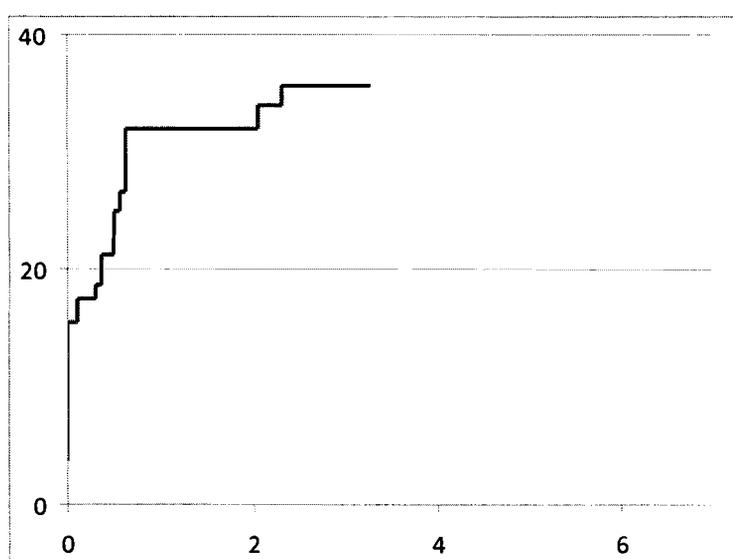
<sup>1</sup> The installed capacity is 300 kW and 525 kW for the GSHP and gas boiler respectively, but it results in the same annual production due to different load factors.

*Large ground-source heat pump, annualised production costs and tariff levels - lifetime: 20 years, rate of return: 12%, counterfactual: gas boiler with the same production*

In GBP/MWh	Renewable	Fossil fuel	Difference
Annualised capital cost , 12% rate of return	38637	5242	33395
Annualised upfront barrier costs	323	0	323
Annual fuel costs	34493	38734	-4241
Annual barrier costs	66	0	66
Other annual operating costs	210	630	-420
<b>Maximum payment per year</b>			<b>29123</b>
<b>Maximum annual tariff level per MWh (920 MWh production)</b>			<b>31.7</b>
<b>Final tariff level per MWh in the RHI (paid quarterly)</b>			<b>30.0</b>

*Source : UK authorities*

*Extra cost range (in GBP/MWh) and heat potential (in TWh), large ground-source heat pumps, tariff for a 12% rate of return: 30.0 GBP/MWh*



*Source : UK authorities*

## 2. Biomass

The calculations are similar (the counterfactual is a gas boiler as well), and subject to a Tier-1 and Tier-2 level to prevent owners from overgenerating (small and medium biomass installations).

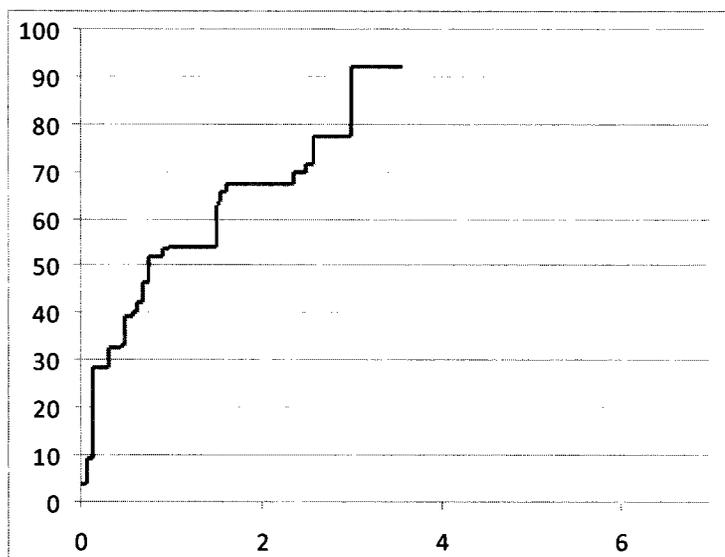
### *Small biomass*

In GBP	Renewable	Fossil fuel	Difference
Annualised capital cost , 12% rate of return	6418	1520	4898
Annualised upfront barrier costs	348	0	348
Annual fuel costs	11992	6771	5221
Annual barrier costs	828	0	828
Other annual operating costs	1070	369	701
<b>Maximum payment per year</b>			<b>11996</b>
<b>Maximum annual tariff per MWh (187.5 MWh production)</b>			<b>64.0</b>
<b>Final tariff level per MWh in the RHI (paid quarterly)</b>			<b>61.4*</b>

*Source : UK authorities*

*Note: the tariff is broken down in a Tier 1: 76.0 GBP/MWh and a Tier 2: 19.0 GBP/MWh)*

*Extra cost range (in GBP/MWh) and heat potential (in TWh), small biomass, tariff for a 12% rate of return: 61.4 GBP/MWh*



*Source : UK authorities*

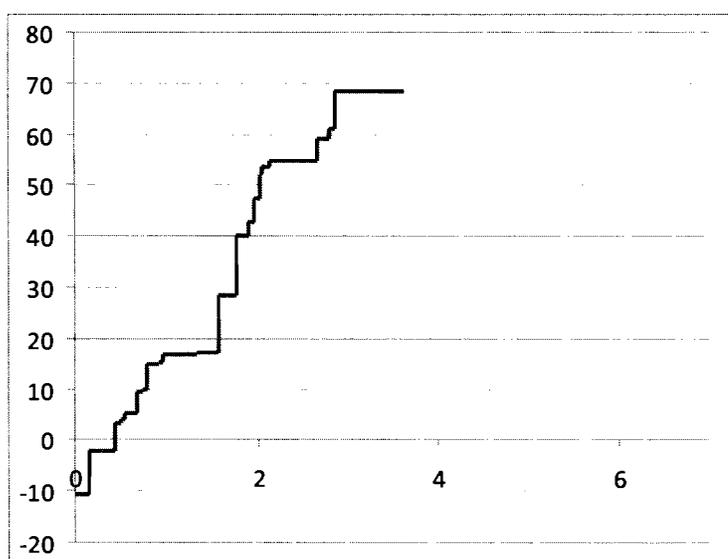
*Medium biomass*

In GBP	Renewable	Fossil fuel	Difference
Annualised capital cost , 12% rate of return	24647	3494	21153
Annualised upfront barrier costs	404	0	404
Annual fuel costs	17624	23244	-5620
Annual barrier costs	878	0	878
Other annual operating costs	9275	416	8859
<b>Maximum payment per year</b>			<b>25674</b>
<b>Maximum annual tariff per MWh (613.2 MWh production)</b>			<b>41.9</b>
<b>Final tariff level per MWh in the RHI (paid quarterly)</b>			<b>40.2*</b>

Source : UK authorities

Note: the tariff is broken down in a Tier 1: 47.0 GBP/MWh and a Tier 2: 19.0 GBP/MWh)

Extra cost range (in GBP/MWh) and heat potential (in TWh), medium biomass, tariff for a 12% rate of return: 40.2 GBP/MWh

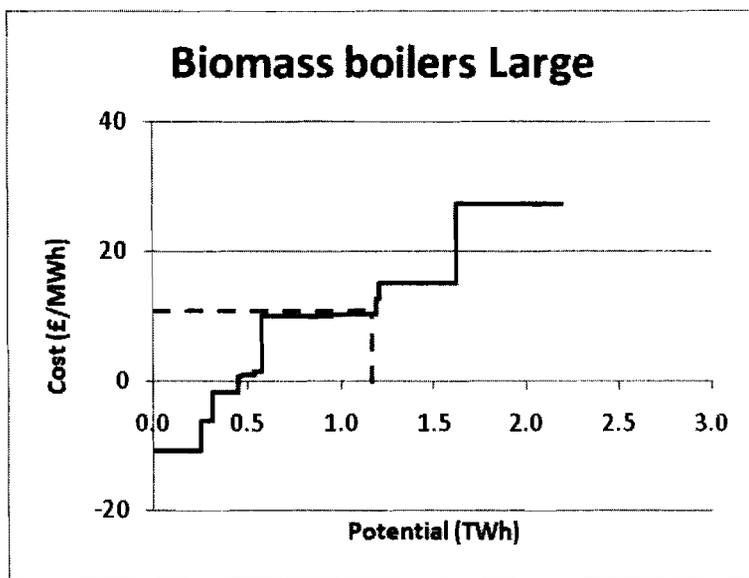


Source : UK authorities

*Large biomass*

In GBP	Renewable	Fossil fuel	Difference
Annualised capital cost , 12% rate of return	174092	15291	158801
Annualised upfront barrier costs	364	0	364
Annual fuel costs	1063916	1016493	47423
Annual barrier costs	878	0	878
Other annual operating costs	62820	838	61982
<b>Maximum tariff level</b>			<b>269448</b>
<b>Maximum tariff per MWh 26280 MWh production)</b>			<b>10.3</b>
<b>Final tariff level per MWh in the RHI</b>			<b>10.0</b>

Source : UK authorities

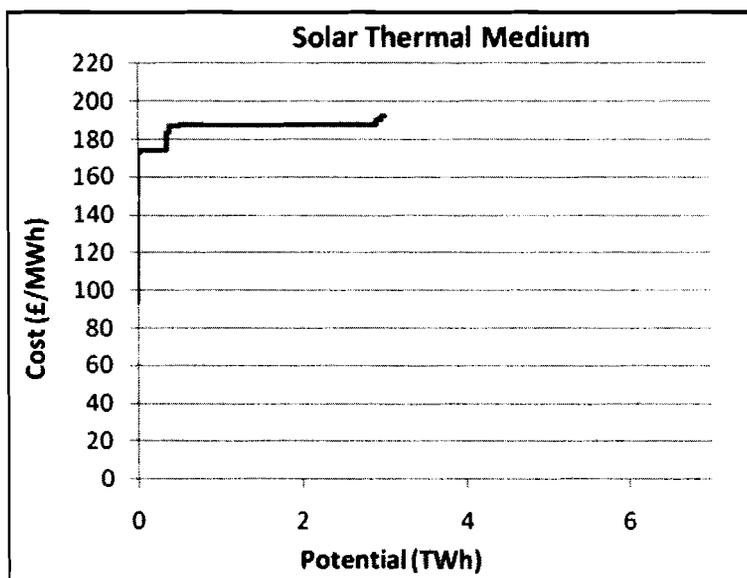


Source : UK authorities

### 3. Solar thermal

For solar thermal: a rate of return of 5% was retained, as the UK authorities consider this technology to be mature. As compared to a counterfactual production installation, the mid-point of the extra costs is 173 GBP/MWh. Therefore the tariff chosen (of 85 GBP/MWh) corresponds to a lower rate of return than 5%: it was estimated between -3 and 1% by the UK authorities.

*Extra cost range (in GBP/MWh) and heat potential (in TWh), solar thermal medium, tariff for a 5% rate of return: 85 GBP/MWh*



Source : UK authorities

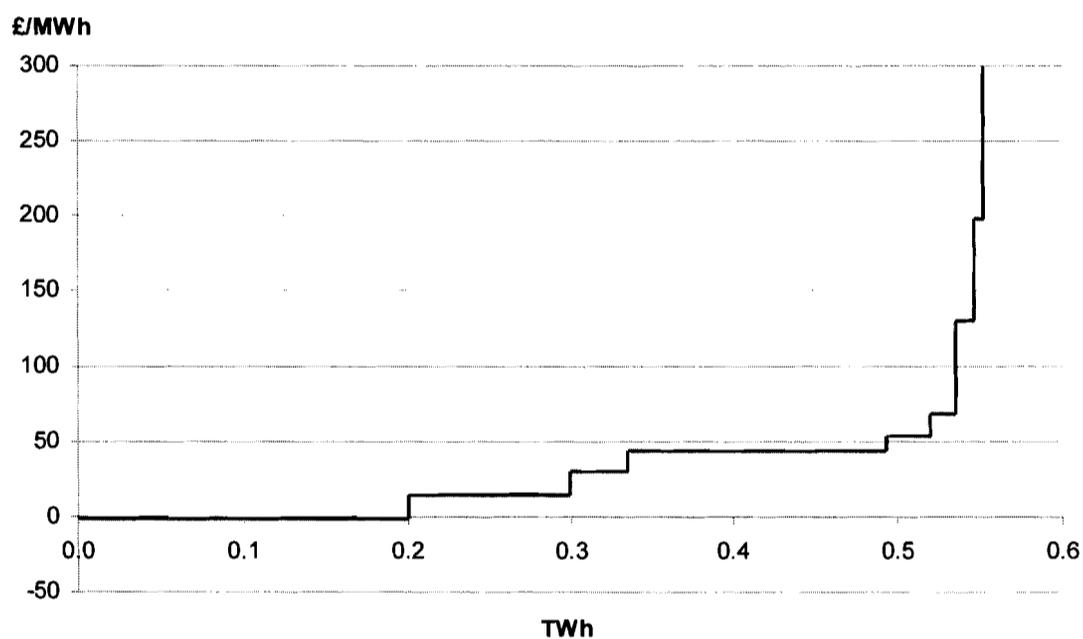
#### 4. Biomethane

For the production of biogas (biomethane produced from waste): the counterfactual is the purchase of wholesale natural gas from the grid, at the price of 22.7 GBP/MWh. For biomethane produced from waste, there are no fuel costs: to the contrary, a revenue is generated from waste collection (gate fee), presented as a negative fuel cost in the calculations below.

*Biogas produced from waste, annualised production costs and tariff levels - lifetime: 20 years, rate of return: 12%, counterfactual: natural gas from the grid*

In GBP	Renewable	Fossil fuel	Difference
Annualised capital cost , 12% rate of return	674490	0	674490
Annualised upfront barrier costs	323	0	323
Annual fuel costs	-593000	159870	-752870
Annual barrier costs	66	0	66
Other annual operating costs	558154	630	557524
<b>Maximum payment per year</b>			<b>479533</b>
<b>Maximum annual tariff level per MWh (7000 MWh production)</b>			<b>68.5</b>
<b>Final tariff level per MWh in the RHI (paid quarterly)</b>			<b>65.0</b>

*Extra cost range (in GBP/MWh) and heat potential (in TWh), biogas, tariff for a 12% rate of return: 65 GBP/MWh*



Source : UK authorities