



# Renewable Heat Initiative UEKRC Consultation Response on Proposals for a Domestic Scheme

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Submitted on behalf of UKERC by Dr Nick Eyre, University of Oxford, OX1 3QY

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# UKERC Response

This document sets out a response of the UK Energy Research Centre (UKERC) to the Department of Energy and Climate Change's consultation 'Renewable Heat Incentive: Proposals for a Domestic Scheme'.

The submission is under the control of Mr Robert Sansom from Imperial College London.

1.Question: What are your views about the proposed approach of a universally available tariff scheme? Is a tariff scheme the most efficient way to drive down energy costs, increase innovation and value for money and develop a home-grown supply chain?

**Answer:** We broadly support the proposed approach as support will be required to encourage the deployment of renewable heat technology.As far as the tariff scheme itself is concerned it is important that the scheme is consistent with other policy approaches and designed to be cost-effective (see answer to question 21).

2.Question: Do you think that there would be advantages in phasing or piloting rolling out of the scheme? On what basis do you think it might make sense to phase or pilot the scheme?

**Answer:** With very limited UK experience of renewable heat technology it is imperative that the scheme is able to respond to any problems experienced in a managed and coordinated way. This is best achieved by phasing or piloting the roll out of the scheme along with a clear process for monitoring and implementing any changes that may be required. However, consideration must also be given to any localised impact from a concentration of a specific technology. For example, the impact on the electricity network from retrofitting of a large number of air source heat pumps to a housing estate. Network reinforcement may be necessary and this will need to be coordinated with Distribution Network Operator.

3.Question: Do you think that there may be alternative or additional approaches to incentivising renewable heat deployment that we should pursue? What approaches to you think might add most value?

**Answer:** Financial incentives are critical, but need to be accompanied by strong programmes in training and accreditation.

## Eligible Properties

4.Question: Do you have any comments on the proposed exclusion of second homes from the RHI?

**Answer:** The implication is that the second home may not be occupied very much but this may not be the case. It could also be administratively burdensome to check and monitor whether or not the installation was in a second home and so is it worthwhile worrying about? The objective of the RHI is to reduce carbon emissions and so compulsory metering for second homes may be an alternative.

5.Question: Do you have any comments on the proposed approach to private landlords and their tenants under the RHI? Have you any suggestions about how to ensure that the RHI incentivises the installation of renewable heat in the private rented sector and does not disadvantage tenants?

**Answer:** The complexity of the proposed approach to private landlords would be reduced by a capital grants scheme (see answer to Question 21).

## Eligible Technologies

9.Question: Do you agree with the proposed approach to the selection of eligible technologies for the domestic RHI scheme? Please include reasoning in your response.

**Answer:** This seems a sensible approach which can be used to add, or possibly in the future, remove eligible technologies.

10.Question: Do you agree with the proposed eligible technologies set out above? Are there others that should be considered for inclusion?

**Answer:** In addition to the proposed eligible technologies we support air to air heat pumps (AAHP). It is important to recognise that one of the consequences of energy efficiency measures will be to reduce the natural air exchange rate of a building which in turn will result in a reduction of air quality. The installation of forced ventilation systems can maintain air quality and the integration with an air to air heat pump may provide a cost effective space heating solution.

We do however understand that existing models of AAHP's are not suitable for simultaneous ventilation and heating. We therefore think that support for AAHP within the RHI will help to stimulate faster uptake of renewable heating technologies but that the RHI should only consider AAHP when integrated with ventilation systems.

We consider it disappointing that the Renewable Energy Directive does not consider Exhaust Air Heat Pumps to be renewable as such technology offers the benefit of higher efficiency and therefore lower energy consumption. We would support further investigation to explore whether their exclusion from the Renewable Energy Directive can be addressed.

15.Question: Do you have any views on our proposals for excluding certain technologies? If you would like to suggest changes, please provide evidence to support your view.

**Answer:** We do not have any views to put forward on this other than those stated in our answer to question 10.

16. Question: Do you agree with our proposed approach to efficiency requirements for heat pumps?

**Answer:** Yes.

17.Question: Do you agree with our assumption that heat pump systems, using technology that meets MCS efficiency specifications, should meet an SPF requirement of 2.5 providing they are designed, installed and used appropriately?

**Answer:** Yes.

18.Question: Do you think that the 'Green Ticks approach' to an energy efficiency requirement is appropriate to the RHI? Please provide reasoning for your response and further information on any exceptional cases you think might arise.

**Answer:** As a principle energy efficiency should always be fully exploited. This is particularly important if a consumer is to be the recipient of state subsidies. Also, renewable heat technology such heat pumps are always more likely to perform better in an energy efficient building. We agree that measures which are only cost effective as part of a major retrofit (eg floor insulation) should not be mandatory.

19.Question: What are your views on our proposal to require consumers to have installed energy efficiency measures and provided proof to Ofgem before they become eligible for the RHI? Can you suggest an alternative approach that guarantees the installation of the green tick measures, but provides RHI subsidy at an earlier point?

**Answer:** We believe the option of payment against receipts for measures installed by accredited installers should be considered as an alternative to a second EPC.

20.Question: Do you think that solid wall insulation should be excluded from the energy efficiency requirements or be introduced in a phased way? Please provide evidence for your response.

**Answer:** Solid wall insulation should be considered as a long term goal for all solid walled properties. Although the supply chain cannot currently deliver large volumes, this should change with support under ECO. For the reasons set out above, improved insulation is particularly important for heating with heat pumps. We therefore suggest solid wall insulation (where technically viable) should normally be required. We recognise this may need to be relaxed in listed buildings and conservation areas.

21.Question: Do you think that 7 years is a suitable time period for tariff payments under the RHI to be made? Would a different time period for

tariff payments suit different technologies? Please provide evidence to support your view.

**Answer:** Our response to the previous consultation (in 2010) showed that use of capital grants will be a more effective use of Government funds than a more extended cash stream, given existing knowledge about effective discount rates in the residential sector. This underpins the design of the Green Deal and we welcome the recognition of the validity of this argument for the domestic RHI in paragraph 141. We understand the reasoning with respect to early pressures on funding. However, the total sums involved are small with respect to the total support for renewables planned to 2010. We therefore believe that a more cost effective capital grants scheme should be adopted. The early pressures on budgets could be met with a relatively small change to the Levy Control Framework proposals for renewable electricity, and would primarily affect the early years of the period to 2020 in which the overall LCF payments will be lowest.

23.Question: What is the risk of switchback after the period over which tariff payments are made? Do you think this applies solely to biomass?

**Answer:** It could also apply to other technologies. If there no limitations on the consumption of gas and it remains free of any carbon tax then it is entirely possible to have a scenario where gas prices are very low but electricity (which includes substantial additional costs including CfD FiTs, EU ETS, carbon price floor, etc) are very high. This might result in a heat pump having running costs which are substantially above gas and so there might be a risk of switchback which warrants preventative measures. On the other hand, if gas prices remain low, there is no realistic prospect of households prematurely removing an operational heating system, and then preventive measures are not required.

24.Question: Do you think that either of the proposed solutions would mitigate the risk of switchback? What approach would be better? Is there any other action we could take to ensure the continued use of biomass in this way?

**Answer:** The second solution would be better as it could take full account of the latest price data. But there would need to be clear mechanism for determining the tariff to minimise uncertainty. Our proposed approach (see Q21) would make either approach unworkable and we therefore suggest an alternative is to mandate that a building cannot return to a fossil based heating system.

27.Question: What are your views on the support for solar thermal as set out? What evidence is there to support a tariff higher than the renewable energy cap? Do you have any suggestions/views on other ways in which a subsidy for solar thermal could be paid, for example, through a capital grant or through increasing the tariff beyond the cap?

Answer: We are very concerned by the suggestion in paragraph 159 that solar thermal should be considered as a “fit and forget” technology. There is good evidence that solar thermal systems efficiency is highly dependent on user behaviour (see eg Hill, F., H. Lynch, et al., (2011). "Consumer impacts on dividends from solar water heating." Energy Efficiency 4(1): 1–8.) A critical issue is that householders understand the importance of not using supplementary fossil fuels to heat a full tank of water before the sun rises. This suggests that mandatory consumer advice and support should be an MCS requirement and required for RHI support with appropriate monitoring.

32. Question: Do you believe that the introduction of a domestic RHI tariff for new build is appropriate? If so, what additional costs and/or savings should DECC take into account if setting a new build tariff?

**Answer:** We recognise that this is a complex issue and depends on the extent to which Building Regulations will drive the adoption of renewable heat in new build. There is clearly a risk that RHI support for new build would not be additional. However, the priority of Building Regulations should be to maximise the thermal efficiency of the fabric, as this is the longest lasting feature of the building. Provided this is done, new residential buildings should have very low space heating requirements (say <3 MWh/year for a typical sized house), making renewable heating systems less attractive than in existing properties where such high thermal standards will remain difficult to achieve. We therefore believe that priority should be given to support for water heating in new build. This would imply a focus on solar water heating (and perhaps heat pumps designed for water heating) in this sector.

33.Question: Do you have any evidence on the percentage cost reductions associated with fitting a renewable heating system into a new building, compared with retrofitting it?

**Answer:** No.

35. Question: In light of the above, do you think we should introduce a domestic RHI tariff for social landlords? Why/why not?

**Answer:** An RHI tariff will be required to compensate landlords for the additional costs and this sector should not be ignored. However, it needs to be consistent with the non-domestic RHI and also consideration should be given to ensuring community based schemes are encouraged where appropriate. There is also a risk that a very large section of low income households secure no support from the RHI unless social housing is eligible.

36. Question: Do you think that the proposed 7 year period for tariff payments would be appropriate for social landlords too or would another timeframe within the assumed 20 year life of equipment be more appropriate?

**Answer:** The approach we propose in response to Q21 makes the administrative issues somewhat easier as the landlord would be grant recipient. We recognise that this does not remove the split incentive, but social landlords are (by definition) not motivated entirely by economics, and therefore this may not prove an insurmountable barrier.

37. Question: Do you have any evidence on the percentage differences to costs/benefits of fitting individual renewable heating systems into social housing?

**Answer:** No.

39. Question: Do you agree that deeming, as opposed to metering, is the most appropriate approach on which to base the calculation of RHI payments? If not, why not?

**Answer:** Yes. Deeming has been used successfully in this sector within CERT since 1994. We agree the transaction costs of metering are not generally justified.

40. Question: Do you agree that a calculation by the MCS installer, or equivalent, is the best approach and that the above criteria are adequate for developing an effective calculation?

**Answer:** We believe that a calculation by an accredited EPC provider should be required to remove the perverse incentive to oversize systems.

42. Question: Do you agree with the approach outlined here for the treatment of bivalent systems?

**Answer:** Yes.

43. Question: Do you anticipate that financing offers will come forward from the market to provide support for renewable heat in conjunction with the RHI? If not, is there anything DECC could do to support this?

**Answer:** The answer to this question depends very much on the extent to which Green Deal is successful in general, as well as the extent to which RHI payments are treated as a secure basis for financing. On balance we suspect that the current proposals will lead to interest rates being too high to be attractive (see UKERC response to the Green Deal consultation). Our proposals under Q21 would, of course, largely resolve this issue. In the event that these are not adopted, we believe Government should consider use of the Green Investment Bank to reduce borrowing costs.

44. Question: To what extent do you believe the ability for some consumers to fund their renewable heat installations through Green Deal and the RHI will improve deployment of renewable heat ?

**Answer :** See answer to question 43.

45. Question: Do you agree that a metering and monitoring service package like the one we have outlined would be effective at driving long-term system performance improvements?

**Answer:** It is essential that performance is monitored and reviewed and action taken to address any issues that arise. However, this needs to be done in a manner which is statistically robust to enable good quality data to be collected. On the basis this is to be done as part of an overall monitoring programme, then the benefits from further monitoring and additional subsidy would not be justified.

46. Question: Do you think that the additional financial support in option 1 should be distributed as a flat-rate increase to the RHI tariff, a one-off upfront payment or in some other way?

**Answer:** If the installations are not part of the overall monitoring programme then any additional costs for monitoring equipment should not be reimbursed.

49. Question: Do you think that setting a minimum SPF higher than the EU minimum for air source and ground source heat pumps could be an effective driver of performance? What figure do you think might be suitable?

**Answer:** High performance heat pumps should result in lower running costs. However, the savings may not be sufficient to justify the additional capital cost. Hence it is appropriate to use the RHI to incentivise improvements in performance.

51. Question: What are your views on the use of RHI budget to pay for metering equipment to be installed for the purpose of policy evaluation?

**Answer:** As stated earlier, it is essential that the scheme is monitored to ensure it is effective, represents good value for money and is responsive to technical and economic developments and so it is reasonable to include this cost within the RHI budget.

52. Question: What are your views on the proposal that we should share data with MCS Certification Bodies so that it can be used to improve MCS installer surveillance?

**Answer:** We agree that data should be shared with those certifying MCS.

54. Question: Do you agree that there should be a financial penalty for consumers who do not ensure their installation is 'meter ready'?

**Answer:** If the installation is noncompliant then the consumer should not receive any payment.

55. Question: Should the penalty for consumers who do not make their installation 'meter ready' be the loss of the first year of their RHI

payments or a reduction of all of their payments? What other penalty might be appropriate?

**Answer:** See our answer to question 54.

56. Question: What are your views on providing a tariff uplift for systems where solar thermal is installed alongside other renewable technologies?

**Answer:** This seems sensible provided the uplift is modest and such schemes are monitored.

63. Question: In terms of communicating the RHI scheme to consumers and other interested parties, what do you consider that the role of government should be?

**Answer:** The primary duty to ensure accurate information clearly rests with accredited surveyors and installers. However, our research (Eyre, N., B. Flanagan, et al. (2011). Engaging people in saving energy on a large scale: lessons from the programmes of the Energy Saving Trust: [Engaging the public with climate change: behaviour change and communication](#). L. Whitmarsh, S. O'Neill and I. Lorenzoni. London, Earthscan: 141 – 159) shows the importance of good quality, independent energy advice to householders. This is likely to increase with the introduction of unfamiliar and more complex heating systems. The reduction in overall public funding for advice from April 2012 is therefore a critical risk Government needs to keep under review.

66. Question: Are there any specific customer journeys that you feel would be helpful to analyse? If so, please set them out.

**Answer:** The vast majority of decisions associated with replacing existing heating technology are made under 'distress' conditions, ie the technology has broken down. The priority is therefore to replace the existing technology and not to consider alternatives. In other cases the decision may not be with the customer but with the plumber, the builder, the architect, etc. Hence the consumer journey needs to consider third party decision-makers.

69. Question: Do you agree that the system of degression described would provide us with a sufficient means of controlling the costs of supporting the domestic RHI scheme? If you would prefer a different

approach to budget control then please set out what that might be and how it might operate.

**Answer:** Based on the evidence from FITs, we agree that a transparent system of degression is a sensible approach, and that this should be kept under review whilst avoiding sudden shifts in policy. We have no comments on the detailed proposals.