Department for
Business, Energy
& Industrial Strategy

Evaluation of the reformed Renewable Heat Incentive

Annex E - Sustainable Markets Assessment Technical Annex

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Contents

Introduction

This document outlines the approach adopted to the evaluation of the reformed Renewable Heat Incentive (RHI) scheme in the context of one of its workstreams – the Sustainable Market Assessment (SMA). An independent team of consultants[1] have been commissioned by the Department of Business Energy and Industrial Strategy (BEIS) to carry out this work to develop a rounded picture of renewable heat technology (RHT) performance, the wider effects of the RHI and the consequences of an adjusted government policy approach.

The SMA aims to better understand the extent to which the RHI is meeting its objective of supporting the development of a market for renewable heat. One of the central objectives of the reforms to the RHI scheme are to ensure the scheme “Contributes to the development of a sustainable market for renewable heat”. It is important to note the use of ‘contribute”[2] as it is not expected that the RHI will be responsible for developing a market for renewable heat that can operate without subsidy.

The SMA draws on both quantitative and qualitative information to better understand renewable heat market conditions, by focusing on each RHT, in a domestic and non-domestic context. Alongside statistical analysis of renewable heat market performance, market insights and perspectives on renewable heat technologies are gathered through consultation, engaging a base of stakeholders operating across each RHT.

This technical annex summarises the overall background and approach to the SMA workstream and details the process by which consultations have been undertaken to develop the evidence which is reported as part of the biomethane synthesis report. For the biomethane market it has not been possible to collect evidence across the quantitative indicators described below. This reduces the overall robustness of the SMA evidence and as a result the evidence is presented in the synthesis report as Market Intelligence only.

Reformed RHI Evaluation Aims and Questions

An evaluation of the reformed RHI scheme is being delivered to meet the internal needs of BEIS and also to comply with the requirements of the European Commission. A full summary of the evaluation plan has already been published[3], in summary:

“The evaluation is required to provide an assessment of the impact of the scheme and to provide strategic learning to inform heat policy development. The evaluation should provide learning that fills gaps in the existing evidence base while also providing a holistic assessment over the reformed RHI period.”[4]

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[1] The evaluation is led by CAG Consultants, with other partners including Hatch Regeneris, Winning Moves and EREDA consultant.
[2] P8 The Renewable Heat Incentive: A reformed and refocused scheme. Proposed reforms to the existing Domestic and Non-Domestic Renewable Heat Incentive schemes.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/577024/RHI_Reform_Government_response_FINAL.pdf
[3] RHI Evaluation Synthesis Report: Appendices (2019)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831621/RHI_Evaluation_Synthesis_Report-Appendices.pdf
[4] Invitation to Tender for the evaluation of the reformed RHI scheme

The evaluation is assessing both the domestic and non-domestic RHI schemes and the aims of this evaluation focus primarily on:

- Assessing the impact of RHI reforms, including their contribution to value for money, as well as increasing understanding of larger, low-volume non-industrial participants.
- Generate strategic learning to inform heat policy development after the funding for the RHI scheme comes to an end in 2021, particularly focusing on progress towards renewable energy deployment targets and renewable heat's role in potential longer-term decarbonisation scenarios.
- To comply with EU requirements for a Competition and Trade assessment of the reformed RHI scheme.

Evaluation Questions for Sustainable Markets Assessment

To address the aims above, a set of high-level evaluation questions have been developed with BEIS. The evaluation question of interest for the SMA workstream is:

How has the reformed RHI contributed to the development of sustainable markets for renewable heat, and how does this differ across market segments or technologies?

SMA Workstream

The SMA seeks to understand changes in markets for renewable heat technologies covered by the RHI. Since the RHI scheme aims to contribute to the development of the market for renewable heat, without setting an end-goal, it is only appropriate to measure and track progress, and the extent to which the RHI is contributing to this. For this reason the SMA workstream adopts a method which tracks a set of indicators over time covering the key factors expected to illustrate change within the market. Many of these indicators measure interim outcomes, such as cost reductions, increased demand and increased supply for particular markets and RHTs.

The SMA framework draws on data from other workstreams to support an assessment of the causal mechanisms driving the observed market changes. Much of the data on interim outcomes, and broader information to help understand the contexts and causal mechanisms behind these outcomes, is collected through fieldwork for other workstreams (including the applicant monitoring, qualitative interviews and case studies). Some additional data is being collected, including from engagement with external stakeholders within this workstream.

To support the development of the suite of indicators, an analytical framework was developed which sets out the domains in which change is expected or required for renewable heat markets to progress towards sustainability. This framework was developed in partnership between Hatch Regeneris and BEIS, combining BEIS's knowledge of the RHI market as well as Hatch Regeneris' experience of market monitoring.

Figure 1 sets out the analytical framework. At the centre are the core domains of increased demand, increased supply and cost reduction. Around the centre are the specific factors against which individual indicators provide evidence. This framework relates closely to the supply and demand sub-theories in the overall theory of change for the reformed RHI.

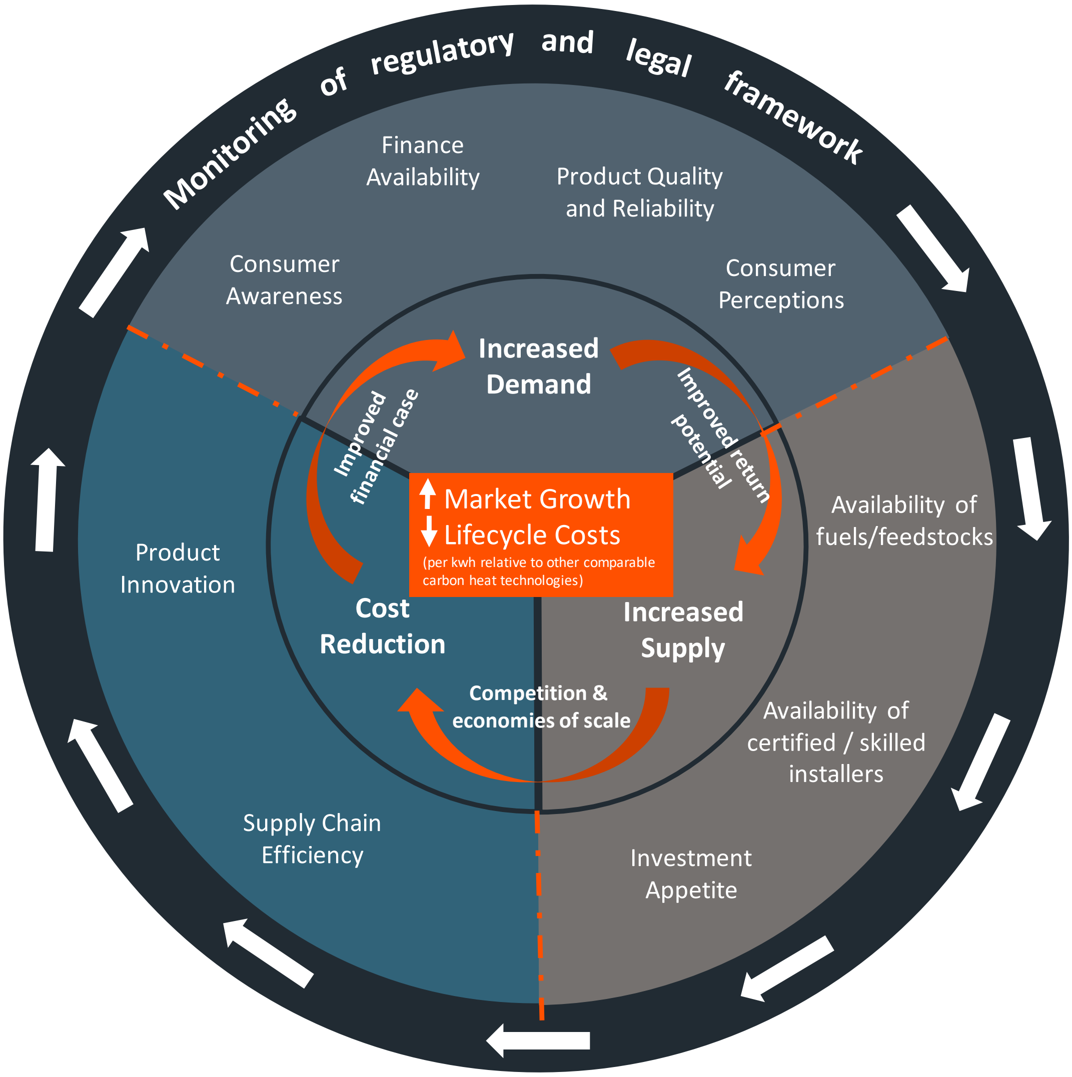

Figure 1 - Factors related to market development

The available evidence is collated into a dashboard which is reported to BEIS on a six-monthly basis, throughout the evaluation period, as well as shared with the wider evaluation partners to support further analysis and synthesis.

The sections below outline the core components of the SMA workstream, with a particular focus on those evidence sources which are reported within the 2020 Biomethane Evidence Synthesis report.

SMA Dashboard

The primary output from this workstream is a dashboard of indicators which provide insight into the factors outlined in Figure 1. An SMA dashboard provides a comprehensive and summarised view of the respective positions of each RHT. This dashboard consists of the indicators set out in Table 1, which are underpinned by a combination of quantitative and qualitative analysis.

Evidence for some of these indicators is only available for a subset of technologies covered by the RHI. It is particularly challenging to find robust evidence relating to Biomethane technologies and for this reason, the 2020 Biomethane Evidence Synthesis report reports only indicators D2 and I1.

Table 1 - SMA indicators and data sources

	Factor	No.	Indicator	Data source and reason for exclusion from biomethane?
Increased Market Demand	A. Increased Demand	A1	Number of RHI-backed products installed with RHI subsidy	* RHI Application Data * Reported in the synthesis report as stand-alone evidence
	B. Product quality and reliability	B1	Changes in the proportion of users experiencing technology faults or issues	* RHI Applicant Survey * Sample size too small for biomethane to report robust findings of change over time
		B2	Consumer complaints associated with renewable technologies	* RECC and HEIS Complaints Data * Complaints data do not cover biomethane market
	C. Consumer awareness and perceptions	C1	Awareness amongst applicants of the range of alternative renewable heat technologies	* RHI Applicant Survey * Sample size too small for biomethane to report robust findings of change over time
		C2	General consumer awareness of renewable heat technologies	* BEIS Public Attitudes Tracker * Biomethane not covered in consumer awareness
		C3	Overall consumer satisfaction with their renewable heat technology	* RHI Applicant Survey * Sample size too small for biomethane to report robust findings of change over time
	D. Finance availability	D1	Proportion using external finance to support deployment	* RHI Applicant Survey * Sample size too small for biomethane to report robust findings of change over time
		D2	Appetite to lend for renewable heat equipment purchase and installation	* Consultations with finance institutions * Evidence presented in report
		D3	Proportion of applications using third party agreements	* RHI Applicant Survey * Reported as stand-alone evidence in report

	Factor	No.	Indicator	Data source and reason for exclusion from biomethane?
Increased Supply	E. Increased equipment supply	E1	Number of main equipment suppliers for each technology	* RHI Application Data * Not relevant for biomethane
	F. Availability of fuels / feedstocks	F1	Consumers with supply contracts in place	* RHI Applicant Survey * Sample size too small for biomethane to report robust findings of change over time
	G. Availability of certified / skilled installers	G1	No. of MCS certified installers	* MCS Data * MCS data does not cover biomethane
		G2	Difficulty in finding a suitable installer	* RHI Applicant Survey * Sample size too small for biomethane to report robust findings of change over time
Cost Reduction	H. Cost Reduction	H1	Median capital costs both for technology purchase and installation (based on cost per unit of installed capacity)	* RHI Application Data * Sample size too small for biomethane to report robust findings of change over time
	I. Supply chain efficiency and innovation	I1	Progress in improving cost efficiency in the supply chain (e.g. as a result of product or process innovation, increased economies of scale, reduced costs of inputs)	* Consultation with manufacturers / sector bodies * Evidence presented in report

SMA Consultation Overview

Table 1 shows that for the biomethane market it is only possible to present evidence for indicators D2 and I1. For this reason, this section describes the process and methodology which has guided the consultation process to date. This has been used throughout the delivery of the SMA workstream to collate consistent and continuous inputs from organisations and individuals who are relevant to the RHTs supported by the RHI.

The overarching objective in undertaking one-to-one consultations is to gather qualitative evidence from market stakeholders which can be combined with the quantitative analysis to develop a fuller understanding of renewable heat technology market performance. For the biomethane market this has not been possible, which reduces the overall robustness of the SMA evidence. For this reason, the evidence is presented in the synthesis report as Market Intelligence. The evaluation will continue to collect quantitative data on the biomethane market and future reports will review whether the evidence is robust enough to report this evidence.

Consultee Identification and Recruitment Process

As an initial task, a baseline list of consultees was developed to act as a sample from which recruitment could be attempted. This commenced in June 2018.

The first step was to categorise the renewable heat market and define where resources should be focused:

- A common structure was used to consistently define the RHTs – Heat Pumps, Anaerobic Digestion/Biogas/Biomethane, Biomass, Solar/Geothermal.
- Consultees were identified and categorised to ensure a balance under each RHI supported RHT.
- Heat Pumps/Biomass/Biogas/Biomethane were identified as the primary focus for consultation, given the RHI policy emphasis on these and expected scale of deployment of each RHT.
- As a consequence of prioritising the key technologies less emphasis was placed on securing consultees who represented Solar/Geothermal RHTs.

Building on the RHT categorisation and decisions on focusing resources, an initial list of relevant stakeholders was developed for each, following a series of sequential steps:

- Initial internal discussion and engagement with BEIS to pinpoint appropriate contacts and organisations that have had regular engagement with BEIS/Ofgem.
- Identify a baseline of suitable contacts, building from the above.
- Based on the baseline list, each contact was assigned a categorisation, being one of:
    - A sector stakeholder (sector body, market experts, umbrella organisations).
    - A manufacturer/supplier (tier 1/supply chain/distributors/installers).

    - Other (organisations with a data/specific topic focus).

- The baseline list of contacts was supplemented with additional contacts through desk-based research and engagement with RHI evaluation team. This extended the list to include finance providers and investors.

As consultations are undertaken across each phase, the baseline contact list has been developed and refined accordingly:

- New contacts identified and added through consultee recommendations.
- Additional contacts sourced and included via BEIS's ongoing renewable heat market engagement activities.
- As a consequence of consultee turnover, as staff have left/been replaced, leading to the identification of supplementary contacts, where possible.

The consultee list has been managed and cleansed on an annual basis, in line with the undertaking of stakeholder consultations to ensure its accuracy, keep a record of consistent consultee input and identify where staff and organisational changes have taken place. A record has also been kept of where consultees have no longer been able to participate.

Consultee Interview Process

Building on the foundation of a stable and structured consultees list, a formalised approach has been adopted to initiate engagement with stakeholders and conduct discussions.

Two rounds of consultation have fed into the evidence presented in this report, these took place in Winter 2017/18 and Winter 2018/19.

The following sets out the process that has governed consultee engagement, discussions and the capturing of stakeholder perspectives:

- Developing an introduction email, setting out consultation context and rationale.
- Developing accompanying aide memoires, to provide structure for consultations, greater certainty for consultees around the line of questioning and promote transparency of process (Example provided in appendix A). The Aide Memoires function like a semi-structured interview guide.
- Establishing contact with consultees – initially via a formal BEIS introduction to provide greater likelihood of response and make best use of 'warm' contacts.
- A follow-up email sent to contacts to introduce the consultant team, with an email providing context to the evaluation and rationale for discussion.
- Aide memoires issued in tandem with emails in advance of any discussions, to reinforce transparency and enable consultees to prepare responses in advance, where needed.
- Correspondence with stakeholders willing to engage, whilst also setting up consultation dates/times and answering any subsequent queries.

Consultation Format

Consultations that have taken place to date have largely followed the structure and format described below:

- Between 30 minutes to 1 hour of structured discussion, building off the aide memoire and questions within.
- One-to-one discussions with consultees, emphasising a balance between the formality of the aide memoire with a conversational style, to allow for the sharing of honest views, engendering maximum trust and developing a longer-term relationship with consultees.
- Each consultation formally introduced, affirming RHI evaluation context and confirmation of non-attribution of comments in reporting back to BEIS and relevant stakeholders.
- Largely following the sequential line of questioning set out in the aide memoire, but allowing for some deviation where relevant whilst making sure to cover off key discussion points.
- Consultation discussions usually closing with confirmation of attribution and data disclosure, a summary of key findings and setting the scene for the next phase of consultation.
- A written record of consultee feedback kept, noting key points noted in discussion and any reference to additional supporting information. These are filed accordingly and stored in a secured and encrypted location.

It is important to note that not all stakeholders have been willing to participate in the consultation process. The most common reasons for abstentions have been:

- A lack of reply to initial contact and follow-up emails.
- Stakeholder concerns around commercial sensitivity and the sharing of information that could be considered as confidential.
- Stakeholders reporting a lack of time to make a contribution or for there to be other competing priorities.
- Stakeholders reporting a lack of satisfaction with the RHI scheme relative to their RHT and being unwilling to engage.
- As a consequence of previous experiences and interactions with legacy government renewable energy schemes and Ofgem.

In some cases, there has been further follow-up correspondence with consultees, who have actively engaged with the process. This has taken place for the following reasons:

- The consultee has shared further data and information where relevant to the RHI evaluation and RHT market in question.
- Additional information relating to the RHI evaluation and past research shared, including signposting to published evaluation material (i.e. that available on the BEIS website).

Analysing and Summarising Findings

Once scheduled consultations have been concluded, stakeholder feedback and key findings are analysed, compared and have undergone a series of checks to ensure the results are reliable, robust and can be included within the SMA dashboard.

Intelligence gathered as part of stakeholder consultation is analysed, reviewed and amalgamated to develop overarching messages and highlight common or recurring trends. This observes the following process:

- Individual consultation notes are reviewed and cleansed (where necessary) to pinpoint key messages and assess the overall focus of narrative.
- Consistent and important messages are aggregated and summarised, categorised within the relevant RHT.
- Organisations who participated in the consultation are identified and recorded.
- Recurring messages are identified and highlighted accordingly.

Additional and relevant feedback provided by consultees is also noted, which provides added insight beyond the formal questions posed within the aide memoire.

A quality assurance (QA) process is used to ensure that the summary of consultation findings is appropriately cleansed and appropriately attributed to the source, noting that the feedback is by nature considered to be subjective. This is undertaken by senior members of the consultant team, who have been removed from the consultation process and direct engagement with stakeholders (mitigating bias).

The QA process entails the following:

- The summary consultation narrative is cross-referenced with wider market literature to verify messages and determine the performance of each RHT in qualitative terms.
- A summary of consultation findings is drafted (which includes a supplementary RHT market literature review drawing upon a variety of industry sources), that is subsequently shared with the evaluation team (acting in the role of a QA panel).
- QA panel feedback is received which allows for final verification of the findings and for consultation messages to be reinforced, where parallel qualitative research has been undertaken (particularly qualitative workstreams such as beneficiary surveys and synthesis work).

With QA complete, a final SMA consultation summary report is produced. This is also used to inform the content of the SMA dashboard and other qualitative work across the RHI evaluation.

Consultee Response Information

SMA consultation undertaken to date, has elicited a response from organisations and bodies who are active across each of the RHT categories. They reflect stakeholder interest in the RHI, its administration, broader renewable energy policy and a desire to help shape future decision making as to how the government will deliver against its decarbonisation targets.

To date, the greatest regularity of SMA consultation participation has come from the following organisations which have participated in all rounds of consultation (those contributing to the biomethane evidence are noted below)[5]:

- Anaerobic Digestion and Bioresources Association (biomethane)
- Crops for Energy
- Eco-Fuels
- Ground Source Heat Pump Association
- Heat Pump Association
- Kensa
- Re:heat
- Renewable Energy Association (biomethane)
- Renewable Energy Consumer Code
- South East Wood Fuels
- Wood Heat Association

Organisations who have contributed to only one consultation round include:

- Air Liquide (biomethane)
- BSRIA (biomethane)
- Genius Energy Lab
- Microgeneration Certification Scheme
- Mitsubishi
- NIBE
- Renewable Energy Association Finance Forum (biomethane)

The response rate and degree of consistent participation across each phase of the SMA consultation offers cues to the robustness and reliability of results, which are subsequently fed into the SMA dashboard.

Considering SMA consultee participation to date, this has elicited the following response rates:

- General/sector bodies – ~60% response rate
- Heat Pumps – ~50% response rate
- Biomass – ~30% response rate
- Biogas/Biomethane – ~40% response rate

[5] All organisations have given consent to have their information listed here.

It is important to note that these response rates reflect certain consultation dynamics:

- The first phase of consultation cast a broader net, with further phases focusing on a tighter list of consultees, including those who have participated previously and who are most likely to engage.
- Biomass has a larger baseline of consultee contacts than other RHTs.
- The inclusion of some new consultees as a result of referrals in latter consultation phases.
- Consultee churn.

Appendix A - Sample Aide Memoire

The aide memoire below is a sample of that used to engage with stakeholders as part of the SMA consultation process. This adapted as necessary, for each consultation phase, but the questioning has remained consistent.

Consultation Aide Memoire (Sector Stakeholder)

Hatch Regeneris has been appointed by the Department for Business, Energy and Industrial Strategy (BEIS), as part of a consortium to deliver an evaluation of the reformed Renewable Heating Incentive (RHI) scheme, over the period 2017-21. One of the key aims of the RHI scheme is to contribute to the development of a sustainable market for renewable heat. Hatch Regeneris is leading on an assessment of impacts against this aim.

Following on from the second phase of research completed in early 2019, we have developed an initial view of renewable heat technology (RHT) markets and have a stable monitoring dashboard in place. To inform the next phase of research, we will be updating this dashboard to observe changes and the extent to which the RHT market is moving towards a position of sustainability. This will include looking at a number of indicators focused on costs, supply and demand for RHTs, and assessing the drivers behind these any changes.

To ensure we capture insights from those operating in the market and with a strong oversight of RHT performance in the UK, we are once again seeking inputs from a range of organisations and sector stakeholders. Specifically, we are keen to:

- **Build on our existing data baseline** and feed into our ongoing monitoring dashboard.
- **Update our understanding of the operation of the sector** and performance of RHT technologies at present.
- **Re-affirm your support** to assist with the feeding in of inputs on a six-monthly basis.
- **Identify relevant supplementary sources** of information and data that will add value to our sustainable market analysis.

We would greatly appreciate if you would be free for a short discussion by telephone, to talk through the questions below. This should take no more than **30-45 minutes**, dependant on your ability to provide responses to the questions.

Following these initial discussions, we will be sharing findings with both BEIS and market stakeholders. We will be repeating this process on a systematic basis moving forward and would very much value your/your organisation's input to help inform findings and ultimately shape BEIS renewable energy policy in perpetuity.

Questions

Introduction

1. If we haven't engaged previously, could you begin by giving a brief overview of your role and how the RHI supports/affects you/your organisation's work?

RHT Sector Overview

2. Can you give an overview of the renewable heat market from your perspective, relevant to your role/organisation and RHTs you focus on?

3. What is the latest market position?

- To what extent has the UK market grown over the last 6-12 months?
- Has the structure of the supply chain and the extent to which this is UK based changed?
- Has there been any change in the scope for significant cost reductions?
- What is the current role of research and innovation activity in this sector and what has been the focus for this over the last 6-12 months?
- (**NOTE**: relevant only to anaerobic digestion/biogas/biomethane/biomass) What are the main sources for fuels / feedstocks serving the current market? Has this changed in the past year and is domestic supply increasing?

4. With respect to the main manufacturers and equipment providers operating in the RHT market(s) most relevant to your organisation:

- Can you comment on who the main market players are and if they have changed in the last 6-12 months?
- Have there been any significant new market entrants?

5. In terms of the manufacturing base (new or expanded facilities) for this type of RHT:

- Have there been any significant developments by manufacturers, such as those on-shoring production or supply chain activities?
- Have manufacturers made any other investments in the UK, including those which are R&D or innovation related?

Do you have any views on supply side barriers to growth, and have you observed any changes in the past 6-12 months?

- Is a lack of installers holding back the growth of the market?
- Are there any key disincentives which may be stifling the supply of skilled and accredited RHT installers?

6. Are you observing any improvements in cost efficiency within the supply chain (e.g. as a result of product/process innovation, increased economies of scale, reduced costs of inputs etc)?

7. Are you aware of RHT installations being accelerated or aided by new financial instruments, such as the introduction of Assignment of Rights products?

8. Have you noted any fluctuations in customer experiences and satisfaction with RHT products in the last 6-12 months?

RHI Scheme Reflections

10. Finally, do you have any observations regarding the RHI scheme and the impact of more recent policy changes in terms of:

- The expansion or retraction of RHT markets, including those relevant to your products and renewable heat technologies.
- The extent to which RHT markets are dependent on RHI subsidies.
- The broader market reaction to RHI policy and government sustainable energy strategy.

This publication is available from: www.gov.uk/government/publications/rhi-evaluation-evidence-report-biomethane-installations