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Technical Note

Challenges for the Implementation of the Renewable Heat Incentive – An example from a school refurbishment geothermal scheme

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ABSTRACT

The Government run UK Renewable Heat Incentive (RHI) scheme allows cash back payments to be made to producers of renewable heat. As a world first for renewable heat, it aims to tackle head on the issues surrounding emissions, energy use, and climate change targets. However, whilst the scheme goes a long way towards meeting these climate change targets, issues have been identified that may compromise its effectiveness. This paper aims to examine the progress of the RHI since its launch in November 2011, and avenues towards a more effective deployment.

Introduction

Renewable energy and the link to climate change targets is a discussion that today tops the bill across many sectors. The UK Government has a legally binding target of achieving 15% of its energy consumption through renewable means by 2020 [1], as well as reducing greenhouse gas emissions by 34% on 1990 levels [2].

Unfortunately, interim targets so far have not been met – for example, the previous UK Government's target of reducing carbon dioxide emissions by 20% by 2010 was not achieved [3] – which makes meeting 2020 targets across EU Climate Change policies particularly challenging. A cost effective and efficient balance between economic and industrial growth, whilst incorporating a reduction in greenhouse gas emissions, must soon be developed; that is, a transition to a low carbon economy.

Carbon reduction

For carbon dioxide, the greenhouse gas that is most notably attributed as the main human driver behind climate change, the European Commission (EC) is recommending that emissions on 1990 levels be reduced by 25% by 2020, and 40% by 2030, to make the transition to a low carbon economy cost efficient [4]. Taking the UK's groundwork on interim 2010 targets into account, a lot has to be done in this area to make these EC figures a reality.

As of 2010, the UK Government has managed to reduce their own carbon emissions by 14%, however carbon emissions as a whole for the UK grew for the year 2010, then reduced for 2011 [5]. Linked to the recession, the economy showed a moderate recovery for 2010 followed by the recession taking hold again in 2011. This recent downturn in the economy is a good development for reducing carbon emissions, but in the long term provides no certainty for securing a definite reduction in carbon emissions on 1990 levels.

Heating

Of the UK energy usage mix, heating is the single biggest sector in terms of energy consumption, with heating and electricity together forming the biggest sector in terms of carbon emissions [6]. As electricity and heating are so closely linked – that is, we use in part electricity to heat our homes, offices, and industrial spaces, and likewise use electricity to cool them – an approach that considers heating as a critical mass within the energy debate should therefore net a twofold win in meeting climate change targets as we move towards 2020.

Incentive schemes

Feed-In Tariffs (FITs) are already commonplace, where domestic and industrial producers of renewable electricity are paid in part for the electricity that they produce, even if they use it themselves [7]. Other Government programmes such as the Carbon Emissions Reduction Target (CERT) and the Community Energy Saving Programme (CESP) aim to incentivise energy efficiency, reduce carbon emissions, and tackle fuel poverty, and have so far proven to be highly successful in development within these areas [8].

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By measuring energy produced instead of electricity fed in, heat can also be produced inline with a scheme such as the FITs [9]. It is clear that considering heat within this framework is critical in order to see successful improvements in a sector that requires significant reform if it is to be aligned with emissions targets and the future UK energy portfolio.

The Renewable Heat Incentive

FITs were introduced as part of the Energy Act (2008) and at the same time a provision was also made to allow the Secretary of State to establish a financial support programme for renewable heat – this is known as the Renewable Heat Incentive (RHI) scheme [10].

A world first for renewable heat generation, the Government run RHI scheme aims to tackle head on the issues surrounding the reduction of carbon emissions and meeting climate change targets by incentivising the uptake of renewable heat across the UK. Open to non-domestic applications in December 2011, with the domestic regime to follow in spring 2014, the scheme allows cash back payments to be made to producers of renewable heat, where heat is derived from technologies including solid biomass, ground and water source heat pumps, solar thermal, solid biomass in Municipal Solid Waste (MSW), biogas and biomethane injection [11]. Ultimately, the RHI is aiming to provide a maximum rate of return of 12% on the additional capital costs of installing the renewables to combat investor hurdles [12]. This varies by technology, for example in the case of solar thermal where the rate of return is 6% [13], mirroring installation and deployment costs associated with the specified technology.

The RHI largely has the potential to generate the returns on investment that are required to make many projects viable with payback periods that are satisfactory [14].

Policy and process

Policy and regulations concerning the RHI are managed by the Department of Energy and Climate Change (DECC), with administration for the scheme being handled by the Office of Gas and Electricity Markets (Ofgem) [11]. This builds on Ofgem's successful achievements such as that for the administration of the FITs.

The process of applying for the RHI is twofold. Firstly, the applicant must be the owner of the installation (as defined as eligible by Ofgem), and the installation must be installed prior to the application being submitted [11]. The application is submitted online via Ofgem's website, and is to include details of the installation, commissioning certificates, as well as schematic diagrams. Ofgem will then accredit the installation or enquire further about the nature of the project if clarification is required. If approved, quarterly heat readings are submitted online by the applicant and quarterly payments are received accordingly inline with the RHI tariffs and the amount of renewable heat produced [15].

Initial analysis after implementation

The administration and implementation of the RHI is designed to be straightforward, as anything overly complex is likely to go against the aim of incentivising the uptake of renewable heat. However, there are some issues that may cause confusion as the RHI scheme progresses. The RHI has been received well – as of March 2012, applications amounted to 300 – however only 15 of these had been approved and fully accredited, to allow payments to be made to the applicants (R. Gibson[1], 2012, pers. comm., 20 March). With timescales of 4 weeks claimed for simple systems and 6 weeks for complex systems, for an £860million scheme the rate of accreditation should have been higher. One year on, applications rose to 1710 as of 28th February 2013, with 603 installations fully accredited and having received a payment [16] – a marked increase after an evidently slow start.

An initial performance review however highlights a slight misalignment of the process of obtaining permission and the accreditation for a renewable heat installation. For example, planning permission for certain technologies has to be sought before the RHI is applied for, and before the installation is accredited by Ofgem – but this process is extremely risky for the installation owner as there is no guarantee that their installation will be accredited even after the costly planning application is submitted (M. Drummond[2], 2012, pers. comm., 20 March).

Also, whilst pre-approval for technologies above 200 kW exists, no pre-approval process exists for smaller projects – that is, smaller installations have to be in place before the RHI is applied for, and before the installation is accredited by Ofgem (M. Drummond, 2012, pers. comm., 20 March). This could be seen as a huge risk for smaller project installers in terms of initial costs and no guarantee of receiving the accreditation required in order to receive the RHI payments.

March 2012 also saw DECC issue a consultation on interim cost control for the RHI which would suspend the scheme until the next financial year should the budget of £860million be under threat through application numbers and accreditation rates [17]. At a critical point when the scheme was just initiated, this was an unusual move having the potential to make prospective applicants nervous.

It is evident that these issues may limit the RHI's effectiveness in incentivising the uptake of renewable heat for both small-scale and large-scale producers across the UK. From an environmental aspect, it is also notable that there is no minimum efficiency directive for installations within the RHI, and there are no specific criteria for the calorific value of the fuel to be used (as, for example, in solid biomass facilities that generate heat) (R. Gibson, 2012, pers. comm., 20 March).

Domestic and non-domestic installations

The distinction between domestic installations (which is open for applications as of spring 2014) and non-domestic installations is also not entirely clear within the administration framework of the RHI. Ofgem have stated that the RHI is currently open for applications from the non-domestic sector, however a critical element not fully explored or emphasised by Ofgem is that two or more private dwellings using heat from the one renewable heat facility is currently eligible for RHI payments (R. Gibson, 2012, pers. comm., 20 March). This means that, even though households can currently receive one off payments under the Renewable Heat Premium Payment scheme (RHPP), administered by the Energy Saving Trust to assist in installing renewable heat technologies, many individual private properties may be missing out on the RHI as it currently stands. As the expected deployment date for the RHI scheme in the domestic sector is now spring 2014 after some delays, this is worth considering as multiple domestic installations could be operating, owners could be receiving payments, and movement could be being made towards meeting climate change targets. Given that the cost of installation for any given renewable heat technology can run into many thousands of pounds, with lengthy payback timescales, many community groups and co-operative organisations – that is, those most likely

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