

CONFIDENTIAL AND NOT FOR CIRCULATION BEYOND DETI AND DFP**Synopsis of the case for a Renewable Heat Incentive and Premium Payment scheme for Northern Ireland.****Introduction**

1. Heating energy accounts for around half of all total energy consumed within Northern Ireland with over 98% of our heating fuels coming from imported fossil fuels. Renewable heat is simply heat produced from renewable sources such as solar radiation, biomass materials, heat pumps, geothermal energy and waste materials.
2. The EU Renewable Energy Directive (RED) (2009/28/EC) set a binding target that 20% of the EU's energy consumption should come from renewable sources by 2020. The UK share of this target commits the UK to increasing the share of renewable energy to 15% by 2020 and Northern Ireland is expected to contribute to this share. The Department of Energy and Climate Change (DECC) has indicated that renewable heat levels of around 12%, coupled with 30% renewable electricity consumption are required for the UK to meet its requirements. £860million has been made available from central Government funding to support the introduction of a Renewable Heat Incentive (RHI) in GB over the period 2011-2015; HMT has notified the Northern Ireland Executive that £25million of funding is available for a NI RHI over the same period.
3. In 2010, DETI commissioned a study conducted by AECOM Poyry (**Annex A**) – an Assessment of the Potential Development of Renewable Heat in Northern Ireland. The report concluded that a 10% target was achievable but would require significant Government intervention. The report also indicated that an incentive scheme specific to Northern Ireland would be required.

4. The Strategic Energy Framework (SEF) was agreed by the Northern Ireland Executive in September 2010. The SEF includes four key energy goals: building competitive markets; ensuring security of supply; enhancing sustainability; and developing our energy infrastructure. The development of the renewable heat market locally will support the delivery of these energy goals, specifically in regards to Northern Ireland's sustainability and energy security. A target of 10% renewable heat by 2020 was included within the SEF; this is a challenging target given that the current level is 1.7%.
5. In order to achieve the renewable heat target, DECC introduced a GB Renewable Heat Incentive for the non-domestic market in November 2011. Northern Ireland was not included within that scheme because of the differences in the two heat markets. In GB the natural gas market is prevalent and accounts for 68.8% of heating demand with oil only accounting for 10%. This is very different from the situation in Northern Ireland where refined oil products account for around 77% of the overall heat demand, with natural gas accounting for 17% and the remaining heat demand met by electricity (1.2%), coal (3.2%) and renewables (1.7%).
6. It was therefore considered appropriate to separately assess how the NI renewable heat market could best be developed and the Minister announced this publicly in September 2010 indicating that a NI RHI, that would support renewable heat installations from Sept 2010, would be introduced if after a full economic appraisal if it was considered to be viable and economic to do so.
7. DETI commissioned an economic appraisal to consider the available options and the final report – A Renewable Heat Incentive for Northern Ireland – was completed by the consultants, Cambridge Economic Policy Associates (CEPA) and AEA Technologies, in June 2011 (**Annex B**). The approach to the appraisal followed the NIGEAE guidelines.
8. The report provided the basis for a public consultation on the proposals for a Renewable Heat Incentive for Northern Ireland (RHI). As part of the

consultative process Energy Division held a number of public meetings and engaged with key stakeholders. The consultation closed in October 2011 and almost eighty responses were received. The majority of respondents were supportive of the introduction of a RHI and acknowledged the importance of a specific NI approach. However, there were a number of areas where consultees were not in agreement with the proposals, in particular the proposed tariff structure and levels. DETI therefore asked CEPA/AEA to undertake some additional analysis in light of the information provided by respondents, in order to assess the additional evidence provided and to update the economic model where appropriate. This work was completed in February 2012 (**Annex C**) and has informed the final policy position presented here for approval.

9. This submission covers the following areas :-

- a) Background to the RHI and RHPPs proposals
- b) Proposals for a NI specific Renewable Heat Incentive (RHI) to be introduced for the non domestic market in the first instance.
- c) Proposals for interim Renewable Heat Premium Payments (RHPPs) for the domestic market.
- d) Proposals as to how the RHI should be administered
- e) Legislation
- f) Approvals – State Aid and DFP
- g) Conclusion

a) Background to the RHI proposals

10. The primary objective of the NI RHI is to increase the uptake of renewable heat to 10% by 2020 (baseline position 1.7% in 2010). The AECOM study showed the current heat demand in Northern Ireland to be 17.4 TWh per year. Looking forward to 2020, Northern Ireland's overall heat demand is predicted to drop to 16.7 TWh per year, with rises in demand from new development being outweighed by reductions in demand with efficiency improvements in the existing sector. The 10% for renewable heat therefore equates to 1.6TWh (or an additional 1.3 TWh when considering existing levels).
11. Renewable heat technologies are currently unable to compete with existing fossil fuel alternatives given the often higher capital costs and also the lack of understanding and awareness amongst consumers of what are often seen as innovative technologies. In order to help develop this market, DETI needs to consider the implementation of both policy instruments and financial incentives. Without these measures being put in place there is a risk of market failure and Northern Ireland will not achieve the targets set.
12. A Renewable Heat Strategy Group (a sub group of the Sustainable Energy Inter Departmental working Group (SEIDWG) has been set up with representatives from all the Departments with a role to play in the development of the renewable heat market. This group will develop a Renewable Heat Strategy road map and will consider issues such as maximising local biomass resource, identifying linkages with 'Green New Deal, skills development, renewable heat deployment in new housing schemes and within the public sector. This work will be undertaken alongside the introduction of the RHI.

b) Renewable Heat Incentive – Proposed levels of support

13. Following the economic appraisal into the incentivisation of renewable heat, the following design of the Northern Ireland RHI is proposed. The scheme represents a long term approach to developing the renewable heat market by providing consistent, secure, long term payments for renewable heat generation. The incentivisation involves payments to installers of renewable

heat technologies, with tariffs dependent on the type and size of technology installed, and in the form of pence per kilo watt hour (p/kWh) for heat generated. Payments will be made quarterly over a 20 year period for all installations following accreditation and the scheme will be open to new installations until 31 March 2020; this is in line with the GB RHI.

14. The RHI tariffs have been calculated to cover the cost difference between traditional fossil fuel heating systems and a renewable heat alternative. The tariffs account for the variances in capital costs, in operating costs, as well as seeking to address non-financial 'hassle' costs. The tariff is generated against a counterfactual position of heating oil; this is due to the fact that Northern Ireland is primarily dependent on oil and most of those switching to renewable heat will be oil consumers.

15. Tariffs vary depending on the type and size of technology to ensure that financial support is targeted for the specific installation and so over-compensation is avoided. Tariffs are paid for 20 years (the lifetime of the technology) and are '*grandfathered*¹', however they will be amended on a yearly basis, for existing installers and new schemes, to reflect the rate of inflation.

16. The tariff setting methodology has three general principles:

- Renewable installations are divided depending on the type of technology and size of installation;
- Within each banding a reference technology² is chosen to develop a consistent tariff across technologies and scales; and

¹ Provides certainty for an investor by setting a guaranteed support level for projects for their lifetime in a scheme, regardless of future reviews

² In order to set a fixed incentive rate for each band a '*reference installation*' is chosen and the tariff set relates to this installation and provides appropriate subsidy to make it viable. In line with DECC's methodology, the reference installation is chosen as the installation requiring a subsidy that would incentivise half of the total potential output from the technology that could be taken up across the period 2011-20 if that rate was offered to that band in every year. Total potential output is calculated as heat output that could be achieved if all technically viable segments within the band installed the technology.

- The net costs (difference between capital and operating costs of fossil fuel counterfactual and renewable alternative) are calculated and a tariff determined.

17. To generate the appropriate tariff the difference in costs between the renewable technology and the fossil fuel counterfactual is determined and this figure is divided by annual heat output to demonstrate the appropriate tariff.

For example;

Technology assumptions for medium biomass tariff.

	CAPEX £/kW	OPEX £/kW/year	Efficiency %	Load factor %	Size kW	Life time Years	Fuel cost p/kWh	Upfront barrier costs (including admin)
Biomass								
Oil								

Components of tariff for medium biomass tariff

Annual costs in 2011 prices	Annuitized Capital cost at 12% rate	Annual operating costs	Annual fuel costs	Annuitized Upfront barrier costs
	£	£	£	£
Renewable				
Fossil fuel				
Difference				

Renewable technology Resource costs	
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Tariff breakdown

18. The tariff can then be calculated by dividing the sum of difference by the actual heat output, which is calculated by size of technology multiplied by annual hours and then divided by load factor $((50 \times 8760) / 17\% = 74460 \text{kwhrs})$.

19. Breakdown detailed below.

Subsidy for	Amount
Annualised capital and barrier cost	
Operating costs	
Fuel costs	
Total	
Convert to quarterly basis	
Adjust for inflation	

20. A full breakdown on the design of the tariffs is contained in the addendum to the CEPA Economic Appraisal.

21. The proposed tariffs are outlined below, for ease of reference the equivalent tariffs that were proposed in the summer consultation and in the GB scheme are also included for ease of reference. The NI tariffs are generally lower than the GB tariffs; this is because the GB tariffs are based on a gas counterfactual

to reflect the difference in the heat market i.e. less incentive is required to encourage customers to change from oil to renewable technologies.

Technology	Size	Proposed tariff	Equivalent tariff in July 2011 consultation	GB equivalent tariff
Biomass	Less than 20kWth	6.2	4.5	³ Tier 1: 7.9 Tier 2: 2.0
	Between 20kWth and 100kWth	5.9	⁴ 4.5	Tier 1: 7.9 Tier 2: 2.0
	⁵ Between 100kWth and 1000kWth	1.5	1.3	⁶ Tier 1: 4.9 Tier 2: 2.0
Biomethane	Biomethane all scales, biogas combustion less than 200kWth	3.0	2.5	6.8
Ground source heat pumps	Less than 20kWth	8.4	4.0	4.5
	Between	4.3	4.0	4.5

³ Tiering is used to ensure the technology is not 'over-used' just to receive an incentive. It works by dropping the paid tariff after the technology reaches its optimum use for the year; this is deemed at 1314kWhrs (15% of annual hours). After this level is reached the tier 2 tariff is paid.

⁴ Previous consultation set out a tariff of 4.5p/kWh up to 45kWth and then 1.3p/kWh above

⁵ The GB RHI has an open band above 1000kWth of 1p/kWh. Given the oil counterfactual it is deemed that Northern Ireland installations over 1000kWth are already cost-effective to 2020 and therefore do not require an incentive.

⁶ As the GB banding is different the tariff of 7.9p/kWh applies up to 200kWth and then it drops to 4.9p/kWh

Technology	Size	Proposed tariff	Equivalent tariff in July 2011 consultation	GB equivalent tariff
	20kWth and 100kWth			
	Between 100kWth and 500kWth	1.3	0.9	3.2
Solar thermal	Below 200kWth	8.5	8.5	8.5

22. RHI payments will be made on a quarterly basis and are determined by multiplying the applicant's actual (metered) heat output with the relevant tariff level. Under the RHI only 'useful heat' is deemed eligible; this is defined as heat that would otherwise be met by fossil fuels, this excludes deliberately wasting or dumping heat with the sole purpose of claiming incentive payments.

23. In circumstances where beneficiaries are suspected of wasting heat just to claim incentives, DETI, or another enforcement body, will have the power to investigate. It is, however, expected that the risk of wasting/dumping heat in the commercial sector will be much less than in the domestic sector as RHI payments will be only one of many factors in deciding to run a renewable heat technology.

24. At this stage, as the RHI only applies to the non-domestic sector, all renewable heat installations will be required to be accompanied with a heat meter that will determine actual heat output. Heat meters are already common in many commercial applications and therefore should not be a barrier to uptake. Meters will allow for accurate readings to be taken of actual

heat usage and appropriate payments made. They will also ensure accurate statistics are maintained throughout the lifetime of the scheme.

25. Further to enforcement powers mentioned above, all beneficiaries will be required to submit an annual declaration to the scheme administrator to confirm that the installation is in working order, being maintained and is being used for eligible purposes. There is an obvious incentive to keep the equipment maintained given that payments are made on metered output.
26. Payments will be made by the scheme administrator on a quarterly basis for the lifetime of the technology (maximum of 20 years). Tariffs are grandfathered so beneficiaries will receive a consistent level of support over the lifetime of the installation with the only revision being adjustments for inflationary pressures. The profiles of the tariffs and the length of scheme is consistent with the GB RHI and other renewable energy schemes (Renewables Obligation and Feed-in-Tariffs).
27. It is expected that the NI RHI will be open to new installations until 2020, meaning the final payment from the scheme will be in 2040.
28. The NI RHI will have scheduled reviews built-in to the scheme to allow DETI to ensure that the scheme remains fit for purpose and value for money for the duration. The scope of these reviews will include analysis of tariffs (either to be reduced or increased), the appropriateness of technologies (remove existing technologies or add new innovative ones) and the assessment of effectiveness and success.

RHI Benefits by 2020	
Additional renewable energy	
Total CO2 emissions displaced	
Number of renewable heat installations	

RHI Costs by 2020	
Subsidies paid (2010) prices	

Risk Register

additionality; displacement; vfm; NPV and wider benefits

c) Proposals for interim Renewable Heat Premium Payments (RHPPs) for the domestic sector

29. As the sector with the largest heating demand, the deployment of renewable heat within the domestic sector will be vital in supporting the achievement of the 10% target. However, it is proposed that a phased approach will be taken with non domestic customers eligible for the RHI under the first phase and the domestic sector following at a later date. This will allow DETI to carry out the further analysis that is necessary to understand the appropriate design for the domestic market scheme including whether heat should be metered or deemed. This is in line with the approach taken in GB where DECC had indicated that the domestic RHI would commence in October 2012. However, following recent discussions it would appear that this phase of the scheme might be delayed in GB. It is therefore proposed that the second phase of the NI RHI will not commence before 1 April 2013.

30. In the interim it is proposed to introduce a RHPP for the domestic market. These one off grant payments will assist in the capital costs of the renewable heat installation. The RHPP will be available to all installations commissioned after 1 September 2010 (the date of the Minister's announcement) and the proposed levels are as listed in the following table.

Technology	Support per unit (£)
Air Source Heat Pump	
Biomass boiler	
Ground Source Heat Pump	
Solar Thermal	

31. All installations under the scheme will be required to be certified under MCS and installed by MCS accredited installers. Applicants will be required to provide routine information on the technology installed, to assist in developing the understanding of renewable heat performance and use in the domestic sector.
32. Those availing of the RHPP will remain eligible for a longer term tariff when Phase 2 of the RHI commences. However, the lifetime of the tariff under the RHI will be reduced accordingly so that all customers are equally incentivised. For example, a domestic customer who has availed of the RHPP will only receive 18 years of an RHI rather than the standard 20 years (the value of the RHPP has been set at the equivalent of 2 years RHI payments).
33. The RHPP scheme was part of the consultation exercise and the majority of those responding agreed with the rationale for treating the domestic sector separately. However it was also felt that any delay in introduction should be kept to the minimum and that clear plans were made for domestic customers as soon as possible to remove any uncertainty from the market.
34. The RHPP scheme will be administered within DETI Energy Branch. Customers will apply direct to the Department where an initial assessment of eligibility will be undertaken. Successful applicants will then be issued with a voucher guaranteeing the RHPP once the technology is installed subject to terms and conditions. Once the installation is completed it will be inspected and payment made. Vouchers will not be redeemable beyond 31 March 2012.

35. A similar scheme has been in operation in GB since July 2011. As at Feb 2012, 5114 vouchers have been issued and 2467 redeemed. On a pro rata basis, we could expect to issue 265 vouchers during the year and to have around 130 of them redeemed. This level of uptake would be manageable with current branch resource. However, experience from the earlier Reconnect scheme which provided 50% grant to domestic householders who wished to install renewable energy solutions would suggest that we might expect a higher level of uptake – perhaps in the region of 800-900 installations. The management of this number of applications would require additional staff resource.

d) Administration of the RHI

36. The introduction of a RHI requires an administrative system capable of managing enquiries and applications, ensuring participants meet ongoing obligations throughout the life of the scheme, processing payments, preventing fraud and providing management information. The Office of Gas and Electricity Markets (Ofgem) has developed such a system for DECC and is already managing the administration of the GB RHI. In addition, it has experience of delivering other large scale incentive schemes such as the Renewables Obligation and the Feed-in-Tariff. It is considered that there could be significant advantages in utilising the existing systems and so a direct award contract was awarded to Ofgem to carry out a feasibility study into how the DECC GB RHI system could be used as a basis for an administrative system for the NI RHI (**Annex D**).

37. The study concluded that Ofgem had the operational structures in place to deliver an administrative system, tailored specifically for NI, following a development phase of approximately 4 months. The cost of the development work would be £386K. Forecasts of operating costs for the next four years are £136K, £157K, £ 198K and £248K based on NI accounting for a 3% share of the workload. In any case, Ofgem has confirmed that it will only pass through actual costs to DETI.

38. Exploiting synergies with the GB RHI will drive down the costs of administering the scheme whilst maintaining a high quality service to generators. For example, using the existing CRM? Software will save NI an estimated £100-150K, while using the existing SUN system to make generator payments, instead of a payment service provider, could save in the range of £100 -500K. In addition, using the main existing RHI register instead of commissioning a bespoke IT system is expected to save between £2m and £3m. Overall, Ofgem estimates that using its existing systems could save somewhere between £3.2million and £5.15million.
39. Responses to the consultation were mixed in terms of who should administer the NI RHI. Some consultees felt that the use of Ofgem would be beneficial in terms of efficient delivery, consistency and reduced administrative costs. Others argued that the scheme should be administered locally with the possibility of creating new jobs and skills in NI. However, the completion of this feasibility study provides clear evidence that there are substantial gains (both in terms of efficiency and cost) to be had from utilising the existing GB system. Looking forward, there is the additional advantage that we would only be required to pay our share of any future development or enhancement costs.
40. We have consulted with colleagues in Central Procurement Directorate (CPD) regarding contracting the work to Ofgem and they, in turn, sought advice from DSO. CPD has indicated that it is content subject to one caveat – if any legal/financial resource is required outside of the Ofgem in-house expertise, DETI must ensure that the procurement of that advice is in compliance with the NI Public Procurement Policy and allows local companies the opportunity to bid for that specific piece of work. Ofgem has provided details of its procurement procedures and we are currently liaising with CPD to ensure compliance.

e) Legislation

41. The power to enable DETI to make regulations for a scheme to encourage renewable heat was incorporated into the Energy Act 2011 which was given Royal Assent on 18 October 2011. The necessary secondary legislation has

been drafted but cannot be finalised until the design of the scheme is finally specified; we will then proceed to lay the Renewable Heat Regulations through draft affirmative resolution procedure in the Assembly.

f) Approvals

42. Before the RHI can be introduced we need approval from the EU Commission that the proposals are compatible with the Guidelines on State Aid. A discussion paper was submitted to the Commission in December 2011. The application was timed to benefit from the lessons learned by DECC from its RHI application (as the two schemes are fairly similar). It is hoped that by addressing some of the Commission's concerns regarding the GB scheme prior to submitting our application, the approval process might run more smoothly. It is hard to predict exactly how long the approval process will take; while the target of April 2012 is not impossible, it is challenging. The NI RHI will not go ahead until approval is obtained.

43. A Strategic Outline Case was submitted to DFP and approval obtained to proceed to the next stage. DFP asked for the following areas to be addressed

- Further costs and detail in relation to the administration of the scheme - *since the submission to DFP, the Ofgem feasibility study has been undertaken and this provides detailed costs and information on how the scheme would be managed*
- In the event of the UK not meeting the EU RED target of 15% by 2020, would NI be subject to any infraction fines? – *finest would be at a UK level*
- Section 2 identifies a number of constraints including a lack of knowledge/awareness regarding the development of renewable heat in NI, planning constraints and a lack of skills in NI's business sector to build and develop these new technologies. Further information detailing

how these constraints could be overcome should be provided in the OBC document;

- Further detail regarding project/option benefits, their delivery and monitoring should be provided at OBC stage.

A final business case will be submitted to DFP for approval once DETI Casework and Ministerial approval has been obtained.

g) Conclusion

Key Points

- The evidence shows that an RHI and associated RHPP are required to incentivise the renewable heat market, in order to achieve an EU renewable energy target which necessitates NI producing 10% of its heat from renewable sources by 2020. The development of the renewable heat market locally will also support the energy goals contained in the Department's Strategic Energy Framework, specifically in regards to Northern Ireland's sustainability and energy security.
- An inter-departmental Renewable Heat Strategy Group will monitor the progress of the RHI in conjunction with considering the other policy drivers that may be necessary to achieve the 2020 target.
- The RHI will be introduced in 2 phases – Phase 1 will include non domestic installations and will commence as soon as possible after 1 April 2012. Phase 2 will include domestic customers and will commence as soon as possible after 1 April 2013. In the meantime, RHPP will be available to domestic installations.
- The RHI involves a quarterly payment made over a period of 20 years. The amount paid will be based on metered heat output and the tariff for the type of technology installed. The tariff has been calculated to take into account capital, operating and 'hassle' costs and is based on a 12% rate of return.

The RHI scheme will be administered by Ofgem.

- RHPPs are single payments made to domestic customers upon the satisfactory installation of the eligible technologies; any subsequent RHI payments will be adjusted to take account of the RHPP. The RHPPs scheme will be administered by Energy Division, DETI.
- Economic modelling suggests that the proposals could deliver around 10.92% of NI's heat demand from renewables by 2020 at a cost of £335m in present value terms.
- The main risk of the RHI is that the tariff levels are not sufficient to encourage uptake or that they are too generous and hence uptake is such that there is insufficient budget. Ofgem will provide regular management reports which will enable uptake to be carefully monitored and forecast expenditure. The RHI will be reviewed in 2014 (and at regular intervals thereafter) and tariff levels may be adjusted, for new installations, if appropriate.
- DETI Casework and Ministerial approval together with DFP and EU State Aid approval need to be secured. The scheme will not commence until all these approvals are in place.

(recommendation)