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Date: 8 December 2010

To: 1. Fiona Hepper
2. Trevor Cooper **Copy Distribution List Below**

ECONOMIC APPRAISAL OF A NORTHERN IRELAND RENEWABLE HEAT INCENTIVE (RHI)

Issue: To seek the agreement of the Managing Authority to approve a project called Economic Appraisal of a Northern Ireland Renewable Heat Incentive under Priority 3 of the ERDF Competitive Programme.

Timing: Urgent. This work must begin immediately so advice on future a future incentive scheme can be given to the renewable heat industry and funding secured from HMT.

Presentational issues: None.

Freedom of information: Parts of this submission may be exempt under Section 35 of the Freedom of Information Act.

Financial implications: This project, if approved will require up to £^{Sensitive commercial information redacted} from the ERDF Competitive Programme. This resource is available and has been allocated to Energy Division.

Recommendation: That the Managing Authority agrees to select this project, Economic Appraisal of a Northern Ireland Renewable Heat Incentive, as eligible under the programme.

Background

The ERDF Competitiveness Programme listed categories of indicative activities directly relate to Energy Division that could be funded under Priority 3;

- a) Activities that develop support mechanisms to encourage/pilot renewable energy and energy efficiency programmes;
 - b) Support actions to increase the more efficient and effective use of energy; and
 - c) Activities that raise awareness and knowledge of both renewable energy and energy efficiency.
2. Sustainable Energy Branch (SEB) now wishes to carry out an economic appraisal of a Northern Ireland Renewable Heat Incentive (RHI). This appraisal would develop tariff levels, determine costs and assess the impact of incentivising the deployment of renewable heat technologies in Northern Ireland. The development of the renewable heat market provides opportunities in Northern for reduced carbon emissions, increased fuel security and significant potential for 'green jobs'.
 3. SEB believe that that developing a support mechanism for renewable heat, which would increase the roll-out of renewable technologies and in turn increase general awareness amongst consumers, is fully in line with the aims and objectives of Priority 3 and the Programme as a whole. The terms of reference for this project are attached at **Annex A** and a signed business case attached at **Annex B**.
 4. This proposal has been developed following a substantial research study into the current nature of the Northern Ireland heat and renewable heat markets. This study assessed the optimum growth potential of the Northern Ireland renewable heat market and potential options for securing a 10% share of renewable heat by 2020 (currently at 1.7%). It has been determined that introducing a RHI in Northern Ireland, similar to a model used in GB, provides the best opportunity to support the development of the renewable heat market by providing confidence and long term incentives to consumers and investors. In order for this to be achieved a full economic appraisal is required.

Renewable Heat Policy in the EU, GB and Northern Ireland

5. The EU Renewable Energy Directive (2009/28/EC), published in the Official Journal of the European Union on 5 June 2009, requires that member states ensure that 15% of their energy consumption comes from renewable sources by 2020. This requirement extends beyond electricity to heating and cooling and to transport. In line with this, DETI has

committed in the Executive endorsed Strategic Energy Framework 2010, to achieving a renewable heat target of 10% by 2020.

6. The Department of Energy and Climate Change (DECC) announced in July 2009 that it intended to introduce a RHI to support the roll-out of renewable heat technologies and assist in achieving the EU targets. Further details on the RHI including the design, implementation, tariff levels and eligibility were later consulted on in February 2010. The RHI will reward those who install eligible renewable heat technology with a set tariff to be paid over a number of years, the level of tariff and length of payment is determined by the size and type of technology involved. The tariffs have been set in order to cover the capital, operating and other non-financial costs of installing such technologies.
7. The Chancellor of the Exchequer has indicated that £860m of funding will be available for the RHI over the spending review period with the RHI coming into effect from June 2011. Of this, £25m is available to Northern Ireland over this period should it wish to implement a RHI.
8. The RHI, as it stands, only applies to England, Scotland and Wales and not Northern Ireland. The significant differences between the heat markets here and Great Britain meant that a separate assessment on the nature and growth potential of the Northern Ireland market was needed. Therefore in December 2009, DETI appointed AECOM Ltd and Pöyry Energy Consulting to carry out a significant piece of research into the nature of the heat market heat, the current levels of renewable energy, the potential development of the market and potential support measures to assist the reaching of a 10% renewable heat target. This piece of work was co-funded through the ERDF Competitiveness Programme.
9. This report showed that whilst the current levels of renewable heat in Northern Ireland is relatively low (1.7%) that there is potential to develop the market by using technologies such as biomass, biogas, biofuels, heat pumps, deep geothermal etc. The report demonstrated that 10% renewable heat by 2020 was achievable, however substantial Government support, in terms of policy and financial incentives, would be required. The research also highlighted that the GB RHI, as it stood, could be ineffective in Northern Ireland as it did not take account of the specific element of the heat market here and therefore to effectively incentivize the local market a Northern Ireland RHI should be developed.
10. The DETI Minister, Arlene Foster MLA, made a statement to this effect on 20th September 2010, committing to developing and implementing a Northern Ireland RHI, should it prove economically viable to do so. In addition, a target of 10% renewable heat by 2020 was formally adopted by the Northern Ireland Executive as part of the DETI Strategic Energy Framework. This press release and accompanying submission are attached at **Annex C and D** respectively.

11. DETI now wish to carry out a full economic appraisal of a Northern Ireland RHI to determine appropriate tariff levels, potential costs and the associated benefits. Consideration will also be given to the alternative methods of support to ensure that the heat market is encouraged in the most cost-effective way possible.

Budget

12. It is estimated that this assignment will cost in the region of £Sensitive commercial information redacted. Budget cover is currently available within the EU Competitiveness Fund (match funding from the Innovation Fund) subject to Managing Authority approval.
13. In order for the £25m budget from DECC to be utilised it is essential that a full economic analysis is carried out.

Current Position

14. The business case was approved by the Head of Energy Division in November 2010 and I am now sending this to you in your role as Managing Authority, for approval, attached at **Annex B**. As this resource funding under £1m it does not require DFP approval and falls within the Departments delegated limit. The Minister has already been made aware of this work and agreed to it as part of **SUB 364/10** attached at **Annex D** for your information.
15. **Annex E** is a completed template setting out how Sustainable Energy Branch believes this project, Economic Appraisal of a Renewable Heat Incentive for Northern Ireland, meets the approved high-level selection criteria to be used by the Managing Authority in selecting operations to be funded under Priority 3 of the ERDF Competitiveness Programme.
16. An Equality Screening exercise has also been carried out (**Annex F**) and it is not considered that this proposal has any impact on equality of opportunity. In addition, a Development Path Analysis has been carried out for this project (**Annex G**) and we believe that the proposed Economic Appraisal of the Northern Ireland Renewable Heat Incentive fully meets the most positive and environmentally sustainable path.

List of Annexes

17. Annexes to this submission are attached separately as follows;
- **Annex A:** Terms of Reference for the project “Economic Appraisal of a Northern Ireland RHI”
 - **Annex B:** Signed Business Case for this project

- **Annex C:** Ministerial Press Release on incentivising renewable heat in Northern Ireland
- **Annex D:** SUB 364/10 detailing the background to the renewable heat study and the next steps
- **Annex E:** Completed template detailing selection criteria
- **Annex F:** Signed Equality Screening
- **Annex G:** Development Path Analysis

Recommendation

18. It is recommended that the Managing Authority approves the inclusion of this Economic Appraisal of a Northern Ireland Renewable Heat Incentive within Priority 3 of the programme. I am happy to provide any additional information or clarification as needed.

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DETI - ECONOMIC APPRAISAL OF A NORTHERN IRELAND RENEWABLE HEAT INCENTIVE

General

1. The Department of Enterprise Trade and Investment (DETI) is responsible for the development and maintenance of an appropriate legislative and policy framework for energy in Northern Ireland and recently published the Strategic Framework for Northern Ireland to cover the next 5-10 year period. The vision is for a competitive, sustainable, reliable energy market at the minimum cost necessary. Four key policy goals have been identified to support this vision as follows
 - Competitiveness
 - Security of Supply
 - Infrastructure
 - Sustainability
2. The EU Renewable Energy Directive (2009/28/EC), published in the Official Journal of the European Union on 5 June 2009, requires that member states ensure that 15% of their energy consumption comes from renewable sources by 2020. This requirement extends beyond electricity to heating and cooling and to transport. In line with this, DETI has committed in the recently published Strategic Energy Framework 2010, to achieving a renewable heat target of 10% by 2020.
3. DETI now wishes to appoint a service provider to undertake an independent economic appraisal of the level of support that could be introduced through a Renewable Heat Incentive (RHI) to encourage the roll-out of renewable heat technologies in Northern Ireland and support this 10% target to 2020. The DETI Minister has already indicated that a Northern Ireland RHI will be implemented if it is economically viable. The budget allocation for an RHI in

Northern Ireland is £25m from 2011/12 – 2014/15. This funding has been provided by HM Treasury and is only available to Northern Ireland for a RHI. This is to ensure that Northern Ireland is not disadvantaged compared to the rest of the UK. This economic appraisal needs to therefore identify the most cost effective option for implementing the RHI policy.

Background

4. In light of the obligations within the EU Renewable Energy Directive, developments in renewable heat policy in Europe and the proposed introduction of the RHI in GB, DETI commissioned a comprehensive study into renewable heat in Northern Ireland. The purpose of this study was to establish up to date and accurate statistics on the current heat and renewable heat usage in NI; benchmark the potential for renewable heat in NI against renewable heat markets in GB, ROI and Europe; present options on how the renewable heat market in NI could be encouraged; and make projections for an evidence based renewable heat target to 2020. **A copy of the study is available on request.**
5. Heat demand in Northern Ireland has been estimated at 17.4 TWh, of this 1.7% currently comes from renewable sources. The majority of heat use in Northern Ireland is in the domestic sector, at 61% of the total heat demand or 10,644 GWh. This is followed by the large industrial sector at 22%, the commercial sector at 12% and finally the public sector at 4%.
6. This study has concluded that a realistic and achievable target for renewable heat is 10% by 2020. The reaching of this target would contribute to requirements placed on the United Kingdom under the Renewable Energy Directive as well as supporting wider energy policy goals of increased fuel security, reduced carbon emissions and developing opportunities for 'green' jobs.

Achieving a 10% target

7. The recently completed study includes a number of possible policy / support options available to DETI in order to assist increasing the level of renewable heat currently deployed in Northern Ireland.
 - **The development and implementation of a specific Renewable Heat Incentive (RHI) for Northern Ireland.** The GB RHI, as it stands, appears to be inefficient for Northern Ireland, by over-incentivising some technologies and not encouraging the most cost-effective options (background information on the GB RHI is available at **Annex A**). DETI now wishes to develop a specific RHI model for Northern Ireland.
 - **Targeted support for the heavy industrial sector.** In Northern Ireland 17 heavy industrial sites account for 22% of the total heat demand, with 2 sites on their own accounting for around 15% of total heat demand, therefore there is considerable potential in supporting the reaching of the 10% target through renewable heat in this sector. A support mechanism for this sector could be rolled out in conjunction with a NI RHI or independently.
 - **Development of biogas.** There is considerable theoretical potential for the development of biogas schemes in Northern Ireland. The generation of biogas for injection into the gas grid appears to be the most resource and cost efficient means of generating renewable heat. An assessment needs to be taken on whether or not this technology could be incentivised through an RHI model.
 - **New builds.** The level of renewable heat in new developments between 2010-2020 could potentially represent (assuming high levels of energy efficiency and use of low carbon rather than renewable fuels) up to 4.9% if all heat was met by renewable technologies. The level to which renewable technologies in the new build sector could contribute to supporting the 10% target will need to be assessed.

Purpose of this assignment

8. DETI now wishes to appoint a service provider to undertake an independent economic appraisal of a Northern Ireland specific renewable heat incentive. The economic appraisal must establish SMART objectives and should identify any constraints to the project. **The economic appraisal must be carried out using the 10 steps outlined within the Northern Ireland Guide to Expenditure Appraisal and Evaluation (NIGEA) guidelines (<http://www.dfpni.gov.uk/eag>).**

Contract Requirements

9. The key objectives of this assignment will include but should not be limited to the following;
- **Identify the strategic context within which this policy sits, specifically identifying the particular EU, UK and NI policy that is relevant.**
 - **Determine the need for Government intervention in the renewable heat industry in Northern Ireland;**
 - Explain the legal requirement of the EU Renewable Energy Directive.
 - Detail of measures employed in GB, RoI and the EU to support the development of renewable heat.
 - Assess the specific market failure for renewable heat in Northern Ireland.
 - Assess the demand and potential for growth in the renewable heat market.
 - Assess the impact of doing nothing.
 - **Outline the objectives of Government's support of the renewable heat industry and the associated benefits in particular;**
 - Assess the potential associated benefits to the wider economy.

- Outline how the widespread implementation of renewable heat technologies could impact on fuel poverty (positively and negatively).
 - Detail the associated carbon savings in reaching 10% renewable heat.
 - Identify key technologies and likely % contribution to the 10% target.
- **Identify a full list of potential options for future delivery of a Northern Ireland Renewable Heat Incentive.**
 - **Provide a detailed analysis of the economic cost/benefit of implementing a renewable heat incentive in domestic, non-domestic and the large industrial sector in NI, in particular;**
 - An assessment of appropriate tariff levels (pence per kwh) and lengths (number of years), with consideration given to the need for different categorisation.
 - An assessment of the potential uptake of the RHI over its lifetime, the associated cost and the impact on the levels of renewable heat. This assessment should include consideration of a number of agreed variables.
 - **Identify and quantify the monetary costs and benefits for each option to include;**
 - Each option should be fully costed and the financial payback of each technology should be assessed.
 - Identify any potential additionality, deadweight and displacement impacts.
 - Present a recommended approach based on cost / benefit analysis
 - **Assess and identify the potential risks in delivery in a future support scheme, to include consideration of;**
 - Potential low uptake.
 - Inadequate levels of support.
 - Impact of the extension of the gas network.

- Impact of constraints of biomass.
- Increase / decrease in energy costs.

- **Outline the non-monetary costs and benefits of delivering a RHI support scheme and increasing renewable heat levels to 10% by 2020, in particular but not limited to;**
 - Potential development of the renewable heat industry and 'green jobs'.
 - Carbon savings.
 - Impact that a renewable heat incentive may have on alternative industries e.g. oil/gas

- **Calculate net present values and assess uncertainty, to include;**
 - A summary of all the cost information required above.
 - Sensitivity analysis of key assumptions.

- **Make recommendations, based on the evidence gathered and the economic analysis carried out, on the most cost effective structure of a Northern Ireland RHI to increase the level of renewable heat to 10%.**

Project Management and Timetable

10. The Project will be managed by DETI Sustainable Energy Branch in conjunction with DETI Economics Branch and the consultant will be asked to liaise closely and submit regular reports (frequency of written reports and meetings to be agreed) to enable the review of progress.

11. It is anticipated that the successful service provider consultant will be available to commence work **w/c 13 December 2010** and provide a draft report by **18 February 2011**, with a final report available by **28 February 2011**.

Project Output

12. Draft and final reports to be available electronically and in hard copy (4 hard copies of the final report required).

Monitoring and Evaluation

13. The economic appraisal will be monitored by Sustainable Energy Branch in conjunction with DETI economics branch. The project will be evaluated within 3 months of completion.

Project Funding and Payment

14. The economic appraisal will be funded from the EU Competitiveness Programme and as such the final report will have to meet the publicity requirements of the programme.

15. Payment will be made in full, on satisfactory completion, production and acceptance by DETI, of the work undertaken.

Intellectual property

16. Any tender received by the Department shall remain the intellectual property of the tenderer. Once commissioned, however, all documents/results will become the property of the Department to be used as the Department see fit.

Additional Information

17. A short bibliography has been provided at **Annex B** to enable consultants to familiarise themselves with the issues and existing research/studies, but it is expected that the consultants will draw on a wider bibliography in relation to heat, renewable heat and methods of incentivisation.

Equality considerations

18. DETI is committed to achieving a successful economy in Northern Ireland which will provide equal opportunities for all. To this end, Section 75 of the Northern Ireland Act 1998 sets out a number of obligations relating to the nine 'Section 75' categories as follows:-
 - Religious belief;
 - Political opinion;
 - Racial group;
 - Gender;
 - Marital status;
 - Age;
 - Persons with disability
 - Persons with dependents; and
 - Sexual orientation.

19. DETI as a recognised public authority has an obligation under Section 75 as detailed in its Equality Scheme which can be accessed on the Department's website at [www.detini.gov.uk/Equality scheme](http://www.detini.gov.uk/Equality%20scheme) .

20. The study must therefore consider equality aspects relating to the nine 'Section 75' categories by considering available data, identifying any adverse impacts that may be present and proposing alternative measures/policies which might better achieve the promotion of equality of opportunity.

21. The evaluation must also consider the accessibility of the Strategy for all in line with the Disability Discrimination Act 1995.

Annex A**Great Britain Renewable Heat Incentive (RHI)**

The Department of Energy and Climate Change (DECC) published a consultation in February 2010 detailing plans to implement a Renewable Heat Incentive (RHI) in Great Britain from April 2011. This incentive will be open to individuals, community groups and businesses and is intended to increase the uptake of technologies such as air source and ground source heat pumps, biomass boilers, solar thermal etc.

The RHI is intended to lead to a significant increase in the level of renewable heat at the domestic, commercial and industrial scale and it is estimated that this could save up to 60 million tonnes of carbon (MtCO₂) by 2020. The RHI will operate across England, Scotland and Wales, bridging the financial gap between the cost of conventional and renewable heat systems at all scales.

The key features of the RHI, as it stands, are as follows;

- The scheme should support a range of technologies, including air, water and ground-source heat pumps (and other geothermal energy), solar thermal, biomass boilers, renewable combined heat and power, use of biogas and bioliquids and the injection of biomethane into the natural gas grid.
- RHI payments to be claimed by, and paid to, the owner of the equipment.
- In small and medium-sized installations, both installers and equipment to be certified under the Microgeneration Certification Scheme (MCS) or equivalent standard.
- Payments will be paid over a number of years; annually for installations below 45 kW and quarterly for those above this level; subject to conditions such as continuing to operate and maintain the equipment.

- Tariff levels have been calculated to bridge the financial gap between the cost of conventional and renewable heat systems at all scales, with additional compensation for certain technologies for an element of the non-financial cost (e.g. the inconvenience of digging up a garden to install a ground-source heat pump). Tariff levels are proposed to provide a rate of return of 12% on the additional capital cost of renewables, with a lower rate of return of 6% given to solar thermal.
- Payments to be calculated on the annual amount of heat output, expressed in kilowatt hours (kWh). At the small and medium scale, the amount of heat generated by the equipment is proposed to be estimated (or “deemed”) when installed in most cases.
- For large installations and process-heating, heat output will be metered, and the total annual support calculated from the actual energy generated, multiplied by the tariff level.
- The RHI will remain open to new projects until at least 2020. Its design and tariff levels will be reviewed from time to time for new projects, so as to adapt to changes in technology costs and other circumstances.
- Installations completed after 15 July 2009, but before the start of the RHI, will benefit from the scheme as if they had been installed on the date of its introduction.
- Ofgem will administer the RHI, making incentive payments to recipients and taking responsibility for auditing and enforcing the scheme.
- The Energy Act 2008 provides the statutory powers for a renewable heat incentive scheme to be introduced across England, Wales and Scotland. The detailed legal framework will be set out in secondary legislation.

- Further information, including a full list of tariffs for the RHI, can be found at <http://www.decc.gov.uk/en/content/cms/consultations/rhi/rhi.aspx>

Annex B

Bibliography

- The Strategic Energy Framework for Northern Ireland 2010
<http://www.detini.gov.uk>
- An Assessment of the Potential Development of Renewable Heat in Northern Ireland: <http://www.detini.gov.uk>
- Renewable Heat Incentive: Consultation on the proposed RHI financial support scheme
http://www.decc.gov.uk/assets/decc/Consultations/RHI/1_20100204094844_e@@_ConsultationonRenewableHeatIncentive.pdf
- The UK Renewable Energy Strategy (July 2009)
http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/res/res.aspx
- The UK Supply Curve for Renewable Heat, a study for the Department of Energy and Climate Change (July 2009)
http://www.nera.com/image/PUB_Renewable_Heat_July2009.pdf
- Directive 2009/28/EC of the European Parliament and of the Council (23 April 2009) on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:EN:PDF>
- The Consultation on a Bionergy Action Plan for Northern Ireland 2009-2014
<http://www.detini.gov.uk/cgi-bin/downdoc?id=4672>