

Energy



From: Jenny Pyper
Energy Division
30 April 2009

1. Andrew Crawford
2. Arlene Foster MLA

Copy Distribution List Below

DEVELOPMENT OF A RENEWABLE HEAT STRATEGY

Issue:	To seek your agreement to a major new proposed work programme leading to the development of a renewable heat strategy and support mechanism for Northern Ireland.
Timing:	Routine.
Need for referral to the Executive:	Not at this stage, but heat is a cross-cutting issue and will require referral to the Executive at a later date.
Presentational Issues:	None, at this stage.
Freedom of Information:	Exempted under Section 35 of the Freedom of Information Act.
Financial Implications:	There will be costs in 2009/10 in relation to consultancy which is likely to cover economic work on renewable heat support mechanism, heat mapping and work towards a renewable heat strategy.
Legislation Implications:	There are a number of primary legislative issues to be addressed in relation to renewable heat.
PSA/PFG Implications:	None at present, but it is likely that new PSA targets in relation to renewable heat will be needed for the future.
Statutory Equality Obligations:	It is unlikely that this policy will have equality implications but it will be screened in due course.
Recommendation:	That the Minister notes and agrees to the proposed work programme set out at paragraph 21 and Annex C .

Background

You will be aware from previous submissions that the new EU Renewable Energy Directive requires the UK to ensure that 15% of its energy consumption comes from renewable sources – for the first time the requirement extends beyond electricity to heating and cooling and transport. This is an important shift in emphasis: almost half of the final energy consumed in the UK is in the form of heat, producing around half of the UK's CO₂.

2. Renewable heat is heat from renewable sources. Renewable heat applications can range in scale from power-station size biomass plants and Combined Heat and Power (CHP) units to microgeneration technologies for domestic use such as solar thermal water heating units or wood pellet boilers. More detail on renewable heat technologies is given at **Annex A**.

UK and ROI positions

Heat in DECC

3. DECC published its Heat and Energy Savings Strategy in February and consultation is to close in May. Northern Ireland is not involved. The consultation seeks views on a range of policies which will help to decarbonise the way people heat homes and businesses, helping to reduce the UK's CO₂ emissions and to contribute to the target of obtaining 20% of all EU energy from renewables by 2020. DECC has chosen to focus on low-carbon heat rather than solely on renewable heat.

Renewable Heat Incentive

4. A key element of the DECC plan to provide financial support for renewable heat is through the Renewable Heat Incentive (RHI) for which primary powers were taken via last minute amendments to what is now the Energy Act 2008. You will recall that I advised (submission of 22 September 2008) that (a) the timing was too tight to get a Legislative Consent Motion through the Assembly for extension of powers for an RHI to NI and (b) Energy Division was unable to advise categorically that an RHI was the best course of action for NI, because of the lack of any evidence base or detail on the DECC proposals.

UK Renewable Energy Strategy (RES)

5. The draft UK RES was published for consultation last summer: it gave one scenario for the UK meeting the 15% renewable energy target as around: 32% renewable electricity; 14% renewable heat and 10% biofuels. The 14% renewable heat is not a target, but an indication of the kind of level that is needed to meet the overall renewable energy target. DECC plans to publish a final UK RES this summer – again it is unlikely that there will be a firm renewable heat target; DECC prefers the market to decide. The RES will form the basis of the National Action Plans required under the EU Renewable Energy Directive.

Scotland

6. Scotland has set a renewable heat target of 11% by 2020. This has been dictated not so much by resource or other aspirations, but by the Scottish Government determination to meet the EU 20% renewable energy target itself (this 20% is for the EU as a whole, UK only has to meet 15%) and once they had subtracted their existing 50% renewable electricity target and 10% biofuel target, this is the figure that was left.

Republic of Ireland

7. I understand from Sustainable Energy Ireland that the Republic's renewable heat target of 12% by 2020 was not arrived at through analysis of resource and potential but, again, rather as a political decision. Work is underway to ensure that the 12% figure can be realised.

Northern Ireland

8. Northern Ireland currently has no policy, strategy, target or support mechanism to incentivise renewable heat. Previous EU grants given by DETI have however contributed to renewable heat installations e.g. the Strabane Mills biomass boiler. The Reconnect grant scheme under the EREF did make a small but positive impact at the domestic level on renewable heat: 96% of the installations were renewable heat, with the majority being solar hot water installations. Over 4000 installations, supported by some £10.8m of Reconnect support, give a renewable heat capacity of roughly 52MWth.
9. There is no firm statistical basis for heat, but a study commissioned by Action Renewables in 2007 suggests that heat demand in NI was estimated to be around 24,816GWhth/yr. Of this figure, the largest heat-consuming sector is domestic (60.5%). The industrial sector is next largest comprising 21% of the overall heat demand. If the UK's estimate of 14% renewable heat were applied to Northern Ireland (and assuming that 2020 heat consumption were to remain at estimated 2007 levels) then 3,474GWhth/yr renewable heat would be required here. Further work on statistical baselines is needed.
10. Increasing microgeneration heat at a domestic level would involve hundreds of thousands of installations of renewable heat technologies: our recent focus work with consumers would suggest that high levels of grant or other financial support would be required. Our best estimate, based on Reconnect uptake levels, would suggest that even if renewable heat technologies were installed in 70,000 homes in Northern Ireland (i.e. 10% of all energy using homes in Northern Ireland), the cost would be in the region of £160 million to provide consumers with 50% grant, and even at that, the entire heat load of the property would be unlikely to be met, the remainder of the heat load would continue to be met with oil, coal, gas or electricity.
11. It is likely that the 40% heat usage in the industrial and commercial sector may offer a more viable and practical solution for a roll out of renewable heat technology. In addition, energy from waste projects are likely to include significant levels of renewable

heat, however the statutory planning process must be adhered to and therefore the lead in time for these projects is lengthy. These issues, along with potential for financial support system such as the RHI or through regulation (building regulations) will need to be considered as part of the work.

12. In terms of policy and strategy, current DETI work on the cross-departmental bioenergy action plan (draft action plan being finalised for Executive clearance in early July) indicates that renewable heat/CHP would be the best use of NI biomass resource followed by electricity generation.
13. The following actions have also been taken to pave the way for further work on renewable heat:
 - in September 2008, DETI held an introductory seminar with the Head of Heat Policy in DECC, to inform attendees of the UK Renewable Energy Strategy and drivers on heat; and
 - over February and March 2009, DETI, jointly with Action Renewables, held a series of four renewable heat focus groups in order to engage with stakeholders and get a feel for the issues that would need to be addressed in a NI renewable heat strategy. **Annex B** gives a summary of the outcome – there are some very significant issues to be addressed.
14. The current draft of the new Strategic Energy Framework (SEF) does make it clear that NI intends to start work in this area and proposes an interim target of 10% renewable heat by 2020, but since we have insufficient data to back this target up, the draft proposes that the target will be confirmed or revised following further work. Further discussion on timing of SEF and work on renewable heat is in para 21 below. Views from stakeholders state clearly that a government target is essential to drive the market.

Drivers for the development of renewable heat in Northern Ireland

15. The key driver for work on heat here must be the Renewable Energy Directive (RED) as referenced above. The requirement to meet the very challenging 15% renewable energy target falls at Member State level, not at Devolved Administration level. However, while energy is a devolved matter for NI, each DA is expected to contribute as much as possible to the overall UK target. NI will have to transpose the RED for Northern Ireland and it is not clear at this stage whether that will require NI to show that it is taking action to increase the amount of renewable heat consumed here.
16. Setting the RED to one side, increasing the amount of renewable heat in Northern Ireland has the potential to meet other policy goals:
 - **Security of supply** – in general terms, renewable heat solutions tend use more local resources than fossil fuel supplies, helping to meet security of supply concerns. There are issues about the import of biomass to meet any significant upswing in demand for renewable heat, but it is probably a short-medium term

solution while more local supply chains can be developed;

- **Climate change** – heat represents half of all final energy consumption and around 80% of domestic energy consumption through space heating and hot water heating. Heat use is therefore a significant contributor to GHGs, particularly in NI where we are more reliant on carbon-intensive fuels such as oil. Longer-term it is likely that heat will have to be totally decarbonised by 2050 to meet climate change goals.
- **Energy costs and other economic benefits** – while generally renewable energy technologies are more expensive than their fossil fuel alternatives, the costs relate mainly to capital installations and the renewable fuels themselves are, in general terms, less expensive and less subject to world market price changes than their fossil fuel alternatives. In addition we might expect that more local sourcing of heat energy supply will lead to further jobs within the region.
- **Other objectives** – renewable heat can also assist policy objectives in the regions of landfill, agri and food waste, rural diversification etc.

Heat or renewable heat?

17. As DECC has recognised by creating a heat policy unit rather than a *renewable* heat policy unit, it is difficult to focus on the part without at least understanding, if not actively working on, the whole. The promotion and development of renewable heat, particularly if underpinned by a financial support mechanism, will impact on other forms of heat, particularly the gas and oil supply industries, because the aim is to promote renewable sources of heat at the expense of fossil fuel heat¹. The NI regulator, Iain Osborne, has also suggested that DETI needs to widen its scope to look at heat as a whole, not just renewable heat.
18. If DETI were to reconfigure its policy around the delivery of electricity and heat energy rather than electricity and gas statutory duties as at present, this would probably require a change in statutory duties through primary legislation and might have some consequences for statutory duties on gas. Any changes in DETI's statutory duties would also require changes to the NIAUR's statutory underpinning. Ultimately, Energy Division's response on heat may be dictated by the resources at its disposal.

Resource implications

19. Heat (including renewable heat) is more complex in policy terms than renewable electricity, mostly because it is not part of one single system– it is more localised and

¹ Fuelled by recent price rises, there has been growing momentum towards urging increased regulation of heating fuel prices, including previously unregulated oil. For example, a recent PAC report on the Warm Homes scheme recommended that DSD gave serious consideration to the regulation of oil market – something DETI continues to resist.

therefore requires many, varied solutions rather than one regional level solution that can be provided through the electricity grid. Development of renewable heat in Northern Ireland would require significant policy and legislative resources (including for a Bill team in 2010/11) over the short-medium term if we are to have any impact in the 2020 timeframe.

20. DECC has committed significant resource to this policy area. Scotland has also committed resources to Renewable Heat to meet its 11% target. The Department has limited resources and expertise to devote to managing work in this new policy area. As a result significant consultancy support will be needed to provide the evidence base and economic analysis required to underpin a Renewable Heat Bill starting in 2010/11.

Proposed renewable heat work programme

21. In order to develop a renewable heat sector in Northern Ireland, and thereby secure the benefits identified above, there are a number of key work streams associated with developing a renewable heat strategy with associated target and support mechanism, which, starting immediately, would continue over the next 2-3 years. The likely themes of the work streams are outlined in **Annex C**. It is proposed that initial evidence-gathering phase (statistics, economic analysis for a renewable heat support system, heat mapping and work towards a draft heat strategy for consultation) would be put out to tender for consultants to do the work using EU ERDF money within my budget. This consultancy is likely to be in the order of £ Sensitive commercial information redacted by the RHI Inquiry and would require Ministerial approval.

Linkages with Strategic Energy Framework

22. As stated above, the SEF will reference proposals for starting work on renewable heat in Northern Ireland, behind the rest of the UK and Scotland because of lack of resources. This submission is not intended to pre-empt the outcome of the consultation on the SEF: ideally, we would wait until the consultation on SEF was complete to start the work, but responses to the pre-consultation scoping on SEF and the fact that increasing renewable heat is now mandated at EU level strongly indicates that this work will have to be done. Given experience of time taken to get sign-off and tender to appoint consultants at this level of expenditure (likely to take 6 months), we believe that this work must start now to have any hope of meeting EU, UK and local expectations of work in this area.

Recommendation

23. I recommend that you:
 - a) note the Energy Division analysis of the policy work that needs to be done on heat/renewable heat matters; and

- b) agree to the proposed work programme to be started soon in 2009/10 and continue as outlined in **Annex C**, leading to the development of a Renewable Heat Strategy.



JENNY PYPER
Head of Energy Division
Tel: 028 90529577
e-mail: jenny.pyper@detini.gov.uk

Distribution List

cc:

Stephen Quinn
David Sterling
Alison Clydesdale
Paul Dolaghan
Fred Frazer
Peter Hughes
Olivia Martin
Malachy McKernan
Celine Murray
Barbara Swann

ANNEX A

Renewable heat – what it is

Examples of renewable heat technologies that can be used on a small scale include:

Heat Pumps: Ground and air source heat pumps are most common, although water source heat pumps also exist. Ground source heat pumps extract heat from the subsoil whereas air source heat pumps exploit the heat energy in the air. Both types use electric power to enable the process by which this heat can be captured for domestic use. The resulting output of heat energy is a factor larger than the electrical input energy (giving rise to a ratio known as the ‘coefficient of performance (“COP”)’).

Biomass: Biomass heat comes from the burning of organic matter of recent origin. Wood is the most common biomass fuel - pellets, chips or logs - and larger plant that is compliant with the Waste Incineration Directive can also burn ‘waste wood’ or mixed waste containing biogenic material such as food waste.

Solar Thermal: Hot water for household use is produced by exposure to the sun, usually via solar thermal units on a building’s roof. This can produce in the order of 50-60% of a household’s annual hot water needs.

Other renewable heat technologies are more common at larger scales, for example:

Combined Heat and Power (“CHP”) technology: This is a carbon and energy-efficient process under which both the electricity and the heat produced by the electricity generation process are captured and used. CHP can be used with all types of biomass and biogas electricity generation, though currently most CHP in the UK is powered by fossil fuels. There is significant potential to increase the use of renewable fuels for CHP generation and renewable CHP is strongly supported under the new NIRO banding.

Some types of biomass can also be used to produce ‘biogas’ through the process of ‘anaerobic digestion (“AD”)’, which can then be used directly to generate electricity or heat – or both – on-site.

Biogas can also be upgraded (or ‘reformed’) to make ‘biomethane’ and injected into the existing natural gas grid. This is a relatively new process, though in some EU Member States projects have already begun injecting biomethane into the grid.

It is also possible to use the heat produced by waste material for the purpose of heating, for example, the heat produced by landfill. In some EU Member States, such heat is used to supply district heating networks. Also waste heat from industrial and other processes can be captured for use.

There is considerable overlap between some of these technologies and scales. For example, ground source heat pumps can be used to heat larger commercial and public buildings like hospitals or supermarkets.

ANNEX B

Renewable Heat Focus Groups Information Summary**Main policy goals/drivers**

- All goals seen as important but key drivers agreed as security of supply and economic considerations.
- Decarbonisation seen as key from an environmental perspective.
- Job creation was also considered an important by-product.

Heat Markets

- The market needs some form of regulation to protect consumers and encourage investors, but different interventions may be needed for different user sectors.
- Regulated markets will help district heating schemes develop as regulation will protect both supplier and consumers, preventing recurrence of past problems in NI.
- Indigenous resources should be used as much as possible for biomass projects.
- As the N.Ireland market is very fragmented, a Heat Forum might help bring the different key organisations together to address important issues.
- More links should be made between the north and south to promote all-island sustainability.

Targets & Strategy

- Urgent need to set a target as soon as possible to provide market pull: while some felt that more research was needed to set an exact target which is challenging but achievable, others felt that the need for a target was so urgent that it should be set immediately to provide market pull.
- N.Ireland should aim for a target similar to that of other parts of the UK, perhaps around 10%.
- N.Ireland has no current security of heat supply: policy makers need to focus on this aspect to drive forward targets and the development of the renewables market.
- Concerns expressed over how a target would be implemented and supported. It was generally agreed that the planning authority and other departments would have to adopt a more joined-up, pro-active role to support future renewable heat development.
- With the right support mechanisms in place, any potential target can be met.
- Important not to get too worried about 'indigenous' fuel – imports of biomass are ok to help the market in the short-term, more indigenous growers will come on board if the market is stimulated.

Support Mechanisms

- Some form of new grant scheme or incentive is needed to pull the demand for renewables and help Government meet its targets. Government cannot rely on the market alone at this stage.
- General feeling in favour of a Renewable Heat Incentive.
- Support mechanisms need to be put in place as soon as possible to encourage the market and provide a certainty over the direction it is heading.
- Government support through capital grants gives investors the confidence to invest in the technologies. Grant timescales need to be longer for renewable energy schemes as those requiring planning often take up to a year or more just to gain permission and need more time to complete the actual installation.
- Any grant funding needs to be followed by long term policy to ensure the industry/market continues to grow. Starting and stopping a grant scheme merely damages the industry.
- Government should allow ESCOs to apply for financial support as well as end users. Currently ESCOs sit outside grant boundaries. If supported, they will have a huge impact on encouraging the development of the industry. SEI has done this in the south and it has stimulated the market significantly.

- The infrastructure for implementing renewables in N.Ireland carries a huge potential cost. To encourage large suppliers to enter the market you have to put in place mechanisms that encourage their entry.
- There should be rates rebates/more financial incentives for homeowners incorporating renewables into their homes – or link with EPC at domestic level to ensure energy efficiency is done first.

Legislation/Regulation/Licensing

- The planning authority need to improve their knowledge and practices regarding renewables. If planning is slow this holds up the developments and puts investors off.
- DOE has raised concerns about emissions from biomass boilers - as there is no current research on levels of background emissions and developers cannot fund the emissions research required by the DOE, it often puts a hold on projects. In this instance are renewables being asked to jump a higher bar than other sectors e.g. transport emissions?
- Legislation should be improved to allow greater use of waste heat.
- Currently no legislation in the UK regarding geothermal heat, this needs to be urgently addressed.
- Life cycle costing should be factored into each new build. Currently buildings are constructed to meet the needs of the present but not the future. Not enough value is placed upon the running cost for the end user.
- Building regulations should include renewables in new builds. Such regulation will help reach targets when the building industries are required by law to construct sustainable development projects.
- Different government departments should ensure that any new build projects they are commissioning meet certain sustainable standards e.g. the DSD should ensure that any new social housing projects meet the Code for Sustainable Homes.
- Some discussion over the potential for regulation of pellet prices: the point was raised around pellet supply monopoly in NI creating uncertainty over future prices. However the regulator pointed out that there were no barriers to entry to the market and therefore no market failure that would require regulatory intervention at this stage.
- It is important to adopt a uniform quality standard for wood pellets and other renewable fuels. Also installer training and quality standards for equipment were vital to ensure market confidence.
- Potential need to have some sort of body to govern heat companies (ESCOs)

Infrastructure

- Heat network infrastructure is very expensive: this needs to be subsidised.
- When new roads/building developments are being constructed, pipes should be laid to facilitate potential future district heating schemes.
- Need to ensure that we have the right infrastructure in place to utilise our natural resources e.g. there are only two machines in N.Ireland currently able to harvest wood fuel resources.

Other barriers/constraints

Lack of Knowledge

- A lack of knowledge regarding renewable heat may act as a barrier to its development Domestic/Community/Public and Commercial sectors need more education and support to help plan, fund and implement projects.
- A lack of general knowledge amongst consumers over how the different technologies work and when they are suitable. More targeted education initiatives are needed.

- There is a lack of support for community groups/schools and the not-for-profit sector who wish to develop projects. They need someone to provide them with specific case by case information and grant support.
- Lack of monitoring of different technologies means not enough formal information on how the different technologies are performing to date.
- There is an urgent need for more information to be relayed to public and government departments with regards renewable energy, how it works, case studies based on monitoring information and actual demonstration schemes to show them operating in practice.

Planning

- More joint initiatives are needed e.g. linking those who produce waste heat with those with heat demands.
- The planning authority needs a uniform policy towards applications involving renewables. It also needs to be a faster process as very few people will consider investing in a project/sector that takes 3 years alone to receive planning permission.

Design

- The building industry, architects, M&E's and consultants all need to be encouraged to consider renewables in their projects/developments. Many of them don't have the knowledge or confidence to do so yet.

Leadership

- A lack of leadership is often a big barrier and currently not many government leaders are seen to be supporting renewables. Government departments need to work together to positively support renewables.
- Government need to take the lead with their estate, setting an example and providing a market for renewables.
- Renewable Heat could become an area that NI leads in...we could sell this idea based upon the fact that it involves joined up policies between government departments.
- CPD does not understand renewables; need more information to spur sustainable purchasing.
- Government needs to be less risk adverse and take a more proactive approach.

Information/research/mapping

- A heat map highlighting demand and resource would help.
- Need for more up-to-date N.Ireland specific statistics regarding current heat demand and production.
- Government need to be prepared to invest money in researching and analysing the potential for renewables development in N.Ireland. There are gaps in the knowledge surrounding certain technologies (e.g. deep geothermal) so we need to have more information on these before people will consider undertaking such projects.
- More needs to be done to research and promote geothermal heat.

Economic Opportunities

- High energy prices and lack of security of supply prevent manufacturers from coming into an area/region. If incentives were offered for green industries, including lower fuel prices, this would encourage inward investment as companies locate in the region.
- If we drive renewable heat forward then hopefully it will generate new jobs and keep wealth in the region.
- Grants and legislation in the south have ensured that the industry there continues to grow, yet in the north we stopped the grants without any legislation to follow on from it. We need to have something here to kick-start this industry again.

- If you have a secure energy supply, you have more secure energy prices which in turn, will encourage inward investment as companies locate in the region.
- Perhaps the potential exists to export our expertise and learning to other parts of the world e.g. SEAgen and Wave Bob.

Standards

- Installer standards need to continue to improve in order to encourage growth in the market.
- Query whether current quality standards for renewable energy equipment/technologies were sufficient or whether further regulation was required in this area.
- There should be mandatory continual professional development courses incorporating renewable energy for industries such as the construction sector, engineers, architects etc.

Communication

- There is a need for a single point of contact for those seeking renewable energy related information. At the moment it is quite fragmented between Action Renewables, the EST and the NIEA. It would be helpful to have one initial contact phone number for consumers/businesses to deal with.
- Decision makers, particularly local councils and staff employed within government departments in the area of renewables, need much more education on renewable heat.
- Groups such as architects, public procurement staff, M&E's, design consultants, developers and planners also need to be better informed so they can feel more confident about incorporating renewables in their decisions.
- Public understanding of renewable heat needs to be better. Monitoring and case study information is very important as it allows consumers to see first hand how well the different technologies perform and gives them more confidence in their abilities.
- Potential for a new media campaign highlighting some of the working renewable energy projects in NI to show they can be and have been done. E.g. a TV series (half hour episodes) could be made illustrating different technologies in different settings each week.
- Communication tools must vary according to audiences; a standard message will not address the needs of all groups and instead requires different versions which target specific groups.

Prioritisation

- A renewable heat incentive is necessary to provide market pull.
- A renewable heat target is essential and it needs to be agreed upon as soon as possible, however it can not stand alone and needs to be supported by the necessary legislation.
- Government commitment and leadership is essential – if targets are set, the rest will follow.
- Policy needs to be informed by research.
- There is a need for more energy awareness campaigns to promote renewables as a viable alternative to fossil fuels.

ANNEX C

PROPOSED THEMES FOR A RENEWABLE HEAT WORK PROGRAMME**Evidence gathering**

- Up-to-date NI-specific statistics regarding current heat demand and production – maintenance on ongoing basis;
- mapping heat resource and heat demand in NI;
- Economic analysis on best form of financial support mechanism for NI;
- Greater liaison with GB and ROI in sharing best practice and policy.

Legislation

- Primary legislation required to give DETI vires on renewable heat and to put in place primary powers for a renewable heat support mechanism;
- Secondary legislation required to implement detail of support mechanism;
- Legislation on geothermal licensing;

Stakeholders

- Consider Heat markets forum to discuss heat issues with oil, gas and renewable heat sectors;
- Set up renewable heat stake-holders group and renewable heat cross-departmental group to ensure joined-up government on policy development.

Targets, Strategy and Leadership

- Set Executive-approved renewable heat target to provide market pull, perhaps around 10% to 2020;
- Develop cross-departmental renewable heat strategy to 2020 with potential for Government need to take the lead with their estate, setting an example and providing a market for renewables

Support Mechanisms

- Analyse NI heat market and provide recommendations as to financial support system to incentivise development of renewable heat;
- Legislate – primary and secondary
- Set up/fund body to administer support mechanism;
- Maintain review of operation of support mechanism on ongoing basis.

Infrastructure

- Consider need to subsidise heat network infrastructure;
- Liaison with DRD on infrastructure planning and other issues.

Standards

- Ensure installer standards support confidence and growth in the market.
- Ensure quality standards for renewable energy equipment/technologies are sufficient to support confidence and growth in the market.
- Consider e.g. uniform quality standard for wood pellets and other renewable fuels.

Communication and education

- Ensure Renewable Heat is factored into work on sustainable energy communications.
- Ensure key influencers (such as architects, public procurement staff, design consultants, developers, local council staff and planners) are better informed on renewable heat.
- Consider potential for monitoring and case study information and dissemination to industry and consumers to improve market confidence;
- Consider potential for continual professional development courses incorporating renewable energy for industries such as the construction sector, engineers, and architects.
- Ensure community groups, schools and the not-for-profit sector are provided with specific case by case information and grant support.

Addressing barriers/constraints

- Ensure planning and environmental consents are appropriate for and facilitative of renewable heat technologies;
- Consider ways of ensuring joint initiatives are facilitated e.g. linking those who produce waste heat with those with heat demands.
- Ensure building regulations are compliant with EU RED.
- Ensure supportive structure for ESCOs.

Sustainability criteria

- Ensure all development meets EU mandated sustainability criteria

Andrew See note to the off
from Olivia Martin
to 7 in query
AR 19/5

RESTRICTED - POLICY

Minister: DFE 26736
to note P of the

to proposed work programme

From: Jenny Pyper
Energy Division
30 April 2009

para 20 - will we not have
problem using consultants to do the work
in 2010/11? AR 10/5
attached
Michael Kelly
30.4.09

1. Andrew Crawford
2. Arlene Foster MLA

AR 21/5

Copy Distribution List Below

DETI SUB 254/09: DEVELOPMENT OF A RENEWABLE HEAT STRATEGY

Issue:	To seek your agreement to a major new proposed work programme leading to the development of a renewable heat strategy and support mechanism for Northern Ireland.
Timing:	Routine.
Need for referral to the Executive:	Not at this stage, but heat is a cross-cutting issue and will require referral to the Executive at a later date.
Presentational Issues:	None, at this stage.
Freedom of Information:	Exempted under Section 35 of the Freedom of Information Act.
Financial Implications:	There will be costs in 2009/10 in relation to consultancy which is likely to cover economic work on renewable heat support mechanism, heat mapping and work towards a renewable heat strategy.
Legislation Implications:	There are a number of primary legislative issues to be addressed in relation to renewable heat.
PSA/PFG Implications:	None at present, but it is likely that new PSA targets in relation to renewable heat will be needed for the future.
Statutory Equality Obligations:	It is unlikely that this policy will have equality implications but it will be screened in due course.
Recommendation:	That the Minister notes and agrees to the proposed work programme set out at paragraph 21 and Annex C .

Background

You will be aware from previous submissions that the new EU Renewable Energy Directive requires the UK to ensure that 15% of its energy consumption comes from renewable sources – for the first time the requirement extends beyond electricity to heating and cooling and transport. This is an important shift in emphasis: almost half of the final energy consumed in the UK is in the form of heat, producing around half of the UK's CO₂.

2. Renewable heat is heat from renewable sources. Renewable heat applications can range in scale from power-station size biomass plants and Combined Heat and Power (CHP) units to microgeneration technologies for domestic use such as solar thermal

RESTRICTED - POLICY

water heating units or wood pellet boilers. More detail on renewable heat technologies is given at **Annex A**.

UK and ROI positions*Heat in DECC*

- DECC published its Heat and Energy Savings Strategy in February and consultation is to close in May. Northern Ireland is not involved. The consultation seeks views on a range of policies which will help to decarbonise the way people heat homes and businesses, helping to reduce the UK's CO₂ emissions and to contribute to the target of obtaining 20% of all EU energy from renewables by 2020. DECC has chosen to focus on low-carbon heat rather than solely on renewable heat.

Renewable Heat Incentive

- A key element of the DECC plan to provide financial support for renewable heat is through the Renewable Heat Incentive (RHI) for which primary powers were taken via last minute amendments to what is now the Energy Act 2008. You will recall that I advised (submission of 22 September 2008) that (a) the timing was too tight to get a Legislative Consent Motion through the Assembly for extension of powers for an RHI to NI and (b) Energy Division was unable to advise categorically that an RHI was the best course of action for NI, because of the lack of any evidence base or detail on the DECC proposals.

UK Renewable Energy Strategy (RES)

- The draft UK RES was published for consultation last summer: it gave one scenario for the UK meeting the 15% renewable energy target as around: 32% renewable electricity; 14% renewable heat and 10% biofuels. The 14% renewable heat is not a target, but an indication of the kind of level that is needed to meet the overall renewable energy target. DECC plans to publish a final UK RES this summer – again it is unlikely that there will be a firm renewable heat target; DECC prefers the market to decide. The RES will form the basis of the National Action Plans required under the EU Renewable Energy Directive.

Scotland

- Scotland has set a renewable heat target of 11% by 2020. This has been dictated not so much by resource or other aspirations, but by the Scottish Government determination to meet the EU 20% renewable energy target itself (this 20% is for the EU as a whole, UK only has to meet 15%) and once they had subtracted their existing 50% renewable electricity target and 10% biofuel target, this is the figure that was left.

Republic of Ireland

- I understand from Sustainable Energy Ireland that the Republic's renewable heat target of 12% by 2020 was not arrived at through analysis of resource and potential

RESTRICTED - POLICY

but, again, rather as a political decision. Work is underway to ensure that the 12% figure can be realised.

Northern Ireland

8. Northern Ireland currently has no policy, strategy, target or support mechanism to incentivise renewable heat. Previous EU grants given by DETI have however contributed to renewable heat installations e.g. the Strabane Mills biomass boiler. The Reconnect grant scheme under the EREF did make a small but positive impact at the domestic level on renewable heat: 96% of the installations were renewable heat, with the majority being solar hot water installations. Over 4000 installations, supported by some £10.8m of Reconnect support, give a renewable heat capacity of roughly 52MWth.
9. There is no firm statistical basis for heat, but a study commissioned by Action Renewables in 2007 suggests that heat demand in NI was estimated to be around 24,816GWhth/yr. Of this figure, the largest heat-consuming sector is domestic (60.5%). The industrial sector is next largest comprising 21% of the overall heat demand. If the UK's estimate of 14% renewable heat were applied to Northern Ireland (and assuming that 2020 heat consumption were to remain at estimated 2007 levels) then 3,474GWhth/yr renewable heat would be required here. Further work on statistical baselines is needed.
10. Increasing microgeneration heat at a domestic level would involve hundreds of thousands of installations of renewable heat technologies: our recent focus work with consumers would suggest that high levels of grant or other financial support would be required. Our best estimate, based on Reconnect uptake levels, would suggest that even if renewable heat technologies were installed in 70,000 homes in Northern Ireland (i.e. 10% of all energy using homes in Northern Ireland), the cost would be in the region of £160 million to provide consumers with 50% grant, and even at that, the entire heat load of the property would be unlikely to be met, the remainder of the heat load would continue to be met with oil, coal, gas or electricity.
11. It is likely that the 40% heat usage in the industrial and commercial sector may offer a more viable and practical solution for a roll out of renewable heat technology. In addition, energy from waste projects are likely to include significant levels of renewable heat, however the statutory planning process must be adhered to and therefore the lead in time for these projects is lengthy. These issues, along with potential for financial support system such as the RHI or through regulation (building regulations) will need to be considered as part of the work.
12. In terms of policy and strategy, current DETI work on the cross-departmental bioenergy action plan (draft action plan being finalised for Executive clearance in early July) indicates that renewable heat/CHP would be the best use of NI biomass resource followed by electricity generation.

RESTRICTED - POLICY

13. The following actions have also been taken to pave the way for further work on renewable heat:
- in September 2008, DETI held an introductory seminar with the Head of Heat Policy in DECC, to inform attendees of the UK Renewable Energy Strategy and drivers on heat; and
 - over February and March 2009, DETI, jointly with Action Renewables, held a series of four renewable heat focus groups in order to engage with stakeholders and get a feel for the issues that would need to be addressed in a NI renewable heat strategy. **Annex B** gives a summary of the outcome – there are some very significant issues to be addressed.
14. The current draft of the new Strategic Energy Framework (SEF) does make it clear that NI intends to start work in this area and proposes an interim target of 10% renewable heat by 2020, but since we have insufficient data to back this target up, the draft proposes that the target will be confirmed or revised following further work. Further discussion on timing of SEF and work on renewable heat is in para 21 below. Views from stakeholders state clearly that a government target is essential to drive the market.

Drivers for the development of renewable heat in Northern Ireland

15. The key driver for work on heat here must be the Renewable Energy Directive (RED) as referenced above. The requirement to meet the very challenging 15% renewable energy target falls at Member State level, not at Devolved Administration level. However, while energy is a devolved matter for NI, each DA is expected to contribute as much as possible to the overall UK target. NI will have to transpose the RED for Northern Ireland and it is not clear at this stage whether that will require NI to show that it is taking action to increase the amount of renewable heat consumed here.
16. Setting the RED to one side, increasing the amount of renewable heat in Northern Ireland has the potential to meet other policy goals:
- **Security of supply** – in general terms, renewable heat solutions tend use more local resources than fossil fuel supplies, helping to meet security of supply concerns. There are issues about the import of biomass to meet any significant upswing in demand for renewable heat, but it is probably a short-medium term solution while more local supply chains can be developed;
 - **Climate change** – heat represents half of all final energy consumption and around 80% of domestic energy consumption through space heating and hot water heating. Heat use is therefore a significant contributor to GHGs, particularly in NI where we are more reliant on carbon-intensive fuels such as oil. Longer-term it is likely that heat will have to be totally decarbonised by 2050 to meet climate change goals.
 - **Energy costs and other economic benefits** – while generally renewable energy technologies are more expensive than their fossil fuel alternatives, the

RESTRICTED - POLICY

costs relate mainly to capital installations and the renewable fuels themselves are, in general terms, less expensive and less subject to world market price changes than their fossil fuel alternatives. In addition we might expect that more local sourcing of heat energy supply will lead to further jobs within the region.

- **Other objectives** – renewable heat can also assist policy objectives in the regions of landfill, agri and food waste, rural diversification etc.

Heat or renewable heat?

17. As DECC has recognised by creating a heat policy unit rather than a *renewable* heat policy unit, it is difficult to focus on the part without at least understanding, if not actively working on, the whole. The promotion and development of renewable heat, particularly if underpinned by a financial support mechanism, will impact on other forms of heat, particularly the gas and oil supply industries, because the aim is to promote renewable sources of heat at the expense of fossil fuel heat¹. The NI regulator, Iain Osborne, has also suggested that DETI needs to widen its scope to look at heat as a whole, not just renewable heat.
18. If DETI were to reconfigure its policy around the delivery of electricity and heat energy rather than electricity and gas statutory duties as at present, this would probably require a change in statutory duties through primary legislation and might have some consequences for statutory duties on gas. Any changes in DETI's statutory duties would also require changes to the NIAUR's statutory underpinning. Ultimately, Energy Division's response on heat may be dictated by the resources at its disposal.

Resource implications

19. Heat (including renewable heat) is more complex in policy terms than renewable electricity, mostly because it is not part of one single system– it is more localised and therefore requires many, varied solutions rather than one regional level solution that can be provided through the electricity grid. Development of renewable heat in Northern Ireland would require significant policy and legislative resources (including for a Bill team in 2010/11) over the short-medium term if we are to have any impact in the 2020 timeframe.
20. DECC has committed significant resource to this policy area. Scotland has also committed resources to Renewable Heat to meet its 11% target. The Department has limited resources and expertise to devote to managing work in this new policy area. As a result significant consultancy support will be needed to provide the evidence base and economic analysis required to underpin a Renewable Heat Bill starting in 2010/11.

Proposed renewable heat work programme

¹ Fuelled by recent price rises, there has been growing momentum towards urging increased regulation of heating fuel prices, including previously unregulated oil. For example, a recent PAC report on the Warm Homes scheme recommended that DSD gave serious consideration to the regulation of oil market – something DETI continues to resist.

RESTRICTED - POLICY

21. In order to develop a renewable heat sector in Northern Ireland, and thereby secure the benefits identified above, there are a number of key work streams associated with developing a renewable heat strategy with associated target and support mechanism, which, starting immediately, would continue over the next 2-3 years. The likely themes of the work streams are outlined in **Annex C**. It is proposed that initial evidence-gathering phase (statistics, economic analysis for a renewable heat support system, heat mapping and work towards a draft heat strategy for consultation) would be put out to tender for consultants to do the work using EU ERDF money within my budget. This consultancy is likely to be in the order of £ [redacted] and would require Ministerial approval.

Sensitive commercial
information redacted by
the RHI Inquiry

Linkages with Strategic Energy Framework

22. As stated above, the SEF will reference proposals for starting work on renewable heat in Northern Ireland, behind the rest of the UK and Scotland because of lack of resources. This submission is not intended to pre-empt the outcome of the consultation on the SEF: ideally, we would wait until the consultation on SEF was complete to start the work, but responses to the pre-consultation scoping on SEF and the fact that increasing renewable heat is now mandated at EU level strongly indicates that this work will have to be done. Given experience of time taken to get sign-off and tender to appoint consultants at this level of expenditure (likely to take 6 months), we believe that this work must start now to have any hope of meeting EU, UK and local expectations of work in this area.

Recommendation

23. I recommend that you:
- a) note the Energy Division analysis of the policy work that needs to be done on heat/renewable heat matters; and
 - b) agree to the proposed work programme to be started soon in 2009/10 and continue as outlined in **Annex C**, leading to the development of a Renewable Heat Strategy.



JENNY PYPER
Head of Energy Division
Tel: 028 90529577
e-mail: jenny.pyper@detini.gov.uk

RESTRICTED - POLICY

Distribution List

cc:

Stephen Quinn
David Sterling
Alison Clydesdale
Paul Dolaghan
Fred Frazer
Peter Hughes
Olivia Martin
Malachy McKernan
Celine Murray
Barbara Swann