

## Rural Carbon Challenge Fund

### Full Concept Stage Application Form Including Appraisal Questions

All applicants are advised to read the Guidance for Applicants provided whilst completing this form. This will provide you with information regarding what is required and includes a glossary of terms which defines the terminology used in the application form.

Please note: A 45 page limit is recommended

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Date received

Proposal number

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### Rural Carbon Challenge Fund

<b>Project Name:</b> Halton Carbon Positive		<b>Project Number:</b>	66
<b>Project Applicant:</b> Lancaster Cohousing (on behalf of Halton Carbon Positive partnership)			
<b>Type of Project:</b> Community-led low carbon initiative including: (i) Hydro electric scheme on the River Lune and; [REDACTED]			
<b>Start Date:</b> Once Contract Signed		<b>End Date:</b> December 2012	
<b>Delivery Body or Lead Organisation Name:</b> [REDACTED]			
<b>Delivery Body or Lead Organisation Address:</b> [REDACTED]			
<b>Lead Contact name:</b> [REDACTED]			
<b>Telephone:</b> [REDACTED]		<b>Email:</b> [REDACTED]	
<b>Website:</b> <a href="http://www.lancastercohousing.co.uk">www.lancastercohousing.co.uk</a>			

<b>Type of organisation:</b> Social Enterprise	<b>Registration Docs.</b>	5801423 (attached)
<b>Sector in which you operate:</b> Housing / community / environment		

**Size of Organisation:**

**Approx Annual Turnover:** Turnover will very markedly from year to year, and does not reflect the organisation's level of activity, as the organisation's principle activity is to deliver the redevelopment scheme described in this application. [REDACTED]

<b>No. of Employees:</b>	<b>Full Time:</b>	None. Board of six directors. All remunerated work carried out on a contract basis	<b>Part Time:</b>	Between 30 and 40 regular volunteers
<b>VAT status</b>		[REDACTED]		

*For projects taking place in a single location:*

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**Location of project delivery including post code: (where applicable):**

See below for location sites.

**For projects taking place in more than one location:**

**Locations of project delivery including post codes (where applicable)**

Community Hydro Installation - Forge Weir, Halton SD513,648

Biomass Boiler and District Heat Scheme – Halton Mill, Mill Lane, Halton, Lancaster LA2 6ND

**Area Status (Tick as many as applicable):**

<input type="checkbox"/> National Park	<input checked="" type="checkbox"/> AONB	<input type="checkbox"/> SSSI	<input checked="" type="checkbox"/> ERDF	<input type="checkbox"/> Assisted Areas
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Parliamentary Constituency (please specify): Morecambe & Lunesdale

Local Authority (please specify): Lancaster City Council

For NWDA Use							
Lifetime cost of Project to RDPE £500,000	Total lifetime cost of Project £1,294,900						
NWDA Project Manager:							
RDPE Measure(s) (please tick appropriately)	<input type="checkbox"/> 111	<input type="checkbox"/> 114	<input type="checkbox"/> 115	<input type="checkbox"/> 121	<input type="checkbox"/> 122	<input type="checkbox"/> 123	<input type="checkbox"/> 124
	<input type="checkbox"/> 125	<input type="checkbox"/> 311	<input type="checkbox"/> 312	<input type="checkbox"/> 321	<input type="checkbox"/> 323	<input type="checkbox"/> 331	<input type="checkbox"/> 341
Cost Centre(s) (please specify)							

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### SECTION 1: PROJECT DESCRIPTION

1: Give a brief description of the project, which clearly specifies what the RDPE funding will purchase (maximum 500 words):

The **Halton Carbon Positive (HCP)** project has been developed by three social enterprises – Halton Community Association (HCA), Lancaster Cohousing (LCH) and LESS (Local & Effective Sustainable Solutions). We are working in partnership to deliver an ambitious and innovative local response to the challenges of climate change and economic recession. There are six main aspects to the HCP project: (i) installation of a community hydro turbine on the River Lune;

RCCF funding will be used to implement the following aspects of the project:

- **220kWe Community Hydro Scheme on the River Lune to be delivered by Halton Lune Hydro Ltd, a micro-enterprise established and supported by HCA; this application is for essential added environmental features and additional site-specific costs of grid connection.** The proposed Kaplan turbine will provide renewable electricity for 264 homes, including the cohousing homes, and save an estimated 618tCO<sub>2</sub>e pa. The RCCF funding of £350,000 will be used to part-fund this £1.16m project. HCA currently own the intellectual rights to the Hydro project including the feasibility studies for the scheme. HCA have set up Halton Lune Trust that will own all assets on behalf of the community, including the construction and operating company Halton Lune Hydro Ltd, a renewables micro-enterprise. Public funding, community investment and commercial loans will fund the construction and operation of the facility and profits will be distributed back in to the community through the Trust.

### SECTION 2: RATIONALE & OBJECTIVES

2. What are the project objectives (these should be Specific, Measurable, Achievable, Realistic & Time-bound [SMART])?

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- To install a 220kWe hydro turbine in the River Lune at Forge Bank weir by January 2012. The turbine is estimated to generate 1,156 MW (the equivalent power use of 264 homes) and save 618tCO<sub>2</sub> e p.a. The turbine will be operated and maintained by a new micro-enterprise Halton Lune Hydro Ltd.
- [REDACTED]
- [REDACTED]
- To become a beacon low-carbon community by March 2013 that has harnessed local renewable resources to generate energy and is reinvesting profits to fund activities in the parish that amongst others: improve and enhance recreational opportunities and sporting activities; improve the energy-efficiency performance of existing houses and community buildings; promote the conservation and enhancement of the natural environment (including resource use) and heritage of the parish.
- To develop a Low Carbon Education Centre on the cohousing site by March 2014. Income generated from the biomass heating system will help to fund this.

3. What problems, market or other failures or undesirable outcomes is the intervention (i.e. the activities that will be funded by the NWDA RCCF) seeking to address?

The RCCF funding will address the following market failures:

- [REDACTED]
  - [REDACTED]
- Since 2003 HCA has raised over £1 million grant funding to implement Phases 1 to 3 of the village business plan (see A4: HCA Hydro Business Plan). They are now working to implement Phase 4 a hydro project with the intention of generating renewable energy and developing a community funding stream. The aim is to become a self-sustainable community that is no longer wholly dependent on public funding, which is becoming harder to secure. Without these renewable energy projects the village will remain unable to harness local resources and remain reliant on grid produced, carbon-intensive, electricity and heat.
- According to the Energy Savings Trust's Homes Energy Efficiency Database 47% of properties in Halton-with-Aughton parish have inadequate loft insulation(see A5: Lancaster Climate Change Report p.75). There are also high incidences of hard-to-heat homes i.e. those without cavity walls or not connected to the gas grid. 6% of the households in the parish are living

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in fuel poverty. Residents are currently dependent on over-subscribed energy efficiency grants, such as Warm Front, but uptake is low and not all those living in fuel poverty are eligible. To tackle the inefficient housing stock we will use the revenues generated by the hydro project to provide energy efficiency advice and financial support, in the form of grants or low interest loans for people in the parish. [REDACTED]

### 4. What opportunities is the intervention seeking to capitalise on?

- The project will ensure that our community can successfully harness the natural resources at our disposal (water and wood) to generate renewable electricity and heat. It will also enable us to fully utilise and enhance existing infrastructure (Halton Mill site and weir).
- It will allow us to capitalise on the Government's Feed In Tariff and potentially the Renewable Heat Incentive when introduced. HCA is not an undertaking and they are confident that they shall be able to support the project by provision of grant funded environmental impact reducing features, and site specific grid connection works, not envisaged as part of a typical hydro project. The hydro company will thus not receive any central government funding and will only contract build of the basic hydro project. The hydro company will then claim FITs accordingly. (see Q.21). All profits from the hydro project will be reinvested back into the community and ensure that we can further develop our resilience as a rural village. Grants and revolving loans funds will be created to improve the energy efficiency of homes and businesses; this will not only reduce carbon emissions but also lessen the financial impact of rising fuel prices and help tackle rural fuel poverty.
- A recent report by the Lancashire Economic Partnership *The Low Carbon Environmental Goods and Services Sector in Lancashire (LCEGS) - Opportunities for growth and public sector intervention* found that the LCEGS sector in Lancashire was estimated to have a market value of £2.3bn in 2008, which equates to GVA of approximately £770m and is forecasted to grow to £870m by 2015. As a community we want to capitalize on this growing market and will develop local employment opportunities through the creation of two renewable energy micro-enterprises and a low-carbon employment hub at Halton Mill. The hydro and biomass enterprises will have the potential to deliver similar projects at other locations in the North West. The low-carbon workshops will provide sustainable facilities and support for start-up rural businesses and those enterprises wanting to grow.
- The project will help us to fully develop our standing as a Low Carbon Community and ensure the sustainability values of the Lancaster Cohousing development are integrated into the wider village. Central to the HCP project is to share learning from our experience and our long term aim is to use financial savings from the biomass system to create a Low Carbon Education Centre. Our low-carbon demonstration site will be of regional and national interest therefore having a suitable site to offer training and information is important. In addition the redevelopment of the Halton Mills site will improve public access to this important historical area of the parish and we will incorporate heritage and ecological information in the proposed education centre.

### 5. Activities and outputs

(a) What are the primary activities of the intervention?

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- To generate renewable electricity by installing a 220 kWe hydro turbine on the River Lune. The energy generated will power the Lancaster Cohousing development, which includes 40 Passivhaus homes and the Low-Carbon Workspaces at Halton Mills. The turbine is estimated to generate 152kWe on average; 60kWe will be used on the cohousing site and 92kWe exported to the village, via the National Grid.

• [Redacted]

• [Redacted]

- To set up three micro-enterprises (i) to construct and operate the hydro scheme; (ii) to operate and maintain the biomass boiler and heating system; and (iii) to manage the Low-Carbon Workspaces.
- To reinvest profits and savings from the renewable projects into further low-carbon initiatives including domestic energy efficiency improvements, sustainable transport options and a Low Carbon Education Centre to share information.

(b) What types of outputs are expected to be achieved?

- By January 2012 Halton Community Association, through Halton Lune Hydro, will have successfully developed and delivered a community owned hydro scheme on the River Lune. The profits from the scheme will be reinvested in the community through Halton Lune Trust.

• [Redacted]

- By March 2013 the community will have reduced its carbon emissions by 386tCO<sub>2</sub>e. The project lifetime CO<sub>2</sub> savings are estimated to be 16,382tCO<sub>2</sub>e (see Q.24 for carbon calculations).

- By March 2012 3 micro-enterprises will have been set up. The RDPE funding for the hydro and biomass project will create 3 new jobs and safeguard at least 5.5 jobs. (Please see table below for all jobs associated with the wider HCP project. Those underlined are RDPE outputs.)

**Table 1: Wider Jobs Created/Safeguarded by Halton – Carbon Positive**

HCP Project	Job	Created	Job	Safeguarded
Halton Mills Workshops	[Redacted]	[Redacted]	[Redacted]	[Redacted]
	[Redacted]	[Redacted]	[Redacted]	[Redacted]
	[Redacted]	[Redacted]	[Redacted]	[Redacted]
	[Redacted]	[Redacted]	[Redacted]	[Redacted]

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<b>Halton Lune Hydro</b>	<u>Project Manager</u>	<u>1x PT (18 month)</u>	<u>Development, Construction and Installation Jobs Safeguarded</u>	<u>5 x PT</u>
	<u>Hydro Manager &amp; Administrative Support (Micro-enterprise)</u>	<u>1.5 x FT</u>		

(c) What negative impacts are associated with the intervention such as transportation of goods/materials increasing CO<sub>2</sub> emissions or increased noise?

Carbon Emissions

- The carbon impact of building the hydro project has been calculated as 280.75tCO<sub>2</sub>e (including cement, contractor transport etc). This will be offset by the first year of operation. The annual CO<sub>2</sub> emissions for running the plant has been calculated as 10tCO<sub>2</sub>e, again this has been factored into all carbon outputs sited in this application.

• [Redacted]

• [Redacted]

Environmental/ Ecological Impact

- The hydro turbine will be installed within the boundaries of the Forest of Bowland AONB and the River Lune is home to a number of protected species including salmon, sea trout and eels. The AONB are supportive of our project as they recognise that rural communities with access to renewable energy sources have an important part to play in reducing carbon emissions. We are also consulting closely with the Environment Agency (EA) to ensure that the hydro project does not have a negative environmental impact. An especially large, fine mesh pump washed fish screen, additional fish pass combined into a large area low flow turbine outlet and fish counter, will be installed; the EA having advised on the design of these components. The visual impact of the hydro scheme is also important and the turbine house will be stone clad with a slate roof, together with all power cabling to Cohousing run underground rather than on overhead poles, to meet the AONB environmental planning requirements.

• [Redacted]

Noise Impact.

- Noise from the hydro installation will be negligible compared to the noise of water coming

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over the weir. Work on all aspects of the project will only be carried out during working hours to minimize disruption to local residents. Also see A8: LCH Planning Officer Report point.7.28 for more information about the Noise Assessment for the LCH development.

6. Why is the project needed, why should it attract RDPE support, and how would the project happen without our support? (Provide baseline information where appropriate)

- Historically Halton Mills was a large employment area with 3 large cotton mills, powered by the River Lune, and in recent years was the site of Luneside Engineering, a world-renowned company set up after WWII to provide jobs for Polish refugees. There are now only 4 SMEs employing about a dozen people on the site and the neighbouring industrial development is derelict apart from 2 occupied premises. Dairy farming also used to be an important rural industry but the 13 dairy farms have been reduced to just one over the past decade. There is now little employment opportunity in the village reducing us to a dormitory commuter community.
- In order to achieve Code for Sustainable Homes Level 6 in the 40 Passivhaus homes we are dependent on sourcing our energy and heat needs from an onsite renewable energy supply. The only feasible way of doing this at our site is via the hydro and biomass project. Without RDPE support the hydro project is unlikely to go ahead, as there is limited other public funding to support the initiative. Without funding for the biomass boiler the mill and eco-homes would be heated by gas, undermining our aim to be powered 100% by renewable energy.
- The Regional Spatial Strategy set an overall renewable energy provision target of 239 MW by 2010. In Lancaster District there is currently <22MW renewable energy generating capacity (see A5: Lancaster Climate Change Report). The HCP project will help raise the profile of hydro and biomass heating technologies and help meet regional and national climate change targets.
- The *State of the Countryside 2010* report by the Commission for Rural Communities found that per capita greenhouse gas emissions in rural areas are 8% higher than in urban areas. The difference between urban and rural carbon emissions is most noted in the transport sector due to the distances people have to travel to work. The live-work model to be developed on the cohousing site will help tackle transport emissions and provide an exemplar of effective mixed-site development.

7. Additionality

(a) What are the key additionality effects that will affect the impact of the intervention? Please consider the following:

Deadweight

It is highly unlikely that the community would feel able to pursue the hydro project without this grant. If the hydro

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Displacement / substitution	<p>project went ahead, funded by a higher percentage of commercial loans, it would take longer to deliver and the financial payback for the community would be significantly reduced.</p> <p><u>Displacement</u> – No other group is looking to implement a hydro project at Forge Weir. There is no other viable way to generate enough renewable electricity to meet the demands of the eco-homes other than via the hydro scheme. [REDACTED]</p> <p><u>Substitution</u> – The start-up of 3 renewable energy enterprises will create new jobs for people resident in the village. [REDACTED]</p>
Leakage	<p>Tenders will be issued on both price and quality and every effort will be made to use contractors from the North West. However, some specialist technical expertise required for the implementation of the renewable energy projects might not be available in the region. [REDACTED]</p>
Multiplier effects	<p>The 3 micro-enterprises identified in this application are being created by local people. [REDACTED]</p>

(b) What might cause additionality to be higher or lower?

- A lack of technical expertise in the region might mean that contractors and suppliers on the project have to be sourced from outside of the region, which will have an impact on both jobs and carbon leakage. We are however planning to tender based on both price and quality to avoid this where possible.
- [REDACTED]
- The amount of revenue we have to invest in the local community will depend on eligibility to

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- claim FITs and/or RHIs (see Q.21).
- [REDACTED]
- CO<sub>2</sub> savings will depend on the amount of energy generated by the renewable energy technologies. Whilst technical estimates of output can be given it will be dependent on external factors, such as river flow.

(c) How might levels of additionality be evaluated?

- Metering and data logging will be used to measure the output of the renewable energy technologies and the associated carbon savings. This data will be shared with interested parties including funders and renewable energy installers to ensure future performance estimates are accurate.
- Financial accounts will show the revenue generated from the sale of energy and energy cost savings. The impact of this funding on the community will be monitored and evaluated by LCH and Halton Lune Trust.
- [REDACTED]
- [REDACTED]
- [REDACTED]

### 8. Outcomes and wider effects

(a) What types of outcomes are expected to be achieved (or contributed towards)?

- 1) The rural parish of Halton will be enhanced and made more attractive by the redevelopment of the Halton Mill site, currently derelict. The community will have enhanced facilities and greater access to employment opportunities.
- 2) The project will help ensure that we meet our aims as a Low Carbon Community and lead to wider carbon reductions in the village. The cohousing scheme will be a national beacon of low-carbon design, build and living. The hydro turbine and biomass district heating system will ensure that the PassivHaus homes are 100% powered by on-site renewable energy. We will also contribute to the district-wide carbon reduction targets.
- 3) The regions LCEGS sector will be stimulated by the project. In particular biomass, hydro and energy efficiency installers and the wider supply chain are expected to benefit. This will in turn lead to greater carbon savings as these low-carbon interventions are demonstrated as viable and are more widely taken-up. In time the proposed Low Carbon Education Centre will become a leading training facility to ensure skills in these technologies can meet growing demand.
- 4) The Halton Mills Workspaces will become a vibrant eco-business hub demonstrating how climate change considerations can be intrinsically linked to economic success. It will support the growth

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aims of new and existing micro-enterprises in the local area. The economy of the wider village will also be boosted.

(b) Why do you expect the outputs to generate the outcomes, and why are the wider effects expected to occur?

1) The electricity generated by the hydro scheme will be sold to Lancaster Cohousing and the National Grid. In addition we will claim ROCs/ Feed In Tariff/RHI (if agreed by OFGEM see Q.21) on the power generated. These revenues will generate an ongoing income that will be reinvested through Halton Lune Trust and LCH. By January 2013 an estimated £20,000 of revenues from the hydro scheme will have been invested in community projects, through grants and a revolving loan fund. By 2029 this community investment will have increased to an estimated £110,000 p.a. This funding will help develop basic environmental and other services in the village strengthening our resilience as a rural community (see A27: HLT Deed).

2) The proposed grant and revolving loan fund will bring about wider CO2 reductions in the village by investing in energy efficiency and low-carbon initiatives. [REDACTED]

3) By procuring the renewable energy and energy efficiency interventions locally we can ensure that the regions renewable energy installers and supply chain benefits. By reinvesting profits from project back into low-carbon initiatives we can further support the development of this sector. We will also demonstrate the viability of innovative technologies (drop-head turbine and biomass/solar thermal powered community heating) which will promote the further adoption of these low-carbon solutions. [REDACTED]

4) The biomass boiler and hydro project will ensure that we can provide 100% renewable energy to the Low Carbon Workspaces and market them accordingly. [REDACTED]

(c) What other things need to happen in order for the outcomes and/or wider effects to occur?

1) A grant and loan scheme needs to be put in place to ensure that the financial benefits are equitably and sustainably distributed to the wider community. Halton Lune Trust is being supported through the Low Carbon Communities Challenge to put in place an effective governance and evaluation structure. [REDACTED]

2) To bring about wider carbon savings we need to implement our HCP Community Engagement Plan (see A28:HCP Community Engagement Plan) and develop the Home Energy Service by attracting local volunteers. Funding has been secured for the Lancaster district HES and Halton will be one of the first areas that the scheme is rolled out in September 2010. [REDACTED]

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4)

(d) What evaluation evidence would be needed in order to understand the outcomes and wider effects?

To evaluate the HCP project we will collect the following evidence:

- Community consultations and interviews both before and after the implementation of the project to determine the impact on local quality of life. The existing Parish Plan needs updating in the next 3 years and this will provide important evidence of how the village has been improved.
- Direct carbon savings from the renewable technologies will be evaluated through output data. The wider carbon savings will be based on: questionnaires determining how energy-use behaviour has changed and baseline energy use for the village pre/post project. DECC are undertaking a robust monitoring and evaluation process as part of the LCCC funding and we will be able to share data from (see. Q10a). We are also creating a film to document the project.
- Lancaster University have submitted an ESRC bid (decision pending) to do a 5-year action research project to study the impact of the Halton Carbon Positive initiative and what wider outcomes it has achieved.
- The levels of investment in the community from the renewable energy projects will be determined by reviewing the financial accounts of both LCH and Halton Lune Trust.
- Local employment levels will be monitored using national and regional statistics before and after the creation of Halton Mills.
- Case studies/ reports on the renewable energy interventions will be created to determine effect on wider supply chain.

See also Q.10(a) & 7 (c)

9: Who will benefit from the work of the project and how have they been involved in its design and development?

The Halton Carbon Positive project has been developed in partnership by three social enterprises – Halton Community Association, Lancaster Cohousing and LESS (Local & Effective Sustainable Solutions). The low-carbon initiatives form part of a wider community-led regeneration of economic, educational, social and recreational resources in the village. HCA has successfully brought the community together through a major eco-extension of the Centre@Halton and is currently working on a £500,000 project to develop the external space.

By pooling our expertise and working to develop low-carbon projects, delivered by social enterprises run by local residents, which reinvest profits back into Halton, we will ensure that we have ongoing resource to improve

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our community. A Steering Group comprising of key local stakeholders and community organisations (including Halton Parish Council, Transition City Lancaster, Lancaster City Council and St. Wilfrid's Primary School) has been set up to maximise community involvement and benefit from the project. Planned activities include energy audits of local community buildings, local food sourcing and carsharing schemes, climate change teacher training through St. Wilfrid's Primary School and Global Link (Lancaster's development education centre), a Low-Carbon Village Fete and the development of a Halton branch of the Home Energy Service. This service is being developed by LESS across Lancaster District to improve the efficiency of homes and reduce the number of rural households living in fuel poverty. The ongoing funding of these and future low-carbon activities will be secured through the revenues generated from the renewable energy projects.

### 10. Key evaluation questions

a) How will you demonstrate the outcomes and wider effects of your project? What key evidence will be provided for evaluation? Make sure that this will cover the consideration of additionality (as set out in Question 7).

- Output data from the renewable energy technologies will be used to determine how much power has been generated and how much carbon saved. This will be compared to the expected output as detailed in the hydro feasibility study and mill energy reports (attached).
- The direct financial impact on local businesses will be demonstrated by the increased GVA of Lancaster Cohousing and the 3 micro-enterprises to be directly supported by the project.
- The wider financial impact of the project on the community will be measured by the level of money invested through Halton Lune Trust. Case studies of supported projects will be compiled.
- Information will be collected on mill tenants to determine size, sector and age of business. Plus data about staff numbers and commuting distances and modes of transport will be compiled. A record will be kept of the number of people working at Halton Mill, together with baseline data on the number and location of employees of pre-existing businesses immediately prior to relocating to Halton Mill (see A3: Halton Business Plan).
- Evidence for the wider carbon saving impact will be based on comparative energy used data ( 2008 meter source data available <http://bit.ly/9fzTFI>) plus real time monitoring of sample of homes via Real Time Displays (undertaken by DECC as part of LCCC evaluation. Comparative data of the district's carbon emissions will be provided by NI186 data (see A5: Lancaster Climate Change Report).
- Evidence for energy efficiency improvements in existing housing stock will be provided via EST HEED data a (see A5). Comparative Fuel poverty statistics data will be provided by NI187 data (see Q.3).
- The impact on the LCEGS sector in the district will be measured through case studies and GVA of local suppliers involved in the project.
- Wider economic, employment and social impacts will be evaluated by comparison with existing data for Halton ward currently held. Including nomis – official labour statistics (<http://bit.ly/9Zi4F5>) and neighbourhood statistics dataset (<http://bit.ly/9fzTFI>)

See also 10 (d) and 7 (c).

b) What evidence of lessons learnt have been taken into account from previous evaluations in the establishment of this project?

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• Early hydro studies examined mini-micro applications typically seen on upland farms, Archimedes screw designs as used at Torrs/Settle and others, and larger drop turbine schemes being installed in the Northern Alpine region. We have visited a number of local hydro projects including the Heron Mill Kaplan Turbine project. The Feasibility Study favoured the Kaplan drop-head type of turbine given the long term records of good river flow held for this site, as well as the excellent world-wide track record for the design. Many consultations were held with other northwest based promoters of hydro schemes to arrive at the 'Lune' model. We have also consulted with Lancaster University who have developed the North West Hydro Resource Tool and we are working with University of Central Lancashire who are providing graduate support.

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#### **Rational and Objectives**

1. Has the additionality logic chain been completed adequately including consideration of additionality and outputs?  
**A broad consideration is given to additionality, and actions are taken to mitigate adverse effects as much as possible i.e. not being a project that competes with others locally and using local sources of labour and knowledge wherever possible. Additionality factors have been applied to the jobs related outputs.**
2. Does the project rationale show that the project has been designed, based on well thought out assumptions?  
**Whilst there may be an opportunity to implement this project and it fits with policy, the scheme does not appear to have arisen as result of primary research in order to establish barriers that need to be overcome or areas of market failure.**

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3. Are the aims and objectives of the project clearly identified?  
Objectives are clearly listed with attached timescales and methods for evaluation.
  
4. What is the evidence of need or demand for this project (ie market failure)?  
 Evidence should be specific and sourced. New studies may be required.  
Some evidence of market failure has been provided; other aspects are more opportunistic such as a recently undertaken failed house building project in the area. Energy Savings Trust's Homes Energy Efficiency Database used to illustrate potential fuel poverty issues in the area due to inadequate loft insulation and hard to heat homes.
  
5. Should the RDPE be involved? Is it an appropriate activity for the programme to support or is there another organisation and/or funding stream better placed to support it?  
Whilst this is an appropriate activity, It may be commercially viable in its own right or through a social investment scheme. The RDPE may look to fund the biomass aspects but encourage the applicant to seek alternative funding for the hydro aspects.

## SECTION 3: STRATEGIC FIT

11: What are the outcomes or impacts your project will help to achieve, specifically related to rural areas or communities of the Northwest as identified in the North West Regional Implementation Plan (RIP)? Please include any economic, environmental or social outcomes/impacts. Indicate what the impact of your project will be in relation to those identified in the RDPE for the measure or measures for which you are applying for funding.

Please see Appendix 10: Strategic Fit for a table of how we meet regional aims.

12(a): You will need to identify how the aims of your project fit with the measures of the RDPE.

The RCCF focuses on objectives relating to Axis 3 with particular relation to the following measures:

Measure	Aim of proposed activity	Intervention Rate (%)
312	<p><u>Support the creation &amp; development of microenterprises:</u></p> <ul style="list-style-type: none"> <li>• 2 x renewable energy micro-enterprises, the hydro and biomass operating enterprises, will be directly supported by the RDPE grant.</li> <li>• [REDACTED]</li> </ul>	<p>Note that the direct financial intervention is all under measure 321 (hence this has been assigned 100%), but the intervention will have a very close knock-on effect on measures 312 and 313</p>

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321	<p>██████████</p> <ul style="list-style-type: none"> <li>• Estimated GVA of micro-enterprises under Option 2 as detailed in Q.15; Hydro = £124k ██████████</li> </ul> <p>██████████</p> <p><u>Support the development of basic services for the rural economy and population:</u></p> <ul style="list-style-type: none"> <li>• Development of renewable energy provision in the village through hydro and biomass scheme.</li> <li>• Development of community hydro and biomass enterprises, to deliver renewable energy projects and ensure profits are reinvested in community.</li> <li>• Revenues to fund ongoing community projects, including energy efficiency grants and revolving loan fund.</li> <li>• ██████████</li> </ul>	100%
331	<p>██████████</p> <p><u>Training and information for economic actors:</u></p> <ul style="list-style-type: none"> <li>• ██████████</li> <li>• The proposed Low Carbon Education centre will provide training and resources about sustainable design, renewable energy technologies and low-carbon living.</li> <li>• As a Low Carbon Community our project is being closely evaluated and will enhance local, regional and national understanding of what low-carbon interventions are successful and why.</li> </ul>	

12(b): How does your project fit with and contribute to other regional strategies i.e. RES, Regional Rural Development Framework, Regional Delivery Plan for Sustainable Farming & Food Strategy, Business Support Simplification Process (BSSP), Regional Forestry Framework, sub-regional strategies and the objectives and targets of the Local Development Strategy. Also indicate what the impact of your project will be in terms of those listed in the RDPE for the measure(s) identified above.

Please see A10: Strategic Fit and the table in Q.11.

12(c): How does the project link to other activity in the geographical area?

Action on reducing carbon emissions is well underway in the community:

- HCA has installed solar thermal, solar PV, rainwater recycling, a ground source heat pump and energy-efficiency measures as part of an eco-extension to the Centre@Halton.
- LESS has run successful climate change, energy advice and sustainable living projects in Lancaster district for 3 years. They are currently working with the Lancaster District Local

## Rural Carbon Challenge Fund

Strategic Partnership to deliver the Household Energy Service.

- Transition City Lancaster has over 300 members working on projects including the development of a community renewable energy investment project that is looking to buy bonds in the hydro project. TCL will be a key partner in ensuring grassroots involvement and several of the core group are Halton residents and sit on the HCP steering group.

• [REDACTED]

- Regional hydro projects include Heron Corn Mill (100kW Kaplan Turbine) and Kentmere Hydro in Cumbria. The Forest of Bowland AONB Management Plan Action 19.3 objective is to facilitate appropriate small-scale renewable energy production (<http://bit.ly/dzG8Mg>). The Halton Hydro project was part of the AONB's renewable energy study tour in May 2010 and we continue to advise their research.

- Lancaster District LSP are working to implement the recommendations of the recent Climate Change Action Report, which includes supporting communities to develop renewable energy provision. The LSP Management Group is considering a proposal to invest £100,000 of their performance reward grant in hydro bonds.

12(d) How different is this project from other existing projects/activity in the area?

- We are the only community in Lancashire to have been selected by DECC as a Low Carbon Community winner. The scale of the HCP project, the number of initiatives we are working on simultaneously and the number of outcomes we are expecting to influence are ambitious and go beyond the scope of any single intervention.

- The project has been developed and will be delivered through the co-operation of cross community interest groups representing the entire spectrum of views in the village. This partnership model of working reflects public sentiment that communal solutions are needed to deal with the huge challenges facing society today. It also reflects the government's aims of the 'big society'. The multiplicity of skills available to the HCP project is an essential strength for us and rarely available to single interest communities.

- [REDACTED]

- [REDACTED]

13. Business Support Simplification Programme (BSSP): If applicable, which BSSP Product will the project deliver against? (*This is not relevant if you are a community group*)

N/A

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#### Strategic Fit:

1. How and to what extent does the project fit with specific programme objectives, Northwest RIP objectives, sub-regional and local strategies?

In terms of helping micro enterprises, the low carbon workspaces provided may or may not help depending on the level charged for utilities. Summary table of strategic fit provided in Appendix 3 but doesn't explain how the project fits in.

2. Have all the appropriate links been made with the Northwest RIP, the sub-regional and local

## Rural Carbon Challenge Fund

rural strategies and with other initiatives or projects, as appropriate

Good links have been made with the RIP along Axis 3, though more around other strategies such as the Regional Economic Strategy, wood fuel strategies and the Northwest Forestry Framework.

3. Does the project fit the measures within the sub-regional strategy and is support of the sub regional rural partnership confirmed?

Support has been gained from a number of strategic partnerships including the Lancaster District Local Strategic Partnership, and Halton Community Partnership. However, there are no references to how the plans fit into the RDS or other sub regional plans.

4. Do the outcomes/impact appear realistic or are they under/over ambitious? Will they help deliver the targets within the RIP? The impact on GVA should be clear.

Supports measures in Axis 3 of the RIP including supporting the development of microenterprises, improving provision of basic service and providing training and skills.

5. Where the project is delivering business support, does this align with BSSP?

N/A.

## SECTION 4: OPTION APPRAISAL

14(a): Set out any alternative options that have been considered and why your favoured option provides the best value for money. Please note at least one alternative option must be considered. If your proposal includes additional funding e.g. Feed in Tariff or Renewable Heat Incentive, an alternative option should set out the project without them.

Option 1: Reference Case (Do nothing). What will happen if the project does not go ahead?

The Lancaster Cohousing housing development would go ahead but the 40 homes would not be supplied by locally generated renewable energy (electricity from the hydro scheme and heat from the biomass boiler). The wider community would not be in a position to harness the power of the river, continue to be reliant on grid produced energy and be unable to generate an income for future investment in low-carbon activity in the parish. Without grants the low-carbon aspiration of the Mill would not be realised and therefore the business model, to create a green business hub, untenable. This would mean that there would be no new employment opportunities in the village and lead to the continued demise of what was once an important employment area.

Option 2: Preferred option for the delivery of the project.

The RDPE grant is used to part-fund a community hydro scheme and biomass district heating system to generate heat and electricity for the cohousing homes and eco-refurbished mill. The hydro project will be community owned and they will benefit from the sale of power and Renewable Obligation Certificates. This revenue is then used for operational costs and to pay back loans and bond dividends. The profits are reinvested into the parish through Halton Lune Trust for further low-carbon projects. With loans, revenue from ROCs and existing grants exempt from State Aid stipulations (See Q.21) the early payback of the hydro scheme will be hugely

### Rural Carbon Challenge Fund

	beneficial to the social cohesion, sustainability and carbon reduction aspirations of the community. The biomass heating system will be installed in the Mill and connected to the cohousing homes leading to a viable low-carbon business employment area and housing scheme.
Option 3: Claiming FITS & RHI	The systems are installed and following government deliberations and an application to OFGEM the electricity generated by the hydro project is eligible for FITs due to State Aid exemptions (see Q.21) Halton Lune Hydro is able to pay a yearly grant to the community through Halton Lune Trust of £20,000. With FITs after 8.3 years the available profits to pay stakeholder bond bonuses initially and then for donations to the community, increases dramatically from £20,000pa to around £110,000pa. The RHI profits will be used to fund the Low Carbon Education Centre.
Option 4: Hydro + Biomass Boiler in Mill no District Heating System	The hydro project is installed as set out in Option 2. The biomass boiler is installed in the Mill but is <u>not</u> connected to the eco-homes via a district heating system. This is calculated without RHI revenue. This would mean the eco-homes would be heated by gas and undermine our zero-carbon aims.
Option 5: No Hydro	The Biomass Boiler and district heating system goes ahead without the hydro project. RCCF grant funds 75% of the scheme. Without RHI revenue. The community would not benefit from the revenues from the hydro project and LCH would not meet our 100% renewable energy provision target for the eco-homes.

14b. What is the project lifespan (provide evidence) of each option (in years)?

Option 1: Reference Case (Do nothing)	Option 2: Preferred option	Option 3	Option 4	Option 5
0	25* years min.	25 years min.	25 years min.	25 years min.

\*Standard lifetime of biomass boiler & hydro (hydro civils will last 40yrs and turbine can be replaced/upgraded).

15a: What are the total costs of the alternative options?

	Option 1 £000's	Option 2 £000's	Option 3 £000's	Option 4 £000's	Option 5 £000's
RDPE	0	500	500	350(h)+92.5 (b)=442.5	203
Public	0	180	180	180	0
Private	0	632.2(h)+120.5(b)=752.7	632.2(h)+120.5(b)=752.7	632.2(h)	67.5
<b>Total</b>	<b>0</b>	<b>1432.7</b>	<b>1432.7</b>	<b>1254.7</b>	<b>270.5</b>

### Rural Carbon Challenge Fund

15b. What are the total capital costs of each option?

	Option 1 £000's	Option 2 £000's	Option 3 £000's	Option 4 £000's	Option 5 £000's
RDPE	0	500	500	350(h) + 83.25(b)=433.25	203
Public	0	147	147	147	0
Private	0	93.5(b) +542.7(h)=636.2	636.2	542.7(h)	40.5
<b>Total</b>	<b>0</b>	<b>1283.2</b>	<b>1283.2</b>	<b>1122.95</b>	<b>243.5</b>

15c. What are the total annual operating costs of each option (including any refurbishment costs)?

	Option 1 £000's	Option 2 £000's	Option 3 £000's	Option 4 £000's	Option 5 £000's
RDPE	0	0	0	0	0
Public	0	0	0	0	0
Private	0	50(H) 12(B)	50(H) 12 (B)	50(H) 9(B)	12
<b>Total</b>	<b>0</b>	<b>62</b>	<b>62</b>	<b>9</b>	<b>12</b>

15d. What are the total annual revenue costs of each option?

	Option 1 £000's	Option 2 £000's	Option 3 £000's	Option 4 £000's	Option 5 £000's
RDPE	0	0	0	0	0
Public	0	0	0	0	0
Private /Revenue	0	138.02	226.14	134.02	13.68
<b>Total</b>	<b>0</b>	<b>124.34(h)+ 13.68(b) Total =138.02</b>	<b>190.23(h)+ 22.23 + 13.68 (b) Total=226.14</b>	<b>124.34(h)+ 9.68 (b) Total =134.02</b>	<b>13.68 (b)</b>

### Rural Carbon Challenge Fund

16: Please detail the rationale for the figures detailed within each option.

Option 1	The project will not go ahead without RDPE funding.
Option 2	Please A11: Options Appraisal Calculations & A6: Carbon Calcs & Project Costs
Option 3	Please see A11 & A6. (as above)
Option 4	Please see A11 & A6. (as above)
Option 5	Please see A11 & A6. (as above)

17: What are the attributable key outputs of the alternative options?

Key Outputs	Option 1	Option 2	Option 3	Option 4	Option 5
	RDPE	RDPE	RDPE	RDPE	RDPE
1 Tonnes of CO <sub>2</sub> e saved	0	16382	16382	16004	1202
2 Jobs created	0	3	5.5	2.5	1
3 Jobs safeguarded	0	5.5	10	5.0	3
4 Training - in recipient hours delivered	0	0	144	0	0

18. Please detail the rationale behind the outputs in each option.

Option 1	Hydro & Biomass Projects will not go ahead without funding.
Option 2	For CO <sub>2</sub> calculations please see A6: Carbon Calcs & Project Costs & Q.24. For Jobs Created & Safeguarded see Q.8. No formal training output has been identified at this stage as the Low Carbon Education Centre is dependent on RHI or other investment.
Option 3	With FITS & RHI the project can deliver more outputs in terms of jobs created (1xFT Education Worker, 1xFT Trust Manager and 1xPT Trust Administrator). More jobs will also be safeguarded in the local area through the investment of revenues. With RHI the Low Carbon Education Centre will be able to offer structured low-carbon training valued at 144 hours p.a. (3 x4hr Session/month)
Option 4	Without the biomass connection to the eco-homes less CO <sub>2</sub> will be saved and only a part time position in the biomass micro-enterprise will be needed and there will be less jobs safeguarded in the biomass supply chain.
Option 5	Without the hydro project all outputs will be greatly reduced. Carbon emissions will fall dramatically and Halton Lune Hydro micro-enterprise will not employ staff.

19: What are the net additional outputs?

### Rural Carbon Challenge Fund

	Total Gross	Less Leakage	= Gross Local	Less Displacement	= Net Local	+ Multiplier	= Total Net	Less Deadweight (Option 1)	Total Net Additional
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**Key output 1** Tonnes of CO<sub>2</sub>e saved – Leakage already included in calculation see Q.24

Option 1	0	0	0	0	0	0	0		
Option 2	16382	0	16382	n/a		n/a		0	16382
Option 3	16382	0	16382	n/a		n/a		0	16382
Option 4	16004	0	16004	n/a		n/a		0	16004
Option 5	1202	0	1202	n/a		n/a		0	1202

**Key output 2** Jobs created

Option 1	0	0	0	0	0	0	0	0		
Option 2	3	0	3	0	3.9	(x1.3)	3.9	0	4.88	
Option 3	5.5	0	5.5	0	7.15	(x1.3)	7.15	0	8.94	
Option 4	2.5	0	2.5	0	3.25	(x1.3)	3.25	0	4.06	
Option 5	1	0	1	0	1.3	(x1.3)	1.3	0	1.63	

0% Leakage used as jobs created will be in micro-enterprises developed by local residents.  
 0% Displacement as the jobs created are very project specific. Multiplier factor of 1.3 use as per Guidance.

**Key output 3** Jobs safeguarded

Option 1	0	0	0	0	0		0		
Option 2	5.5	0.55 (10%)	5	1.25(25%)	3.75		3.75	0	3.75
Option 3	10	1(10%)	9	2.25 (25%)	6.76		6.75	0	6.75
Option 4	5	0.5(10%)	4.5	1.13(25%)	3.37		3.37	0	3.37
Option 5	3	0.3(10%)	2.7	0.67(25%)	1.93		1.93	0	1.93

**Key output 4** Training - in recipient hours delivered

Option 1	0	0	0	0	0	0	0		
Option	0	0	0	0	0	0	0	0	0

### Rural Carbon Challenge Fund

2									
Option 3	144	36(25%)	108	27(25%)	81	20.25(15%*)	101.25	0	101
Option 4	0	0	0	0	0	0	0	0	0
Option 5	0	0	0	0	0	0	0	0	0

\*Multiplier of 25% used as potential for growth of services offered by education centre.

#### 20. Preferred Option:

For the Preferred Option only, how does it represent best value for money? Please show this as:

Tonnes of CO <sub>2</sub> e Saved	<p>Total lifetime CO<sub>2</sub> savings = 16,382tCO<sub>2</sub> = £87.45t/CO<sub>2</sub>e                  RDPE funded aspect of project = 5,756tCO<sub>2</sub> = £86.87/tCO<sub>2</sub>e                  See Q.24 for calculation details.</p>																		
Economy (inputs)	<p>Our preferred option (see Option 2 above: Cost £1,432,675) represents the best value for money in terms of carbon savings and for energy generation potential. Feasibility Studies have been completed and the hydro project has been costed. [REDACTED]. As both projects are site specific it is difficult to compare to benchmark costings from other hydro and biomass district heating projects. (Case studies are however available <a href="http://bit.ly/bARIW7">http://bit.ly/bARIW7</a> &amp; <a href="http://bit.ly/afPJEK">http://bit.ly/afPJEK</a>). Both aspects of work will go through a competitive tendering process once funds are in place to proceed. Significant amounts of professional volunteer time through the design stage of both projects are keeping costs to a minimum.</p> <p><u>Leverage for Hydro:</u></p> <table border="1"> <thead> <tr> <th></th> <th>Amount</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>RDPE/RCCF</td> <td>350,000</td> <td>30%</td> </tr> <tr> <td>Grants (incl DECC)</td> <td>184,500</td> <td>16%</td> </tr> <tr> <td>Commercial Loans</td> <td>395240</td> <td>34%</td> </tr> <tr> <td>Community Bonds</td> <td>232435</td> <td>20%</td> </tr> <tr> <td></td> <td>1,162,175</td> <td>100%</td> </tr> </tbody> </table> <p><u>Leverage for Biomass</u>                  [REDACTED]</p>		Amount	Percentage	RDPE/RCCF	350,000	30%	Grants (incl DECC)	184,500	16%	Commercial Loans	395240	34%	Community Bonds	232435	20%		1,162,175	100%
	Amount	Percentage																	
RDPE/RCCF	350,000	30%																	
Grants (incl DECC)	184,500	16%																	
Commercial Loans	395240	34%																	
Community Bonds	232435	20%																	
	1,162,175	100%																	
Effectiveness ( in meeting objectives)																			

### Rural Carbon Challenge Fund

Objective (in order of importance)	Effectiveness
1. To install a hydro turbine on the River Lune to generate 1,156 MW of electricity p.a.	The RDPE funding will allow us to proceed with the hydro project and help us to attract additional investment from community bonds and secure commercial finance. The power generated will be used to power the eco-homes and Halton Mill and enable us to meet our zero-carbon targets. The remaining power will be exported to the village and contribute to the wider low-carbon ambitions of the community.
2. [REDACTED]	[REDACTED]
3. [REDACTED]	[REDACTED]
4. To become a beacon Low Carbon Community and invest profits back into the community.	The revenues generated by the project will allow us to create a sustainable funding stream for our community. Hydro profits will be distributed by Halton Lune Trust to improve services in the village and the revenues from the biomass boiler will be used to fund the education centre. Although we are confident that we will be able to claim FITs (see Section 5) we have presented our preferred option without them as stipulated in the guidance.
5. To create 3 micro-enterprises	<ul style="list-style-type: none"> <li>• 2 micro-enterprises will be created to deliver and manage the renewable energy projects and 1 micro-enterprise will manage the low-carbon workspaces. GVA pa expected = Hydro Micro enterprise £124k [REDACTED]</li> </ul>
Training (in recipient hours delivered)*	[REDACTED]
Jobs created	At minimum of 3 new jobs will be created as a result of our project. We have been conservative in our calculations for job creation and have been careful to ensure that those stated are as a direct result of the RCCF funding and are not being counted elsewhere. Information about the jobs created and wider employment impact of the project are detailed in Q.5b.

## Rural Carbon Challenge Fund

Jobs safeguarded	[REDACTED]
Other Comments	Without the RDPE funding the hydro and biomass projects will not go ahead. This will mean that there is no sustainable income stream for the community, that the LCH development is unable to meet its zero-carbon target and that new micro-enterprises will not be developed. [REDACTED]

\* this does not include demonstration and publication material

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#### Option Appraisal

1. Have all relevant options been considered? Are there more effective ways of achieving the same benefits and outcomes?

A comprehensive list of options has been considered with varying degree of benefits depending on the level and sources of funding available. Would like to have seen plans for a complete private equity option or a social enterprise scheme with additional funds raised within the community through share issue – this idea is highlighted in the risk assessment but not as a funding option.

#### Preferred Option

2. Is there any available information on a similar project which can be used to benchmark unit costs of key outputs?

A similar application to install Hydro Electricity in the Dane Valley, Congleton can be used to compare that aspect of the plant and proves to be more expensive at around £250 per tonne of CO<sub>2</sub> saved although other aspects are quite different and a thorough comparison of finances would be required

3. What is the proportion of RDPE to other public/private funding?

39% RDPE

4. Does the preferred option offer the best VFM?

The preferred option offers the best all round VFM in terms of CO<sub>2</sub>e savings, jobs and training delivered and community benefits. Option 3 offers significantly more job and training opportunities but requires the use of the FIT. Option 5 offers reduced benefits, without the Hydro installation, but is significantly cheaper. An option for RDPE to fund the biomass and the hydro installation to be funded privately or through a social share issue may offer best value for the community and the RDPE.

## Rural Carbon Challenge Fund

### SECTION 5: STATE AID

21: Please provide details of any potential or unresolved State Aid issues you have identified. For example, aid has previously been provided under the Small Amounts of Compatible Aid Scheme or the De Minimis Rules to the organisation. If you are unsure, please discuss further with Envirolink Northwest prior to submission and state below.

Hydro Project - State Aid is not an issue because Halton Community Association is not an undertaking. In addition RDPE funding will be used to overcome site specific barriers to hydro generation at Forge Weir, Halton The Lune is an important salmon river and the site is in the Forest of Bowland AONB, therefore environmental protection is an important component of the proposed scheme. The items identified for this RDPE funding are all necessary to ensure environmental protection (fish protection and visual amenity), which are exempt under point 60. of the EU's finding on State Aid & FITs: *Additional costs relating to measures to reduce the environmental impact of an installation (e.g. measures to protect fish and other wildlife in a hydro scheme)*. (<http://bit.ly/aMXJr3>). (See A14: Hydro Environmental Protection Work). We have however presented our preferred option without FITS as stated in guidance and if HCA is deemed to be an undertaking the investment will be under the Small Amounts of Compatible Aid.

Biomass Boiler – [REDACTED]

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##### State Aid

1. Have all the issues of State Aid been addressed?

Existing state aid and RDPE funding will primarily be used to mitigate environmental impacts on the river Lune and therefore exempt from funding limitations.

2. Is the project eligible for funding?

Project is eligible provided spend is conducted as planned.

### SECTION 6: SUSTAINABLE DEVELOPMENT AND EQUALITY

#### Sustainable Development

The goal of sustainable development is to enable all people to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations. Please ensure you read the guidance before answering the questions in this section. A 'not applicable' answer is unlikely to be acceptable and must be justified.

22: Describe how your proposed project will impact, both positively and negatively on UK sustainable development principles and priorities during all phases of the project (design-development-delivery phases). The four sub-questions below are agreed UK sustainable development priorities. They are intended to assist you and should be referenced in your answer.

## Rural Carbon Challenge Fund

**a) How will the materials, goods and services used in your project be sustainably produced, procured and/or consumed?**

A 'deep ecological' low-carbon design has been a key parameter for all aspects of the design, development and delivery of the Lancaster Cohousing scheme. This ethos of environmental sustainability is also shared by Halton Community Association, an ENTRUST registered Environmental Body.

### **Materials, Goods & Service**

#### Halton Mill: Biomass Boiler & District Heating System

- [Redacted]

#### Hydro Turbine

- The project has been initiated by HCA following consultation with the local community and research into which renewable energy technologies are suitable for our locality. A Stage 1 Feasibility Study has been completed by Renewables First, one of the UK's leading small-scale hydropower consultants. This included an initial assessment of the environmental impact of the proposed scheme (A18: Forge Weir Feasibility Study).
- An application for all licences needed to implement the project has been submitted to the Environment Agency following extensive consultation. An especially large, fine mesh pump washed fish screen, additional fish pass combined into a large area low flow turbine outlet and fish counter will be installed; the EA having advised on the design of these components. (Details of the full EA Application have been requested from Renewables First and these will be forwarded to RCCF).
- Local turbine suppliers and contractors for the civil works have been identified and will be invited to tender. The tender process will be based on cost and quality; this will include environmental impact and carbon considerations. All contractors will have to comply with the Considerate Constructors Scheme.
- The turbine house will be constructed out of locally reclaimed stone and slate.

#### Wider LCH Development

- [Redacted]

## Rural Carbon Challenge Fund

**b) How will you reduce the emission of greenhouse gases generated as a result of your project, promote the use of renewable energy and take account of the future risks posed by climate change?**

- A Sustainable Procurement Policy will ensure that all goods and services associated with the project are procured locally (where possible) to reduce emissions from transportation. Unavoidable greenhouse gasses emitted during our project will be offset by the renewable energy produced by the hydro and biomass technologies installed. In addition the LCH Landscaping plan includes the planting of trees, which will further offset emissions.
- As a Low Carbon Community we are committed to promoting the wider use of renewable energy. By demonstrating that the energy requirements of homes and workspaces can be met by 100% renewable energy provision we will contribute to national learning on the effective application of these technologies. The proposed Low Carbon Education Centre will be a regional leader in low-carbon education and the site will be a 'working model' demonstrating a range of technologies including hydro, biomass, solar thermal and solar photovoltaic. Future renewable energy applications in the parish will be funded through Halton Lune Trust.
- The LCH development has had a full Flood Risk Assessment (FRA) and the Environment Agency has been consulted and raises no objections provided the development is carried out in accordance with the recommendations of the FRA. The EA licence application and Land Drainage application for the hydro project further address this issue.

**c) Detail how the project will contribute to the protection and enhancement of the region's environment and minimise natural resource use and maximise resource efficiency.**

- Whilst it is recognized that the LCH scheme will increase recreational activity, built development and artificial illumination in a rural setting these are mitigated by incorporating rigorous sustainable design and ecological principles into every aspect of the project. Biodiversity in the area will be improved (see A7: Landscape & Ecology Enhancement Statement).
- 
- The renewable energy generated will be used locally minimizing the need for the community to access grid produced energy. The revenues generated will be used to fund further environmental enhancement and energy and resource efficiency projects in the parish.
- Please also see Q. 5c for mitigation of environmental impact.

**d) How will your project assist the development of sustainable communities?**

Our project will meet the following priorities of Lancaster District Sustainable Community Strategy:

- **Reduce our impact on and adapt to the consequences of climate change** by generating renewable electricity and heat. The revenues generated from the turbine

### Rural Carbon Challenge Fund

will be reinvested in further low-carbon projects to ensure additional carbon reductions.

- **Protect and improve air, water and land quality and use resources sustainably with due regard to the interests of the wider community and the environment** by using renewable energy and demonstrating sustainable living and work practices.
- **Increase the resources available to the voluntary, community and faith sector in order to strengthen community engagement and enable the sector to act as advocates for and service providers to our local communities** by generating a sustainable source of income for HCA to ensure the development of community services and low-carbon projects in the parish.
- **Increase economic opportunity in the whole district** by: creating 'green' jobs; providing the opportunity for local residents to invest in a community resource; and piloting a finance model that can be shared with other community groups, organisations and businesses within Lancaster district who are interested in the economic opportunities of renewable energy.
- **Increase community cohesion, a sense of belonging and taking part** as the project has been developed by community volunteers. The HCP project will also be an important way of strengthening the community's resilience to climate change and help integrate the new cohousing site into the village.
- **Increase the life chances, opportunities and outcomes for children and young people** by generating a sustainable future for the parish and providing an opportunity for long term investment in the area.

Please see the attached letter of support from Lancaster District Local Strategic Partnership.

23. Tonnes of CO<sub>2</sub>e saved annually in each of the following:

In year 1	In year 5 (only identify if savings are still occurring in year 5)	In year 20 (only identify if savings are still occurring in year 20)	Final year CO <sub>2</sub> e savings will occur	CO <sub>2</sub> e savings in final year they occur
Hydro=337.65* Biomass =48.07 Total = 385.72	Hydro = 618.4 Biomass =48.07 Total =666.47	666.47	2038	666.47

\*This is annual generation less construction of the project.

24. Tonnes of CO<sub>2</sub>e saved over the project lifetime (in relation to Question 15a for the preferred project)

For all calculations please see A6:Carbon Calculations and Project Costs Spreadsheet

#### Hydro Scheme Carbon Savings

Maximum power output kW*	Annual Energy capture MWh	Annual tCO <sub>2</sub> e 628.86 (less 10.4tCO <sub>2</sub> p.a)	Lifetime CO <sub>2</sub> e saving (25 years)
220	1156	618.14CO <sub>2</sub> e	15, 180

\*The power output calculation are based on a hydro turbine rated (maximum) flow rate equal to Q<sub>Hydro</sub>, a net

### Rural Carbon Challenge Fund

head of 90% of the gross head and overall system efficiency of 72%. The typical factor to calculate energy capture for a UK river is 0.5 however the energy capture figure has been calculated using a capacity factor of 0.6 on account of the smaller proportion of the available flow on the River Lune being used. (Taken from Feasibility Study). The carbon saving have been calculated using the Carbon Trust Carbon Calculator.

- Estimated CO<sub>2</sub>e Emission from Manufacture, Design & Installation (incl. Cement) = 280t CO<sub>2</sub>e
- Estimated Annual Running CO<sub>2</sub> Impact from Hydro Scheme = 10.4 x 25 = 260tCO<sub>2</sub>e
- Lifetime Saved = Annual Saved– (Embodied Energy + Annual Emission) = **15,180tCO<sub>2</sub>e**

RDPE grant (£350,000 represents 30% investment in scheme therefore **RDPE Share = 4554tCO<sub>2</sub>e**

**RDPE Share Lifetime tCO<sub>2</sub>e /£ = £76.85/tCO<sub>2</sub>e**

### Biomass & District Heating Scheme Carbon Savings

<b>Carbon Savings*</b>	tCO <sub>2</sub> e
<b>Annual Co2 Costs</b>	[REDACTED]
<b>TOTAL SAVING</b>	[REDACTED]

\*including production/installation of boiler, annual production & Combustion of Fuel

Lifetime (25 years) = 1,202tCO<sub>2</sub>e\*

[REDACTED]

**Total RCCF Grant investment of £500,000 = 4,554 (hydro) [REDACTED]**

### 25. Any other details

In addition to the carbon savings outlined above, which are directly attributable to the RDPE funding, the overall HCP project will result in the following savings:

#### **Halton Mills Workspaces Eco – Refurbishment**

	Annual Energy saving kWh	Annual tCO <sub>2</sub> e saving (gas)	Annual tCO <sub>2</sub> e saving (biomass)
Roof airtightness and insulation	[REDACTED]	[REDACTED]	[REDACTED]
Wall airtightness	[REDACTED]	[REDACTED]	[REDACTED]

*Information about the carbon savings associated with replacing the windows is pending.*

### Rural Carbon Challenge Fund

#### Carbon savings from wider community engagement

[Redacted text block]

Site	Array Size	Annual Output kWh	Annual tCO <sub>2</sub> e saving
[Redacted]	[Redacted]	[Redacted]	[Redacted]

#### Equality

26a: Given the aims of the proposed project, what is the likely impact in relation to the equality strands as detailed below? (Please tick all that apply)

Definite Adverse Impact	Probable Adverse Impact	Positive Impact	No Impact
Race	Race	Race	Race
Disability	Disability	Disability	Disability
Gender	Gender	Gender	Gender
Faith/Religion	Faith/Religion	Faith/Religion	Faith/Religion
Age	Age	Age	Age
Sexual Orientation	Sexual Orientation	Sexual Orientation	Sexual Orientation

26b. Given your answer(s) to question 26a, has a full impact assessment been done?

Yes	
No	X

Please see A20: LCH Equal Opportunity Doc & A21:HCA Equal Opportunity Doc  
 All the eco-homes dwellings are anticipated to achieve CHS Lifetime Homes certification. Access within the Mill Building will be improved in compliance with the Disability Discrimination Act. Disabled access to the river will be improved through footpath and access improvements. We are particularly keen to ensure that older residents and families with young children are supported through the Home Energy Service to improve the energy efficiency of their homes. This will reduce the health and social exclusion risks associated with fuel poverty.

## Rural Carbon Challenge Fund

27: If appropriate how will this project address the underlying causes of deprivation and/or reduce health inequalities?

The funds from the hydro project will be used to support activity that encourages the social involvement of all individuals and voluntary groups within the community. The Halton branch of the Home Energy Service will be supported from revenues from the hydro project. The service will tackle fuel poverty and health inequality by improving the energy efficiency of properties that are hard-to-heat.

28: If appropriate how will your project tackle worklessness and increase economic activity in deprived areas?

Although the ward of Halton-with-Aughton is not in an area of high deprivation our neighbouring wards of Skerton East and Skerton West are in the most 10% deprived in the UK. We are keen to ensure that the benefits of our project have a knock on effect in this area. Skerton is also situated on the River Lune and has a weir, so there is future potential for us to share our experience so that they could implement a similar hydro scheme to ours. Through the development of the recreational facilities at the Centre@Halton we are already providing much needed activities for young people in our area and we hope that the re-development of the areas key employment site will similarly boost the opportunities available to those looking for work.

## Rural Carbon Challenge Fund

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#### **Sustainability**

1. Has the need for a Strategic Environmental Assessment (SEA Directive) or Environmental Impact Assessment been considered?

EIA Not Considered.

2. If the project involves construction or physical development, has the Constructing Excellence and Good Design guidelines/policy been applied?

There is some renovation of existing property and the installation of hydro plant. No reference to this policy is apparent in the application. The considerate constructor's scheme is mentioned.

3. Has a full Integrated Appraisal been completed?

Economic, Social and Environmental factors are all considered in some detail, however, greater levels of integration and how they relate to one another would be beneficial.

4. Have the project applicants considered all positive and negative effects of the project over its whole duration, design-development-delivery phases and have all applicable sustainable development issues, positive and negative, been identified?

All aspects have been well considered through material choice and construction techniques, and seeking local sources where possible. Wider benefits to the community have also been regarded. Some negative impacts such as increased lighting and consequent pollution have been identified and steps put in place to mitigate. A landscape and ecological report has also been submitted.

5. Where there is an environmental risk (eg flooding, pollution or contamination) has this been incorporated into the risk register?

Flooding has been looked at for the construction phase and acknowledged as a risk though adverse environmental consequences because of equipment, have not been looked at in terms of changing river flow dynamics or smoke control as a result of burning biomass, although it is acknowledged that this shouldn't be significant.

6. Has the project applicant identified the environmental & social outputs, outcomes and milestones, of the project

Outputs have been identified in this section with key milestones identified in section 9 with attached dates in order to achieve outcomes specified.

7. Where applicable has the project applicant submitted a design statement to NWDA?

Design and Access Statement included in appendix.

8. Are there any outstanding sustainable development issues to be addressed?

Some travel planning in terms of feedstock delivery – alternative fuels/types of vehicle, noise minimisation.

9. Have the relevant rural issues been considered?

Issues such as protection of the rural environment and culture are considered.

## Rural Carbon Challenge Fund

10. Are the CO<sub>2</sub> savings presented in a coherent manner and based on a sound and verifiable methodology?

CO<sub>2</sub>e savings are presented for full lifecycle which shows a degree of knowledge however there are some errors in calculations relating to construction emissions.

### Equality

1. Have the equality and diversity issues been considered and understood?

Equality and diversity issues have been accounted for within the bid.

2. Have differential impacts been considered?

Differential impacts have been considered to a degree. Disabled users should see a benefit though there is no discussion regarding the potential for the scheme to widen the economic gap between Halton and the surrounding, already deprived communities.

3. If a full impact assessment is required, has this been completed?

Assessment not completed though equal opportunity statement included within appendix. Development will ensure accessibility for disabled and elderly users.

4. Has economic inclusion been addressed/incorporated?

Scheme will find solutions to help homes otherwise difficult to heat, thereby increasing their efficiency and reducing the potential for fuel poverty as well as enhancing funding for voluntary groups within the community. Project hopes to have knock on effects in deprived neighbouring communities and replicating the scheme there as there are similar conditions. It also looks to develop recreational facilities in Halton, for the benefit of young people

## SECTION 7: INNOVATION, REPLICABILITY AND DEMONSTRATION PROFILE

### 29. Level of Innovation

The renewable energy projects are innovative in the following ways:

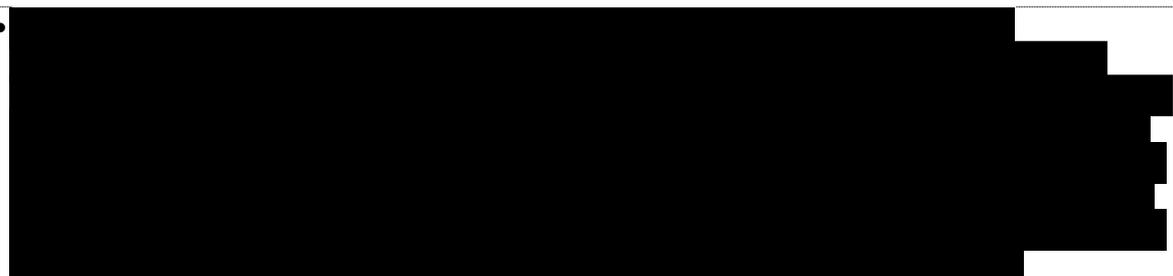
- Forge Weir, the site of the proposed turbine, is an exceptional site in the North West due to high proven flow rates throughout the year and the weir height of over 2m. This permits the use of a Kaplan drop turbine in preference to the Archimedes Screw type, which is currently being used on most other hydro projects in the region.

• [REDACTED]

## Rural Carbon Challenge Fund



### 30. Level of Replicability

- 
- The Forge Weir site is an ideal test-bed for proving the 'Drop-turbine' model of hydro generation. The advantages of higher output than a similar Archimedes screw model should be proven, and the cost benefit analysis important in providing the proof of higher investment and proportionately higher return. This model should no longer be regarded as micro hydro but as mini-hydro with the model adoptable on many rivers in the Region where previous industrial sites have left a legacy of weirs and mill races.
- Although not all rural communities will have access to a river for a hydro project the community governance, operating and maintenance structures, investment model and local grant scheme we are developing are all replicable for other renewable energy projects.
- Investing a proportion of the revenues from the renewable energy projects in energy efficiency advice and improvements in the existing housing stock in the parish will ensure that we can share savings (both carbon and financial) with as many people as possible. This is a highly replicable model and ensures that communities across the UK are key players in meeting climate change targets.

### 31. Demonstration Profile and Uniqueness



## Rural Carbon Challenge Fund

5. Is the project easily replicable throughout the given sector and / or in the given application? Is the project size / scale proportionate with its replicability potential and level of investment?

Replicability is hindered by community access to water although the grant schemes and finance are easily replicable. Project is also scalable depending on community needs. Take-up however may be more limited as the project benefits from being in an area already favourable towards low carbon technology. The drop turbine model also needs to be tested.

6. Has the applicant provided evidence on how the project will raise the profile of given activities on the regional, national and international levels?

Whilst there is an opportunity to capitalise on a number of locational features, such as its status as a low carbon community and the Passivhaus development, the strategy needs to further capitalise on these, though there has been some coverage in the national press and supplementaries. Education centre mentioned is not included in the costs.

**Rural Carbon Challenge Fund**

**SECTION 8: COSTS/OUTPUTS**

**Outputs**

32. Please quantify what the project will deliver over its life. Before completing these tables please refer to full definitions in the Technical Notes.

**Table 1: Gross Outputs [**

Measure Code	Output Indicator Description	2008/09		2009/10		2010/11		2011/12		2012/13		2013/15		TOTAL	
		RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL
312	Number of micro-enterprises supported/created					0	0	2	0	0	0	Leave blank	Leave Blank	3	
	Gross number of jobs created					0	0	1	0	0	0	Leave blank	Leave blank	3	
	Increase in non agricultural GVA in supported businesses *									124k(h) +	0	Leave blank	Leave blank		

*\*Please note that the figures given are for the revenue expected for the renewable energy microenterprises that will be created as set out in Q.15d. Option 2*

**Rural Carbon Challenge Fund**

Measure Code	Output Indicator Description	2008/09		2009/10		2010/11		2011/12		2012/13		2013/15		TOTAL	
		RDPE	TOTAL	RDP E	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL
321	Number of supported actions											Not need	Not need		
	Total volume of investment (£000's)														
	Population in rural areas benefiting from improved services									149 CO2t e	386 tCO2e				
	Increase in internet penetration in rural areas														
	Number of participants that successfully ended a training activity														
331	Number of participating economic actors to supported activities														
	Number of days of training received by participants														
	Number of participants that successfully ended a training activity														

**Rural Carbon Challenge Fund**

33. What are the outcomes/impacts your project will help to achieve, specifically related to rural areas/ communities? Please include any economic, environmental or social outcomes/impacts.

All of the strategies being employed are Community led, and the gains are to be entirely directed back to the communities benefit. The benefits will be lower carbon emissions, greater energy awareness, increasing use of energy technologies and strengthened community cohesion through shared experience. In particular the project meets the following RIP measures identified (see also Q.9 & A10:Strategic Fit):

Theme 1: Make agriculture and forestry more competitive & sustainable

- [Redacted]
- [Redacted]
- Increase efficiency of the use of resources by supplying renewable energy to local homes, businesses and the mill.

Theme 2: Conserving and enhancing the environment & countryside

- [Redacted]
- [Redacted]
- Improve the quality of life of inhabitants of the village by using profits from the renewables project to enhance services and recreational provision.
- Tackle climate change by: producing renewable electricity and heat; funding ongoing low-carbon initiatives in the village; demonstrating sustainable development principles in the eco-homes and mill renovation; and using the HCP project to further understanding of climate change.

Theme 3: Enhancing opportunity & quality of life in rural areas

- Build on entrepreneurial culture and develop rural leadership by supporting the community organisations and social-enterprises delivering the project.
- Support our communities aim to develop renewable energy provision to fund future activity to enhance the quality of life in the village.
- [Redacted]
- [Redacted]

Theme 4: Developing skills, knowledge transfer and capacity building

- The project will build capacity in our community and ensure that we can effectively tackle the many challenges we face, in particular economic recession and climate change.
- Demonstrate innovation in sustainable housing design and living through the LCD development and ensure that the knowledge gained benefits the wider community. This will help to ensure that the scheme effectively integrates with the existing community.

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1. Do the outputs appear to be realistic and achievable or are they under/over ambitious?

Fairly non-specific and few firm targets to achieve therefore quite difficult to measure the project's success. The outputs are achievable in that the project will make some contribution to the measures set out. There may be some optimism bias however as to the level of that contribution.

2. Do the outputs identified match the RDPE measures the project is addressing?

Outputs matched against RDPE Measures.

## Rural Carbon Challenge Fund

### Rural Carbon Challenge Fund

## SECTION 9: FUNDING

34. Use the tables to show all the costs of the proposal, including the money sought from the RDPE and other funders. For table 2b (where proposed) identify funding for a scenario which includes the use of Feed in Tariffs or Renewable Heat Incentives.

**Table 2a:** Funding Summary (£000's) for a scenario **without use of Feed in Tariff or Renewable Heat Incentive** - Please specify all funders separately. Please note annual running costs not included see Q15.c for details.

Type	2008/09		2009/10		2010/11		2011/12		2012/13		2013/15 Leave Blank		TOTAL	
	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL
RDPE: Measure: 321 + 312 Combined														
Other public 2: LCIF (DECC)														
Other public 3: Misc Grants See Q.35 for details														
Private Source 1: EDF Energy														
Private Source 2: Loans														
Private Source 3: Community Bond Issue								232.44						232.44
Private Source 4: Lancaster Cohousing Investment														
In Kind Contributions														
Project Income: From ROCs & Sale of Energy														
<b>Total Consolidated Project Costs</b>														

### Rural Carbon Challenge Fund

**Table 2b:** Funding Summary (£000's) for a scenario **with use of Feed in Tariff or Renewable Heat Incentive** - Please specify all funders separately.  
 Funding Summary (£000's): Please specify all funders separately. Please note annual running costs not included see Q15.c for details

Type	2008/09		2009/10		2010/11		2011/12		2012/13		2013/15 Leave Blank		TOTAL	
	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL	RDPE	TOTAL
RDPE: Measure: 321 +312														
Other public 2: LCIF (DECC)														
Other public 3: Misc Grants See Q.35 for details														
Private Source 1: EDF Energy														
Private Source 2: Loans														
Private Source 3: Community Bond Issue								232.44						232.44
Private Source 4: Lancaster Cohousing Funds?														
In Kind Contributions														
Project Income Feed In Tariff + Sale														
Project Income Renewable Heat Incentive + Sale														
Project Income Other														
Total Consolidated Project Costs														

### Rural Carbon Challenge Fund

**Table 3:** RDPE Expenditure (£000's)

*\*Please note all RDPE % of funding will be used for the capital cost of the renewable energy projects*

Type	2008/09		2009/10		2010/11		2011/12		2012/13		2013/15		TOTAL	
	CAP	REV	CAP	REV										
Land & Buildings														
Equipment														
Other Capital: Environmental Works for Hydro							350						350	
Professional Fees														
Staff Costs														
Overheads														
Other:														
In kind Contributions														
Cost of Capital														
Write downs														
Depreciation														
<b>Total RDPE Contribution</b>														

### Rural Carbon Challenge Fund

**Table 4:** Public Sector Expenditure (£000's) (This does not include RDPE expenditure detailed in Table 3)

Type	2008/09		2009/10		2010/11		2011/12		2012/13		2013/15		TOTAL	
	CAP	REV	CAP	REV										
Land & Buildings														
Equipment														
Other Capital: Civils & Env Enabling														
Professional Fees: Design														
Staff Costs														
Overheads														
Other:														
In kind Contributions														
Cost of Capital														
Write downs														
Depreciation														
<b>Total Public Sector Contribution</b>														

### Rural Carbon Challenge Fund

**Table 5:** Private Sector Expenditure (£000's)

\*Excluding annual running costs see Q15.c

Type	2008/09		2009/10		2010/11		2011/12		2012/13		2013/15		TOTAL	
	CAP	REV	CAP	REV	CAP	REV	CAP	REV	CAP	REV	CAP	REV	CAP	REV
Land & Buildings														
Equipment							██████████	██████████					██████████	██████████
Other Capital (Specify)														
Professional Fees				██████████									██████████	
Staff Costs								██████████						██████████
Overheads								██████████						██████████
Other: Project Management Fees								██████████						██████████
In kind Contributions														
Cost of Capital										██████████				██████████
Write downs														
Depreciation														
<b>Total Private Sector Contribution</b>				██████████			██████████	██████████		██████████			██████████	██████████

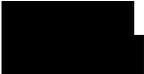
### Rural Carbon Challenge Fund

35. Match funding and Leverage. Please include in this the identification of any money to be borrowed or repaid that will help fund the project e.g. debts incurred, bank loans.

#### **Hydro Project - £1.16 Million Target**

Source	Operating Costs (Revenue)	Capital	Status	
			Confirmed	Provisional
Low Carbon Investment Fund (DECC)		£135,000		Pre-GOL issued & Conditions being negotiated. To be finalised September 2010.
EDF Green Energy Fund		£5,000 for Stage 1 Feasibility Study	Confirmed (GOL attached)	
Lancashire County Council Give it a Go		£5,000 (Lancaster District Winner)  £20,000 (Overall winner)	Confirmed	Decision Dec 2010
Lancashire Environmental Fund		£20,000 application to be submitted		Application pending
Halton Community Association		£500 for Stage 1 Feasibility Study	Confirmed	
Commercial Loans & Community Investment Bonds		£395,240 (+ 5% interest + bond repayments over 14.5 years payback=£206,109)		Ongoing discussions with banks. Will proceed once permissions and licenses in place. Loans based on FITs figures and ROCs price as per Feasibility Study
Community Investment Bonds		£232,435		Lancaster District LSP Management Group proposal of £100,000 investment being pursued. Transition City Lancaster Renewable Energy Group supporting development of bond issue.

#### **Biomass Boiler & District Heating Scheme – Total £270,500**

Source	Operating Costs (Revenue)	Capital	Status	
			Confirmed	Provisional
				

36. What is the status of any match shown in the table above (e.g. committed/under discussion/ not yet discussed)? Are there any deadline implications attached to this funding or phasing requirements?

**Rural Carbon Challenge Fund**

Please see table in Q.35 for details of Funding Status of Match Funding for RDPE investment. Outlined below is additional investment for the wider HCP project:

Project	Investment Required	Status
[REDACTED]	[REDACTED]	[REDACTED]
HCP Community Engagement Delivery Funding	£4,000	Funding from DECC pending.

37. If appropriate what clawback arrangements / agreements are to be put in place at the end of the project?

There are no anticipated clawback implications to the project.

38. Please provide an explanation as to why the project will not proceed unless grant support is received.

The hydro project requires capital costs of £1.16m, which have been factored as 46:34:20 proportions from grants, loans and locally issued bonds (see A4: Hydro Business Plan). To date we have raised £144,500 in grant aid (including £135,000 LCIF DECC funding pending) for the scheme and require a further £390,000 grant funding to hit our ideal funding structure. The proportion of grant funding compared to commercial loans, either from a bank or local stakeholders wishing to purchase bonds, changes the commercial attractiveness of the project considerably. Without the RDPE funding more commercial loans would need to be taken and serviced, therefore there would be less profit to invest in the community. Without RDPE and LCIF funding it is very unlikely that the project would be sufficiently attractive to commercial and community investors and we would thus feel unable to continue.

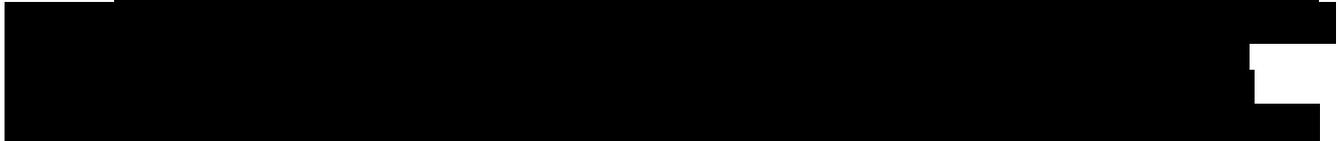
[REDACTED]

## Rural Carbon Challenge Fund



### 39. Set out in detail how will you manage Project Cash Flow to deliver the project?

The fact that the renewable energy interventions are to be funded through a combination of loan finance, grant funding and community bonds gives us some flexibility in terms of claiming grants in arrears.



Similarly, the hydro project will use commercial loans and the community bond investment to cover the period where grant payments are pending.

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#### **Finance:**

1. For capital projects, where appropriate, has a thorough appraisal of the forecast end value of the site / building and the cost-value gap been undertaken? Is all the necessary supporting documentation available?

Capital costs have been provided for each component of the scheme; however, no forecasts have been provided in terms of forecasted end value of the site.

2. Is there enough supporting information to confirm that the costs are fair and reasonable and to allow the expenditure to be properly monitored and ensure VFM?

CO<sub>2</sub>e savings at £98 per tonne are reasonable for biomass and hydro-electric but not the best value presented to the assessor. Expertise seems in place to deliver the project but is on a voluntary basis and so there is a question over whether these can be retained for the duration of the project. There are some errors in the balance sheet provided that needs to be discussed with the applicant should this project go forward.

Further work is required on the financial package to provide greater assurance over costs, revenue and overheads.

- 3: Have all matched funding contributions been agreed and committed?

Match funding is coming from a variety of private investment sources including potential loans

There is some funding committed but a lot of further work and negotiations need to be undertaken. This is a significant risk to the project associated with funding.

- 4: Are clawback arrangements adequate to safeguard the NWDA requirements (e.g. would a change on a capital asset be more efficient), or where appropriate do they allow for the on-going sustainability / growth of the organisation (e.g. community centre)?

**Rural Carbon Challenge Fund**

No clawback arrangements are in place.

**SECTION 10: MONITORING AND MANAGEMENT**

40. If your project requires any statutory approvals please give details below:

**Hydro Project:** Please also see A23: Hydro Progress Report & Project Plan

Requirement	Date approval received	If not yet received, expected date
1: Planning Permission		Preliminary planning meetings held. Application to be submitted w/c 13/09/2010. Decision due 8-12 weeks later. See also A24: LCH Planning Decision with reference to hydro project.
2: Environment Agency Approval		EA application submitted end of August 2010 following extensive preliminary discussions and design consultations. Statutory response time 4 months. Decision due end Dec 2010. Awaiting EA acknowledgement & reference number
3. Land Drainage		Application to be submitted Sept 2010
4: Land Permissions & Lease Arrangement.	United Utilities have provided permission in principle to proceed. Minutes of Meeting Attached.	
5: [REDACTED]		[REDACTED]

**Biomass & District Heating System**

### Rural Carbon Challenge Fund

Requirement	Date approval received	If not yet received, expected date
1: Planning Permission	26 <sup>th</sup> July 2010 (See A: 24 LCH Planning Committee Decision)	
2: Building Regulations		Application to be submitted September 2011

41. Identify details of any partners/ other parties involved in the project and their roles and responsibilities.

Partner	Role in project
Halton Community (HCA) Halton Lune Trust (HLT) Halton Lune Hydro (HLH) www.haltoncentre.org	ENTRUST registered Environmental Body with charitable status. HCA currently own the intellectual rights to the Hydro project and commissioned the Phase 1 Feasibility Study and Phase 2 Design & Licensing. To deliver the project HCA have set up a separate trust - Halton Lune Trust (HLT) that will own all assets on behalf of the Community, including the construction and operating company Halton Lune Hydro Limited. Profits from the hydro scheme will be distributed back in to the community through the Trust and HCA will be a senior advising partner and one of the beneficiaries. The hydro project is part of a wider community-led regeneration of economic, educational, social and recreational resources in the parish.
[REDACTED] [REDACTED]	[REDACTED]
[REDACTED] [REDACTED]	[REDACTED]
Halton Carbon Positive Steering Group	To oversee the delivery of the project a steering group has been set up. This includes: Halton Lune Hydro, Halton Community Association, Halton Parish Council, Lancaster Cohousing, LESS, St Wilfrid's Primary School and Transition City Lancaster. Lancaster District's Sustainability Partnership, Lancaster City Council and Lancashire County Council will act in an advisory role on the project.

**Rural Carbon Challenge Fund**

42. In addition set out the project management arrangements you will use to ensure project delivery and compliance with the grant contract. Give evidence of the track record of the organisation in being able to deliver the project.

A Steering Committee has been set up to oversee project delivery of the overall HCP project and a Memorandum of Understanding is being drafted. Additionally each delivery partner will be putting in place project managers to deliver the capital elements of the scheme. There is a wide range of expertise available within the partners that form the steering group (see Q.41 for list of partners) and we will draw on this to ensure the project is a success. We are also drawing on a wide range of expert external support (including EST Green Communities, Envirolink Northwest, Lancaster University, Lawworks & Leapfrog) to ensure we have the relevant legal structures in place, planning permission is granted, DNO permission is secured, and that the installation of the technologies and energy efficiency measures runs smoothly. We are also taking advice about revolving loan funds and community grant structures to ensure the benefits of the projects are equitably distributed to the community. All partners have a proven track record in delivering community projects and attracting investment. HCA has successfully brought the community together through a £750,000 refurbishment of the Centre @ Halton (including installation of solar thermal, solar PV, rainwater recycling, a ground source heat pump and energy-efficiency measures). This was part funded by the Lancashire Environment Funds 10<sup>th</sup> Anniversary Grant. HCA are also currently delivering a £500,000 Big Lottery funded project to develop the external space with a new skate park, outdoor play area, youth shelter and Petanq court! Halton Lune Hydro has been created as an operating company and includes [REDACTED], a power station engineer and designer with forty years experience, [REDACTED], a similarly experienced water system project manager engineer, and [REDACTED], recently retired and with an extensive track record of delivering community projects. Lancaster Cohousing project is being run by a full-time contracted Project Manager within Lancaster Cohousing, supported by a professional design team. The project benefits from a stable board of directors, who have a range of skills and experience including management consultancy and community building (see [www.lancastercohousing.org.uk](http://www.lancastercohousing.org.uk)). The project also has strong connections with Scientists for Global Responsibility, a national organisation with expertise in energy and environment issues.

43. Set out the key milestones for the project from inception to completion (add rows if needed).

Please also see A 25:LCH Project Plan & A26: Hydro Programme & A23: Hydro Progress Report & Project Plan

**Completed Milestones**

Milestone Activity	Delivery Organisation	Owner	Target Date
Stage 1 Hydro Feasibility Study completed (funded by EDF).	First Renewables	HCA	Sept 2009
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Selected as Low Carbon Community	DECC	HCA/LCH/LESS	January 2010
HCP Steering Group set up & Community Engagement Plan	HCA/LCH/LESS	HCA Steering Group	March 2010

### Rural Carbon Challenge Fund

Developed			
ESRC Energy & Community Research Bid Submitted	Lancaster University/ LESS	Lancaster University	March 2010
Hydro Phase 2: Design & Licensing Work Starts	Renewables First	HCA	March 2010
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
HCA set up Halton Lune Hydro as hydro construction and operating company.	HCA	HCA	April 2010
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hydro Community Bond Offer in development. Plus ongoing negotiation with commercial lenders.	HLH	HLH	August-November 2010
Land lease negotiated with United Utilities. Ongoing stakeholder consultation and planning authority liaison pre-Planning.	HLH	HLH	August-Sept 2010
DECC Low Carbon Communities pre-GOL offered and negotiated.	LCH	LCH	August 2010
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

#### Future Milestones

Milestone Activity	Delivery Organisation	Owner	Target Date
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hydro planning permission submitted.	HLH	HLH	September 2010
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hydro land drainage & grid connection consents applied for.	HLH	HLH	October 2010
Hydro environmental protection works tendered.	HLH	HLH	November 2010
All permissions in place for Hydro.	HLH	HLH	End December 2010
All funding in place for Hydro	HLH	HLH	Jan 2011

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through securing commercial loans and community bond issue			
Electrical connection works for Hydro commence.	HLH/LCH	HLH/LCH	Jan 2011
Discharge of pre-commencement conditions for Hydro Scheme	HLH	HLH	Jan 2011
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Environmental Protection works for Hydro.	HLH	HLH	Feb-May 2011
LCCC DECC funding claimed	HCA/LCH/LESS	HCA/LCH/LESS	March 2011
Hydro Turbine Install Complete	HLH	HLH	Jan 2012
Hydro Scheme Commissioned	HLH	HLH	Jan 2012
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

44: If appropriate set out the arrangement you will use to ensure project delivery and compliance with the grant contract. Give evidence of the track record of the organisation in being able to deliver the project.

See Question 42.

45. How will the project undertake procurement? And how does this satisfy the EU requirements?

To meet the requirements of EU Procurement rules we will go through a competitive tender process with between 4 and 6 tenders invited for both the biomass heating system and hydro turbine. Copies of all tender documents and quotations will be kept along with evidence of how decisions have been made. A full Procurement Audit Trail will be maintained in the Project File to demonstrate that the procurement process has been open, transparent and represents value for money. [REDACTED]

[REDACTED] With the 220kW Kaplan hydro turbine due diligence will be used in the selection of the turbine and installer. In particular, it will be shown that the turbine type and model with associated equipment, is a proven design with an extensive track record worldwide.

**For appraisal use only:**

1. If appropriate, are the roles and responsibilities of the project management team/accountable body clearly defined?

A good number of project partners are on board with milestone deliverables assigned to each. However, in terms of direct accountabilities, further information needs to be provided in

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particular over the administration of the project going forward.

2. If appropriate, what previous experience/track record does the Delivery Organisation have in project management and/or in the delivery of NWDA funded projects?

No previous NWDA projects but has experience of gaining EU and Big Lottery funding.

#### 46. Risk Assessment

Please identify the main risks to the project. Some examples are given of the more common risks, but you should not limit your assessment to just these examples.

Risk Description	Probability (1-3)	Impact (1-3)	Overall Risk (prob x impact)	Timing	Risk Owner	Comment: What can be done to reduce risk or what contingency plans will be in place?
1: Lack of organisational capacity / stakeholder commitment / staffing	1	2	2	Short Term	HCA	The hydro project is currently being project managed on a volunteer basis. The pending Low Carbon Communities funding includes 10% for management costs.
2: Cost Overrun	2	2	4	Medium Term	LCH HCA	Due to the procurement process it is difficult to have finalised costings. Best estimates however have been sought and financial planning has been based on the most expensive. A 5% contingency has also been built into costings.
3: Failure to achieve outputs	1	2	2	Long Term	LCH HCA	Technical experts have designed and specified the renewable energy systems and used standardized generation calculations. Conservative energy and heat generation factors have been used when calculating financial payback from the technologies.
5: Timescales ~ delays and slippage	1	3	3	Medium Term	HCA LCH	(Please also see A:23 Hydro Progress Report.)The main challenge is securing planning permission and environmental licences for the hydro project. The EA application has been submitted and the agency fully consulted from the very beginning of the project proposal. Planning permission for the

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						refurbishment of the Mill has been passed with reference to the hydro turbine as main source of electricity. We have enlisted expert support from EST's Green Communities and Envirolink to ensure technical viability of all aspects of the project. Full community disclosure and engagement from the outset has meant we can tackle any concerns early on.
6: Match funding does not materialise	2	3	6	Short Term	LCH HCA	<div style="background-color: black; width: 100%; height: 150px; margin-bottom: 5px;"></div> <p>Halton Lune Hydro are working with DECC advisers to develop a community bond issue that is already attracting interest from potential local investors including Lancaster District LSP. The current ideal funding scenario for the hydro project is Grant 46%: Loans 34%: Community Bonds 20% HCA are also cognisant that this split could be more weighted to loans and have had positive response from commercial investors.</p>
7: Weather impact on hydro works	2	2	4	Medium Term	HCA	Intrusive work can only take place in the river outside of the fishing season. This means that primary construction work is limited to between October and May. If the river is in flood during this period then work will be

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						<p>delayed. To mitigate against this risk we are running the tender process for the hydro environmental protection works concurrently with the EA consents process so that the maximum possible period is available for the works. Even if the work has to be undertaken over two seasons the hydro project will still be completed before the RDPE deadline of March 2013.</p>
8: Failure to deliver long term investment in community.	1	3	3	Long Term	HCA	<p>HCA have set up Halton Lune Trust (see A27: HLT Deed) to ensure proper management of profits back into the parish. The HCP steering group partners are also developing a Memorandum of Understanding to underpin ongoing cooperation.</p>

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1. Have all the risks been identified?

Comprehensive risk assessment looking at both initial and some on-going risks. However, environmental risks such as hydrodynamic factors by changing the river flow have not been mentioned, though flooding affecting the timeline is discussed and the environment agency has been consulted.

2. Are the steps to reduce the risks identified/contingency plans well thought out and appropriate?

Mitigation steps have been well thought out and are likely to mitigate some risks; however cost overruns need some development to reduce this.

3. Is a sensitivity analysis required? Has this been done? Is the project still considered viable?

Not required.

4. Are there any unacceptable risks, or any areas that need further work?

Cost overruns need to be further researched, establishing firm cost estimates and whether these can be met – perhaps look to increase contingency (5% is fairly low). Contingency should not be included in the cost of the RDPE investment and as such costs may need to be recalculated.

Match funding needs to be confirmed – social scheme needs further work – should be implemented

5. Given the information in this section what is the overall risk of the project?

MEDIUM – work undertaken on a voluntary basis – are they going to be available for the projects' duration, match funding and costs need to be firmed up.

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### Exit/Forward Strategy and Publicity

47: Explain what arrangements you would expect to have in place once the RDPE funding comes to an end to ensure that the outcomes and other longer-term objectives are met? Please also give a brief outline of what the evaluation arrangements will be, including timescales.

The RDPE funding will be used on capital investment in renewable energy technologies that have expected life-spans of at least 25 years. The following operational structures have been put in place to ensure the ongoing viability of these technologies and that the project continues in a proper and controlled manner:

1) HCA has set up an independent charitable Trust, namely the Halton Lune Trust that will wholly own the Hydro construction and operating company Halton Lune Hydro Ltd, on behalf of the Community. The Trust currently has four nominated Trustees following open invitation to those living within the Parish and the Trust Deed, has been submitted to the Charities Commission for registration see (A27: HLT Deed). HCA's continuing administrative, promotional and fund raising support of the hydro project will be recognised by Halton Lune Hydro Ltd through the future donation of operating profits back to HCA commensurate with the support provided. The operational and maintenance costs will be covered by the revenues generated by the sale of the electricity generated, plus the Feed In Tariff or ROCS, should FITs not be available.

2)



48. How will the project meet the publicity and marketing requirements as part of the RCCF? This should set out in detail how it will publicise the involvement of the RDPE to its beneficiaries, partners and general public. Please explain how the project will meet the aims of the RCCF in promoting and sharing best practice and knowledge transfer. The NWDA's Guidelines for Branding and Publicity have been provided for further information.

A key component of the Halton Carbon Positive project is to actively promote and share information about our low-carbon initiatives. We will be happy to publicize how the community has received RDPE support and will adhere to guidelines by:

- Including appropriate logos on our communications, promotional materials and websites;
- Installing explanatory plaques in Halton Mill and at the hydro site so that members of the public can find out about the project and its supporters;

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- Liaising with NWDA prior to issuing press releases or holding events and ensuring that the NWDA and RDPE funding is credited appropriately;
- Inviting NWDA & RDPE representatives to the official opening of Halton Mill and the Hydro project;
- Keeping original documents related to the implementation of the project and its financing, including all press coverage, in a dedicated Project File.



#### For appraisal use only

1. Are the forward strategy/exit arrangements satisfactory?

Exit strategy is satisfactory, appropriate organisations are set up to continue the administration of the project after it ends. There is a secure market in the housing and premises the project intends to provide facilities to and will be funded from this revenue and renewables obligation certificates.

<b>APPLICANT:</b>	<b>RDPE PROJECT SPONSOR:</b>
Signed	Signed
Name: 	Name
Date: 31/08/2010	Date

**Rural Carbon Challenge Fund**

Appraisal Comments

Lead Appraiser's Summary and Recommendations to the Appraisal Panel (this summary should also comment on any contribution to SAV made by the project)

**LOCATION: Halton**

**TECHNOLOGY: Hydro-electric generation, biomass district heating**

**PROJECT COSTS: £1,294,900    AMOUNT OF GRANT REQUESTED: £500,000 (39%)**

**EXPECTED START DATE: Subject to Contract Signing**

**1) BRIEF PROJECT INTRODUCTION**

Community-led low carbon initiative including: (i) Hydro electric scheme on the River Lune and:

[REDACTED]

**2) FUNDABILITY**

FUNDABLE	FUNDABLE WITH RESERVATIONS	REJECT
	X	

**Comments:**

The HCP is a multi faceted project in which schemes are designed to use a multitude of different technologies, including hydro-electric power generation and biomass district heating.

The project is able to run without the need for Feed in Tariffs or Renewable Heat Incentives, thus making it eligible for RDPE funding without affecting the optimum benefits of the project, and profits are to be invested back into the community. However, If a FIT was used; there is evidence to suggest that the project would be commercially viable without the need for RDPE.

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The project identifies that it would save 13,105 tonnes of CO<sub>2</sub>e over a 20 year project lifespan at a cost of around £98.80. The project will create 8 new jobs and safeguard a further 10.5 which are accounted for within the operating costs.

Good evaluation and exit strategies have been presented, and the applicant has identified positive steps towards being able to sustain itself. The project has acquired some strong partners and has the ability to lever additional private sector funding should RDPE put up initial capital, although the funding gap remains a significant area of risk. Further information is also needed on the financial package to provide greater assurance over costs, revenue and overheads.

Whilst the provision of lifecycle costs for the construction and installation of the plant is commended, there are a number of errors with the carbon calculations and this need to be reviewed. Additionally, whilst the preferred scheme does not require FITs, the projects intentions towards the use of the scheme seem inconsistent. If a FIT was used; there is evidence to suggest the project would be commercially viable without the need for RDPE investment.

It is recommended therefore that the case be put forward as a possible option for funding though some further information should be sought in order to create a firm proposal. Key to this would be securing match funding as well as a review of the carbon factors. The development of the marketing strategy will also be essential for generating project awareness and detailing how the business premises are going to be marketed. It is important that the RDPE/NWDA are not seen to be rescuing an otherwise unviable premises on the pretext of carbon savings.

Signature of Lead Appraiser



AECOM

Date

17/09/2010

Telephone Number

**Rural Carbon Challenge Fund**

Appraisal Panel Summary to Decision Maker, including any conditions

Signature of Panel Chair (central panel)/member(s):

Date

## Rural Carbon Challenge Fund