

CAMBRIDGESHIRE HORIZONS

Agenda Item No:7

Low Carbon Infrastructure Programme for Growth in Cambridgeshire

To: **Joint Strategic Growth Implementation Committee (JSGIC)**

Date: **9th September 2009**

From: **Sheryl French**

Purpose:

- **To identify the scale of the challenge to deliver the Government’s Renewable Energy Strategy and targets**
- **To highlight current investments in low carbon decentralised energy schemes and projects in the Growth Agenda**
- **To identify further prospects for investment in renewables as part of the Growth Agenda**

Recommendation: **JSGIC is asked to:**

- **To provide views on the proposed prioritisation of projects**
- **To comment on this report prior to its presentation to Horizons Board**

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1.0 Background

1.1 The Carbon Appraisal of the Long Term Delivery Plan (CALTDP) highlights that in order to keep on track for achieving long term carbon targets for 2031 and 2050, of 80% reduction of CO₂ by 2050 (Climate Change Act 2008) the housing growth for the sub region and indeed Cambridgeshire, will need to be built to zero carbon standards. In addition, the growth process will need to be used as a key opportunity for rolling out low carbon infrastructure that can facilitate carbon reductions in the existing building stock.

1.2 Recommendations arising from the CALTDP relating to the support of low carbon infrastructure include:

- i. providing a strategic approach to facilitating low carbon energy infrastructure such as renewable energy, and local heat and power networks
- ii. the identification of how Public Sector buildings can lead the way in installing Combined Heat and Power (CHP) and other forms of renewables so as to provide 'anchor loads' for district heating and low carbon infrastructure networks;
- iii. Establishment of a ring fenced carbon investment fund to provide upfront investment in low carbon infrastructure (initially financed by the public sector, but later reimbursed through payments from private sector developers) and additional measures to mitigate early stage infrastructure development risk such as those being proposed for Northstowe;
- iv. Identify a number of public sector demonstration projects within health and education;
- v. Further support for low carbon infrastructure, such as CHP systems and district heating networks, including planning policies that require district heating and CHP within large mixed use developments;
- vi. Ensure that the master plans for the strategic growth sites contain comprehensive zero carbon methodologies addressing buildings, low carbon infrastructure and transport;
- vii. Develop proposals on a 'sub regional carbon offset mechanism' that can enable residual carbon emissions associated with new development to be offset through energy efficiency activity within the existing communities.

2.0 Policy

2.1 The UK has signed up to the [EU Renewable Energy Directive](#), which includes a UK target of 15 percent of energy from renewables by 2020. This target is equivalent to a seven-fold increase in UK renewable energy consumption from 2008 levels: the most challenging of any EU Member State. While such an increase is ambitious, and will be challenging, the UK is fully committed to meeting the target. The EU Directive also requires Member States to set minimum requirements for renewables on new and refurbished buildings where appropriate.

2.2 The Government launched its Renewable Energy Strategy 2009 aimed at achieving the objectives of the Directive.

A key scenario is:

- More than 30% of our electricity generated from renewables, up from approximately 5.5% today. Much of this will be from wind power, on and offshore, but biomass, hydro wave and tidal power will also play an important role.
- 12% of our heat generated from renewables, up from very low levels today. It is expected that will come from a range of sources including biomass, biogas, solar and heat pump sources in homes, businesses and communities across the UK.
- 10% of transport energy from renewables, up from the current level of 2.6% of road transport consumption. The Government will also act to support electric vehicles and pursue the case for further electrification of the rail network.

2.3 Market forces on their own may not achieve the necessary change towards a low-carbon energy mix sufficiently quickly and radically. Putting a price on carbon emissions alone may not be sufficient to reduce emissions at the scale and pace required and more support is needed for renewable and innovative low-carbon technologies. To support the delivery of the above scenario Government will

- Expand and extend the long-term incentive for major renewable electricity developments – the Renewables Obligation – to ensure that it can deliver around 30% renewable electricity by 2020
- Introduce ‘clean energy cash-back’ for households, industry, businesses and communities to use renewable heat and small-scale clean electricity generation, by introducing new guaranteed payments through Feed-In Tariffs from 2010, and a Renewable Heat Incentive by 2011.
- Amend or replace the Renewable Transport Fuel Obligation to impose an obligation designed to deliver 10% renewable energy consumed in transport by 2020, subject to sustainability controls

2.4 Government has also introduced the zero carbon policy for new homes and buildings as one mechanism by which the strategy’s aims can be achieved. While the direct contribution of the policy to promoting renewables by 2020 will be modest, it will play an important role in priming the market and supply chain for renewable technologies.

3.0 How is the Growth Agenda supporting the delivery of low carbon energy infrastructure?

3.1 The transformational change required to deliver the renewable energy targets up to 2020 is hugely challenging as are the timescales within which this change needs to happen. Government has set up the Office for Renewable Energy Deployment to support the speed of change required. For Cambridgeshire, this means that any opportunities

afforded by the growth agenda (and outside it too in existing stock) need to be explored and acted on swiftly to support the pace of change required.

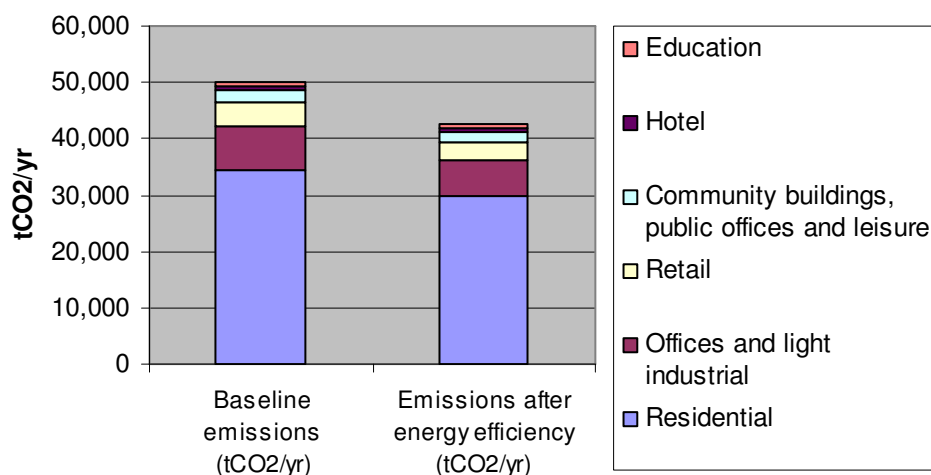
3.2 A total of £2,170,000 is and will be, directly invested in a range of projects to facilitate the delivery of low carbon energy infrastructure during the period 08-11. Of this investment a total of £1,665,000 will come from Housing Growth Funds (HGF) and the balance from European Development Funding (ERDF) and local authority match funding. There is a direct relationship between the recommendations highlighted in paragraph 1.2, recommendations I-vii and the investments being made via HGF in projects.

3.3 Projects currently supported include:

3.3.1 Viability of a Biomass Combined Heat, Cooling and Power Plant (CCHP) and community heat network for Northstowe. (Recommendations ii, iii and iv).

A series of studies and predevelopment exercises have been carried out to begin to appraise the technical, financial and social viability of the scheme. Over fifteen studies have been commissioned investigating topics ranging from community heating system and energy centre design, biomass feedstock availability and environmental modelling through to financial appraisal, legal considerations and social testing. This project has identified the business case for delivering a Biomass CCHP and community heating network for Northstowe. The analysis suggests the biomass CCHP installations are the most risky through the different project stages but offer the greatest potential return and savings in carbon emissions. The study highlighted that, despite the risks, biomass CCHP is the most viable and cost effective option to deliver carbon savings at Northstowe. The findings from this work are being shared with Partners/ Stakeholders during September - November 2009. The work from this project will provide useful learning for other growth sites and delivery of the project as part of Northstowe can achieve all the public buildings, a large % of homes, the town centre and commercial areas of Northstowe receiving low carbon electricity, heat and cooling and fulfil the requirements for zero carbon for non-Domestic Buildings and Code for Sustainable Homes. The detail in this study can also be used to discuss the possibility of the delivery of a Biomass CHP plant without Northstowe as a local source of renewable energy.

Baseline annual carbon emissions and emissions after energy efficiency for Northstowe Development



3.3.2 St.Neots Low and Zero Carbon Energy Strategy. (Recommendations ii, vi and vii)

A project to identify opportunities for low and zero carbon decentralised energy for St.Neots Eco- Quarter and the town. The study (final draft due September 2009) will identify a series of 'masterplan' options for low and zero carbon energy in the urban extension and the options for technologies based on demand, scale and location. This project is also considering the opportunity of investments in energy efficiency in existing stock as a mechanism to off- set CO2 emissions. Investments in energy efficiency in existing stock can bring larger CO2 reduction benefits for the same price as delivering code level 6, zero carbon for new homes.

3.3.3 The Low Carbon Development Initiative (LCDI) (Recommendations I and iii).

A special purpose vehicle to identify, manage, de-risk and attract private investment in bringing forward low carbon infrastructure. Essentially the public sector is investing a limited amount of money for a period of time to de-risk low carbon projects to the extent where they become an investment opportunity for commercial developers. The ultimate aim is for projects to achieve a development partner, utility company or long term project owner. Northstowe will be the first in a number of low carbon developments under the Low Carbon Development Initiative (LCDI) and the intention is to bring St.Neots into the LCDI during the next 6-9 months. Renewables East is championing the LCDI with Cambridgeshire Horizons and it is supported by HGF and ERDF monies. The LCDI will create as a Community Interest Company to carry out work in order to mitigate the early stage project development risks inherent in projects of this kind.

3.3.4 'The Hive' Enterprise and Education Park Programme led by Cambridgeshire

County Council and Cambridge Regional College. A sum of £2.3 million HGF capital 08-11 has been earmarked to deliver this programme. The outputs will include the development of skills and services to support the transition to the low carbon economy and will provide key demonstration projects through which learning can be supported. This project is potentially very important to the development of the long term skills base in Cambridgeshire and the ability to deliver new technologies and provide for effective ongoing maintenance. (Recommendations i and iv)

3.4 Further progress against the recommendations arising in paragraph 1.2 is directly related to the recent success with the North West Area Action Plan. Policies were upheld at the Public Inquiry for Code Level 5 market housing and a community scale CHP scheme. This is an excellent example of Local Authorities raising the policy bar for developers and helping to deliver recommendation v - *Further support for low carbon infrastructure, such as CHP systems and district heating networks, including planning policies that require district heating and CHP within large mixed use developments.*

4.0 The Next Steps

An investment of £100K of HGF Revenue 09-11 has been identified to progress additional project work on the delivery of low carbon infrastructure for the growth sites. Four projects have been identified below as possible opportunities to be progressed.

4.1 Projects could include:

- North West Cambridge –the total number of homes now expected for Cambridge North West Sector (University, NIAB, NIAB Extra and Orchard Park) is over 6000 homes plus 2000 student homes and the range of community buildings that will be required to service this development. The scale of the total development and its location abutting existing development means that this is a key area of opportunity to explore. Whilst the University appears to be well placed to deliver something exciting in relation to low carbon energy for their site, issues to examine may include: (i) how to support the Local Authorities to work with the University to agree a viable decentralised energy scheme (ii) how growth can support energy efficiency improvements in existing stock. The scope for this work needs to be agreed with the Local Authorities leading the work and the aim would be to identify how Renewables East and the LCDI can support and facilitate delivery.
- Using Public Buildings as ‘anchor loads’ to support financial viability – identify the key opportunities and constraints for public sector buildings (both new and existing) to support the delivery of low carbon decentralised energy schemes such as CCHP. This would need to consider procurement of energy; cost benefit analysis; design of buildings etc.
- Develop a model masterplan that captures comprehensive zero carbon methodologies addressing buildings, low carbon infrastructure (including water, power, heat, IT) and transport (electric car points for example) to ensure that master plans for strategic growth sites contain the necessary low carbon infrastructure for zero carbon communities.
- Develop proposals on a ‘sub regional (or Cambridgeshire) carbon offset mechanism’ that can enable residual carbon emissions associated with new development to be offset through energy efficiency activity in the existing community;

Progress is being made for the first 2 issues, whereas the third could become increasingly important, as sustainability standards are increased and less likely to be achieved on-site. However, the view of the Growth Partnership Board was that the fourth item above should be developed as a matter of priority.

5.0 Recommendations

- The Board’s views are invited on the suggested prioritisation and content of the projects identified in paragraph 4.1;
- The Board’s views are also invited on any projects that have not been identified but should be considered for inclusion.