

POLICY REVIEW INTO THE DEVELOPMENT OF THE LOW CARBON ECONOMY IN
SUNDERLAND - DRAFT REPORT

REPORT OF THE PROSPERITY & ECONOMIC DEVELOPMENT SCRUTINY
COMMITTEE

1. Purpose of Report

- 1.1 To provide the Scrutiny Committee with a draft report on its review into the development of the Low Carbon Economy in Sunderland.
- 1.2 The report seeks to set out and summarise the evidence gathered during the year and make a number of potential recommendations.

2. Introduction

- 2.1 On 18 June 2009, the Committee agreed to undertake a policy review into the development of a Low Carbon Economy in Sunderland. Members chose this theme in order to review the progress being made to reduce carbon emissions and in view of the potential importance of developing of a low carbon economy to the future economic prosperity of the city.

3. Terms of Reference

- 3.1 At its meeting on 14 July, the Committee agreed the following terms of reference:-
 - (a) To gain an understanding of what we mean by the term 'low carbon economy';
 - (b) To consider the difference between the concepts of low carbon *business* and a low carbon *place*;
 - (c) To consider how best to involve individuals in making low carbon choices, for example, through energy conservation or generation measures;
 - (d) To look at the action being taken by the City as a whole (businesses and residents) and the work being done to encourage businesses and residents to sign up to the low carbon agenda;
 - (e) To look at the work being done in schools and other Council buildings to reduce carbon emissions;
 - (f) To consider the role of the Council in providing community leadership and championing the low carbon economy;
 - (g) To investigate the land and infrastructure requirements of a low carbon city;

(h) To consider the potential skills requirements of a low carbon economy and the measures that can be taken to ensure that the City's working population are equipped to meet these demands;

(i) To consider how best to market the City in order to attract new low carbon industries and consider the promotion of flagship schemes;

(j) To map those low carbon businesses already in the city to provide a benchmark for moving forward.

4. Membership of the Task and Finish Group

4.1 The Committee also agreed to establish a Task and Finish Group in order to help undertake research on this issue. The Group comprised Councillor M Mordey (Chair), Councillor D Snowdon, Councillor R Bell, Councillor I Cuthbert, Councillor P Gibson and Councillor A Wright.

5. Methods of Investigation

5.1 The following methods of investigation used include a mixture of formal evidence gathering sessions and visits.

6. What Do We Mean by the Term Low Carbon Economy?

6.2 As a starting point for the review, we felt that it was important to be clear about what we mean when we use the term "low carbon economy". A low carbon economy is usually defined as an economy that aims to reduce the carbon dioxide and greenhouse emissions associated with climate change while at the same time exploiting alternative energy resources in recognition that fossil fuel reserves are finite.

6.3 A low carbon economy is therefore one that:-

- minimises greenhouse gas emissions;
- minimises its reliance on fossil fuels;
- develops and manufactures low and zero carbon technologies;
- develops its knowledge and skills to create green jobs;
- aspires to meet local and national targets for the reduction of carbon emissions.

7 Policy Context for a Low Carbon Economy

7.1 As a next step, the Committee also felt that it was important to review the national and local policy context within which we operate in order to better understand the development of a low carbon economy in Sunderland.

National Policy Context

- 7.2 A key legislative driver behind the development of the low carbon economic agenda has been the **Climate Change Act** which came into force on 26 November 2008. The Act has two key aims:
- to improve carbon management, helping the transition towards a low-carbon economy in the UK;
 - to demonstrate UK leadership internationally, signalling a commitment to sharing responsibility for reducing global emissions.
- 7.3 A key provision of the Act is a legally binding target of *at least an 80% cut in greenhouse gas emissions by 2050*, to be achieved through action in the UK and abroad. It also includes a reduction in emissions of at least 34% by 2020 (both targets are set against a 1990 baseline). The Climate Change Act therefore has the potential to significantly change the make up our economy producing a need to reduce greenhouse gas emissions and create a growing economic sector driven by demand for low carbon goods and services.
- 7.4 A range of further legislation is also in place across the public and private sectors, including for example, the **Carbon Reduction Commitment** which places a cap on emissions for high energy use organisations. Building regulations and the Climate Change Levy also apply across these sectors.
- 7.5 The **Department for Business Innovation and Skills** (BIS) has stated that the transition to low carbon will transform our whole economy. It will change our industrial landscape, the supply chains of our businesses and the way we all live and work. The vast majority of, if not all, economic activity in Britain will have to reduce its carbon impact significantly.
- 7.6 The UK aims to lead the move to a low carbon economy in a coordinated drive to tackle climate change. BIS's Low Carbon Business Team works to help businesses overcome the challenges and grasp the opportunities. Market intelligence commissioned by BIS puts the global market value of the low carbon / environmental goods and services sector at around £3.2 trillion in 2008/9. The UK's sector is already valued at £112 billion, with almost 910,000 jobs.
- 7.7 Whilst a number of these commitments were made under the last government, it has been confirmed by the Coalition Government that these targets stand (for example, in a press release issued by Chris Huhne, Secretary of State for Energy and Climate Change, on the 27th June 2010). The **Coalition Government Statement** issued shortly after the election stated it would continue to encourage home energy efficiency improvements paid for by savings from energy bills and take measures to improve energy efficiency in businesses and public sector buildings. The Government is also committed to delivering an offshore electricity grid in order to support the development of a new generation of offshore wind power and encouraging community-owned renewable energy schemes where local people benefit from the power produced. This should allow communities that host renewable energy projects to keep the additional business rates they generate.
- 7.8 'New Industries, New Jobs: Building Britain's Future' published by the Department for Business, Enterprise and Regulatory Reform and the Department for Innovation, Universities and Skills in 2009, identified Low Carbon Industries and Ultra Low

Carbon Vehicles as key areas for the region's economy. In 2009, Sunderland was declared a **Low Carbon Economic Areas**. The purpose of a Low Carbon Economic Area is to accelerate the growth of low carbon industry in places where there is already economic strength and provide a common focus at the local and regional level for sectors that are important as we move to a low carbon economy.

Local Policy Context

- 7.9 The **Sunderland Economic Masterplan** sets out the blueprint for the economic development of the city over the next 15 years. Its analysis of the key global drivers of change identifies climate change as one of four important influences upon the City's future.
- 7.10 The Economic Masterplan identifies a number of important challenges that the City must overcome, in particular that Sunderland's economy remains too reliant on a narrow range of industries. While the city has successfully moved from ships and coal to cars and contact centres, it still does not possess the variety of industries and career opportunities, nor the volume of well-paid jobs necessary to retain more of the younger population and to ensure a resilient economy.
- 7.11 The Economic Masterplan proposes a new economic vision for Sunderland as 'an entrepreneurial university city at the heart of a low carbon regional economy'. Among its five Aims, it lays out the specific objective of becoming 'a national hub of the low carbon economy'. This focuses upon the opportunities offered by new low-carbon technologies to stimulate economic activity in Sunderland. It emphasises the city's national potential and the need to showcase projects such as electric vehicles and create an environment attractive to low carbon businesses. However, the Economic Masterplan recognises that this is likely to be a highly competitive process and it is therefore important that the city focuses on those low carbon industries in which it enjoys a competitive advantage.
- 7.12 As a signatory of the Covenant of Mayors the City Council has committed to a reduction of City wide carbon emissions of at least 20% in the decade 2010 to 2020. The route map to this is recorded in the Council's Sustainable Environment Action Plan (SEAP) which is available on the Council web site.
- 7.13 The Council's **Local Development Framework (LDF)** which is currently in preparation will set out the long term policies for the development of land and buildings in the City. The LDF will be made up of a series of documents setting out both policies and detailed guidance. At its heart lies the Core Strategy which will set out the vision and aims along with the broad policies to help deliver that vision. The emerging Core Strategy will set out a series of spatial objectives, one of which concerns Carbon emissions and energy and will aim to reduce carbon emissions by those targets set out in the Council's Climate Change Action Plan.
- 7.14 Sunderland's **Climate Change Action Plan** (November 2008) is the framework which aims to reduce carbon emissions, and is the first step towards meeting the Government's long term targets of reducing greenhouse gas emissions by 80% by 2050. In January 2010, the targets were revised to cut carbon emissions by at least 34% by 2020 (to align itself to the UK Low Carbon Transition Plan) with the focus upon reducing emissions from housing, public and commercial organisations and

transport. Emissions arising from waste are also identified, although this is now under the control of national and local waste management strategies.

8 Low Carbon Place and Low Carbon Business

8.1 In examining the development of the low carbon economy in Sunderland, the Committee adopted the approach taken in the Sunderland Economic Masterplan by focusing on the progress being made to develop Sunderland as a *low carbon place* and promote the expansion of *low carbon business*.

8.2 In these terms, a *Low Carbon Place* is defined as one that encompasses physical infrastructure and local projects and initiatives aimed at reducing the City's carbon footprint, for example:

- low carbon commercial buildings (new and existing) - making use of renewable energy supply and district heating/CHP;
- low carbon homes with reduced dependency on fossil fuels - through the use of renewables, district heating and CHP;
- Low Carbon City Campaign - encouraging the City's residents and businesses to reduce greenhouse gas emissions;
- ultra low carbon vehicle adoption - including charging points fed with renewable electricity;
- super connectivity project - enhanced broadband connectivity

8.3 In terms of *Low Carbon Business*, the Economic Masterplan identifies three priority sectors of the local economy which have the greatest potential for growth and job creation, namely:

- ultra low carbon vehicles;
- offshore wind - energy generation;
- Software City.

8.4 In the next section of the report, we have gone on to examine the progress being made to develop Sunderland as a low carbon place and also the potential that exists for the development of our low carbon businesses focusing on the software, vehicles and offshore wind industries.

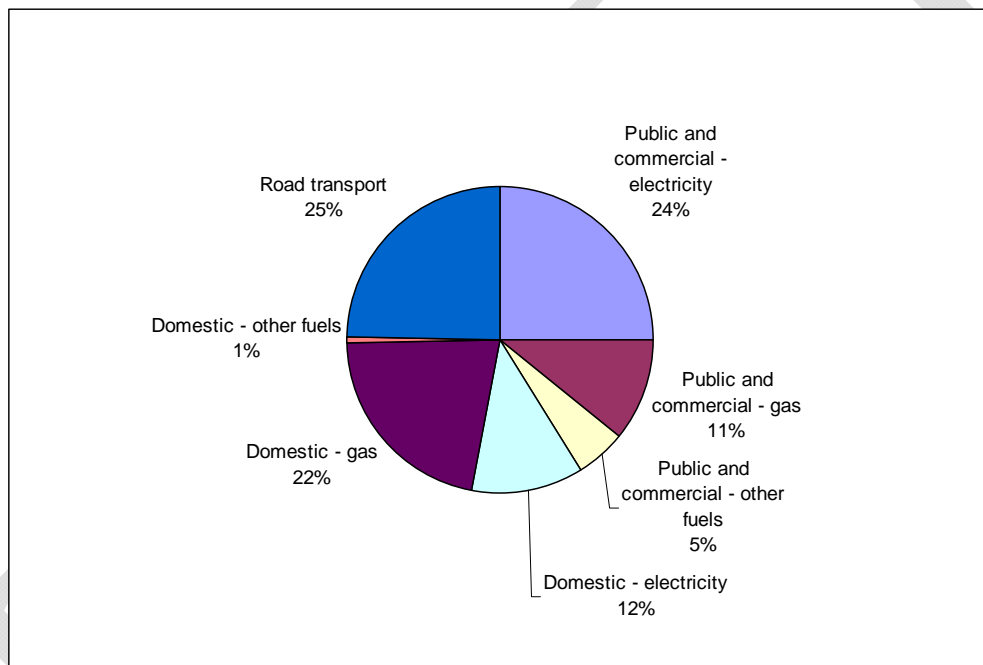
9 Development of Sunderland as a Low Carbon Place

9.1 In considering the level of carbon emissions within the city, the Committee has looked at the level of emissions produced both by the Council and by the city as a whole. We then went on to examine the action being taken by the Council and its partners to reduce the level of our carbon emissions.

Carbon Emissions Produced Within the City

9.2 The City of Sunderland currently produces approximately 2 million tonnes of greenhouse gas emissions per year. By comparison with the UK as a whole, this is a relatively high figure partly reflecting the city's economic history and the continuing prevalence of heavy manufacturing industry.

9.3 A breakdown of the city's carbon dioxide emissions of 1,995,180 tonnes for year 2005 is as follows:-



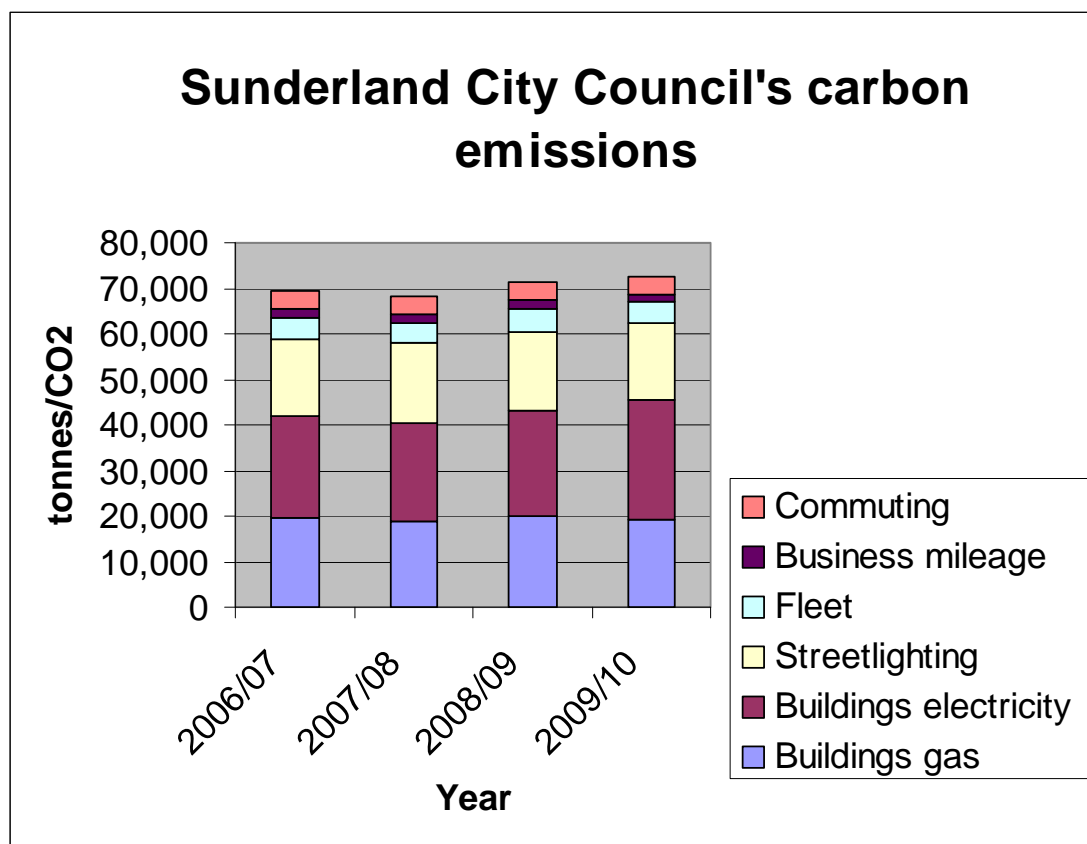
9.4 Since 2005, there has been a continued downward trend in carbon emissions falling to 1,830,830 tonnes/CO₂ in 2008 as demonstrated by the table below.

Year	Total tonnes/CO ₂	Per Capita tonnes/CO ₂
2005	1,995,180	7.1
2006	1,968,610	7.0
2007	1,885,200	6.7
2008	1,830,830	6.5

Carbon Emissions Produced by the Council

9.5 The Council itself makes a significant contribution to the level of carbon emissions in the city. The bar chart below sets out a breakdown of the Council's carbon

emissions between 2006/07 and 2009/10. This shows the considerable impact of energy use in buildings which represents around 60% of the Council's carbon footprint – with a split of around 60:40 between operational properties and schools.



Reducing its Carbon Emissions – Action Being Taken By the Council

- 9.6 A key driver in the Council's efforts to reduce its carbon emissions has been the adoption of a Carbon Plan. This sets out a vision that "Sunderland City Council will become a low carbon council by using energy more efficiently and by using and developing more of our own low carbon energy sources". It also set a target that the Council should reduce its carbon emissions by 10% in 5 years.
- 9.7 The City already has a good reputation for its pioneering approach to low carbon buildings – both commercial and residential. However, there remains much to do if we are to reduce the carbon footprint of the city. The Committee has looked at the range of measures being taken within Council owned buildings in order to reduce carbon emissions and improve energy efficiency.
- 9.8 Through its Energy Management Strategy, the Council has adopted more sophisticated metering and in order to obtain a clearer indication of energy consumptions and monitor any trends or areas of concern. In particular, the introduction of automatic metering has the potential to allow for detailed analysis of electricity, gas and water usage in Council buildings in order to identify areas of wastage and the setting of targets and benchmarks.

- 9.9 Improvements have also been made to the system for energy procurement. The Council purchases its energy via the NEPO consortium. As traditional procurement contracts are subject to market volatility, a flexible contract has been developed with the electricity supplier thereby helping to mitigate market fluctuations.
- 9.10 However, very significant reductions in our carbon emissions can result from the actions of individuals. The Council has introduced awareness programmes and a detailed communications plan to make staff more aware of the importance of reducing energy usage and the range of simple measures that can be taken by individuals to reduce their carbon emissions. For example the *Awareness - Cut your carbon* campaign included posters, intranet postings and the introduction of an Employee Environmental Building Code of Conduct. The ideas and suggestions generated included tips to reduce energy consumption on PC's; and the installation of timer switches
- 9.11 To build on such initiatives, the Committee consider would suggest the introduction of staff champions to lead on reductions in carbon emissions in buildings.
- 9.12 Of major importance for the future is the Council's Smarter Working project which aims to radically transform the way employees work. It involves looking at new ways to increase the flexibility and efficiency of working practices, using new ICT technology and moving away from traditional office based working – allowing for the more efficient use of council property.
- 9.13 The Committee also heard of the initiatives being taken by the Council to “invest to save” .For example, the Salix Fund is a match funded loan scheme providing property improvements (including lighting, heating, insulation and electrical) to reduce carbon emissions. Over £400,000 has been committed so far resulting in an estimated 970 tonnes of CO2 being saved per annum with an estimated 10800 tonnes of CO2 being saved over the lifetime of the measures.
- 9.14 Examples include the introduction of new LED display lighting at Sunderland Museum. This has resulted in a saving of approximately 33 tonnes of CO2 and a financial saving of around £18,000 per year. It has also resulted in massively reduced bills for maintenance.
- 9.15 A further example of the use of the Salix Fund is Sunningdale School which has had installed a voltage power optimiser. As a result, the electrical equipment runs more efficiently and less energy is consumed. This has led to a 14% reduction in electricity consumption and a saving of £2,960 per annum.
- 9.16 The Committee heard that the Council is working with the National Renewable Energy Centre Limited (NAREC) to provide funding for solar panels in public accessible buildings such as the Civic Centre, Museum and Winter Gardens and the City Library/ Work was being conducted on a site by site basis. This work was being conducted on a site by site basis.
- 9.17 The Committee took the opportunity to visit NAREC Wind Demonstration Site at their Blyth Headquarters to discuss their work in developing low carbon solutions for the built environment. The Committee welcomed such innovative schemes and their extension where funding is available. We feel that the Council should continue to develop links and joint working with organisations such as NAREC.

- 9.18 In terms of work going on in our schools, during our study, we visited Washington School and Richard Avenue Primary School in order to view at first hand examples of good practice. At Washington School, we were impressed by the wide range of environmentally friendly features including a Sedum roof which absorbs CO₂ and pollutants and releases oxygen and water vapour into the atmosphere around the school. Rainwater is harvested and then used to flush the toilets in the school and there are also solar panels and plans for a wind turbine in the grounds of the school. The school also possessed a biomass boiler which uses recycled wood pellets. It was highlighted that the cost of the wood pellets is reduced if they are bought in bulk. The Committee recommends that the option of linking with other schools or buildings with Biomass boilers to purchase larger quantities of the wood pellets be further explored.
- 9.19 At Richard Avenue Primary School, sustainable development is embedded into the curriculum at the school from the Foundation stage through to Year 6. There is a small wind turbine at the school and although this does not generate much electricity it serves as an important educational tool.
- 9.20 In 2009/10 pupils took part in the Climate Change Schools project Adaptation Challenge. They produced a leaflet outlining climate change and the effects the Community might face in the future. The leaflet was distributed to the whole school and to houses in the local area.
- 9.21 By way of contrast, we visited Portland College which was considered to have potential for low carbon initiatives. We found the college to be keen to introduce a number of initiatives but requiring further information on the kinds of opportunities available to reduce their carbon footprint. We were also told that as a specialist College the heating is on for the majority of the time as a number of students are less mobile. It was felt that this may cause an issue when the carbon output of schools is monitored and that therefore consideration had to be given to the specific circumstances of special schools when monitoring energy consumption.
- 9.22 The Committee would recommend that the Council should encourage joint working between schools that are introducing low carbon technologies and consider methods of engaging with all schools to encourage the take up of energy consumption measures.
- 9.23 Clearly, a lot of good work is being undertaken to reduce the level of carbon emissions produced by the Council. However, the figures in relation to our carbon emissions demonstrate that Council has been as yet unable to reduce its overall level of carbon emissions since the baseline year of 2006/07. While reductions have been achieved in carbon emissions from business mileage and gas consumption, these have been more than offset by an increase in electricity consumption in our buildings. This has been the result of a combination of factors often not unique to the Council, including the development of a number of major new buildings (such as the Sunderland Aquatic Centre) and a large increase in energy consumption by IT facilities (such as at Moorside). Furthermore, the Council's property rationalisation programme has yet to get fully underway and the increasing numbers of property disposals are expected to contribute to a major reduction in emissions over the coming years.

- 9.24 The Committee feels that the Carbon Plan has played an important role in providing a focus and galvanising action in order to reduce carbon emissions. We would therefore recommend that the Council considers the development of a revised Carbon Plan to run from 2012 to 2020 in order to identify the future projects and policies that will help us meet our targets for reductions in carbon emissions

Action Taken By the Council to Reduce Carbon Emissions in the City

- 9.25 The Committee has examined the action taken by the Council and its partners to reduce the level of carbon emissions within the city. This includes promotional and joint working with other public and private sector bodies, the reduction of emissions from public transport and housing and the promotion of renewable energy.

Council's Leadership Role

- 9.26 The Council has an important role in providing leadership to promote reductions in carbon emissions among residents, partners and businesses within the city. A key driver for this work has been the adoption of the Climate Change Action Plan in November 2008. The Plan which set out the Council's vision to *become a Low Carbon Council by using energy more efficiently and by using and developing more of our own low carbon energy sources*. The Plan calls for a 26% reduction in CO₂ by 2022, the building of more homes to higher environmental standards and improvements in public transport. The Action Plan was revised in January 2010 with the aim of reducing the City's carbon emissions by 80% by 2050, with an interim target of 34% by 2020. The revised Climate Change Action Plan aligns Sunderland's carbon emission target with the UK Low Carbon Transition Plan.
- 9.27 However, the city's commitment to tackling carbon emissions dates back further and includes a range of other initiatives. For example:-
- (a) In 2001, the Sunderland Partnership and Sunderland City Council signed the Nottingham Declaration on Climate Change. This public declaration committed the Council to develop a city wide climate change strategy, use its influence in the local community and domestic sectors and show leadership at a local level.
 - (b) In March 2007, the Council organised the Sunderland Energy Summit which was held at Nissan Motors UK, Washington. The event looked to review anticipated energy consumption over the next 10-15 years and discuss a range of existing low energy and low carbon solutions. The event provided an opportunity for the private and public sectors to come together in order to think about the city's approach to reducing energy consumption and the opportunities available to develop low carbon energy sources. Over 80 delegates attended the event which was part sponsored by the Council's Environmental and Planning Review Committee
- © In May 2007, the Council launched its 'Bringing emissions home to Sunderland' campaign. This nine month campaign used a range of communication methods to raise awareness of climate change amongst the City's residents.

- (d) In May 2008, the Council was a signatory of the EUOCITIES declaration on Climate Change;
- (e) In February 2009, the Council, along with all other North East Local Authorities, signed the EU Covenant of Mayors. This European initiative requires all signatories to develop a Sustainable Energy Action Plan (SEAP) to reduce CO2 emissions by at least 20% by 2020. Sunderland City Council was the first UK local authority to submit its SEAP (in January 2010), with a target reduction of 34% by 2020 and the Covenant of Mayors (January 2009).

9.27 In March 2009, the Council embarked on the ambitious Low Carbon City Campaign. This 12 month campaign engaged public and private employers to establish carbon reduction targets of at least 10% within 10 years. Over twenty employers signed up to the programme, representing a committed reduction of 28,500 tonnes of CO2.

The are currently 21 Low Carbon City Champions, including:-

- Asda
- City Hospitals Sunderland NHS Foundation
- City of Sunderland College
- EDF Energy
- Gentoo
- Northumberland Tyne and Wear NHS Trust
- Sunderland City Council
- Sunderland Teaching and Primary Care Trust
- Tanfield Group
- T-Mobile
- Tyne and Wear Fire and Rescue Service
- University of Sunderland
- Grundfos Manufacturing Ltd
- Encore Envelopes
- ETEC
- Haskel Europe Ltd
- TEAM Wearside
- Department for Work and Pensions
- ABB Low Voltage Systems
- HM Revenue and Customs
- Land Securities

9.28 The Low Carbon City campaign has highlighted a number of examples of good practice and innovation including:

- Gentoo – which aims to reduce its carbon emissions by 10% by 2018. It has developed a three year Environmental Strategy and has a network of environmental champions.
- EDF Energy – which aims by 2012 to reduce carbon emissions from its offices by 30%, and from its transport by 20%, through improvements to energy efficiency in the work place, and through use of renewable energy and a more efficient fleet.
- Tyne and Wear Fire and Rescue Service – which aims to reduce its carbon emissions by 10% by 2018. It has recently developed a Carbon Plan through

the Carbon Trust's Carbon Management Programme, highlighting innovative ways to reduce carbon emissions from its properties and from accidental fires.

- 9.29 An integral part of the campaign is to engage and work with the private sector. Businesses are currently responsible for 822,090 tonnes of CO₂ (40% of city's emissions) and it is important that the Council encourages a network of sharing best practice and joint working within the private sector. As a result 15% of employer emissions are now registered.
- 9.30 During the course of the review, the Committee met with Graham Sugden from the Chamber of Commerce in order to discuss the measures being taken by the private sector to reduce their carbon emissions. We were impressed with the commitment and enthusiasm to the issue of carbon management shown by the Chamber of Commerce when they attended the Committee.
- 9.31 The Committee also met with Claire Charles from the University of Sunderland in order to discuss the approaches they have taken to reducing their carbon emissions and promoting energy efficiency. Again, it is clear that a number of exciting new initiatives are being introduced at the University and we would recommend that the Council continues to maintain a regular dialogue with University in order to facilitate the exchange of best practice.

Transport

- 9.31 The Council along with organisations such as NEXUS also has an important role in seeking to encourage our partners and businesses to make use of low carbon vehicles in the delivery of public services.
- 9.32 Within the Council, electric fleet vehicles are already being provided by Smith Vehicles. Hopefully, this raises the future prospect that such vehicles being increasingly incorporated into the Council's fleet in the future.
- 9.33 The Committee also met with representatives from NEXUS in order to discuss the initiatives being taken to reduce carbon emissions from public transport. Recent years have seen a significant improvement in environmental quality of buses used by the major bus companies operating in the city. The introduction in 2009 of the Green Bus Fund has helped to support bus companies in acquiring low emission vehicles and encouraged the use of hybrid or electric buses. In Sunderland, a bid for a city centre shuttle using a hybrid vehicle has been successful and the service will start shortly. It is hoped that the service will help to demonstrate that such vehicles can operate successfully in a commercial environment. The Metro refurbishment programme will also contribute to a reduction in the level of carbon emissions from trains operating on the system.

Low Carbon Housing

- 9.34 A key element to reducing the carbon footprint of the city is the reduction of carbon emissions from our homes. It is estimated that domestic CO₂ emissions account for around a quarter of total emissions and over three quarters of this represents heating and hot water.
- 9.35 There are two elements to the reduction of emissions. Firstly, ensuring that new housing developments incorporate as far as possible the latest technologies for minimising carbon emissions and that this is applied to ensure new build housing exceeds the requirements of current building regulations.
- 9.36 However, possibly of greater importance given the number of properties involved are the measures we can take to make existing homes to be more energy efficient – from the more basic cost effective measures such as energy efficient light bulbs, draught proofing; double glazing; and cavity, solid wall and loft insulation, to more elaborate measures such as the installation of solar thermal, solar electric, heat pumps.
- 9.37 The Committee heard from gentoo about their experience of retrofitting properties. Under the pilot programme, Gentoo chose 139 properties for retrofitting with energy efficient products eg solar thermal panels, condensing combination boilers, energy efficient showers and double glazing. Funding was by way of a “pay as you save” scheme which allows homeowners and landlords to repay the cost of installing micro generation technology over a long period of time using the ensuing efficiency savings.
- 9.38 A number of complications have been experienced. A whole house retrofit will identify the basic measures required by households. However, as all housing is different there is unlikely to be a single solution. A number of properties are likely to be structurally unsuited to energy efficiency measures – being for example solid walled or in the wrong location to generate solar or wind energy. Also some households are not using sufficient energy to allow them to payback the initial cost of installation works.
- 9.39 The Council is starting an ERDF retrofit project that will address these issues along with finding solutions to the impact on the electricity supply network by linking to the Ofgem Low Carbon Network Fund via CE Electric as full project partners.
- 9.40 The Government envisages the level of carbon emissions being reduced from the home by 29% by 2020. However, to achieve this will require a significant increase in the speed, scale and scope of retrofit activity and the identification of sufficient funding.
- 9.41 The recently announced Green Deal provides a framework to enable private firms to offer consumers energy efficiency improvements to their homes, community spaces and businesses at no upfront cost and recoup payments through a charge in instalments on the energy bill. To qualify expected savings must be equal or greater than the cost of the measure. This will require a property assessment by an accredited adviser. The Green Deal will effectively replace funding provided through the Warm Front and existing support from energy companies such as the Carbon

Emissions Reduction Target (CERT) and the Community Energy Saving Programme (CESP).

- 9.42 There remains some doubt over the source of long term funding of any large scale retrofit programme. The Green Deal and Green Investment Bank may provide support in this area. However, substantial opportunities for employment do exist with the nature of the jobs meaning that they would likely to be filled by local people.

Promotion of Renewable Energy

Microgeneration

- 9.43 Microgeneration is the localised generation of low carbon energy by households and businesses through renewable technologies such as solar panels and wind turbines. Over recent years, the Government has sought to develop micro generation by providing financial incentives for households and businesses.
- 9.44 The main examples include:-
- (i) the introduction of “feed in” tariff are designed to enable households, communities and businesses to receive payments for the electricity that they generate from small scale on site electricity generation;
 - (ii) Renewable Heat Incentives which enable individuals, communities and others to claim payments for the renewable heat they produce. Technologies include Biomass boilers, solar thermal, ground source heat pumps, water source heat pumps, energy from waste deep geothermal.
- 9.45 At the present time there remains some uncertainty as to the detail of the financial incentives provided. The recent announcement of a review of feeding in tariff payments for solar photovoltaic installations to restrict subsidies to larger installations (bigger than 50kw) in favour of smaller operators will have important implications for the industry.
- 9.46 In view of the current uncertainty, we suggest that the Council investigate the options for the installation of solar PV and other renewable electricity, whether this be through rent a roof / land rental or through an invest to save mechanism to benefit from Feed in Tariff (FIT) income;
- 9.47 We also recommend that the Council provides an update report to the Committee on the implications of the Renewable Heat Incentive (RHI) now that details have become known.
- 9.48 Overall, we feel there is a need to improve the information made available to residents in order to make them aware of the options available and the implications of using or installing energy generation systems such as PV.

District Heating

- 9.49 District heating involves the use of a centralised system which provides heating requirements such as heating and hot water, for a cluster of local properties or through heat networks for the supply of heat to a mix of commercial, industrial and

public buildings along with domestic properties. It can help reduce the cost energy to consumers because the large scale generation of heat is more cost effective than generating heat with individual boilers. District heating provides efficiency savings through the large scale generation of energy in densely populated urban areas and we feel that its potential should be explored further within the city. The Council is currently seeking EU funding under the Intelligent Energy Europe programme to develop a sustainable energy route map for the City, including district heating and CHP. We would therefore recommend that Council undertakes feasibility work to assess the potential for district heating networks across the city and business models for how they can be developed.

Wind Farms

- 9.50 With regard to wind turbines, work had been done with the Partnership for Renewals to identify potential sites within the City. Of the 20 identified only 2 had ultimately proved suitable (the former Ryhope Golf Course and Hetton Woodland).
- 9.51 During the study, we took the opportunity of visiting a Wind Farm at Great Eppleton operated by E-ON. We were told that in 2007 there was an application to re power the Wind Farm. This resulted in the introduction of four new turbines which were generating at full capacity by the end of March 2010.
- 9.52 Great Eppleton is now an 8.2 MW wind farm and will displace the emissions of around 10,000 tonnes of CO₂ each year and produce enough energy to meet the needs of around 5,000 homes.
- 9.53 The Operations Manager informed us that applying to install a wind turbine can be a long process and can take up to 8 years. Wind data is needed to ensure that the site is viable and permissions need to be sought from the Landowner and Council etc. The re power at Great Eppleton did not take as long as it was already an operational farm.
- 9.54 The Committee was impressed by the operation of the wind farm and feel that potential exists for their further development in the city where and when the circumstances are favourable.

10 Low Carbon Businesses - Introduction

- 10.1 The Economic Masterplan aims for Sunderland to become a national hub of the Low Carbon Economy – with the key business sectors being Ultra Low Carbon Vehicles, Offshore Wind Energy and Software Development.
- 10.2 In line with the philosophy underpinning the principle of Low Carbon Economic Areas, the approach being pursued is to adapt and enhance the City's existing business base, workforce skills and support infrastructure to the needs and opportunities associated with this area of the economy. This should allow acceleration in the growth of low carbon industry in places where there is already economic strength and provide a common focus at the local and regional level for sectors.
- 10.3 The Committee was informed that a number of sector working groups have been established to take forward the business aspects of developing the low carbon economy, namely:
- Ultra Low Carbon Vehicles (Sunderland City Council, Nissan, University of Sunderland, Gateshead College and One NorthEast).
 - Offshore Wind (Sunderland City Council [including the Port of Sunderland], University of Sunderland, Chamber of Commerce and One NorthEast).
 - The software strand is being progressed through the activities of Sunderland Software City and its Board.
- 10.4 The sector working groups are preparing marketing strategies based upon developing the City's relevant assets to maximise the scope for attracting job-creating investment. This will include addressing issues such as sites and premises availability, while ensuring that all of the necessary skills are available within the local workforce.
- 10.5 However, it must be borne in mind that the severe financial constraints within which the public sector and local authorities are operating will in practice negatively impact on their ability to help support the transition to a low carbon economy. These include the abolition of One NorthEast, the ending of the Government's Grant for Business Investment (GBI) and the Council's limited capacity to take up the slack.

11 Software City

- 11.1 The development of the Software City project began in 2007, when it was recognised that the global software market was growing rapidly and that Sunderland had assets that would make it an attractive location for these types of businesses - including high quality sites and premises, excellent telecommunications connectivity, the School of Technology and Computing at Sunderland University and the support of a wide range of stakeholders.
- 11.2 The aim of the Software City initiative is to seek to establish Sunderland as the hub of a regional centre for software excellence. This will help to further diversify the city's economic base and ensure a thriving software development sector in the region, with Sunderland as its focus.
- 11.3 The initiative seeks to provide assistance to start-up businesses, existing indigenous businesses in the City and large businesses looking to invest in Sunderland by providing:-
- guidance and access to finance;
 - technical skills and support;
 - business skills and support;
 - assistance in accessing markets; and
 - the appropriate infrastructure.
- 11.4 An important feature of the initiative is securing a home grown software workforce. Learners are be targeted, both pre 14s within primary and secondary schools together with further education and higher education students and graduates.
- 11.5 In addition, learners accessing continuous professional development opportunities are be targeted, including individuals working in both technical and non-technical roles in the software industry.
- 11.6 As well as education and training, the offer to learners would include knowledge of the software sector, opportunities for career development and access to facilities.
- 11.7 The physical locations of the Software City are to include:-
- the e-volve Business Centre;
 - the Software Hatchery at the University of Sunderland;
 - the Jupiter Centre at the North East Business and Innovation Centre;
 - St. Peter's Gate at the University of Sunderland;
 - the Sunderland Software Centre to be constructed at Tavistock Place.
- 11.8 With regard to progress made, the following statistics were provided:-
- | | | | |
|---|---|-------|----------|
| New Software Businesses Created | : | 35 | |
| Software Professional Jobs Created | : | 100 | |
| Software Business Assisted | : | 117 | |
| New Business Collaborations | : | 135 | |
| Individuals Assisted with Skills | : | 1,336 | |
| Research and Innovation Funding Secured | : | | £794,000 |

- 11.9 Companies taking part in the Software City initiative include Leighton, Artingence, Guroo, On:trac and One point.
- 11.10 It was hoped that the development of the software sector will draw parallels with the Nissan development where the majority of component businesses had initially been based outside of Sunderland. However, as training and skills development have grown so have the opportunities for locally based firms with the result that the majority of component companies supporting Nissan are now locally based.
- 11.11 It was noted that software as an industry supports low carbon activity in other industries, with advances such as videoconferencing removing the need for people to travel to meet. There are also specific links to renewable energy and electric vehicles, for example new software to support charging points and smart grid technology to improve the management of our electricity supply
- 11.12 Of major importance to the development of the software initiative will be the opening of the Sunderland Software Centre based at Tavistock Car Park. The Centre is due for completion towards the end of 2011 and will provide accommodation for up to 60 businesses and provide 140 jobs for software professionals.

Evolve Business Centre

The Evolve Business Centre is a new state of the art e-commerce centre designed specifically to meet the needs of the areas technology based companies. The Centre is intended as a developing hub for knowledge based information and communication technology businesses.

Evolve's aim is to support and enable SaaS (Software as a Service), ISV's (Independent Software Vendors) and technology companies to develop and grow; providing an ideal environment for technology companies to use as a base and networking centre.

The building provides high quality office space spread over three floors and is globally connected with the highest possible standard of broadband telecommunications infrastructure. Businesses also have access to fully equipped meeting, training and conference facilities as well as a prestigious boardroom. Business support, information and advice is available from the Council's Business Investment Team,

The Centre plays a key role in nurturing new technology companies and ensuring that businesses do not leave the area due to a lack of infrastructure restricting their growth.

- 11.13 The Committee took the opportunity to visit the Evolve Business Centre and speak directly with a number of the firms located there in order to assess the progress being made by the Software City initiative.
- 11.14 A common theme of the discussions was the importance of the excellent facilities on offer at the Centre and the support provided to businesses. For the firms it was important to be seen to be operating from a well equipped prestige building as this provided potential clients with confidence in the ability of the firm to do business. The flexibility of the building also meant that firms can grow while still being located in the building. Several firms expressed their long term goal as building and developing their businesses in Sunderland and retaining the strong personal relationships and trust that had been developed with clients. Reference was made to the high standard of the local workforce. The software industry was seen as an area where a rapid growth in turnover could be achieved in a relatively small timescale with a consequent benefit for the local area.
- 11.15 When asked about their requirements for the future many referred to the importance of the Software City concept having real substance and being properly developed and there being a very visible commitment to the growth of the software sector as part of the local economy. While only in existence for 3 years, it was felt that a lot had already been achieved and that potential existed for its further development, particularly when the economy emerges from the present downturn. It was hoped that the developments so far could provide the basis for self perpetuating growth and success - with new innovation breeding further innovation.
- 11.16 The firms we spoke to also felt that it was important that the new development at Tavistock should tie in and link up with the facilities at Evolve in order to avoid any danger of fragmentation. It was also important to ensure a high quality infrastructure such as schools, housing, transport links and leisure facilities and reference was made to the lack of a high quality hotel in the area which could be used by visiting clients. It was suggested that more events could be held within the city to promote inward investment.

12 Low Carbon Vehicles

- 12.1 Sunderland is well placed to take advantage of the move towards a low carbon economy, being located at the heart of the North East Low Carbon Economic Area for Ultra Low Carbon Vehicles.
- 12.2 Low Carbon Economic Areas are intended to accelerate the growth of low carbon industries in places where there is already economic strength and provide a common focus at the local and regional level for sectors. For Sunderland this will mean focusing upon the transformation of the region's automotive manufacturing sector, including support for innovation and skills development. It has already seen the City positioned as the national hub for the production of electric vehicles.
- 12.3 Central to this has been the success of Nissan's Sunderland plant in securing production of the Leaf electric vehicle. This will begin in 2013, with 50,000 cars being built each year. This should translate into around 400 additional jobs. It is anticipated that new jobs will also emerge in vehicle maintenance for apprentices and up skilling.
- 12.4 In July 2009 it was announced that Nissan's Sunderland plant had been selected as the location for the company's European Centre of Excellence for Battery Manufacturing. Nissan is investing £200 million in the 267,000 sq.ft. (24,825 sq.m.) plant, where it will employ 350 people and produce 60,000 lithium-ion batteries annually, starting in 2012. The facility will utilise 'clean room' environments and necessitate very high skills. It will be one of just four Nissan battery plants globally (the others being in Japan, the USA and in Portugal), and will also produce batteries for Renault.
- 12.5 Through the Low Carbon Economic Area, a 20 year lease has been secured on Nissan's test track to provide an open-access facility for testing and evaluating low emissions vehicles. This will open in 2011 as part of the National Low Carbon Vehicle R&D Centre, and will be operated by Gateshead College. At the same time, Gateshead College is developing a new £8.4 million, 61,000 sq.ft. (5,658 sq.m.) Skills Academy for Sustainable Manufacturing, Productivity & Innovation on a 2.8 acre site at the Nissan plant. When it is completed in 2011, this will be the UK's first dedicated low carbon training centre.
- 12.6 The challenge is to consolidate the progress that has been made in terms of the automotive manufacturing sector, maintaining the City's leading position (for example, through exploring other technologies such as fuel cells). There is also scope for further localising the component supplier base to ensure that the production of cars - in particular electric vehicles - is itself sustainable. This in turn should help to support the development of local businesses.
- 12.7 It is recognised that some uncertainties are still associated with the development of the ultra low carbon vehicles industry. Some doubts remain over the timescales for the consumer take up of electric vehicles and they are likely to remain a niche market for the next few years. Also, at the present time, electricity generation capacity does not exist to support large-scale adoption of Electric Vehicles requiring central government to in some way deliver a growth in energy supply to meet the anticipated demand.

12.8 The growth of electric vehicles market will be largely dependant on the development of the charging infrastructure. To this end Plugged in Places - a Government-funded programme to create a network of electric charging points will play a key role in securing Nissan investment in Electric Vehicles.

12.9 Sites in Sunderland include:-

- Sunderland City Council Car Parks
- The Bridges
- Park Lane Interchange
- University of Sunderland
- City Hospitals Sunderland
- North East Business Innovation Centre
- evolve Business Centre

12.10 An Ultra Low Carbon Vehicle City Strategy will support the use of electric vehicles across the city. Putting charging points in the city will promote their use and our public sector partners will be encouraged to use ULCVs in the delivery of public services .

Land Requirements

12.11 The Council has also worked with Nissan to facilitate the disposal of 45 acres of surplus land to develop the Turbine Business Park. The Business Park will provide opportunities for attracting automotive suppliers and R&D activities linked to the low carbon economy.

12.12 Furthermore, a 60 acre site North of Nissan is included as one of just two 'strategic sites' in the City (the other being the Vaux site). Targeted sectors are expected to be companies engaged in the production of ultra low carbon vehicles and their suppliers.

Skills

12.13 The Council and Nissan work closely with local universities and colleges - including Gateshead College's Skills Academy for Automotive Manufacturing. Apprentiships are considered key to Nissan's training strategy - students combine a year of study at the Skills Academy with four years of on-the-job-training.

12.14 Gateshead College is developing the Skills Academy for Sustainable Manufacturing, Productivity & Innovation on the Nissan site. When it is completed in 2011, this will be the UK's first low carbon training centre.

12.15 The University of Sunderland has also introduced an MSc in Low Carbon Vehicle Technology - the first qualification of its kind in the UK. The programme has been designed in consultation with the industry and is for people already employed in the sector.

12.16 The Committee took the opportunity to visit the Nissan site and speak with Kevin Fitzpatrick Vice President of UK Manufacturing on the progress being made. It was recognised that this is a new and evolving market and that there were challenges around the price of vehicles and consumer perception. The firm were working to

make the price attractive and reassure consumers on the charging infrastructure and battery performance. EV's are clean, safe, good range affordable and infrastructure is developing. Nissan needs to work with partners in order to provide infrastructure.

- 12.17 It was emphasised that the Leaf will be the first mass produced car to be specifically designed for zero emissions. While ordinary charging can take up to 8-10 hours, it was anticipated that the new fast charger – which can charge a car up to 80% in 30 minutes will make the vehicle even more attractive to customers. In any case the recharging of the vehicle during the night would be low cost and would put a reduced strain on the country's electricity generating capacity. As the technology develops it is anticipated that the range of battery will substantially increase. Also as take up of the vehicle grows the price of an electric vehicle should begin to fall – reflecting the impact of increased economies of scale.
- 12.18 Reference was also made to the unique importance opportunity this provided in terms of the supply base for the Nissan factory. It was felt that the new Local Enterprise Partnership would have a central role in ensuring that the area makes the most of the opportunities on offer.

13 Offshore Energy Generation

- 13.1 Offshore wind power is a rapidly growing sector nationally and internationally and will play an important part in meeting the UK's renewable energy and carbon emissions reduction target. With its favourable environment the UK has the potential to be the largest market for offshore wind in the world – as well as presenting opportunities for the development of new industries engaged in manufacturing, installing and maintaining turbines.
- 13.2 With its combination of extensive port facilities and production sites and companies with a readily available range of skills, Sunderland is ideally located to play an important. This in part reflects the proximity of the region to the largest of the Round Three License areas at Dogger Bank, and the fact that we are therefore well placed to benefit from work on survey (which is currently getting underway), production, installation (which will take place from 2014) and maintenance.
- 13.3 The Sunderland Economic Masterplan recognises that this growth in the offshore wind sector is a long term economic opportunity for Sunderland, particularly for the heavy engineering, construction and maritime sectors. Sunderland is well placed with docking facilities for survey boats, for the operation and maintenance of offshore wind farms, component manufacturing sites and the potential for wind turbine maintenance and assembly
- 13.4 As part of its evidence gathering, the Committee met with the new Port Director, Mathew Hunt in order to discuss the potential challenges and opportunities facing the city and the range of facilities on offer.
- 13.5 The Port facilities includes-
- Deepwater river berths close to the open sea with non-compulsory pilotage;

- Multi-use impounded dock system with vessel locking capability;
- Rail connections to Corporation Quay river berth and South Docks;
- Comprehensive cargo handling, warehousing and distribution services;
- Fully flexible, highly trained and well qualified workforce.

- 13.6 It is widely recognised that competition in this field is very strong and the development of the offshore wind sector is at a relatively early stage. However, the Dogger Bank Offshore Wind initiative could provide pre development opportunities, manufacturing, assembly and maintenance opportunities. The manufacture of wind turbines would comprise concrete and steel foundations, the tower/superstructure, gear box, blades, internal electronics and cabling together with an export cable to transmit the power. This would involve a whole host of manufacturing industries and organisations.
- 13.7 Furthermore, the National Renewable Energy Centre (NaREC) in Blyth is expected to play a leading role by attracting research and major inward investments, particularly given its development of the world's largest wind turbine testing facility. During the review, the Committee visited the Centre to view at first hand the work going on there and to discuss the potential of developing closer links between NaREC and the Council.
- 13.8 The Committee was pleased to learn that the local colleges are designing a specific curriculum to meet skill shortages around turbine technicians. Many of the skills in oil, gas and shipbuilding associates are transferable to wind generation – such as fabrication and welding. Hopefully, this will place the city in a potentially strong position to benefit from the opportunities on offer.

14 Low Carbon Economy – Skills and Training

- 14.1 As part of its review the Committee has examined the measures being taken to ensure that our local workforce is equipped with the skills that will allow them to flourish in a low carbon economy. In order to discuss the skills and training requirements facing the city, the Committee met with Mick Brophy (Gateshead College) and Gary Cumisky (Sunderland College).
- 14.2 With regard to Nissan, Mick Brophy referred to the considerable number of jobs that would be created. Production of the Juke vehicle had commenced meaning around 200 new jobs and Nissan were committed to producing 50,000 Leaf vehicles per annum by the end of 2013 meaning around 400 new jobs. The vehicle battery plant to be completed in spring 2011 will result in around 300-400 new production jobs and potentially 30 maintenance apprentice engineers. It was anticipated that new jobs would also emerge in vehicle maintenance for apprentices and up skilling.
- 14.3 Gateshead College was currently developing the manufacturing training for both the battery and manufacturing plant and the electric vehicle assembly and maintenance. The College was designing qualification programmes for the Nissan battery and electric vehicle manufacturing staff and had also developed the world's first Electric Vehicle Apprenticeship Programme in conjunction with their industrial partners.
- 14.4 Gary Cumisky explained that the City of Sunderland College aimed to provide a local solution for local installers wishing to undertake up skilling courses to gain nationally recognised qualifications in solar hot water and solar PV installation, and ground source heat pumps, rain water harvesting, renewable energy awareness. Courses were aimed at current plumbers, electricians, gas installers and heating engineers. They are therefore working with qualification awarding bodies to develop courses for 14-19 year olds in green energy and will be offering these starting September 2010. The College also provides accreditation for installers through the Micro generation scheme. The opportunity to retrain in new technologies will help them to become more employable. It is estimated that up to 60% of current trade people will need to be trained up over the next 2-5 years.
- 14.6 The College was currently working with the national awarding body NCFE to write and accredit bespoke renewable energy qualifications for school leavers and in future were looking to develop courses in wind turbines and bio-mass fuels.
- 14.7 It was important to develop extensive renewable training programmes to support these new industries and to ensure that central government is proactive in promoting skills training and accredited course so that we can avoid future skills shortages and take full advantage of the opportunities offered locally.
- 14.8 The Committee considers that meeting the increasing need for skills will be a challenge – but it is also an opportunity. And the opportunity is the potential to offer many more skilled and rewarding jobs to the people of Sunderland. There is general agreement that as a result of our manufacturing, we already had much of the skills base for the development of a low carbon economy. The challenge now rests in updating that skills base to meet the additional skill requirements.

15 Marketing And Promotion Of Low Carbon Economy

- 15.1 The Committee understands that at the current time the Council is formulating a Marketing & Inward Investment Strategy which will build on the sector plans, to make certain that the city's offer is communicated effectively to potential investors, and to promote the city as an attractive location for low carbon businesses.
- 15.2 We understand that the formulation of the Strategy is still at an early stage. Clearly, given its importance we do feel that the Strategy should be proceeded with as a matter urgency and that progress should be reported to this Committee as soon as is practicable.

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16. Recommendations

16.1 It is recommended that:-

The Council consider the development of a revised Carbon Plan to run from 2012 to 2020 in order to identify projects and policies that will help meet its targets for reductions in carbon emissions;

The Council considers the introduction of staff champions to lead on reductions in carbon emissions in buildings

The Council undertake further feasibility work in order to identify those Council buildings that are most suitable for the installation of solar PV;

The Council investigate the options for the installation of solar PV and other renewable electricity, whether this be through rent a roof / land rental or through an invest to save mechanism to benefit from Feed in Tariff (FIT) income;

The Council provides an update report on the implications of the Renewable Heat Incentive (RHI) once further details become known;

The Council undertakes feasibility work to assess the potential for district heating networks across the city and business models for how they can be developed

The Council encourages joint working between schools that are introducing low carbon technologies and consider methods of engaging with all schools to encourage the take up of energy consumption measures.

The Council explore opportunities for closer working with businesses;

The Council develop closer working relationships with Sunderland University with regard to the Low Carbon Economy, skills and training opportunities;

That the Council explore the opportunities for future joint working with NAREC

The Committee receive a future report on the Low Carbon Marketing and Communication Strategy.