



# A Sustainable Energy Action Plan for York



**2011 - 2020**  
**(Draft)**



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## 1. Executive Summary

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In December 2009, the City of York Council signed the Covenant of Mayors, a European initiative to reduce carbon emissions across European cities. Signatories formally commit to go beyond the objectives of European Union's energy policy in terms of reduction in carbon dioxide (CO<sub>2</sub>) emissions through enhanced energy efficiency and cleaner energy production and use.

Signatories also commit to the implementation of a Sustainable Energy Action Plan. The Sustainable Energy Action Plan is a key document that shows how a local authority will meet its carbon reduction target by 2020.

This Sustainable Energy Action Plan focuses on areas that the local authority and partners can influence and focuses on:

1. reducing energy consumption in domestic buildings and non domestic buildings
2. sustainable transport
3. local renewable energy generation
4. sustainable land use planning
5. working with citizens

In addition to this sustainable energy action plan, York has an existing Climate Change Framework (approved in October 2010) which is an overarching document that will enable York to accelerate actions to reduce carbon emissions across the city. It demonstrates the actions already on-going across the city and highlights the key areas that York needs to drive forward in order to eventually reach an 80 per cent reduction in carbon dioxide emissions by 2050.

Accompanying the Climate Change Framework is the Climate Change Action Plan for York (approved in October 2010). This action plan, is to be used by organisations across York to focus and drive coordinated action to tackle climate change.

This Sustainable Energy Action Plan for York supports the existing climate change framework and action plan and also illustrates York's commitment to the European Union's Covenant of Majors campaign by:

- committing the city to reducing carbon dioxide emission by at least 20 per cent by 2020 (based on a 2005 baseline)
- committing the city to make full use of the potential for low carbon, renewable, localised sources of energy generation across York
- highlighting the work ongoing across the city to tackle climate change
- setting out a prioritised list of actions that could achieve at least a 20 per cent reduction in carbon dioxide emissions by 2020.



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## 2. Introduction

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The city of York is committed to tackling climate change locally.

The Intergovernmental Panel on Climate Change (IPCC) the world's most authoritative body on climate change concluded that the amounts of the major greenhouse gases (carbon dioxide, methane and nitrous oxide) have all increased significantly since pre-industrial times because of human activities. Such changes will have significant global and local impacts on human society, and on the built and natural environment, with increases in temperatures, drought, extreme rainfall and greater risks of abrupt changes in climate.

We have started to see the adverse effects of a changing climate. Over recent years the UK has seen significant flood events, in York in 2000, Boscastle in 2004, in Carlisle in 2005, and widespread across South Yorkshire, Humberside and Gloucestershire in the summer of 2007. These events tragically resulted in some loss of life and caused extensive flood-related damage to homes, businesses, industry and transport networks.

In 2008 the City of York Council and its local strategic partnership – the Without Walls Partnership (a group of organisations striving to improve quality of life for people in the city and known officially as the Local Strategic Partnership) committed to tackling climate change locally. Over a two-year period a coordinated approach to managing climate change was developed. In 2009 the City of York Council also signed York up to the Covenant of Mayors, a European initiative to reduce carbon emissions across European cities.

Under this scheme, signatories formally commit to go beyond the objectives of European Union's energy policy in terms of reduction in carbon dioxide (CO<sub>2</sub>) emissions through enhanced energy efficiency and cleaner energy production and use.

Signatories also commit to the implementation of a Sustainable Energy Action Plan. The Sustainable Energy Action Plan is a key document that shows how York will meet its carbon reduction target by 2020.

Signatories of the Covenant of Mayors formally commit to at least a 20 per cent reduction in carbon dioxide emissions based on a 1990 baseline. City of York Council, along with many other local authorities in the North East and Leeds City Council, has committed to at least a 20 per cent reduction in carbon dioxide emissions against a 2005 baseline. This is due to a lack of carbon dioxide data collected in 1990.



## Current Action

The City of York is already taking action to tackle climate change locally. The list below is just an example of some of the work ongoing across the city to reduce York's carbon dioxide emissions. For full details please see the Climate Change Framework and Action Plan

(<http://www.york.gov.uk/environment/sustainability/climatechange/2framework/>)

### Energy Efficiency in domestic buildings

- From April 2009 to March 2010 the City of York Council in partnership with the Energy Saving Trust advice centre for York, North Yorkshire and Humber provided verbal energy saving advice to over 6977 residents of York. 1533 residents also completed an Energy Saving Trust Home Energy Check and received a free personalised report on saving energy in their home.
- A variety of grants are also available to residents in York through the Energy Saving Trust advice centre for York, North Yorkshire and Humber and the Energy Partnership. So far from March 2010 to February 2011 190 energy efficiency grants were offered to residents across York to improve energy efficiency in homes. A further 424 households benefited from cavity and loft insulation installations through York's Area Based scheme currently operating in the Hull ward and Fishergate wards.
- The Council's housing stock is being refurbished to a new high standard known as the Decent Homes Standard, which, through schemes such as loft insulation, replacement boilers and rendering programmes, will save over 3000 tonnes of carbon dioxide.
- All new homes in York are designed and built to high environmental standards through the planning process and the City of York Council's Interim Planning Statement: Sustainable Design and Construction (2007).
- City of York Council, University of York and the Joseph Rowntree Housing Association are leading the way in building energy efficient homes. For example, planning permission was granted in October 2010 for the development of 19 new council houses that will be built to high standards including biomass boilers to heat the home from a carbon neutral source, photovoltaic panels to generate electricity from the sun and high levels of insulation to keep the homes warm in the winter.
- The Council and the Energy Partnership have just completed a project known as Hotspots. This project aimed to tackle fuel poverty and to reduce energy consumption in certain homes across York. 232 residents benefited from this project and received energy efficiency advice regarding how to reduce their fuel bills and improve their homes energy efficiency. Such a project through the energy efficiency advice given and the installed measures has the potential lifetime saving of 2,157.8 tonnes of carbon dioxide across the city (Source: York Hotspots 2011).



## **Energy Efficiency in non-domestic buildings**

- The Council is leading the way with high environmental standards for its new buildings. For example, the EcoDepot at Hazel Court has a wind turbine and roof mounted solar hot water panels. The new Headquarters for the Council is also designed to excellent sustainable standards.
- The Council set a 25 per cent reduction in carbon dioxide emissions by 2013 from across its estate and transport fleet. A carbon management programme is in place to reach this target and an estimated 5000 tonnes of carbon savings will be made. Other organisations from across the city are doing the same such as University of York who have pledged to reduce CO<sub>2</sub> emissions by 20 per cent across their Heslington West and East campuses.
- The Council is committed to the national carbon reduction initiative 10:10. The Council has committed to a 10 per cent reduction in carbon dioxide emissions across its buildings and fleet from March 2010 – March 2011. It has also been encouraging the city's residents, schools and organisation to do the same in 2010.
- The Council also has a Sustainable Schools Corporate Strategy that will help schools to reduce their carbon footprint and embed sustainability into the heart of the school's operations and curriculum.

## **Renewable Energy**

- The Council has undertaken a Renewable Energy Strategic Viability Study for York. This will assist York to create suitable, and viable renewable energy / low carbon technology projects across the city. It will also help to create planning policy and guidance to maximise opportunities for appropriate renewable / low carbon technology development.
- The Council is leading by example and has set itself high sustainable and renewable energy targets to be generated onsite for new schools and buildings it constructs and operates. For example the EcoBusiness Centre is heated using ground-source heating and other sites such as Joseph Rowntree School and the Deangate Skills Centre heat their buildings from biomass sources.
- The city has a number of other installations already. One partner leading the way is St Nicholas Field Environment Centre who have a wind turbine. The University of York are also committed to installing renewable energy as part of their Heslington East Campus, as too are some of the big development sites such as Terry's and Nestle South.
- The University of York, in collaboration with other White Rose Universities, has created The Centre for Low Carbon Futures, a new research centre focusing on research, development and demonstration (RD&D) of low carbon innovations. Various projects are ongoing including biofuel projects (see below) and also technologies to capture carbon and store it to prevent it entering the atmosphere.





- Science City York is also leading in the innovation side of renewable energy in the city and has successfully secured two million pounds of direct investment into two nationally significant bio-demonstration projects being undertaken by the University of York and FERA (Food and Environment Agency).

### **Recycling and waste minimisation**

- The Council have achieved 43.26 per cent recycling/composting rate for household waste in 2009/10.
- The Council has achieved average municipal waste recycling and composting rate of 68.09 per cent at the Household Waste Recycling Centres in 2009/10.
- The Council has reduced residual household waste collected per household from 629kg in 2008-9 to 614kg in 2009-10. This represents a 2.38 per cent reduction.
- The Council is developing a waste management strategy on the concept of zero waste.

### **Transport**

- York had a five-year Local Transport Plan(2006-2011) which the council produced in 2006 to tackle congestion and improve accessibility, road safety, and air quality for the city. It also contains schemes that address issues such as the development of an integrated transport network; encouragement of modal shifts away from the use of private car to sustainable transport modes such as public transport; walking and cycling. A new plan is being developed and will be available from 2011.
- York is a ' Cycling City ' and has implemented a major programme to encourage more cycling across the city.
- Five million pound bid is being made to central government's Sustainable Transport Fund to support future sustainable transport programmes.

### **Communities and residents**

- The Environment Partnership has run a 15-month Green Neighbourhood Challenge, funded by the Without Walls Partnership's Local Authority Delivery Fund and managed by the Stockholm Environment Institute. This campaign worked with just under 100 residents to reduce their carbon footprint. Advice, guidance and financial rewards were offered to participants for a six-month period to support them to cut their carbon emissions by 10 per cent. The challenge has led to a reduction in carbon emissions and is now going to be replicated in other parts of the city. The initiative was also short listed for a national climate week award in March 2011. The results will be announced on 21<sup>st</sup> march.



For more details on current actions to tackle climate change in York, please see the full Climate Change Framework (2010-2015) which can be downloaded from the City of York Council website:

[www.york.gov.uk/environment/sustainability/climatechange/](http://www.york.gov.uk/environment/sustainability/climatechange/) or copies can be requested from the council

### **The Climate Change Framework (2010 – 2015) and Climate Change Action Plan (2010 – 2013)**

In addition to these programmes, and to ensure the city takes a coordinated approach to tackle climate change, between 2008 – 2010, a Climate Change Framework and Climate Change Action Plan has been developed by the City of York Council and the Without Walls Partnership.

The Climate Change Framework demonstrates the actions already on-going across the city. It also highlights the longer-term direction, and key areas the city needs to address, initially up to 2015, but this will be reviewed and refined every five years up until 2050.

The Climate Change Framework is to be used by organisations across York to focus and develop coordinated climate change action that residents, businesses, and statutory organisations, like the City of York Council and partners, can use to play their part in tackling climate change.

The Climate Change Action Plan for York sets out actions that will meet the Framework's overarching ambitions and objectives.

The Climate Change Action Plan for York is a combination of two specific action plans. The plans are broken into mitigation, actions that will reduce emissions from across York, and adaptation, actions that will help York to better prepare and adapt to the predicted changes in climate.

For more details, please see the full Climate Change Framework (2010-2015) which can be downloaded from the City of York Council website:

[www.york.gov.uk/environment/sustainability/climatechange/](http://www.york.gov.uk/environment/sustainability/climatechange/) or copies can be requested from the council

## **3. Overall SEAP Strategy**

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For the purpose of this Sustainable Energy Action Plan, and for consistency in managing a coherent climate change campaign across York, the following vision is taken from York's Climate Change Framework (2010- 2015)

### **Overall Vision**





***To reduce greenhouse gas emissions across York and better prepare and adapt York's communities and businesses for the likely impacts associated with climate change.***

In addition to the city's Climate Change Framework, this Covenant of Majors Sustainable Energy Action Plan will:

### **Headline Objectives**

- reduce York's carbon dioxide emissions in line with the Covenant of Majors targets
- coordinate carbon dioxide and other greenhouse gas emission reduction initiatives across York
- make full use of the potential for low carbon, renewable, localised sources of energy generation across York
- raise awareness and understanding of climate change throughout the Without Walls Partnership, City of York Council, and within communities, businesses and organisations across York
- contribute to the city's Sustainable Community Strategy and the creation of a sustainable, environmentally friendly city

### **Headline targets**

**Reduce York's carbon dioxide emissions by at least 20 per cent by 2020 (based on a 2005 baseline)**

### **Long term commitments**

In addition to this Sustainable Energy Action Plan, the Climate Change Framework and Action Plan for York also commits the city to more ambitious targets by 2020 and 2050:

**Reduce carbon dioxide emissions by 40 per cent by 2020 (based on a 2005 baseline) and 80 per cent by 2050 (based on a 1990 baseline).**

This long term strategy also:

- commits the city to making fuller use of the potential for low carbon, renewable, localised sources of energy generation across York
- commits the city to better prepare and adapt York's communities and businesses for the likely impacts associated to a changing climate
- highlights the key work ongoing across the city to tackle climate change
- highlights 10 key areas for York to focus future work on. These areas will create in York:



1. sustainable homes
2. sustainable buildings
3. sustainable energy
4. sustainable waste management systems
5. sustainable transport systems
6. sustainable low carbon economy
7. low carbon lifestyles
8. sustainable planning, agriculture and land use
9. sustainable Without Walls Partnership
10. a prepared, resilient York, ready for the predicted changes in the city's future climate

### **Organisation and financial aspects**

The overall approach for tackling climate change in York is coordinated through the Climate Change Framework and Action Plan for York, which was developed, jointly by the City of York Council and the Without Walls Partnership. This includes representatives from a wide range of private, public and third sector organisations.

The Without Walls Partnership have committed to tackling climate change as part of York's Sustainable Community Strategy, a strategy that will improve the quality of life for everyone in the city over the next 20 years.

The Environment Partnership (a partnership within the Without Walls Partnership) is ultimately responsible for the delivery of the Climate Change Framework and Action Plan ((2010-2015). As these documents are of strategic importance to the city, their development and implementation is also governed by the Without Walls Partnership Board and also through the City of York Council's Executive.

Initially, the Climate Change Framework will be reviewed and refreshed every five years. The accompanying action plan will be reviewed every three years. Monitoring of the action plan will occur annually through the Environment Partnership and a publicly available progress report will be published every two years.

In line with the Covenant of Mayors Sustainable Energy Action Plan guidelines, every two years a progress report on the Sustainable Energy Action Plan's will be publicly available from the City of York Council's website. The organisational structure for the managing of both the Sustainable Energy Action Plan's progress and the Climate Change Framework and Action Plan is illustrated below:

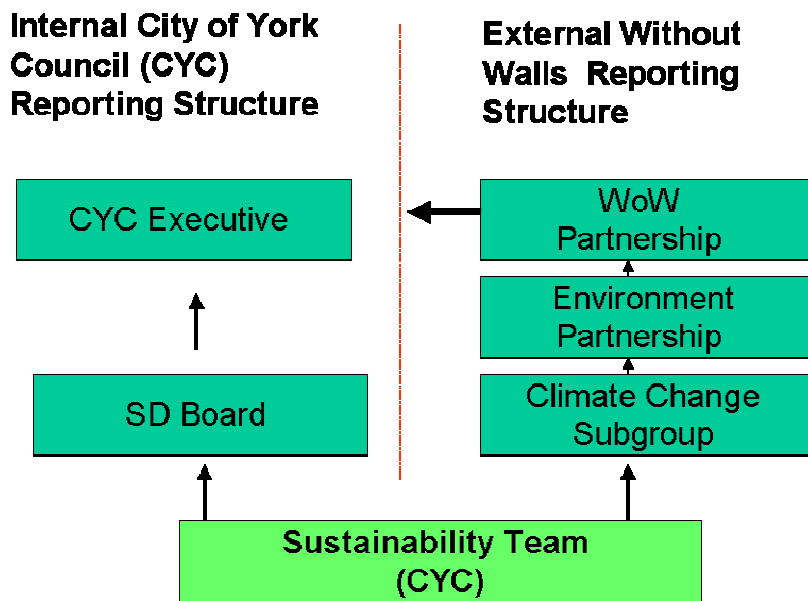


Figure 1. Governance of the CCFAP and SEAP

In addition to this City of York Council also has an internal Sustainable Development Board to enable sustainable development and climate change to be embedded across the council’s services and operations. This Board meets every 2 months and will be provided with regular updates on the Sustainable Energy Action Plan and other climate change commitments.

**Staff capacity allocated**

City of York Council has two full time Sustainability Officers based in the City Strategy directorate of the authority. This team is responsible for the strategic delivery of the Climate Change Framework and Action Plan, this Sustainable Energy Action Plan and programmes such as the Council’s Carbon Management Programme, and for embedding sustainable development across all areas of the Council’s operations and across the city.

The task of managing climate change in York poses a significant challenge for the council and the sustainability officer has to draw on staff resources across the council and wider. The Council has been reviewing its services, particularly since the general election and the comprehensive spending review in October



2010. By May 2011, a restructured sustainability team will be in place to better respond to the council’s and the city’s sustainability agenda including Covenant of Mayors, but there is still a period of transition to come.

A list of council teams and partners currently delivering strategies and programmes that directly support the Climate Change Framework and Action Plan and this Sustainable Energy Action Plan are detailed below.

**Associated CYC teams**

Team/ Service	Area of delivery
Transport Planning	Sustainable transport projects such as walking and cycling initiatives and also development of the Local Transport Plan 3
Housing	Housing Strategy
Waste	Waste Minimisation Strategy
Forward Planning	Local Development Framework

Figure 2 Council Services responsible for delivering the CCFAP/ SEAP

**Key external delivery partners from across York:**

- Without Walls Partnership
- Higher York
- Science City York
- Sustainability4Yorkshire
- University of York
- Edible York
- York in Transition
- Stockholm Environment Institute
- Friends of St Nicholas Field
- CO2 Sense
- York Environment Forum

Figure 3 External partners responsible for delivering the CCFAP/ SEAP

**Involvement of stakeholders and citizens**

As detailed above the majority of action to coordinate climate change actions across the city is through the Climate Change Framework and Action Plan. Various partners developed these documents over a two-year period across the city, and including members of the Without Walls Partnership, and internal services across the council. These internal and external partners that have helped to develop the these city plans are detailed above in figures 2 and 3



The Climate Change Framework and Action Plan were also developed through citywide public consultation. During the months of June to September 2010, a consultation questionnaire was used to enable residents and local organisations / businesses to input into their development. Public events, focus group meetings, presentation, ward committees/events and marketing were carried out to maximise coverage of the consultation.

Based on the consultation some additional areas of the plans were strengthened including the following areas – local food, sustainable schools, sustainable transport and better general awareness and behavioural change campaigns.

These additional aspects of the consultation were added into the finalised Climate Change Framework and Action Plan.

Like the approved Climate Change Framework and Action Plan this Sustainable Energy Action Plan reflects the areas to tackle that were highlighted as important in the consultation of the Climate Change Framework and Action Plan. This Sustainable Energy Action Plan focuses on 5 main areas that the local authority and partners can influence and focuses on:

1. reducing energy consumption in domestic buildings and non domestic buildings
2. Sustainable transport
3. Local renewable energy generation
4. Sustainable land use planning
5. Working with citizens

## **Budget**

It is necessary to work with partners in order to secure the delivery of this Sustainable Energy Action Plan .

The Council currently has budgets to deliver sustainable transport programmes, local transport plans, energy efficiency improvements in social and private housing and waste minimisation programmes, through a variety of recycling, reuse and waste minimisation schemes.

Currently in 2010 - 2011 approximately £12.2 million (approximately £4 million in capital budgets and £8.2 million in revenue ) will be spent on sustainable transport programmes.

The Council has also funded a sustainable street lighting improvement plan (£200,000) (and a further £200,000pa 2011/12 – 2015/16) and has funded energy efficiency programmes and area based energy efficiency programmes (In 2009/2010 over £250,000 was spent on private housing energy efficiency



grants and £334,000 in grants from March 2010 – February 2011). Recently the Council's 2011/2012 approved capital budget included £100,000 for renewable energy generation projects on the Council's estate (£500,000 in total from 2011/12 – 2015/16).

The Council has also invested significant resources from its own budget to implement carbon reduction measures in its own estate and operations. These measures are defined in detail in the Council's Carbon Management Plan. There is also £250,000 of funds allocated which has been matched funded through the Carbon Trust sponsored Salix Fund. In total this creates a rolling investment fund of up to £500,000 that will fund specific measures identified in the approved Carbon Management Plan.

However to maximize funding, the Council is also part of a variety of regional funded projects. These include:

#### **RIEP – Regional Improvement and Efficiency Partnership Funded programmes**

- **Climate for Change Community and Voluntary Sector programme** - A series of workshops for the CVS were held in York and North Yorkshire on low carbon practices and operations (total £12,000).
- **Climate Change Risk Assessments for York and North Yorkshire.** A sub-regional programme including two part-time project officers worked for a total of 6 months to (1) undertake a comprehensive risk assessment for climate change adaptation work in partnership across Councils in York & North Yorkshire and (2) disseminate the results of this work both within the Y&NY Authorities and their partners, to create an individual council adaptation action plan to continue the adaptation work post March 2011 (total £15,000). A report for York is being finalised and will be used to update CYC risk registers.
- **The Environmental Business Support Programme.** A regional programme designed to help local businesses tackle climate change and save money through resource efficiency tools, on-line portal / website and up - skilled local authority officers.
- **Climate Change Skills Fund.** In the Yorkshire and Humber Region we have been given £860,000 by CLG to deliver climate change programmes in 2011. The main thrust of the programme is around supporting the role that Planning can play in delivering climate change mitigation and adaptation work. An initial set of project areas have been drawn up. The key areas of work are:
  - **Leadership and Skills** - covering elected members and planning officers and related professions (accredited training).
  - **Planning Policy** - work area to focus on policy development, e.g. further streamlining of permitted development rights, supporting local





councils to deliver their planning policy targets (e.g. % of renewables in new developments), improve transparency of decision making and reducing appeals.

- **Best Practice Hub** - focus on built environment best practice mitigation / adaptation work and learning.
- **Citizen Engagement** - working with Energy Savings Trust to support householders in realising the benefits of renewables, how to get them installed, and being well adapted to a changing climate.
- **Historical Assets** - Improving planning policy to improve energy efficiency and renewable energy generation in historical / listed buildings and conservation areas.

To date, the City of York Council is leading on the Citizen Engagement fund for York and North Yorkshire, and in partnership with the SEI and Sustainability4Yorkshire, were successful in securing £70,000 to achieve the following :

- Based on a successful pilot in York, and utilising the expertise of Sustainability4Yorkshire, a North Yorkshire Green Neighbourhood challenge will work with 7 community groups across the region (including a community in York). The challenge will involve 7 teams in North Yorkshire competing to reduce their carbon footprint for financial rewards that can then be used by the group to carry on further work in this area or to look at wider community improvement projects. The project aims to achieve a measurable reduction in household carbon emissions, raise public awareness of low carbon lifestyles and foster community cohesion.

### **Leeds City Region – Low Carbon Framework**

This programme is a £3 million (over 10 pilot areas) programme and includes five key projects:

- **Low Carbon Economic Analysis** – Mini-Stern report looking at the costs and economic opportunities of policy responses to climate change.
- **Low Carbon Innovation** – Linking with the Leeds City Region Innovation Programme – open innovation events leading to the development of an innovation competition for low carbon technologies.
- **Domestic Energy & Efficiency Programme (DEEP)** – Includes the delivery of a DEEP pilot area and cost benefit analysis.
- **Commercial Property** – A feasibility study looking at a potential revolving loan fund to incentives energy efficiency retrofit on commercial properties.
- **Renewable Energy Strategies** – Piloting local renewable energy strategies in two of the Urban Eco Settlement locations, including the



production of local investment prospectuses that to facilitate discussions with communities and business.

The Council is piloting some of this work via the Domestic Energy & Efficiency Programme (DEEP) and Renewable Energy Strategies strands of this programme. At the British Sugar Urban Eco Settlement site detailed feasibility of CHP/districting heating schemes and integrated renewable energy technologies will be undertaken. This work will also produce a local investment prospectus that will facilitate discussions with communities and business.

However in order to deliver at least a 20 per cent reduction in carbon emissions more funding is likely to be needed.

#### **Additional cost to deliver the target by 2020**

Where available, some initial capital costs for achieving at least a 20 per cent target are summarised in the table below.

The costs included are the initial indicative costs generated by the Vantage Point software (see section 7 for more details). Council officers and partners are working closely to explore more detailed costs and options to drive down these costs and develop robust financial models in order to fund the priority measures that will contribute to reducing our emissions by 2020. This work is ongoing.

The indicative costs identified below in table 1 will not fall solely on the Council or partners to secure. These are estimates based on the best available information through the Vantage Point model of the total costs of implementing these measures. It is likely that they will need to be met by the public and private sector as appropriate.

Measure	Units (£'000)	2005-2020
CHP biomass	£k	19635
CHP large Gas	£k	8755.52
CHP buildings Gas	£k	n/a
Heat from power station	£k	n/a
Power only biomass	£k	n/a
Green grid	£k	n/a
Wind large	£k	TBC
Wind medium	£k	TBC
Wind (Domestic)	£k	TBC
Solar PV (Domestic)	£k	TBC
Solar thermal (Domestic)	£k	TBC

Biomass boilers (Domestic)	£k	TBC
Air source heat pump (Domestic)	£k	11900
Ground source heat pump (Domestic)	£k	13930
Solar PV (Non-Domestic)	£k	TBC
Solar thermal (Non-Domestic)	£k	n/a
Biomass boilers (Non-Domestic)	£k	n/a
Air source heat pump (Non-Domestic)	£k	n/a
Ground source heat pump (Non-Domestic)	£k	n/a
Cavity wall insulation (Domestic)	£k	12503.77
Solid wall insulation (Domestic)	£k	30101.25
Loft insulation (Domestic)	£k	4636.73
Tank insulation (Domestic)	£k	41.21
Draught proofing (Domestic)	£k	434.24
Double glazing (Domestic)	£k	1376
Energy efficient lighting (Domestic)	£k	1300.46
Energy efficient appliances (Domestic)	£k	74085.24
Boiler replacement (Domestic)	£k	33797.81
Fuel switch (Domestic)	£k	8262.65
Heating controls (Domestic)	£k	1914
Smart meters Electric (Domestic)	£k	18627.15
Smart meters Gas (Domestic)	£k	21631.11

Energy assessment (Domestic)	£k	30.7
Fuel reduction by behavioural change and technology mix (Domestic)	£k	TBC
Electricity reduction by behavioural change and technology mix (Domestic)	£k	TBC
Energy efficient lighting (Non-Domestic)	£k	n/a
Smart meters Electric (Non-Domestic)	£k	893.3
Smart meters Gas (Non-Domestic)	£k	950.9
Fuel reduction by behavioural change and technology mix (Non-Domestic)	£k	TBC
Electricity reduction by behavioural change and technology mix (Non-Domestic)	£k	TBC
Energy efficient street lighting	£k	6324
Road transport fuel reduction by behavioural change	£k	TBC
Road transport efficiency improvements	£k	TBC
Replace road transport fuels with biofuels	£k	TBC
Replace road transport fuels with electricity	£k	n/a

Table 1 indicative capital costs per measure (Source: VantagePoint Scenarios and Action Plan Study for York 2010 )

## Financing Sources



Over the coming years York will need to maximise internal and external funding in order to deliver at least a 20 per cent reduction in carbon emissions by 2020.

The following are just some possible funding streams available to the Council and its partners to explore in the future:

### **Community Infrastructure Levy / Section 106**

The Council could consider the use of the Community Infrastructure Levy / Section 106 to generate income through the planning system to secure low carbon technologies on development sites. Under such a scheme, the developer financially contributes towards mitigating the effects the development will have on carbon emissions in the city and funds low carbon technologies at an agreed price with the local planning authority.

### **Investment in local Major Transport**

York is already in the bidding stages to access £22.5 million of a £600 million fund. The proposed Access York scheme would represent the largest single transport investment for York since the building of the A1237 Outer Ring Road and would create three new Park & Ride sites on the edge of the city.

This scheme will also make significant contribution to the city's aim to address climate change.

### **Sustainable Transport Fund**

The Government's Local Sustainable Transport Fund will help build strong local economies and address the urgent challenges of climate change. It reflects the Government's core objectives of supporting economic growth by improving the links that move goods and people and meeting its commitment to reducing greenhouse gas emissions. York will submit a bid for just under £ 5 million in 2011.

### **Feed in Tariff**

Individuals, local authorities, community groups and other organisations who install low carbon electricity generating technologies up to 5MW will be eligible to receive Feed-in-Tariffs. The introduction of Feed-in-Tariffs aims to incentivise the installation of small scale, low carbon electricity generating technologies. Each installation will qualify for a payment for each Kilowatt (kW) they produce and a further payment for each kW exported to the grid.

### **Prudential borrowing / bonds.**

Both financial mechanisms could be investigated to determine if the Council could raise the capital to fund and install renewable energy / energy conservation technologies. This would also enable the council to potentially take advantage of the Feed in Tariff above (if installing low carbon electricity generating technologies).

### **Special Purpose Vehicles (SPV) - Energy Service Companies (ESCO)**



## **Energy Service Company (ESCo) services**

An ESCo is a special purpose vehicle that facilitates the delivery and operation of an energy services scheme.

An energy service scheme is either a partnership between a housing association; local authorities and energy suppliers or a stand-alone project established by interested organisation to offer energy services packages.

ESCo's are relevant where there is a requirement for large volumes of electricity and/or heat. Examples may include large single energy users such as universities and museums, multiple smaller users such as homes and commercial offices, or a mixture of both. In these circumstances there may be an intention to invest in and use energy generation and distribution equipment to supply those users. An ESCo is a particular type of special purpose vehicle (SPV) to enable the delivery and operation of such a system.

Such systems can offer a range of benefits including the provision of heat and power at lower cost to customers compared with business as usual. Carbon savings and potential protection from rising energy prices are further benefits. A number of challenges are often encountered however when trying to develop such a scheme. For instance securing project funding, allocating responsibility and ownership, and hence risk, as well as identifying and delivering the most suitable technical solution, can all be a challenge.

An ESCo can take the form of a third party or arms length entity that is responsible for one or more areas of delivery and operation of a scheme. Securing funding, system design, procurement, installation, operation and any customer facing obligations such as metering and billing may fall within the ESCo's responsibilities. Crucially, the ESCo could carry all the risk associated with the responsibilities it assumes. This allows multiple stakeholders to be involved in the scheme without having to carry uncertain liabilities, often the main obstacle to delivery of such schemes. This is the real innovation in the ESCo model. The exact remit and ownership structure of the ESCo, whether it is a fully private or public entity, or a mixture of the two, varies from project to project.

The ESCo model is one of a number of possible SPV solutions for delivering energy schemes. (Source EST: <http://www.energysavingtrust.org.uk/business/Business/Local-authorities/Energy-Services> )

## **EU European Local Energy Assistance**





To facilitate the mobilisation of funds for investments in sustainable energy at local level, the European Commission and the European Investment Bank have established the ELENA technical assistance facility (European Local ENergy Assistance), financed through the [Intelligent Energy-Europe](#) programme. ELENA support covers a share of the cost for technical support that is necessary to prepare, implement and finance the investment programme, such as feasibility and market studies, structuring of programmes, business plans, energy audits, preparation for tendering procedures - in short, everything necessary to make cities' and regions' sustainable energy projects ready for EIB funding.

Many EU cities and regions have recently started to prepare or are initiating large energy efficiency and renewable energy proposals to tackle energy and climate change challenges. However, most of them are still at the conceptual stage and their implementation is proving difficult because many regions and cities, particularly medium to small ones, often do not have the technical capacity to develop large programmes in this area. ELENA helps public entities to solve such problems by offering specific support for the implementation of the investment programmes and projects such as retrofitting of public and private buildings, sustainable building, energy-efficient district heating and cooling networks, or environmentally-friendly transport etc.

ELENA assistance may facilitate access to EIB finance or finance from another bank.

### **Forthcoming funding streams**

In addition to the above potential funding streams, there are also a number of forthcoming options for York to investigate.

### **The Renewable Heat Incentive (RHI)**

The Renewable Heat Incentive aims to generate more-than-tenfold increase of renewable heat over the coming decade in England.

The scheme will make payments to those installing renewable heat technologies that qualify for support, year on year, for a fixed period of time. It is designed to cover the difference in cost between conventional fossil fuel heating and renewable heating systems (which are currently more expensive), plus an additional rate of return on top.

For more information

[http://www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/energy\\_mix/renewable/policy/incentive/incentive.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/policy/incentive/incentive.aspx)

### **The Green Investment Bank**



The British government plans to provide funding of up to £1 billion for a Green Investment Bank (GIB).

The intention is to provide organisations with the financing they need for technology and projects which will help the UK make the transition to a low-carbon economy. Only limited information on the GIB and how it is proposed to work is currently available. Once more details are available the Council and its partners will investigate this funding stream.

### **The Green Deal**

The Energy Bill introduced to Parliament on 8 December 2010 includes provision for a new “Green Deal” which the Government is establishing to create 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. Such a scheme will enable consumers to pay for improvements and therefore this will reduce the financial burden on local authorities to pay for energy efficiency improvements in the private and social housing stock. Only limited information on the Green Deal and how it is proposed to work is currently available. Once more details are available the Council and its partners will investigate this funding stream.

The Council and Partners will investigate all of the above funding stream as part of its planned work for delivering this Sustainable Energy Action Plan.

## **4. Baseline Emission Inventory**

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The Baseline Emission Inventory for this Sustainable Energy Action Plan has been determined through the national Department of Energy and Climate Change (DECC) data. This data is currently available for 2005 through to 2008 on the [Department of Energy and Climate Change \(emission statistics\)](#) website.

This data is the most comprehensive and available baseline data for overall annual carbon emissions across the UK and it is also used for National Indicator 186 - per capita emissions in each local authority area. The government, to compare per capita emissions, used this indicator across local authorities.

Data is collected from a range of national and local data sets under three broad emissions groups

1. industry and commercial
2. domestic
3. residential

Certain emission sources are excluded as they are deemed to be ‘national’ emissions – for example large industrial plants covered by the European



Emission Trading Scheme. This approach is consistent with that adopted in the baseline requirements for this Sustainable Energy Action Plan.

Currently data for 2005 – 2008 is available. For the purposes of this Sustainable Energy Action Plan the 2005 data set will form the baseline for which future dataset will be compared against. Table 2 details the Baseline Emission Inventory for York in kilo tonnes (kt) of carbon dioxide.

Table 2 York's emission in 2005 ( kt CO<sub>2</sub>) (Source DECC NI 186 emissions spreadsheet 2011)

Year	A. Industry and Commercial Electricity	B. Industry and Commercial Gas	C. Large Industrial Installations	D. Industrial and Commercial Other Fuels	E. Agricultural Combustion	G. Domestic Electricity	H. Domestic Gas	I. Domestic 'Other Fuels'	J. Road Transport (A roads)	L. Road Transport (Minor roads)	M. Road Transport Other	Total
2005	271	219	-	39	4	182	258	12	194	118	1	1,298
2006	275	216	-	34	4	188	252	12	192	115	1	1,291
2007	257	145	-	35	4	184	239	12	191	118	1	1,186
2008	255	141	-	32	4	177	247	12	182	113	1	1,165

The Covenant of Mayors provides a template for the completion of Sustainable Energy Action Plans, requiring various fields to be populated in the form of a spreadsheet. The spreadsheet uses data that is entered on energy consumption and local electricity production to produce a carbon baseline.

Some of the information required for the baseline inventory has been provided using data above from National Indicators 186. However, it is not possible at this time for the City of York to detail energy consumption data or local renewable energy data for 2005 for the city. Annex B details the information that is available.

Work is also underway to look at how York can annually monitor the amount of renewable energy generated in the city. The baseline data above does not include a section on local renewable energy generation and officers will look this at. Currently, an installation such as large wind turbine that feeds electricity generated straight back in to the national grid, will not appear in any of the York



National Indicator 186 - per capita emissions dataset. It contributes to a greening of the national grid, which indirectly, and as more installation comes on line, will mean that the electricity used across England will be decarbonising, and therefore, over time, in York the emissions associated to electricity consumption will decrease due to renewable energy generation. The current data would not show this effect locally. A method to calculate the renewable energy generated locally and their contributions to carbon savings in York will be investigated and an inventory started from 2010.

## 5. Planned Actions

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This Sustainable Energy Action Plan contains a series of measures that have been developed using a carbon modelling software tool called Vantage Point that was designed specifically for local authorities in the UK to meet their various carbon reduction targets. The model allows the development of scenarios to analyse a range of technologies and carbon reduction measures in housing, transport, and public sector and commercial buildings. For the purpose of this Sustainable Energy Action Plan a scenario was developed to outline a possible mix of plausible technologies that would achieve at least a 20 percent reduction in York's citywide carbon emissions.

The Covenant of Mayors provides a template for the completion of this section of the Sustainable Energy Action Plan requiring various fields to be populated in the form of a spreadsheet. As before in section 6, some data is not available to the City of York. Annex B provides a comprehensive list of actions with associated estimated carbon dioxide savings per measure and also outlines responsible delivery partners, timescales, and where available, estimated costs. This action plan should also be read in conjunction with the City of York's Climate Change Framework and Action Plan, which will also be carrying out actions to tackle climate change between now and 2050.

Through the results of the carbon modelling work carried out for the City of York Council, the following potential measures could enable York to save 416 kilo tonnes of CO<sub>2</sub> by 2020 which equates to a 20 per cent reduction in York's carbon emissions.

This plan is based on a scenario that has been developed as the most plausible way of meeting York's carbon reduction commitments. It is based on the range of measures currently available to local authorities, the effectiveness of different options to reduce carbon emissions, and a robust analysis of what measures are feasible for York. The measures identified in this scenario will be subject to further review in light of ongoing and significant changes to national policy and the finance/implementation structures available to local authorities and other key partners.

Measure	Units	2005-2020
Road transport efficiency improvements	ktpa	54.22
Fuel reduction by behavioural change and technology mix (Non-Domestic)	ktpa	36.6
Replace road transport fuels with biofuels	ktpa	33.65
Wind large	ktpa	28.15
Wind medium	ktpa	28.12
CHP biomass	ktpa	23.93
Cavity wall insulation (Domestic)	ktpa	21.66
Solid wall insulation (Domestic)	ktpa	21.09
Electricity reduction by behavioural change and technology mix (Non-Domestic)	ktpa	13.4
Energy efficient appliances (Domestic)	ktpa	11.05
Boiler replacement (Domestic)	ktpa	9.74
CHP large Gas	ktpa	7.58
Loft insulation (Domestic)	ktpa	6.21
Energy efficient lighting (Domestic)	ktpa	6.04
Fuel switch (Domestic)	ktpa	5.08
Smart meters Gas (Non-Domestic)	ktpa	4.51
Solar PV (Domestic)	ktpa	4.5
Solar thermal (Domestic)	ktpa	3.26
Ground source heat pump (Domestic)	ktpa	2.54
Smart meters Electric (Domestic)	ktpa	2.53
Biomass boilers (Domestic)	ktpa	2.47
Air source heat pump (Domestic)	ktpa	2.39
Solar PV (Non-Domestic)	ktpa	1.49
Energy efficient street lighting	ktpa	1.43
Smart meters Gas (Domestic)	ktpa	1.34
Draught proofing (Domestic)	ktpa	0.7
Heating controls (Domestic)	ktpa	0.61

Road transport fuel reduction by behavioural change	ktpa	0.55
Smart meters Electric (Non-Domestic)	ktpa	0.39
Double glazing (Domestic)	ktpa	0.25
Tank insulation (Domestic)	ktpa	0.21
Wind (Domestic)	ktpa	0.04
Energy assessment (Domestic)	ktpa	0.03
CHP buildings Gas	ktpa	0
Heat from power station	ktpa	0
Power only biomass	ktpa	0
Solar thermal (Non-Domestic)	ktpa	0
Biomass boilers (Non-Domestic)	ktpa	0
Air source heat pump (Non-Domestic)	ktpa	0
Ground source heat pump (Non-Domestic)	ktpa	0
Energy efficient lighting (Non-Domestic)	ktpa	0
Replace road transport fuels with electricity	ktpa	0
Fuel reduction by behavioural change and technology mix (Domestic)	ktpa	-0.13
Electricity reduction by behavioural change and technology mix (Domestic)	ktpa	-0.56
Green grid	ktpa	81.65
<b>TOTAL</b>		<b>416.72</b>

(Table 3 – Meeting the 20% target scenario. (Source: VantagePoint Scenarios and Action Plan Study for York 2010 )

Based on Table 3 above, a series of short / medium term priority measures have been identified for this sustainable energy action plan to take forward :

- Investigate feasibility to maximise road transport efficiency
- Develop and maximise fuel reduction behavioural change programmes across York's industry, businesses and organisations
- Investigate feasibility of replacement road fuels
- Investigate detailed feasibility for renewable energy technologies including medium and large scale wind turbines and combined heat and power schemes utilising biomass
- Investigate detailed feasibility to develop a city wide whole house energy efficiency / microgeneration package of measures





In addition to these short / medium term priorities, York is also committed to a longer-term target of an 80 per cent reduction in carbon dioxide emissions by 2050.

Such a long-term target will require additional actions between 2020 – 2050. There is still a lot of uncertainty in national policy beyond 2020, and it is therefore difficult to determine the exact level of local action York will need to take post 2020 to achieve its 80 per cent target.

Future editions of the Climate Change Framework and Action Plan will detail such long-term plans.

*(Please note that all measures relating to delivery of the 2020 and 2050 targets are subject to changes in national policy, detailed feasibility and available funding)*

## 6. Conclusion

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Fundamental to the success of this Sustainable Energy Action Plan are residents, industry, businesses and organisations and all working together to create a sustainable, low carbon York.

As with the City's Climate Change Framework and Action Plan, for people living and working in York this Sustainable Energy Action Plan for York, will help to create a sustainable, low-carbon city where we all:

- live and work in energy-efficient buildings with smaller fuel bills
- drive less and walk and cycle more
- travel by public transport more
- use renewable sources of energy to heat buildings and power our cars and buses
- create less waste, recycle and compost more, and
- grow more of our own food and buy local produce.

There will also be economic opportunities and investment opportunities through the potential installation of new low carbon technologies and localised, decentralised energy generation. The research and development work that Science City York and the Universities / colleges of York, and including Higher York, are engaged in also present research opportunities and could even play an instrumental role in low carbon skills provisions. The potential installation of renewable energy generation across the city's large development sites could also lead to opportunities in onshore wind generation, solar power and biomass Combined Heat and Power schemes (source: Renewable Energy Strategic Viability Study for York 2010)



The City of York Council and Partners have signed up to the European Covenants of Mayors to illustrate the need to tackle climate change and to maximise the opportunities tackling climate change will have on the city and its residents and businesses. As a city, York is also committed to becoming a sustainable city. By demonstrating strong performance in tackling climate this will support York to strive towards this ambition.

### **General enquiries**

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For more details on tackling climate change visit the City of York Council website [www.york.gov.uk](http://www.york.gov.uk)

Or call on (01904) 551550

Email [sustainability@york.gov.uk](mailto:sustainability@york.gov.uk)

Post: City of York Council  
City Strategy  
9 St Leonard's Place  
York  
YO1 7ET

A leaflet on creating a sustainable home and business in York is also available from some council reception desks and via the City of York Council's website [www.york.gov.uk/environment/sustainability/climatechange/](http://www.york.gov.uk/environment/sustainability/climatechange/) or from the WoW website at [www.yorkwow.org.uk/sustainable-wow/](http://www.yorkwow.org.uk/sustainable-wow/)

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