

Supplementary Strategy 1:

Climate Change

2007 - 2010

1. Introduction

According to the Intergovernmental Panel on Climate Change (2007), scientifically, there is little doubt that climate change is now the greatest challenge faced by society. Climate change has increased significantly in the last hundred years due to the burning of fossil fuels and human activities that have altered the chemical composition of the Earth's atmosphere through increased levels of greenhouse gases, primarily carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). The ten warmest years of the twentieth century all occurred in the last fifteen years of the century and 1998 was the warmest year on record.

This section of the sustainability strategy will look at the whole issue of climate change, how it will impact on the Authority and what we are able to do about it.

1.1 Waste and climate change – the connection

The Authority has taken its lead on climate change from the Government and will make it the main driver for achieving sustainable waste management. Both climate change and sustainable waste management are intrinsically linked in that the activities involved in managing waste (transportation and landfill emissions) contribute some 3% of the total UK greenhouse gases emitted (The Stern Report 2006). Globally, it is estimated that methane will contribute some 24% of greenhouse gases over the next 100 years

Each stage of a product's life cycle – mineral extraction, transportation, manufacturing, distribution, use and disposal, contributes in some way to the concentrations of greenhouse gases in the atmosphere. Emissions are even greater if you take account of the Whole Life Cost (WLC)¹ of a product.

¹ Whole Life Costs can include the delivery of goods, the distribution of products, the installation costs and consumables used in installation, packaging and the disposal of packaging, the associated transport cost of disposal, the actual cost of disposal and finally landfill emissions

1.2 National policies for climate change

The Government believes in the importance of taking domestic action to cut greenhouse gas emissions. Since the Kyoto conference in 1997, the UK has been pressing ahead and introducing innovative policies, which will have a significant impact on reducing UK emissions. An integral part of managing for climate change is managing energy use, the resources required to generate it and to seek alternative forms of energy that are renewable within one generation.

1.3 Climate Change and Sustainable Energy Act 2006

From heating and lighting to transport, industry and communications, energy is fundamental to almost everything we do. We expect it to be available whenever we want it, to be affordable, safe and environmentally sustainable. The UK's indigenous energy reserves of oil, gas and coal will run out over time, some sooner than others e.g. UK gas supply peaked in 2000 and because of the supply gap; the UK became a net gas importer in 2004.

The medium to long-term continuous supply of energy for the UK is at risk; and importantly in the hands of other countries. The Government has set four goals for its energy policy:

- To put ourselves on a path to cut the UK's carbon dioxide emissions - the main contributor to global warming - by some 60% by about 2050 with real progress by 2020;
- To maintain the reliability of energy supplies;
- To promote competitive markets in the UK and beyond, helping to raise the rate of sustainable economic growth and to improve our productivity; and
- To ensure that every home is adequately and affordably heated.

The Act also aims to boost the number of heat and electricity micro generation installations in the UK, in order to cut carbon emissions, reduce fuel poverty and the impacts of climate change. In 2006, each person in the UK produced the equivalent of 11 tonnes of carbon dioxide. Micro generation technologies are seen as having considerable potential and involve the local production of electricity by homes and businesses from low-energy sources including small scale wind turbines, ground source heat pumps and solar electricity installations. The Government published a new Planning Policy Statement in December 2007 regarding the provision for on-site renewable energy and local community energy schemes to help cut carbon emissions from new developments.

1.5 Regional action plan

'Rising to the Challenge' is the Climate Change Action Plan for the Northwest (2007-09). The objectives are to reduce greenhouse gas emissions and adapting to those effects of climate change that are now unavoidable. The action plan focuses on enabling, encouraging and engaging with individuals, groups, communities, partnerships and businesses so that a low carbon, well adapted region is achieved. The aims and objectives of this strategy should contribute significantly to the regional action plan.

1.6 Forecasting climate change

We do not know what the precise rate of greenhouse gas emissions will be. The UK Climate Impacts Programme (UKCIP) co-ordinates an assessment of the impacts of climate change using four scenarios in terms of global warming rates:

1. Low emissions:
2. Medium – Low emissions
3. Medium – High emissions
4. High emissions

Key points from these scenarios are summarised below

- By the 2080s average temperature may rise between 2 °C for the low emissions scenario and by 3.5 °C for the high emissions. There will be greater warming in the south and east of the UK than in the north and west.
- High summer temperatures will become more frequent and very cold winters will become increasingly rare. Very hot summers may occur as often as one in five years.
- Winters will become wetter and summers may become drier everywhere.
- Snowfall amounts will decrease throughout the UK
- Heavy winter rain will become more frequent
- Relative sea levels will continue to rise around most of the UK's shoreline including Merseyside (see regional projections below)
- Extreme sea levels (storm surges) will be experienced more frequently

It is unknown how humans will respond to climate change and what rapid change will take place if unknown thresholds are quickly surpassed? This has recently been referred to as the 'tipping point.' In its most recent report (Aug 2007), the Meteorological Office has predicted that at least half of the years after 2009 will exceed the warmest year on record, which was 1998.

1.7 Regional and Local projections

Climate change impacts in the North West would affect the region in a number of areas.

- Flooding
- Water supply
- Agriculture
- Biodiversity
- Tourism and leisure
- Manufacturing

The 430 km coastline of North West England is generally low-lying, and much of its southern length is urbanised, with around 95,000 people located in the coastal floodplain, along with major sites of manufacturing (25% of the UK's chemical industry), and primary tourist destinations. The threat of sea level rise, and coastal inundation, is therefore considered to be an important threat for manufacturing in general, warmer weather will mean lower energy bills in winter, but higher bills for cooling in summer.

In order for the North West to mitigate and adapt to future climate change, the region has developed and produced a Greenhouse Gas Inventory.² Waste treatment and disposal is highlighted in the report, as all methods have associated greenhouse gas impacts, which can be positive or negative depending on the option chosen. Greenhouse gas emissions from the treatment and disposal of waste in the North West accounted for 2.1million tonnes of carbon dioxide equivalent in 2000 or 13.6% of national waste emissions.

Current models on climate change are not yet able to develop scenarios specific to local areas such as Merseyside but the majority of Local Authorities have signed up to the Nottingham Declaration on Climate Change, with some preparing carbon management plans.

2. Carbon footprints

As reported in the Stern review, the carbon impact of waste management is to be taken seriously by the Government and as a

² GRIP - Greenhouse Gas Inventory Programme. Baseline year 2000

result of the review it intends to introduce new waste indicators, which are linked to carbon emissions.

The most commonly used phrase for expressing carbon is the term *Carbon Footprint*. A Carbon Footprint is a measure of the impact human activities have on the environment in terms of the amount of greenhouse gases produced, measured in units of carbon dioxide. A Carbon Footprint is made up of the sum of two parts, the direct / primary footprint and the indirect / secondary footprint.

- The primary footprint is a measure of our direct emissions of CO₂ from the burning of fossil fuels including domestic energy consumption and transportation (e.g. car and plane).
- The secondary footprint is a measure of the indirect CO₂ emissions from the whole lifecycle of products we use - those associated with their manufacture and eventual breakdown and disposal.

2.1 Carbon linked indicators

New national indicators will be introduced in April 2008 including two climate change mitigation indicators;

- Percentage CO₂ reduction in local authority's own operations; and
- Percentage CO₂ reduction per capita in the community.

This reflects the role of local authorities in reducing carbon emissions from their own operations e.g. through more efficient energy use, installing renewable energy systems and improving vehicle efficiency and by being exemplars in the community by reducing carbon emissions through their service provision.

It is clear that waste management, climate change and energy are strategically linked. This provides the Authority with a number of opportunities, which can contribute to sustainable waste management and to sustainable communities. Encouraging waste prevention, reuse and recycling will help to mitigate against climate change through the need for additional finite resources. In addition, recycling preserves the embodied energy required to make a product in the first place and preventing further resources, energy and carbon dioxide emissions from being extracted and emitted. Furthermore, the Authority has the scope, through landfill gas extraction to prevent methane from being released into the atmosphere. The Authority should also give consideration to the energy requirements of facilities and the benefits from micro generation technologies to reduce carbon emissions and maintain the reliability of energy supplies (self sufficiency).

2.3 Waste management footprints

The only study to date that has investigated waste 'footprints' is the '*Ecological, Carbon EcoCarb and Footprints of waste management in the North West*', 2007; which measured the ecological, carbon and ecocarb footprints of waste for both the Authority and Sefton MBC. This project was devised and managed by the Authority and was the first study of its kind in the UK. The results for the Authority show that current waste management practices reduce all three footprints by 36%, 13% and 16% respectively.

3. What can Merseyside Waste Disposal Authority do?

At this early stage in the development of the Authority's approach to climate change, the objectives of the strategy will be focused on activities over which the Authority has direct influence and identify mitigation options in a range of activities including energy use, transport and waste. A prudent response, at this moment in time would be to adopt a portfolio of actions aimed at:

- Mitigation – reducing emissions;
- Adaptation – adjustment to changes over time;
- Research – improvement and utilisation of information and innovation; and
- Education and awareness of climate change issues in relation to waste management.

3.1 Climate Change Aim and Objectives

The Climate Change aim is

- **To reduce the Authority's contributions to greenhouse gas emissions and to adapt as necessary to climate change.**

The objectives are to:

- **Make a commitment to address climate change issues;**
- **Raise awareness of climate change amongst Members, staff and the wider community of Merseyside;**
- **Give consideration to climate change issues (reduction of emissions and potential positive and negative impacts) in the development and review of relevant Authority strategies, plans, policies activities and contracts;**
- **Reduce the emission of greenhouse gases associated with all of the authority activities.**

4. Review and Monitoring

The information within this section is based on the best data and predictions currently available. It is not possible to be completely confident in data and predictions as there are uncertainties about future emissions of greenhouse gases with respect to population, economies, energy technologies and other social factors. Effectiveness must be monitored, in terms of how it reduces greenhouse gas emissions and improves our ability to manage the impacts of climate change. There are two ways the Authority will do this:

1. Monitor whether the actions in the action plan have been completed satisfactorily and to schedule.
2. Monitor levels of greenhouse gas emissions. This can be achieved using a range of indicators including energy use in Authority buildings and facilities, staff mileage and energy efficiency statistics.