

CLIMATE CHANGE STRATEGY FOR DUBLIN CITY

*Prepared by the Environment & Engineering Strategic Policy Committee in
Association with CODEMA (City of Dublin Energy Management Agency)*



2008 – 2012



Climate Change Strategy for Dublin City 2008 - 2012

Prepared by:

The Environment & Engineering Strategic Policy Committee
in association with CODEMA (City of Dublin Energy Management Agency)

Contents

Foreword	7
Strategic Policy Committee Members	8
Introduction	9
Indicators and Actions	10
Energy	11
Planning	13
Transport	16
Waste Management	20
Biodiversity	23
Summary of Indicators	26

Eurocities Declaration on Climate Change

Outline Brief

Through Dublin's membership of EUROCITIES, Dublin is joining other major European cities in drafting a common declaration to combat climate change. The '*EUROCITIES Declaration on Climate Change*' reiterates that the local level has an essential role to play in the fight against climate change and, therefore, cities are crucial partners.

The signatories to the declaration are committed to developing energy action plans and to implement effective reduction and adaptation measures to fight climate change. The Mayors of the first group of cities participating will sign the Declaration at an official ceremony under the French EU Presidency on 27th October in Lyons.

Foreword

There are many dimensions to Climate change and within the Climate Change Strategy for Dublin City 2008–2012 we commit to focus on continuing to implement a range of measures across key areas. This strategy involves a cross cutting approach and includes targets in energy, planning, transport, waste management and biodiversity.

This Strategy builds on existing environmental policies whilst recognising the potential implications of climate change as one of the key drivers of change within our community. We have a responsibility to set out ways in which the effects of climate change can be minimised. By acting together we can lead the response at a local level by adapting our behaviour in order to increase our energy efficiency and benefit from reduced emissions, whilst promoting sustainable development in the City. We must act to achieve the measures outlined and protect our economic, social and cultural development.



John Tierney
City Manager



Cllr. Tom Stafford
Chairperson, Environment & Engineering SPC

Strategic Policy Committee Members

Councillor Tom Stafford (Chairperson)

Councillor Joan Collins

Councillor Emer Costello

Councillor Pat Crimmins

Councillor Daithi Doolan

Councillor Dessie Ellis

Councillor Bronwen Maher

Councillor Mary O'Shea

Councillor Oisín Quinn

Councillor Sarah Ryan

Mr. Donal Buckley IBEC

Mr. Laurence Gill Trinity College

Ms. Lorna Kelly Community Forum

Mr. Noel Merrigan ACRA

Mr. Damian Nolan An Taisce

Introduction

Dublin City Council (DCC), through the Environment & Engineering SPC has decided to prepare a climate change strategy for the city. This draft strategy has been prepared in association with the City of Dublin Energy Management Agency (Codema).

CO₂ is the greenhouse gas that has the strongest effect on climate change and the strategy focuses primarily on the reduction of CO₂ gases. CO₂ mainly comes from the combustion of fossil fuels and our use of energy, therefore, which is commonly in the form of fossil fuels, is strongly connected to climate change. Due to the release of these gases the climate has already started to change and will continue to do so giving higher global average temperatures, higher sea levels and changes in weather patterns leading to more extreme events with risk of extended periods of extensive flooding.

CO₂ emissions in the city can be divided between four major sectors – residential 32%, services 23%, manufacturing 20% and transport 25%. There are also some emissions from the waste management sector.

In 2006 Dublin City, which has 12% of the Irish population, released approximately 5 million tonnes of CO₂, which was approx. 10.5% of the total Irish emissions that year. On average a Dubliner releases 9.7 tonnes of CO₂ per year, while the Irish average is 11.3 tonnes.

The Climate Change Strategy for Dublin City is in accordance with the National Climate Change Strategy and with other agencies and State Departments. Close co-operation with all the local authorities in the Dublin Region is envisaged. The strategy will cover the years 2008-2012 in the short-term, but also takes into account a medium-term view to 2020 and beyond. Once each year the strategy will be reviewed and updated.

Five focus sections have been chosen for the strategy - energy, planning, transport, waste management and biodiversity and the actions and key performance indicators under each of these headings are set out below. Also set out below, under each of the 5 headings, are the actions currently being taken by Dublin City Council. The section on biodiversity outlines actions to mitigate against climate change.

Indicators and Actions

The intention is to define immediate and practical steps for direct action by Dublin City Council, with timetables and targets. Therefore, a limited number of indicators is selected from a long potential list, at least in the first instance, in order to give a sharper focus on achieving real results. They are selected on the basis of being realistic and readily understood by the general public. The targets are designed to be specific, achievable and measurable from year to year.

The corresponding actions, which are set out in each of the five sections, focus on the areas that are under the direct control of Dublin City Council, or at least within the Council's sphere of major influence.

General Indicator

Apart from the indicators listed under each section of the strategy, a general indicator for the progress of Dublin City regarding the decrease of Green House Gases (GHG) has been chosen. This indicator is:

1. Tonnes of CO₂ / capita / year

General Actions

Two other important general actions have been identified, as follows:

- ◆ Identify areas for support from National Government, which will support and facilitate the delivery of the actions set out in this Climate Change Strategy
- ◆ Climate change proof the Dublin City Development Plan and other plans, studies and policy documents
- ◆ Prepare and adopt an Action Plan on Energy for Dublin

Targets

The City Council will set specific targets for the reduction of emissions in relation to energy use, transport, housing and waste management. These targets are being developed following a consultation process that took place in early 2008 and which included key stakeholders.

Energy

Actions taken by Dublin City Council



Image: Dublin City Council

Roundwood Waterworks. A water turbine provides all the energy required at the plant.

Solar: Solar panels have both been installed in existing buildings within the Social Housing stock, and are now becoming standard in new developments, (for example York Street).

Biogas: In the wastewater treatment plant the city is recovering the methane that is naturally formed when sludge is treated and the methane gas is burned for electricity production.

District heating and CHP: The City Council has carried out a feasibility study on the implementation of a citywide district-heating network and developers in the Dublin area have been approached on the benefits of district heating and they have been encouraged to consider district heating for their developments.

Public Lighting: The City Council uses the most energy efficient light sources and equipment available for its public lighting. The Council has been moving towards the fuller use of LEDs in traffic lights.

Other measures: An innovative water turbine, producing 100 kw of electricity, has been installed in the Roundwood Waterworks. It takes its energy from the water dropping from the reservoir to the treatment tanks and provides all the energy required at the plant.

Targets

Indicators

2. Total share of renewable energy for social housing, public buildings and installations, including traffic
 3. Number of social housing units, public buildings and community centres connected to district and group heating systems, assessed against the annual target
 4. Number of CHP units within the private housing and commercial sectors, assessed against an annual target
- Proposed Actions

Energy

Proposed Actions

Dublin City Council will:

- ◆ Map areas that can be served by the proposed district-heating network to be used by planners and for inclusion in the next City Development Plan
- ◆ Develop, publish and disseminate technical and operational guidelines for district heating in Dublin to inform both planners and developers to ensure compatibility between different schemes
- ◆ Continue to pioneer and promote best practise in renewable energy through the Council's own projects and operations
- ◆ Switch to renewable energy for our own electricity supply as far as is practical within the established procurement process
- ◆ Make sure that the development of a district heating system is not dependent on the planned waste incineration plant, but will take place with or without the plant
- ◆ Install energy efficient outdoor and indoor lighting and convert all traffic lights to LEDs which are much more energy efficient than conventional light bulbs
- ◆ Appoint an Energy Conservation Officer to drive forward energy conservation throughout the City Council through "Action at Work" type programme
- ◆ Nominate a staff member as Energy Liaison Officer in each department to ensure that best practices in energy efficient are adopted and that the "Action at Work" programme is implemented

Planning

Actions taken by Dublin City Council



Image: Dublin City Council

York Street Development. Designed to maximise solar gain and solar panels for hot water.

Dublin City Council has together with Codema initiated an Action Plan on Energy for Dublin, which is currently under development. This Action Plan will provide a framework for development in the three sectors that contributes most to climate change in Dublin: the residential, commercial and transport sectors.

Apart from this there are also numerous other actions that have been taken within planning to reduce the GHG emissions, as follows:

Energy use in the residential sector:

There has been extensive refurbishment within the existing city Social Housing stock resulting in the elimination of fuel wastage among the tenants. Over the past ten years efficient gas fired central heating has replaced the old solid fuel fires, with major benefits to both the environment and quality of the living space. Also, energy efficient windows have been installed in most of the dwellings, roof insulation has been added and some of the newer dwellings are being provided with solar heating. Dublin is one of the partners

in the on-going European project ROSH (Refurbishment of Social Housing) where the overall objective is to promote energy efficient and sustainable retrofitting of social houses in the participating cities. The project runs for 30 months and will influence the decision making process for retrofitting of social houses in order to stimulate the market to increase the amount of social houses being retrofitted.

Regarding new residential and commercial developments, a variation to the Dublin City Development Plan has been proposed, which requires that all new buildings be rated at least B1 from 2008 and rated at least A3 from 2009. This will be extremely significant since new buildings will have a life span of 50 to 100 years and retrofitting them at a later date is much more expensive.

An example of a new development site where Dublin City Council has implemented high energy and environmental standards is York Street. For instance this area has: solar panels on the roof for hot water, maximisation of solar gain through a C-shaped building facing the

Planning

Actions taken by Dublin City Council

south, folding glazing on balconies that enables heat to be captured in wintertime, “pay for what you use” heating system, energy education programmes for tenants, water collection system, green roofs, a waste and recycle facility with a compost, bird boxes etc.

Another example is Ballymun where there has been a major effort to create an economically, socially, environmentally and physically sustainable area. The energy and environment strategy for Ballymun defines best practice for energy efficiency, environmental sustainability and water conservation across 100% of the site, including solar panels, heat pumps, high degree of insulation etc. The project involves the construction of 4,000 new houses in five new neighbourhoods.

Consolidation: As Dublin City Planners have been looking at the issues of density and height they have concentrated on the scope for density and height along new public transport corridors and within prime urban centres. Scope has also been identified in the large under-utilised industrial lands in suburban locations. Criteria will be set out for the inner city to indicate under what circumstances any height enhancement may be considered.

Transportation: Examples of what has been done within the transport sector in connection with planning are the construction of the LUAS and the Port Tunnel.

Targets

Indicators

5. Number of A and B rated buildings within the social and private residential sector and as a percentage of the total stock
6. Number of A and B rated buildings within the commercial and public buildings sector and as a percentage of the total stock Proposed Actions

In order to reach the targets above, the actions below will be taken by Dublin City Council

Dublin City Council’s Own Activities

Dublin City Council will:

- ◆ Carry out an economic analysis of the cost of (a) stabilising Dublin’s total CO₂ emissions at present levels and (b) reduction of CO₂ emissions by 3% per year, as part of the Action Plan on Energy for Dublin
- ◆ Set an overall average target of minus 3% per year reduction in total energy end-use for the Council’s own operations, giving total reduction of 33% by 2020, in line with the national targets and exceeding the requirements of the EU Energy End-use and Energy Services Directive
- ◆ Reduce the energy consumption across all Council owned social housing and within its own facilities through education and refurbishment. As a part of the Energy Action Plan, detailed audits of Dublin City Council’s buildings will be carried out. In the audits opportunities of energy efficiency and use of renewable energy will be delivered
- ◆ Promote the use of solar thermal panels in both private and public housing
- ◆ Carry out a pilot demonstration project for Passive House Standard Housing in one of the new Social Housing schemes
- ◆ Target and promote a carbon neutral Sustainable Communities demonstration project in each of the five city Areas

Planning

Targets

Sustainable Planning

Dublin City Council will:

- ◆ Include good information in all planning projects so that people are willing to live in new forms of housing, be more energy conscious, conserve water, recycle and be more litter conscious, and use public transport
- ◆ Promote overall sustainability in developments and not only focus on individual areas

Energy Use in the Residential and Commercial Sectors

Dublin City Council will:

- ◆ Influence private builders to improve the design standards of new buildings through the variation of the Dublin City Development Plan 2006-2011
- ◆ Introduce requirements demanding highest energy saving standards in planning permissions for alterations of existing buildings
- ◆ Investigate new financial support mechanisms for delivering local advice, guidelines and information to building owners in order to encourage refurbishment of the existing building stock (commercial and residential), as these services can not be delivered at local level at zero cost
- ◆ Develop a programme for small businesses to help them be more energy efficient, as 96% of Dublin businesses are small and medium enterprises
- ◆ As part of the programme to reduce leakage and conserve drinking water,

continue to replace defective mains through the Dublin Region Watermains Rehabilitation Project

- ◆ Promote water conservation through the Water Conservation Officer, the Tap-tips campaign and implementation of the 'Bye-laws for the Management of Water Services and Conservation of Drinking Water 2003'
- ◆ Promote the use of "grey" water where appropriate

Consolidation

Dublin City Council will:

- ◆ Develop a more consolidated city as far as possible

Transport

Dublin City Council will:

- ◆ Take sustainable transport aspects into consideration when planning new housing area
- ◆ Influence the improvement of the public transportation network
- ◆ Extend and improve the cycling and walking network
- ◆ Facilitate the location of park and ride sites in new areas adjacent to good public transport
- ◆ Thoroughly evaluate the environmental aspects before giving planning permissions for shopping centres, specifically examining carbon miles for goods sold and proximity of the centres to their customers

Transport

Actions taken by Dublin City Council

Dublin City Council is working and will continue to work with both hard and soft measures.

Pedestrian: Dublin City Planners have prepared a plan with walking routes within and between the centres on the north and south side of the Liffey, in order to enhance and strengthen the centre of Dublin and promote walking. However, there is still a great need to make the city more pedestrian friendly.

Cycling: 160 kilometres of bicycle lanes have been constructed in Dublin.

Public transportation: Since all efforts to reduce car traffic will have only a small impact if a good public transportation system is not in place, Dublin City Council has been working actively to increase the number of trips made by public transport and to reduce the dependency on private car trips since 1994 when the report The Dublin Transport Initiative was written. Apart from reducing the GHG emissions public transport is clearly more efficient than cars in terms of person trips and promoting public transport therefore also reduces congestion.

One of the measures has been the implementation of the Quality Bus Corridors throughout Dublin. In autumn 2007 there were 13 QBC routes operating in the City Council area and more are planned. Measurements have shown that there is an 18% decline in cars on these routes.

Some necessary major improvements will be delivered by Transport 21, for example the construction of a metro and the extension of LUAS.

Freight transport: The use of the city centre by heavy goods vehicles (HGVs) has been restricted with the opening of the Dublin Port Tunnel and the introduction of the ban on 5+ axle vehicles, which has resulted in a reduction in HGVs of between 85 and 94% in the city. Before the Dublin Port tunnel was opened Dublin experienced 9,000 HGV journeys daily. The tunnel has resulted in cleaner air, an improvement for public transport and pedestrian and cycle facilities, reduced congestion, safer streets etc.

Intelligent Transport System: Dublin City Council has invested in Intelligent Transport System that manages the city traffic in different ways to increase the efficiency, safety and reduce the GHG emissions. For example there are today 550 traffic signals on the systems and they have been shown to reduce the fuel consumption by up to 20% due to the controlled sequencing of traffic signals. The Intelligent Transport System is also utilised to assist public transport. For example, the LUAS is being given priority through the junctions and it has been estimated that this reduces the journey time by 15 minutes. The possibility of extending priority to buses could be further investigated.

Traffic lights: When it comes to the replacement of conventional bulbs in the traffic signals with the more energy efficient LED signal types, Dublin City Council has taken a lead role. The 3,000 lights changed so far saves approximately 682 tonnes of CO₂ per year and by 2010 when the project is complete 2,000 tonnes will be saved per year. Dublin City Council Traffic Department also uses solar power for all its 900 parking meters throughout the city.

Transport

Actions taken by Dublin City Council



Image: Dublin City Council

LUAS. The extension of the LUAS under Transport 21 will significantly increase passenger numbers.

Mobility management: It is important to use the opportunity that a new built area offers to implement the ideas of Mobility Management. Therefore, as part of all major planning applications the Traffic Department assesses the application in terms of its sustainability and requires a mobility plan. This plan is required where a development is likely to generate significant trip demand. The aim of the mobility plan is to reduce demand for and use of cars by increasing the attractiveness and practicality of other modes of transport.

Dublin City Council and CODEMA are partners in the European project ASTUTE which aims to promote mobility managements plans and more sustainable modes of transport.

Under the ASTUTE project and in partnership with VIPRE and CODEMA, Dublin City Council is developing a work place travel plan for its own employees. A work place travel plan is a tool, which reduces car trips, improves access, provides and promotes sustainable travel alternatives, and makes more efficient use of existing transport resources and infrastructure.

Renewable energy: Dublin City Council is currently setting up a licensing system for cooking oil from food service establishments such as hotels and restaurants. Biodiesel can be produced from recovered cooking oils and this potential will be pursued. Within the Dublin City Council fleet there are 19 bioethanol vehicles and 21 electric vehicles.

Targets

Indicators

7. Number of pedestrians and cyclists crossing the canals, as measured by the annual 'cordon' survey
8. Number of passenger-trips on Dublin Bus and LUAS per year

Transport

Actions taken by Dublin City Council

Proposed Actions

In order to reach the targets above, the actions below will be taken by Dublin City Council.

Dublin City Council's Own Activities

Dublin City Council will:

- ◆ Promote clean and efficient vehicles for the Dublin City Council fleet, through the procurement process and it will also demand these types of vehicles when procuring transportation services (taxi etc.). Due regard will be given to life cycle analysis which will apply where reliable information is available
- ◆ Adopt a travel policy regarding journeys made by Dublin City Council employees on the behalf of Dublin City Council (conferences etc) that requires employees to chose sustainable modes of transport when possible
- ◆ Organise conferences and other such events at locations that are reachable by public transport
- ◆ Facilitate employees to cycle to work and also encourage them to do so by for example providing showers and lockers and bicycle parking and arranging contests and events
- ◆ Assess the parking situation for employees and withdraw free parking to as large extent as possible

Bicycle and Pedestrian

Dublin City Council will:

- ◆ Increase the number of secure cycle parking spaces across the city and in the car park or outside locations of Council offices/property
- ◆ In conjunction with the Director of Traffic, increase safety measures at junctions for cyclists and pedestrians
- ◆ Improve connectivity of the cycle lane network
- ◆ Start up the rental service Dublin City Bike
- ◆ Influence the possibilities to bring bicycles on trains and buses
- ◆ Develop a marketing strategy to promote cycling
- ◆ Expand pedestrianisation where possible

Transport

Actions taken by Dublin City Council

Public Transportation

Dublin City Council will:

- ◆ Continue the provision of QBCs (through the QBN office)
- ◆ Continue discussions with the bus companies of the possibility of real time information, which provides timely and accurate data such as route number, final destination, waiting time and service disruptions etc. and which can increase the use of public transport by 6%
- ◆ Investigate the possibility of introducing a uniform ticket system for all public transport, possibly also including rental fees for car sharing services and rental fees for bikes

Renewable Fuel

Dublin City Council, in conjunction with key interest groups, will:

- ◆ Promote the use of renewable fuels within the bus fleet
- ◆ Promote the use of renewable fuels within the Council's vehicle fleet
- ◆ Promote more research into renewable fuels in Dublin City Council's fleet of vehicles

Freight Transport

Dublin City Council will:

- ◆ Promote a shift to rail freight transport
- ◆ Investigate the possibilities of building a logistics centre (or several) where trucks leave their goods and then clean vehicles can transport them into the city on optimised routes

Mobility Management

Dublin City Council will:

- ◆ Promote the use of Mobility Management Plans, including Workplace Travel Plans, within the public and private sectors and for the Council's own staff
- ◆ Promote the use of video conferences
- ◆ Implement school travel plans, in cooperation with An Taisce's Green Schools programme

Car Restriction

Dublin City Council will:

- ◆ Investigate the possibilities of further restricting car traffic in the city centre and giving higher priority to pedestrians at traffic lights

Waste Management

Actions taken by Dublin City Council



Image: Dublin City Council

Recycling Centres play an important role in helping communities to recycle more materials.

Prevention: To prevent the generation of waste a fundamental behavioural change in waste management practices is required by the householder, business, industry etc. In the Waste Management Plan there is an aim to prioritise waste prevention across all sectors and Dublin City Council has given a commitment to provide adequate resources and staff to educate and raise awareness. Therefore, Dublin City Council has appointed an Environmental Awareness Officer, whose focus is to educate the community on better waste practices including prevention and minimisation of waste.

Furthermore, Green School Officers have been appointed by Dublin City Council, with the function of developing environmental management systems (including waste management) in schools. To date, two Green Business Officers have also been appointed in the Region with the task of raising the awareness of waste prevention and minimisation in the business and industrial sector. Further appointments are expected.

In addition to staff resources in this area, Dublin City Council funds a dedicated regional waste awareness website, www.DublinWaste.ie. The website, which receives in excess of 120,000 hits per month, contains helpful information for preventing, minimising and recycling wastes. Also, a pay-by-use weight system for non-recyclable material was introduced in 2005, which further encourages people to prevent and minimise waste.

Reuse: In 2006, the FREE Trade service was launched in Dublin and with it the implementation of a sustainable resource reuse policy. The web-based service allows people to advertise unwanted items for free, and thus extending the life span of items. To date it is estimated that approximately 14,000 items have been reused through the service. Dublin City Council funds the on-going development and maintenance of FREE Trade. Supporting advertising campaigns continue to be rolled out to raise the profile of the service fully. Dublin City Council also supports a range of community reuse schemes.

Waste Management

Actions taken by Dublin City Council

Materials Recycling and Biological

Treatment: The green bin collection service provides householders with a readily accessible outlet to maximise the recovery of dry recyclable materials. The service has grown steadily and by early 2007 it was servicing over 400,000 householders in the region. Dublin City Council have begun to extend the service by increasing the collection frequencies and adding plastic bottles to the materials accepted. In addition, Dublin City Council together with the other Dublin Local Authorities have purchased a site at Ballymount in South Dublin and are developing a sophisticated materials recovery facility for the Region.

The delivery of the brown bin service to householders across the city is a key part of the waste strategy. The service will divert organics away from landfill and thereby reduce the GHG emissions. The separately collected material will be diverted to higher waste treatment solutions, such as composting and anaerobic digestion, and provide for better resource efficiency.

The rollout of the household brown bin for the collection of kitchen and food waste materials commenced in 2006 and is now serving about 70,000 householders in the Dublin Region. It is proposed to substantially complete the roll out in the Dublin City Area by the end of 2008. The provision of biological treatment capacity is underway, with two central facilities planned: at Ballyogan (composting process) and Kilshane Cross (anaerobic digestion is open for consideration).

Energy Recovery: The delivery of the Poolbeg WtE Plant is at an advanced stage of planning. The current expected date for opening is early 2012.

Landfill: The current landfill operations at Balleally and Arthurstown will only continue in the short-term until alternative capacities are available. Dublin City Council together with the other Dublin Local Authorities aim to deliver one regional disposal facility for the landfilling of non-combustible and other wastes in the long term. This long-term regional landfill facility, in North County Dublin, is due to be operational by the end of 2009.

Transportation of Waste: To limit the transportation of waste, the aim is for Dublin to become, as far as possible, self-reliant in terms of waste management. To fulfil this, the development of centralised biological treatment facilities, materials sorting, WtE and landfill facilities are underway. All of the planned facilities are sited within the Dublin Region at locations selected following detailed siting studies and assessment of waste flows. The chosen sites will limit travel distances for the movement of waste within the Region.

In response to the fractioning of the collection service, the Dublin Region has varied the Waste Plan to ensure the management of the service takes GHG emissions into account.

Targets

Indicator

9. Tonnes of (methane producing) organic waste diverted from landfill
10. Share (%) of waste that is recycled

Waste Management

Actions taken by Dublin City Council

Proposed Actions

In order to reach the targets above, the actions below will be taken by Dublin City Council.

Dublin City Council's Own Activities

Dublin City Council will:

- ◆ Under its new green procurement guidelines, make demands regarding packaging and other waste related issues when procuring supplies etc.

Prevention

Dublin City Council will:

- ◆ Continue to expand the resources for awareness and educational staff and campaigns specifically targeted at waste prevention at the household, school and business level

Reuse

Dublin City Council will:

- ◆ Continue to promote and extend the FREE trade web service
- ◆ Maintain the support of existing community reuse schemes through educational and financial support and support the development of new initiatives

Materials Recycling

Dublin City Council will:

- ◆ Meet the 59% recycling target by 2013 and make Dublin a leading recycling region in Europe
- ◆ Monitor the development of new internal

markets for recyclables and actively consider the use of recyclable products in line with the new green procurement guidelines

- ◆ Implement the Commercial Waste Bye-Laws to ensure that business and industry source-separate specific recyclable and organic waste generated on-site

Biological Treatment

Dublin City Council will:

- ◆ Progress the delivery of the centralised treatment facilities for Dublin as swiftly as possible
- ◆ Implement a phased rollout of the brown bin across the city to be substantially completed by the end of 2008

Energy Recovery

Dublin City Council will:

- ◆ Continue to develop the district-heating project for the city

Landfill

Dublin City Council will:

- ◆ Ensure that landfill gas capture rates of 70-75% are achieved at the existing and proposed landfill facilities to minimize the emissions

Waste Transportation

Dublin City Council will:

- ◆ Optimise the routes travelled by the waste collection vehicles

Biodiversity

Actions taken by Dublin City Council



Image: Dublin City Council

Tree Canopy.

Dublin City Council created the post of Biodiversity Officer in 2005 and the draft Dublin City Biodiversity Action Plan was finalised in February of 2008.

Dublin City Council. In an Irish context, phenology is the most effective impact indicator of climate change, for example the length of the growing season of Lime tree

Targets

Indicators

11. Tree Canopy Cover within the city area to contribute to carbon sequestration (no. of trees)
12. The total amount of Z9, Z11 and Z12 lands zoned in the Dublin City Development Plan (hectares)

Proposed Actions

Actions to Survey Indications of Climate Change

Dublin City Council will:

- ◆ Track changes in phenology in the National Botanic Gardens, Glasnevin and link data with meteorological data and make the results available within

- ◆ Initiate a project to survey present distributions of indicator butterfly/moth species and track changes in distribution over time. Butterflies and moths are some of the most important indicators of climate change. Butterflies like the Marsh Fritillary are under threat due to land use changes such as the draining of wetlands and the demise of peat lands. Others such as the Holly Blue are increasing in numbers and have spread further north while many of our commoner butterfly species are flying earlier than before

Biodiversity

Actions taken by Dublin City Council

- ◆ Link with third level institutions to assess distribution and abundance of intertidal faunal species e.g. barnacles, limpets and topshells and common seaweeds and track changes in distribution over time. Temperature changes could alter the abundances in Europe of northern and southern intertidal species and possibly alter their geographic ranges and distribution

Actions to Mitigate the Effects of Climate Change on Biodiversity

Natura 2000 Sites

Dublin City Council will:

- ◆ Ensure continued stringent protection of Natura 2000 sites currently 3649 hectares, which, together with connectivity between them are essential to mitigate against the effects of climate change
- ◆ Create a network of corridors linking Natura 2000 sites to each other, to green areas and to Dublin City conservation areas. Corridors must be appropriate, for example native Irish hedgerows/tree corridor, canal/river, wetland area, and parks. A cohesive network will allow the most resilient habitats and species to migrate and therefore it would provide the source for shifting ranges of habitats and species
- ◆ Open up culverted streams and rivers. This is a mechanism of creating a corridor for species to move and adapt with changing climate. It is also providing much needed waterbody habitats for many species

Coastal Defence

Dublin City Council will:

- ◆ Use soft engineering options where possible. Soft engineering methods that can be employed to reinforce coastal defences. These allow for natural and continued accretion of three Natura 2000 sand dune habitats that occur in Dublin. It also allows the coastline to continue augmenting its natural defences against rising sea levels
- ◆ Provide coastal defences to protect the community and reduce risk of flooding
- ◆ Ensure that any reclamation of estuary land will be carried out in a sustainable manner
- ◆ Ensure that there will be no removal of sand from beaches. Measures to protect and rehabilitate dune systems will be implemented
- ◆ Ensure that all coastal defence measures are assessed for environmental impacts

Planning

Dublin City Council will:

- ◆ Conduct an evaluation of the impacts and threats of climate change on ongoing planning and development projects both from the mitigation and adaptation perspectives
- ◆ Maintain valuable mitigation habitats such as wetlands and forested areas

Biodiversity

Actions taken by Dublin City Council

Image: Dublin City Council



Bull Island Mudflats.

Planning contd.

Dublin City Council will

- ◆ Identify opportunities for new habitats, buffer zones and wildlife corridors
- ◆ Ensure minimal and appropriately assessed development along riverine zones, including buffer zones

species which in turn are needed as food for higher animals such as birds, bats, otters etc.

- ◆ Provide Integrated Constructed Wetlands with appropriate planting
- ◆ Use semi-permeable paving where possible to allow for seepage and to create habitat for micro organisms

Wetland Provision

Dublin City Council will:

- ◆ Provide of new wetlands throughout the city. With increased temperatures there will be higher rates of evapotranspiration, which will cause drying of wetland areas. Artificial wetlands will be needed to act as attenuation ponds and also to provide habitat to fish, amphibian, invertebrate

Invasive Species

Dublin City Council will:

- ◆ Create a policy to eradicate invasive species
- ◆ Survey distribution of grey and red squirrel populations and formulate a management plan for the conservation of the red squirrel

Summary of Indicators

The list below summarizes all the twelve indicators mentioned above:

	Indicator	Units of measure
1	Total CO ₂ Emissions	Tonnes CO ₂ / capita / yr
2	Dublin City Council Renewable Energy share	% of Dublin City Council consumption
3	District / group heating units	No of connections
4	CHP Units	No of installations
5	A & B Rated buildings - residential	% of all buildings
6	A & B Rated buildings – commercial / public buildings	% of all buildings
7	Pedestrians & cyclists	Persons crossing canals
8	Dublin Bus & LUAS	Passengers trips/year
9	Organic waste diverted	Tonnes/year
10	Recycled waste	% of waste recycled
11	Tree canopy cover	No. of trees
12	Zoned land Z9, Z11, Z12	Hectares