



West Dunbartonshire Council

Climate Change Strategy

‘Tackling Climate Change’ 2012



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1.0 Background

climate change

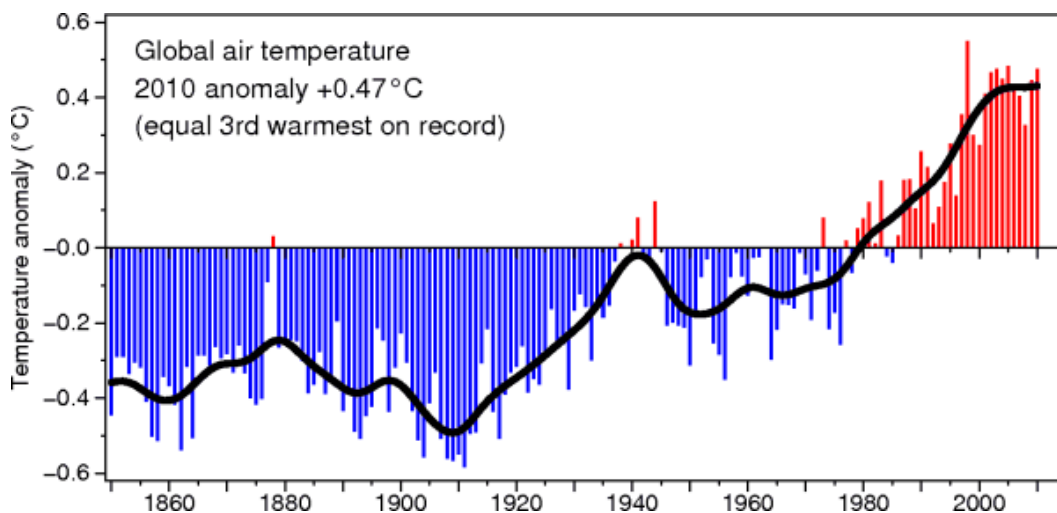
the change in global climate patterns apparent from the mid to late 20th century onwards, attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels

The Scottish Government has acknowledged that climate change is one of the most serious threats facing the world and that it will have far reaching effects on Scotland's economy, its people and its environment. Scotland is leading the way in terms of legislation on tackling climate change and this document outlines what West Dunbartonshire Council aims to achieve at a local level to contribute to this challenge.

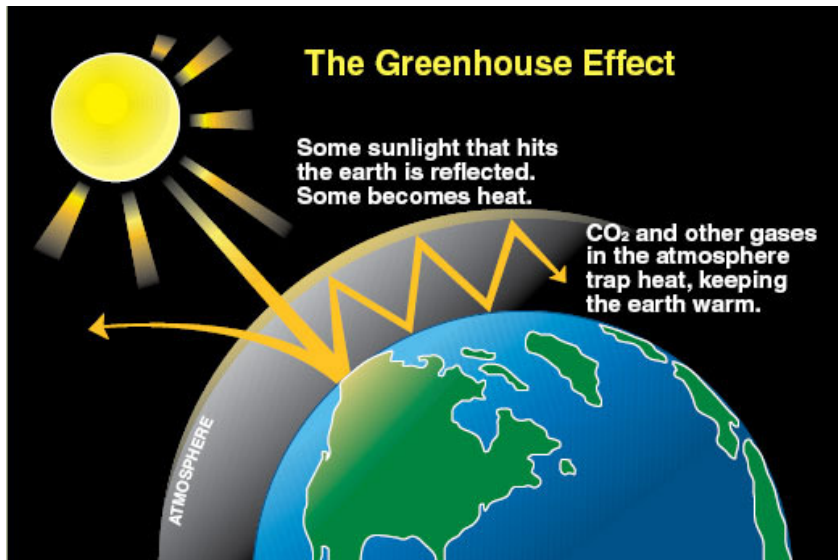
1.1 Evidence of climate change

In 2007, the Intergovernmental Panel on Climate Change (IPCC), the world's most authoritative body on climate change, concluded that *most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic (man-made) greenhouse gas concentrations.*

Since the Industrial Revolution, there has been a steady rise in global temperatures, leading the IPCC to this conclusion. This rise is demonstrated graphically below.



The increase in greenhouse gas concentrations has led to what is known as 'global warming' with the gases essentially forming a barrier which traps too much heat in the Earth's atmosphere (see image below). Of the 'basket' of greenhouse gases, carbon dioxide (CO₂) is the most prevalent. The term 'carbon' is generally used to refer to the basket of greenhouse gases.



There is compelling evidence of the changes to Scotland's climate – from 1914 to 2004 the following changes have been observed:

- Recent temperatures for Scotland are the highest on record with average annual temperature increasing 1 °C between 1961 and 2004,
- Annual precipitation in Scotland increased by 21% between 1961 and 2004, with an almost 70% increase in winter precipitation for Northern Scotland,
- There has been a 25% reduction in winter days with snow cover and a 25% reduction in frost days – the snow season has shortened, starting later and finishing earlier in the year,
- The growing season is now nearly 5 weeks longer
- Sea level at all of Scotland's ports has been rising with the rate now exceeding a 3-4mm per year increase in 9 out of 10 ports.

1.2 Impact of climate change

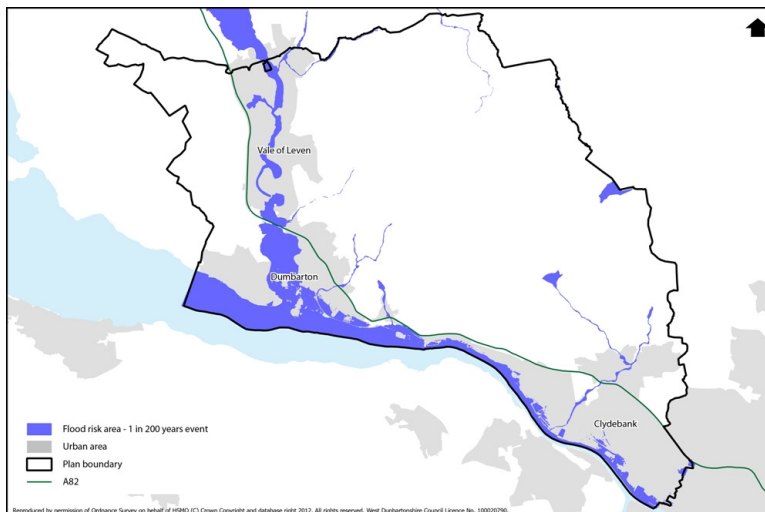
'Climate is what you expect, weather is what you get'
(Robert A Heinlein)

The effects of climate change can be felt in many areas of our lives, notably impacting on the economy and health and well-being, as well as physical impacts on the environment and biodiversity. The *Stern Review* (2006) which examined the effect of climate change on the world economy, stated that

'evidence shows that ignoring climate change will eventually damage economic growth, on a scale similar to those associated with the great wars and economic depression in 20th century'. Further to this, the Review highlights the need to take action to reduce emissions as a priority and employ measures to help people adapt to the consequences of climate change – these two approaches are addressed in detail in this document.

Examining future climate projections can help to illustrate the potential impacts of climate change on daily life, and plan for future measures to deal with these impacts. That is not to say that climate change will have an entirely negative impact on the local area; indeed, examining future climate scenarios will highlight some opportunities, but it is imperative that the potential negative impacts are identified and addressed.

The *UK Climate Projections 2009* estimate that (under a medium emissions scenario) the average winter temperature in the west of Scotland will increase by 1.2°C by the 2020s and 2°C by the 2050s. This news may be welcomed following some particularly harsh winters when keeping warm has been an issue for many households. However, this should be tempered with the estimated increase in winter precipitation 7% by the 2020s and 15% by the 2050s. This means WDC has to be far more prepared to deal with flooding events and the associated impacts such as travel disruption and damage to property and roads, as well as the impact on well-being, for example, stress-related conditions as a result of dealing with flood damage. The 2011 National Flood Risk Assessment, for example, identifies a significant proportion of West Dunbartonshire is *potentially* at risk of flooding (see map below).



Average summer temperatures look set to rise by 1.4°C by the 2020s, increasing to 2°C by the 2050s. Coupled with this, summer precipitation is estimated to decrease by 6% by the 2020s and 13% by the 2050s. Drier summers could have a positive impact on tourism locally and general well-being if people spend more time taking part in outdoor pursuits. However, the warmer temperatures could see more cases of heat-related illnesses,

increase the risk of skin cancer and the reduced precipitation could result in water shortages impacting on agriculture and biodiversity in particular (although the growing season will be longer).

Sea level rise should also be considered as a potential threat to West Dunbartonshire given the proximity to the River Clyde. It is projected that (Scottish average) sea levels will rise by 5.7cm by the 2020s (from 1990 levels) and 13.9cm by the 2050s.

To summarise, as a result of a changing climate, we are likely to experience:

- Reduced frost and snowfall
- Extreme precipitation events
- Increased flooding
- Heatwaves and extreme temperatures
- Drought and water shortages
- Sea level rise

And need to be better prepared to deal with the consequences of these changes to our climate.

1.3 Policy Drivers

Climate Change (Scotland) Act 2009

There are a number of pieces of legislation which oblige local authorities to take action to address climate change as well as preparing for the effects of climate change. Most notable of these is the Climate Change (Scotland) Act 2009. This ground-breaking legislation commits Scotland to reducing greenhouse gas emissions by 42% by 2020 and 80% by 2050. Further to this, the Act requires that a public body must, in exercising its functions, act:

- in the way best calculated to contribute to delivery of the Act's emissions reduction targets,
- in the way best calculated to deliver any statutory adaptation programme,
- in a way that it considers most sustainable.

These duties came into force on 1 January 2011 and compliance is a legal obligation. The Act also gives Scottish Ministers the power to expand upon these duties. The Government has provided guidance on the duties but it is down to each public body to make its own interpretation of how it fulfills these duties. This document forms an essential part of WDC's approach to meeting the duties placed upon local authorities by the Act.

Scotland's Climate Change Declaration

All local authorities in Scotland have committed to deliver action to support

Scotland's Climate Change Declaration. West Dunbartonshire Council signed the Declaration in January 2007 and action has been ongoing to ensure the authority addresses the commitments in the Declaration, including production of an annual report. The full list of Declaration commitments can be found in Appendix A.

The Climate Change Action Plan (see Section 5.0) takes cognisance of the commitments in the Declaration to ensure a robust approach to tackling climate change issues.

Carbon Reduction Commitment

The CRC Energy Efficiency Scheme (CRC) is a new mandatory emissions trading scheme that aims to improve energy efficiency and reduce the amount of carbon dioxide (CO₂) emitted in the UK. Participants have to monitor their emissions and purchase 'allowances' for every tonne of carbon they emit. The more CO₂ an organisation emits, the more allowances it has to purchase. So there is a direct incentive for organisations to reduce their emissions.

The Scheme launched in 2010 (although the first purchase of 'allowances' is not required until 2012) and WDC reported on over 24,000 tonnes of CO₂ – at a cost of £12/tonne, this will cost the authority over £280,000 every year if steps are not taken to reduce energy consumption.

Low Carbon Scotland

The Scottish Government is committed to Scotland becoming a low carbon society. To support this transition, the Government has produced *Low Carbon Scotland*, a flagship set of publications on climate change, energy and the low carbon economy including the Low Carbon Economic Strategy, the Energy Efficiency Action Plan, and the Public Engagement Strategy which outlines the Government's approach to informing people about what they can do to help Scotland take action on climate change.

Scotland's Climate Change Adaptation Framework

Acknowledging that climate change is happening, it is important to not only reduce emissions, but to prepare for the disruptive effects of climate change. This Framework aims to lead climate change adaptation across all sectors to increase the resilience of Scotland to deal with the impacts of climate change and reflects the challenges of climate change which are too great to be dealt with by any single organisation or workstream. It features 12 Sector Action Plans, outlining the key issues and identifying appropriate actions.

Green Deal

The Energy Act 2011 included provisions for the Green Deal – a new financing framework to enable improvements to the energy efficiency of properties, with the intention of reducing carbon emissions cost effectively by revolutionising the energy efficiency of British properties. Green Deal covers

energy efficiency measures such as wall and loft insulation, boiler upgrades, lighting improvements, ground source heat pumps and solar panels.

Green Deal will enable individuals and businesses to make energy efficiency improvements to their buildings at no upfront cost. They will have access to the finance needed for improvements with repayments attached to the electricity bill, spread over a number of years and paid in instalments (similar to a mortgage).

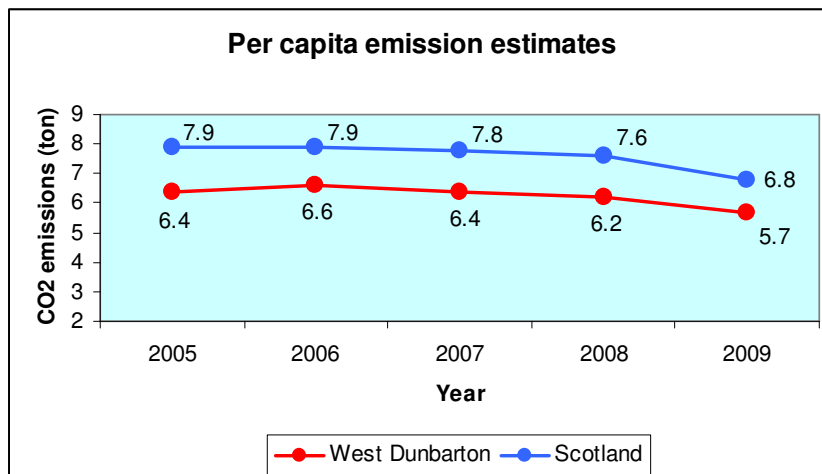
The Green Deal offers WDC a new source of revenue to enhance the energy efficiency of Council property. Further to this, it offers other potential benefits including:

- Helping to reduce fuel bills for local residents and businesses
- Opportunities for local economic and physical regeneration
- Support for the maintenance and generation of local jobs and skills

Local authorities are well placed to champion the Green Deal locally and WDC should consider its approach to delivering the Green Deal to get the greatest benefit for residents, business and to enhance Council property.

1.4 Carbon Footprint

The carbon footprint of an area is an estimate of the carbon emissions produced by those living in the area. In West Dunbartonshire, the carbon footprint is relatively low in comparison to other regions of Scotland – the latest figures released by the Department for Energy and Climate Change show a decrease in carbon emissions per capita since 2006 – from 6.6 tonnes to 5.7 tonnes per capita in 2009. These figures consider emissions considered to be ‘within the scope of the Local Authority’, namely emissions from the domestic, transport, and industry & commercial sectors. See figure below for details of emissions since 2005 in West Dunbartonshire and Scottish average emissions.



Since 2008 emissions have decreased in almost all local authorities across the UK and, by sector, there have been similar results across all local authority areas with decreases in emissions from the domestic sector, road transport and industry.

The footprint in West Dunbartonshire remains below the national average – in 2009 for example, emissions were 5.7 tonnes per capita in West Dunbartonshire compared to 6.8 tonnes nationally, although there was a greater drop in emissions nationally than at a local level from 2008 to 2009. The low footprint in West Dunbartonshire may be influenced by low levels of car ownership in the area and pockets of deprivation meaning residents consume less than in other areas of high affluence. The global downturn will also have had an impact in reducing emissions. While improving the local economy is a priority, it is important to achieve this with a sympathetic attitude towards climate change.

1.5 Statement of Intent

This Strategy aims to achieve the following:

- A significant reduction in greenhouse gas emissions from Council operations, and from the Council area as a whole (from homes and business);
- Ensure the Council, and its partners, are better prepared to deal with the current and future impacts/consequences of climate change;
- Identify ongoing activity that contributes to climate change mitigation and adaptation and develop new policy and action to address any gaps in our approach;
- Embed climate change mitigation and adaptation action throughout the organisation to ensure it becomes integral to the operation of the Council;
- Ensure the climate change agenda is acknowledged in future Corporate Plans (and departmental service planning) and the SOA and integrated into Council decision-making processes.

An Action Plan has been developed for this Strategy; however, the intention is that this element of the Plan will be very much an evolving piece of work, acknowledging the pace of change in both legislation and technology. Further to this, as climate change issues become further embedded in the operation of the Council (particularly in terms of emissions reduction) it is anticipated that more innovative, forward-thinking actions will be developed. Initially, the further development of the Action Plan will take place through the Sustainability, Energy & Carbon Management Group.

With regards resource implications of any proposed or future actions, this will be carefully considered; however, it should be highlighted that the majority of actions relating to climate change are essentially 'spend to save' proposals.

In terms of funding for actions, the Council has access to the Central Energy Efficiency Fund (CEEF) – a Government funding stream which gives the Council autonomy to fund projects which reduce energy consumption in Council property. The initial outlay is then paid back to the fund over a number of years based on the anticipated payback period for each individual project so the CEEF fund is a rolling source of funding. The Council also receives some funding support from the Carbon Trust for projects to enhance the Council's approach to carbon management, and for technical surveys for any type of proposed project which will reduce carbon emissions. Further to this, the Renewable Heat Incentive and Feed-In Tariffs are Government incentive schemes which guarantee a fixed income over a number of years for the generation of renewable heat (eg. biomass boiler) or renewable electricity (eg. solar panels). WDC could access this income generation stream if eligible renewable energy systems were installed in Council property.

This Strategy is a cross-cutting document which has links to a number of other policies and plans, including:

- Carbon Management Plan
- Local Transport Strategy
- Zero Waste Plan
- Curriculum for Excellence
- Economic Development Strategy
- Sustainable Procurement Policy
- Local Development Plan
- Asset Management Strategy
- Single Outcome Agreement 2011-14
(Local Outcome 2.7 Reduced Greenhouse Gas Emissions)
- Corporate Plan 2011-15
(Priority: Improve environmental quality and sustainability
Priority: Improve sustainability of the transportation network)

2.0 Mitigation

Climate change mitigation essentially involves taking steps to reduce emissions which contribute to climate change with the goal being to stop climate change worsening. The Council contributes to this agenda through a number of projects and demonstrates commitment in the SOA to reducing greenhouse gas emissions.

2.1 Carbon Management Plan

WDCs Carbon Management Plan (CMP) outlines how the Council will take steps to reduce its direct carbon emissions - those emissions resulting from Council services and operations such as energy use in Council buildings, the vehicle fleet, and waste production.

The Carbon Management Plan forms the basis for a significant element of the Climate Change Action Plan - it has provided a baseline of carbon emissions which can be used to monitor progress and has outlined a number of emissions reduction measures and ways to establish a low carbon culture within WDC.

The CMP also set a target of reducing carbon emissions by one third by 2015 – to date there has been a 13% reduction in emissions. The target of a one third reduction is particularly challenging and can only realistically be achieved with significant investment in efficiency projects and through the property rationalisation agenda. The following section outlines some current and identified action in key areas.

2.2 Energy and Asset Management

Consumption of energy makes up the majority of the Council's direct carbon emissions (over 80%) at a cost of over £4 million (2010/11). This area provides the greatest opportunity to reduce emissions, and also make significant financial savings. Energy saving projects are ongoing including draught-proofing and insulation work, boiler replacements, thermostatic radiator valves, lighting replacement, heating management, monitoring and targeting, and smart metering. Closely linked to this are measures relating to ICT equipment which will also result in reduced energy consumption such as printer and server rationalisation and powersaving measures.

Alongside projects to improve efficiency, the Council is also preparing a Business Case (see Section 2.7) to create a wind farm locally which would have the capacity to produce up to half of the Council's annual electricity demand, significantly reducing energy costs and the associated CRC Energy Efficiency Scheme burden.

Major inroads in terms of reducing energy consumption can also be made through property rationalisation which is being considered for a number of properties including offices, depots, schools and care homes.

2.3 Transport and Travel

WDC has a fleet of 350 vehicles, which makes up 10% of the Council's direct carbon emissions. A number of measures to reduce fleet emissions are being introduced including assessing the requirement for vehicles, and introducing initiatives to improve fuel efficiency. The assessment for vocational drivers now features an element of 'eco driving' which aims to minimise fuel use through efficient driving. An engine efficiency monitoring programme has also been initiated which has the potential to reduce fuel consumption by 5-10%, thereby reducing emissions, through close monitoring of, for example, engine idling, miles travelled, and speeds. These measures have been successful in reducing emissions from the Council's fleet by 17% since 2006/07.

WDC has a green travel plan for employees to encourage, and provide measures to support, more sustainable modes of travel - included in this are the Cycle to Work, Bus Token and Car-share schemes. Business travel makes up 18% of transport related emissions and represents a significant cost to the Council. Tackling these emissions will be addressed through a Business Travel Policy which focuses on a sustainable travel hierarchy, questioning the need for travel as top priority, then choosing to travel in the most sustainable way.

2.4 Waste

Methane is the primary greenhouse gas emitted from waste in landfill sites. It is far less abundant than carbon dioxide but it is around eighty times more harmful in terms of contribution to the greenhouse effect. Reducing waste to landfill is a major priority for the Council and there is a target of reducing internal waste sent to landfill by 50% by 2013. The majority of Council properties now have access to a blue bin/bag recycling service (for paper, card, plastic containers and cans) and waste prevention measures are widely promoted, ie. printing double-sided, furniture reuse. These measures have seen a significant reduction of 31% less waste from Council properties being disposed at landfill.

2.5 Schools

All West Dunbartonshire schools (including Early Education & Childcare Centres) are registered with the Eco-Schools programme which rewards schools who demonstrate their commitment to continuously improving their environmental performance, integrating environmental awareness and action into school life, and engaging the wider community. To date, 28 schools and EE&CC's have achieved the Eco-Schools 'Green Flag' status. Approximately 50% of the Council's energy consumption is made up of the demand from schools. Similarly, around 40% of the Council's total waste comes from schools. So while the schools estate represents a significant challenge for reducing emissions, there are also many opportunities here, through linking to the Eco-Schools programme, engaging with pupils, as well as installing physical measures to improve the efficiency of school buildings. The new

PPP schools, for example, make use of geothermal technology to deliver a renewable heat source to the school buildings.

2.6 Procurement

The Scottish Public Sector procurement spend is estimated to be £8 billion per year, with Councils spending approximately £2.3 billion. This has huge impacts in terms of the economy and the environment. West Dunbartonshire Council spends around £90 million per year; almost 4% of the national local authority spend on goods services and works.

Sustainable Procurement or 'Procuring the Future' can be defined as a process whereby organisations meet their needs for goods, services and works in a way that achieves value for money on a whole life cost basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment. Leading by example, within our community, the Council has a significant role to play in minimising the environmental and social impacts of the goods, services and works it purchases, for example:

- Reducing its emissions through examination of whole-life costs for goods, services and works, for example, the materials and energy consumption used in production, delivery distance and methods, consumables and replacement parts, and safe disposal;
- Reducing carbon emissions through a reduction in energy, water consumption and vehicle emissions;
- Minimising waste through reducing, recycling (and avoiding wherever possible) packaging;
- Buying reusable, refurbished and recycled products and materials where these are available and appropriate to the specification.

One of the challenges of procurement in a large organisation is influencing and monitoring purchasing decisions. WDC is in the process of introducing a Category Management model for procurement which will help to address this. Category Management is a strategic, market focused approach where supply capability is fully aligned to business requirements. In a Category Management approach procurement staff work together with departmental staff to completely understand the need and the market and to select the best procurement route for the category. This will facilitate the inclusion of sustainable procurement policy into buying decisions. The Sustainable Procurement Policy will be updated to reflect this approach.

The Scottish Government has produced a Flexible Framework to enable organisations to measure their performance in various aspects of sustainable procurement. They are also about to consult on the introduction of a Sustainable Procurement Bill. WDC will carry out its initial assessment using the Framework and develop a Sustainable Procurement Action Plan which will

help to further embed sustainable procurement across the Council.

Sustainable procurement is not always the cheapest option and in implementing this approach, WDC recognises that costs may increase.

2.7 Securitisation Business Cases

Departments across the Council are developing Business Cases for a number of projects to be funded under the 'securitisation' proposal. Under the terms of the proposal the Council will be able to invest £35 million in projects that can demonstrate they would save the authority money in the long-term. These so called 'spend-to-save' schemes could include anything from new schools to more efficient energy consumption. A number of the proposed projects would contribute to the climate change agenda through a reduction in the Council's emissions, for example, through more energy efficient properties (being considered for care homes, schools, and Council headquarters); ICT infrastructure which supports home working; fleet replacement; street lighting replacement (to more energy efficient LED lighting); and a wind farm project which could potentially provide up to half of the Council's energy demand. It should be noted that this is just one funding option to deliver these projects along with current funding methods such as prudential borrowing.

2.8 Air Quality

Air quality and climate change are closely related. Many common air pollutants (notably those from transport emissions) contribute to global warming and the processes of managing air pollutants and greenhouse gases are also interconnected. Developing an integrated approach to tackling these issues can be beneficial, for example, the benefits of reducing greenhouse gas emissions will be felt several decades in the future, whilst air quality benefits are felt 'here and now' in the form of improved public health and natural environmental quality.

Air quality has improved greatly over recent years; however, increasing traffic levels are forecast to start offsetting these gains unless more is done. In West Dunbartonshire, nitrogen oxide and particulate matter (mainly from road transport) are continually monitored. The Council's Local Air Quality Strategy highlights ways in which WDC can achieve the best possible air quality within the council area through monitoring and also promotion/awareness-raising of the causes and issues around air quality. This includes vehicle emission testing and fixed penalty fines for idling vehicles. Other measures which contribute to improving air quality and tackling climate change include: alternative fuels, car clubs, travel plans.

Consideration should be given to the air quality impacts of any proposed biomass boiler systems. Biomass systems (generally wood fired) are being encouraged as part of climate change mitigation measures as the associated emissions are far lower than those associated with fossil fuels. However,

biomass systems can impact on local air quality and should be carefully considered/managed to limit any negative effect on air quality.

2.9 Mitigation Measures in the Community

There are a number of services, initiatives and projects in existence in West Dunbartonshire which contribute to reducing emissions. A few will be detailed here to illustrate the scope of projects to reduce emissions. WDC is responsible for a number of these and there are also several other public agencies (and private companies) operating nationally whose work involves climate change mitigation, for example, Energy Saving Trust, Carbon Trust, and the Climate Challenge Fund.

The Council's Energy Efficiency Advice Officer provides energy advice for all local residents, including home energy surveys, social tariff and benefit checks, and referrals for subsidised insulation and new central heating systems. This project has huge potential to reduce carbon emissions locally – based on the assistance provided to date, and referrals for insulation or central heating work, the total carbon savings over the lifetime of the measures (eg. lifetime of a new central heating system) is 14176 tonnes.

In partnership with SPT (Strathclyde Partnership for Transport), WDC organised a sustainable travel promotion in Dumbarton in 2009. This involved offering local residents information on travel alternatives with the aim of reducing reliance on the car. Feedback from SPT suggests that the promotion was successful but as it was a one-off event, there is a need to look at more long-term solutions to support modal shift.

Household recycling services have been in place in West Dunbartonshire for a number of years and the area is now recycling and composting 38% of household waste (2010/11). Low-level homes have bins for the collection of dry recyclate and organic waste and the Council has recently moved to a fortnightly collection of recyclate alongside reducing the frequency of collection of the residual bin to fortnightly. These services are supported by promotion of waste prevention measures with the long-term goal of Scottish Government being 'Zero Waste Scotland' where all waste is seen as a resource, waste is minimised, valuable resources are not disposed of in landfills, and most waste is sorted, leaving only limited amounts to be treated.

WDC is planning a new project with local business to assist them in reducing their carbon footprint. The project is led by the Crichton Carbon Centre who have significant experience of working with business to enable them to improve the efficiency of resource use with their business. The project has three broad objectives which contribute to tackling climate change as well as enhancing sustainable economic growth locally:

- Environmental: improve resource efficiencies
- Economic: release working capital, create new jobs
- Social: increase employee engagement

An action for Tackling Climate Change will be to identify all services,

initiatives, and projects taking place in West Dunbartonshire which contribute to reducing emissions. Further to this, it will be important to identify any gaps then look at the best way of addressing this through examples of good practice elsewhere. Where a service, initiative or project does exist, it is important to assess the impact of this in terms of reducing emissions and any opportunity for enhancement. The Council does not have the same influence over residents' behaviour as employees, but it is required to attempt to affect behavioural change and should serve as a key point of contact for local residents' queries or concerns regarding climate change and its impacts.

Tackling climate change should not be viewed as an 'add-on'. Looking to the principles of sustainable development, it should be acknowledged that our economic, social and environmental needs are interdependent and one cannot thrive at the expense of another. Put simply, if the threat of climate change is not met head on, it will have considerable consequential impacts on the economy and society.

Mitigation Objectives

- Raise awareness of climate change issues and mitigation measures to all stakeholders with a focus on individual action and embedding mitigation in the operation and service provision of the Council.
- Promote energy and water efficiency, encourage the installation of suitable measures and investigate opportunities for renewables.
- Develop sustainable travel opportunities.
- Address the aspirations of the Zero Waste Plan (where all waste is seen as a resource; waste is minimised; valuable resources are not disposed of in landfills, and most waste is sorted, leaving only limited amounts to be treated).
- Influence buying decisions through the development of a Sustainable Procurement Action Plan, in line with the Scottish Government's flexible framework, and refreshing the Sustainable Procurement Policy.

3.0 Adaptation

All public bodies need to be resilient to the future climate and to plan for business continuity in relation to the delivery of their functions and the services they deliver to the wider community.

Public Bodies Climate Change Duties: Putting them into practice, Scottish Government 2011

Adapting to climate change means looking at ways to alleviate the current (and future) effects of climate change, such as extreme weather events. Scotland's Climate Change Adaptation Framework is designed to guide action in this area stressing that early and co-ordinated adaptation will help minimise the impacts of costly disruptions and safeguard the long-term prosperity of the environment, economy and communities.

Adaptation can involve physical measures that help to reduce vulnerability to climate risks, for example flood prevention schemes, or to exploit opportunities, or it can involve building capacity – providing information and supportive structures to deliver adaptation actions. Key to adaptation and developing a planned approach to adaptation are the following points:

- Buildings need to be fit for purpose in a future climate
- The natural environment is key – action to secure the ecosystems that support the economy and contribute to quality of life
- Water environment and resource management will become more complex
- Rising seas threaten Scotland's coastal communities and infrastructure
- Effective land use and development planning has a critical role in adapting to a changing climate
- Climate change may damage infrastructure and disrupt transport networks
- The demands on emergency and rescue services will change
- Impacts on health and wellbeing

West Dunbartonshire Council is involved in Climate Ready Clyde, the Glasgow and Clyde Valley area-based climate change adaptation project, supported by Adaptation Scotland. The project aims to *'provide organisations across Glasgow and the Clyde Valley with an opportunity to work together to learn more about how the region is likely to be impacted by changes in climate. It will also provide a forum for organisations to identify priority adaptation challenges and opportunities and implement work to address these'*. It provides West Dunbartonshire Council with a valuable opportunity to build networks across sectors and identify opportunities for joint working to address adaptation priorities; to share existing research and knowledge about climate change vulnerabilities, impacts and adaptation options; to build on existing work and establish new adaptation projects; and finally, involvement in the project offers WDC access to the latest climate science intelligence, including information about recent past and future projected changes in climate which can be disseminated to relevant services/officers in the Council

and Community Planning partners with a view to enhancing knowledge/understanding in this area and developing adaptive capacity locally.

3.1 Local Climate Impacts Profile (LCLIP)

One key element of climate change adaptation is preparing a Local Climate Impacts Profile - this examines local weather events over a period of 5-10 years to come up with an accurate representation of the local climate. This enables us to examine the area's vulnerability to severe weather events and in particular how these events affected the local community as well as the council's assets and capacity to deliver services.

Producing an LCLIP will help the Council and its partners to be more prepared to deal with the negative impact of climate change - and also to take advantage of any positive impacts. This will also help to identify opportunities for integrating adaptation effectively into appropriate plans and policies.

3.2 Flood Prevention

Flooding has become an important issue within certain parts of West Dunbartonshire, with areas of Dumbarton subject to tidal and/or fluvial flooding (River Leven) and burns affected by flash flooding. Carriageway draining is also an issue which causes travel disruption.

Looking at the predicted future climate, the increased precipitation could potentially lead to an increase in flooding events so action taken now will reduce the impact of these events in future. WDC is in the process of introducing flood prevention schemes at Knowle Burn and Gruggies Burn in Dumbarton.

The Council is also working with consultants to assess flood risk along the River Leven as part of a wider area-wide study to determine local flood risk and produce flood risk maps. The proposed Lomond Canal project (linking the River Clyde and Loch Lomond) would, if implemented, integrate flood prevention works into the canal construction.

As part of the approach to flood prevention, a regular maintenance schedule is being developed to ensure watercourses remain clear of debris etc to further minimise the risk of flooding – this is particularly important when severe weather is predicted.

It is also important for local residents to understand their responsibilities with regards flood risk to their homes and to be given guidance on appropriate action. While these flood prevention schemes should reduce risk to a number of homes in West Dunbartonshire, being prepared is still key to minimise any disruptive impacts of future flood events.

3.3 Road Network

The Local Transport Strategy for West Dunbartonshire acknowledges the threat of climate change and the impact on the road network, notably flooding, pointing out that older drainage systems are generally sub-standard in terms of capacity and that some drainage systems are in poor condition, again impacting on capacity.

As detailed earlier, WDC is pursuing flood prevention works; however, the Local Transport Strategy does highlight the significant cost of such works and, coupled with the availability of funding, this may become an even greater issue in future if flooding events become more frequent and extreme. The Strategy promotes the use of SUDS (Sustainable Urban Drainage Systems) for new transport schemes to alleviate run-off.

The Roads & Transportation Winter Maintenance Strategy is updated annually with performance indicators reviewed weekly over the winter maintenance period (October – April). This information will be useful for the purposes of producing an LCLIP and could be used to inform further adaptation action in terms of preparedness for winter conditions on the roads and footways.

3.4 Land Use Planning

The Local Plan has a major role to play in climate change adaptation, providing a land-use planning framework and guiding development in West Dunbartonshire while ensuring the maintenance and enhancement of the quality of the environment.

The Plan requires for example, that new development be energy efficient and consider options for micro-renewables, that there is provision for public transport, pedestrian and cycling access and Green Travel Plans are considered, and that waste is minimised. It also takes cognisance of national and strategic guidance on flooding and as such the Council resists development on flood plains or any development that would increase flood risk and SUDS (Sustainable Urban Drainage Systems) are encouraged.

The Council is currently preparing a new Local Development Plan (LDP) for West Dunbartonshire which will supersede the Local Plan and will set out proposals for the future use of land in the area to 2025. The development of this new Plan provides a valuable opportunity to take account of opportunities to plan for adaptation. A number of issues relevant to climate change have been identified in the Main Issues Report as part of extensive consultation on the development of the LDP; these include wind energy, reducing emissions from new buildings, flooding, 'Fastlink' (bus-based public transport link), developer contributions, enhancing the Green Network, and amending green belt boundary.

3.5 Greenspace & Biodiversity

Greenspace offers significant opportunities to contribute to climate change adaptation; however, it is widely acknowledged that there is a lack of understanding of this potential. Greenspace Scotland are working to address this by developing both policy and exemplar projects to show the role of greenspace in tackling climate change mitigation and adaptation.

Looking at specific issues, greenspace can alleviate flooding either through storing water, slowing its progress to the ground or allowing water to seep into soil rather than drains. Floodplain greenspaces can be beneficial allowing flooding in an area where minimal damage will be caused but also as resource at other times. With regards the projected increase in temperatures, well-managed greenspaces can alleviate the impacts of temperature rise, for example, greenspace can reflect solar energy and installing measures such as green roofs is shown to significantly cool buildings. In addition, greenspace offers shading and access to water (which cools the surrounding area) which provides respite in hot temperatures and would support/encourage outdoor lifestyles.

With respect to biodiversity, West Dunbartonshire is moderately served with habitats that could help buffering the effect of climate change on local biodiversity. For example, woodlands and peat bogs act as 'carbon sinks' that can help reduce the effects of climate change through carbon sequestration and wildlife corridors can facilitate the movement of species affected by the changes in the local climate, ie. species moving further north as the climate gets warmer. Although, this may bring in new pest species from further south impacting on biodiversity and greenspace.

3.6 Emergency Planning

WDC has a Civil Contingency Plan which is activated in the event of an emergency incident. In terms of severe weather incidents, this Plan controls and co-ordinates the response from council services, in conjunction with other organisations' and agencies' responses. The results of the LCLIP should feed into the planned response to severe weather, highlighting any additional areas or services which could be potentially affected by the consequences of severe weather.

3.7 Risk Register

A key action for this strategy will be the development of the risk register which will include risks associated climate change. This will identify potential opportunities from the successful implementation of this strategy as well as risks/impacts that would be associated with failure to implement.

Adaptation Objectives

- Develop greenspace management with consideration to the significant opportunities greenspace offers for adaptation.
- Develop flood prevention measures (policy and schemes).
- Investigate opportunities for local drainage solutions.
- Ensure local planning policy (and building standards) encourages opportunities for adaptation (and mitigation).

4.0 Awareness Raising

Awareness raising is a fundamental element of any climate change strategy. It is important for people to understand the reasoning behind the introduction of new initiatives in order for them to 'buy in' to participation, and to understand the principles of climate change adaptation to encourage behavioural change.

The Low Carbon Scotland – Public Engagement Strategy serves as a useful guide to raising awareness. The Climate Change (Scotland) Act 2009 included a requirement for the Scottish Government to publish a strategy setting out the steps they intend to take to:

- inform people in Scotland about the climate change targets specified by the Act
- encourage them to contribute to the achievement of those targets
- identify actions people in Scotland may take to contribute to the achievement of those targets.

The Strategy emphasises the importance of a joint approach to tackling climate change with government, the public, private and third sectors, communities, and individuals all making a contribution.

It also crucially addresses the impacts of climate change and the need for community, environmental and economic resilience. In addition to the statutory requirements of the Public Engagement Strategy, the Scottish Government will also work to:

- inform people in Scotland about the impacts and consequences of the changing climate
- encourage action to ensure communities are both prepared for the negative impacts, and able to take full advantage of the opportunities that a changing climate will bring.

One of the actions for Tackling Climate Change will be to identify the projects, initiatives and advice available to residents of, and business and organisations operating in, West Dunbartonshire in relation to climate change mitigation and adaptation. There is a need to ensure a clear and consistent approach to tackling climate change and to ascertain if all available opportunities are being utilised. This will help to identify any gaps in advice that WDC can address.

Internally, awareness-raising generally deals with mitigation opportunities and is covered by the Carbon Management Awareness Raising Campaign. Following the production of an LCLIP, there will be the opportunity to turn the focus to improving understanding of the principles of climate change adaptation and discussion on what action can be taken to enhance the Council's resilience to tackling the impacts of climate change.

By taking early action to adapt West Dunbartonshire Council can:

- identify services, facilities, locations and communities that are highly vulnerable to climate change impacts,
- identify cost effective actions that build resilience,
- improve the capacity of stakeholder organisations to adapt to the impacts of climate change,
- exploit business opportunities that may emerge as a result of changes in climate, and,
- maintain reputation for delivering quality and effective services in spite of the challenge of climate change.

5.0 Climate Change Action Plan 2012

The Climate Change Strategy covers the period 2012-17. The list of actions is not exhaustive, further actions will be developed as the Council progresses this agenda. The Action Plan will be reviewed annually.

Energy & Asset Management

Action	Outcome/Target	Measurement	Responsibility
Introduce carbon management awareness raising campaign	Launched at first meeting of Sustainability Energy & Carbon Management group. To be fully rolled out over 2012/13. Aim to achieve 5% reduction by March 2015.	WDC carbon emissions.	Asset Management
Develop Energy Strategy	Will develop specific targets and policies to reduce Council's energy consumption. To be completed by March 2013.	WDC carbon emissions. Annual energy consumption.	Asset Management
Promote the use of CEEF funding (Central Energy Efficiency Fund)	Identify and implement spend to save projects under CEEF guidelines throughout 2012/13 to achieve reduction in energy consumption (specific targets to be set for individual projects).	Reduction in tonnage of WDC carbon emissions.	Asset Management
Continue to implement energy efficiency measures where funding allows, with initial priority given to low-cost/high-impact projects	Implement spend to save projects for 2012/13 to achieve reduction in energy consumption (specific targets to be set for individual projects).	Reduction in tonnage of WDC carbon emissions.	Asset Management
Produce guidance and targets for an increase in the use of renewable technologies in Council properties	Targets to be developed in new guidance. Long-term target of 20% of Council energy consumption supplied from renewable source by 2025.	Percentage of energy supply from renewable sources. Reduction in WDC carbon emissions.	Asset Management
Continue to reduce ICT energy consumption through printer and server rationalisation	Continuation of physical server rationalisation programme to significantly reduce ICT electricity consumption, to be completed by March 2013.	Reduction in tonnage of WDC's carbon emissions.	ICT
Develop a Water Management Strategy with a focus on water conservation	Strategy will outline measures to reduce water consumption; complete by March 2013	Reduction in water consumption.	Asset Management

Support community bids to the Climate Challenge Fund	Aim to submit 1 bid annually (reduction in emissions would vary based on project).	West Dunbartonshire carbon emissions per capita (Dept. for Energy & Climate Change statistics).	Asset Management
Produce climate change information for WDC internet	Information available from July 2012 - contributes to annual 0.1 tonnes/capita reduction in GHG emissions from WD.	West Dunbartonshire carbon emissions per capita (DECC statistics).	Asset Management
Produce Local Climate Impacts Profile	LCLIP produced by March 2013 (used as basis to develop WDC 'preparedness' for future extreme weather impacts)	Develop measurement through production of Adaptation Risk Assessment (Adaptation Scotland).	Asset Management
Integrate carbon/sustainability assessment into Committee reports	Ensure carbon/sustainability issues are considered in decision-making process, ensuring issues are embedded and a reduction in emissions. To be developed by March 2013.	West Dunbartonshire carbon emissions per capita (DECC statistics). Reduction in tonnage of WDC carbon emissions.	Asset Management

Transport and Travel

Action	Outcome/Target	Measurement	Responsibility
Review and update staff Green Travel Plan (<i>Westbound</i>)	5% reduction in single occupancy vehicle commuting, and 10% reduction in business travel (by car) by 2018.	Staff Travel Survey. Business Mileage claims.	Roads & Transportation
Introduce Business Travel Policy	Draft policy produced; launched/implemented by March 2013.	Business Mileage claims.	Roads & Transportation
Liaise with SPT to promote sustainable travel events	At least 1 event promoted annually - long-term target to see a continuing downwards trend in WD residents single occupancy vehicle commuting.	WD modal split for travel to work (Scottish Neighbourhood Statistics).	Roads & Transportation
Support local business to produce Green Travel Plans	At least 2 local businesses/organisations supported annually through production on GTP with targets.	Number of businesses assisted. WD modal split for travel to work (Scottish Neighbourhood Statistics).	Roads & Transportation

Progress flood prevention works and assess local flood risk	Flood prevention projects ongoing; Local Flood Hazard maps to be produced by SEPA by Dec 2013	Implementation of Knowle Burn Flood Prevention Scheme and promotion of Gruggies Burn FPS.	Roads & Transportation
Produce schedule for watercourse maintenance	Assessment of watercourses and schedule for watercourse maintenance WDC – complete by Dec 2012. Contributes to 'preparedness' for future extreme weather events. Ensures WDC meets requirements of the Flood Risk Management Act.	Production of register of all relevant watercourses and schedule of inspections. No. of inspections carried out annually.	Roads & Transportation
Produce guidance for local residents and business on flooding	Produced in partnership with SEPA and Scottish Flood Forum Guidance; available on WDC website from June 2012.	No of homes in identified vulnerable flooding areas issued with guidance.	Roads & Transportation

Waste

Action	Outcome/Target	Measurement	Responsibility
Carry out annual audit of Council operated properties and report on recycling rates per property/user department	Increased recycling rate from Council properties (aim 50% recycling rate). Audited annually. Due March 2013.	Percentage of dry recycle from Council properties.	Fleet & Waste Services
Introduce weekly food waste collection pilot scheme to 7-8,000 tenemental/flatted homes	Aim to collect an average 0.5 kg of food waste per household per week. Contributing to Zero Waste targets and reduction in landfilled waste. To launch November 2012.	Tonnage of food waste collected.	Fleet & Waste Services
Introduce food waste collection service to all Council operated property involved in food preparation	100% of food waste from Council food preparation properties recycled. Contributing to Zero Waste targets and reduction in landfilled waste. To be in place in relevant properties by January 2013.	Tonnage of food waste collected. Council property waste audit results.	Fleet & Waste Services
Develop an updated communication campaign based on the 2012 Zero Waste	Council wide promotion of aims and objectives of the Zero Waste Regulations Contributing to Zero	WD recycling rate.	Fleet & Waste Services

Regulations	Waste targets and reduction in landfilled waste. To be launched March 2013.		
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Schools

Action	Outcome/Target	Measurement	Responsibility
Produce and issue Cutting Carbon – Schools Information Pack	Pack issued to all schools by end school year 2012/13; 10 schools supported through Energy Audit process annually (and on rolling basis).	Reduction in carbon emission from schools.	Schools
Continue to support schools participation in Eco Schools programme	All schools to achieve 'Green Flag' status by 2018.	Number of schools with Green Flag (2 nd flag, 3 rd flag...).	Schools
Organise and promote Green Dream event (specifically schools award element of Green Dream campaign)	'Green Dream' event run annually with a target of 0.1 tonnes/capita reduction in GHG emissions from WD.	West Dunbartonshire carbon emissions per capita (DECC statistics).	Schools

Procurement

Action	Outcome/Target	Measurement	Responsibility
Develop a Sustainable Procurement Action Plan in line with the Scottish Governments flexible framework.	Framework assessed and plan for improvement developed by March 2013. Will ensure sustainable procurement is considered during procurement process.	Suitable measurement to be developed.	Procurement
Refresh Sustainable Procurement Policy	Policy approved and implemented by March 2013. Will ensure sustainable procurement is considered during procurement process.	Suitable measurement to be developed.	Procurement

Housing

Action	Outcome/Target	Measurement	Responsibility
Continue to access Government and Utilities funding (UHIS and from Oct 2012 Green Deal)	to support energy efficiency measures in residents' homes - annual 0.1 tonnes/capita reduction in GHG emissions from WD.	West Dunbartonshire carbon emissions per capita (DECC statistics). Percentage of residents in fuel poverty.	Housing

Appendix A

Scotland's Climate Change Declaration

- Work with the Scottish Government and the UK Government to contribute to the delivery of Scotland's and the UK's climate change programmes, including to reduce greenhouse gas emissions and to adapt to future climate change scenarios.
- Produce and publicly declare a plan, with targets and time-scales, to achieve a significant reduction in greenhouse gas emissions from our own operations. This will include our energy use and sourcing, travel and transportation, waste production and disposal, estate management, procurement of goods and services, and improved staff awareness.
- Ensure that greenhouse gas reduction and climate change adaptation measures are clearly incorporated into our new and existing strategies, plans and programmes, in line with sustainable development principles.
- Assess the risks and opportunities for our services and our communities of predicted climate change scenarios and impacts, and take action to adapt accordingly and in line with sustainable development principles.
- Encourage and work with others in our local community to take action to adapt to the impact of climate change, to reduce their own greenhouse gas emissions and to make public their commitment to action.
- Publish an annual statement on the monitoring and progress of our climate change response, detailing targets set, actions taken, outcomes achieved and further actions required.
- Collaborate with other organisations to promote good practice on climate mitigation and adaptation.