



Energy 4 Change

The Nottingham Community Climate Change Strategy 2012-2020



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Winner of a Future Vision of Nottingham
Primary School competition
Our Lady of Perpetual Succour Catholic Primary School



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Foreword – Councillor Alan Clark, Portfolio Holder for Energy and Sustainability

Our vision for Nottingham is clear. We want to create a prosperous, leading, low carbon and resilient city, maximising the opportunities for green growth, whilst protecting our residents from the impacts of extreme weather. This document aims to inspire, and encourage behavioural change, providing locally focused actions which are relevant to our communities.

Climate change is an opportunity to make small stepped changes to our lifestyles which reduce our carbon footprints and improve our quality of life. We can create secure energy for our city by using renewable sources to create energy, we can support our local economy by making sure the things we buy are locally produced, we can even help continue growth in our green economy by creating jobs for local people, manufacturing and installing products which help lower our consumption of energy. This strategy is about action, not rhetoric. It sets out simple actions that will help make a difference, that will help reduce our carbon emissions by 26% from 2005 levels by 2020, and future proof our city. There are some excellent community based activities already happening within Nottingham and this strategy aims to build on these, whilst helping other communities in starting up activities to reduce their dependency on carbon based lifestyles. We've set out a new city wide campaign "energy4change" which will inspire residents to make one small change to their lifestyle.

We start in an advantageous position. Nottingham can rightly be proud of our achievements in climate change, having been a founding signatory of the Nottingham Declaration on Climate Change back in 2000. By signing this declaration we committed ourselves to addressing the causes and consequences of climate change upon our city. In 2006, Nottingham City Council published a climate change review, a comprehensive assessment of the causes and consequences of climate change on Nottingham, containing over 60 recommendations. Since then key council services, as well as local partners, have been working hard to move Nottingham into a lower carbon future. Between 2005 and 2009 Nottingham reduced its city carbon emissions by 16.79%. This is due to the hard work and commitment of our residents, businesses, and transport users.

2010 saw the launch of the city Sustainable Energy and Waste Strategies which contain actions to provide energy security by generating 20% of our own energy from low or zero carbon sources by 2020, and providing a low carbon waste service, whilst delivering a recycling rate of over 55% by 2030. Latest data shows that we generate 11% of energy locally, and recycle over 35.6% of our household waste, so we are well on way to meeting these ambitious targets.

We were also one of the first UK local authorities to recognise the challenge of peak oil: this is the point when oil demand exceeds oil supply. Once production of oil has hit a peak it will still be produced but at a lesser volume, meaning the price of a barrel of oil will rise. Nottingham City Council recognised this back in 2009 and started making policies to reduce our dependency on oil.

This strategy has been produced with the help of individuals and organisations across Nottingham. We've listened to what you have been telling us at our Big Green Debates, and workshops held across the city. A big thank you to everyone who has been involved so far.

We are in a unique position now to lead Nottingham into a great low carbon future, a city where we have embraced the opportunities in climate change within our communities. We will reap the benefits as a city that has protected itself against rising energy prices and created jobs from a thriving, innovative green economy. The Council and its partners are showing leadership to move Nottingham towards this position, however none of this will be achievable without the support of our residents. I know that Nottingham people are rightly proud of our city, and I encourage you to have the energy for change.



Councillor Alan Clark

Portfolio Holder for Sustainability and Energy
Nottingham City Council

Our Support:

Nottingham Green Theme Partners

As chair of the Nottingham Green Partnership, I am pleased to endorse the Nottingham Community Climate Change Strategy. All of the partnership members are working towards a low carbon Nottingham, and this strategy helps in delivering behavioural change which is locally relevant and understandable to our communities.

Partnership members will work together in a co-ordinated way to help everyone in Nottingham to address our environmental issues and to sustain the quality of life of local people. Organisations in the public, private and voluntary sectors have already begun to channel their resource and the skills of their workforce to carry out vital work to reduce the city's environmental impact.

I am very pleased that the Nottingham Green Partnership has approved what we believe is a unique approach to making climate change locally relevant by ward based actions, and I look forward to the effective implementation of the Strategy.



Richard Barlow

Chair of Nottingham Green Partnership

We the undersigned support the vision, aims, objectives, and actions arising from this Community Climate Change Strategy for Nottingham. It is the responsibility of us all to reduce our carbon emissions and to improve resilience to climatic changes. We are therefore fully committed to providing help, resources and leadership to achieve the actions within this plan.



Introduction:

Welcome to Nottingham Community Climate Change Strategy.

This is our vision:

A city where you have access to secure, affordable local energy, where the buildings we use and live make the most of the natural environment, and are adaptable to our future climate.



A city with little congestion and vehicle use, and excellent public transport, and where vehicles are fuelled by renewable energy.



A city where you can buy local affordable food, where you have a place to breathe and enjoy the best of what nature provides.



A city where you have a secure career at the forefront of low carbon technology, within a thriving green economy.



Do you have the **energy for change?**



Building on our experience so far, our aim for this document is to clearly set out the simple steps we can all take to make this vision a reality. By working together, we can make a difference.

This strategy will:

- Inspire positive environmental behavioural change within the city.
- Make issues like climate change, sustainability, peak oil and energy use understandable and locally relevant, focusing on ward based actions.
- Engage with people in Nottingham who may never have considered environmental issues before, as well as those who are already involved.
- Support existing projects, and start up of new projects and activity. Many of these will require partnerships to work together and share ideas and resources.
- Demonstrate Nottingham's leadership and vision.
- Increase the resilience of our city by preparing for the impacts of climate change and taking advantage of the opportunities that it will bring.

These are some of the exciting benefits we can all experience:

1. Lower cost of living – reduced energy and food bills at home and access to cheaper, more active methods of travel.
2. Greater security of energy supply, for example from our extended district heating scheme, locally installed photovoltaic panels, and other renewable energy.
3. Enjoyment of clean, fresh air, improved health and well-being due to less pollutants from cars and local, good quality parks and green space.
4. A greater protection from, and resilience to extreme weather events such as flooding and heat waves.
5. A vibrant local economy, choice of local products and services, and less dependency on volatile global markets.

This strategy is for the whole of Nottingham: its residents, businesses, workers, students, and visitors. It looks at all our areas: towns, wards, estates, streets, offices, factories, places of education, open spaces. It covers our use of resources, our travel, and our leisure time. Our success will be measured by our ability to work together.

The strategy is unique in that we are identifying and helping to deliver specific local ward actions. By taking this approach we are making what is a **global** issue **locally** relevant and the actions identified within our local plans will aid the transformation of our city.

Background:

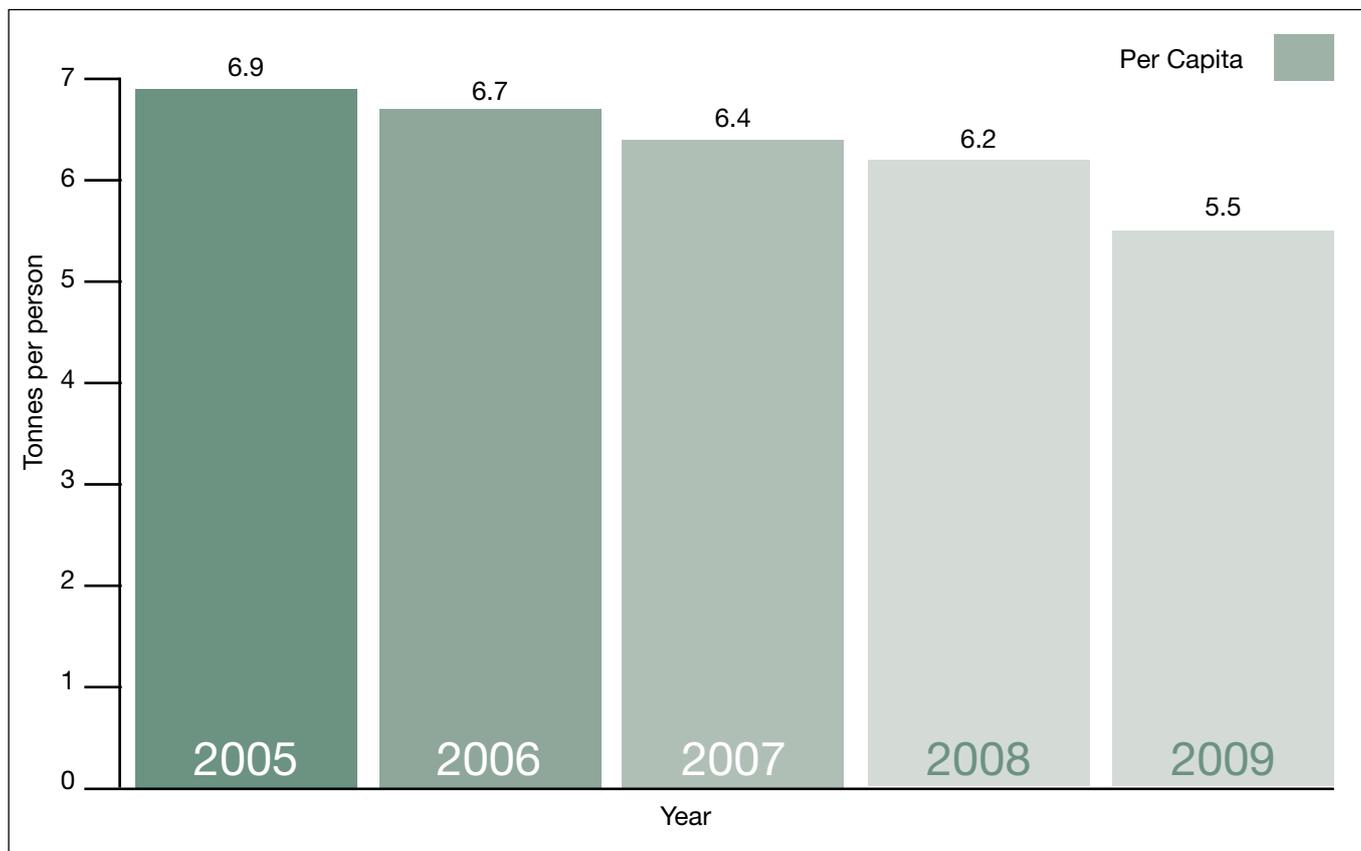
Where have we come from?

Nottingham starts in an advantageous position. Here are some headlines:

- 16.7% reduction in city CO₂ between 2005 and 2009.¹
- Most energy self sufficient city in the UK with 11% of heat and power generated from renewables and waste.²
- Nottingham Express Transit cuts congestion by 2 million car journeys per year.
- UK's cleanest big city in 2011-2012.
- Founding member of Nottingham Declaration on Climate Change.
- Least car dependent city in UK outside of London.
- Actively involved in promoting adaptation and advising the UK government.
- Installed over 1800 solar photovoltaic on social housing.

We have already made significant reductions in our carbon footprint. Our long-term target is to reduce city wide CO₂ emissions by 26% by 2020, based on a 2005 baseline (equivalent to 47% reduction on a 1990 baseline). Figure 1 illustrates how the carbon footprint of the average Nottingham resident has reduced since 2005, and figure 2 shows our position against the other Core Cities.

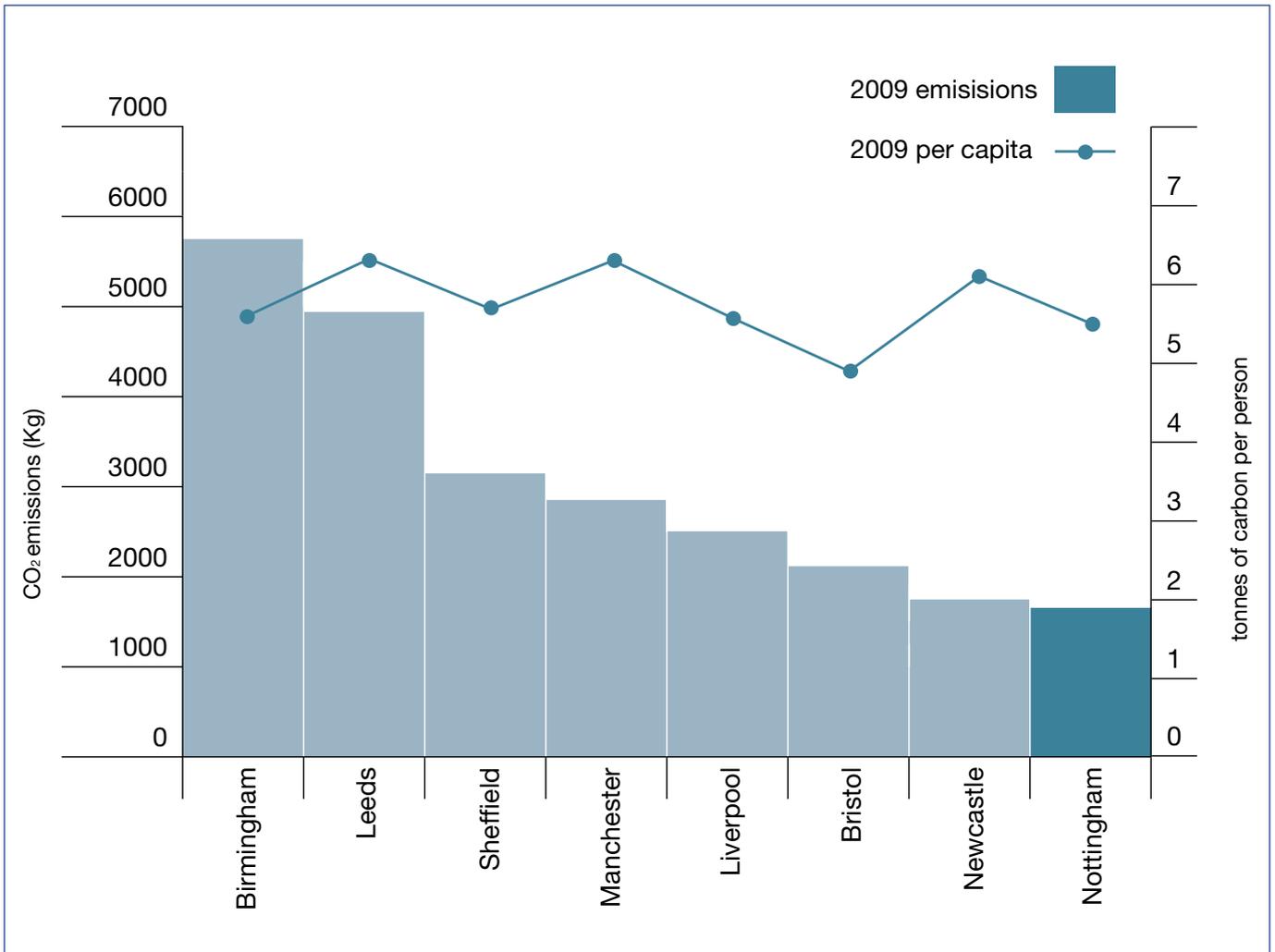
Figure 1. Annual CO₂ emissions per person in Nottingham



¹ Department of Energy & Climate Change – Carbon Dioxide Emissions with the scope of influence of Local Authorities 2009, data release September 2011

² Nottingham Energy Strategy 2010-2020

Figure 2. 2009 Core Cities CO₂ position



In 2009³, we had the lowest total carbon emissions of all the Core Cities, and the second lowest per person emissions.

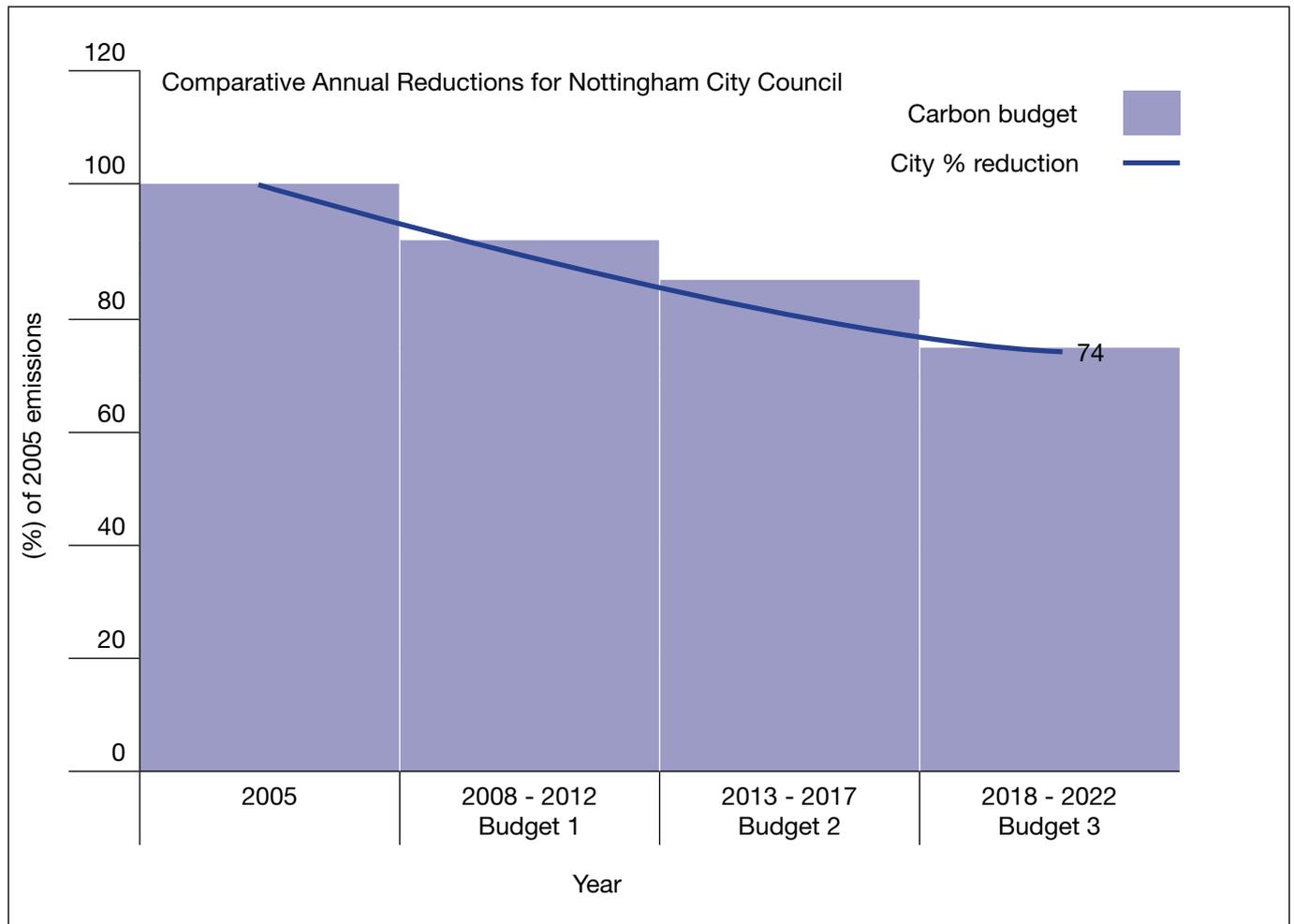
Our emissions reduction trajectory follows a model set out by the economist Nicholas Stern who states that “quick wins”⁴ can make significant carbon savings in the short term, and that from a cost-benefit analysis perspective, short term investment in carbon reduction saves money in the long term. Currently, city-wide carbon emissions data is provided by central government, with a time lag of two years. We can therefore only assess current performance based on previous year’s performance.

³ Department of Energy & Climate Change – Carbon Dioxide Emissions with the scope of influence of Local Authorities 2009, data release September 2011

⁴ The Stern Review on the Economics of Climate Change, October 2006

However, we will be developing a number of ‘proxy indicators’, for up to date emissions figures, for example data from the Carbon Reduction Commitment and the statutory greenhouse gas reports. This will be useful in assessing our progress. The trend data shows that, if performance at the current rate is maintained, we are likely to exceed our 2020 target. The target is also in line with the UK’s national carbon budgets (see figure 3 below).

Figure 3. Comparison of UK CO₂ against Nottingham target



The Government has recently announced a fourth carbon budget for 2023 – 2027, which is beyond the scope of our current strategies. However, the current trajectory of our reduction suggests that we would be on track to meet this budget.

In 2009 Nottingham’s carbon emissions totalled 1.6 million tonnes of CO₂. This is the equivalent to filling 9400 Nottingham castles!



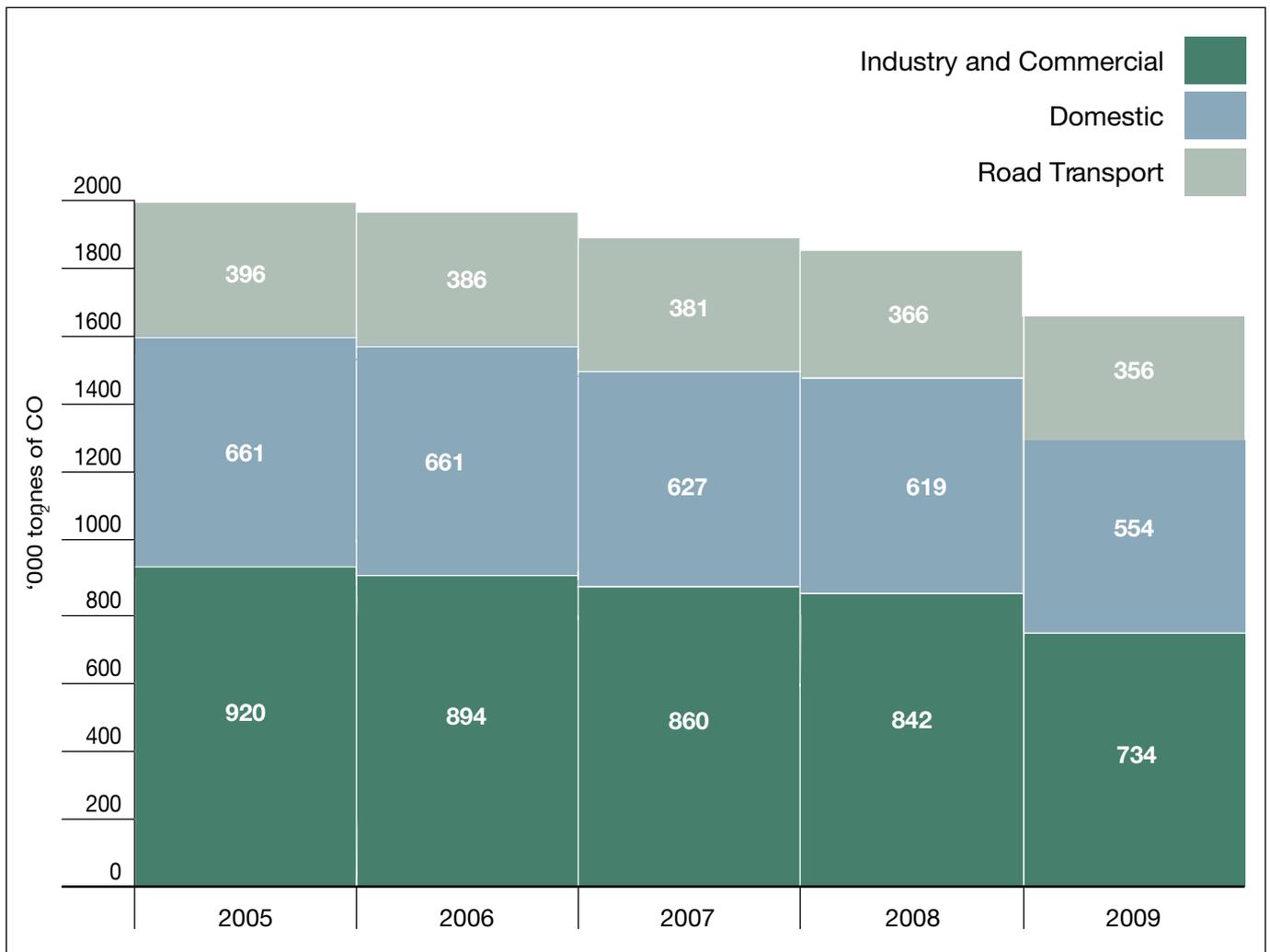
Where are we now?

Recent data shows that the average Nottingham resident produces 5.5 tonnes of CO₂ per year in 2009. This is the equivalent to filling over five hot air balloons!



Nottingham residents have a lower carbon footprint than the UK average (at 6.4 tonnes)⁵, but significantly higher than a developing country such as Indonesia (1.83 tonnes). 45% of city CO₂ emissions result from industry (figure 4).

Figure 4. CO₂ emissions by sector (2009 data)



Emissions are decreasing in all sectors, (industry, domestic sector and transport), but the biggest savings are being made within the industry sector.

⁵ Department of Energy & Climate Change – Carbon Dioxide Emissions with the scope of influence of Local Authorities 2009, data release September 2011

Joined up thinking

Nottingham City Council has put in place a number of key strategies that set out plans for making Nottingham more sustainable. These are:

- **The Nottingham Plan 2010-2020 (Sustainable Community Strategy):** this sets out Nottingham's long-term vision, targets and priorities. "Green Nottingham" is a cross cutting theme of this strategy.

The key aims include:

- to lower carbon emissions and to produce more energy from renewable sources.
 - more public transport so that travelling around the city is easier.
 - 500 new "green" apprenticeships in organisations across the city.
 - eradication of fuel poverty by 2016 so that everyone can live in more energy efficient homes.
- **The Nottingham Energy Strategy:** contains detailed actions to generate 20% of our local energy needs from low or zero carbon sources, and to achieve our 26% carbon target, as well as meeting national carbon budgets and low carbon transition targets for renewable heat and micro generation.
 - **City Municipal Waste Strategy 2010-2030:** (a Waste-Less Nottingham), contains actions to increase the reuse and recycling of Nottingham's household waste to 55%+, provide a low carbon waste service by saving 16-19,000 tonnes of CO₂ per year, and to recover around 47 million kilowatt hours of energy from waste.
 - **Local Transport Plan 3 2011-2014**

Tackling climate change and reducing carbon emissions from transport is at the heart of the Nottingham Local Transport Plan Strategy (LTP3) which sets out the City's transport strategy for 2011 – 2026. One of the five strategic objectives of LTP3 is to deliver a low carbon and resilient transport system. This will be achieved by:

Reducing travel demand through the promotion of low carbon travel options and reducing the need to travel through the planning and design of new developments to create accessible neighbourhoods and using technology to avoid unnecessary trips through measures such as teleworking, video and teleconferencing and internet shopping.

Improving operational efficiency of transport systems by effective highway management through the Traffic Control centre; and using real time systems to prioritise public transport and reducing vehicle speeds; fostering use of carbon efficient vehicles by greening the transport fleet and providing electric vehicle charging infrastructure through participation in the Midlands Plugged in Places programme and promotion of eco driving practices.

Promoting sustainable car use by exploring the viability of developing a city car club and promoting car sharing for business travel.

Improving resilience of transport systems by the use of sustainable urban drainage and permeable surfacing for new developments. New transport infrastructure and highway maintenance, and participation in the Three Cities highway drainage asset management project to resolve drainage related flooding. Developing a surface water management plan and considering adaptation measures to prepare for extreme weather events including hot weather and heat waves and increased frost, ice and snow during winter.

- Planning:** Nottingham City seeks to promote sustainability, good design and improvements to the quality of 'place' within Nottingham's neighbourhoods. This will be achieved through the development of a variety of policies in emerging planning documents and by the support of appropriate sustainable development through the Development Management process.

The emerging *Greater Nottingham Aligned Core Strategies* document is being prepared in partnership with neighbouring local authorities in order to develop a consistent approach to tackling issues such as climate change, looking beyond individual administrative boundaries.

The emerging Local Plan for Nottingham (the Land & Planning Policies Development Plan Document) will identify possible sites for new development, together with the necessary policies to provide the framework for the Development Management process.
- Climate Change Adaptation Action Plan 2011- 2020:** contains actions to increase Nottingham City Council's resilience to the impacts of climate change, including flooding and heat waves. It sets out ways in which the Council can make its services more prepared and resilient by developing coping strategies; analysing the costs of adapting versus the costs of potential impacts; identifying new markets and opportunities and implementing appropriate adaptive actions to reduce risks.
- Breathing Space Strategy 2010-2020:** provides a strategic approach towards the future planning, development and management of the open and green spaces network within the city. Over the next 10 years the strategy aims to improve the quality, accessibility, biodiversity, sustainability and protection of Nottingham's green spaces, which aims to encourage increased levels of planning involvement and physical activity amongst city residents. This will also assist in lowering the Urban Heat Island effect.
- Mini Stern:** Nottingham City Council commissioned Nottingham Trent University to assess the economic opportunities of climate change. Current data suggests that the East Midlands has seen one of the fastest annual growth rates of the Low Carbon Environmental Goods and Services (LCEGS) sector in the UK. There is not a linear relationship between sales growth and employment growth. However, if the current rate of change continues, and current policy initiatives at both the local and national level are maintained, the report suggests that growth in the green economy in Greater Nottingham could see between 9,000 to 12,000 jobs created in the Low Carbon Environmental Goods and Services sector.

The community climate change strategy will not duplicate any of the actions contained within the above strategies; rather it will add value and complement both existing and planned activity. Furthermore it recognises the excellent work that is already being done by our city partners.

How the strategies work together

Figure 5 below shows how Nottingham’s Community Climate Change Strategy links with other strategies that will deliver the green targets and objectives of our Sustainable Communities Strategy. In particular, it shows that all the strategies collaboratively support an overall carbon reduction strategy for Nottingham, and aim to deliver the required 26% reduction in emissions.

Figure 5. How the strategies work together

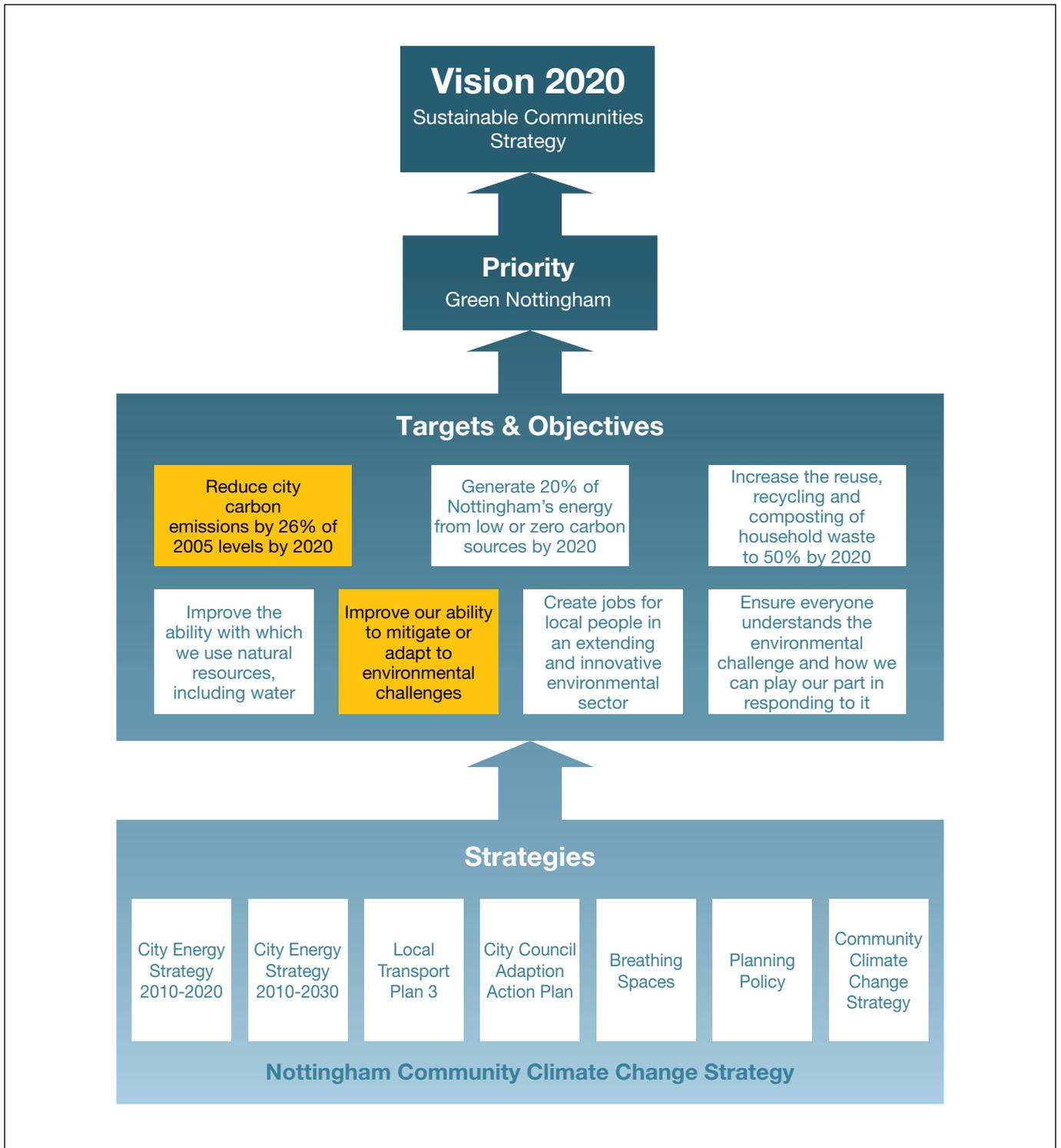


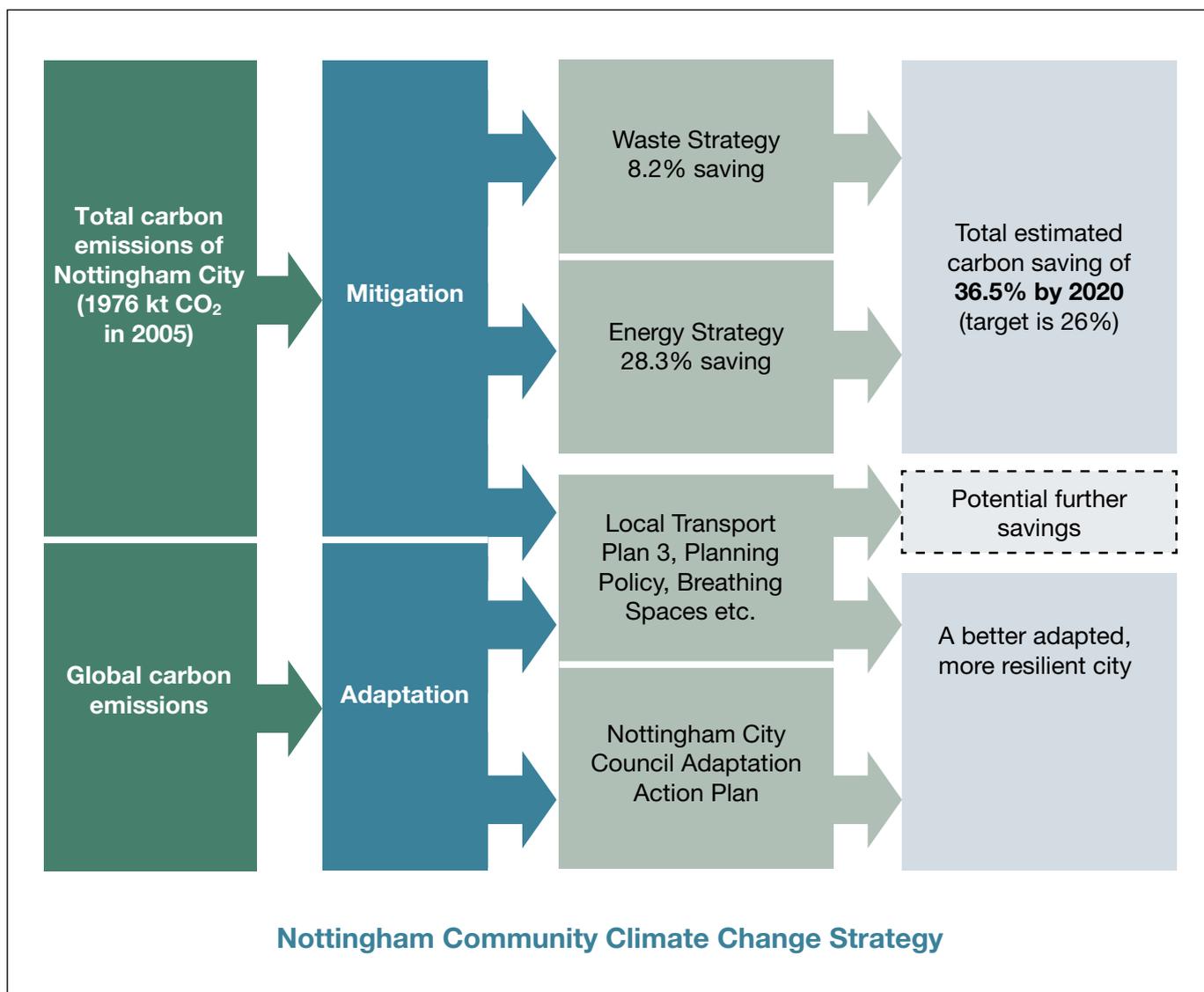
Figure 6 below shows in more detail how the current action programmes will, subject to delivery and resource, achieve the carbon emissions reduction target for Nottingham City and help make the city more resilient to extreme weather and climate change.

The energy strategy will deliver an estimated 28.3% saving by 2020, with a further 8.2% from the city’s carbon based waste strategy (assuming a saving of 16kt CO₂ per annum). In total this adds up to a potential reduction of 36.5% by 2020. Planning policy and the delivery of further strategies including Local Transport Plan 3 and the Breathing Space Strategy could result in further savings.

Action on adaptation is a response to the climate-changing effects of global greenhouse gas emissions. Climate change is already being observed (IPCC, 2007 http://www.ipcc.ch/publications_and_data/ar4/wg2/en/spmssp-b.html) and increasing levels of greenhouse gases in the atmosphere due to the slow progress of international efforts to reduce emissions mean that adaptation becomes increasingly important.

Nottingham City Council has undertaken a risk assessment of key services which identifies the potential negative impacts and opportunities from climate change and appropriate adaptive actions which can be taken. These actions are contained in the Adaptation Action Plan. As described above, planning policy, Local Transport Plan 3 and the Breathing Space Strategy are also designed to contribute to adaptation and where possible have been developed in light of the climate change risk assessment.

Figure 6. How the strategies contribute



Recognising the achievements of our partners

Our partners and employers are already achieving ground breaking results in reducing the city's climate impact. Some examples include:

- Nottingham has two of the greenest universities in the UK who are leading with internationally recognised research in low carbon technologies.
- Nottingham Trent University has made significant investment in energy saving technologies. Its building redevelopment includes a sedum roof, and low energy system. The university was also named the UK's most environmentally friendly and ethical university in 2009 and 2011 in the 'People and Planet' Green League.
- The University of Nottingham has low carbon university buildings, and a Centre of Research for environmental technology.
- Boots Plc has reduced carbon emissions and achieved the Carbon Trust Standard. The company produces its own energy, has invested in more efficient transport, and reduced packaging.
- Nottingham City Primary Care Trust (PCT) has an award winning Carbon Management Plan and carbon reduction scheme, and is the first UK PCT to undertake a local climate impacts profile assessing its vulnerability to climate change. It has also developed a sustainable procurement toolkit.
- Greater Nottingham Transport Partnership (GNTP): this public and private sector partnership has been in place for 10 years and is hosted in the third sector by RideWise. The partnership has helped to shape the direction of each of the Local Transport Partnerships, has led major cross conurbation projects and manages the Big Wheel integrated transport marketing programme.
- The Big Wheel Business Club provides a free service to help business get all the benefits of better transport management. The Big Wheel can help businesses plan better ways for staff, visitors and customers to travel to and from sites, as well as providing many free services and resources to help businesses put those plans into action.
- Nottingham Energy Partnership devises, manages and delivers domestic and commercial projects that tackle fuel poverty, cut carbon emissions, and make businesses more sustainable. They have been involved with:
 - Writing the city's Energy Strategy.
 - Developing and delivering the Nottingham Warm Zone; to provide free or grant aided insulation for all private sector homes.

- Developing and managing the Aspley Super Warm Zone across all housing tenures; the largest solid wall insulation programme in the East Midlands.
- Working with the PCTs to enable their carbon and financial savings through the PCT Carbon Reduction Project.
- Developing and facilitating partnerships to deliver UK leading community energy and carbon reduction projects.

This combined activity has saved approximately 600,000 lifetime tonnes of CO₂ (or around 17,500 tonnes per year), and kept around £2.5 million a year in the pockets of Nottingham households.

- Experian has reduced its carbon footprint by 2% from 2009/10 to 2010/11. Initiatives that have helped make these savings include better energy management, the installation of more efficient technology, staff awareness days and environmental champion networks. Many of Experian's offices have implemented initiatives to reduce waste and increase recycling. Initiatives such as the 'Experian Goes Green!' recycling programme in South Africa save over half a tonne of waste a month from going to landfill. Experian has also achieved the UK's Carbon Trust Standard.

Where we're going

Addressing climate change, energy issues and environmental sustainability is a long term priority for Nottingham – this is made clear in our 2020 vision and our target-setting. This section sets out some of our plans.



Nottingham City Council estates and operations

Nottingham City Council currently directly contributes 3% to the city's total carbon emissions. We have a Carbon Management Plan to reduce our carbon emissions from our operations by 31% by 2016. Some of the headline actions in this plan are:

- Workplace strategy, lowering our energy and carbon emissions by rationalising our building stock and encouraging flexible working patterns.
- Loxley House energy efficiency measures – to further reduce our energy use with building management measures.
- RE:FIT programme: This is investment in energy efficiency measures for our highest consuming properties. This is expected to save over 10,000 tonnes of CO₂ over the term of the programme.
- Reduced energy demand from our street lights through a PFI street lighting programme, estimated 23,000 lamps being replaced in the first 5 years of the 25 year contract, which will result in a modelled energy usage reduction of 26% via the use of lower wattage lamps.
- Education programme for city schools, linked to well established programmes such as Eco Schools and WISE (Waste In Schools Education) and SCORE programme.
- Efficient and LED lighting project, and new efficient boiler installations across our building stock.
- Behavioural change research programme for employees. This will look at how staff inside the buildings actually use energy. It will identify some of the major influences on people's use of energy in office settings and aims to assist with the future design of programmes to reduce building energy use.

Low carbon economy and investment

The UK Government has clearly stated that significant economic growth can be achieved within the low carbon economy, resulting in new jobs and investment opportunities. Nottingham shares this view, and is already advancing plans, including:

- Nottingham Energy Park - located in Bulwell, this energy park will use low carbon energy created on site to supply power and heat to co-located business units. This will support growth and lead to attracting new companies to Nottingham in the emerging green tech sector.
- Nottingham Science City is pushing forward to lead Nottingham into a successful, thriving green economy. A Green-Tech Working Group has also been set up which brings together major business and development figures of the city's low carbon economy.

Renewables / low carbon energy

To support our transition to a low carbon economy, Nottingham is investing in work that will identify opportunities for low carbon and renewable energy.

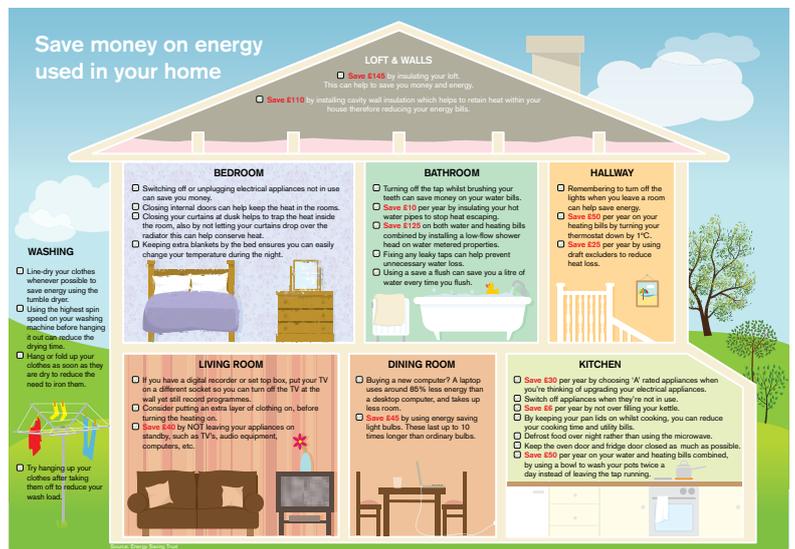
- The Nottingham Energy Calculator. This is a simple-to-use website which allows Nottingham residents to view the potential for their property to save energy through a number of energy efficiency measures as well as to generate electricity or to heat water using solar panels. The Calculator also informs the resident about the financial costs and paybacks associated with each technology and contains links to information on local installers and schemes providing financial support for installation such as the Warm Zone and Green Deal. As such the calculator helps residents understand both the potential of their property and what they can do to realise it.
- We already have the largest municipal district heating scheme in the UK, making us the most energy self sufficient city in the UK. We are extending the district heating scheme with a new main into the Southside regeneration zone, which will provide secure heat and power.
- Installed over 1300 solar PV panels onto social housing in Aspley.



Domestic energy efficiency

Energy and carbon savings continue to be made within the domestic sector. Our activity will focus on the installation of energy efficiency measures such as insulation, but is starting to incorporate a greater focus on behavioural change.

- Green Deal. We have set up a working group to look at ways of facilitating a local Green Deal for our communities. The Government's Green Deal framework will help our properties become more energy efficient by offering grants to properties, community buildings, and businesses with no up front costs, and recouping the costs long term via savings delivered in reduced energy bills.
- Aspley Super Warm Zone, administered by Nottingham Energy Partnership: residents in Aspley have started to benefit from the installation of energy efficient measures. 1800 homes in the area will be offered a package of energy efficiency measures. This will ensure that 1.5 tonnes of carbon will be saved per household benefiting a neighbourhood which suffers from fuel poverty.
- Nottingham Energy Partnership on behalf of Nottingham City Council have been managing the Nottingham Warm Zone since 2008, this scheme has saved around 20,000 tonnes of CO₂ per annum, and by June 2011 had installed over 9800 loft or cavity wall measures, over 300 heating improvements, and over 100 draught proofing measures.



Transport

Nottingham is rightly proud of its investment in transport infrastructure, and the availability of non-car, sustainable travel choices.

We are already the least car dependent city in the UK, with more bus use than any other city apart from London. We have recently published our Local Transport Plan for 2011 – 2026, and this aims to reduce the impact of transport on the environment, and reduce carbon emissions. Some of the planned major improvements to transport will include phase two of the Nottingham Express Transit (NET) which will see two new tram lines opened to the south of the city, anticipated to take three million car journeys off Nottingham's roads and serve 3 of our biggest employers. We are developing the transport hub around Nottingham Train Station which will link rail, tram, buses, and cycling and walking connections. And the Workplace Parking Levy will further reduce congestion and produce investment for public transport systems.

In April and June 2011 Nottingham City Council, in partnership with the Greater Nottingham Transport Partnership (GNTP), Sustrans, NHS Nottingham City, Nottinghamshire County Council and Derbyshire County Council, submitted a two-stage bid for the Nottingham Urban Area to the Government's Local Sustainable Transport Fund (LSTF). These bids propose a programme of measures to promote sustainable travel behaviour by improving integration between journey modes and making low carbon choices easier.

Our initial Key Component Bid has been awarded £4.925 million for 2011/12 – 2014/15 which will fund the development of smart ticketing improvements, business travel support, community wide promotion of cycling including continuing the successful Ucycle initiative and the first community smarter travel hub in the north of the City which will pilot a new approach to community engagement to improve access to work and services and promote sustainable travel behaviour.

The Nottingham Urban Area Main Bid has been shortlisted to submit a Full Business Case by December 2011. If successful the Main Bid would secure up to £11 million of further funding for 2012/13 – 2014/15 for an integrated package of measures to influence people's travel behaviour at times when they are most likely to consider new travel options such as starting a new job, changing school or moving house.

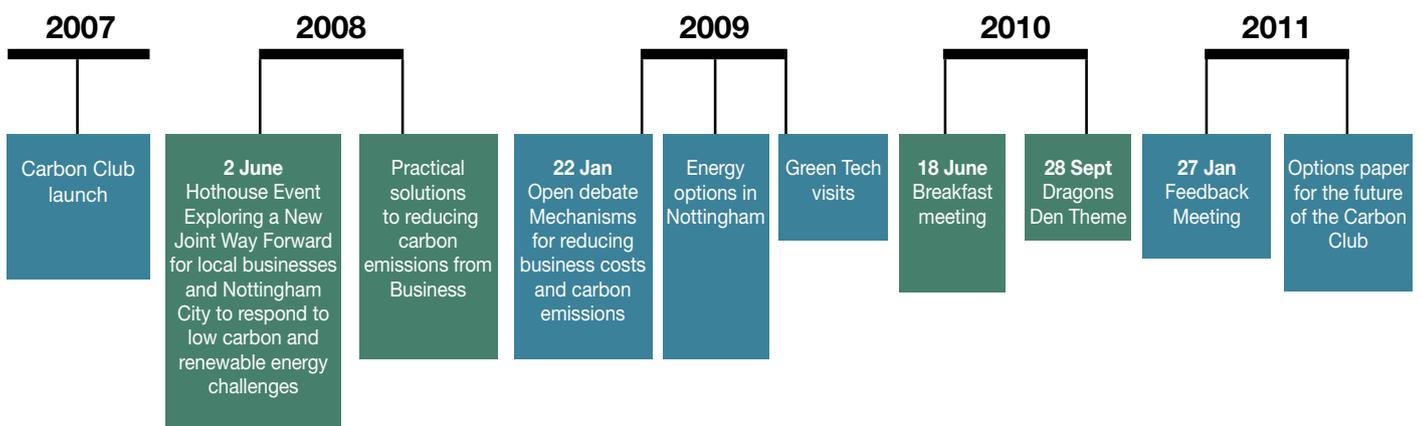


Businesses

To support our transition to a low carbon economy, Nottingham is investing in work that will identify opportunities for low carbon and renewable energy.

Nottingham Carbon Club was launched in April 2007 with the collective aim of raising environmental standards and reducing carbon emissions as a membership based group of Greater Nottingham's 25 largest employers. It set out to help develop a low carbon economy, taking advantage of policy that attempts to reduce the impacts of climate change and enhance Nottingham's profile and reputation as a leading centre in the UK.

Figure 7. Carbon Club Timeline



It is recognised that in order for the Carbon Club to remain relevant it needs to find a unique place and niche within the market and so the Club is now within a review period to establish its development.

The following options, which could be resourced by Nottingham City Council (and potential others in partnership), are therefore being considered:

- mentoring
- web portal
- access to the Nottingham Energy Map
- environmental management
- sustainable procurement
- report templates
- newsletters and toolkits
- adaptation support.

The options are now under consultation with Carbon Club members.

Responding to extreme weather

The government-sponsored UK Climate Projections (2009) suggest that over the course of the 21st century Nottingham is likely to experience increased summer and winter temperatures, reduced summer rainfall and increased winter rainfall. These changes are likely to increase the frequency and severity of flooding events, droughts and heat waves.



The Nottingham Plan recognises the need to improve our capacity to respond to changing weather patterns, and acknowledges that climate change is already a reality. Nottingham is subject to certain local factors which increase its vulnerability to the effects of climate change.

The River Trent runs through parts of the city and is a potential source of river flooding. The city is also vulnerable to surface water flooding, as has been recognised by the government which provided funding for the development of a Surface Water Management Plan. The impacts of heat waves in Nottingham will potentially be exacerbated by the Urban Heat Island effect, under which the city would experience higher temperatures than nearby rural areas due to the absorption and trapping of heat by the urban land surface (roads, buildings, pavements etc).

Significant sections of the population of Nottingham are especially vulnerable to the extreme weather events which climate change is likely to exacerbate. These groups include the elderly, the very young, those with underlying health conditions such as cardio-vascular disease, and those who cannot afford to make adaptations to their homes.

Nottingham City Council's Local Climate Impacts Profile found that over the period 2000-2010 nine major weather events affected the Council's service delivery. These included floods, storms, heat waves and severe winter events. These incidences of extreme weather, the projections of future climate change and the local influencing factors provide strong for the case for adaptive action.

As discussed in Section 5 (Joined-up thinking) a number of action plans, strategies and other documents work together to help increase the resilience of the city to climate change and extreme weather. These documents include the Adaptation Action Plan, the Breathing Space Strategy, Local Transport Plan 3, flooding risk assessments, emerging Planning policy and the Urban Forest Strategy (currently in development).

Key completed and ongoing actions include:

- Effective heat wave planning by adult support and health services.
- Continuing to protect the city's trees and green spaces whilst looking into new ways of using them to manage flooding risk and reduce the urban heat island effect; Ongoing Business Continuity planning to ensure effective recovery of Council services from extreme weather events; Effective maintenance of the city's drainage network; Developing a layered GIS mapping system to help identify the city's most vulnerable people in relation to the health effects of climate change.

Development of Nottingham's emerging Core Strategy so that it supports new development proposals that avoid areas of current or future flood risk. In addition, the Core Strategy states that all new developments should incorporate measures to reduce surface water run off, while the Development Management and Drainage services work together to implement this.

- Completion of Strategic Flood Risk Assessments (SFRAs). Nottingham City currently has two SFRAs which take into account additional flooding risks related to the effects of climate change. The SFRAs are used in decision making and policy making by the Planning, Drainage, and Transport Teams amongst others.
- Ongoing infrastructure planning and management to reduce flooding risk, working with partners including Severn Trent and the Environment Agency; The completion of the Surface Water Management Plan (SWMP) and ongoing implementation of its action plan. The SWMP looks at how to manage surface water flooding, including the delivery of new sustainable drainage (SuDS) responsibilities.
- Implementation of the Council's new responsibilities as Lead Local Flood Authority, with responsibility for management of surface water and ground water flooding. Specific actions include completion of the Preliminary Flood Risk Assessment and convening of the Nottingham and Nottinghamshire Strategic Flood Risk Management Board; Effective maintenance of provision of parks and open spaces, as a method of reducing the urban heat effect and help manage water run-off amongst multiple benefits.
- To increase green infrastructure and green space.

Water management

There is an ever growing demand for water, predicted to continue to rise. The pressure on our water supply can be attributable to migration, population growth, changes in lifestyle and the effects of climate change.

The effects on our water supply could be:

- Bills could increase, whilst Nottingham enjoys water supply from the lowest costing supplier Severn Trent, the water supply charges have still risen by 4.7% for unmetered and 5% for metered customers during 2011⁶.
- Our local climate changes have already had an effect on our water supply:
 - Increase in burst pipe incidents for residents and businesses during the big freezes of 2009 & 2010.
 - Reservoir levels 10% lower than usual in May 2011.
 - Future predictions by Severn Trent Water reports that climate change impacts will reduce supply by 154 million litres a day by 2035, and the UK Climate Projections 2009 suggest that summers will become on average increasingly warm and dry over the coming decades. Relative to average climatic conditions over the second half of the 20th century, the East Midlands region may see a decrease in summer precipitation of around 6% by the 2020s, and around 16% by the 2050s.

Water saving now

Severn Trent Water offer free water saving products to domestic and non-domestic customers:

- Water efficient shower heads.
- Tap inserts.
- Toilet flushing saving products.
- Switching to a water meter can save between 10-15% of water compared to unmetered customers, this can also bring additional savings on your energy bills, as up to 40% of energy goes on heating water.

⁶ Nottingham Evening Post

Sustainable building design

One of the main growth areas of the immediate future is sustainable construction and building design. There are opportunities here for skills provision, apprenticeships, research, innovation and utilisation of emerging markets.

- **Design Nottingham** – Planning & design partnership to deliver sustainable urban design, recognised by Commission for Architecture and the Built Environment (CABE) as an exemplar project.
- **Nottingham University** has a world first project. The Creative Energy Homes project is building a number of real homes to conduct research into energy efficiency and low / zero carbon housing. In 2000 the university built the Millennium Eco House, designed to test renewable technologies such as wind turbines and solar panels. Since then a typical 1930s house has been built to upgrade with energy efficient measures to show how an ordinary house can become a zero emission house, a solar powered house, a house exploring the use of masonry, and house using structurally insulated panels, and insulated concrete formwork. The idea behind each house is to explore how materials can help cut energy use in real homes in the near future.



- **Partnership Council retrofitting terrace house**
In partnership with Nottingham Trent University their plan is to convert a small terraced house into an Eco house on a budget. The aim is to provide local people with a model of how they can save money on fuel bills very simply and cheaply. The house will also become a base for community projects such as free recycle shop, skills share workshops, green nappy scheme, toy library, and a meeting point for local people.

- **Green/ Brown roofs**
Nottingham City Council actively encourages ways of adapting to the potential impacts of a changing climate. One method of adaptation is the adoption of Sustainable Drainage Systems which are control systems designed to drain surface water in a more sustainable way than conventional systems, saving water resources and potentially reducing the risk of flooding. Examples of green roofs in Nottingham include those at Radford and Ambleside Primary Schools and the new Highwood Cemetery in Bulwell and Sedum roof at Nottingham Trent University.



Building Control

In general the role of Nottingham City Building Control is to enforce the national standards within the Building Regulations as part of our regulatory role and it is precisely this role that is at the forefront of delivering sustainable and energy efficient buildings.

However, recent initiatives such as, the photo voltaic solar panel schemes and the Warm Zone Community Energy Saving programme, has seen our involvement both in a supervisory and advisory capacity to ensure our city is leading the way in providing energy efficient and sustainable buildings.

Behavioural change

Why are we now taking a behavioural change approach?

One of the key drivers behind this Community Climate Change Strategy is behaviour change. By changing specific behaviours or habits, and offering a more desirable alternative, it is possible to make sustained reductions in energy consumption, waste and carbon emissions, and to improve resilience.

There are many factors that influence behaviour. Our behaviour is a function of factors including our underlying attitudes, our culture and upbringing, and our socio-economic background, and is affected by a range of external contexts such as time, money, and peer pressure.

Behaviour change is therefore complex, and this Strategy does not pretend to have all the answers. Key to an effective behavioural change strategy is that whilst there are some commonalities, people do behave differently at different times and in different settings. It is therefore important that this Strategy includes a break down of the city into wards, and classifies those wards according to their socio-economic characteristics, and associated levels of energy use and green awareness. This enables specific actions to be targeted at groups within the ward that is more likely to respond positively. This approach has been untested in Nottingham – its success will be measured by the extent to which the actions are delivered, and on-going feedback from the community.

The following behaviours will be specifically addressed:

Environmental behaviour 1:

Using money saved from carbon reduction measures to fund activities that are equally carbon intensive

If we save money on our energy bills by turning our thermostat down we may decide to use this money to buy something else or go away on holiday. From an environmental perspective, this mind set is counterintuitive, as the savings made in carbon and money are then outweighed by another activity that is just as carbon intensive if not more so. Whilst it is extremely hard to alter this behaviour, we will aim to encourage residents to recognise the external benefits and the “intrinsic” as well as financial value of reducing, reusing and recycling our “stuff”.



Environmental behaviour 2:

I buy because of the effect on my status

Material goods can often act as status symbols whereby having the most up to date goods is seen as 'cool', an indication of your income level, and a way of "keeping up with the Jones's". Research suggests that energy efficiency is seen as dull and boring. The challenge therefore is to make saving energy fashionable and this will be encouraged by the strategy.

Environmental behaviour 3:

I can have the lights on for longer because they are low energy

People often choose to "realise" the benefits of an energy efficiency improvement (e.g. new boiler, insulation, low energy lighting) in the form of warmth and light rather than carbon savings. The key attitude underlying this behaviour is the need for comfort. Furthermore, research suggests that if households are given an increase in income to help pay their fuel bills, their energy consumption increases. The thought is, "I have this money for bills, so I can afford to have my radiators on for longer". This behaviour may also be related to status and the desire to conform to social norms. Whilst addressing this behaviour, we need to be careful about supporting vulnerable people, especially those in fuel poverty, who may be experiencing health impacts because they are not benefiting from sufficient levels of heat and light, and therefore should, from a social perspective, choose to "realise" the benefits of energy efficiency measures in this manner.

Our proposed approaches to changing behaviour:

1. Create "green" social norms - social norms, signalling and the diffusion of behaviours through social networks effectively act as vehicles, encouraging green or un-green behaviours. We will therefore utilise the effectiveness of social networks to communicate and help facilitate greener social norms. This for example will be delivered through action CC12 whereby we will illustrate examples using case studies of actual families who have incorporated greener social norms into the lifestyle. This will provide a signal for the behaviours that other residents are carrying out whilst also effectively communicating these behaviours via various social networks.
2. Engage communities rather than individuals - research suggests that engaging people as part of a community rather than individual consumers is important for changing energy-related behaviours. An individual is likely to feel they are unable to have an effect especially when people around them are not participating in green behaviour. Community engagement and involvement creates a stronger sense of responsibility around issues such as climate change. Action CC4 says that we will support local community groups, charities and the voluntary sector to help encourage green behaviour.
3. Provide incentives - for many people using energy in a certain way is a force of habit and it is very difficult to get out of these habits without some kind of incentive. In turn the rewards will be both intrinsic and extrinsic. The intrinsic reward will be a reduction in energy consumption, whilst the extrinsic rewards are the ulterior motives, such as an increased sense of community, invaluable social networks and financial savings.

4. Make it easy - research recognises that ease also plays a role in behaviour change. The level of how much effort or interference a behavioural change can dictate how easy people find it to change to that particular behaviour. Therefore, this strategy contains actions that are relatively simple to deliver, or that can be delivered through the support of others.
5. Give feedback - we recognise that behaviour change is also determined by how we feel in comparison to others. Providing consumers with feedback on how their energy use compares with similar households in their neighbourhood has been shown to reduce energy consumption. Action CC12 says that we will communicate what members of society are doing in order to encourage others to become greener.

The Green Deal is an example of how the Government is applying behavioural economics to reduce carbon emissions. It has been noted that people can discount future rewards, this being a reason for not taking up energy efficiency measures as they are only saving money in the future. The Green Deal however removes this barrier by offering people a chance to introduce changes now with no upfront costs but with relatively instant savings. The Feed in Tariff (FITs) scheme and the Renewable Heat Incentive (RHI) are similar to the Green Deal in that once the renewable technology has been installed, the energy generated over that which is needed can then be sold back to energy companies. Action CC₂ and CC₅ of the strategy highlight our support for these schemes.

Environmental behaviour change requires sustained effort and takes a long-term approach to reducing carbon emissions and improving resilience. Our hope is that this approach will complement our existing environmental strategies, and will make lasting change.

Using behavioural economics to reduce carbon emissions in the way outlined above highlights the importance of initial and upfront investments in energy efficiency. This strategy aims to communicate the importance of how investments made now, can translate into both long term gains but also immediate rewards. This can be achieved through the Green Deal.

This climate change strategy supports the Green Deal in recognising that by removing the upfront costs of energy efficiency; home owners will be more encouraged to take up energy efficient measures such as solar panels. By removing this barrier to renewable energy uptake it is possible to facilitate a change in behaviour towards renewable technology.

Therefore this breaks the characteristic of upfront costs and long term benefits. Instead it is recognised that the Green Deal facilitates the notion of no upfront costs with immediate and long term rewards.

Methodology

In order to develop this strategy, we completed the following process:

Figure 8. Methodology



What you told us

Community engagement has been key to finding out what local actions are deliverable. We have sought the views of ward councillors, community groups, residents associations, faith groups, and pressure groups. Our colleagues in Neighbourhood Management have been a key partner in helping build the ward actions.

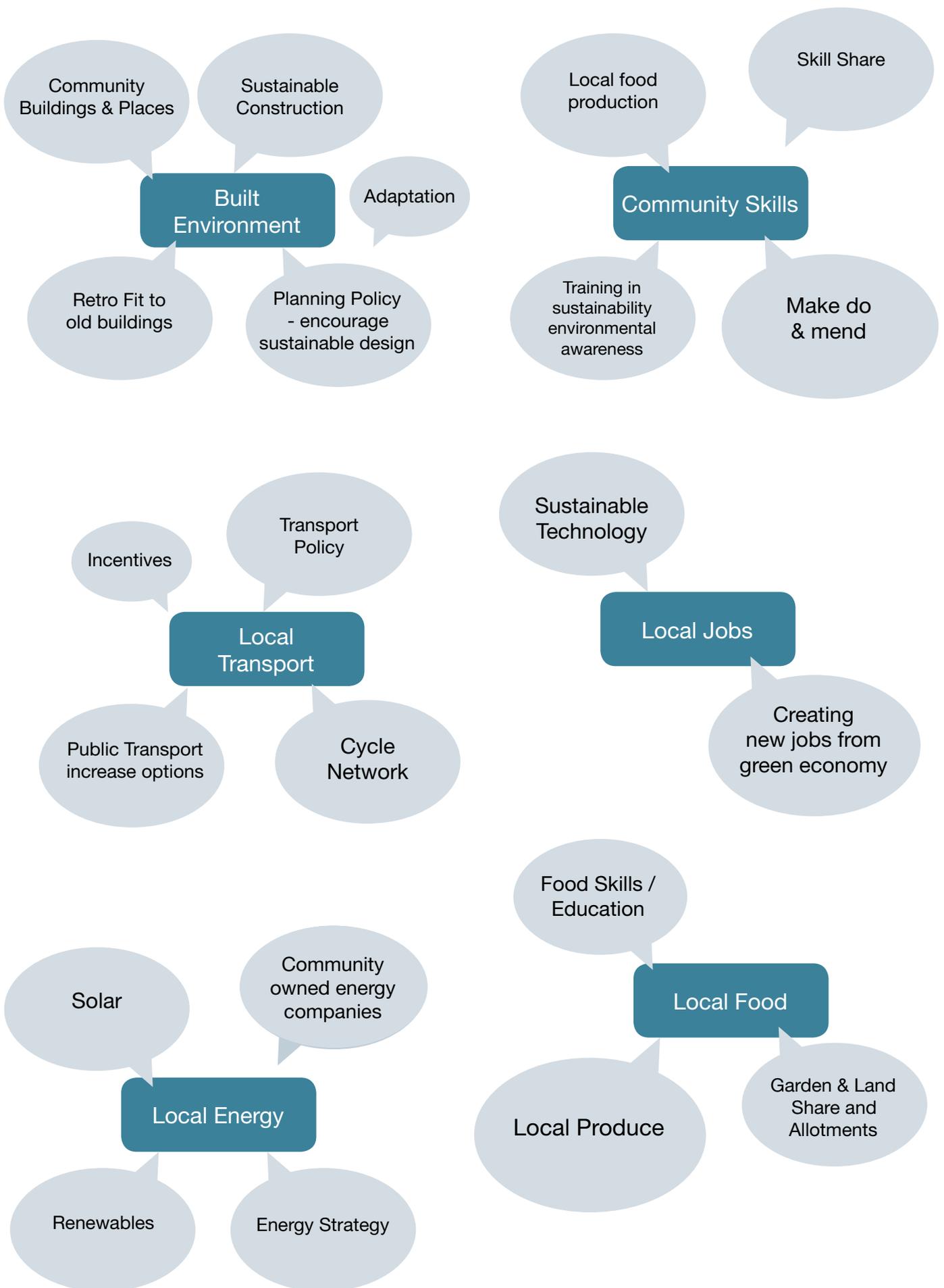
The development of the strategy began in 2009 with the launch of our Big Green Debates, a voice for Nottingham’s residents to get involved in the formation and delivery of local environmental policy.

Over 90 local residents, community groups and environmental pressure groups attended the first ever Big Green Debate in October 2009. Over 700 ideas were generated on the night, across 7 distinct themes:

- Built Environment
- Community Skills
- Local Energy
- Local Food
- Local Jobs
- Transport
- Water



Figure 9. What people told us



Areas of opportunity

In 2010/11 we held a series of informal workshops for residents, interest groups, local organisations, councillors, and City Council officers. Here's a selection of the feedback. The references included in this feedback are linked to the specific actions in the action plan.

General Comments

- Keep things local, communities can relate to this
- Don't repeat what's been done in other strategies
- Think about who we want to influence, and who will influence them
- Councils need to practice what they preach
- Consultees might not be representative
- Climate Change is not in your face
- Council departments pulling in different directions
- Needs to be tangible and realistic
- People don't know links to local concerns
- Different approach to different communities

Behavioural Change

- Help from local neighbourhood officers / outreach (CC4)
- Higher income workers – behaviour change (CC3 & 5)
- Engage to inspire action, work together (CC4)
- Remember the elderly (CC5)
- Consider the 3rd sector, engage faith groups (CC10 & 13)
- Use fun activities to engage with a younger audience (CC7)
- Have “green teams” to target specific areas (CC4)

- Peoples poverty & scepticism on climate change (CC4, 5, 7 & 10)
- Educate & enthuse children at schools – they take the message home (CC7)

Financial & Funding

- Create a sustainable green economy, create local jobs (CC1)
- Small business focus – need better equipment (CC8)
- Affordable eco houses (CC5 & 13)
- Fossil fuel vulnerability / peak oil awareness (CC5)
- Energy efficient community buildings (CC5)
- Council should use purchasing power to influence (CC1)
- Need incentives – “what's in it for me” (CC2 & 5)
- Access to grants from the city council (CC3)
- Support volunteers, offer training & manage them (CC4)
- Community ownership of projects (CC13)

Data Analysis

- Celebrate successes, recognition and value of efforts (CC12 & 13)
- Need scenarios on how we'll live and how it affects people (CC12)
- Smart metering / awareness of our energy use (CC14)



The focus on local priorities and activity came out strongly, with people mentioning about linking climate change to local concerns, supporting our transition to a low carbon economy, creating jobs and engaging with our universities. Other key messages included making our activity fun and engaging, demonstrating shared benefits, and working together.

Linking climate change to local concerns

Climate change can often be seen as a global issue, remote from everyday concerns. This particularly came out in the feedback we received from the workshops. Figure 10 is Nottingham City Council's 2020 vision map, which shows, in a visual way, the priorities set out in the Nottingham Plan. We can show that, by acting on climate change locally, we can help address many of these key priorities.

Ward profiles and local energy data

We have used profiles for each ward to inform what actions are required and needed for local action on climate change. These profiles are produced by Experian, and we have used both the Mosaic and Green Aware profiling tools.⁷ They provide a detailed and accurate understanding of the social demographics of our residents. Mosaic public sector groups classify residents into 69 types, within 15 groups, and the Green Aware profiles classify residents into 10 groups. Figure 6 shows the profile make up of Nottingham.

Figure 11. Mosaic Profile Map & Categories

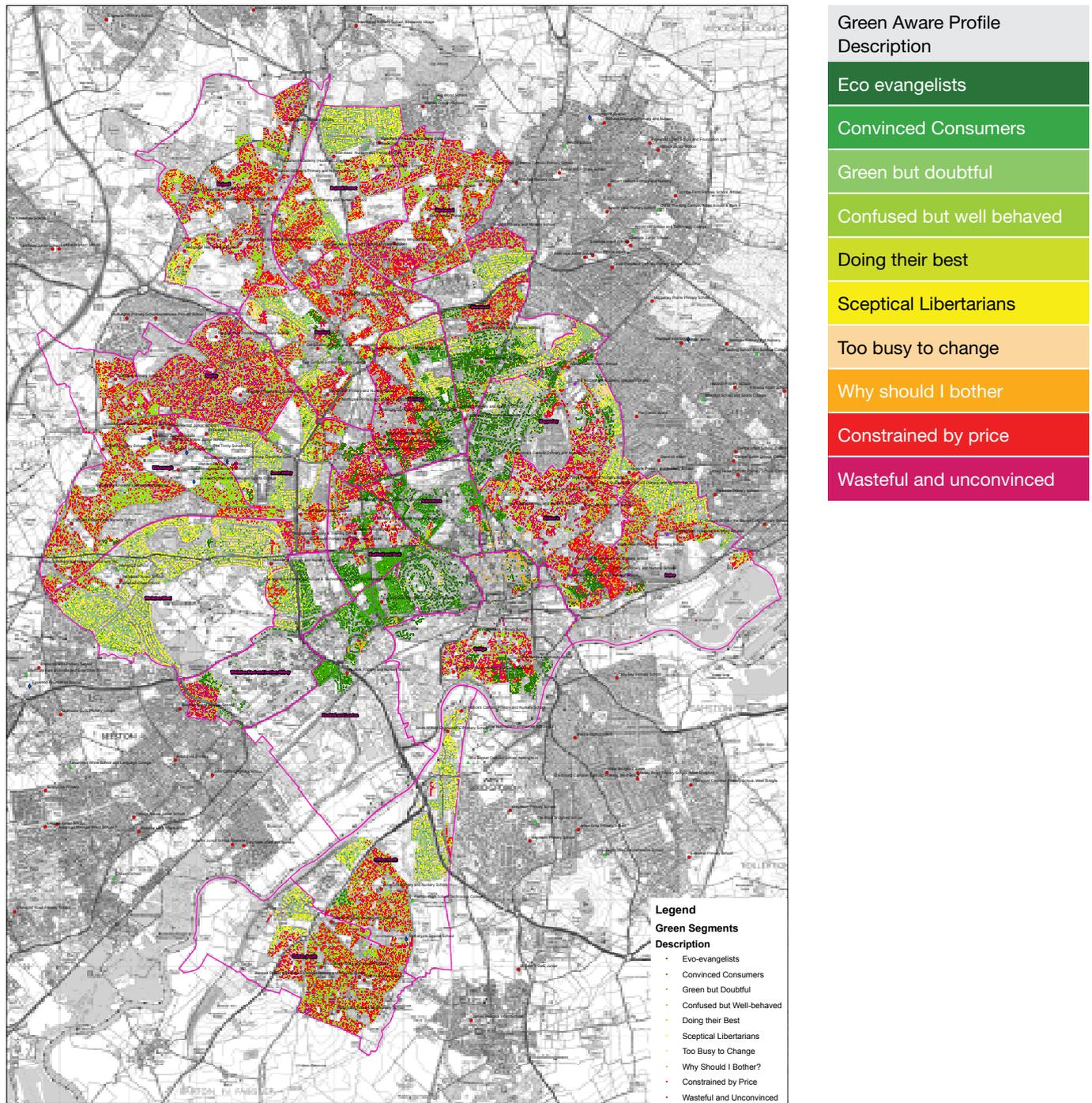


Mosaic Public Sector Groups within Nottingham (dominant groups)

Group	Description
B	Residents of small and mid-sized towns with strong local roots
E	Middle income families living in moderate suburban semis
G	Young, well-educated city dwellers
H	Couples and young singles in small modern starter homes
I	Lower income workers in urban terraces in often diverse areas
J	Owner occupiers in older-style housing in ex-industrial areas
K	Residents with sufficient incomes in right-to-buy social housing
L	Active elderly people living in pleasant retirement locations
M	Elderly people reliant on state support
N	Young people renting flats in high density social housing
O	Families in low-rise social housing with high levels of benefit need

⁷ Mosaic TM, and Green Segments TM produced with the permission of Experian Ltd 2011

Figure12. Green Segments Map & Categories



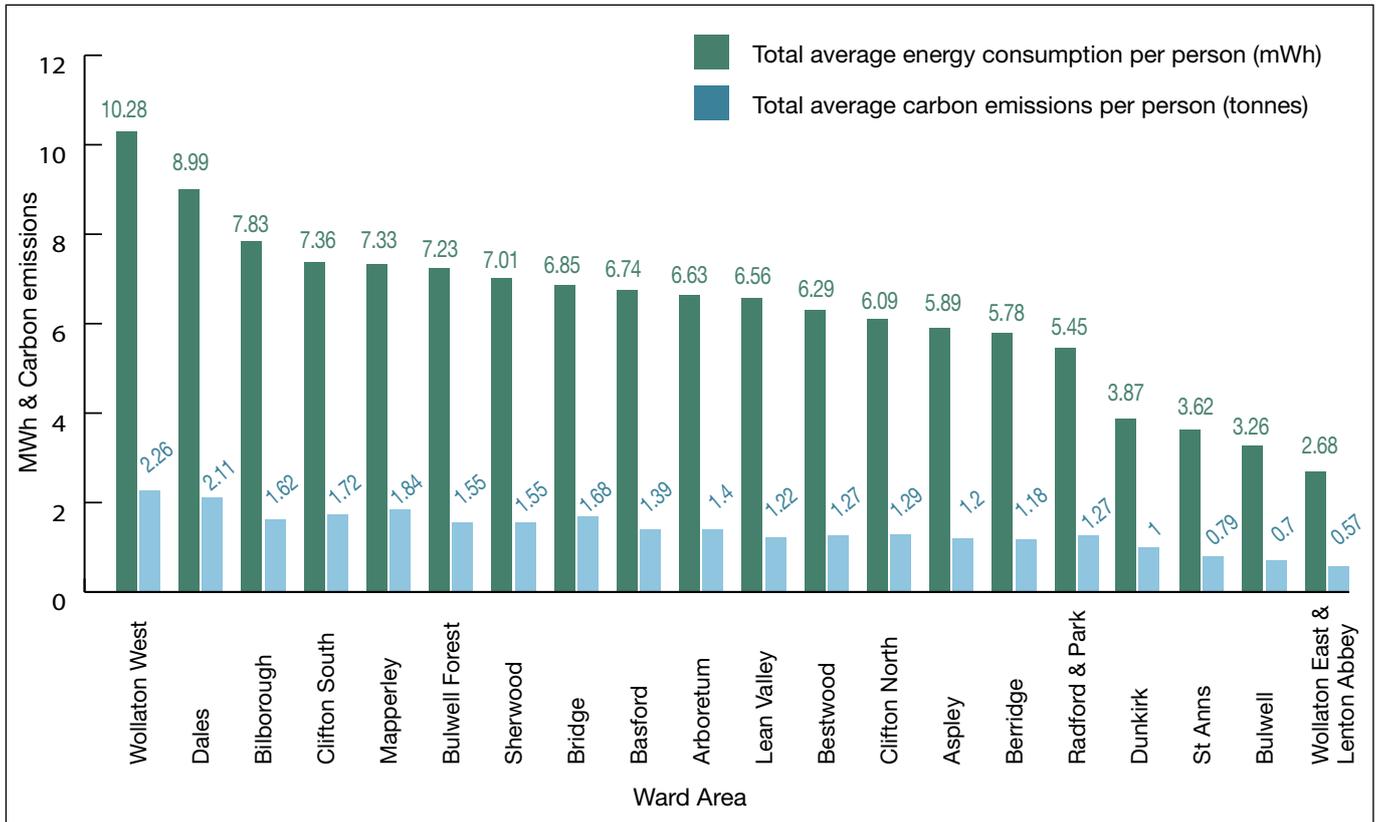
By analysing the profile make-up for each ward, we were able to make some broad conclusions about the type of activity most relevant to the area. For example, a ward with a high proportion of students would not be targeted with a domestic energy efficiency installation programme, as students are likely to reside in rented accommodation. However, actions such as encouraging re-use, cycling and community volunteering may be more appropriate.

By taking this more targeted approach, we are able to allocate resources more efficiently, and where they will have the greatest benefit.

Local energy consumption

Another source of vital information to help us understand the unique needs of each community is local energy data. We used the Department of Energy and Climate Change Energy Estimates for 2009 to establish average domestic energy consumption for each ward. By adding the Office of National Statistics 2009 population profile, we were able to work out average energy use per person, and this is shown in figure 13. This has assisted us in developing targeted actions regarding communities' energy use.

Figure 13. Energy use estimates 2009 by ward



Identifying the actions

After consultation with colleagues in Neighbourhood Management it was agreed to have a single action plan covering the city, with a suite of actions included within the plan. Neighbourhood Management are developing ward action plans within the next 12 months that will incorporate actions from the strategy. To develop actions for each ward, the climate change team took additional ward profiling information from:

- Feedback from workshops and Big Green Debates – As part of the stakeholder consultation we undertook research of current low carbon projects happening across the city, either to include in the strategy as a continuing action, or to use as best practice within another similar ward in the city.
- The Climate Change team’s own local knowledge was also used to define the actions.

Taking each of these types of information the Climate Change team took informed decisions on what actions would work within each ward. Where wards have similar profiles we have used the same actions.

The Action Plan 2011 - 2013

Key Priority Score

High

Medium

Low

This action plan will be reviewed and updated on an annual basis

Sector	Ref	Action	Outcome	Indicator	Lead Partners	Timescale	Area	Resource required	Priority score
Business	CC1	Engage with Economic Development and Nottingham Development Enterprise to create opportunities for apprenticeships and jobs from Nottingham's emerging green economy	Training and skills programme for out of work residents	Number of apprenticeships & jobs created	Nottingham City Council, Nottinghamshire & Derbyshire Chamber of Commerce. Nottingham Development Enterprise	2012-13	Aspley, Bestwood, Bilborough, Bulwell, St Anns Roll out city wide		High
	CC2	Promotion of Green Deal and Renewable Heat Incentive to residents via web page and article in Arrow magazine, and the Nottingham Energy Calculator Match to Mosaic profiles of the city	Increased interest and take up of energy efficiency and renewable energy measures	Increased number of Green Deal and RHI installations as measured by OfGEM Public Reporting Tool	Nottingham City Council, Nottingham Energy Partnership (with reference to specific actions within the Energy Strategy 2010)	2012-13	City Wide	Staff time Website Arrow magazine	
Domestic	CC3	Offer of a small grants scheme available to community groups, charities, and the voluntary sector to aid delivery of this strategy Scheme to be launched with Single Gateway Unit in January 2012, with grants being awarded before April 2012 Cross promote through the Neighbourhood Smarter Travel Co-ordinator if funding exists during 2012-13	More climate change related projects within the city	Number of projects supported Specific measures of success of each project	Nottingham City Council	2011-12 initially	City Wide	Staff time Financial	High

Sector	Ref	Action	Outcome	Indicator	Lead Partners	Timescale	Area	Resource required	Priority score
Business	CC4	Expand the My Street scheme of reps to include work around climate change in Nottingham. Train existing My Street reps to understand climate change issues and how to influence behaviour locally <ul style="list-style-type: none"> • Energy • Extreme weather • Travel • Buying local 	Increased awareness in climate change & Influence communities in behavioural change Increased number of volunteers to communicate climate change	Feedback from My Street Reps Number of volunteers	Nottingham City Council	2012	City Wide	Staff time Possible financial	
	CC5	Raise awareness of energy efficiency in the home by developing a range of promotional materials and making referrals to appropriate support organisations	Energy health check for homes Increased energy efficiency; reduce CO ₂ Increased take up of renewable energy technology Helping communities out of fuel poverty Increased use of the Eco-House at Minver Crescent as a showcase	Number of home health checks Former NI186 (2 year data lag) Increased number of Green Deal and RHI installations as measured by OfGEM Public Reporting Tool DECC Fuel poverty indicators Number of visitors & number of visitors to Nottingham Energy Calculator	Nottingham City Council, Nottingham Energy Partnership, Age Concern, Nottingham Faith Council, Energy Utility Partner	2012-13	Dales, Leen Valley Bridge, Bestwood, St Anns Clifton South, Mapperley, Wollaton West Bilborough, Bulwell Forest Roll out City wide in subsequent years	Staff time Promotional materials	
Domestic	CC6	Resilience awareness programme designed and rolled out for communities most at risk of flooding and heat waves	Greater understanding of resilience issues, as measured by evaluation questionnaire Increased uptake of resilience measures	Number of resilience measures installed	Nottingham City Council, Environment Agency, Severn Trent Water, UKCIP, Nottingham & Nottinghamshire Strategic Flood Risk Management Board	Winter 2012 Summer 2012	Basford, Bridge, Dales, Dunkirk & Lenton, Leen Valley, Bulwell, Sherwood All wards for heat wave	Resident survey Staff Flood packs	

Sector	Ref	Action	Outcome	Indicator	Lead Partners	Timescale	Area	Resource required	Priority score
Domestic	CC7	Resource efficiency education programme delivered to schools, e.g. by providing additional material to existing programmes such as Eco Schools and WISE	Increased awareness of environmental issues from school users Reduced energy consumption	School cost savings on energy and waste bills	Nottingham City Council	2012-13	Green Aware wards first, then potential roll out	Re-design existing resource to complement current resources	
	CC8	Lower the carbon emissions from the business sector in Nottingham by: Business engagement programme development Holding at least two Nottingham Carbon Club events per year Supporting the May Day Network's pledge scheme for businesses Promote the work of the Green-Tech Nottingham (Nottingham Science City) Develop a training programme	Reduction in CO ₂ from the business sector	Former NI186 (2 year data lag)	Nottingham City Council, Derbyshire and Nottinghamshire Chamber of Commerce	2012-13	Bridge, Dunkirk, Bilborough, then City Wide	Staff time	
Domestic	CC9	Low carbon app competition. Design a low carbon app for Nottingham, increasing awareness and promoting low carbon lifestyles	Use of smart technology to aid behavioural change Social networking outreach	Number of people using the app	Universities, Nottingham City Council	2012	Arboretum, Bridge, Dunkirk & Lenton, Radford & Park, Sherwood, St Anns, Wollaton West	Staff time	

Sector	Ref	Action	Outcome	Indicator	Lead Partners	Timescale	Area	Resource required	Priority score
Domestic	CC10	<p>Arrange meetings with local faith leaders to identify opportunities for climate change activity & education</p> <p>Highlight the connections between faith and environment / climate change</p>	Opportunities for projects	Number of projects and faith groups engaged with	Nottingham Faith Council, Nottingham City Council	2012 (on-going)	Arboretum, Basford, Berridge, Bridge, Mapperley, Sherwood,	Staff time	
	CC11	Encourage residents to grow own food and incentives to include seed giveaways, includes promotion around Britain in Bloom, & Nottingham Food & Drink Festival	<p>Promotion of grow your own</p> <p>Increased production of local affordable food</p>	Number of residents engaged with	EcoWorks, Transition, Allotment Groups, Groundwork's, Nottingham City Council, Community Garden Networks	2012	Arboretum, Billborough, Bulwell Forest, Mapperley, Radford & Park, Wollaton East, Bridge, Leen Valley, St Anns	Staff time	
Domestic	CC12	<p>Build case studies and material of local families who have started to change their behaviour, e.g. Aspley residents and their experience of solar PV.</p> <p>Application of case studies in other areas of the city, and include these on the Nottingham Energy Calculator</p> <p>Create a "virtual family" for the climate change website</p> <p>Take a street of differing green aware profiles to share experiences and assist in lowering carbon emissions</p>	Increased awareness	Number of people reading case studies	Nottingham City Council, Nottingham City Homes Nottingham Energy Partnership	2012-13	City Wide	Staff time	

Sector	Ref	Action	Outcome	Indicator	Lead Partners	Timescale	Area	Resource required	Priority score
Domestic	CC13	Promote projects of the 3rd sector via the Nottingham Green Theme Partnership	Replicate successful projects within other similar communities in Nottingham Increased knowledge of community activities	Number of projects replicated	Nottingham Green theme partnership	2012	Arboretum, Berridge, Radford & Park Roll out to other city wards	Staff time	
Domestic	CC14	Loan smart meters via libraries to residents to monitor energy consumption, initially focused on high energy use wards Look to assist to expand any current schemes in Nottingham	Reduction in energy use, and increase the take up of smart meters in the city	Number of loans Carbon saved during each loan DECC Energy Estimates	Nottingham City Council, Energy Utility Supplier	2012	Pilot in Leen Valley, Dales, Bridge, Bestwood, St Anns, Arboretum, Roll out City wards	Staff time Smart meters (partnership with Energy Utility)	
Domestic	CC15	Promote the use of reuse, e.g. swapping unwanted clothes, and other items Hold one identified ward swishing event per year	Help residents participate in reuse	Number of swaps	Nottingham City Council, Universities	2012	Arboretum, Bridge, Dales, Dunkirk & Lenton Radford & Park, Wollaton West	Staff time	

Sector	Ref	Action	Outcome	Indicator	Lead Partners	Timescale	Area	Resource required	Priority score
Transport	CC16	Promote smarter travel options by working with NCC's transport strategy team. This could include creating a network of community champions, and sharing web links Explore the possibility of using the proposed Neighbourhood Smarter Travel Co-ordinators as community based influencers	Uptake in alternative and public transport by Nottingham residents This will be delivered through the LSTF Key Component bid from 2012/13 – 2014/15 and will be extended to the rest of the City and the wider conurbation in 2013/14 – 2014/15 if the LSTF Main Bid is successful. From 2012/13 would be able to work in partnership to use the My Street scheme to promote low carbon travel behaviour to support both LSTF and Community Climate Change Strategy objectives	Number of people engaged with	Nottingham City Council, Nottingham CVS	2012	Bulwell, Bulwell Forest, Bestwood, Basford, Aspley, Bilborough, Leen Valley	Staff time	
	CC17	Create a sustainable living directory for local suppliers, community groups, charities for Nottingham	On-line sustainable living directory Promotion and boost to the local economy	Number of visitors to website Number of suppliers / groups in directory	Nottingham City Council	2012	Arboretum, Dunkirk & Lenton, Radford & Park, Wollaton East, Wollaton West Roll out city wide	Staff time	
Domestic	CC18	Promote the benefits of the natural environment and how it lowers carbon, and builds resilience towards climate change	Assist Parks & Open spaces in delivering two of the actions within the Breathing Space strategy namely: Develop polices which plan for forecasted changes in climate and its impact on biodiversity & Investigate ways in which open and green space can alleviate effects of climate change	Linked and cross referenced with Breathing Space Strategy 2010-2010.	Nottingham City Council Nottinghamshire Wildlife Trust	2012	City Wide	Staff time	

Ensuring delivery

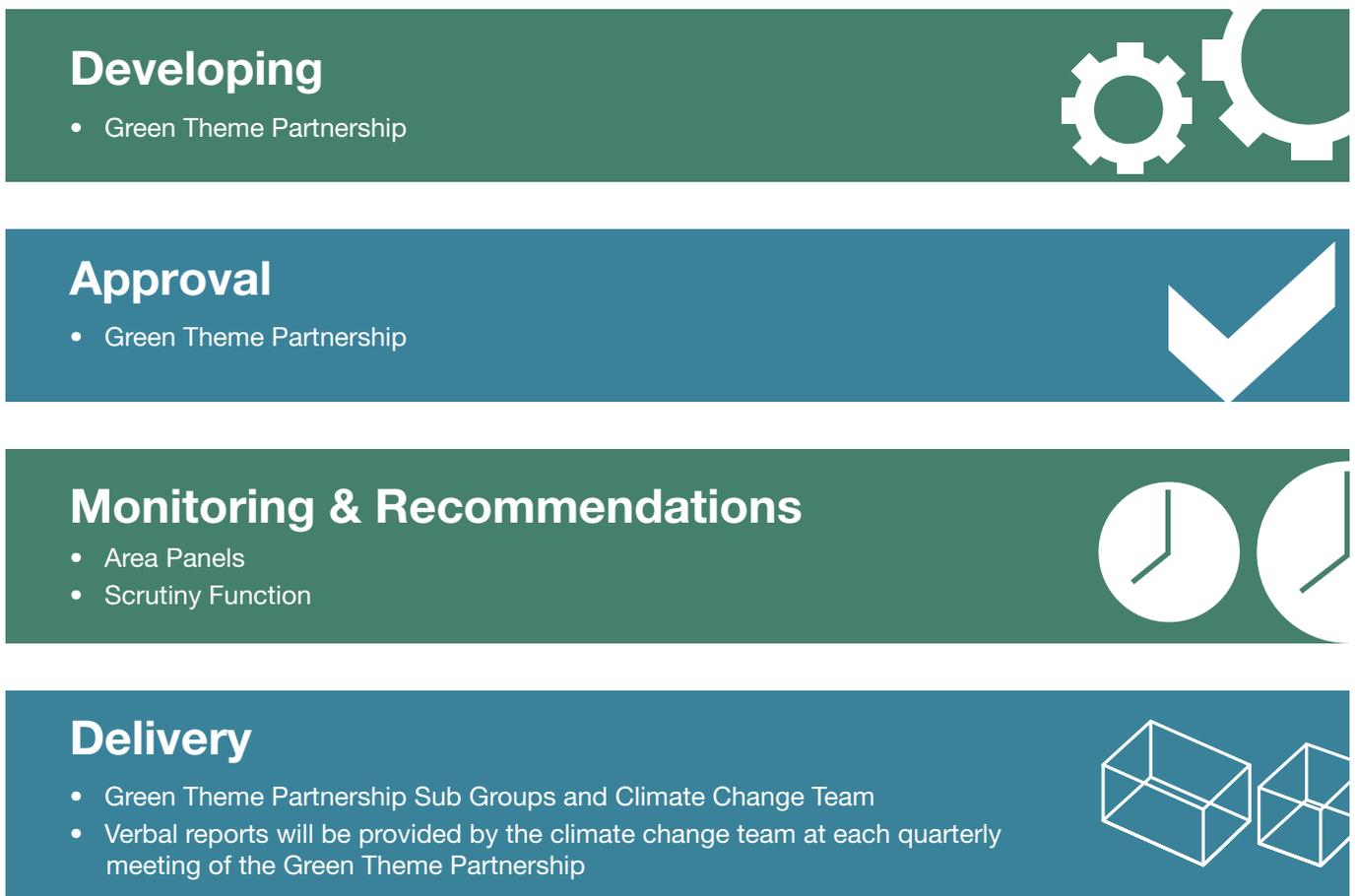
The action plan will be reviewed and updated on an annual basis. This review will take into account the progress which has been made, any new climate change developments (locally and nationally), and changes in available resource.

We have identified the following governance structure and put in place a performance management framework.

Governance structure

This strategy has been fully approved via Nottingham City Council’s decision making process.

Figure 14. Governance Structure



Neighbourhood Management System

The local ward specific actions contained within this strategy will be included within ward action plans to be published by our Neighbourhood and Communities service within the next 12 months. We shall be working together with each Area Manager to ensure delivery on the local actions. The local ward action plans will also be developed with the support of the communities within that ward, and the actions from the plans will be regularly monitored and scrutinised at Area Panel meetings attended by residents, councillors and area managers.

The Green Nottingham Partnership

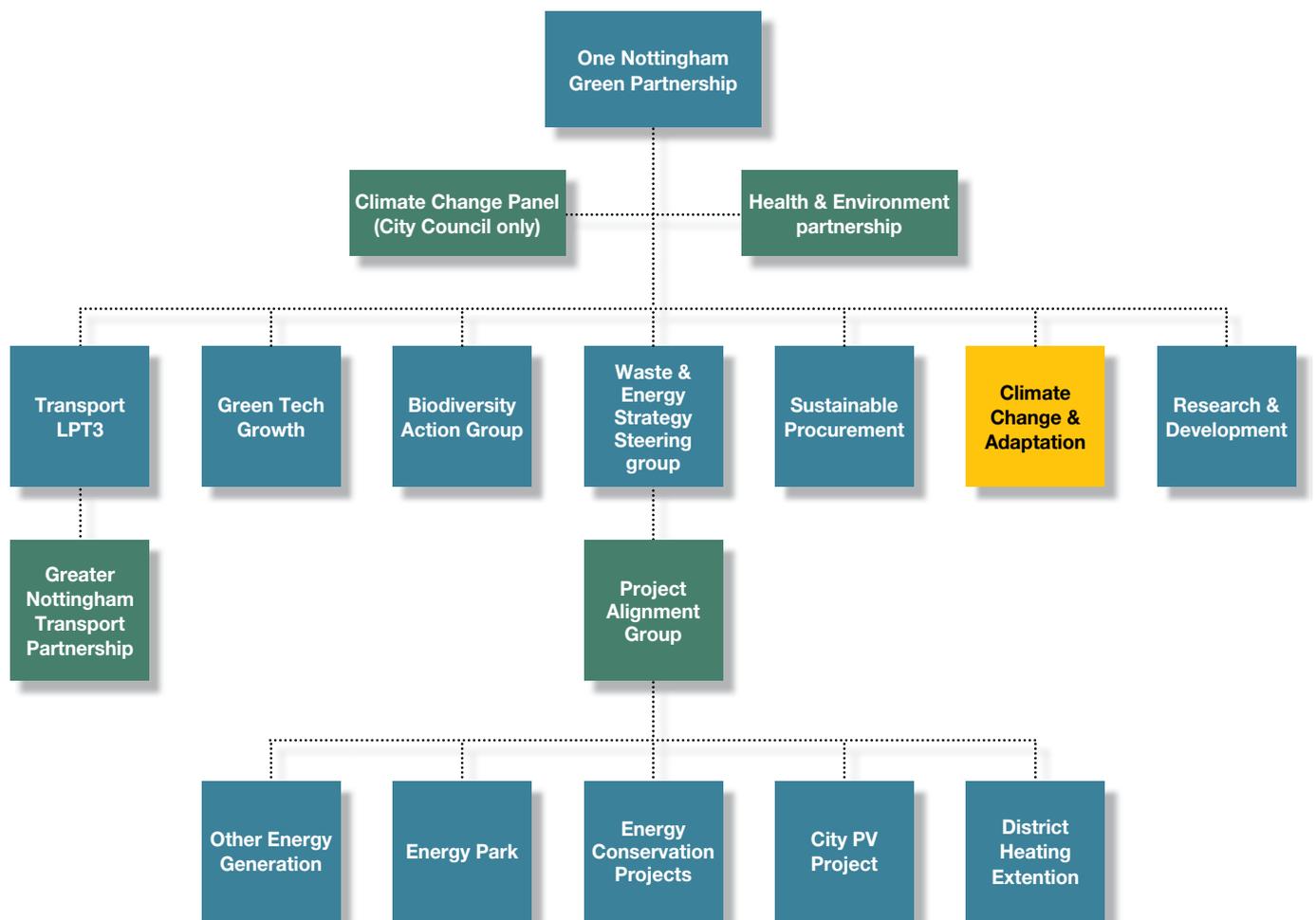
The Green Nottingham Partnership has been set up to deliver the strategic environmental aims of the Nottingham Plan. The group is chaired by a private sector organisation, and has representation from the public, private and voluntary sectors, as referenced in Our Support on page 6. Figure 15 below shows how the partnership works.

The Partnership has put together an implementation plan for 2011/12 that will take forward some of the key priority actions identified in the community climate change strategy. It will have overall responsibility for ensuring that all the actions in this strategy are delivered across the city, within the required time scales, by providing the necessary resources, drive and support. The Partnership has overall responsibility for ensuring the actions are delivered.

Performance management

This strategy will be updated annually and performance managed via the performance management structure of the Nottingham Green Theme Partnership. The Green Theme Partnership is required to produce an action log which is reviewed at each partnership meeting, provide an implementation plan for these actions and publish an annual report of its progress.

Figure 15. Performance Management Structure



The day to day delivery of this strategy shall be directed by the Climate Change and Adaptation sub group of the Green Theme Partnership, and the climate change team of Nottingham City Council. Performance indicators shall be developed to track the progress of the actions.

Supporting information

Key contacts

In 2008, Nottingham City Council established a small team to directly look at our environmental sustainability, and how we as a key influencer in the city can reduce our environmental impact, and carbon emissions. In 2010 the team restructured to be more outward facing, and to focus on how we can assist our communities and businesses in making the transformation towards a low carbon economy.

Nottingham City Council Climate Change Team

Debbie Hill

Climate Change Manager

Responsible for overall direction and management of climate change team

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Andy Whitley

Climate Change Officer

Key areas of work include: developing the climate change strategy, supporting the Council's events team to address sustainability issues, refreshing the Council's Carbon Management Plan and carbon emissions / energy data analysis.

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Amarpreet Lakha-Dunkel

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For further information about the work of Nottingham City Council's climate change team, please log on to:

www.nottinghamcity.gov.uk/climatechange

Green Theme Partnership

Debbie Hill

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✉ debbie.hill@nottinghamcity.gov.uk

Glossary

Adaptation

Responding to the impacts of a changing climate – new schemes such as sustainable drainage infrastructure, planting extra trees and designing houses to be cooler in warmer summers.

Behaviour Change

This refers to a change in the normal patterns of people's actions towards their surroundings and environment. Changes in behaviour regarding climate change would mean switching to a lifestyle that produces less carbon and is less resource intensive.

Business Continuity

A management process that identifies potential risks which threaten an organisation and provides a framework for building resilience. Business Continuity ensures critical services can continue to be delivered during any disruption, with the capability for an effective response that safeguards the interests of its key stakeholders, reputation and brand and value creating activities.

Carbon Dioxide (CO₂)

A colourless odourless gas, which is produced by the burning of materials containing carbon, such as fossil fuels (coal, charcoal, natural gas) and natural products like wood. It is also produced through respiration of living organisms and is absorbed by plants and trees.

Carbon footprint

Carbon footprinting is a way of quantifying the total amount of carbon emissions an individual, organisation or event, released into the atmosphere as a result of their actions and activities.

Carbon Neutral

Achieving carbon neutrality, i.e. having zero net carbon emissions, can be achieved mainly in two ways. Firstly, by balancing the amount of carbon dioxide released, with a CO₂ reduction elsewhere (carbon offsetting). Alternatively, being carbon neutral can mean not producing any amount of CO₂ at all, for example by utilising renewable energy technologies which have zero emissions associated with the generation process.

Climate

The average set of atmospheric conditions that are characteristic for a specific region, over a long period of time.

Climate Change

Refers to changes in long term trends of normal weather patterns. The time scale for this is observed over periods of 30 years scientifically and spatially from a specific location to a global scale. Climate change is often confused with the terms weather (see definition below) and global warming.

Community

A local group of people living in a common location, who regularly interact with each other on a daily basis. Communities often have shared values and beliefs.

CO₂

The chemical formula for Carbon Dioxide (see above definition).

Development Management

Development management describes the range of activities and interactions that together transform the 'control of development and the use of land' into a more positive and proactive process.

Efficiency

Regarding energy, efficiency refers to how successful the energy is being used for a specific purpose. Making something more energy efficient would mean using less energy without compromising on the quality of the end output. This saves money and energy and helps to lower carbon emissions by reducing the demand for energy and fuel.

Embedded carbon

Sometimes referred to as embodied carbon, this can be defined as the carbon produced over the course of a product's whole lifecycle, from production to transportation to disposal.

Emissions

Greenhouses gases released into the atmosphere as a result of the burning of fossil fuels. The six main greenhouse gases are:

- Carbon dioxide
- Methane
- Nitrous oxide
- Hydrofluorocarbons
- Perfluorocarbons
- Sulphur hexafluoride

Energy

The ability of a system to perform work. Energy cannot be destroyed or created, only transferred. In the context of this strategy this includes the forms of energy of electricity, gas, and renewables.

Environment

The immediate surroundings in which something lives. The environment includes all living and non-living entities.

Fluvial Flooding

Flooding produced by the action of a river or stream.

Fossil Fuels

Fuels that have naturally formed from decomposed organisms over millions of years, which produce carbon dioxide when burnt. Because of the nature of their formation, fossil fuels are a non-renewable resource and include such fuels as natural gas, coal and oil.

Incentives

A motive or influence which encourages someone to take a particular course of action over alternative options.

Local

Related to particular area or neighbourhood.

Mitigation

To alleviate some of the force or intensity of something. In terms of climate change, any activity which reduces the effects of climate change, such as energy use reduction or increased forestation, can be said to 'mitigate' climate change.

One Planet Living

Refers to a manner of living which uses resources sustainably, instead of living beyond the means at which the earth can provide for us. If everyone lived the same lifestyle as the average European for example, we would need 3 earths to support that standard of living (WWF and BioRegional, 2008).

Peak Oil

Peak oil describes the point at which the amount of oil produced globally in a single year reaches its absolute maximum. From this point onwards, oil will still be produced but at a lesser volume. After peaking, oil production will ultimately go into decline.

Pollution

Contamination of the natural environment with detrimental substances, as a consequence of human activities.

Resilience

The ability of something (people, buildings, ecosystems) to be able to adapt to different situations and challenges.

Risk

The likelihood of a hazardous event occurring, which could result in damage and loss.

Sustainable Development

Meets the needs of the present, without compromising the ability of future generations to meet their own needs.

Weather

The occurring conditions in the atmosphere at a specific immediate time. This is often confused with climate (see definition).

