Imagine MK 2050 Strategy

A roadmap for a sustainable Milton Keynes

www.milton-keynes.gov.uk/MK2050

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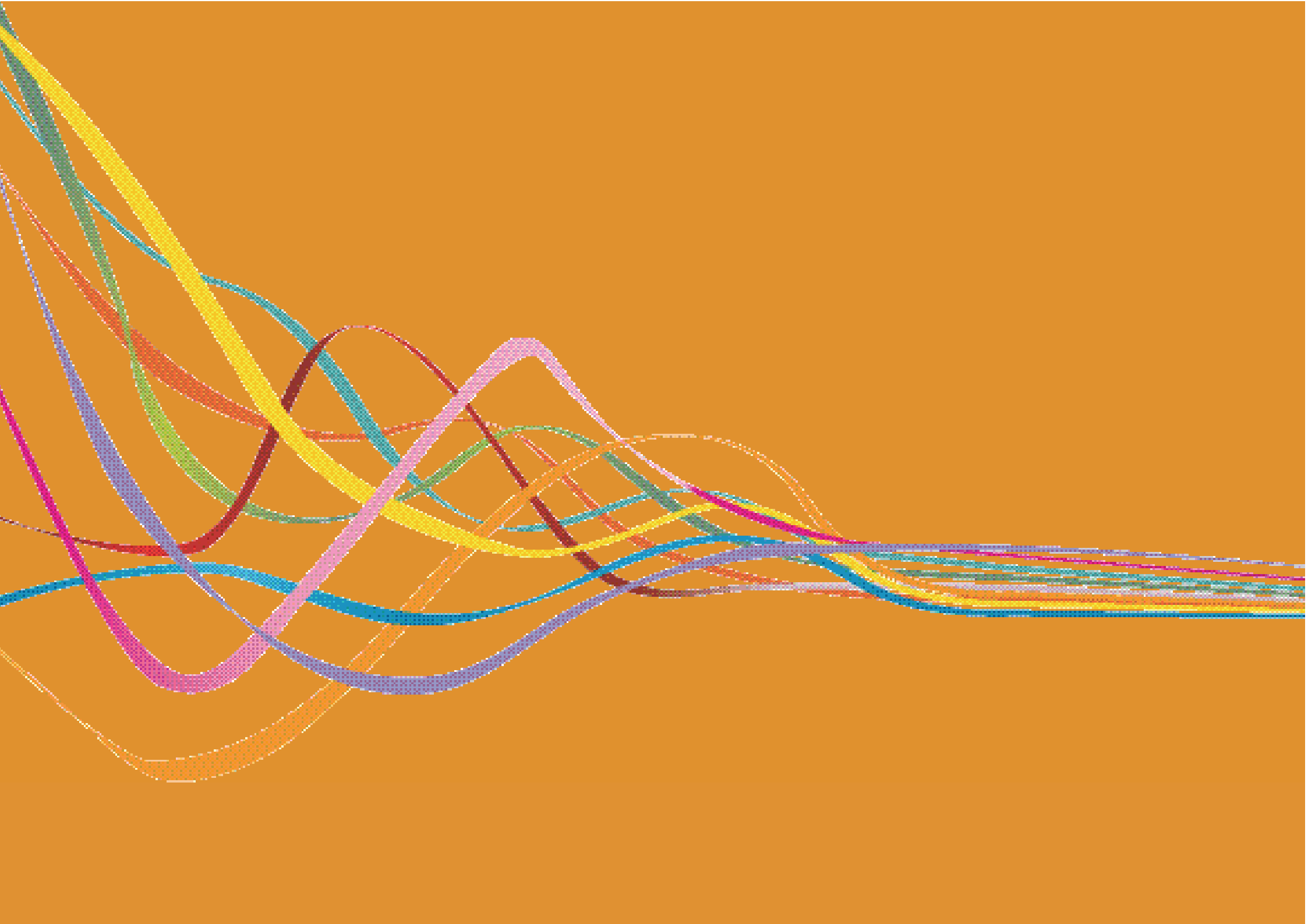
imagine
MILTON KEYNES 2050

MILTON KEYNES COUNCIL



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1. INTRODUCTION TO THE IMAGINE 2050 ROADMAP

Milton Keynes was one of eight European cities who took part in the Imagine 2050 Project, funded by the European Union European Regional Development Fund (ERDF) and the INTERREG IVC Programme. INTERREG IVC provides funding for interregional cooperation across Europe and is implemented under the European Community's territorial co-operation objective.

OUR PARTNER CITIES

Munich (DE) **Lille** (FR) **Odense** (DK) **Figueres** (ES) **Modena** (IT) **Bistrita** (RO) **Dobrich** (BG)

All Partner Cities received practical support from Energy Cities who co-ordinated the Project and its academic partners at Hamburg University who compared the local engagement process of the partner cities. The project team used and exchanged best practice to understand the variety of political processes involved.

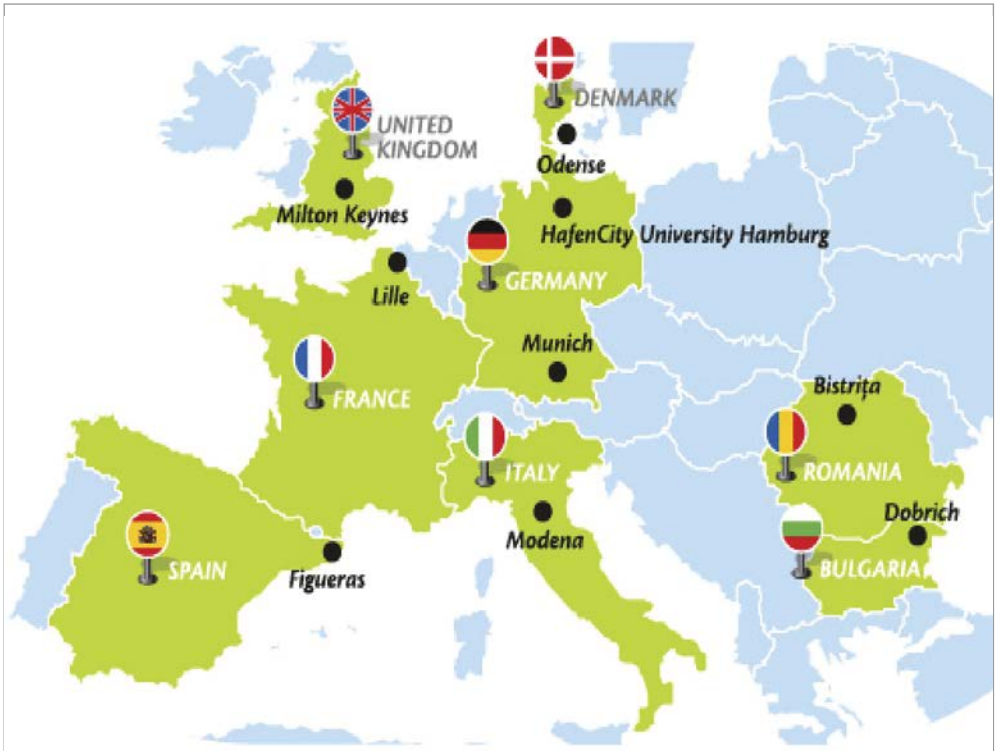
The project also involved local elected members in European forums to exchange ideas for a sustainable society in future. The IMAGINE initiative was a platform for foresight, collaboration and exchange leading to action and change. The project started in 2011 with 3 years funding.

The Roadmap strategy will be used by the Council as a long term strategic document providing guiding principles for the future. The pace of change in this area is rapid, so the strategy will be refreshed as required over the coming years.

Imagine 2050 was an opportunity for the city to look beyond the normal timescales and boundaries of local government thinking and understand the aspirations of stakeholders for the long term future of their city. Milton Keynes is a modern city with a history of embracing the challenges of the future. With this document the city aims to be a pathfinder for successful and sustainable communities over the coming decades.

Energy in a city is more than heat and light. It keeps a city alive and growing, with the confidence to create a thriving local economy, high employment and a good quality of life for all citizens.

By reducing the city's dependency on external energy resources, the local economy will be more stable in the face of external economic pressures based on fossil fuels. A fossil fuel based economy is associated with an external energy supply chain, with associated jobs and economic growth outside the locality. Development of local resources and supplies will entail the creation of new industries and jobs, improving the economy locally.



IMAGINE MAP OF PARTNERS©RHODOSIGNE

2. SUMMARY

The strategy is a long term roadmap for a low carbon Milton Keynes. The strategy is the product of the Imagine 2050 Project constructed from interviews with decision makers; stakeholder workshops; seminars with partner cities and public consultation. The strategy builds on the existing Low Carbon Living Strategy 2010 and Low Carbon Action Plan produced in 2012 and the Europe wide reputation that Milton Keynes holds for introducing innovative low carbon solutions.

The vision of the strategy is: 'Milton Keynes will be a near zero carbon city with a high quality of life for all by 2050'. The definition of 'near zero carbon' city is for near zero net carbon emissions. This will be achieved by the twenty to thirty outcomes that are divided into five themes. The final number of outcomes is dependent on the feedback from the public consultation but the aim is to keep the number to the minimum necessary to provide a detailed summary of the strategy. The outcomes are the aims that were defined in team and stakeholder workshops; The Vision, Themes and Outcomes are in Figure 1 at the end of the Summary.

The strategy provides a background of reasons for a low carbon framework and how the themes and objectives relate to existing local and national policies. Details of how the strategy was created are outlined in Section 4 with a description of the tools and processes that were employed to build the strategy.

The ability to measure progress is dependent on an appropriate baseline followed by a monitoring programme. For this purpose, project partners at Hamburg University designed a grid tool for Imagine 2050. The grid has proved to be useful not only for this purpose but also for encouraging discussion on policies. Sustainability is already a consideration in council project/programme planning: the grid results have raised the importance of including low carbon solutions at the early planning stage. The grid provokes discussions of what policies exist: what support is available; who are the stakeholders and which departments are potentially involved. The grid challenges normal thinking with over a thousand questions and assessments with a red/amber/green (RAG) traffic light system to indicate the current status within the council. Red indicates that much more could be done, and green indicates that we are on the right track locally with amber in the middle. The information gained from the questions in the grid yields a valuable baseline and overview. Regular updates of the grid will produce sufficient data to aid and assess progress towards a low carbon future.

The priorities for action to achieve the strategy vision are to augment the targets in the 2010 Low Carbon Living Strategy. The overall target is for MK to reduce carbon emissions per person by 40% by 2020, from a 2005 baseline and to near zero carbon by 2050 or sooner. This is achieved by defining challenging but achievable priorities within the council's strategy guidelines for housing, planning, open spaces, waste and sustainability. The Strategy also builds on the Low Carbon Living Programme: both provide overviews of low carbon projects and methods of communication.

Milton Keynes is growing rapidly and this brings both challenges and opportunities. Challenges are to reduce energy demand, water consumption and waste. Opportunities are for refurbishment and new build projects to have the best energy efficiency, ideally passive house standard to future proof the city's buildings up to 2050 and beyond. Opportunities to keep Milton Keynes as an energy efficient city are identified in all sectors in the Strategy.

Communication and education are identified as priorities in the 'how are we going to get there?' section of the Strategy. If the outcomes are achieved, the quality of life will be improved through co-operation within communities by sourcing energy and food locally.

Any reports to The Council Cabinet requires comments on "...whether the proposal(s) support(s) the Council's Carbon and Energy Management Policy to maximise energy efficiency and carbon reduction in Council buildings, equipment and vehicles and use the most sustainable or renewable energy sources". The Imagine Strategy compliments this aim by providing a detailed and deliverable strategy for a near zero carbon Milton Keynes by 2050.

Figure 1 on page 7 is a summary of the Outcomes for this Roadmap/Low Carbon Strategy. Baselines for monitoring the Outcomes in areas not previously monitored could be difficult and will be decided when preparing the action plan.

New ideas such as reducing HGV's through a Lorry Route management strategy are at an early stage.

Our Vision Milton Keynes will be a near zero carbon city with a high quality of life for all by 2050

Themes	Buildings & Energy Generation	Travel	Waste & Water	Smart City & Community	Green Space & Food
Outcomes	• All new buildings will be built to zero carbon standard • Most existing buildings will be upgraded to near zero carbon standard • MKC will lead by example using its building stock • Encourage use of the most efficient electric appliances • Replace all use of fossil fuels by maximising renewable energy use • Maximise energy efficiency by district heating and CHP	• Travel in MK will produce zero carbon emissions • Reduce use of cars by encouraging cycling, walking, bus and rail. • Increase use of low carbon vehicles. • The need to travel is reduced by better technology.	• 70% of domestic waste is recycled, with maximum 5% landfilled • Maximise production of energy from waste • Maximise non-domestic recycling • All collection vehicles to be low carbon • Zero carbon water treatment • Reduce water use per person to achieve no increase in total water consumption	• Enable smart grid network data collection and public use of data • Encourage/support projects, partnerships and new technologies • Integration of services/ networks e.g. public transport & energy • Encourage/support community led initiatives e.g. energy reduction and energy production	• Urban and rural green space will be used more efficiently for leisure, food growing, biomass fuel and carbon storage • Encourage local food production • Encourage low carbon diets.
Existing Strategies	MK Low Carbon Living Strategy MK Core Strategy (incorporating MK Low Carbon Strategy and Planning Policy D4) MK Waste Strategy	MK Low Carbon Living Strategy MK Transport Strategy (LTP3) Cycling Strategy	MK Low Carbon Living Strategy MK Waste Strategy	MK Low Carbon Living Strategy MK Core Strategy RegenerationMK Local Plan	MK Low Carbon Living Strategy Public Open Space Management Framework MK Public Health Strategy
Measurement Tools	• Energy metering • Project monitoring • DECC Data	• Green Travel Plans Submitted • Lorry Route management (under development) • Smarter Choices (under development) • Road Safety Strategy (under development)	• Existing Waste monitoring process • Water metering • Liasing with Anglian Water	• Project Monitoring Database	• Project Monitoring Database

Figure 1 Strategy Vision, Themes and Outcomes

3. BACKGROUND

WHY CLIMATE CHANGE IS IMPORTANT

Over recent decades there has been a growing realisation that society's current development is unsustainable. The consequences of already unavoidable climate change, the increasing stress on our natural resources and environmental systems, and the increasing loss of biodiversity are all readily apparent.

According to the Intergovernmental Panel on Climate Change (IPCC), "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased "(Fifth Assessment Report, 2013). The report also states "It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century."

The IPCC predicts that rising temperatures will be accompanied by many other changes to the Earth system, affecting food and water supplies, human health, biodiversity and the economy.

The Stern Review for the Chancellor on the 'Economics of Climate Change', published in November 2006, demonstrated the economic case for acting now to avert climate change. Whilst unabated climate change could cost the world at least 5% of GDP each year and as much as 20% of GDP if more dramatic predictions come to pass, the cost of reducing emissions could be limited to around 1% of global GDP.

The effects of climate change are already visible as more extreme weather. Climate change will increase the probability of surface water flooding and summer heat wave conditions. As well as adapting to the climate change already in the system ("climate change adaptation"), we all need to take urgent action to prevent further warming ("climate change mitigation").

With these thoughts, Milton Keynes Council decided to become an exemplar oganisation and has actively sought to reduce carbon emissions. The Nottingham Declaration, Low Carbon Strategy and sustainable housing policies all contribute to the council's input to the Imagine Project.

OBJECTIVES FOR THIS PROJECT

The objectives for the Imagine Project in Milton Keynes are:

- To establish the opinions, concerns and aspirations of both industry and the population within Milton Keynes for energy issues in their city as they would imagine it to be in 2050.
- To engage citizens and industry by means of a series of consultative forums with key stakeholders across all sectors over the three years of the project.
- To include input from the Youth Council, schools and other community groups.
- To produce a strategy for a Low Carbon City that has a high degree of local buy-in.
- To promote interest and discussion locally on Energy and Carbon issues.
- To engage citizens and industry in a community vision for a Low Carbon Milton Keynes in 2050.
- To build on existing Milton Keynes Council Low Carbon strategies and policies.

4. HOW THIS STRATEGY WAS PREPARED

The strategy was prepared by stakeholder engagement, collecting information from decision makers and public consultation. Details of these elements are outlined below.

1. Stakeholder Engagement
Three stakeholder events were held, engaging a wide range of stakeholders including those from the following sectors:

- Local universities
- Major employers
- Councillors with a particular interest in the topic
- Hospital and healthcare providers
- Utilities
- Community groups and local NGO's including Youth groups
- Members of the public and Milton Keynes residents
- Architects and developers

The purpose of the first event on 20th November 2012 was to provide a long term vision for a low carbon future and the major themes and objectives that should be covered. The focus was on the aspirations of the citizens and facilitated by professional facilitators "Inform".

The purpose of the second event on 14th May 2013 was to build on the themes emerging from the first event and to envision the actions that need to happen to fulfil the vision provided by the first event.

In the third stakeholder event on 26th June 2014, the Vision, Themes and Outcomes were tested against stakeholder expectations and copies of a draft of the Strategy were made available for viewing. A public consultation followed this event in the form of a web survey.

2. Use of the Project Grid Tool
All cities taking part in the project used this spreadsheet to collate information about current activities, strategies, strengths and weaknesses in each sector. Information to complete the Grid was acquired by analysis of existing plans and strategies, interviews with heads of departments within the Council and the manager of the local water authority. More information on the Grid is in Section 5.

The sections in the grid are grouped into the following themes:

- Energy Generation, Distribution and Consumption
- Mobility and Transport
- Urban Planning
- Waste
- Housing and Buildings
- Water
- Health & Liveability
- Lifestyle Consumption Patterns.

It is noted that feedback from the third stakeholder workshops identified the exclusion of the use of modelling and employment. Although these subjects are beyond the scope of this strategy, they may be considered again in future versions of the Low Carbon Strategy.

3. Synthesis
Using the aspirations and proposed actions gained from the first two stakeholder events and the information gained from the Grid about the current state of low carbon activities, together with the existing low carbon strategy document in Milton Keynes, the project team synthesised a strategy for a low carbon future using a series of workshops. The resulting vision, outcomes and policies form the output of this project.

4. Use of Council Guidelines
The Council has its own guidelines for strategy development which have been produced to ensure a consistent approach across the organisation in developing or reviewing any strategy, policy or plan.

There five elements of the guidance are:

- Context
- Vision
- Priorities
- Accountability
- General

These guidelines provide a common set of terms and format. They are not meant to apply hard and fast rules but allow for adaptation. Preparation of the Strategy has followed these principles.

5. Promotional Events
The Imagine MK2050 project has been promoted at events during the EU Sustainable Energy Weeks 2012, 2013 and 2014 and other local and national events attended by the team.

6. Next Steps
The Strategy was presented for public consultation through a web-based survey in the summer of 2014 and workshops at a local schools' event "MYsayMK" on 9th July 2014. The Strategy was revised with the feedback from these events and incorporated into the final document in November 2014.

5. WHERE ARE WE NOW?

Information collected in the Imagine grid indicates Milton Keynes Council and the UK government already have good policies for a low carbon future but that there is room for improvement.

POLICY CONTEXT

Local Policies

The Council has two key policy documents which are particularly relevant. These are the Corporate Plan and the Core Strategy.

1. The Corporate Plan 2012-16
This was last refreshed in January 2014. The Plan has five themes and a list of desired outcomes. These themes and outcomes are in Figure 2 on page 11. The Plan clearly illustrates the Council is committed to a low carbon agenda and aims to continue to be a leading city for new approaches and a test bed for new technologies.

Figure 2 Corporate Plan Vision, Themes and Outcomes

2. The Milton Keynes Core Strategy

This is an overarching planning policy document, which all Planning Authorities are required to produce. The Core Strategy Policies are listed in the text box in Figure 3 with additional comments to highlight the relevance to the Strategy. Policies outline the guidelines to deliver the Vision of the Corporate Plan. The Core Strategy in use today is the adopted version approved in July 2013. Milton Keynes is a city that is growing rapidly and the Council regularly review policies to take into account the dynamic character of the Borough. The new Core Strategy will be reviewed to produce Plan:MK.

Policy CSA National Planning Policy Framework - Presumption in favour of sustainable development.

Policy CS1 Milton Keynes Development Strategy. Incorporates the Strategic Land Allocation and Site Allocations Plan.

Policy CS2 Housing Land Supply, Land for around 2,900 homes is reserved under the Housing Land Supply Position 2010-2026.

Policy CSAD1 Review of the Core Strategy. Early review by objective assessment to adopt Plan:MK in 2015.

Policy CS3 Employment Land Supply. Milton Keynes has a key role with the South East Midlands Local Enterprise Partnership (SEMLEP) and the Strategy aims for an employment growth rate of 1.5 jobs per new home. An average of 42,000 jobs per year until 2026 are required to meet this aim.

Policy CS4 Retail and Leisure Development. Central Milton Keynes is the primary shopping area, with a further four District Centres and four Town Centres.

Policy CS5 Strategic Land Allocation. There are four Strategic Reserve Areas and a further four areas of land in or around the urban area of Milton Keynes that are allocated as Sustainable Urban Extensions to Milton Keynes.

Policy CS6 Place-shaping Principles for Sustainable Urban Extensions in Adjacent Local Authorities. Policies for development, infrastructure, transport, utilities and funding of the Extensions.

Policy CS7 Central Milton Keynes. Key objectives are high quality buildings, high density development where appropriate, attract visitors, provide a range of travel options, encourage walking, cycling, pedestrian-friendly routes and public transport.

Policy CS8 Other Areas of Change. Incorporating the Neighbourhood Regeneration Strategy, planning permissions already granted, town centre changes and sustainable patterns of transport to areas of change.

Policy CS9 Strategy for the Rural Area. Preparation of Site Allocation Plan to identify land for around 110 homes a year to be build in the rural areas of Milton Keynes.

Policy CS10 Housing. Work with the Homes and Communities Agency and in accordance with Policy CS2, new and refurbished housing provision incorporating energy efficiency, renewable energy, carbon neutrality, safety and 'lifetime homes'. Design to encourage non-car travel, affordable housing, multiple occupancy and be suitable for elderly persons, special needs, single people, religious, ethnic or lifestyle groups and traveller site needs will be assessed.

Policy CS11 A Well Connected Milton Keynes. Incorporating Local Transport Plan 3: vision and strategy objectives for public transport, community transport, future modes of transport, cycling, walking, smarter choices, behavioural change encouragement, highway and traffic management, technology-information provision, web based technology, future modes of transport and alternative fuels, highway and Redway management and integrated planning and frameworks for transport with new developments. Work with neighbouring local authorities and transport providers to improve accessibility and meet increasing demand for movement of people and goods while improving quality of life and reducing the Borough's carbon footprint.

Policy CS12 Developing Successful Neighbourhoods. Support for sustainable lifestyle choices in new developments and major redevelopments. Incorporates MK Open Space Strategy, encourages home working, locating developments to maintain and improve flood risk and air quality management.

Policy CS13 Ensuring High Quality, Well Designed Places. High design quality of sustainable buildings with a positive contribution to character of the area, and appropriate population density for the area.

Policy CS14 Community Energy Networks and Large Scale Renewable Energy Schemes. Promotion of renewable energy schemes that demonstrate no negative social, economic or environmental results of the scheme. Encouragement of proposals for community energy networks for over 100 homes and connection of new developments to existing local energy networks expected if feasible.

Policy CS15 Delivering Economic Prosperity. Skilled workforce encouraged by delivery of schools, training facilities, science parks, improved broadband/high speed internet across the Borough, development of sites for sport, tourism and cultural events, attracting employers and investment, supporting development of creative industries and further development of heritage and tourist attractions.

Policy CS16 Supporting Small Businesses. Encourage building of small business units, live/work units and provision of services and facilities appropriate to small businesses.

Policy CS17 Improving access to local services and facilities. Protecting, encouraging and improving open spaces, leisure, recreation, sport, community facilities, local centres, village shops, public houses and Post Offices. Improving access for students to education facilities by public transport.

Policy CS18 Healthier and Safer Communities. Reducing crime and anti-social behaviour by working with SaferMK and best practice guidelines in Safer Places and Secured by Design. Emergency planning and security on linear parks and Redway systems.

Policy CS19 The Historic and Natural Environment. Green infrastructure, linear parks, open spaces and protecting character, buildings and structures that are of historic, architectural, cultural, biodiversity or archeological significance.

Policy CS20 Minerals. Sustainable, realistic and achievable levels of sand and gravel extraction and aftercare of sites.

Policy CS21 Delivering Infrastructure. Support and mitigation of impacts of new developments and reliable mechanisms for delivery of high standards of developments under a new Planning Obligations Supplementary Planning Document delivered through Section 106 agreements. The Milton Keynes Tariff will continue to operate on sites covered by the Framework Agreement when the Community Infrastructure Levy is introduced locally under the s106 agreements.

Figure 3
Milton Keynes Council Corporate Strategy Policies

PROGRAMMES AND PROJECTS UNDERWAY

In addition to the Core Strategy and Corporate Plan, Milton Keynes has an existing Low Carbon Living Strategy 2010 and Action Plan 2012, became a signatory to the Covenant of Mayors in 2011, introduced Policy D4 into the Local Plan and has published a low carbon prospectus. Details of these initiatives are in the following three pages:

Low Carbon Living Strategy and Action Plan.

This aims to place Milton Keynes at the forefront of low carbon living, nationally and internationally. It has a target to reduce carbon emissions per person in the MK area by 40% by 2020 from a 2005 baseline. The Imagine strategy/ roadmap will be a refresh of the Low Carbon Living Strategy and build on the existing target for MK to reduce carbon emissions per person by 40% by 2020 by adding to near zero carbon by 2050 or sooner.

Covenant of Mayors

Milton Keynes Council is a signatory to the Nottingham Declaration on climate change and the EU Covenant of Mayors that includes a commitment to cut carbon emissions by at least 20% by 2020.

Local Plan – Policy D4.

This requires high energy efficiency, 10% renewable energy and carbon neutrality/offsetting for all major developments. The proposed policy refresh in the MK Core Strategy sets out new objectives that will require new developments to achieve even higher energy efficiency and an increase to 20% in the proportion of the carbon emission reductions through onsite renewable energy production.

The Council also has sector strategies and plans which are key to delivering a low carbon future including:

- The Low Carbon Living Programme
- The Local Transport Plan, Walking Strategy and Cycling Strategy
- MK Zero Waste Strategy
- Housing Strategy

Low Carbon Prospectus

This prospectus describes the original concept of Milton Keynes as a city who thinks differently, embraces evolution and champions change. Details of how the city has developed with the aims of sustainable communities with 40% of land set aside to provide open spaces, pioneering low energy housing developments and a society with educational, technological and economic advantages for rural and urban areas.

The Low Carbon Living Programme

The Low Carbon Living Programme was initiated by Milton Keynes Council for the purpose of reducing carbon emissions in the Borough by 40% from 2005 levels by 2020. This would be achieved by developing partnerships with other agencies and organisations and engaging with residents, the business community and partners to focus on projects that reduce carbon emissions.

Projects in the Programme include MK Smart data hub, renewable energy and energy efficiency initiatives such as Salix where capital loans for energy efficient measures are repaid by savings on energy costs, low carbon transport such as electric buses and car charging points, public engagement and research and Project Falcon: – (Flexible Approaches to Low Carbon Optimized Networks). The Sustainability Team co-ordinate the Low Carbon Living Programme. The Steering Group meet at the Council Offices every three months to discuss progress and share information.

This Programme has proved successful as a platform for dissemination of ideas for low carbon initiatives and collaboration of stakeholders as a result of sharing project knowledge, along with communication and networking opportunities. The scheme continues to produce valuable results with support from businesses, organisations, utility companies and departments within Milton Keynes Council.

The Low Carbon Prospectus

The Low Carbon Prospectus is the result of a collaboration of Milton Keynes Council, Milton Keynes Partnership, NHBC (National House Building Council) and the Zero Carbon Hub. It was commissioned in 2010 by Milton Keynes Council to establish the city as an international centre of excellence for low carbon living.

The prospectus demonstrates the integrated sustainable approach to housing, education, energy, water and transport with a vision for a low carbon and sustainable Milton Keynes that considers the housing, amenities, education, lifestyle, the green economy, jobs, waste treatment, electrification of transport and smart power grids in the rural and urban areas of Milton Keynes.

Technology

The prospectus describes the ground breaking past and present environmental initiatives in Milton Keynes. These include the first large scale combined heat and power plant supplying the new communities in Central Milton Keynes, the successful Plugged-in Places project which provides an electric vehicle charging point infrastructure and an innovative local BioGas plant which will produce gas from local household community waste.

Community and Local Initiatives

The prospectus describes local volunteer groups and knowledge networks working towards low impact living, food produced locally and ideas for saving energy.

Low Carbon Buildings and Transport

The prospectus provides examples of energy efficient developments including the three storey extension of Oakgrove School that achieved a BREEAM rating of 'very good', The award winning Vizion: a high density mixed use development of large supermarket, commercial and retail units and 441 apartments and town houses over 4 to 12 storeys. All the Vizion buildings were designed to meet BREEAM 'Excellent' standard and Eco Homes 'Very Good'. Electricity and heating are supplied by the Central Milton Keynes Combined Heat and Power (CHP) system. The 1300 homes, shops and community facilities of the Tattenhoe Park development has a sustainable urban drainage scheme and is a test bed for smart grid applications.

10:10 Campaign

Milton Keynes Council joined the national 10:10 campaign which aimed to motivate individuals and organisations to cut their carbon emissions by 10% in 2010.

Other Low Carbon Projects underway in Milton Keynes

Low carbon, high tech projects and industries are attracted to Milton Keynes. The Council also has some low carbon projects underway. Examples of such organisations and projects are as follows:-

- The Transport Catapult
- The Electric Bus trial
- A Smart Grid trial/Project Falcon
- A Waste to Energy plant under construction
- An Anaerobic Digester plant which will convert food and garden waste into biofuel
- EON 'Thinking Energy' project
- Start-up of a 'Green Deal' Provider company
- A GIS – Based Energy Map
- MKC management of a local Salix Fund which has benefited several schools with a range of energy efficiency measures and provided low energy lighting for the central Library, a project expected to save the Council more than £11,000 a year at today's prices by changing to LED lighting.
- Boiler Cashback Scheme
- Carbon Offset Fund – A scheme linked to the Local Plan Policy D4. The fund provides an incentive for developers to meet the energy efficiency aims of Milton Keynes Council by charging a premium relative to the predicted CO2 emissions of the building of £200/tonne CO2/pa. The fund is used to finance energy efficiency refurbishments of older properties in Milton Keynes.

National Policy

The Government's Climate Change Act 2008 sets out legally binding targets for the UK to reduce carbon dioxide emissions by at least 80% by 2050 and 26% by 2020, against 1990 levels. The Policy states:

(1) It is the duty of the Secretary of State to ensure that the net UK carbon account for the year 2050 is at least 80% lower than the 1990 baseline.

(2) "The 1990 baseline" means the aggregate amount of :—

(a) net UK emissions of carbon dioxide for that year, and (b) net UK emissions of each of the other targeted greenhouse gases for the year that is the base year for that gas.

In effect this is a UK strategy for reducing greenhouse gas emissions. The Act provides a framework for reducing specific greenhouse gas emissions by provision of a carbon budgeting system, establishing a Committee on Climate Change and conferring powers to establish greenhouse gas emissions trading schemes. It also makes provisions for climate change adaptation, financial incentives to reduce domestic waste and charges for single use carrier bags and amends the Energy Act 2004 regarding renewable transport fuel obligations. Data compiled for the Carbon Reduction Commitment shows the Milton Keynes Council has achieved a 28% reduction in Green House Gases in their own estates. This data reflects the actions of numerous initiatives and projects MK Council has undertaken and is more specific than the 23% from the Department of Energy and Climate Change estimate.

THE IMAGINE GRID

The Imagine Grid was developed by the project partners at the University of Hamburg.
The tool was developed specifically for the Imagine Project. The aims of the tool is to engage stakeholders, encourage discussion and collate this information into a spreadsheet that assesses the current situation. This information is then used to produce a graph, referred to as a spidergram or webgram, that illustrates how the city is progressing towards a low carbon future.

The Grid has eight sectors with a number of aims for each area :

- Energy Generation, Distribution and Consumption: 10 aims
- Mobility and Transport: 9 aims
- Urban Planning: 7 aims
- Waste: 4 aims
- Housing and Buildings: 21 aims
- Water: 6 aims
- Health and Liveability: 7 aims
- Lifestyle Consumption Patterns: 2 aims

The 66 aims each have 18 questions concerning policy, responsibilities of each level of the government structure, tools and instruments, finance, support and stakeholders. For each of these 1188 questions, an assessment of progress was required on a red/amber/green (RAG) scale: a total of 2376 responses.

The responses provided descriptions of the current status of carbon management in Milton Keynes. The RAG assessment is based on the traffic light idea where green indicates that 'all go' and sufficient work is being done, amber indicates a transition stage; some progress is underway and red indicates that little or no action is being taken towards a low carbon future.

The Grid was completed by members of the Sustainability Team at Milton Keynes Council through policy analysis, interviews with heads of departments and programme managers from planning, transport, housing, sustainability and waste and the regional manager of the water company. All personnel were willing to contribute to the project and keen to maintain communication. This is a useful project output as the Sustainability Team will continue to facilitate cross sector communication.

The grid produces a spidergram/webgram for each sector illustrating each question as a percentage score. The cumulative results of the 1188 traffic lights are summarized in Figure 4. Each sector result is a combination of the questions that provide an overall percentage.

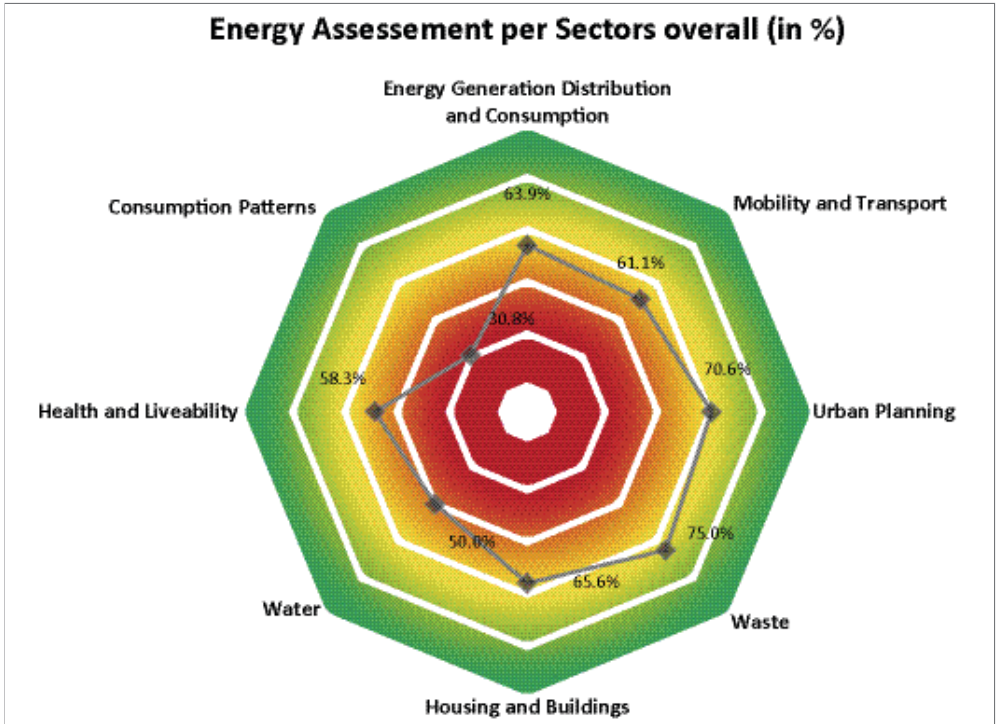


Figure 4 Summary of the results of the grid analysis

The diagram in Figure 4 highlights two areas in the red: consumption patterns and water. The low score is due to water being in the control of the local water authority, Anglian Water, so not in the Council's jurisdiction. Anglian Water do have good projects in place for reducing water and provide Milton Keynes Council with an account manager but the score is low because the Council has a lack of influence on policies of the local water authority.

The 'consumption patterns' sector is in the red because there is little in place to encourage local food production or buying schemes. The grid has identified this sector as an opportunity for new projects to improve low carbon food sourcing and food production.

The grid tool is a major output of the project and will be used alongside another product: the Handbook. The Handbook will be made available to other cities for guidance on developing low carbon futures. The Handbook will provide suggestions from partner cities and give examples of best practice.

The grid is a useful tool for assessing progress in Milton Keynes, particularly where benchmarks are difficult to establish in the Lifestyle Consumption Patterns section.

Each project partner has completed the grid assessment. The results provide ideas from a range of climates across Europe. Each partner city will have different demands for heating and cooling.

TRENDS IN CARBON EMISSIONS

The Councils 2010 Low Carbon Strategy aims were:

- To make MK a leading example of low carbon living
- To cut emissions by 40% by 2020

The latest figures (2012) on total CO2 emissions (tonnes) in MK are shown in Figure 5. These figures are estimations of emissions within the scope of influence of local authorities' from the Government Department of Energy and Climate Change. The MK trend in per person emissions from 2005 to 2012 is a fall of 23%, which is on track to meet the 40% target by 2020.

The total for 2012 increased 3% from 2011, mainly due to more domestic gas use (2012 being a colder year than 2011) and more use of coal for electricity generation nationally. Neither of these factors can be influenced locally.

Figure 6 shows the carbon reduction by sector per person in Milton Keynes since 2005. The overall target is for MK to reduce carbon emissions per person by 40% by 2020, from a 2005 baseline and to near zero carbon by 2050 or sooner. The trend line indicates Milton Keynes is meeting the target. The MK2050 Strategy provides ideas to build on this direction of progress.

	Commerce		Domestic		Transport		Total	
Year	2005	2012	2005	2012	2005	2012	2005	2012
MK (000's)	801	651	532	502	403	368	1,736	1,521
MK emissions per person	3.6	2.6	2.4	2.0	1.9	1.5	7.8	6.0
SE England	2.5	2.1	2.5	2.2	1.8	1.5	6.8	5.8

Figure 5 Latest Figures of Total Emissions (tonnes) in Milton Keynes

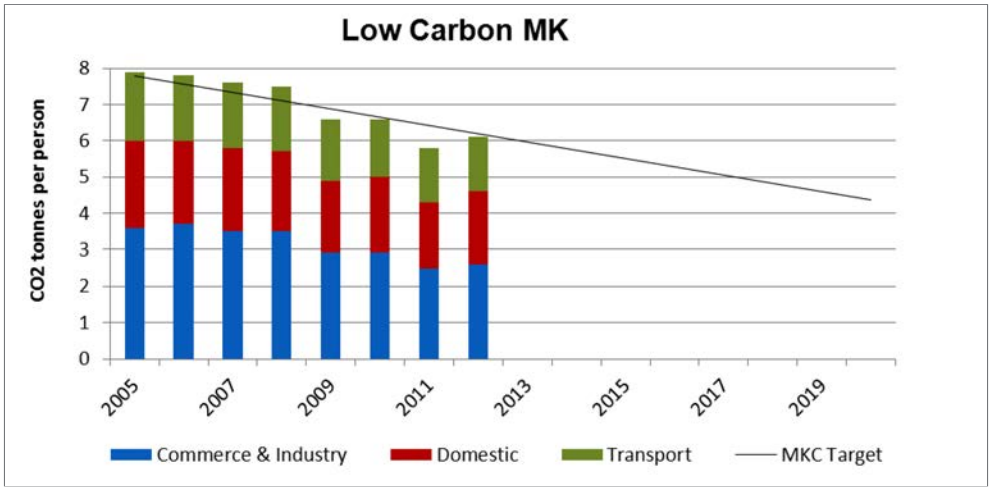


Figure 6 CO2 Tonnes per person in Milton Keynes

PROJECTED GROWTH OF MILTON KEYNES

Population

The Milton Keynes population in 2013 (mid-year) was estimated to be 255,700 . The population of Milton Keynes has increased by 43,000 since 2001. This is a growth of 20.2% compared with a growth rate of 8.9% for England. By 2026 it is estimated the population of Milton Keynes will grow to 302,100.

In 2012, Milton Keynes had a younger age profile than England. The under 15 demographic accounts for 22.4% in MK: 19% in England. Around 11.7% of MK citizens are over 65 compared to 17.3% of the population of England

Housing and Employment

The recent completion of the Eastern Expansion Area brought 4000 new homes along with employment areas, local amenities and public open spaces on a 350 ha site. The Western Expansion Area includes areas allocated to employment, parkland and provision for 6,500 homes. A further 192 ha of land to the East of Milton Keynes is allocated for employment areas, amenities and 2,900 homes.

Outline permission was granted in 2009 for 6,600 new homes in the Western urban extension area between 2026 and 2028. This would create around 3,450 jobs in small scale employment area and approximately 4,500 jobs in schools, retail and community facilities across the city.

A further 4,000 dwellings are expected to be completed between 2021 and 2026 in the Eastern urban extension area, see Figure 7 for graph of this projected growth. Over 14,000 jobs are expected to be created from this development of housing, large manufacturing and warehousing developments, small scale businesses and schools, retail and community sectors.

Business

The February/March 2014 Economic Development Newsletter reports that Volkswagen Financial Services Ltd are building their new head office in Milton Keynes and John Lewis Partnership has started work on their second distribution warehouse. The Milton Keynes University Campus and Business Leadership Centre opened in September 2013 and Waitrose have commenced a new national distribution centre in Milton Keynes that will cover 45 acres, one of the largest in the United Kingdom.

The number of smaller business units and business start-up rates continues to rise in MK. The Financial Times described MK as "an extremely prosperous town" in an article in February 2014 along with a quote that MK was in the top 10 cities for high employment rates in 2012 with 74.9 % .

This level of development and job creation generates a demand on infrastructure: energy supply, water supply and treatment, transport links, schools, health care, shops, parking and sufficient open spaces to maintain the clean and green character of Milton Keynes. The Council has infrastructure plans and planning policies for the sustainable development of a fast growing city. The vision and objectives of the Imagine Project Strategy can contribute to the prosperous future of Milton Keynes with ideas and consensus of the city's stakeholders.

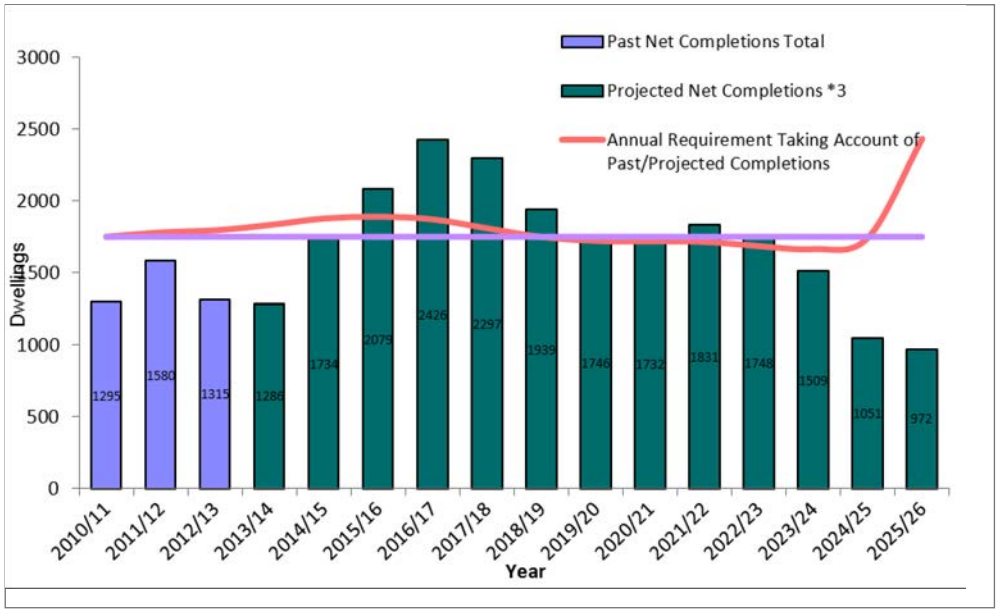


Figure 7 Projected Growth of New Dwellings in MK

6. WHERE DO WE WANT TO GET TO?

Milton Keynes will be a near zero carbon city with a high quality of life for all by 2050.

The first two stakeholder groups of the Imagine Project examined the vision for a future Milton Keynes. While keen to have a zero carbon future, it was acknowledged that quality of life must be maintained or improved. Some activities which reduce carbon may not be acceptable and difficult to deliver. We have therefore distilled the discussions into a single sentence:

Milton Keynes will be a near zero carbon city with a high quality of life for all by 2050.

"near Zero carbon" means a city with net carbon emissions close as reasonably possible to zero.

SCOPE AND THEMES

The Strategy is a plan for Milton Keynes to achieve a low carbon future in the city, its ownership rests with the Council.

The Council has many roles in the provision of services that produce carbon emissions including schools, waste management, street lighting and social housing. The Council also has the roles of enabler, information provider, enforcer of legislation and a major procurer. The Council also plays a role in providing joint services, in particular with the National Health Service, Thames Valley Police and the Fire Service. The strategy takes into account these wider roles of the council, not just the services the Council provides.

The strategy has been limited to certain activities, sectors and themes which are known to influence carbon emissions. The project team who produced this strategy looked at wider activities, criteria, themes and sectors than those in the Imagine project documentation including:

- criteria for "eco towns"
- themes taken from Government Planning Policy Statement 1 and regional sustainability policy
- the themes produced by the first public engagement workshop

The Project Team considered the following 4 factors:

- Does the activity directly affect carbon emissions and would changes influence a low carbon future?
- Is the carbon from the activity currently being measured and if not, could it be measured?
- Does the activity directly affect quality of life?
- Was the theme raised by stakeholders?

This exercise produced agreement that three themes were requisite as they are at the core of all similar strategies:

- Energy use in buildings and appliances
- Energy generation
- Travel and mobility.

The following themes were included because they met at least three of the four qualifying factors above:

- waste
- water
- open/green space
- food production
- communication, intelligence and smart working
- community co-operation/cohesion

Although the last two themes are difficult to measure, they were thought to be essential to the delivery of a low carbon future and therefore included in the strategy.

The Project Team chose not to include the following themes:

- Adapting to the effects of climate change because the aim of the strategy is to mitigate the need for adaptation
- Modelling because of budget restrictions
- Employment because it is outside of the jurisdiction on the project.
- Biodiversity because retaining and improving biodiversity is an anticipated outcome of the project and not a means of reducing carbon in its own right.

THEME OUTCOMES

The scope and themes were organized into five streams before going to managers and the planning department for review, the stakeholder events and the web survey:

- Buildings and Energy Generation
- Travel and Mobility
- Water and waste
- Smart working and Community
- Open Space and Food

The results of the research and stakeholder feedback are summarised in Figures 8 to 13.

The Vision:

- Not enough emphasis upon the need for communication, education, behaviour change, employment and empowering
- How do we reduce carbon when the city is growing?
- Need to integrate all sectors – business/academic/voluntary/schools etc and have a more collaborative approach rather than a "top down"/centralised approach.
- Some low carbon actions could be obtained by enforcement such as fines but would be better if they could be obtained by encouragement.
- Is the 2050 timescale too far ahead? Things are more likely to get done if you plan for the next 5-6 years - interim stages needed.
- How to future proof the city and deal with the unknowns?
- Good because high quality of life – people will have to change their lifestyle.
- It isn't a zero carbon city we need, just people to be more thoughtful.
- Need to focus on social issues and people in need, shouldn't let technological issues take priority.
- If the city is zero carbon, people will waste energy.
- These ideas in the strategy could catch on throughout the world –bigger countries (USA, China) and become a global project
- Historical houses- don't destroy heritage with new technology.
- Low carbon diet –not so good for meat eaters, better for vegetarians
- Ambitious target; explain scale of task.
- Doesn't go far enough, could do more.
- People should be more self-sufficient and do more for themselves.
- People are becoming lazy with driverless cars, lack of exercise and reliance on technology instead of thinking.
- Keep green space for leisure, not growing food, biomass or building houses.
- Should life cycle analysis be considered?
- Need change immediately.
- Limit population of MK.

Figure 8 Stakeholder feedback: The Vision

Energy and Buildings:

- District heating and CHP are not appropriate for every site.
- Homes could be more flexible.
- Some homes need to be replaced.
- Can we start retrofitting now?
- Keep some buildings the same and make new buildings the zero carbon policy.
- Zero carbon houses will be more expensive because getting the house to a certain standard will cost more money.
- Homeless people could be given high carbon houses that cost less but cost a lot to heat and run.
- Difficult to upgrade historic houses but should keep them.
- Planners aren't being strict enough – developers should pay more.
- Where would people stay during the upgrades?
- More advertisement on the outcomes.
- Developers made to build to highest energy efficiency standards.
- Cost of low carbon homes might be too expensive for some people to buy
- People should be more thoughtful and careful about energy use.

Figure 9 Stakeholder feedback: Energy and Buildings

Travel:

- How to reduce the need to travel?
- Good because you can use electric car.
- If you don't think about where you are driving you will become very lazy and your brain might be lazy too.
- (On demand 'pods') - You couldn't really own your own car as you call a different car each time, also you might be in a car which has got lots of rubbish and food.
- Electric Cars might reduce the amount of car theft.
- If there are more electrical things being built/invented then there would be more chance of a fire.
- Challenge in converting larger vehicles, can we do without lorries?
- Give 'rules' for when people change cars so they use more electric cars.
- Increase amount of eco-friendly cars sold.
- Encourage more exercise and sport.
- Power cuts are bad for electric vehicles.
- Satellite problems for electric cars?
- Need to educate people it is safer and healthier to walk.

Figure 10 Stakeholder feedback: Travel

Waste and Water:

- There is not enough emphasis on waste minimisation - need a minimisation target.
- Worry about reusing rain water - may be contaminated or not very clean.
- Water use per person will have to drop.
- We should educate people on the need of cutting water levels back.
- When we cut back on food and water, give it to poorer countries e.g. Africa.
- Worry that we may have no water at all as the planet gets warmer and water could evaporate.
- Collect water in homes and treat it at home - start building rainwater catching houses now.
- Invent things that reduce water usage.

Figure 11 Stakeholder feedback: Waste and Water

Smart City and Community:

- People are now worried about safety/crime/privacy issues in relation to technology.
- Will there be space to grow food with all the houses being built.
- Space isn't being used efficiently.
- Solar panels in the roads and parks could heat the roads during winter weather so trucks with grit won't be needed.
- Smart City will be very expensive.
- Solar panels would need to be replaced after time.
- Running costs and servicing of a Smart City will be high.
- Problems with communities not talking and issues with community.
- MK grid system doesn't work so no point in creating another.
- Negative view of networking- fear/vulnerability of security, terrorist attack, power/satellite failure.
- Sceptical about community food and energy projects: no spare time, need to be paid for time.

Figure 12 Stakeholder feedback: Smart City and Community

Open Space and Food:

- We need to look at open space as a resource with multiple purposes.
- Need to look at 3 dimensions – e.g. use of roof space.
- If more people grow food there will be too many farms and not enough space for wildlife.
- If more food is being grown, where are we going to build the houses?
- People's health is important.
- Can not stop people eating meat.
- Where are we going to grow the food?
- Where will we grow things? – there is not much space anyway.
- When will we find the time for growing food.
- Many people may not be bothered to grow food.
- People could be employed to grow the crops.
- People may want to be part of this and it could lead to overpopulation.
- Encourage local mass production of food.
- Low carbon/vegetarian diets will not be for the majority of people.
- Space for local food production may be difficult to find.

Figure 13 Stakeholder feedback: Open Space and Food

Many of these issues relate to "how we get there" rather than "where we want to be". The Strategy is not an action plan but the Themes and Outcomes will be amended to include some of these points along with responses from the public consultation web survey which closed at the end of August. A full list of feedback and responses is available at **www.milton-keynes.gov.uk/mk2050**

7. HOW ARE WE GOING TO GET THERE?

Priorities for action to achieve the Vision augment the 2010 Low Carbon Action Plan by defining challenging but achievable priorities. The aim of achieving a near zero net carbon emission MK is an aspiration and an action plan will be required to work towards delivering this outcome.

- The Action Plan will include regular updates of the Low Carbon Living Strategy 2010 with SMART objectives:

  S - specific, significant, stretching

  M - measurable, meaningful, motivational

  A - agreed upon, attainable, achievable, acceptable, action-oriented

  R - realistic, relevant, reasonable, rewarding, results-oriented

  T - time-based, time-bound, timely, tangible, track-able

- Consider carbon reduction and sustainability in all Milton Keynes Council Plans and Strategies. This will include decisions on Transport, Buildings, Planning, Waste and Open Spaces which will subsequently feed into Plan:MK, the Core Strategy and the Corporate Plan.

- Regular monitoring of Cabinet Reports to oversee relevance to carbon emissions.

- Promotion of low carbon solutions through monitoring of major development applications and liaison with the Planning Team.

- Maintain close monitoring of projects and facilitating meetings for the members of the Low Carbon Living Programme Steering Group

- Maintain working partnerships and communications with Council departments, public and private sector stakeholders including:

  - The National Health Service, Public Health England and Thames Valley Police
  - Businesses through the networks of the Low Carbon Living Programme, Green Energy Club, Chamber of Commerce and the local Energy Club
  - Utility companies: energy, water and communications
  - Local community and voluntary organisations
  - Economic development and employment organisations through existing link with the South East Midlands Local Enterprise Partnership

- Improve communication and education opportunities by publicising low carbon actions and annual refresh of the Low Carbon Living Communications Plan.

- Publicise Government and utility company grants and funding opportunities and subsidies for energy efficiency and reducing carbon through web updates and press releases.

- Improve management, monitoring and dissemination of carbon data

- Monitor progress of Strategy outcomes by tracking changes of the established 2005 baseline and benchmark. Modelling will take into account the planned growth of the city to 2050 using the back casting technique of working back from the ultimate goal and identifying land marks between the present and 2050.

- Encourage innovation by consultations with stakeholders to create a range of techniques for reducing carbon, particularly at the early stages of development such as biofuel from algae and autonomous vehicles. There will be new technologies that could contribute to the reputation of Milton Keynes as a city of the future and these will be assessed for suitability for the city.

- The Strategy shares common ground with the existing Economic Development Strategy so collaboration is planned to share ideas, identify funding streams and encourage capital investment in low carbon, sustainable technologies, solutions and projects. This will promote economic growth and produce opportunities for new business and employment.

- Work with communities to employ local people to deliver projects. Encourage local networks of energy production, food production and recycling initiatives. These enterprises would keep expenditure on necessities within the local economy, produce less waste, build on community cohesion and produce employment opportunities.

- The focus will be for energy efficiency in buildings to reduce demand, then focus on heat demand as this accounts for around a third of energy use in Milton Keynes. Heat networks and energy from waste would make a significant contribution to lowering fossil fuel consumption.

- It is acknowledged that it is a significant challenge to reduce carbon in the Borough of Milton Keynes to near zero net carbon emissions. This will require collaboration of departments within MK Council, appropriate funding and citizen participation in projects at both the planning and implementation stages.

8. CONCLUSION

The aim of the Imagine Project was to gather ideas for low carbon cities and share the knowledge with project partners. Ideas have been brought together in Milton Keynes through research, interviews and workshops with citizens and decision makers. The project is not an action plan, it is a strategy. An action plan will follow within twelve months. The information will be used to create a timeline to a near zero carbon Milton Keynes in the Action Plan.

The strategy direction will be determined by the Action Plan that builds on the existing Milton Keynes Low Carbon Living Strategy. This new strategy adds the aim to reach near zero carbon by 2050 or sooner. The landmarks on the way will consist of actions on the Themes and Outcomes determined in the Sustainability Team and stakeholder workshops. These landmarks are summarised below.

Energy efficiency will be encouraged by zero carbon new build developments and upgrades of existing building stock.

District heating, combined heat and power and renewable energy will be utilised where appropriate.

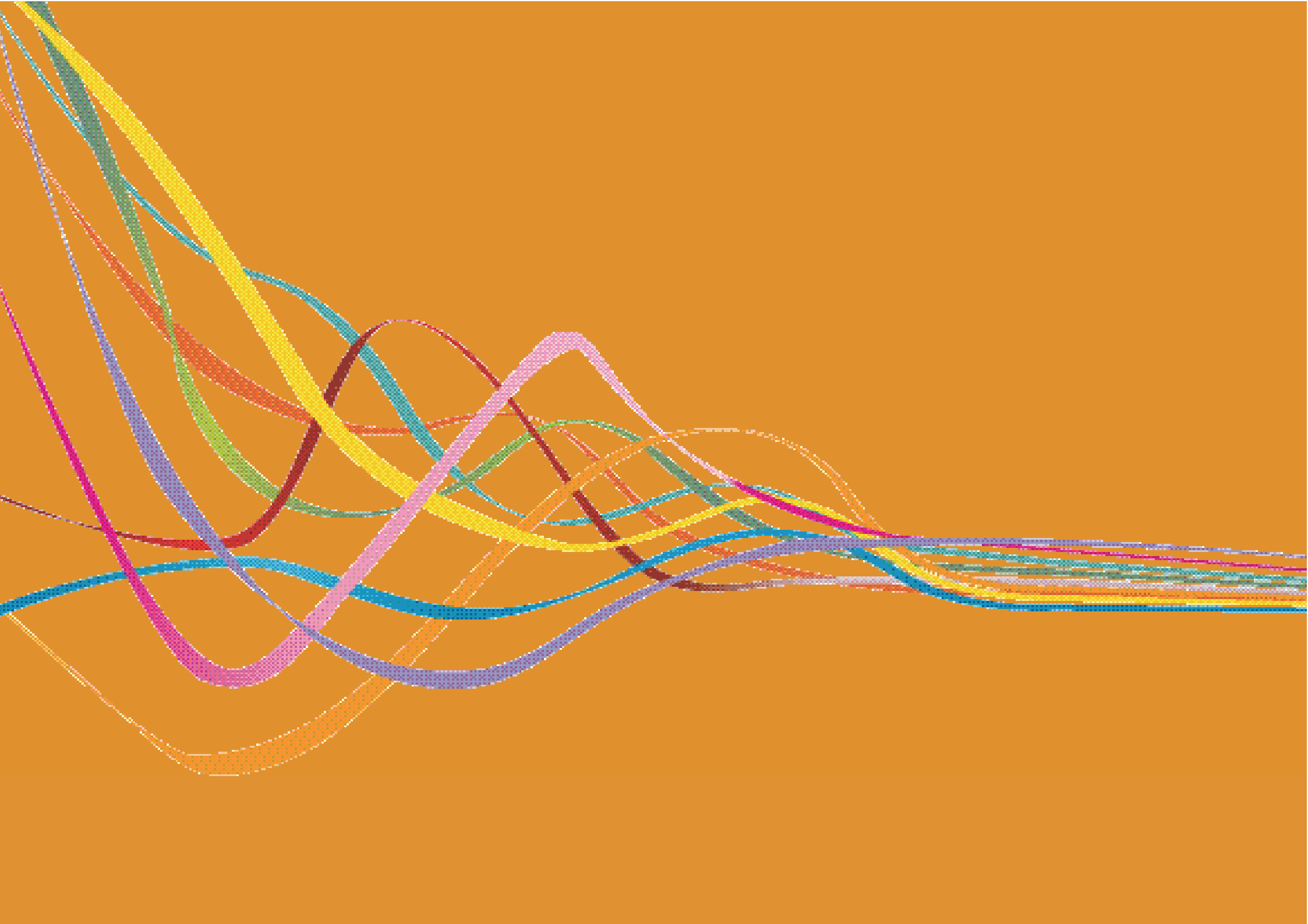
Travel will be by near zero carbon technology at point of use and use of public transport and cycling will be encouraged.

Reduce production of waste, increase recycling and maximise energy from waste where reduction and recycling are not feasible. Move waste by using low carbon vehicles.

Conserve water and reduce the amount of energy used to treat waste water.

Encourage and support community led initiatives into energy reduction, energy production, transport, technology, local businesses and food production.

Milton Keynes Council will lead by example with these aims.



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