ENERGY STRATEGY 2017-2022
AN ENERGY NEUTRAL COUNCIL

Exeter City Council

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A Strategy for Energy Neutrality

Exeter is an evolving City, with opportunities offered by new technologies, and partnerships working to make energy independence through low carbon heat and electricity a reality.

In 2015 the City Council successfully completed year two of an innovative renewables and energy efficiency programme. The programme for the Council's corporate estate brought with it significant savings, leading the way forward to a low carbon and energy efficient Council. This Strategy will build on the success of work completed to date, to deliver a sustainable and energy efficient corporate estate; to protect against future energy risks; and to share such benefits and opportunities with others.

The Energy Strategy consists of three key priorities, all of which are supported by a wide ranging Action Plan. If successfully implemented, the City Council will attain the benchmarks set and move another step closer to energy neutrality. Whilst this is a huge challenge, it is one that can be achieved through long term commitment, investment and partnership.

Foreword

The way we generate and use energy in our homes and businesses is changing rapidly. Emerging technologies are predicted to change the way energy is used and supplied, helping us to dramatically reduce the amount of energy we need, removing reliance on imported fossil fuels, and providing the potential for more affordable and local energy sources.

This strategy will allow Exeter City Council to identify and grasp the opportunities available and address the challenges presented. Building on the substantial achievements we have already gained, by further reducing energy consumption across our estate and increasing renewable generation, we will work towards our commitment to become an energy neutral Council and an energy independent City.

Cllr Rosie Denham
Portfolio Holder Economy & Culture

Cllr Ollie Pearson
Portfolio Holder Support Services

Introduction

This is Exeter City Council's first stand-alone Energy Strategy, one that contains both significant and attainable objectives. As a large consumer of resources Exeter City Council recognises how its role as a community leader, service provider and estate manager will impact upon the natural environment.

The City Council has tested the water over the last five years with a number of different projects, and to demonstrate its confidence, in November 2015 signed a declaration by

some sixty British cities that they would rely wholly on Green Energy by 2050, part of a world-wide initiative by 500 mayors to achieve the same goal.

Grasping the opportunities open to it, the Council will lead the way in delivering Energy Neutrality to remove reliance on energy imported to the region and to take advantage of smarter local, green energy. City wide a similar aspiration will require rapidly scaled up district heating with combined heat and power (CHP) technologies, renewable energy derived through solar and hydro, major expansion of an embryonic housing energy efficient retrofit programme, whilst at the same time exploiting the expected advances in the field of energy storage.

This Strategy invests in the future of the City and puts a low carbon Exeter at the heart of all decisions. As home to the Met Office's HQ, with the largest concentration of climate specialists in the world, it is perhaps not surprising that Exeter is carving out a reputation as a City which is leading the way.

Purpose of the Strategy

Our City continues to face major challenges and risks relating to both the supply and demand for energy. By recognising those risks the Council is able to create opportunities with the potential to bring real benefit for our local and wider community.

The Strategy sets out three priorities supported by an Action Plan that provides a wide range of objectives achievable through implementation of both major and minor projects. The Action Plan embraces identified viable opportunities needed to successfully achieve each objective, including emerging technologies of the future. Over the next five years the Action Plan will act as a route map to deliver the key priorities set out in this Strategy, and achieve long term economic and environmental benefit.

Furthermore, the Strategy addresses specific priorities contained in the Council's Corporate Plan. These include a commitment to reduce operating costs, support Exeter's Community and to grow the local economy.

Key Issues

The Council's aspiration for Energy Neutrality can be achieved by two means, to reduce consumption across the Corporate Estate and to generate renewable energy equal to what is consumed. The Renewables and Energy Saving Programme forms an essential cornerstone to achieving this ambition. This has been responsible for significant savings as well as new income streams.

The Energy Strategy and Action Plan builds on this growing momentum and track record for delivering successful energy saving projects, however the Council now faces a number of key issues, listed below. The Strategy aims to address these issues, mitigate future risks and maximise potential opportunities.

1. Affordability

The benefits of a sustainable property asset, cutting energy use and generating renewable energy are clear, but the real challenge will be to ensure future projects provide value for money and generate a reasonable return on investment.

Affording best use of public funds and using a business led approach to energy saving projects, has to date been successfully achieved. However, with vast reductions to government subsidies for renewable technologies, especially in the Solar PV Feed In Tariff (FIT) and Renewable Heat Incentive (RHI), financing future energy saving schemes will be challenging. Longer paybacks, grant funding, alternative finance models, additional income streams and partnerships will all need to be considered.

New rationale will therefore be sought to support projects that have the same positive impact on energy reduction, but are unable to generate significant income/savings to cover investment costs.

2. Energy Security

Energy Neutrality relies upon having a consistent, reliable and affordable energy supply. One increasing threat to the security of the UK energy supply is caused by an old and inadequate infrastructure. That same infrastructure is also key to achieving an alternative renewable supply, and overcoming:

- Grid restrictions as a consequence of an energy infrastructure which is old and inadequate. The sudden increase in renewables has resulted in significant problems for energy supply. This is very relevant in the South West where grid restrictions will remain in place for years to come until solutions/upgrade works are carried out by the District Operator.
- Affordability and development of battery storage. This technology is very much a key element for future energy supply, particularly for renewable energy, but is not yet fully developed or commercially viable.
- Industry regulations are stringent and limit innovation for local generation networks. However a government review of current regulation may assist innovative development in this field.

A modernised electricity grid is needed to support the transition to a low-carbon future that will bring with it the use of local energy on a local scale. Investment in grid infrastructure will provide an expanse of renewable generation that can be effectively stored and used when we need it most. Various trials are already in place for local renewable generation, with capability to store energy when there is insufficient grid capacity to export, but to supply energy at times of capacity and high demand.

3. Environmental Sustainability

Energy affordability is a key component of wellbeing and economic growth. In 2015/16 the City Council estate used a total of 11,500,000 kW hours of energy, with a total energy spend of over one million pounds. The increased cost and volatility of energy prices will impact on the cost of delivering Council services and proportion of the budget allocated to energy will increase.

Carbon taxes also have an impact on the cost of energy and as policy leads to high carbon energy becoming more expensive, then generation or procurement of low carbon energy becomes a greater priority.

Exeter City Council is committed to responsible management of energy and will continue to drive forward change in order to support the aims of the strategy. The importance of controlling our energy consumption and how best to use generated energy is key. An effective Energy Management Team to both manage energy for the estate, and deliver renewable and energy saving projects remains a priority for the City Council.

Priorities and Objectives

The Strategy is based on three priorities, each of which incorporates key objectives. Details of each objective, with solutions and proposed actions/projects are set out in the Energy Action Plan.

This highlights the challenges faced and benefits that can be shared. The focus of this Strategy is the Council's corporate estate nonetheless the work undertaken will also serve to support business and residents to share similar benefits and contribute to a better quality of life for all.

Priority 1 A sustainable corporate estate. To reduce energy consumption, deliver efficiencies, drive down costs and carbon emissions.

Key Objectives

- To fully integrate energy management across all relevant decision making processes, procurement and service provision to reduce energy consumption, costs and carbon emissions.
- To utilise a modern Building Management System with the latest technology to maintain accurate and comprehensive energy and water data to control consumption, support performance reporting and identify energy opportunities for savings.
- To engage with staff and service managers through behaviour projects, to devolve ownership of energy saving tools and encourage accountability.
- To embrace renewables and energy saving technology.
- To regularly review all properties and services.

Priority 2 **An Energy Neutral Council. To develop innovation and embrace emerging technologies to provide local, low carbon energy at an affordable energy tariff.**

Key Objectives

- To increase energy generation and to export renewable energy to the local grid using local supply networks.
- To provide energy security, to have a constant, affordable energy supply.
- To deliver a commercial approach to generating renewable energy with long term income generation that supports the Council's financial sustainability
- To continue to increase the Council's photovoltaic (PV) estate, to seek out commercially viable schemes with additional income streams through PPA agreements and private wire.
- To overcome grid restraints by embracing technology and expertise within the city, to benefit from the expertise of others, emerging technologies, smart city solutions, and local grid opportunities.
- To develop innovation and solutions, utilising battery storage solutions.
- To pursue alternative funding to assist the Council to financially support energy saving and renewable generation opportunities.

Priority 3 **A low carbon City. To promote energy efficiency and renewable opportunities for the community, business and stakeholders.**

Key Objectives

- To support local industry and creation of green business within the City, engaging with partners and encouraging investment.
- To encourage electric vehicle technology and support the growth of low carbon vehicles with charging infrastructure, seeking grant funding where available.
- To promote energy efficiency and support community energy projects.
- To assist development of District Heat Networks and available funding.
- To develop/assist housing and commercial retro-fit opportunities.
- To provide businesses with energy efficiency guidance and continue to set a standard for operational sustainability through the Green Accord.
- To work together with Exeter City Futures to realise a City wide ambition to be Energy Independent by 2025.

Work to Date

In 2014 the City Council Renewables and Energy Efficiency Programme began following a decision to invest in the long term sustainability of the building asset, and to derive financial benefit from energy efficiency and renewables. To date successful delivery of the programme has demonstrated significant energy and carbon savings, as well as long term income streams that will continue to support Council services. Currently Exeter

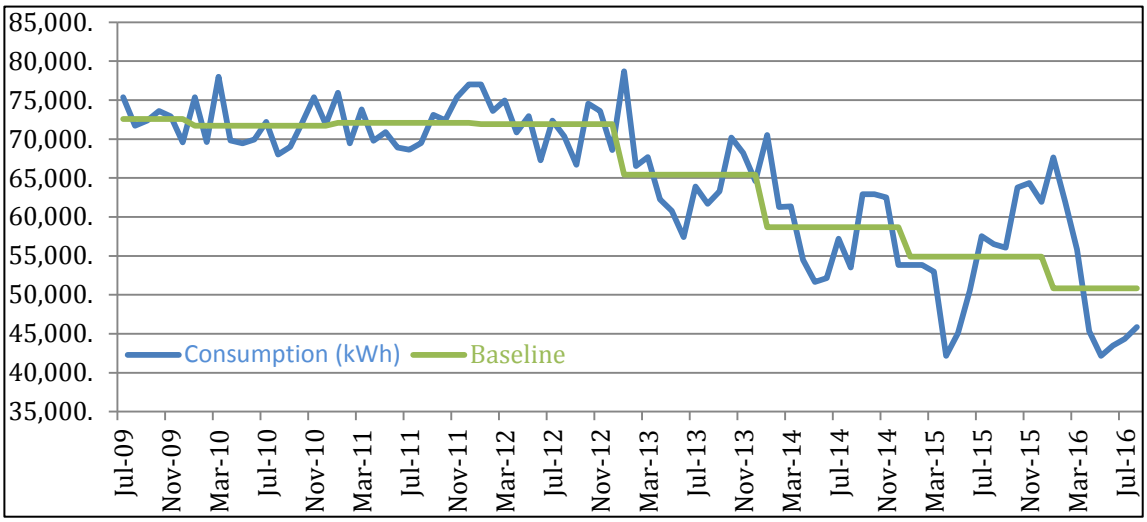
has a solar PV estate of over 2MW, and numerous energy efficiency projects have cut energy consumption by 37% since 2009.

The Renewables and Energy Efficiency Programme includes two pioneering projects, solar canopy arrays on top of Council multi-storey car parks and a 1.5MW roof top PV installation. The car park canopies represent innovation that can be shared and under cover parking providing an improved parking service. The Livestock Centre PV array, thought to be the largest roof mounted PV array in the South West (pictured on the front cover), provided for the installation of a new roof which brought with it a sustainable long term future for the Centre, supporting local jobs and the farming community. Moreover the projects supply electricity to leaseholders in or near to the buildings. As with other Council leasehold properties, power purchase agreements provide for the sale of discounted electricity to the leaseholders, thus supporting local businesses and the voluntary sector.

150kw array at Mary Arches Car Park

Energy Efficiency

Energy saving projects are vital to reduce consumption and to make for a sustainable property asset. The quality of outcomes obtained from energy saving projects demonstrate how consumption can be driven down using energy saving technologies such as LED lighting. This is illustrated in the graph overleaf, where a number of projects jointly delivered a significant cut in energy consumption at the Council's Civic Centre Offices.



Civic Centre Electricity Usage

District Heating and the LCTF

The Exeter Low Carbon Task Force (LCTF) was set up in 2011 to co-ordinate a range of low carbon initiatives so that partners could learn from the experience of those organisations leading on particular technologies. LCTF comprises the four local authorities in the greater Exeter area, the University, the Royal Devon and Exeter NHS Trust, the Met Office, the Exeter Chamber of Commerce and EoN.
The flagship project that set the benchmark for later schemes is the new community of Cranbrook. The principal innovation is that the whole of the new community and the adjacent business park (Skypark) is being heated from a Combined Heat and Power (CHP) plant which is operational on the north side of Exeter airport. That plant produces low carbon heat/hot water which is transported to each dwelling via an 80 km network of super insulated pipes. A similar scheme at Monkerton, a new residential development of 2800 dwellings, surrounding the Met Office and serving the Exeter Science Park has also been delivered.
More recently a public sector Energy Company named Dextco, designed to supply homes and businesses with environmentally friendly energy, has been established by a majority of the members of the Low Carbon Task Force. It hopes to develop a new heat hub at the RD&E hospital to distribute heat to customers across the City.

Electric Vehicles

Exeter City Council has its own Electric Vehicle (EV) strategy and encourages the use and ownership of EV as one element of a sustainable transport strategy. 'Park and Plug' a network of public Chargepoints located throughout the City is one very visible manifestation of the Council's low carbon commitment. Having secured grant funding from the Office for Low Emission Vehicles (OLEV) and sponsorship of the charging points the Council has been able to provide free charging for electric vehicle users, with no capital costs to the Council. In addition, over half of the Chargepoints are powered by solar PV.

Park & Plug

ew car charging facilities ave been installed across xeter to encourage more eople to use electric ehicles.

Drivers are now able to harge electric vehicles t eight key sites in the ity, thanks to the City Council's successful bid or government funding rom the Office for Low Emission Vehicles.

The chargepoint facilities re located at the following ites and each serve two ehicles, providing electric harging for residents and isitors to the city, Council mployees and fleet ehicles:

- John Lewis Car Park
- Guildhall Car Park
- Oakwood House office (fleet and staff only)
- Matford Park and Ride
- Civic Centre
- Cathedral and Quay Car Park
- Magdalen Street Car Park

Cllr Rachel Sutton, Deputy leader of Exeter City Council, said: "Zero emission electric vehicles make a significant contribution to reducing environmental harm and improving local air quality.

"In providing these facilities we're hoping to encourage more people to switch to electric vehicles. As people become aware of the growing network of charging points and the

vehicles currently on the market, I'm sure we will see more and more electric vehicles on our roads."

Electric Vehicles have zero tailpipe emissions, making a beneficial contribution to local air quality. For this reason the chargepoints installed by Exeter City Council are free to use, supporting the use of

practicality they now offer (parking charges still apply in Council car parks). In some locations solar panels will offset the electricity chargepoints use, however longer term the Council will review the use of the chargepoints and the cost of this facility. Signs advertising the charging facilities have been sponsored by Westerly

Expect the Unexpected 2014

UNEXPECTED 2014 A FESTIVAL FOR EXETER

People are being urged to keep their eyes peeled for Exeter's newest festival of free outdoor events featuring circus, music, and celebrations, taking place in the city centre from 29 to 31 August. Go to www.exeter.gov.uk/unexpected2014 or see local press for more details when they become

Publicity for Plug and Park Chargepoints

Implementation

The City Council's work to date has both reduced its base load energy consumption, cut carbon emissions and demonstrated innovation for all to share.

The Energy Action Plan contains a wide ranging list of actions for delivery of the Energy Strategy over the next five years, with each project will be developed through the Renewables and Energy Efficiency Programme.

All energy related projects and initiatives set out in the Action Plan are underpinned by the three key principles of the Energy Strategy, all seek to:

Strategic Priorities	Outcomes
A Sustainable Corporate Estate	• Reduce energy costs • Reduced environmental impact of energy generation, both locally and nationally • Reduced carbon emissions • Improved operational Efficiency • Protection of public services • New income streams • Reduced maintenance costs • Support wellbeing • Energy Security • Shared innovation

Strategic Priorities	Outcomes
Energy Neutrality	• Protection from volatile energy prices • Protection against carbon taxes • Protection of the natural environment /reducing carbon emissions • Reduced energy costs • Support wellbeing • Promote sustainable economic development • Provide commercial viability • Provide energy independence • Supporting new technologies
A Low Carbon City	• Community cohesion by active collaboration and engagement with business and communities • Protection of the natural environment /reducing carbon emissions • Reduced energy bills and fuel poverty • Grow local economy • Encourage innovation • Support wellbeing • Provide energy independence

The Action Plan is a living document, to be reviewed annually or sooner if change occurs i.e. government policy, technology, and financial factors. Similarly, projects will be accelerated to ensure opportunities are not missed. Many of the above are measurable outcomes and will be reported with regular action plan updates to Scrutiny Committee on a six-monthly basis.

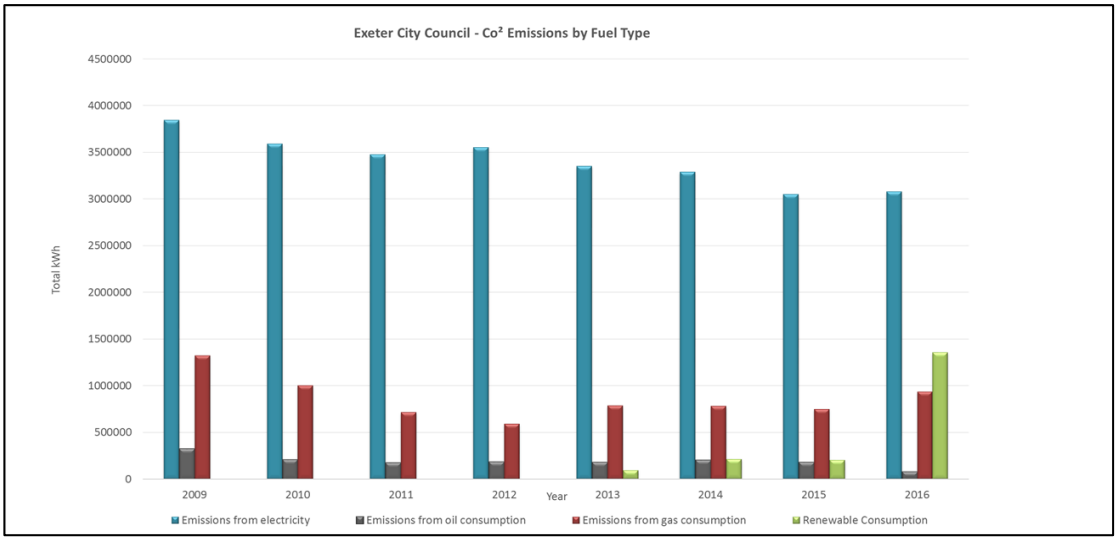
Key Reduction and Baseline Targets

There is widespread global commitment to reduce carbon emissions. Successive UK governments have introduced legislation to drive transition towards a low–carbon economy, including the Carbon Reduction Commitment (CRC) and Climate Change Levy (CCL). Such polices together with UK carbon renewable targets, have incentivised Exeter City Council to set its own carbon reduction targets.

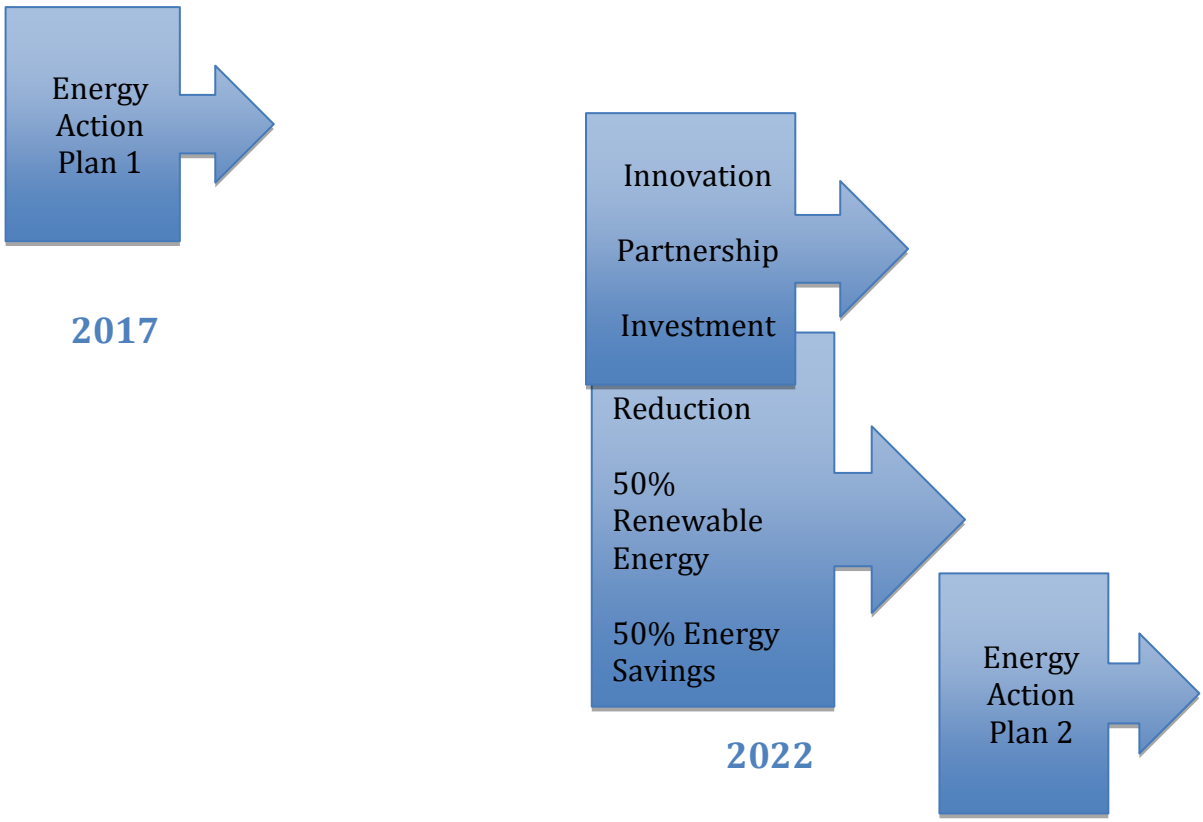
The Energy Strategy demonstrates the Council's commitment to mitigating the effects of climate change and to invest in its aspiration to be an Energy Neutral Council. The Action Plan is the vehicle that will drive forward innovation, deliver change and enable the Council to surpass national targets. For Exeter's corporate estate there is a clear ambition for energy neutrality. Separate renewable generation, carbon and energy saving targets are set out in this Strategy.

In order to measure the success of the Energy Strategy a baseline for which to monitor

progress is required. Energy consumption data has to date been collected for what was the Department of Environment Green House Gas Emission returns. The data is the most reliable source available and the City Council will continue to collate this on an annual basis. The council's 2009 baseline can be measured to demonstrate a reduction in CO2 emissions of 29% (2016) as demonstrated in the graph below. The graph also illustrates the proportion of renewable energy consumed as a result of the recent Solar PV installations.



The Energy Action Plan contains the essential ingredients, which supported through investment and collaboration, will surpass the following targets for carbon reduction and renewable generation, and deliver an Energy Neutral Council.



Monitoring and Review

The Energy Strategy and Action Plan will be reviewed annually by the Energy Officer and Corporate Manager Property and progress will continue to be reported to Scrutiny Committee on a six monthly basis. Reviews will include:

- Updates on progress of the Renewables and Energy Saving Programme.
- Annual monitoring of energy generation, income generation and carbon reduction.
- Annual baseline data collection.
- Reporting on energy industry developments and new opportunities.
- Revisions to the Action Plan.

Conclusion

The Energy Strategy and Action Plan are living documents and if required will be updated. A pro-active hands on approach in delivering the strategy will allow the Energy Team to take advantage of all opportunities, to work with partners and to lead by example.

The impacts of the Strategy are all positive, providing not only benefit to the Council but to the local economy, community and environment.