

Poole Environment Partnership Sustainable Energy Action Plan 2014 - 2020



Acknowledgements

This Sustainable Energy Action Plan has been written by the Borough of Poole's Carbon Management Team on behalf of the Poole Environment Partnership and the Borough of Poole. However the essential contributions made by all the members of the Poole Environment Partnership are acknowledged below.

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Kierson Wise and Sarah Harvey from Severn Wye Energy Agency assisted in the production of data for the Baseline Emissions Inventory.

Date: 17 December 2013

Version Number: 1.5

Owner: Poole Environment Partnership

Status: Final Document.

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Towards a Low Carbon Poole

Foreword from the Borough of Poole

The Council and the Management Team are committed to playing a leading role in tackling Climate Change in Poole. The Borough of Poole corporate strategy 2012 – 2015 declares protecting and enhancing Poole’s natural and built environment and reducing Poole’s carbon footprint as one of its key corporate priorities. The Council recognises that it must lead residents, businesses and the public sector in a partnership to adapt to our changing climate and to reduce CO₂ emissions in Poole.

The Council signed the Nottingham Declaration on Climate Change in 2006, and takes its commitment to significantly reduce our carbon emissions very seriously. One result of this commitment was the decision to take part in the Carbon Trust’s Local Authority Carbon Management Programme. Participating in the programme ensured that the Council took planned and practical steps to reduce its own impact on our changing climate. In the years 2009 - 2013 the Borough of Poole reduced CO₂ emissions from Council Operations by 17% from a 2008/9 baseline.

The measures outlined as part of the Carbon Management Programme in 2009 have been completed and the Council is well on the way to setting its own house in order, in line with UK Government Climate Change ambition. With that in mind the Council decided to fulfil its local leadership role and increase its focus on Borough-wide emissions.

To reinforce the Council’s commitment to tackling Poole’s Carbon Footprint the Council joined the Covenant of Mayors on 24 April 2012. The Covenant is a European Union initiative with more than 5,000 signatories worldwide and only 33 in the UK. In signing the Covenant the Council committed to bettering the EU target of a 20% reduction in Borough wide emissions by 2020.

This Sustainable Energy Action Plan represents the plan for reducing emissions in the Borough of Poole and gives an indication of some of the projects which will be implemented to achieve this objective. The Council developed the Poole Environment Partnership to help deliver the Sustainable Energy Action Plan and to support the Carbon Management Programme’s work to reduce emissions.

The plan will be used as a measure against which to monitor the Borough’s progress against the aims of the Covenant of Mayors and has been designed to support policy at a national level and application at a local level. A detailed list of the Council’s current strategies and plans which inform this action plan can be found on page 6.

This document is the beginning rather than the end of this initiative. The Sustainable Energy Action Plan needs to be flexible in order to grow and adapt to include all aspects of life in the Borough of Poole and respond to knowledge of the most effective methods of reducing emissions and new technologies. It is also essential that carbon management and energy efficiency become core values throughout the Borough and that everyone takes responsibility for reducing emissions.

By working together and ensuring that this plan is supported and implemented, we can all help the Council to lead Poole into a low carbon future, stimulating growth, saving money and supporting communities.



Councillors at the Covenant of Mayors Official Signing Ceremony 11 October 2012 at Upton House

“Poole Environmental Partnership is committed to caring for the environment and the principle of sustainability. Our vision of Poole is of a beautiful place to live, work, learn and play that we take pride in passing on to future generations. To achieve our vision we will work together to integrate the principles of sustainability across all our activities and encourage others to do the same.”

Poole Environment Partnership Mission Statement October 2012

Signed, on behalf of the Borough of Poole, by:

Councillor Elaine Atkinson; Leader of the Council

John McBride; Chief Executive

Councillor Phil Eades; Mayor of Poole 2013-2014

Introduction

As community leaders and providers of important services that may be impacted by our changing climate, it is vital that councils are able to manage the threats and opportunities locally. It is estimated that every £1 spent on measures to adapt to climate change represents four times its value in potential damage avoided.

Getting the balance right amid a range of contesting priorities is a big challenge. The Borough of Poole has struck this balance by utilising the Poole Environment Partnership to create delivery structures and implement programmes- drawing on the experience and resources of the private sector and private individuals as well as finding effective mechanisms for collaboration, partnership and funding with colleagues across the conurbation.

We must respond to the focus on energy by ensuring all projects set high standards and engage positively with local communities so that we have a great story to tell of exciting projects delivering secure and sustainable energy as well as skilled jobs.

If you cannot measure the problem you cannot manage it and this is particularly true for carbon emissions. The Borough's baseline emissions inventory details the emissions across the Borough in 2005, published in the former National Indicator (NI) 186 data by the Department for Energy and Climate Change.

The NI186 data breaks emissions down into three sectors; domestic, business and transport. The Sustainable Energy Action Plan (SEAP) emulates this model and adds the public sector as a separate entity because of its unique potential to influence and inspire. Each section outlines the specific emissions for each sector, the factors contributing to those emissions and actions outlined to reduce them. These are summarised in Annex A. Currently projects proposed and in the pipeline are expected to reduce emissions by 32% by 2020. Therefore a target will be set that:

The Borough of Poole will reduce Borough-wide emissions by 30% from a 2005 baseline.

Because the NI186 data is published two years in arrears the Borough of Poole intends to develop a modelling tool that will enable us to calculate the total carbon footprint of the borough. Using an extensive and peer-reviewed database and algorithms the model will take as input economic data, essentially the details of all supply chain activities in certain categories that happen within the borough, and produces a detailed picture of all the embedded carbon in these products and services. This combined with details of the carbon that housing, Council estates and businesses generate on a daily basis, will allow us to set reliable baselines

and reductions targets and also allow us to model different situations, reflecting the anticipated impact of proposed carbon-reduction projects. In this way we will be able to assess the impact on the overall 28% reduction target of the planned savings from each project before any investment decisions are made.

To fund all of the low carbon activity across Poole a high level of inward investment will be required. This has not yet been quantified but it is undoubtedly beyond the financial limits of the council. However, it does not mean that the council will not have a role in attracting that finance. To do that it needs to be active in four areas;

- Through credible leadership create an investment environment that enables the investment and delivery sector to take a long term view, trusting that the council is fully committed
- Use its convening power to bring together the right structures, organisations and stakeholders into business models that can deliver low carbon projects, addressing the challenge that these projects are often smaller than those normally taken up by the private sector
- Use its asset base to demonstrate commitment and create an early investment pipeline, whether this be through inclusion of buildings retrofit activity and land for renewables, or the use of brand to provide credibility.
- Use of enabling finance to attract other finance and create an income stream for the council from savings made from energy efficiency and revenues created from renewable energy.

The emerging model, recognising that low carbon is moving from being a cost centre to a net revenue generator, that is bringing this together for local authorities has one or more authority invest, say £20m, in a local low carbon fund that generates returns delivers a surplus. Creating this fund can attract considerable private sector investment through standardise finance and delivery models. These models might be the Energy Performance Contracts (EPC) for public sector buildings, commercial Green Deal for private sector commercial buildings or direct investment for renewables.

For this model to be at its most efficient, a local authority can work with neighbouring authorities on the creation of the fund, ensuring that between them they have a large enough investment pipeline to be confident of paying for the fund managers and attracting private sector finance.

“This SEAP represents the beginning of a range of exciting, relevant and meaningful projects which push forward the Borough’s actions towards carbon reduction, leading and supporting the community to adapt to new environmental constraints and helping them to exploit opportunities thrown up by the drive to a low carbon economy.”

Paul Cooling, Borough of Poole Carbon Reduction Manager and Chair of Poole Environment Partnership

Current Borough of Poole Strategies and Plans informing this Action Plan

With businesses starting to take sustainability seriously not only is there a commercial opportunity in implementing sustainability strategies but also a 'read-across' in terms of public and private sector strategies. The Borough of Poole has numerous policies reaching all sectors of this SEAP and the strategies referenced in the production of this SEAP are listed below

Nottingham Declaration on Climate Change

The Borough of Poole signed the declaration in October 2006. Signatories pledge to systematically address the causes of climate change and prepare their community for its impact.

Bournemouth, Dorset and Poole Renewable Energy Strategy and Action Plan (2012)

In 2012 the Borough of Poole adopted a second joint renewable energy strategy, the result of an 18 month process which included extensive community consultation. This strategy sets out six key priority areas for action to help realise Bournemouth, Dorset and Poole's renewable energy potential including:

- Supporting the development of community renewable energy.
- Maximising the local economic benefits of renewable energy generation
- Creating a more supportive planning system for renewable energy
- Developing locally appropriate technologies
- Delivering leadership and partnerships that support renewable energy
- Improving renewable energy communications and learning

Bournemouth, Dorset and Poole Energy Efficiency Strategy and Action Plan (2009)

The sister strategy of the renewable energy strategy the energy efficiency strategy set the ambitious target of achieving a 30% reduction in CO₂ emissions by 2020, relative to 2005, in line with the national targets.

Poole Core Strategy (2009)

The Core Strategy is a spatial planning document, part of Borough of Poole's Local Plan, and provides the overarching policy framework for sustainable development in Poole, as well as the context for other development plan documents. Strategic Objective 8 seeks to address the issue of climate change. The key outcomes, amongst others, include a reduction in Poole's Carbon Footprint. As such the plan contains a range of policies which, alone or in combination, seek to ensure that Poole is prepared for climate change.

Poole's Sustainable Community Strategy 2010-2026

This strategy is directly influenced by the needs and aspirations of people of all ages and backgrounds with the vision and ambitions being a response to these views. Its aim is to achieve sustainable communities in Poole. The strategy identifies three objectives that are fundamental to achieving sustainable communities in Poole, they are:

- **Closing the Gap**
This objective is about addressing the inequalities some people continue to face because of where they live, their income, employment status, age, disability, gender, race, religion or sexuality.
- **Listening and Working Together**
Enabling people to take responsibility for themselves and their communities and recognising their contribution will help create a stronger Poole.
- **Making Poole Greener**
The high quality of the natural environment as well as efficient use of resources is important to businesses and residents in making Poole a good place to live work and do business.

Poole Corporate Strategy 2012-15

This strategy sets out what the Council aspires to achieve corporately and in partnership over the three year period 2012-2015. The Council's purpose and aim of the strategy is to improve the quality of life for the people of Poole. One of the key priorities is to protect and enhance the natural and built and environment and to reduce Poole's carbon footprint, to ensure that the downward pressure on energy costs for the Council is maintained.

Borough of Poole Carbon Management Plan

The Carbon Management Plan is the predecessor of this SEAP and set an ambitious target of a 25% reduction in the Borough's emissions by 2013 from 2008 levels. Over this period a 17% reduction in CO₂ was achieved.

Waste Management Strategy (2008)

Recycling in Poole has more than doubled over the last 6 years, and we have recently achieved our 2010 government target of recycling or composting 40% of household waste. However, the targets for future years are even tougher – by 2020 we need to be recycling at least half of our waste – and therefore we reviewed our Waste Management Strategy in 2008 to ensure that we can achieve this. In developing our strategy for the next 10 years, we have established the following four key principles:

- To minimise Poole's Carbon Footprint as much as possible
- To minimise how much waste is produced across the Borough

- To maximise recycling achievement
- To maximise local self sufficiency

Local Transport Plan 3

Local Transport Plans (LTPs) are statutory documents which set the strategy for the management, maintenance and development of the area's transport system. Its vision is a safe reliable and accessible low carbon transport system for the conurbation that assists in the development of a strong low carbon economy, maximises the opportunities for sustainable transport and respects and protects the area's unique environmental assets.

Bournemouth & Poole Health and Wellbeing Strategy 2012-2016

The Health and Wellbeing Strategy has been produced by the Bournemouth and Poole Health and Wellbeing Board which brings together local Councillors, Doctors and patient and public representatives to improve the health and wellbeing of local people. The strategy sets out the key priorities which the Board will pursue over the next three years.



Baseline Emissions Inventory

A robust, relevant baseline is vital to measure the success of any emission reduction project. The Covenant of Mayors is no exception to this rule and requires a participating local authority to produce a baseline from the first robust dataset after 1990 and to produce a SEAP designed to achieve a greater than 20% reduction in emissions by 2020 from that baseline year.

For the Borough of Poole the first suitable baseline year is 2005, the first year the UK government released the NI186 *per capita emissions* data. The data is released two years in arrears, meaning that the 2005 data was released in 2007. The National Indicators are no longer part of government reporting but the NI186 data is still published as Emissions under the scope of influence of Local Authorities. Data for this year (2013) should be available in summer 2015.

The reporting process for the Covenant of Mayors requires the BEI to be submitted in three different groups. Firstly, the inventory examines the use of energy in buildings and for transport. Secondly, the energy use is equated into Carbon emissions, using UK specific conversion factors. Finally the inventory looks at electricity, heat and cold produced in the area from renewable sources. This is then offset against the borough's emissions.



Hamworthy Power Station (Photograph taken 1952) The Power Station ran from 1950 until 1984 and was demolished in the early 1990s. The site now forms a potential regeneration area for Poole.

Energy Use

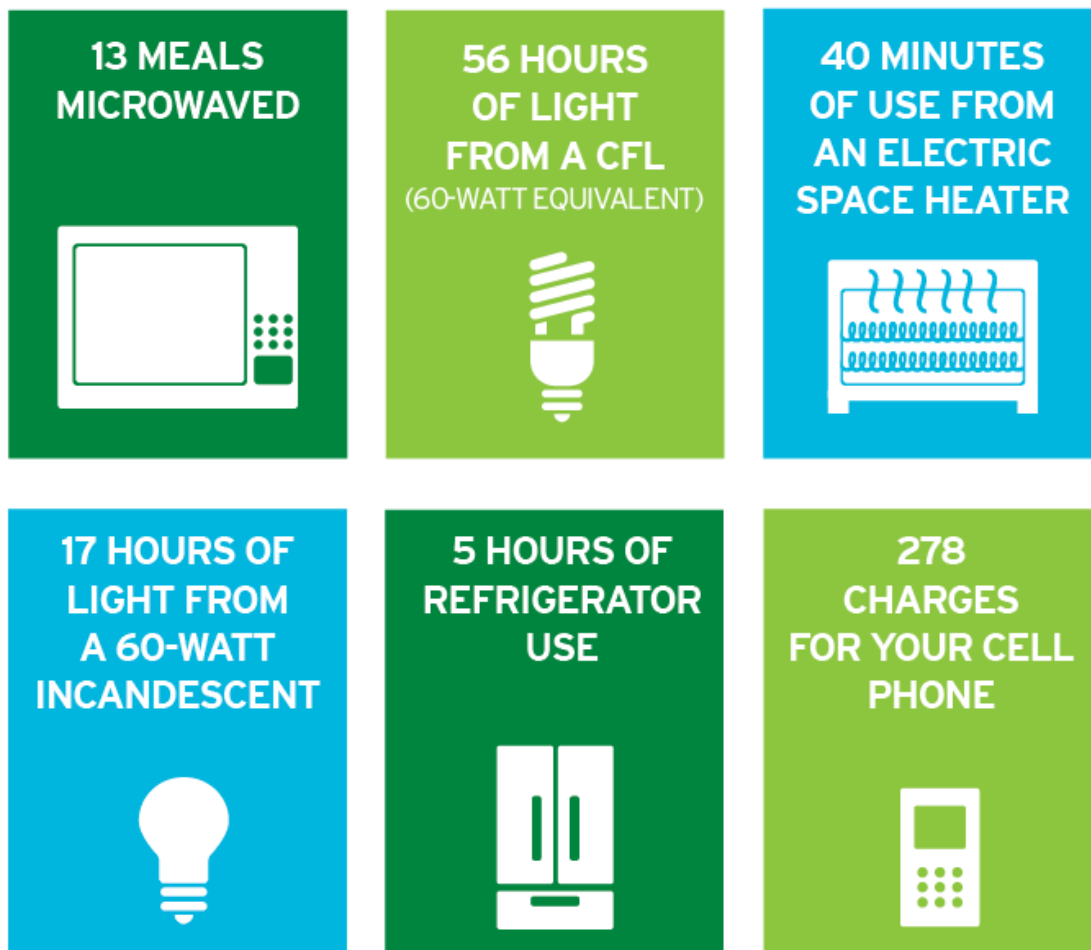
Poole's total energy usage in 2005 was estimated at more than 3 million MWh. A MW is the equivalent of 1,000 kW, the unit of energy consumption which energy companies charge users for. The kW is the equivalent to 1,000 Watts. This means that;

“the energy used in the Borough of Poole per year is the equivalent of the entire, 54 million, population of England running a 60W light bulb constantly for a year.”

Cooling, Smith, and Leatherbarrow in conversation 11 September 2013

A simple indication of how 1 kWh of energy could be used a typical home is shown below;

What does 1 kWh mean for your home?



Energy Consumption

76% of energy used in the Borough was consumed by buildings and 24% for transport. The analysis is shown below.

Category	Energy Consumed (MWh in 2005)	Contribution
Buildings, equipment, facilities and industry		
Council assets + operations	50,384	2%
Domestic Sector	1,267,465	40%
Street Lighting	9,469	0.3%
Business Sector	1,061,919	34%
SUBTOTAL	2,389,267	76%
Transport		
Council fleet	11,862	0.4%
Private + commercial transport	743,818	24%
SUBTOTAL	755,680	24%
TOTAL	3,144,947	100%

Table 1.: Poole Energy Consumption by Sector 2005

Poole Energy Consumption 2005 (by end use)

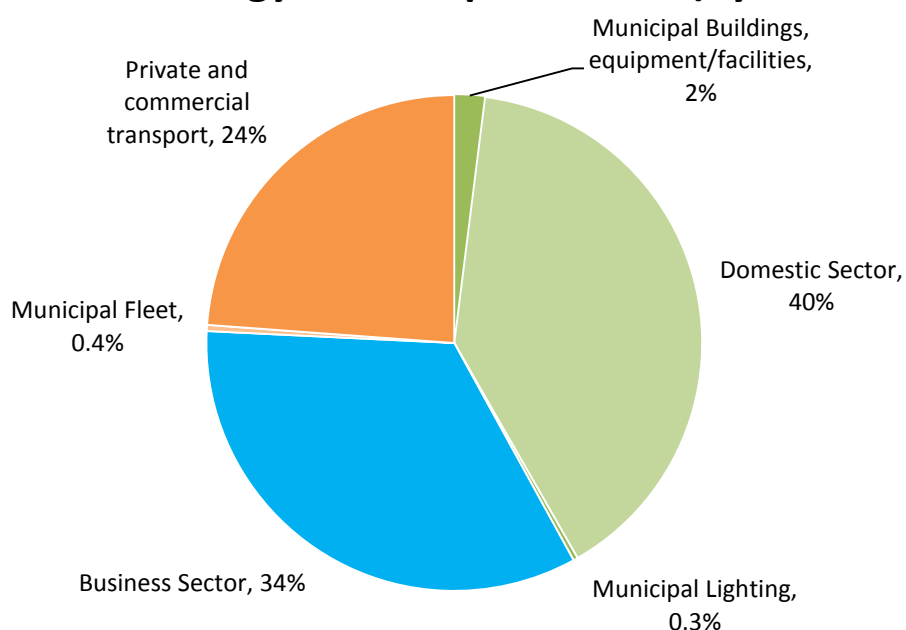


Figure 2.: Pie Chart of Poole Energy Consumption by Sector 2005

In terms of fuel usage more than 65% of the total energy used came from electricity and gas, with 24% used for transportation.

Fuel used	Energy Consumption (MWh in 2005)	Contribution
Electricity	753,943	24%
Mains Gas	1,366,830	43%
Heating Oil	266,866	9%
Diesel (transport)	371,314	12%
Petrol (transport)	384,367	12%
TOTAL	3,144,947	100%

Table 2. Energy consumption by fuel source 2005

Poole Energy Consumption 2005 (by fuel)

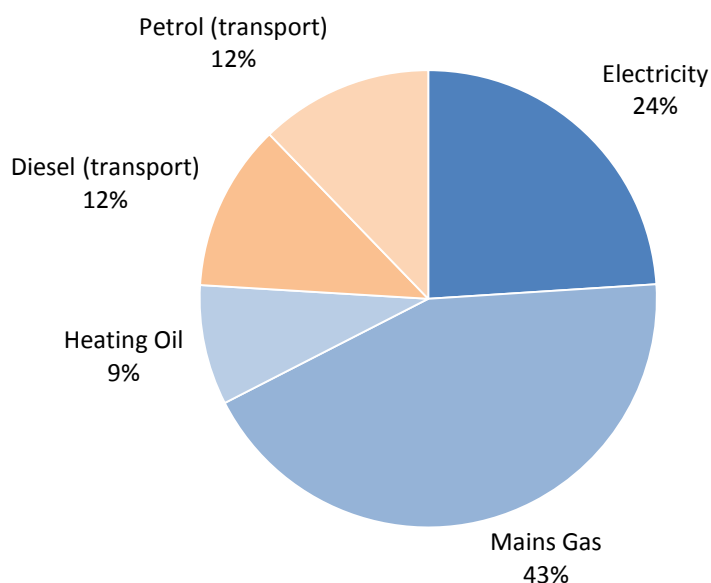


Figure 3. Pie Chart of energy consumption by fuel source 2005

Carbon Emissions

Based on the energy consumption figures described above the carbon emissions are calculated by applying the relevant carbon conversion factors for 2005. Poole’s total carbon emissions in 2005 are estimated as 947,950 tCO₂ equivalent. Poole had a population of 138,200 in 2005 and each person was therefore associated with **6.9tCO₂**. An illustration of the size of a tonne of CO₂ is shown in figure 6.

The relative contribution from each sector and fuel type vary from the above because different fuels are associated with different emission factors (the

emissions factor for electricity is nearly 3 times that of mains gas because of transmission losses and fuel mix for generation)

Category	Carbon Emissions (tCO ₂ in 2005)	Contribution
Buildings, equipment, facilities and industry		
Council assets + operations	14,516	2%
Domestic Sector	354,920	37%
Street Lighting	5,122	0.5%
Industrial and Commercial Sector	377,182	39%
SUBTOTAL	751,740	80%
Transport		
Council fleet	3,080	0.3%
Private + commercial transport	193,130	20%
SUBTOTAL	196,210	20%
TOTAL	947,950	100%

Table 3. tCO₂ emissions by sector 2005

Poole Carbon Emissions 2005 (by end use)

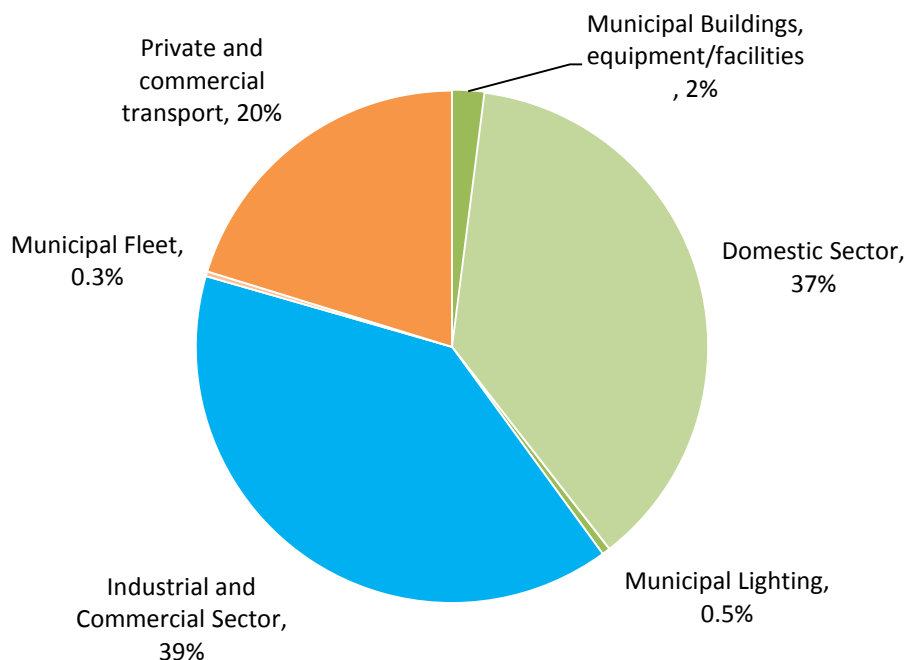


Figure 4. pie chart of tCO₂ emissions by sector 2005

When considered in terms of reducing Carbon Emissions the consumption of electricity is a far higher priority based on baseline data from 2005 contributing more than 40% of the area's CO₂ emissions. In the future the emissions factor for electricity is expected to fall considerably (owing to the forecast use of nuclear

and renewable energy as part of the national electricity production) so the relative influence of electricity use could be diminished.

Fuel used	Energy Consumption (MWh in 2005)	Contribution
Electricity	399,590	42%
Mains Gas	280,200	30%
Heating Oil	71,520	7%
Diesel (transport)	93,199	10%
Petrol (transport)	103,010	11%
TOTAL	947,950	100%

Table 4. tCO₂ emissions by energy source 2005

Poole Carbon Emissions 2005 (by fuel)

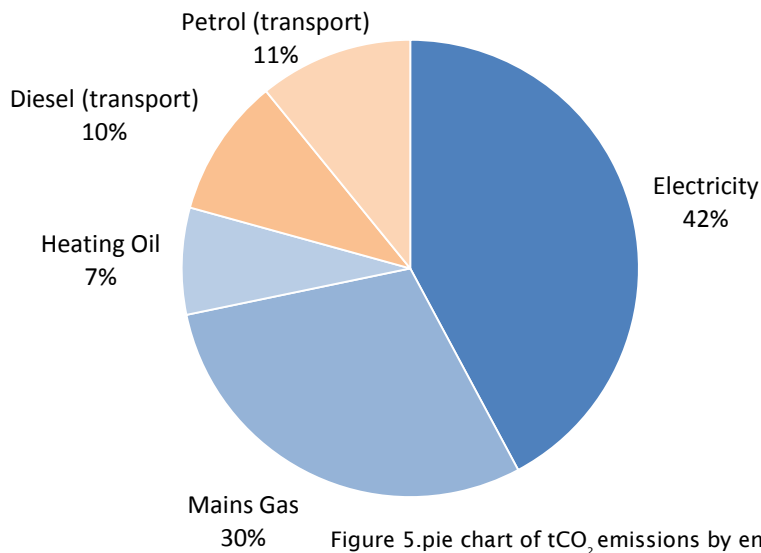


Figure 5. pie chart of tCO₂ emissions by energy source 2005



Figure 6. One tonne of CO₂ at standard temperature and air pressure shown on a residential street

Where we are now, changes in emissions since 2005

The Baseline Emissions Inventory details where the Borough of Poole emissions were in 2005. However this does not represent the most recent published figures on the Borough of Poole's emissions which, at the time of writing, are the 2011 emissions. These figures show that there have been some reductions in Poole's emissions as shown below:

Category	Carbon Emissions (tCO ₂ in 2011)	Change since 2005 tCO ₂	Contribution to Total (change)
Buildings, equipment, facilities and industry			
Council assets + operations	13,288	-1,228 (8.4%)	2% (0%)
Domestic Sector	285,940	-69,580 (19.6%)	38% (+1%)
Street Lighting	4,272	-850 (16.5%)	0.5% (0%)
Business Sector	292,295	-73,277 (20.0%)	38% (-1%)
SUBTOTAL	595,795	-144,935(19.6%)	79% (-1%)
Transport			
Council fleet	2,655	-425 (13.8%)	0.3% (0%)
Private + commercial transport	180,885	-18,935 (9.5%)	21% (+1%)
SUBTOTAL	183,540	-19,360 (9.5%)	21% (+1%)
TOTAL	779,335	-164,295 (17.4%)	100%

Table 5 tCO₂ emissions by energy source 2011

The data shows that there has been a general reduction in emissions across the board. This equates to a 17.4% reduction in CO₂ emissions since 2005, meaning that the Borough is already more than halfway towards its 30% by 2020 target.

There are a number of factors which have contributed to this reduction. Most of the causes of these reductions will lead to permanently lower emissions i.e. the introduction of renewable technologies and the increased efficiency of vehicles and appliances.

The total (kt) emissions for the period 2005-2011 are detailed in the table below:

Year	Business Total	Domestic Total	Transport Total	Grand Total	Population ('000s, mid-year estimate)	Per Capita Emissions (t)
2005	388.3	355.5	202.9	945.4	139.9	6.8
2006	391.7	353.6	196.3	940.2	141.1	6.7
2007	394.0	337.9	199.5	930.9	142.9	6.5
2008	381.4	342.1	196.7	920.6	144.2	6.4
2009	333.1	304.9	190.4	829.0	145.4	5.7
2010	341.6	326.2	186.2	854.3	146.8	5.8
2011	312.5	285.9	183.5	782.2	148.1	5.3

Table 6 CO₂ emissions by energy source 2005-2011

This table highlights the progressive reduction in CO₂ emissions in Poole despite the nearly 6% population increase over the seven year period. The graph below shows the per capita emissions over the period.

Poole per Capita Emissions (t)

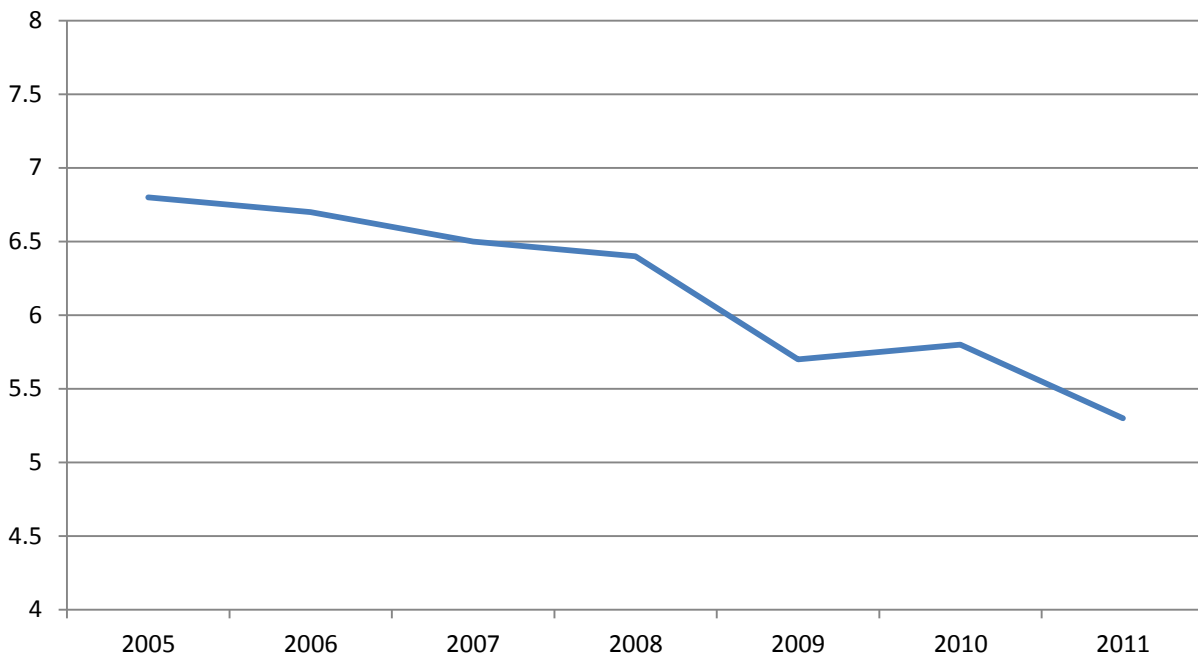


Figure 7 Poole per capita emissions 2005-2011

The definition of energy efficiency is the useful energy service out to energy input and by reducing energy use and cutting down on waste it is possible to reduce energy bills, make energy systems more sustainable and drive down green house gas emissions. The Governments Energy Efficiency strategy states that the UK could be saving 196TWh in 2020 by the implementation and investment of energy efficiency. This equates to carbon savings of 41MtCO₂ and thus illustrates that energy efficiency belongs at the heart of a low carbon economy.

Whilst it can be shown that carbon savings have been made since the economic slowdown, it's still a people question as to whether we insulate our houses or use efficient light bulbs because decisions are made by people. Therefore, behavioural change is needed to ensure that somebody actually takes a positive action to insulate their building.

How the targets will be achieved:

The Poole Environment Partnership

When the Borough of Poole took the decision to become a signatory of the Covenant of Mayors it became clear that to achieve the ambitions of the programme the structures in place would need to be adapted. With this in mind the Carbon Management Programme revived and revised the lapsed environment board to produce the Poole Environment Partnership (PEP).

The partnership's role is to develop, deliver and review projects to achieve and surpass the Covenant of Mayors objectives. The development and delivery of projects is overseen by four themed action groups. These projects are sanity checked and their progress reviewed by the PEP Management Board. The projects are then, where required, recommended to the appropriate council Overview and Scrutiny committee, by the management board and enter the Borough of Poole's existing project management system.

The Action Groups

The themes for the Action Groups are based upon the categories created by the former National Indicator 186 used for the Baseline Emissions Inventory. The groups are the Business Action Group (BAG), Domestic Action Group (DAG), Transport Action Group (TAG) and the Public Sector Action Group (PAG).

Business Action Group

The BAG is chaired by the Poole Chamber of Trade & Commerce and consists of representatives of the local energy advice centre, the Bournemouth and Poole Green Knowledge Network, local ICT, renewable & energy businesses and a Borough of Poole Economic Development Officer.

Domestic Action Group

The DAG is chaired by the Dorset Energy Advice Centre and consists of representatives from the local health services and Poole Housing Partnership, the Borough's Arms Length Management Organisation for social housing.

Transport Action Group

The TAG is chaired by the Borough's Transport Policy Manager and consists of a number of interested local residents, the Borough's Accessibility Team Leader and the Borough's Cycling and Walking Officer.

Public Sector Action Group

The PAG is chaired by the Borough's Carbon Reduction Manager and consists of representatives from across the Borough's service units.

The Management Board

The Management Board is chaired by the Borough’s Carbon Reduction Manager and consists of the portfolio holder, the chairs of the economy and environment overview and scrutiny committee, the chairs of the action groups, a strategic director, the head of transportation services, a Transition Town representative, a NHS representative and a faith groups representative.

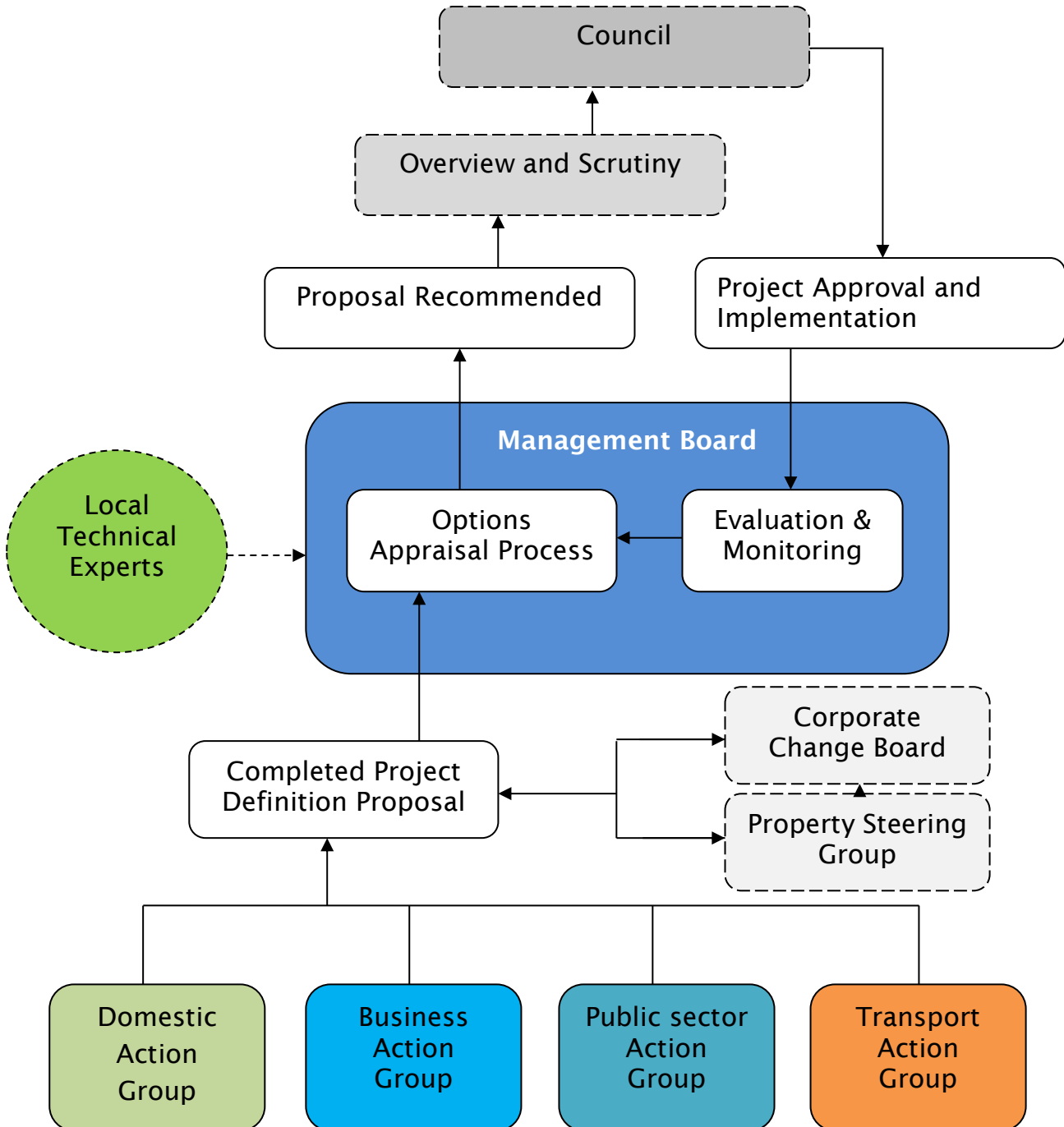


Figure 8. Outline of PEP structure

As necessary =

Business Action Group

The business action group aims to bring down emissions by encouraging local businesses to think more carefully about the amount of energy they are using and CO₂ that they are emitting and facilitating reduction opportunities.

Reducing the amount of CO₂ that businesses are emitting will reduce the operating costs of these businesses, making them sustainable economically as well as environmentally. A secondary aim of the business action group is to develop, support and sustain the green knowledge economy in Poole, making it a centre for green business on the south coast.

Calculation of Business Emissions (ktCO₂)

Year	Electricity	Gas	Other Fuels	Agricultural Combustion	Total
2005	247.0	83.9	57.0	0.4	388.3
2006	257.0	79.9	54.5	0.4	391.7
2007	262.8	74.8	56.0	0.4	394.0
2008	263.2	76.1	41.8	0.4	381.4
2009	226.5	67.3	38.9	0.4	333.1
2010	226.8	74.6	39.7	0.4	341.6
2011	216.3	59.4	36.5	0.4	312.5

Table 7. Emissions in the Business Sector by Fuel Type

Electricity

The emissions associated with electricity consumption are estimated using an average UK emission factor for the relevant year. This average allocates equal shares of coal, gas, oil and renewable powered generation to all electricity consumers.

Annualised electricity consumption data is compiled at meter point using Meter Point Administration Number (MPAN) level data. Using this approach the location of each meter can be identified and assigned to a local authority area. This approach allows 98.5% of the total electricity consumption to be accurately allocated to a local authority.

Each meter is allocated with a profile class, which enables the consumption of domestic customers (profiles 1 and 2) to be identified from the consumption of business customers (profiles 3 to 8). As part of the data validation process all profile 1 and 2 customers with a recorded consumption greater than 100,000kWh and those with a consumption greater than 50,000kWh with address information indicating non-domestic use were reclassified as business customers.

Gas

Gas data can be mapped more accurately to LA area meaning that 99% of total consumption within Great Britain is allocated to a LA.

The industry standard cut-off point of 73,200kWh is used to identify small and medium business consumers. This will incorrectly allocate many small businesses to the domestic sector and a small number of larger domestic customers to the non-domestic sector. This also means that some meters will change classification year on year.

Other fuels

The other fuels sector does not have the same detailed level of point information as electricity or gas. Where point data information is unavailable emissions are distributed across the UK using modelled high resolution (1 km²) emissions distributions based on detailed employment and fuel use data.

Analysis of Business Emissions (ktCO₂)

The table shows the progress of business emissions in the Borough since 2005. In this time business emissions have reduced by **75.8kt (19.5%)** having peaked in 2007. A quick glance at the table shows that the bulk of business emissions come from electricity

Electricity emissions rose year on year to 2008. There was then a sizeable drop in emissions in 2009, stayed constant in 2010 before a slight drop in emissions in 2011. The cause of the drop in emissions in 2009 is unclear and may have been driven by the economic crisis which hit in the previous year. The graph below shows the job seekers allowance claimant rate in Poole since May 2001:

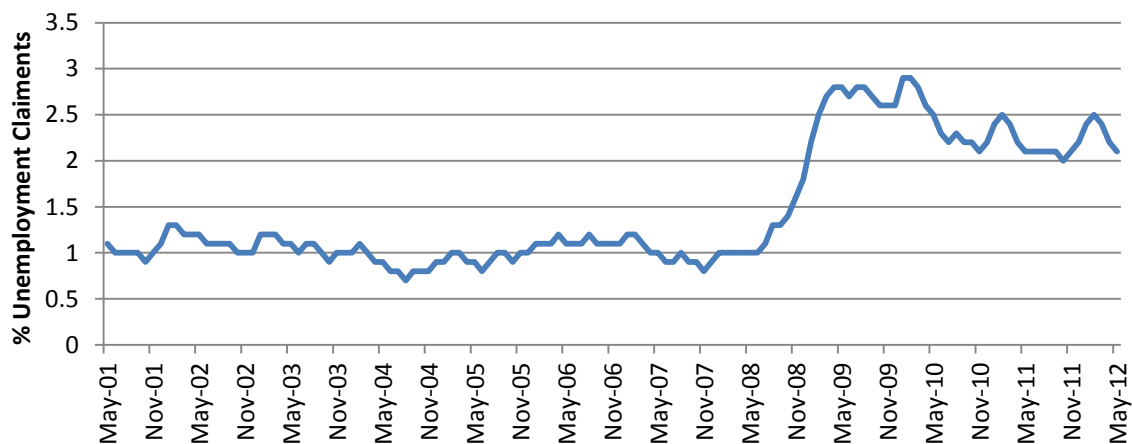


Figure 9. % of Borough of Poole population claiming Jobseekers Allowance 2001-2012

A large increase in claimants is visible in late 2008-early 2009, corresponding to the drop in emissions between 2007/8 and 2008/9. This makes logical sense as the fewer people employed in an organisation the less energy consuming equipment is required. When the economic climate is worse there tends to be fewer goods purchased, meaning that big energy consuming manufacturing equipment is used less, leading to a reduction in energy use.¹

The financial implications of this reduction in energy use are considerable. The drop in emissions from electricity use between 2008 and 2011 is the equivalent to

¹ An Impact Assessment of the Current Economic Downturn on UK CO₂ Emissions, Report to the Committee on Climate Change, 11 August 2013

more than 86 GWh. Taking a figure of c.£0.10p per kWh, the value of these emissions would be more than £8.5 million. As the cost of energy increases so will the associated costs of employment. This could, therefore, have a knock-on effect on the economic recovery as businesses will need more money to employ individuals. Over the next few years we can expect a major shift in behaviour as energy costs escalate to threaten the viability of businesses' operations.

It is clear that action must be taken to secure the reduction in business emissions and, in doing, help facilitate a strong and sustainable economic recovery in the conurbation.

Actions to reduce emissions

Because of the independence of businesses from Local Authorities it is often very difficult for the local authority to deliver actions which lead to a reduction in business emissions. A random search of UK CoM participants SEAPs, shows no specified actions to deal with business emissions.

In contrast, the centrepiece of the Business Action Group's plan to reduce business emissions is a certification scheme called Green Positive Environmental Actions (Green PEA). Endorsed by the Borough of Poole and the Poole Chamber of Trade and Commerce, Green PEA will be offered free of charge to local businesses.

Participating companies will receive an initial cost analysis of their opportunities to reduce energy costs and emissions. This will present them with recommendations of the actions they could take to reduce their emissions and costs. The initial assessment will be provided by members of the business action group, local businesses with expertise in renewable energy, energy efficiency, energy purchasing and telecommunications.



Green PEA logo

The certification scheme has five levels, which are awarded as follows;

- P1. Foundation:** Requirements: Energy usage survey and a letter of support from the senior management team.
- P2. Improved:** Requirements: Achieve at least two recommendations from the energy survey.
- P3. Advanced:** Requirements: Achieve at least five recommendations from the energy survey or demonstrate a qualified level of staff engagement
- P4. Distinguished:** Requirements: Demonstrate a 10% saving in direct carbon emissions
- P5. Excellence:** Requirements: Demonstrate a 20% reduction in direct carbon emissions and the introduction of a least one renewable technology.

Every year there will be a Green PEA awards ceremony which will recognise companies which have made the most progress towards reducing their emissions over the year. Each participant will have their names published in the local newspaper and it is hoped that these PR opportunities will encourage businesses to participate in the programme.

By 2020 the target for the Green PEA programme will be for 6% of Poole's businesses to achieve Excellence. This would mean approximately 360 businesses reaching this highest level and equate to a reduction in emissions of 47,643t.



The Green PEA launch event: pictured (l-r) Lucy Cooper (president, Poole Chamber of Trade and Commerce), Paul Cooling (Carbon Reduction Manager), Cllr Xena Dion (Portfolio Holder for a Prosperous and Sustainable Poole), Cllr Phil Eades (Mayor of Poole), Mrs Helen Eades (Mayoress) and Simon Harrison (Chairman, Business Action Group)

Work is progressing with WSX Enterprise; a local company that provides specialist support to business, to develop an EU clusters funding bid entitled "LoToNo (Towards a Low carbon region), developing low carbon SME clusters in Dorset and Solent". This bid is aimed at addressing the policy challenges for Dorset and Solent in creating a favourable business environment to foster entrepreneurship and the development of emerging low carbon resource efficient industries and new business models.

This project represents a very timely opportunity to put into action the strategies the UK partners (Dorset County Council, Borough of Poole, Future Solent) have drawn up. The synergies with the Solent LEP and Dorset LEP strategies are very strong and the action of LoToNo will help to implement those strategies on the ground.

With the French partner; Pole Mer PACA (the maritime and marine cluster organisation) who have experience in developing clusters to implement a low to no carbon strategy in a region the bid will:

- Understand experiences and transfer best practice structures to create a favourable environment for change
- Develop and enhance clusters of SMEs around supply chains working to develop and test new business models
- Use an Innovation Voucher Scheme to support businesses to exploit the new opportunities offered by the low carbon market

On the ground, this will translate into cluster organisations doing Innovation Labs, bringing interested groups of businesses together (using existing groups and new ones that spring up as a result of this activity), with designers, engineers, knowledge experts, creating all kinds of new ways to work together. Ideas arising from the Innovation Labs will result in groups gaining Innovation Vouchers of £ 10,000 to explore further, governed by a Programme Board who will carry out the due diligence needed.

The action group will continue to develop new ideas and plans as the existing projects progress. Current initiatives under consideration include conducting information events with the local traders associations and awareness raising initiatives, to encourage businesses to identify, monitor their out of hours energy usage and inspire staff to recognise areas where their business wastes energy.

In addition to this programme the Government has a number of schemes in place to support businesses in the reduction of their emissions. These vary from mandated reporting schemes to make businesses more aware of their emissions too schemes to support projects such as the Green Deal, RHI and FiTs. These are expected to have an impact as the Government seeks to meet its carbon budget targets. The local authority can expect to play a central part in any future government scheme to reduce business emissions and the Borough of Poole will look to the Business Action Group to deliver.

Domestic Action Group

The Domestic Action Group has two main aims, to reduce emissions from residential properties and reduce fuel poverty within the Borough. Reducing fuel poverty will also have additional benefit of improving the standard of life for residents. Properties in fuel poverty tend to be poorly insulated and can often suffer from other problems such as damp due to under heating. This can lead to health problems for people living in these properties.

Domestic Emissions (ktCO₂)

Year	Domestic Electricity	Domestic Gas	Domestic 'Other Fuels'	Domestic Total
2005	153.2	196.9	5.4	355.5
2006	157.2	191.0	5.5	353.6
2007	151.4	181.1	5.4	337.9
2008	152.5	184.3	5.3	342.1
2009	137.1	162.6	5.3	304.9
2010	140.7	180.1	5.4	326.2
2011	133.5	147.2	5.3	285.9

Table 8. Emissions in the Domestic Sector by Fuel Type

The table above shows the progress of domestic emissions in the Borough since 2005. In this time there has been a dramatic reduction in domestic emissions by nearly 70kt CO₂ (19.5%). The bulk of this reduction (40kt) occurred in 2011, and the majority (49kt) has come from a reduction in gas use.

There are a number of factors driving this reduction in emissions. The Government's renewable technology Feed-in tariff scheme and various supporting programmes have helped to deliver a reduction in emissions, particularly those designed to improve insulation such as CERT and CESP.

Heating degree days (HDD) will also affect emission levels across the Borough, particularly in the case of gas emissions as gas is the most common heating fuel within the Borough. HDD is a measurement designed to reflect the demand for energy needed to heat a building, derived from measurements of outside air temperature. HDDs are defined relative to a base temperature, the outside temperature above which the building does not require heating. The base temperature can vary but this is usually an indoor temperature which is adequate for human comfort. In the UK this temperature is 15.5°C (internal gain increases temperature by 1 or 2°C).

The table and graph below plots emissions from domestic gas use against the yearly degree days, giving an emissions per degree day figure. This gives a better indication of the true variations in emissions without the impact of seasonal weather factors.

Year	2005	2006	2007	2008	2009	2010	2011
Domestic Gas Emissions (kt)	196.9	191.0	181.1	184.3	162.6	180.1	147.2
Annual HDD	2004	1977	1893	2100	2057	2247	1477
Emissions per HDD (t)	98.25	96.61	95.66	87.76	79.05	80.15	99.66

Table 9. Poole Gas emissions end degree days 2005-2011

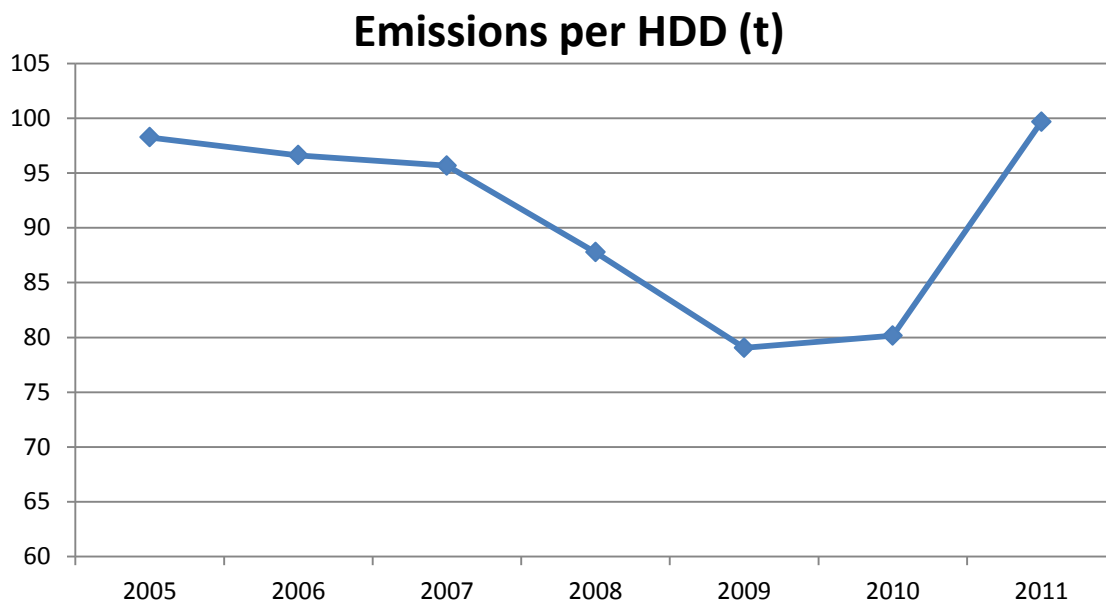


Figure 10. Graph of emissions per HDD 2005-2011

The graph above shows the progress of reduction in emissions factoring in heating degree days. This shows a steady reduction in emissions from 2005 to 2007, followed by a steep drop in emissions between 2007 and 2009, a slight increase in emissions in 2010 and a noticeable rise in 2011 to levels higher than 2005.

There are a number of explanations for the increase in per degree day emissions in 2011. The first is that the reduction in emissions was recession driven. When the recession was at its worst in 2008 and 2009 people were conscious of their energy usage and economised on their use of heating meaning that the amount of energy used per heating degree day was reduced. As the economy improved and residents began to feel wealthier they pay less attention to heating use and consequently heating use increases. People's sense of affluence will affect their spending habits; however, it is unlikely it would have such a large impact over a short period.

Another explanation is that as time passes heating equipment becomes less efficient. This will mean that more gas will be required to achieve the same heating impact, and consequently more emissions. This argument would only make sense if there were no new, more efficient gas heating systems available.

However, new high efficiency products are being installed year on year and this will more than off-set the increased inefficiency of older products.

Main explanation for the increase in per degree day emissions is that Gas is not only used to provide space heating in domestic properties, it also provides water heating and, in some cases a cooking fuel. Gas used for water heating will not so dramatically be affected by outside variations in temperatures as the water is transported to the house via insulated pipes. Together the gas used for water heating and cooking can be estimated to equate to between 20 and 25% of domestic gas emissions. In 2005 this would equate to c. 45ktCO₂. Not much work has been done to reduce emissions from these sources, therefore emissions from water and space heating can be expected to have remained relatively constant over the past 7 years. This means that although in 2005 water heating and cooking contributed to 22.46t of emissions per degree day in 2011 it contributed to 30.47t per degree day. Removing the impact of water heating and cooking equalises the emissions, shown in the table below:

Year	2005	2006	2007	2008	2009	2010	2011
Domestic Gas Emissions (kt)	196.9	191	181.1	184.3	162.6	180.1	147.2
Adjusted Emissions	151.9	146	136.1	139.3	117.6	135.1	102.2
Annual HDD	2004	1977	1893	2100	2057	2247	1477
Emissions per HDD (t)	75.80	73.85	71.90	66.33	57.17	60.12	69.19

Table 10. Adjusted emissions per heating degree day 2005-2011

Emissions per HDD (t)

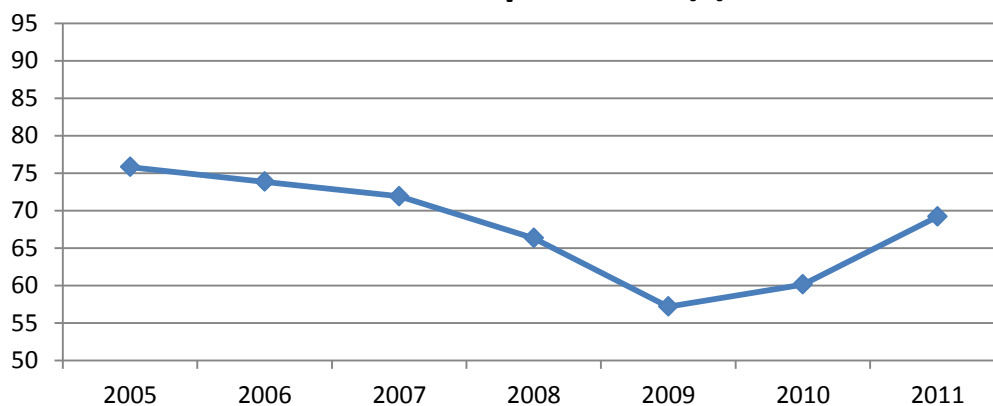


Figure 11. graph of adjusted emissions per heating degree day 2005-2011

As the graph above shows adjusting the emissions helps to smooth the more extreme variations in emissions per degree day. This does show, however, that there is an increase in space heating related emissions, perhaps for the reasons

detailed above. The only way to be certain of the current trend in emissions will be to wait for the 2012 emissions to see their balance against degree days.

Emissions from gas make up 51% of the domestic households emissions in 2011 with 47% of emissions coming from electricity. The electricity use of a home is partly due to the use of electricity as a heating (both space and water) source and partly due to the increased proliferation of electronic devices. Domestic appliances are consistently improving in energy efficiency and this is reducing electricity emissions as new appliances replace old. However, there are now more computers, personal devices such as a tablets and phones, games consoles and television equipment in the home than ever before, all consuming more energy. The deployment of micro-generation technology has increased the amount of renewable energy used in the domestic sector and has probably been the decisive factor in the reduction in domestic energy emissions.

In 2012 Poole Housing Partnership, the Borough's Arms Length Management Organisation for social housing, completed a £10 million solar photovoltaic scheme, installing solar panels on the Borough's social housing stock. This can be expected to have an impact on the figures for 2012, driving down domestic electricity emissions. Between July 2012 and July 2013 PHP's solar scheme generated 2,855MW of electricity, the equivalent of 1,495 tCO₂. Poole has one of the best rates (11th) of uptake of solar pv in the UK with 385 in every 10,000 homes have solar panels. The bulk of this deployment will have been in 2012 meaning that we can expect a resultant reduction in emissions from these panels.



Solar Panel Installation at Whatleigh Gardens, Poole

The Domestic Action Group, in conjunction with colleagues from Bournemouth Borough Council, was successful in bidding for funding from the Department of Energy and Climate Change to combat fuel poverty. The conurbation was awarded

£600,000 to fund awareness raising projects, insulation, and heating repairs. £239,000 was spent within the Borough, funding works on 126 private dwellings and 113 social housing units, including large scale flat roof insulation. Funding also supported an extension of the Energy Advice Services provided by the Dorset Energy Advice Centre and visits of the Safe and Independent Living (SAIL) bus to locations throughout Poole, providing energy advice for residents. This project reached 0.4% of houses within the Borough and reduced emissions by an estimated 56tCO₂ (0.02%). It follows that to improve emissions in the domestic sector by 20% would require an investment of around £239,000,000, showing the scale of the task ahead of us.

Achieving the target

It is anticipated that the majority of investment required will not need to come from the Local Authority. (Although schemes where the local authority has received funding, such as the Fuel Poverty Funding above, will be a great help.) In most cases the reduction in Carbon Emissions in the domestic sector will come without any intervention from the local authority as private homeowners make gradual improvements to their properties and their appliances. Residents with sufficient disposable income will take the opportunity to invest in micro-generation for their properties, bringing down the cost of energy for those residents and reducing emissions. As energy prices rise those residents who are able to will take action to reduce their energy use and therefore their emissions.

One route which residents may use to fund their energy reduction actions could be the Green Deal. The Green Deal is a Government designed scheme aiming to make the funding of energy efficiency actions more affordable for residents. The Green Deal will fund a wider variety of measures to improve the energy efficiency of a home, or even provide renewable energy. The resident will then repay the funding via their energy bills. If the resident moves before the loan is repaid the repayments will stay with the house, meaning that the resident will not need to pay for improvements they are no longer receiving the benefit for. The “golden rule” of the Green Deal is that the repayments of the funding cannot exceed the expected saving over the same period. (e.g. If a resident is expected to make a quarterly saving of £50 the quarterly repayments on their loan must not exceed £50). Based on the Government’s predictions for the uptake of the Green Deal the expected savings from Green Deal actions in Poole is 502tCO₂ 0.1% of the total emissions.

This prediction is only based on the impact of the Green Deal, not its knock-on effects. The Green Deal will increase public awareness of energy efficiency issues and encourage them to get an assessment of their property, even if they do not go ahead with the Green Deal. The Government predicts that only 1 in 3 Green Deal Assessments will result in a completed Green Deal.

There have been numerous criticisms of the Green Deal, with one of the key criticisms being that the interest payments are too high (c.7%). The cost of the interest over the loan period can be more than the initial investment in equipment, meaning that the customer pays far more than they need to. This has inspired the Bournemouth based Dorset Energy Advice Centre to create its own alternative to the Green Deal.

DEAC's alternative offer is based around the centre's status as a credit union. The credit union will offer a funding loan to residents to install Green Deal measures at a reducing balance rate of 9.4% (a flat rate equivalent of 4.92%). The loan would be a personal loan meaning that there would be no charge on the property, possibly having a positive effect on the value of the home. There is no early settlement fee meaning that if the resident is able to pay the loan off faster they can. As part of the scheme the resident will be required to set up a savings account with the Union and part of the loan payment will be channelled into the account meaning that at the end of the loan repayment the resident will either have a lump sum they can withdraw or continue to save. This could be a big boost for the more vulnerable residents who may not currently have access to a bank or savings account.

The Green Deal is the Government's flagship domestic energy efficiency programme but is not the only source of funding for energy efficiency action. There are a number of policies in place to fund energy improvements for the most vulnerable, those suffering, or in danger of suffering, fuel poverty and hard to treat properties. There are three strands to ECO;

- **Carbon Emissions Reduction Obligation**
Under the Carbon Emissions Reduction Obligation, energy companies must concentrate efforts on hard-to-treat homes and measures that cannot be fully funded through the Green Deal. Solid wall insulation and hard-to-treat cavity wall insulation are the primary areas for focus under this target. Other insulation measures and connections to district heating systems are also eligible if they are promoted as part of a package that includes solid wall insulation or hard-to-treat cavity wall insulation.
- **Carbon Saving Community Obligation**
Under the Carbon Saving Community Obligation, energy companies must focus on the provision of insulation measures and connections to domestic district heating systems supplying areas of low income. This target has a sub-target, which states that at least 15 per cent of each supplier's Carbon Saving Community Obligation must be achieved by promoting measures to low income and vulnerable households living in rural areas.

- Home Heating Cost Reduction Obligation
Under the Home Heating Cost Reduction Obligation, energy suppliers are required to provide measures which improve the ability of low income and vulnerable households (the 'Affordable Warmth Group') to heat their homes. This includes actions that result in heating savings, such as the replacement or repair of a boiler for example.

Delivering ECO is a requirement of the major energy suppliers and like Green Deal will be driven by market forces. The energy companies have a requirement to invest the money and deliver carbon savings but have no requirement to spend the money evenly across the UK. Therefore action must be taken to facilitate the easy investment of ECO money in Poole, delivering home improvements to the most vulnerable residents.

The private rented sector will also need some consideration. This area is less suited to schemes such as the Green Deal or even ECO because the occupier is not the owner and the owner will not tend to benefit from the improvement. To this end the Government is aiming to encourage landlords to improve the energy efficiency of their properties by introducing a minimum energy efficiency standard. This will require all rented properties to achieve an EPC rating of E or higher before they can be let. This regulation will not come into effect until 2018 so is unlikely to have an impact in the short term but should see an improvement in standards in the future.

Existing housing stock improvements should take place gradually over time with the current Government schemes and local initiatives in place. It will be the responsibility of this group to help direct the programmes to achieve the maximum impact in the local area. The group will also be alert to any funding opportunities to support and expand the existing structures. The 20% required reduction in domestic emissions should be achieved via these measures. However, this reduction could be reduced and even eliminated by new construction if the new homes are not built sustainably.

Future Developments

The latest Strategic Housing Land Availability Assessment for Poole (April 2013) predicts that 6,375 new dwelling's will be built to 2026 – within the Poole Core Strategy (2009) plan period. Domestic energy use is a significant contributor to greenhouse gases and the Poole Core Strategy Policies PCS31-35 seek to mitigate the impact of carbon emissions by setting out the criteria which should be addressed in developing new planning proposals for housing and for commercial development.

The Code for Sustainable Homes sets out an environmental assessment rating method for new homes in England which represents its overall performance across the following nine categories: energy and emissions, water, materials, surface water run off, waste, pollution, health and wellbeing, management and ecology. There are mandatory requirements to be met for energy, materials, surface water run off and waste. The rating follows a “star” system to communicate the overall sustainability performance of a home. A new dwelling can achieve a sustainability rating from one to six stars. One star represents the entry level and six stars represents the highest level – equivalent to zero carbon, an exemplar development in sustainability terms.

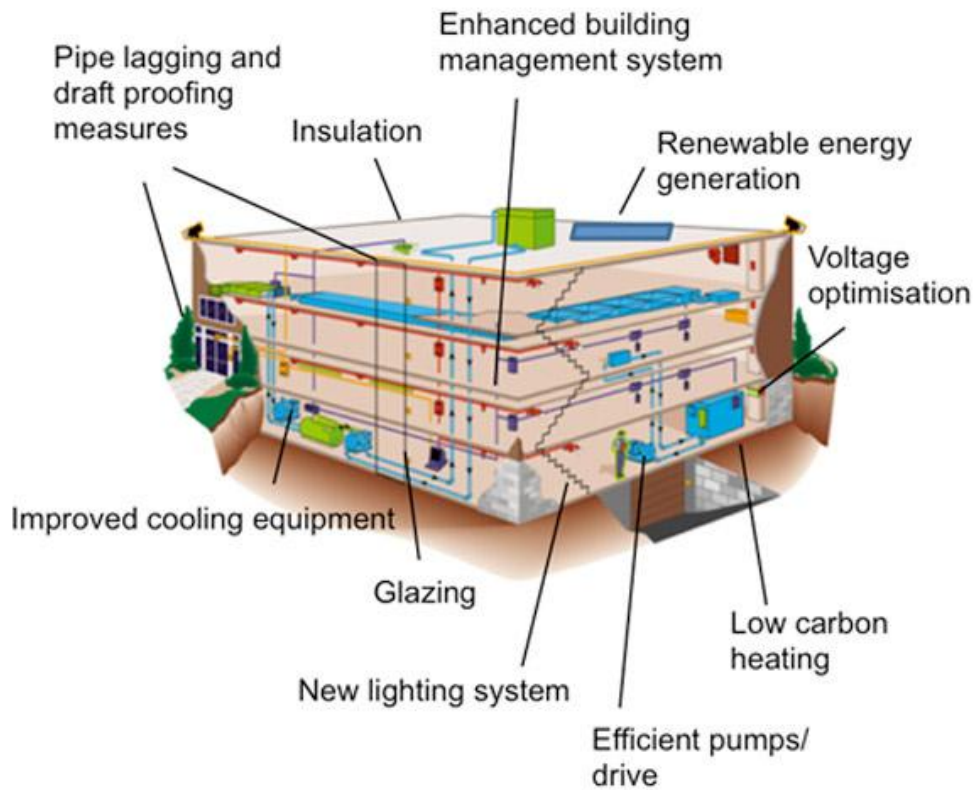
Whilst the Code for Sustainable Homes goes beyond national building regulations it does align with categories of the regulations including Energy and Emissions.

With the current building regulations any new home should be built to emit c. 0.8t of carbon per annum. From 2014 these homes should emit 0.7tCpa and from 2017 this should be 0.5tCpa. Translating these figures to Poole this should result in the following increases in emissions:

Year	New Dwellings	Emissions (tCO ₂ e)
2012	229	183.2
2013	229	183.2
2014	631	441.7
2015	1049	734.3
2016	1052	736.4
2017	918	642.6
2018	682	341
2019	432	216
2020	341	170.5
Total	5,563	3,648.9

Table 11. Projected new domestic dwellings and resultant emissions in Poole 2012-2020

An increase in emissions of 3,649t will be the equivalent of adding 1.3% to borough-wide domestic emissions. This could be reduced by increasing the renewable requirement for new dwellings, thus reducing the emissions from lighting and appliances, not specified in building regulations. This would also support the borough in its aim to generate 7.5% of the local energy requirement from renewables.



An example of a whole building energy efficiency solution

Transport Action Group

The transport action group aims to bring down emissions by encouraging a greater uptake of public transport and cycling, facilitating the uptake of low carbon transport, such as electric or hydrogen vehicles, and supporting actions to reduce the number of vehicles on the road, like car sharing and car clubs. The target will be 34% which will be achieved by a range of measures, some of which will due to advances in technology nationally, others will be more local.

In addition to reducing CO₂ emissions there are many other benefits to these actions. Firstly, there are health benefits to increased cycling, walking and sprinting for the train/bus. Secondly, there is also a reduction in other harmful emittents such as NO_x. In Poole two roads have had sections declared as Air Quality Management Areas (AQMA) because the quantity of pollutants in the air is greater than the air quality threshold. Finally, a reduction in the demand for diesel and petrol will reduce the pressure on a limited supply and increase the area's self sufficiency.

Analysis of Transport Emissions (ktCO₂)

Year	I. Road Transport (A roads)	J. Road Transport (Motorways)	K. Road Transport (Minor roads)	L. Diesel Railways	M. Transport Other	Transport Total
2005	151.4	-	109.5	22.2	1.1	284.1
2006	147.5	-	112.9	22.1	1.3	283.8
2007	146.7	-	117.7	21.9	1.2	287.6
2008	139.1	-	118.8	22	1.2	281.1
2009	135.2	-	114.3	22.1	1.1	272.7
2010	133	-	113.1	22.3	1.2	269.6
2011	131.6	-	107.9	23.4	1	264

Table 12. Transport emissions in Poole, 2005-2011

The table above shows the progress of transport emissions in the Borough since 2005. In this time transport emissions have reduced by 20kt. A quick look at the table shows that the 2011 emissions for minor roads, diesel railways and other are roughly equivalent to the emissions in 2005 and all of the reduction has come from a reduction in emissions on A roads.



Traffic Congestion in Ashley Road

Calculating Transport Emissions

The best way to understand these trends in emissions is to look at the way the emissions are calculated. The NI 186 statistics are developed by Ricardo-AEA and their methodology is provided in a technical report published annually.

The fuel consumption factors used in the NAEI (National Atmospheric Emissions Inventory) are polynomial functions expressing the relationship between the fuel consumption rate and average vehicle speed for each class of vehicle. These are based on measurements of fuel consumption and emissions rates for samples of actual vehicles taken off the road and tested under laboratory conditions.

Fuel consumption maps are calculated from the speed related fuel consumption factors multiplied by vehicle flows. For Poole's A-roads (A31, A35, A338, A341, A348, A349, A350, A3040 & A3049) traffic flow data is available from census count points (37 in total). This allows the numbers of each type of vehicle travelling on these major roads to be estimated with relative accuracy and fuel consumption details created.

Year	2005	2006	2007	2008	2009	2010	2011
Pedal Cycles	992	1,288	848	1,149	1,393	1,381	1,570
Motorcycles	3,000	2,823	3,228	3,349	3,538	3,100	3,081
Cars	200,798	198,869	192,498	191,562	188,114	187,933	185,219
Buses & Coaches	1,467	1,509	1,474	1,513	1,598	1,575	1,532
Light Goods Vehicles	27,367	27,873	28,922	29,081	28,653	28,799	29,717
All HGVs	7,165	7,054	6,885	7,287	6,655	6,463	6,445
All Motor Vehicles	239,801	238,124	233,006	232,790	228,559	227,875	226,000

Table 13. Total traffic on Poole's major roads, in thousand vehicle miles, from 2005 to 2011

For minor roads census point data is not available. In these cases the traffic flows in the majority of minor roads have been modelled based on average regional flows and fleet mix data provided to Ricardo-AEA by Department for Transport. This means that it will prove difficult to achieve a significant reduction in the minor road emissions without the reduction being achieved across the region. There are two other small sources of emissions from road traffic included in the inventory. These are combustion of waste lubricants and emissions from LPG vehicles. Both of these sources are distributed across LAs using estimates of average total vehicle kilometres calculated from the NAEI maps of traffic flows.

This method of calculation explains why a significant reduction in emissions has only been seen in the major roads category because the other actions are modelled at a national level. This shows the challenge ahead to reduce CO₂ emissions in the transport sector based on the current baselines.

The diesel rail emissions are compiled from three journey types: freight, intercity and regional. Emissions for locomotive diesel are distributed across Great Britain using maps of rail links and details of the number of vehicle kilometres by the three journey types on each rail link. In Poole the diesel locomotives are only used on one return freight journey 6 days a week.

Because of the way the NI186 data is calculated it is difficult to use this data to target and track actions. Many of the figures are derived from regional or national data disaggregated in a formulaic manner to local authority level. This means that much of the benefit comes from national initiatives and technological improvements whilst the effect of local initiatives are spread over the whole region.

To overcome the difficulties around using the NI186 figures to direct actions in the local area the transport action group will produce a study to detail the cycling and walking potential in Poole on the basis of the high levels of sub. 2km commuting trips which are undertaken in the Borough. This will help target and co-ordinate actions to deliver walking and cycling outcomes across the Borough.

Actions planned to achieve reductions

The Borough of Poole has dedicated officers working to promote public transport, cycling & walking and sustainable transport. In 2012 transportation officers worked with colleagues from Bournemouth Borough Council and Dorset County Council in successfully bidding for funding from the Department for Transport's Local Sustainable Travel Fund (LSTF).

The bid focused on the "Three Towns Corridor" (the A35) which links Bournemouth, Christchurch and Poole as a conurbation. The 3 Towns Corridor is an integrated and targeted package of measures which will create a long-lasting step change in low carbon travel along the key east-west transport corridor. The package will deliver enhanced local bus, rail, walking and cycling alternatives through a combination of targeted infrastructure, service and operational improvements. This will be complemented by removing key barriers to the use of these modes and by engaging with local communities and businesses along the corridor to "nudge" travel behaviour towards non-car modes. The result will be an exemplary sustainable transport corridor which creates thriving and attractive local centres, reduces congestion and carbon emissions and improves access to employment - providing the catalyst to deliver a wider long term transport strategy for the conurbation.

LSTF projects will be delivered over the three financial years to March 2015 and will focus on;

1. Bus improvement measures
2. Managing the corridor more efficiently (enforcement, intelligent transport systems)
3. Improving access and waiting facilities at stations
4. Public realm improvements
5. Walking, cycling and low carbon vehicles (including electric vehicle charging)

The LSTF has been predicted by the Transport User Benefit Appraisal (TUBA) programme used by the Department for Transport to reduce Carbon emissions over 60 years by 40,948t across the SE Dorset conurbation. If this is assumed to be a linear saving this would equate to 682tpa. Splitting this consumption over the three towns we can estimate a saving of c. 200tpa.

The LSTF funding is being used to implement the policies outlined in the Bournemouth, Dorset and Poole Local Transport Plan 3 (LTP3). This plan sets out a 15 year strategy providing a long term vision of how the transport network will be developed. LTP3 sets out a strategy for the whole Dorset area aimed at;

- Reducing the need to travel,
- Managing and maintaining the network more efficiently,
- Enhancing choices for active travel and “greener” travel,
- Providing realistic public transport alternatives to the private car,
- Car parking,
- Making travel safer,
- Improving the strategic transport infrastructure.

The actions taken by the transport action group as part of this SEAP need to be consistent with the transport policy framework set out by LTP3. Transportation projects will be developed by a quality audit process. This is a whole community approach and ensures that the scheme reflects the needs and desires of the community.

It is clear from the statistics above that the only way to make a significant impact on Borough-wide vehicle emissions is to either reduce the number of cars traveling on the road or to make those vehicles cleaner. There are a number of national actions in place to achieve these objectives which will be facilitated by the work of the LSTF and LTP3. Increasingly vehicle excise duty is based upon the CO₂ emissions of a vehicle, this, in combination with fuel duty, is making the efficiency of vehicles more important. It is expected that, with the current rate of efficiency developments in new vehicles, that the natural replacement of older vehicles for newer will **lead to a 12% reduction in CO₂ emissions.**

Coinciding with this, the Borough of Poole has recently signed up to the Energy Saving Trust's Motorvate scheme, with an aim of tackling the CO₂ emissions from the council fleet and the grey fleet. The Motorvate Certification provides an independent calculation and verification of our carbon footprint with objective auditable evidence to support ISO 14001. Within this, an external auditor analyses the fleet and offers a list of recommendations which the council should aim to achieve. Currently, the council is undergoing the Green Fleet Review section of the scheme and we are awaiting results regarding the recommendations that we should aim to achieve.

The Borough of Poole is committed to developing innovative ways of reducing the carbon emissions of its in-house vehicle fleet and showcasing accessible methods on how this can be achieved. In November 2012 the Borough of Poole's Carbon Management Programme, leased three electric Citroen C-Zeros to be used as Pool(e) cars on a 3 year trial for use by it's building control and noise pollution teams. These cars have proved to be a success achieving a carbon saving of 3267.81kg and a fuel cost saving of £4803.30². To gain recognition for this, the council applied to the Energy Saving Trust Award - Plugged-In Fleets. This award contains two rounds through which five nominees are selected for an awards ceremony. The Borough of Poole has been nominated to the final five of the award. This showcases that the electric cars are not only making an impact internally, but externally to other organisations and councils.

Taking this one step further, in October 2013 the Borough of Poole signed up to the Energy Saving Trust's Plugged-In Fleets 100 (PIFI 100) initiative to supplement the Green Fleet review. The PIFI 100 provides a tailored report showing how electric vehicles can be incorporated into the Borough's fleet. Concurring with the success of the three Citroën C-Zeros, the council is now moving forward and looking to add more electric vehicles to reduce fleet emissions even further. A greater number of electric vehicles will offer a number of different departments the opportunity to reduce their carbon footprint and save costs on fuel expenses. PIFI 100 will support the council in the implementation of more electric vehicles and will offer strategic advice on how to maximise the usage of the cars and achieve the largest carbon reduction possible.

The increasing cost of motoring will also lead to more people choosing alternative forms of travel, particularly for short distance journeys. The table showing above showing total traffic on Poole's major roads shows that since 2005 the distance cars have travelled has fallen by 8%. If this trend continues there will be a 20% reduction in vehicle miles travelled by cars by 2020. This is likely to lead to a **7% reduction in CO₂ emissions from reduced vehicle journeys via behavioral change.**

Finally, a way to reduce emissions is to use a cleaner fuel source. There are a number of technologies which are being developed with the aim of replacing oil based fuels as the power source for motor vehicles. The foremost of these are

²From November 2012 until July 2013 based on HMRC £0.45/mile

electric vehicles. Uptake of electric vehicles will be dependent on there being sufficient infrastructure to support the vehicles. In November 2013 it was announced that the Borough had been successful in bidding for funding from the Office for Low Emission Vehicles (OLEV) to install a network of 15 rapid chargers in Bournemouth, Dorset and Poole.

The EU requires that 5% of all fuel comes from biofuel sources. This means that the petrol/diesel at the pump will be a biofuel blend consisting of at least 5% biofuel. The combination of this reduced emissions fuel and the deployment of electric vehicles **will lead to a 5% reduction in CO₂ emissions.**

The table below shows the predicted savings from the actions which will be taken as part of the Borough of Poole’s existing transport plans and the UK government’s national plans to improve the UK’s transport infrastructure and drive down emissions.

Action	Status	Estimated pa tCO ₂ saving	Sector % saving
LSTF projects	Definite	200	0.1
Increased efficiency of new vehicles	Definite	22025	10.9
Behavioural Change	Definite	10645	5.2
Biofuel	Definite	9177	4.5
Total		42047	20.7

Table 14. Summary Table of Transport Action Group Actions:



Officers and residents testing “crazy bikes” in Poole Park during Climate Week 2013

Possible further actions to reduce emissions

So far, this section of the SEAP has only outlined the actions which are currently detailed in the Borough of Poole's existing transportation policies and budgets. There are three priority areas envisaged by the transport action group for further actions to drive down transport emissions. These are;

- Actions to increase the use of public transport
- Actions to increase cycling and walking
- Actions to increase the uptake of cleaner vehicles

Detailed below is a cross section of possible projects and actions which could be advanced to reduce transport emissions in Poole. A key role of the transport action group will be to bid for funding to support these projects.

Public Transport

Passenger Transport Services in the Borough are provided by private sector companies outside the direct control of the Borough Council.

We will work with bus operators to encourage the adoption of fuel saving driving techniques and more efficient vehicles, leading to lower carbon emissions.

The LTP identifies the mainline rail service through the Borough as an existing asset with the capacity to facilitate low carbon travel across the conurbation. This would see the introduction of additional 'all stations' services between Wareham and Southampton every 15-20 minutes, with some trains continuing to Brighton and Gatwick Airport. This improvement could be achieved within the five year time frame of this plan.

In the longer term, the LTP envisages the introduction of public Park & Ride Services to Poole and Bournemouth town centres post 2020. These services will reduce single occupant vehicle emissions, and depending on the technology deployed in the connecting service, could provide an overall nett reduction. The Borough of Poole has constructed a park and ride site and are investigating with business partners ways to utilise the facilities.

The LTP also identifies the potential for a fixed rail network of light rail or tram services across the conurbation post 2024, though it is unclear how this would be funded. In the short term there may be affordable, self funding opportunities to provide discrete fixed link services along busy travel corridors in the conurbation utilising innovative new technology, such as Personal Rapid Transport.

Although travelling by public transport is cleaner per passenger than travelling by car, there is still much room to reduce the emissions from public transport. There are a number of different electric buses under development, some of which are designed to charge whilst picking up or setting down passengers at bus stops. Given that a large percentage of bus journeys in the Borough are short trips the opportunity to introduce electric buses will be kept under review.

Cycling and Walking

A large majority of the journeys which take place in the Borough of Poole are within reasonable walking or cycling distance. The Borough of Poole sets out a plan to increase the number of cycleways in the Borough in LTP3. However, it is expected that these cycleways will take many years to construct at the current investment rate. Without a larger investment it may prove difficult to achieve the predicted increase in the number of cyclists. The transport action group will search for funding opportunities to deliver the Borough's planned cycleways in a shorter timeframe.

The delivery of a borough wide integrated cycle network will assist the development of further programmes to enhance cycling throughout the Borough. There are high profile bicycle hire schemes, notably in London. It has also been developed in Blackpool, which is a similar size with a similar population to the Borough of Poole. The public hire scheme is particularly popular with tourists in the summer season, using the bikes to explore Blackpool. Once sufficient cycling facilities have been developed the transport action group will explore the feasibility for the development of a public cycle hire cycle in Poole.

Technology and Greener Travel

The world's motor companies are currently exploring the next steps in the evolution of the motor vehicle. A number of options are being developed which include high efficiency diesel engines, hydrogen powered and electric cars. At this point in time the electric vehicles strike the best balance between a reduction in emissions and efficiency of the vehicles.

The Borough of Poole is looking to set up a car club which will provide residents with an alternative option to owning their own car. By having access to car club vehicles residents will be able to use a car for longer journeys but will be far more likely to choose a low carbon form of travel for shorter journeys.

Enabling residents and businesses to choose low carbon transport will be a central part of how emissions are reduced in Poole. Sustrans is a national charity which promotes sustainable travel. Sustrans can provide a personalised travel planning service which has been shown to reduce car driver trips by 11% and an increase in cycling, walking and public transport trips of between 15-33%. Because this work is conducted one to one it would require a large amount of funding to reach a high percentage of the Borough's residents. There may be opportunities to use this technique in a focussed manner.

The Borough of Poole wants to lead the way in the implementation cleaner vehicles in the Borough. Because the majority of journeys taken by the Borough's vehicle fleet are short distances electric vehicles may provide a viable solution. The SEAP will therefore recommend that when any vehicle is replaced an electric solution will be considered in the first instance, with a view to 50% of the Borough's small vehicle fleet to be off fossil fuels by 2020.

Currently all these suggestions are in their earliest stages and will require detailed further studies to prove the viability and energy savings of the proposals. These are projects which can be explored as the Borough seeks to become an exemplar local authority by attracting investment in decarbonising transport and creating renewable generation. Over the 7 year period covered by the SEAP we will look to gather investment to remove barriers to low carbon travel.



CLr Xena Dion, Portfolio Holder for a Prosperous and Sustainable Poole, & Stuart Osman, Borough of Poole Waste and Fleet Team Manager with the Borough's electric cars.

Public Sector Action Group

The public sector action group functions slightly differently from the other groups. The government does not publish as part of the NI 186 statistics figures for the public sector as a whole so there are no comparable figures for the group to the other sectors (The public sector emissions being a small part of the larger business emissions). However, the public sector is the area with the most requirements, desire and opportunity to reduce CO₂ emissions as an example to the rest of the UK. As a consequence public sector organisations tend to have developed carbon management plans which detail their activities to reduce emissions.

This section of the Sustainable Energy Action Plan will mainly detail the Council's envisaged actions to drastically reduce its own emissions and large scale projects to reduce Borough-wide emissions. However, it will also detail what other public sector bodies in Poole have planned to reduce their own emissions in their current strategies. Rising energy costs, legislative pressures, and corporate and social responsibility concerns are all focusing attention on the existing property portfolio. And the different buildings in that property portfolio pose very different retrofit challenges, demanding their own, tailored solutions.

Borough of Poole Emissions

The Borough of Poole's emissions have been monitored since the development of the Carbon Management Plan in 2008:

Year	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13
tCO ₂ emissions	22718	24345	22967	23401	24439	20215

Table 15. Borough of Poole Local Authority Emissions 2007/8-2012/13

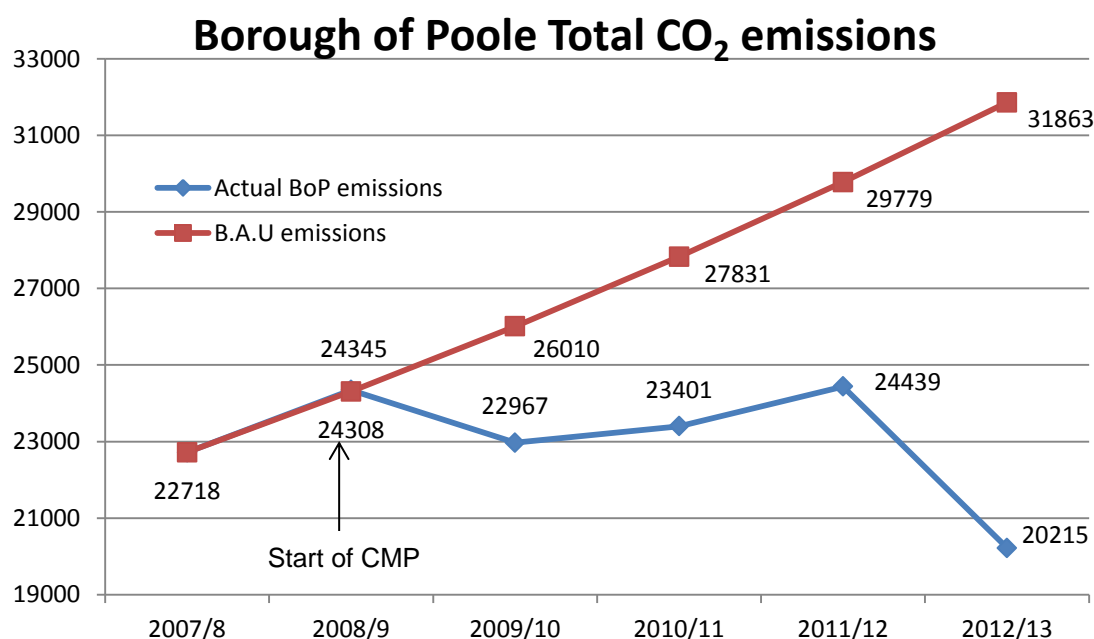


Figure 12. Graph of Borough of Poole Emissions against predicted business as usual 2007/8-2012/13

Since 2007/8 the Borough's emissions have dropped by 11% from 22,718 tonnes to 20,215 tonnes in 2012/13. However, because the plan was not finalised until April 2009 to measure the successfulness of the plan it would be fairer to measure the results from 2008/9, after which the first actions took place. When taking the progress from a 2008/9 baseline the Borough of Poole's CO₂ emissions have reduced by 17%. Taking into account a Carbon Trust predicted annual emissions rise of 7% if no action is taken (due to increased age and inefficiency of equipment and borne out by the BAU rise in 2008/9) the CMP has negated more the 11,648t of CO₂ emissions and reduced emissions by 37% from the expected value.

This reduction has been driven by the implementation of more than 20 projects detailed in the Borough's Carbon Management Plan. These have ranged from the installation of Voltage Optimisation at three of the Borough's sites, the deployment of electric vehicles and the installation of LED lighting at some locations. The plucky decision to implement part night street lighting from 23:00 to 05:00 daily has also played a significant part in reducing the Council's overall emissions.

A key factor in the reductions achieved by the Carbon Management Programme has been the implementation of the Borough's Carbon Reduction Energy Wardens (CREW). The CREW are the Council's Green Office Champions, promoting energy efficiency throughout their workspace. The CREW continue to play an important part in instigating a culture of energy efficiency throughout the authority and are estimated to have contributed 5% to the reduction in electricity usage in the Civic Centre over the 2012/13 financial year.



Delegates in "intense" discussion at the Borough of Poole's Renewable Energy Workshop

Future projects

Borough of Poole offices

The Borough of Poole is currently streamlining the number of offices which are operated by the Borough of Poole, particularly those leased from other organisations. This will lead to a reduction in the Council's emissions, simply because that building will no longer appear on the Council's emission figures. However, it is unlikely to lead to a Borough wide emission reduction because the properties will likely be re-let to another organisation meaning that the emissions are likely to remain consistent.

Water Source Heat Pumps

A project is being developed to provide heating for the Upton Country Park tea rooms via the heat retained in the duck pond. If this project proves a successful model for heating the rooms then the concept could be expanded to use water available from other sources, providing a heating source for any waterfront or near water property.

Co-generation Sites

The Borough of Poole is looking to develop an area as a 'co-generation' site not only to generate large amounts of renewable energy but to prove a central location where residents and businesses can go to see a wide variety of renewables working in harmony to reduce emissions further.

District Heating

The Government is very keen on the development of District Heating as a route to reduce the costs of heating and to provide the opportunity to change the fuel supply to a greener source. For a successful district heating project there needs to be a fairly consistent and constant demand for heat and there are a number of sites within the Borough which may be able support a district heating network, focussed around major heat users such as swimming pools. If the heat for the network could be provided by a renewable source such as biomass this would dramatically reduce the amount of emissions within the Borough.

Street Lighting

Street lighting is a major part of the Borough's energy use, accounting for 21% of the Borough of Poole's emissions in 2013 (4272 tCO₂). The Borough has already taken action to reduce the energy use of street lighting by integrating part night lighting in some streets. We will continue to reduce emissions from street lighting by implementing new technology such as LED lighting and looking at lighting control systems

Tidal/Wave Energy

With Poole's large natural harbour and the expanse of Poole bay beyond there is huge potential for any maritime based renewable energy generation. Any potential harbour based generation would need to be designed sensitively because of its designation as a Site of Special Scientific Interest.

Retro-fit of existing building stock

The Borough of Poole's building stock is aging and becoming progressively less energy efficient. A full scale energy retrofit of the Borough's building stock is proposed bringing heating, insulation, lighting and energy efficiency up to modern standards. This programme will improve the standards of a building and create a better working environment for employees. It is envisaged that this programme will commence with the Civic Centre, where there is the greatest potential for savings, before rolling out to other Council owned properties. Innovative funding for this project is being explored via an Energy Performance Contract where the Council would work in partnership with an Energy Service Company (ESCO) agreement which guarantees that the improvements will generate energy cost savings sufficient to pay for the project over the term of the contract.

Large scale deployment of renewables

If we are to move away from fossil fuel driven energy solutions then the burden will need to be taken up by renewable energy source and the most bountiful among these is the power from the sun. Over the period 2000 to 2011 solar PV was the fastest growing renewable power technology worldwide. Cumulative installed capacity of solar PV reached roughly 65GW at the end of 2011 up from only 1.5GW in 2000.

The Borough of Poole's ALMO Poole Housing Partnership has already led the way in deploying solar panels throughout the Borough on social housing. Now the Borough of Poole will be aiming to deploy renewables throughout its property portfolio. Solar panels can be deployed on numerous sites, including the possibility on car park canopies. Alternative heating sources could also be considered with the possibility of biomass being used at sources of large heat demand. Poole is situated on the same geothermal stream as Southampton and may prove possible to extract heat from this source in Poole too. Wind power, is not an impossibility with the increased development of quiet small scale Vertical Axis Wind Turbines enabling cost effective power generation which is less intrusive than standard turbines.

Local Biofuel Production

The Borough of Poole's managed green space creates a large amount of waste wood in addition to the dumped green arisings. It may prove possible to use this as a fuel for biomass boilers which will support future sustainability and help keep costs to a minimum. It may also be possible for the Borough to collect food waste which could be used to generate biogas and/or electricity generation.

Utilisation of waste heat

The Borough of Poole has a number of sites which generate a large amount of waste heat as an unavoidable part of their operating process. This heat could be captured and used to provide heat for nearby buildings or, if there are no nearby properties which could easily utilise the heat, to heat Greenhouses to provide food and plants which would not normally be grown locally.

The Borough has a large number of ambitious plans to reduce its energy usage. Therefore, as part of this Sustainable Energy Action Plan, the Council will set a

target of halving emissions from corporate buildings by 2020. To help continue to integrate sustainability across the council there will be a requirement for all reports to council committees to include the impact it will have on energy use.

Local Energy Plan

The Borough of Poole is developing a local energy plan in partnership with RegenSW to provide a spatial dataset of key areas in Poole where there is a potential to accommodate renewable energy technology such as district heating schemes either for new or retrofitted residential and commercial developments. The purpose of the energy plan and benefits to Poole will be to:

- Provide an evidence base for new planning policy
- Inform local community group of the renewable energy technology opportunities they could pursue through neighbourhood or community planning initiatives
- Identify public or private investment in renewable energy generation

European Energy Award

The EEA is a programme management tool recommended by the Covenant of Mayors for the development, implementation and monitoring of SEAPs. The award measures a municipality's progress against 79 activities headed under the 6 categories shown below and awards points based on the level of progress;

- Planning
- Municipal Buildings
- Energy Supply & Disposal
- Transport
- Internal Organisation
- Communication

A municipality achieving 50% or better will receive the award and those achieving 75% or more receives the Gold award. This highlights areas of strengths and weakness in the municipality's approach to 'sustainability' and develops areas for action. The progress against these areas is then reviewed once a year to check that the planned measures have been implemented and the goals set achieved.

The Borough of Poole is aiming to be the first local authority in the UK to participate in this scheme, ensuring the strong implementation of this SEAP and delivering the programme management requirements of the Covenant of Mayors.

Supply Chain Emissions

The Borough of Poole is looking to quantify its direct and indirect supply chain emissions aiming to reduce the environmental impact of the Borough's procurement processes.

Sustainable Food

Bournemouth and Poole have been successful in being allocated sustainable food city status. A project management group has been set up to support the growing and selling of local food. A role of this group will be to identify the lifecycle carbon savings of using local food sources.

Other Public Sector Groups

Dorset Fire and Rescue Service

Dorset Fire and Rescue Service, together with the FRSs in the South West (Avon, Wiltshire, Devon & Somerset and Cornwall), engaged in LACM07 with the support of the Carbon Trust, and developed a Carbon Management Plan 2008/09 - 2013/14, approved by the Dorset Fire Authority in February 2009, which covers the geographic county of Dorset.

The Fire Service has made progress towards their target reduction of 20% from the base year of 2008/09 by March 2014, achieving a reduction of 16.57% by March 2013. This is over a period when they have provided larger premises for Service Headquarters, Dorchester Fire Station and Weymouth Community Fire Station. They have also increased the use of their retained duty fire stations, by opening up to community use and basing Home Safety Advisers within the community.

Dorset Fire and Rescue Service are signatories to the Bournemouth, Dorset and Poole Energy Efficiency Strategy & Action Plan. Upon the completion of the Fire Service's Carbon Management Plan they intend to set a target of continuing to reduce their emission without setting a firm target figure for reduction. This is due to other pressures upon the service which may drive up emissions.

RNLI

The Royal National Lifeboat Institution (RNLI) is the charity that saves lives at sea. They provide a 24 hour lifeboat search and rescue service around the UK and Ireland, a seasonal lifeguard service, a flood rescue service, coastal safety education, and an international development programme.

They gained certification to ISO 14001 in 2010 and are committed to continually improving their environmental management, ensuring on-going legal compliance and reducing their environmental impacts and carbon emissions.

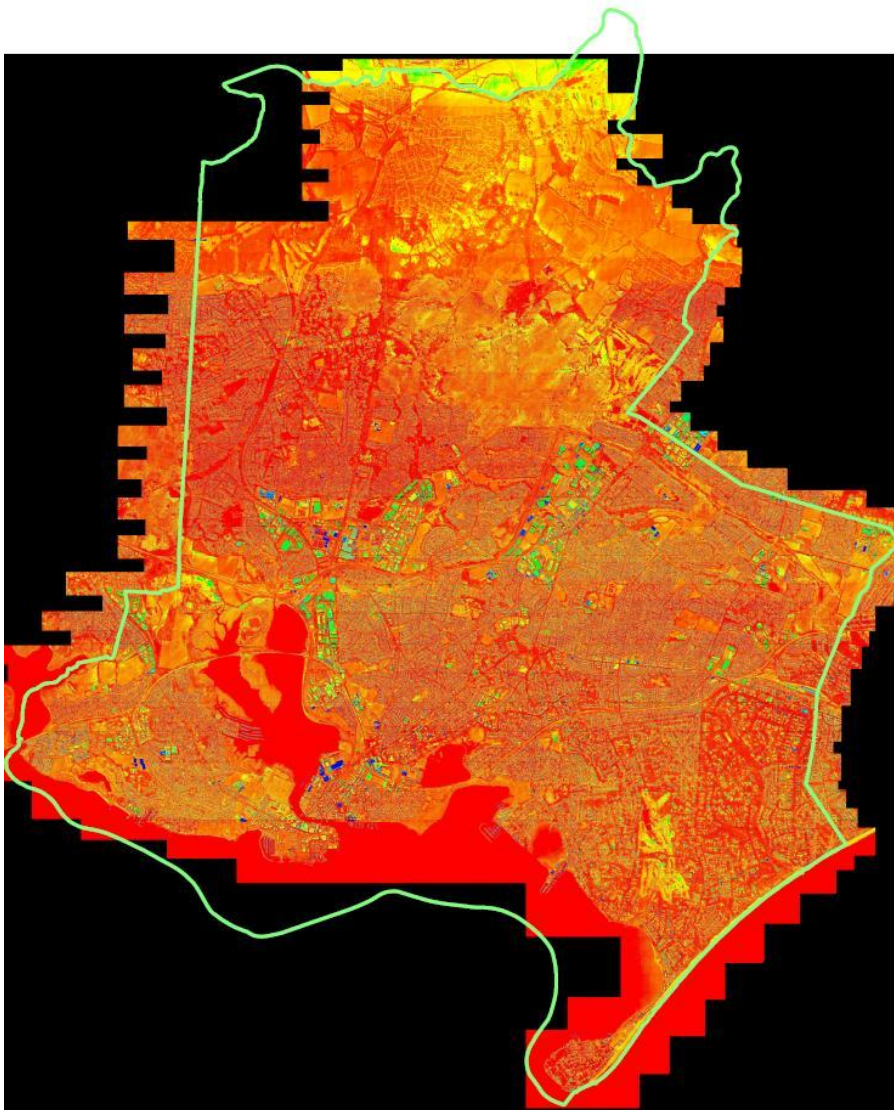
They are also committed to embedding an overarching sustainable development strategy and culture throughout their organisation, ensuring they continue to operate as a good employer and neighbour, adding value to the communities where they operate and maintaining transparency in all their financial dealings. They have recently completed an energy review of their Poole (HQ) and Isle of Wight inshore lifeboat production facility sites and are in the process of developing their energy efficiency implementation plan and targets for the whole RNLI for the short, medium and long term. The mission is to continually reduce relative energy use, cost and carbon emissions without in any way compromising our ability to save lives at sea.

They have an on-going programme of renewable energy installations across the RNLI. Since their installation in Nov 2011 the Solar Photo Voltaic units on the Sea Survival Centre in Poole have generated 84 MWh of electricity. This has resulted in a saving of £8,000, generated an income of £29,000 and reduced their carbon emissions by 49.55 Tonnes.

MOD

The final public sector organisation in Poole is the Ministry of Defence. The MoD has a base in Hamworthy, RM Poole. Recently the number of personal based at RM Poole has been reduced with the moves of 1 Assault Group and 10 Training Squadron to RM Tamar in Devonport. This can be expected to have a subsequent reduction in CO₂ emissions from the Hamworthy Base.

*Carbon Management Programme
November 2013*



Thermal Image of Poole

Annex A: Table of SEAP Action and resultant emission reductions

	Reduction tCO2	Total tCO2	Percentage Reduction from Baseline
Business Emissions 2005		365,572	
Reduction to date (2011)	73,277	292,295	20.0%
Business as usual	- 20,461	312756	-5.6%
Green PEA reductions	3,753	309003	1.0%
Increased efficiency of gas consuming equipment	5,871	303132	1.6%
Increased efficiency of electricity consuming equipment	21,939	281192	6.0%
Projects currently under development	2,812	278380	0.8%
Local renewable energy generation	20,879	257502	5.7%
Business Emissions 2020	108,070	257,502	30%
Domestic Emissions 2005		355,520	
Reduction to date (2011)	69580	285,940	19.6%
New Constructions ³	-3,689	289,629	-1.0%
DECC Fuel Poverty Funding	57	289,572	0.02%
Delivery of the Green Deal and ECO (based on Government Final Impact Assessment)	502	289,070	0.1%
10% reduction in domestic gas use from boiler upgrades and behavioural change	17344	271,726	4.9%
10% reduction in domestic electricity use due to increased efficiency of appliances and behavioural change	11563	260,163	3.3%
Local renewable energy generation	19512	240,651	5.5%
Domestic Emissions 2020	114869	240,651	32%
Transport Emissions 2005		202,900	
Reduction to date (2011)	19360	183,540	9.5%
Increased efficiency of vehicles	22025	161,515	10.9%
LSTF Projects	200	161,315	0.1%
Biofuel	9177	152,138	4.5%
Behavioural Change	10650	141,489	5.2%
Currently unfunded options	7074	134,414	3.5%
Transport Emissions 2020	68486	134,414	34%

³ Calculated from planned constructions detailed in Poole's Core Strategy

Council Emissions 2007		22718	
Reduction to date (2013)	2503	20215	11.0%
Business as usual increase	-7837	28052	-34.5%
CREW Actions	1403	26650	6.2%
Civic Centre Solar Panels	92	26558	0.4%
LED lighting upgrade	118	26440	0.5%
LED and part night street lighting	3200	23240	14.1%
Reduction in corporate buildings energy use	1945	21295	8.6%
Currently unspecified renewables	1070	20225	4.7%
Increased efficiency of equipment	1517	18708	6.7%
Council Emissions 2020	4010	18708	18%
Total Emissions 2005		945420	
Business Emissions Reduction	108070	837350	11.4%
Domestic Emissions Reduction	117940	719410	12.5%
Transport Emissions Reduction	68486	650924	7.2%
Council Emissions Reduction	4010	646914	0.4%
Total Emissions 2020	298506	646914	32%