

Why measure emissions?

Epping Forest District Council uses natural resources to heat and power its buildings and vehicles and to carry out public services. These processes cause emissions, which give us a carbon footprint. We know that this footprint and our use of resources are contributing to climate change, poor air quality and environmental degradation. We need to work on stopping the ways we are wasting any kind of energy or resource we use, not only to tackle climate change, but also for the wellbeing of our district's natural environment and to make financial savings.

The Climate Change Act (2008) shows the UK's commitment to reducing greenhouse gas emissions. This legislation establishes a legally binding target to reduce the UK's greenhouse gas emissions by at least 80% below 1990 levels by 2050. The Coalition Government has since made a new commitment to halve greenhouse gas emissions, based on 1990 levels, by the mid 2020s. The Council has a duty under this legislation to make these targets a reality at a local level and the first step in this process is to know exactly what is being used and where, in all of the services we provide.

The Council's own emissions

In 2011, to replace the recently abolished National Indicators for carbon, the Government signed a Memorandum of Understanding, recognising the need for action on carbon emissions and requesting that Councils report their own emissions by making them public on their own websites annually, beginning in July 2011.

EFDC followed this guidance and began reporting in July 2011. However, it should be noted that the Council is currently only able to report information on electricity and gas that is collected for operational buildings that require a Display Energy Certificate (DEC) by law. Data for other, smaller buildings not requiring a Display Energy Certificate are not currently recorded, restricting the Council's knowledge of its true environmental footprint.

The table below shows the emissions from the Council's first reporting year (2010/2011). It also shows emissions from the previous two years, with 2008/2009 as the year against which all other years will be measured (baseline year).

GHG emissions data for period 1 April 2010 to 31 March 2011			
	Global tonnes of Carbon Dioxide Equivalent (CO₂e)		
	2010/2011	2009/2010	Base Year 2008/2009
Scope 1	447.34	424.93	490.14
Scope 2	818.72	952.70	917.53
Scope 3	2268.68	2318.62	2401.77
Total gross emissions	3534.74	3696.25	3809.44
Carbon offsets	Nil	Nil	Nil
Green tariff	Nil	Nil	Nil
Total annual net emissions	3534.74	3696.25	3809.44

Figure 1 – Information on the Council's emissions from its first reporting year

The scopes in shown in the table represent different sectors within an organisation and are defined by the Government as follows:

Scope 1: Emissions from sources that are owned or controlled by the reporting company. Also known as direct emissions.

Scope 2: Emissions that are a consequence of the operations of the reporting company, but occur from sources owned or controlled by another company e.g. as a consequence of the import of electricity. Also known as indirect emissions.

Scope 3: Emissions that are a consequence of all other activities which release emissions into the atmosphere as a consequence of an organisation's actions, which occur at sources which the organisation does not own or control and which are not classed as scope 2 emissions.

What has EFDC pledged to achieve in the past?

Since the UK committed to the **Climate Change Act 2008**, all local authorities are required to report on and take action to reduce greenhouse gas emissions from their own estates and operations. In addition, the Council signed up to the **Nottingham Declaration** in 2007, committing to achieving a significant reduction of greenhouse gas emissions from its own operations, transport and waste disposal. In 2009 the Council also signed up to the **10:10 Initiative**: a pledge to reduce the organisation's emissions from its own operations by 10% in 2010.

Since signing up to these pledges, however, the Council has managed to achieve only a 7.2% reduction in greenhouse gases in 3 years, an average of 2.4% annually. It should also be noted that:

1) The emissions measured are only from those buildings for which energy data are collated and at present, the Council only collates data from buildings requiring Display Energy Certificates (DECs). Given the list of operational building stock that does not fall within the criteria for DECs (i.e. building floor area more than 1,000m²), the Council is left with a considerable gap in its knowledge of overall energy use;

2) During 2010, the same year that the Council had publicly pledged to reduce emissions by 10%, the Council's Display Energy Certificate for the Civic Offices complex showed an improvement from a 'G' rating to an 'E' (see previous ratings, *figure 2*). For that reporting year, however, the certificate assessment was carried out in a different way to the previous year, with the new certificate omitting energy used for computer server rooms. Although some energy efficiency measures were carried out during that year, the server rooms use a very high proportion of energy and removing them from the DEC calculation caused a big and perhaps misleading change in the building's rating. For this reason, it is very important that the results of the Council's DECs, particularly that for the Civic Offices, be considered separately to the Council's actual emissions, as the DECs do not give a full representation of the building's performance in accordance with the Government's Greenhouse Gas Emissions Reporting Guidelines;

3) Similarly the removal of "Meals on Wheels" from the Langston Road depot in 2010 saw a decrease in the energy consumption for the site, which also contributed to the overall reduction achieved between 09/10 and 10/11. Since this reduction in energy use was not a direct result of implementing energy saving measures, it should also be considered separately when measuring the Council's progress in tackling emissions.

More positively, a variety of small and major energy efficiency measures, which are outlined in the next section, have been carried out during the latter part of 2010 into 2011, but they have not yet shown in the emissions data yet. On the whole as an organisation the Council has so far been unable to fulfil its public pledges to a satisfactory standard. Given the result of the 10:10 pledge, the greenhouse gas emissions report and the fact that the Nottingham Declaration is soon to be revised and re-launched, the next few years will be a crucial opportunity for the Council to start afresh in this area. With clear, realistic objectives the Council can expand its knowledge of energy consumption to include its entire building stock as well as fully exploiting the potential for reducing emissions and making financial savings.

Display Energy Certificate



How efficiently is this building being used?

Epping Forest District Council
Epping Forest District Council
Civic Offices, 323 High Street
EPPING
CM16 4BZ

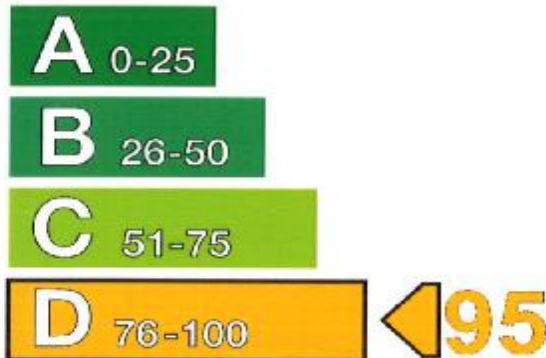
Certificate Reference Number:
0420-0019-8199-0108-6002

This certificate indicates how much energy is being used to operate this building. The operational rating is based on meter readings of all the energy actually used in the building. It is compared to a benchmark that represents performance indicative of all buildings of this type. There is more advice on how to interpret this information on the Government's website www.communities.gov.uk/epbd.

Energy Performance Operational Rating

This tells you how efficiently energy has been used in the building. The numbers do not represent actual units of energy consumed; they represent comparative energy efficiency. 100 would be typical for this kind of building.

More energy efficient



E 101-125

F 126-150

G Over 150

Less energy efficient

Technical Information

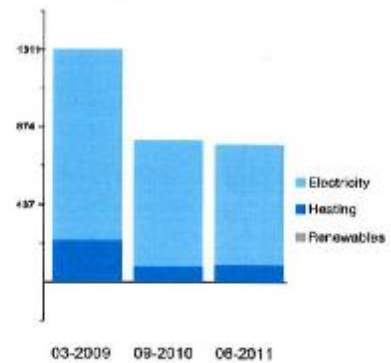
This tells you technical information about how energy is used in this building. Consumption data based on actual meter readings.

Main heating fuel: Natural Gas
Building Environment: Air Conditioning
Total useful floor area (m²): 8946.876
Asset Rating: Not available.

	Heating	Electricity
Annual Energy Use (kWh/m ² /year)	55	115
Typical Energy Use (kWh/m ² /year)	131	95
Energy from renewables	0%	0%

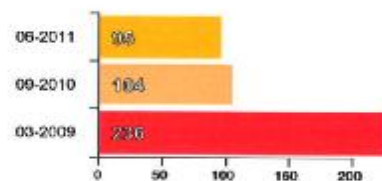
Total CO₂ Emissions

This tells you how much carbon dioxide the building emits. It shows tonnes per year of CO₂.



Previous Operational Ratings

This tells you how efficiently energy has been used in this building over the last three accounting periods



Administrative information

This is a Display Energy Certificate as defined in SI 2007/991 as amended.

Assessment Software: DCLG, CRCalc, v3.6.1
Property Reference: 209160180000
Assessor Name: Mr Darren Whitehouse
Assessor Number: ECMK220003
Accreditation Scheme: ECMK
Employer/Trading Name: Mr Darren Whitehouse
Employer/Trading Address: AECOM House, 63-77 Victoria Street St Albans AL1 3ER
Issue Date: 04-06-2011
Nominated Date: 30-06-2011
Valid Until: 29-06-2012
Related Party Disclosure: Contractor to the occupier for EPB services only
Recommendations for improving the energy efficiency of the building are contained in the accompanying Advisory Report.

Figure 2 – Most recent Display Energy Certificate for Civic Offices

Actions achieved in 2010 and 2011

The following energy efficiency measures have been carried out mainly at the Civic Offices complex in Epping and completed between 2010 and 2011.

Changed single glazing to double glazing, installed new insulating cladding to and installed a new heating system to parts of the Civic Offices complex.

Less of the heat produced by Civic Offices heating systems escapes through the fabric of the building, reducing the amount of energy wasted.

Bringing a building of this size up to a comfortable temperature in winter takes a large amount of energy from the combustion of gas. By allowing the heating to come on in the mornings, but turning it off during the afternoons instead of letting it run all day, it was found that the building remained at a comfortable temperature until staff left in the evening.

Unfortunately, it will not be possible to accurately measure the amount by which these measures have reduced emissions. Thermal imaging, which showed the areas from which heat was escaping the building prior to work taking place, was not followed up with an 'after' series of imaging due to costs. It is also not possible to isolate energy data for the Conder Building for the times both before and after the work took place. However, there should be some indication as to the reduction in energy consumption when the DEC certificate for the Civic Offices as a whole is published in 2012.

Made sure Air Conditioning Systems are completely switched off during the winter, so that they cannot be used while the heating is on.

As well as better controlling the air conditioning, the use of individual high power electric fan heaters under staff desks has been stopped. These are high users of energy and should not be necessary now that better control of heating has been achieved. It is not possible to isolate the energy use data for just the comfort cooling units, but this measure formed part of the overall reduction in gas consumption that was seen between 2010 and 2011.

Improved the roof insulation to the Conder Building, with the modern part of the Civic Offices to follow.

Part of an area based/climate change grant was awarded to carry out this work in early 2010. The newest part of the building is awaiting electrical work in the roof, but once this is complete the extra insulation will be installed. This should prevent precious heat escaping from the offices.

Installed smart meters in several parts of the Civic Offices complex

This measure, also as a result of the area based grant funding, began in 2010 and is ongoing. Smart meters will enable the Council to isolate energy patterns for particular uses around the offices, reducing the need for reliance on estimated energy bills to tell the Council what it is using. Overall, smart meters will give a far greater understanding of energy use so that energy intensive areas can be targeted for efficiency works.

Improved water saving techniques.

Where replacement has not been possible, old water cisterns for toilets in the Civic Offices and other Council offices have now been fitted with Hippo bags, which reduce the amount of water used in each flush by 30%. During 2011 all sinks in toilets at the Civic Offices site were fitted with aerators and flow restrictors, which means that water use is restricted and there is no danger of any tap ever being left on. This should be shown clearly as a reduction in 2011/2012 water use data.

Provided staff with fuel economic driver training.

In the initial phase of this project, 27 staff volunteered to take part and on average, they saved around 10% of fuel after training compared with before. This means less fuel is burned in staff cars and vans, reducing the harmful effects on the District's air quality and helping the Council to reduce carbon emissions from its transport sector. The next stage of this project will see the Council's grounds maintenance fleet undertake the training.

Investigated what can be done to ensure that office waste is recycled.

It was found that the company being used by the Council to remove office waste from the compactor was unable to recycle to a sufficient standard. A trial is now underway with SITA to introduce a new system of dealing with waste from the Civic Offices, which will eventually see the separation of food from general office waste, ensuring that it is of good enough quality to be recycled.

Undertaken a study to assess the feasibility of installing renewable energy.

In line with the Government target of providing 20% of the UK's energy by renewable means by 2020, this study targeted several Council office and depot sites to assess whether they would be feasible locations for solar panels. Unfortunately the idea was rejected at Cabinet at a time when payback would have been at its most profitable, however a new study has since been launched and investigations in this area are still underway.

Created a group of 'Green Champions' at the Council's Civic Offices.

A training programme is being created to inform 'Green Champions' on how to be responsible for actions to reduce resource waste and promote environmental awareness among their colleagues. Examples of their actions will include: ensuring that all appliances are switched off when not in use, that all printers are set to the double-sided printing setting and that all screens are set to go into 'sleep mode' after 5 minutes of being left with no activity.

Increased knowledge of carbon emissions from the Council's own operations by collating data on energy use from all Council buildings over 1000m and all vehicle fuel use from the past 3 years.

A lengthy study of the Council's fuel invoices and energy data was carried out over several months and has formed the data for the Council's energy baseline year, April 1st 2008 to March 31st 2009. This enables measurement of progress against a benchmark as the Council continues to carry out energy efficiency works.

Actions for the future

Long Term

Action	How	Target Completion Date
Sign the New Nottingham Declaration called "Climate Local"	Select appropriate targets when process is launched and present a report to members outlining what needs to be done in order to sign up.	July 2012
Reduce electricity and gas consumption by 15% from baseline (2008/2009) figures.	Combination of work across all directorates.	March 2013
Create an accurate, central system for recording the electricity, gas, fuel and water use of all Council operational buildings.	Environmental Co-ordinator to liaise with Facilities Management Team to investigate possibilities of collating data.	October 2012
Work with the Carbon Trust to achieve the Carbon Trust Standard	Requires a minimum of 2 years of energy records from ALL Council buildings.	June 2014
Begin introducing energy saving measures to Council buildings other than the Civic Offices.	Investigate the cost of implementing measures outlined in the recent audit of Council buildings by John Kershaw.	2012-2017
Initiate an automatic shutdown of staff computers and screens on a nightly basis.	Environmental Co-ordinator to work with ICT to roll this out across the Council.	December 2012
Refurbish the toilets within the Civic Offices and Conder building to provide energy efficient hand dryers and water efficient taps and urinals.	As outlined in the Facilities Management planned maintenance programme.	2012-2013
Replace 2 nd of the main boilers in the Civic Offices for more efficient equivalent	As outlined in the Facilities Management planned maintenance programme.	2012-2013
Fit additional control valves and sensors for the Civic Offices heating system	As outlined in the Facilities Management planned maintenance programme.	2012-2013
Investigate Voltage Optimisation in the Civic Offices	As outlined in the Facilities Management planned maintenance programme	2013-2014
Investigate and report on the costs and benefits of installing solar panels on the Civic Offices south-facing roof (Conder Building).	Mike Tipping and Paul Pledger to submit report to Council Members.	March 2012
Reduce paper use by 25% compared with 2010.	ICT to extend use of information@work to all directorates; Democratic Services to continue work on reducing whole printed member agendas; staff education on paper saving printing methods; junk mail reduction exercise.	March 2014
Put 60 staff through Smarter Driving training, in addition to the 27 that volunteered in 2010/2011.	Environmental Co-ordinator to continue with Smarter Driving campaign.	September 2012
Replace 80 - 90% of PC's with thin client terminals	ICT to install more energy efficient terminals instead of PC's when PC's need replacing.	2012 - 2015
25% reduction in number of printers	When printers need replacing, ICT to look at reducing the overall number of printers throughout the Council by sharing printers where appropriate.	2012 - 2015

Short term

Action	How	Target Completion Date
Install Smart Metering at the Civic Offices	Facilities Management to organise contract for works, using budget secured by Environmental Co-ordinator.	December 2011
Install boiler controls on the Civic Offices boiler systems to improve efficiency	Facilities Management to apply for Salix funding	December 2012
Ensure that 60% of the Council's commercial waste from all offices is being recycled.	Provide staff with separate bins for food waste, so that general waste is uncontaminated and recyclable; Mike Tipping to negotiate contract with SITA to provide service.	March 2012
Investigate and report the potential savings of LED office lighting.	Environmental Co-ordinator to find LED lighting company to produce a proposal	March 2012
Investigate and report on signing the WWF Timber Pledge.	Environmental Co-ordinator to liaise with procurement section.	April 2012
Further increase the efficiency of the heating system at the Civic Offices	Investigate installing reflector pads behind radiators where possible within the offices.	July 2012
Increase insulation to the Civic Offices	Facilities Management to organise contract for works, using budget secured by Environmental Co-ordinator	January 2012
Launch corporate energy awareness campaign.	Environmental Co-ordinator to develop e-learning training for staff and follow list of campaign objectives written by Mike Warr.	Launch by March 2012
Reduce the number of Housing Benefit cheques currently being sent on a fortnightly basis by at least 50%	Encourage benefit claimants to provide bank details to enable BACS payments to be made, thereby reducing paper and printing usage	March 2012
Introduce e-invoicing throughout the Council	ICT & Accountancy to replace current paper based process with fully automated system.	March 2013
Introduce the Citizen Connect IT module from Northgate	Revenues to reduce paper forms for Council Tax and NDR by replacing with an on-line system	March 2013
Introduce the Mobile Working IT module from Northgate for Council Tax and NDR visits	Revenues to reduce paper forms when carrying out visits and inspections by replacing with tablet PC's	March 2013

Targets for the Council's social housing stock

Action	How	Target Completion Date
Insulate "hard to heat, off-gas grid properties"	A pilot scheme is at the planning stage to install external wall insulation to three rural properties with solid wall construction.	Install programmed for early Spring 2012
Heat "hard to heat, off-gas grid properties"	A pilot scheme has been carried out to install several air-air and air-water heat pumps. These heating systems have proved to be energy efficient and popular with tenants, who have seen a reduction in their energy bills.	Further properties to receive these systems, subject to budget availability and property suitability
Install solar panels on "hard to heat, off-gas grid properties"	Four properties received solar panels to generate hot water for tenant's use.	Only suitable when main roof being replaced on rural properties
Top-up any existing loft insulation to current standards	Respond to tenant's requests/survey information/roof replacement works	As and when identified
Install energy efficient lighting for all electrical replacement/upgrade works in Council properties including refurbishment works to communal areas in sheltered complexes	Include energy efficient lighting as a specification for rewires, etc and for refurbishment schemes at sheltered complexes	As and when identified
Continue with boiler replacement programme	Replace boilers with models high in efficiency	When boiler is uneconomic to repair