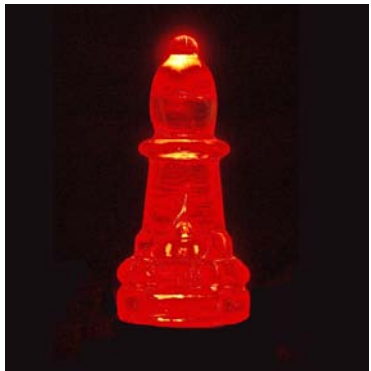


The Carbon Reduction Strategy

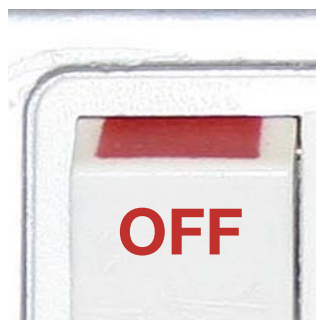
2007



Energy



Check



Produced by
**The Energy
Management
Unit**



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Preface

Chess is well known as a strategy game, as are carbon reduction efforts. We have likened the Bristol Carbon Reduction Strategy to each piece on the board representing the various actions that are being pursued by the Energy Management Unit.



The King represents the targets, legislation, and policy that underlay the actions below.

As we look to the future, these pieces will be the foundation for reducing the carbon footprint of Bristol.

Thank you all for your support.



Queens represent renewable energy in all its forms: wind, biomass, solar, etc.

Paul Isbell
Energy Manager



Rooks represent buildings. With 85% of council carbon emissions coming from buildings, we have a strong commitment to improving energy efficiency.



Knights represent the council's strong commitment to green electricity purchase.



Pawns represent the people power and efforts in raising awareness in the general public.



Bishops represent the development of energy from waste (pyrolysis) using the council's municipal solid waste as an energy resource rather than a problem.

Bristol - Green Capital

The Bristol Partnership has set an ambitious agenda for the city towards creating a high quality environment, tackling the causes of climate change and creating a clean and attractive built and natural environment.

This includes high aspirations for balanced and sustainable communities within Bristol, the region's projected growth and regeneration priorities. All of which create both challenges and opportunities for Bristol. In order for these aspirations to be met, Bristol must raise it's game to meet the challenges and maximise the opportunities ahead.

The Chair of the Bristol Partnership, City Council Leader Cllr Barbara Janke, called a summit in March 2007 to launch this step-change. The summit showcased some of the existing achievements in the public, private and voluntary sector which are helping tackle climate change and establish Bristol as a Green Capital. This was a pivotal event that focused on sustaining and increasing action to contribute to the aspirations for Bristol, learning from each other, and signing up to support Bristol's standing as a Green Capital.

The award-winning Energy Management Unit (EMU) will play a key role in setting forth the objectives of the Bristol Green Capital Summit. Read further to learn what the EMU has accomplished recently and what future projects are in store.



Paul Isbell, Energy Manager, receiving the Display® award from Patrick Lambert, Director of EC Intelligent Energy in Riga, Latvia, 2006.



Cllr Hopkins and the Energy Management Unit receiving the RegenSW Green Energy Award for 'Best Renewable Energy Project in the South West', 2006.



Cllr Barbara Janke, City Council Leader and Chair of the Bristol Partnership.

The Energy Management Unit

The EMU was formed as a self-funding unit in 1992 and is now part of Central Support Services Building Practice.

Based in B-Bond, Paul Isbell is the Energy Manager and there are eight other full-time staff members.

Since 1991/92, an estimated £4.5 million has been saved by tendering electricity, gas and oil supplies and reinvesting this money into improving the energy efficiency of the council's buildings, as well as developing major renewable energy projects.

Included in this total are the savings that arise from energy investment works such as insulation and draught-proofing, water controls in toilets and installing energy efficient lighting.



Paul Isbell, Energy Manager

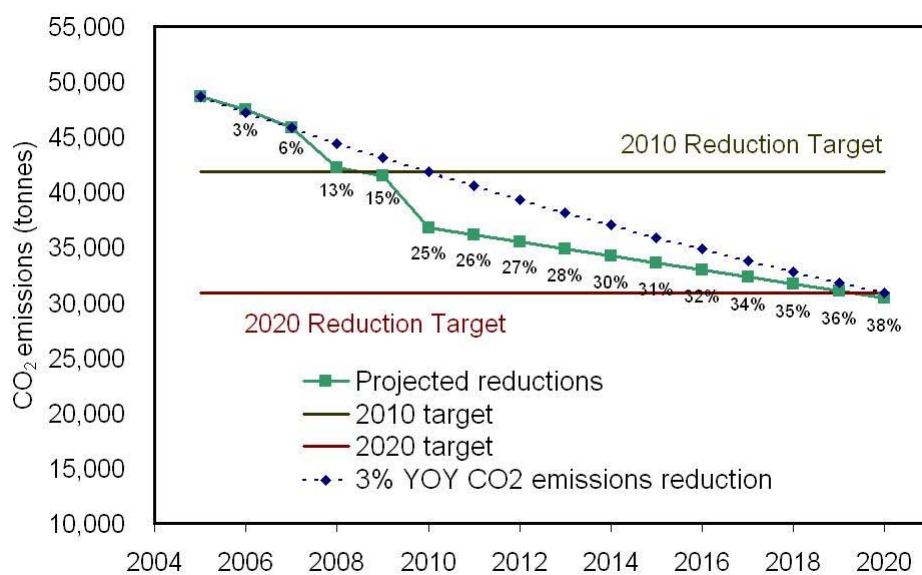
Targets

Bristol City Council, like all organisations, produces significant amounts of carbon dioxide emissions. In 2005/06 the city council produced around 48,000 tonnes of CO₂. Through investment in energy efficiency, renewable energy technologies and the purchasing of green electricity, the city council is trying to reduce these emissions in line with the following key energy targets:

1. Reduce the city council's energy consumption by 10 % of the 2003/2004 figure by the year 2010.
2. Purchase 15% of the council's electricity from renewable sources by the year 2010.
3. Reduce the CO₂ emissions of the council by 60% by 2050, recently accelerated to a 3% reduction year on year to 2020.

The most challenging target to meet will be the 3% annual cut in CO₂ emissions up to 2020. However, it is essential to meet this target if Bristol is to become a Green Capital in Europe and for the city council to encourage the residents and businesses of Bristol to similarly reduce their own CO₂ emissions.

2020 Vision projected carbon emission reductions

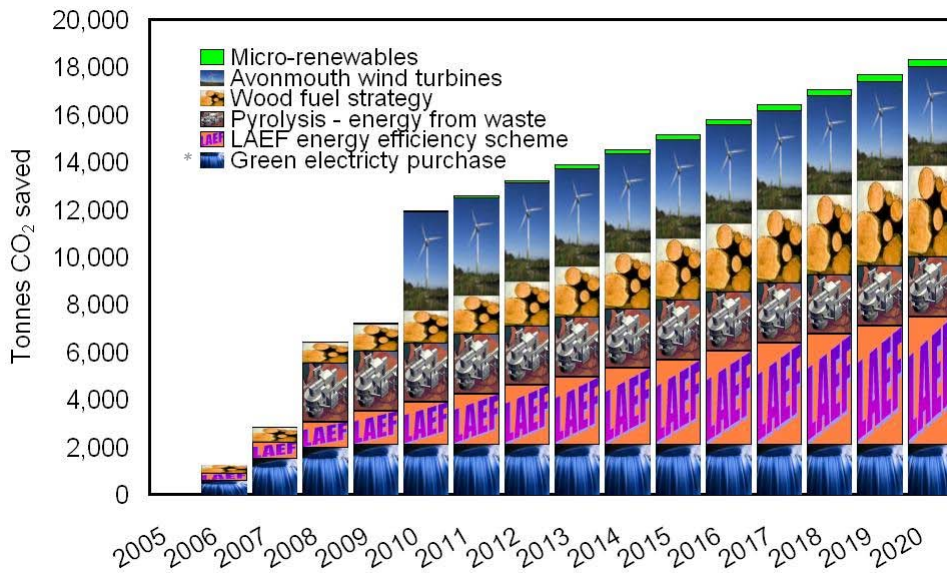


2020 Vision of carbon reductions

The above chart shows a projection based on the carbon figure for the council of 48,677 tonnes of CO₂ in 2005. It also shows the 2010 and 2020 targets and the newly adopted carbon reduction target of a 3% reduction year on year.

The projected carbon reductions come from an assumed set of projects as shown opposite, enabling a 38% reduction in emissions by 2020 if they were all achieved.

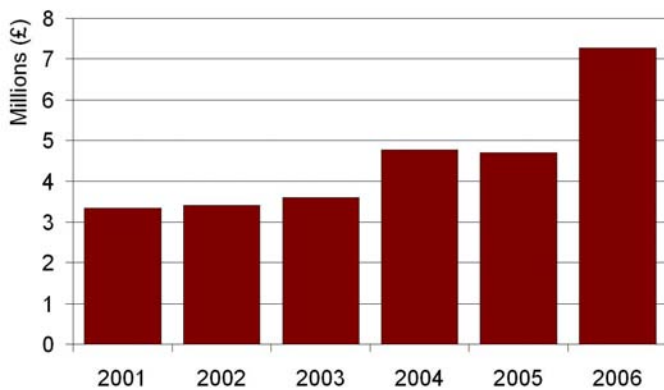
2020 Vision source of carbon reduction



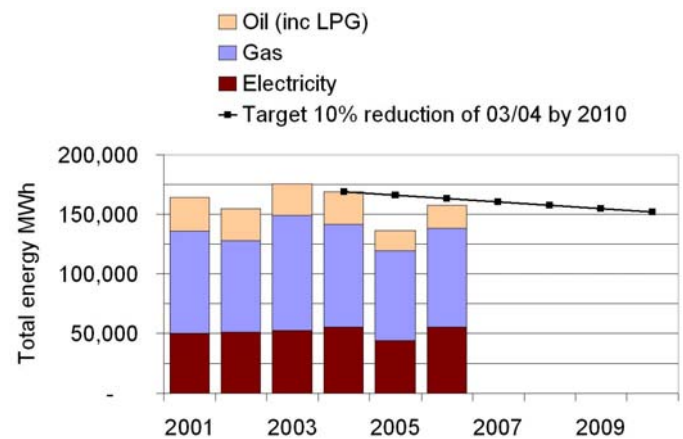
* There is debate as to whether or not green electricity purchase can be included in the carbon reduction. See page 11 for details.

Bristol City Council consumption, costs, and emissions data

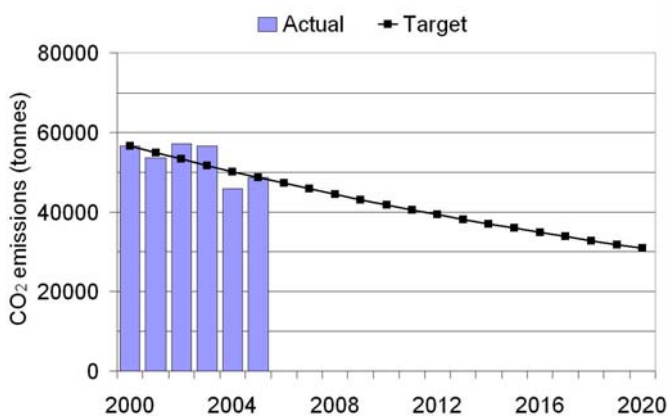
Building energy costs



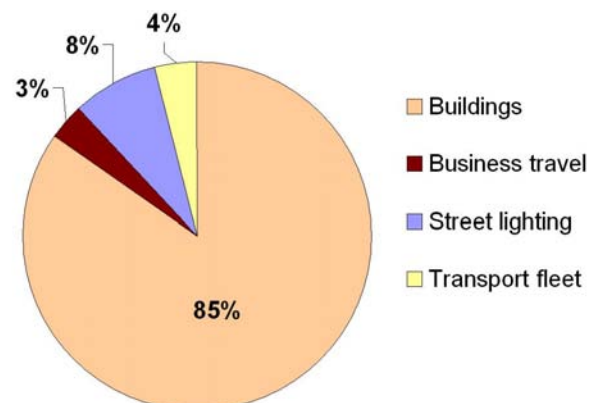
Energy consumption



Progress towards 3% year on year CO₂ reduction up to 2020



CO₂ emissions by sector, 2006





Renewables

Biomass update

The city council has now installed three biomass boilers and is looking to continue replacing oil and gas boilers with biomass boilers at other council sites where feasible. This initiative will contribute to the goal of reducing greenhouse gas (GHG) emissions from the city council.

The installation of biomass boilers has the additional benefits of reducing the energy costs of the council (as wood chip is considerably cheaper than gas). Also, biomass energy bolsters the local economy because it replaces money spent on foreign oil with investment in Bristol's local resources.

The first biomass boiler installation, at Blaise Nursery, won the RegenSW Green Energy Award for 'Best Renewable Energy Project in the South West'. It is also the South West's first wood fuel station, processing wood chip for other biomass boilers installed by the council. As part of the wood fuel station development, a large pole barn was built to store wood chip and a special tipping trailer was purchased to enable wood chip delivery to other council sites.

The EMU is currently investigating the installation of biomass boilers at The Park, The Museum of Bristol, Ashton Court Mansion House, and Bristol South Pool. Furthermore, four new schools are being built as part of a PFI project for the council. These schools will also be heated by biomass boilers.

The current boilers are utilising wood chip from the council's parks, however as this is a finite resource, the EMU is investigating both the growing of short-rotation coppice willow on council land and also the greater management of the council's own woodland. Both of these actions will have additional beneficial effects for the city's wildlife as the coppicing and management of woodland increases biodiversity.



Award-winning biomass boiler at Blaise



Blaise Nursery, the home of Bristol's first biomass boiler

The LAEF Scheme

The city council is one of 19 members of the pilot Local Authority Energy Finance Scheme: a scheme partly funded by Salix Finance with the aim of reducing carbon emissions through investment in energy efficiency measures and technologies. Salix Finance is now in the process of extending the programme to other local authorities.

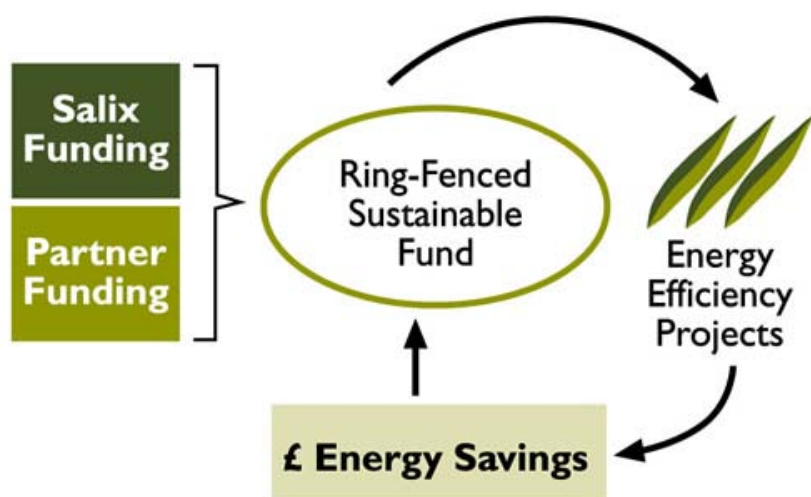
Monies dedicated to implementing energy saving projects are provided by this fund through interest free internal 'loans'. These loans are repaid using the annual energy/cost savings. Once the project loan has been repaid to the fund, the project recipient will continue to benefit from the ongoing energy savings. As repayments are recycled back into the fund they become available for re-investment, creating a self-sustaining fund.

The council currently has 74 LAEF projects, with a total investment value of £723,000. Of these projects, 40 are completed at a cost of £264,000, saving £80,000 and 583 tonnes of carbon dioxide annually. Over the minimum intended 10 year lifetime of each project, this equates to £800,000 and 5,830 tonnes of CO₂ saved, effectively costing only £45 per tonne of carbon dioxide saved.

The other 34 projects are at various stages of viability assessment and approval, with additional potential savings of £96,000 and 544 tonnes of carbon annually. An ongoing survey programme ensures a constant supply of future LAEF projects.

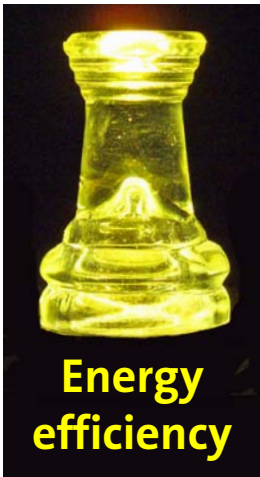


How the LAEF Scheme works



The LAEF Scheme

LAEF project types



Insulation

49% of LAEF projects are insulation related. Insulating roof spaces and cavity walls not only keeps buildings warmer in winter, it also helps buildings stay cooler in summer. Bare heating pipes waste energy, cause rooms to overheat (usually resulting in windows being opened, creating further waste) and may be dangerous when young children are present.



Simple pipe insulation prevents all of this. Draught proofing prevents cold air infiltration through gaps in door and window frames. £43,000 has been spent on insulation related projects, saving £9,700 and 60 tonnes of CO₂ annually.

Lighting

The cost of lighting can account for up to 40% of the average building's energy costs. Under the LAEF scheme, the EMU has been installing energy efficient lighting and automatic lighting controls in a range of buildings, including the CREATE Centre, schools, libraries, offices and car parks. Lighting technology is constantly evolving: we are using the latest high efficiency T5 fluorescent lamps and LED lighting.



Heating

Annual savings of over 210 tonnes of CO₂ have been achieved through an investment of nearly £100,000 into heating improvements in many of the city council's buildings. Completed works include the installation of condensing boilers, improving controls systems and zoning heating circuits.



The LAEF Scheme

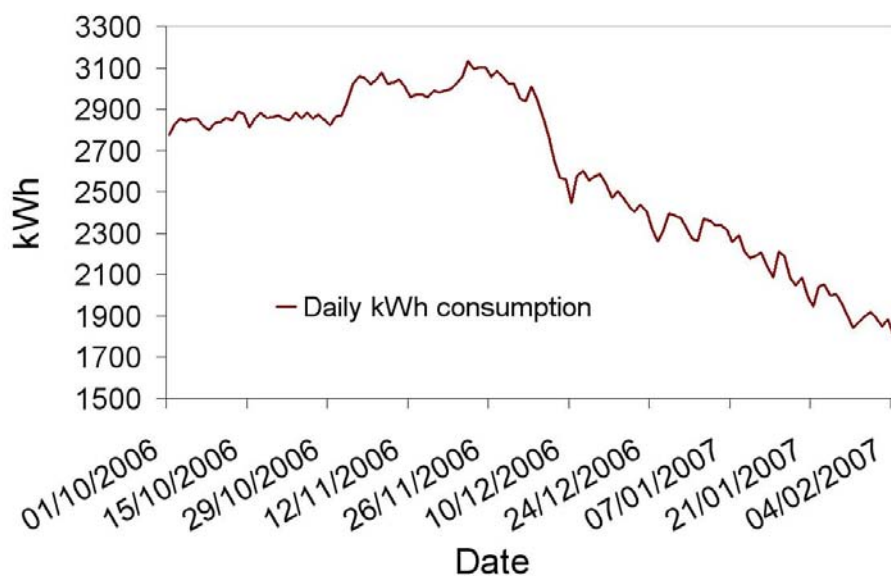
LAEF case studies

The Council House: A £138,000 contribution to fit secondary glazing will improve staff comfort within the building by cutting out air infiltration and preventing heat loss. The project will potentially save £29,000 and 195 tonnes of CO₂ per year.

Bush Resource & Activity Centre: Bush RAC is used for hydrotherapy and is kept at a constant 35°. In order to keep humidity down and prevent excessive condensation forming, the temperature of the pool room must be kept higher than the pool water. By installing and using a pool cover, the ambient room temperature can be dropped when the pool is not in use. A LAEF loan of £8,500 paid for a pool cover, resulting in an annual saving of £3,830 and 35 tonnes of CO₂.

Trenchard Street multi-story car park: A £41,000 investment to install Retrolux energy efficient lighting conversion kits and occupancy/daylight sensors. The project has a minimum expected annual saving of £19,000 and 95 tonnes of CO₂, although electrical consumption monitoring is indicating actual savings may be much higher. Additional benefits brought about by this work include lower maintenance costs due to longer lamp life, and due to brighter lighting, visibility is increased, which improves both public safety and CCTV performance.

Trenchard Street multi-story car park energy savings



Pyrolysis: The EMU is collaborating with Compact Power to demonstrate the application of using household waste materials to produce up to 3.8MW of electricity from pyrolysis. The proposed plant will be able to treat up to 34,000 tonnes of waste per annum and will substantially reduce the amount of waste going to landfill.



Blaise Nursery: A 400kW biomass boiler was installed at Blaise Nursery during the summer of 2006 and is now heating the greenhouses with renewable energy and saving the council around £19,000 per annum in energy costs. The wood fuel station element of the project is also up and running with wood chip being processed and delivered to other council biomass boilers.



Netham Sports Pavillion: The pavillion is a new Parks Department community building with a 150kW biomass boiler. The wood fuel for the boiler is coming from the Parks Department's own woodland providing carbon neutral heating to the building's occupants.



Waterless urinals at CREATE Centre: A trial of two water free urinal systems had positive results, and now more waterless urinals are planned in other council properties. Each waterless urinal saves 151,000 litres of water a year as well as associated energy costs.



Florence Brown: Florence Brown Special School is the first school in Bristol to install a biomass boiler. The school will not only benefit from a heating system running on a carbon neutral fuel but will also benefit financially as wood chip is almost half the cost of natural gas. The biomass boiler will save the school over £10,000 per annum as well as saving over 100 tonnes of CO₂.



Avonmouth wind turbine: EMU is working towards an application to construct two turbines on a brownfield site at Avonmouth, which would give the council control over the council's electricity generation, reduce renewable electricity generation costs, control energy prices and provide a significant portion of the council's electricity needs.



Lines: The planning process for two wind turbines on the site in 2007 will allow more energy supply. The turbines are sited to generate electricity that would offset rising energy costs equivalent to 25% of all the



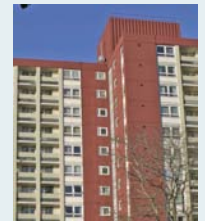
Easton Customer Service Point:

The council installed photovoltaic (PV) panels on the roof in January 2007. Predicted annual energy output is 3,510 kWh electricity a year and equivalent savings of 1.5 tonnes of CO₂. It is part of a wider project to install energy efficiency measures and promoting energy grants in the office, which has over 25,000 customers a year.



Barton Hill and Middleford House:

In 2006, small-scale combined heat and power (CHP) plants were installed in various residential tower blocks. These units will use waste heat from electricity generation to heat the domestic hot water supply, providing an overall efficiency of 80 - 90%. The first unit was installed in Middleford House, Hartcliffe and further units are planned for other blocks within the Barton Hill Estate.



Temple Meads Roundabout:

Planning permission has been granted for installing a revolutionary “quietrevolution” vertical axis wind turbine in the centre of the roundabout. The energy produced will power LEDs mounted along the blades which, when turning, will create both images and messages. The prototype is due to be installed in July 2007.



Hengrove Park:

The potential of this site has been recognised by the Adopted Bristol Local Plan and redevelopments are under way. An agreed master plan for the park has been created, which includes new homes, schools, hospital, leisure centre and swimming pool. Consultants have been appointed to assess the feasibility of installing a CHP plant on this site.



Automatic meter reading



Meter readers going from building to building have historically measured energy use in buildings manually. With the privatisation of the energy markets the number of accurate bills diminished, and estimated readings have been the norm. As carbon management becomes more important there is a need for accurate monitoring and measuring energy consumption. With carbon trading and the production of energy certificates for each building, estimates are of no use. With our vast portfolio of sites and buildings, it is a necessity to obtain this information in an accessible and simple to use format.

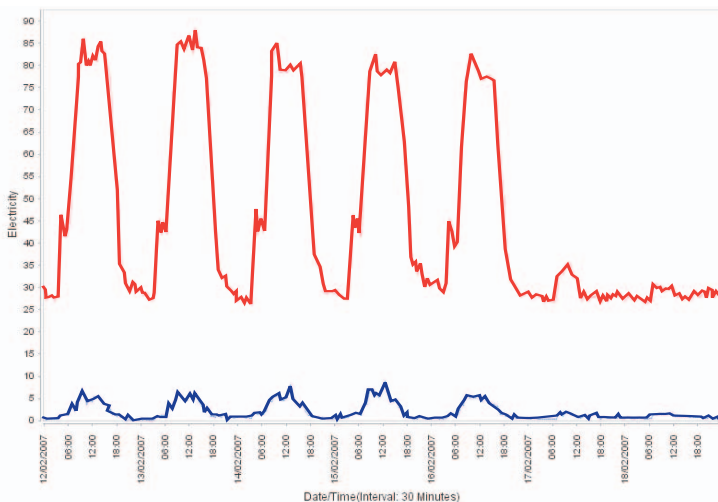


Electricity meter

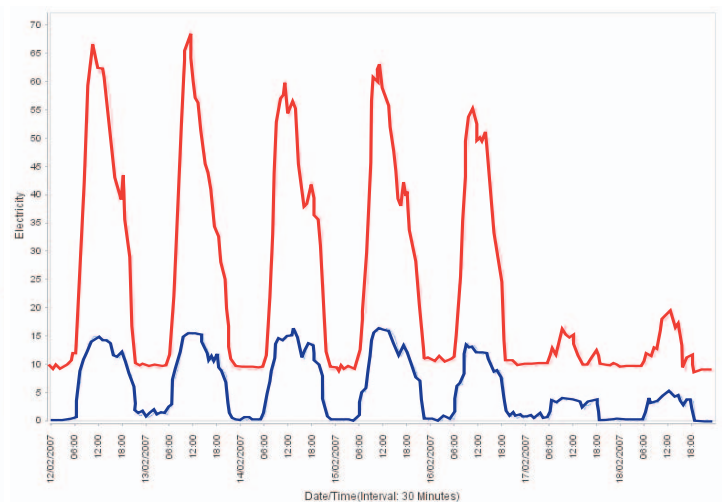
Using IMServ as our energy data solutions provider, the EMU now obtains the energy data for our entire portfolio of over 60 half-hourly sites through Energy Data Vision (EDV). We aim to add to this the top gas consuming buildings to enable better energy management.

This innovative online tool provides all electricity consumption data on a daily basis, thus allowing the identification of any anomalies and the power to better manage energy sooner rather than later.

EDV provides the option of viewing data in a graph or table format, so understanding the information is simple. It has the function to compare sites with each other, which is useful for benchmarking. Additionally, it is possible to compare how much energy a site has used on a weekly, monthly, or yearly basis. It really is like having a magnifying glass to be able to see where energy is being wasted.



Example of large base load wastage



Example of well-controlled consumption profile

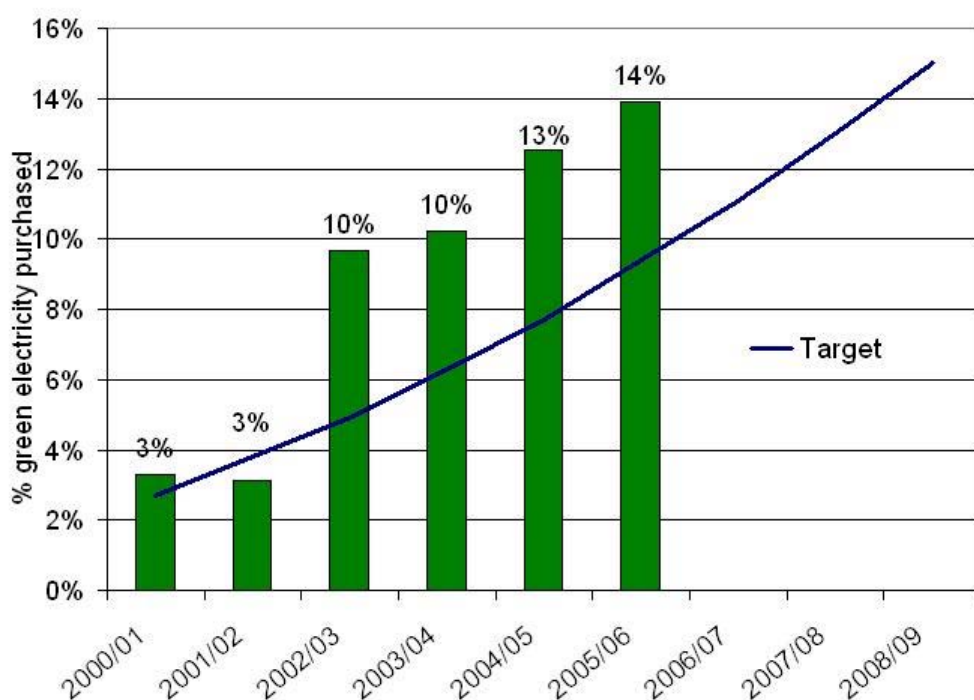
Green energy purchasing

The city council was one of the first authorities in the country to purchase green electricity generated from renewable sources when contracts were negotiated by the EMU for the CREATE Centre and Records Office (B-Bond) in April 1998. Properties that are supplied by renewable electricity have been progressively added to meet the 15% by 2010 target set out in the Energy Policy. The city council are well on target to meet this with 14% of green electricity currently being procured. A significant step in reaching this target was supplying Bristol's 34,000 street lighting lanterns with green electricity, effective from January 2007.

The council has paid a premium to purchase green electricity and has claimed the green electricity purchased as a direct amount of carbon savings. However, there is currently a debate as to the validity of this as the carbon savings are already included in the UK climate change action plan. Until there is clarification on this issue the current target will be maintained.

It is generally considered that green electricity purchase is a good thing as it stimulates the market to provide more and moves the UK forward in meeting its target to have 10% of its electricity from renewable sources by 2010.

Total green electricity purchased



Trial of a solar powered street light outside the CREATE Centre



Awareness programmes

Display

The European Display® campaign is a voluntary scheme designed by energy experts from 20 European cities. It is aimed at encouraging local authorities to publicly display the energy and environmental performances of public buildings using a similar energy label device as that used for household appliances.

The EMU has been recognised by a group of European judges for its use of the Display® scheme in promoting energy awareness within some of its core buildings. The jury were impressed by the range of materials and media used in communicating to staff the important role they can take in cutting energy and water waste in the buildings they work in. Paul Isbell, Energy Manager, travelled to Riga, Latvia to attend the awards ceremony.

The prize is an electronic display board showing real-time consumption data that will be situated in the Council House foyer.

The use of Display® as the basis for a cohesive energy awareness programme fits into the Eco-Management Audit Scheme (EMAS) – a management tool for companies and other organisations to evaluate, report and improve their environmental performance. This is being implemented throughout the council, specifically through sections dealing with energy and water conservation. Furthermore, the Display® activities contributes to the Bristol Climate Protection and Sustainable Energy Strategy that aims to cut waste of energy in council-owned, residential and commercial buildings.



The Energy Echo

The Energy Echo is the EMU's newsletter that is widely distributed in poster form around council buildings. In the form of a spoof tabloid newspaper front page, it is often displayed on the rear of toilet cubicle doors - the thinking being that there is a captive audience there!

The poster is also put up in more conventional areas such as notice boards in libraries and other council sites by contacts who have volunteered to help raise awareness of energy issues with fellow council employees. The "Echo" is also distributed via the Weekly News, an internal e-mail, that is sent out to all staff.

The sometimes irreverent nature of the humour coupled with informative stories about the EMU's projects, climate change issues in general and information on how staff can help save energy in the workplace means that it is a key communication tool for the EMU.



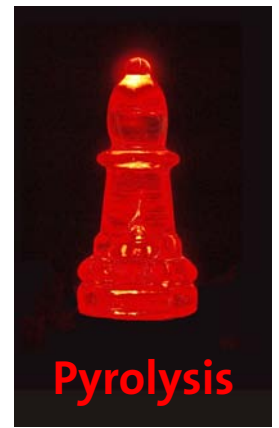
Energy from pyrolysis

Pyrolysis is an old technology that is becoming more common because of its application of processing waste to produce energy. The process works by heating waste materials to extreme temperatures, which produces gases that pass through a steam boiler. Resulting energy can be used in either power generation or CHP applications with up to 80% efficiency. Pyrolysis, therefore, fulfils two environmental goals: low-carbon energy production and waste reduction from landfills.

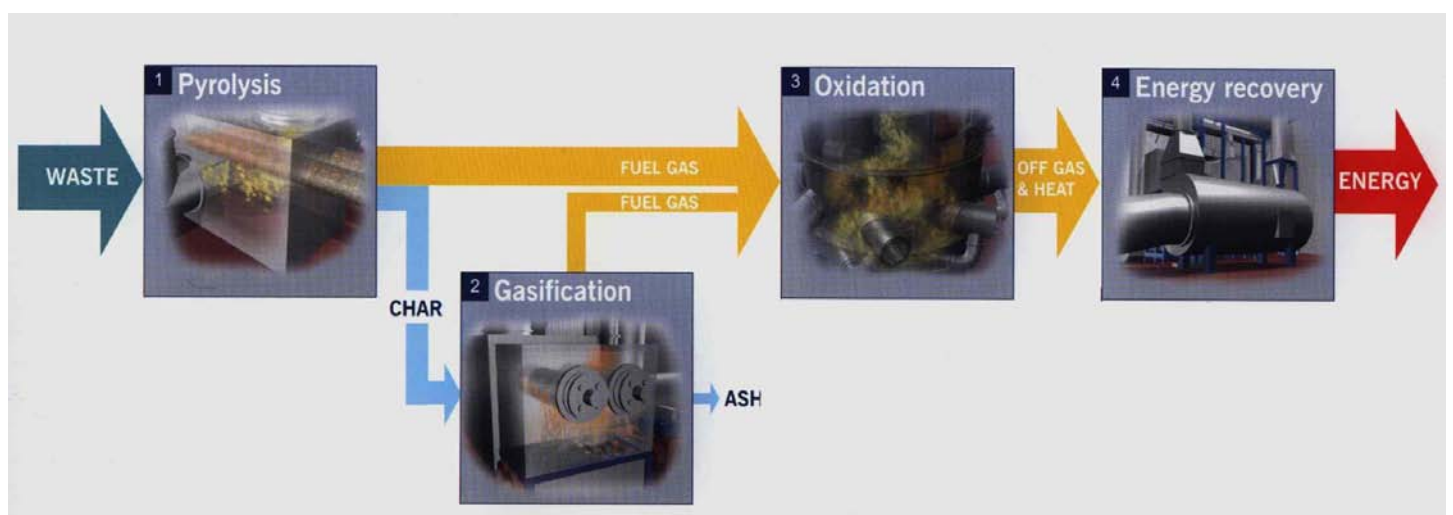
Bristol-based Compact Power was recently awarded £5 million in funding from Defra to create a demonstration waste pyrolysis plant at Avonmouth. The city council will be collaborating with Compact Power on this initiative, which will process 34,000 tonnes of waste and produce up to 3.8 MW of renewable energy per year. The plant is expected to be operational by the third quarter of 2008.

The household waste will be supplied by the council and will help to achieve Government targets for diverting waste from landfill. Landfills have a high environmental impact because they contaminate groundwater supplies as well as release the greenhouse gas (GHG), methane, which contributes to climate change. Diverting waste to a pyrolysis plant then lowers GHG emissions not only by reducing landfill methane production, but also by producing energy that replaces carbon-intensive fossil fuels.

Upon receiving the funding award from Defra, Cllr Gary Hopkins, Executive Member for Environment & Community Safety, commented, "We are pleased that Government is now supporting this Bristol-based technology which we have been encouraging for some time. It will make an important contribution to our targets for landfill diversion and renewable energy. They are key components of our Sustainability Programme and we look forward to our collaboration with Compact Power on this project."



Compact Power's pyrolysis process





Future energy solutions

Is the hydrogen economy the answer for Bristol?

With little question remaining as to the cause of global climate change, there is a new urgency to create an economy based on sustainable sources of energy. Is the hydrogen economy the answer?

Advantages of the pure hydrogen economy:

1. **No pollution caused by fossil fuels** - When hydrogen is passed through a fuel cell to create electricity, the only byproduct is water. There are no environmental concerns such as an oil spill or a meltdown.
2. **No GHG emissions** - If the hydrogen comes from the electrolysis of water, there are zero GHG emissions. Electrolysis produces hydrogen from water, and the hydrogen recombines with oxygen to create water and electricity in a fuel cell.
3. **Oil dependence eliminated** - This in turn would reduce political tension over the dependence on Middle East oil.
4. **Distributed generation** - Hydrogen can be produced anywhere there is an electrical supply and water, even in people's homes.

So, you may ask, if there are so many advantages, why do we not have a hydrogen economy now?

First, pure hydrogen does not exist naturally in the atmosphere so it has to be produced from another substance, which requires energy. It can be produced from a variety of resources (water, fossil fuels, biomass, waste, microbes) and is a byproduct of other chemical processes. There are two possible ways to produce hydrogen:

- Electrolysis of water - using electricity
- Reforming - produces pure hydrogen by breaking down hydrocarbons. The remaining carbon molecules from this reaction could be captured and sequestered.



Hydrogen car

To create a truly sustainable hydrogen economy, the hydrogen must be derived from renewable sources rather than carbon-intensive fossil fuels. The biggest challenge in creating a hydrogen economy will be producing enough electricity from renewable sources to fuel hydrogen production.

Another impediment to developing a hydrogen economy is the issue of storage. Hydrogen has the lowest energy content by volume of any fuel (about four times less than petrol), making it difficult to store. However, it does have the highest energy content of any

common fuel by weight (about three times more than petrol). Hydrogen is a bulky gas. This means that for transporting, distributing and storing hydrogen, it has to be compressed or liquefied, which in turn uses energy. However, solutions to the hydrogen storage problem are being researched around the world, even at nearby Bath University.

What are the options for obtaining hydrogen in Bristol?

- Gasification of biomass and sewage sludge from the existing sewage works.
- Manufacturing in the Avonmouth Docks area by using electrolysis fuelled by green electricity.
- Procuring from the existing hydrogen production facilities with the carbon dioxide sequestered.

Potential Bristol Hydrogen Pipeline Project

To overcome the problem of distribution and storage of hydrogen it has been suggested to use a distribution pipeline from Avonmouth to the city centre. This would be built on the open access system so any generator of hydrogen could have permission to input hydrogen. Creation of a local pipeline could have the following characteristics:

- Light weight trams with on-board fuel cells would convert hydrogen to electricity, which would drive the tram motor with the only emissions being water.
- Linked with filling stations for hydrogen-fuelled cars.
- A hydrogen development area built for hydrogen production developers and equipment researchers.
- Bristol's surrounding rural areas could be cultivated for energy crops that are gasified to make hydrogen. The pipeline could be developed into a grid so that the processing occurs at the boundary of the city to avoid excess transport requirements.
- The position of the port would make it possible

in the initial stages to import biomass in large volumes.

The initial hydrogen would most likely come from fossil fuels, with the goal of eventually using only renewable energy for hydrogen production.

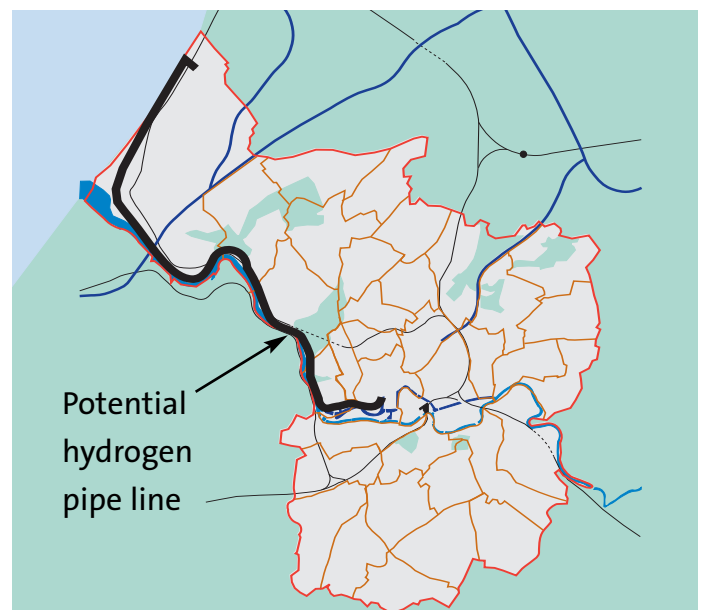
When the UK's wind industry is more established, possible excess electricity from wind energy (strong winds can create surplus electricity for short-time periods) could be used for the electrolysis of water and the hydrogen stored. When there is a requirement for electricity and insufficient wind, the stored hydrogen would be put through fuel cells and electricity produced.

A future of fuel cell cars and distributed generation using hydrogen is feasible with massive investment in the infrastructure to make it happen. The question is what part will Bristol play in the hydrogen revolution?

There could be UK government finance to look at community hydrogen projects in the future so any one with thoughts or comments on this article, or partnership aspirations please contact: energy.management@bristol.gov.uk

Sources:

www.howstuffworks.com/hydrogen-economy.htm
www.eia.doe.gov





New legislation and policy

New Building Regulations

The EMU has a new tool at its disposal to tackle climate change in the form of new Building Regulations aimed at reducing CO₂ emissions from houses and buildings. Half of all CO₂ emissions in the UK come from buildings and, therefore, energy efficiency improvements to the city council's building stock will have a significant effect on its carbon footprint.

The EU Energy Performance in Buildings Directive, effective from 6th January 2006 brought about a revision of the Building Regulations 2002, in England and Wales. These revisions came into force on 6th April 2006, specifically with Part L - Conservation of Fuel and Power, which is designed to bring about reductions of up to 27% in carbon emissions from 2002 levels.

These new regulations:

- Require additional energy efficiencies and provision of renewable energy improvements to a notional building designed to comply to the 2002 regulations, producing a target design which has to be confirmed as having been built before being passed by Building Control.
- Apply to all new builds and to extensions greater than 100m² or 25% of existing floor area.
- Apply to all existing building refurbishment's of buildings greater than 1000m² and requires the provision of improvements to existing building services, where such improvements are shown to have a payback up to 15 years.
- Directs the improvement of energy efficiency in historical buildings where practically possible, without prejudicing the character of the building.



Energy efficiency measures in buildings can achieve significant CO₂ reductions

The implications for the EMU have been assessed and procedures are being put in place to assist property sections, specifically in relation to design calculations, enhancement proposals, funding of improvements to existing services and identifying options for compliance. These procedural changes will further reduce the city council's carbon footprint.

IPCC 2007 Report

On 2 February 2007, the Intergovernmental Panel on Climate Change (IPCC) issued its Fourth Assessment Report, providing a comprehensive and up-to-date review of the scientific understanding of climate change. The IPCC is considered the foremost authority on climate change and produces its reports based on the consensus of 2500 scientists from more than 30 countries. The report delivered the strongest language to-date regarding the role of humans in causing climate change, asserting that the burning of fossil fuels and other human activities are “very likely” the cause of global climate change. The report predicts that sea levels will rise between 18cm and 58cm in the next century, while global average temperatures will rise between 1.4°C and 4°C. Despite the consensus-driven report, many climate change experts claim that the report's findings, particularly predictions of sea level rise, are too optimistic because they have left out growing evidence of glaciers and ice sheets melting faster than previously expected.

Stern Review

Published in October 2006, the “Stern Review on the Economics of Climate Change” sets forth the predicted economic costs of the impacts of climate change. Led by Sir Nicholas Stern, the Review found that the benefits of strong, early action on climate change will outweigh the eventual costs, but that these actions must be taken in the next 10-20 years to avoid the most severe costs to the economy, human life, and the environment. The Review focuses on the feasibility and costs of stabilising GHG concentrations at no more than 550ppm CO₂-equivalent. To do so would require global carbon emissions to peak in the next 10-20 years and then fall at a rate of 1-3% each year. Stern proposes that to reach these reductions, energy policy should be based on carbon pricing, technology policy, and the removal of barriers to behavioural change.



The EMU are working to promote local action against climate change

The EMU aims to promote collective action on combating climate change and initiate the solutions found in the Stern Review at a local level. As the Review concludes, there is still time to avoid the worst impacts of climate change if strong collective action starts now.

European links

Bristol City Council has become known for its pioneering work in green electricity procurement. Paul Isbell was invited to share Bristol's experience with this activity at two European events in 2006. The first event was organised by ICLEI and held in Graz, Austria in April as part of the Austrian EU presidency and fed into EU efforts to promote sustainable purchasing. ICLEI felt that the issues raised in Graz needed to be shared with a larger audience. This was done at a Barcelona, Spain conference in September hosted by Eco Procura: the 2nd International Green Purchasing Conference - Practical Solutions for Sustainable Procurement.

As the UK was one of the first electricity markets to be privatised, it seems that the ability to purchase green electricity has evolved faster here than in other countries. Bristol's experience has shown that the development of green electricity purchase is led by demand. Conference attendees were encouraged to go back to the electricity suppliers in their own countries and request that green supplies are made available.

The Energy Management Unit

The EMU can provide you with the expertise you need in the following areas:

- ◆ Green energy procurement
- ◆ Energy efficiency investment
- ◆ Renewable energy projects



Since 1992, the EMU has been working to make Bristol a national leader in implementing sustainable energy at a local level. Now with 9 professionals working on projects ranging from biomass to wind to energy efficiency, and proven green energy procurement experience, they have the experience to handle any local energy management issue.

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