Environment & Economic Regeneration Scrutiny

Carbon Reduction in Schools

OCTOBER 2010
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Increasingly schools are acting as catalysts for community development and cohesion; helping to address social issues and needs across a full spectrum of services. The broad principles of ‘localism’ and the Big Society as envisaged by the Coalition Government would suggest that this role is destined to grow.

As 60% of the County Council’s carbon footprint derives from the schools estate, scrutiny Members felt it was appropriate and necessary to focus their attentions in this area. How are schools preparing to meet their carbon reduction targets, and how well placed is the County Council in supporting them in the process?

In undertaking this scrutiny, Task Group members soon recognised the complex nature and the scale of the challenge facing the authority in meeting its objective of reducing the level of carbon emissions by 25% by 2012.

All activities have a carbon footprint and there is a multiplicity of factors that contribute to a school’s carbon emissions. What works for one establishment won’t necessarily work for another. The contributing factors that determine an establishment’s carbon profile are complex and go beyond the school’s energy efficiency or lighting systems – as important as these factors are. It extends to matters of geographic location; numbers of pupils and staff; school travel; waste; procurement; building materials; water usage; school curriculum; cultural behaviour and much more.

This piece of scrutiny does not profess to present a full picture on the question of sustainable schools or carbon emissions. However, in the course of their review work, Members have been able to formulate some broad conclusions which in themselves ask some very searching questions about cohesion and the authority’s ability to drive and deliver an integrated programme of change across the whole County.

This report recognises much of the well-intentioned work and advice that is provided by a wide range of expertise within the County Council and by partner and other organisations. Actions that need to be taken now to deliver the Council’s ambitious targets will undoubtedly be helped and informed by all these bodies, but a common thread which runs through Member’s work is that much of this knowledge and experience sits in silos of activity and remains largely uncoordinated.

Achieving the County Council’s ambitious 2012 target is looking increasingly more difficult to achieve, as increasing budgetary pressures are likely to refocus corporate and school priorities. In the view of this Task group however, they would suggest there has never been a better time for Sustainability Officers, Energy Officers, Property Officers and Procurement Officers etc. to step up to the challenge and take a co-ordinated approach to the provision of expertise and guidance to schools.

Addressing the carbon problem in a focused and collective manner will not only address issues of climate change, but also drive efficiencies, save money and reduce financial risk to the authority. The authority has the knowledge and experience, and where it doesn’t it will know how and where to procure it. Schools are looking to the authority to assist and guide them, but to do this we will need to make ourselves known, not only with Head Teachers and Business Managers, but firstly, to each other!

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Acknowledgement:

Members of the Environment Scrutiny Advisory Board would like to thank the following people for their valued support and input to this scrutiny:
Site Manager and Assistant Bursar, Netherhall School, Maryport; Premises Manager and Business Manager, Mike Wilde Eco-Centre (Cockermouth School); Head Teacher, Stramongate School, Kendal; Sustainability Manager; Energy Manager; Waste Prevention Manager; Senior Waste Education Officer; Academies Project Manager (Capita); Assistant Director – Planning and Sustainability; Assistant Director – Improvement; Senior Commissioning Manager, School Organisation, Planning & Support; Senior Manager, Transport & Access; and colleagues and officers within the County Council.
2 RECOMMENDATIONS

Having reviewed the evidence brought to scrutiny’s notice members of the Environment and Economy Scrutiny Advisory Board wish to make the following recommendations.

1. The County Council should consider, where it is appropriate to do so, how best to move towards embedding matters of sustainability as a cross-cutting priority into County Council’s policies and strategies.

2. Directorates within the County Council should when reviewing their current school policies consider the broad principles contained within the Cumbria Climate Change Strategy.

3. A more inclusive approach to sustainability and carbon reduction should be adopted between directorates (and other environmental and educational providers) ensuring that cross-directorate expertise is shared and co-ordinated in an efficient and effective manner.

4. Consideration be given to the identification of a Sustainability/Low Carbon Co-ordinator from within the organisation who can manage and co-ordinate a programme of projects and initiatives which support the county council’s sustainability and carbon reduction objectives.

5. Resources within the Waste Reduction & Education, Energy and Sustainability Units, need to be maximised to provide a flexible and multi-disciplinary approach which will focus on the clear objectives of the authority to reduce carbon emissions.

6. A comprehensive County Council-led information directory on the range of eco-related services and support should be produced and circulated to all schools and other County Council-owned establishments.

7. As part of a school’s five-year building condition survey, a ‘Route Map’ setting out that establishment’s broad energy plan and priorities over a five year period, should be devised and attached in order to make the audit more purposeful and informative to the authority.

8. Existing communications with schools (e.g. PHA, CASH) are maximised to raise awareness of the County Council’s expertise and knowledge which is available to them on matters of sustainability, carbon reduction and energy management in particular.
3. INTRODUCTION AND METHODOLOGY

“Climate change is a shared responsibility. Cumbrians will need to reassess how they lead their lives and reduce their own carbon footprint”.

(Bill Lowther, Chairman, Cumbria Strategic Partnership).

Carbon Reduction in Schools

3.1 In 2007 the Labour Government published its Climate Change Bill which set out an upper limit on carbon emissions for every 5 year period from 2008. This was a new system of legally binding ‘carbon budgets’ and these were to be set up to 15 years in advance. The Bill also established a new statutory body, the Committee on Climate Change, which reports annually to Parliament on emission levels and progress against targets. The Bill was the first of its kind in any country and demonstrated the leading role the UK was taking on tackling climate change.

3.2 The Bill became a catalyst for change and in October 2007, the Cumbria Climate Change Strategy was published jointly between Cumbria County Council and the Cumbria Strategic Partnership (CSP). This strategy and action plan provided a brief overview of the probable impacts of climate change within the North West and Cumbria. It recognised the likelihood of even greater climate change in this century and the overwhelming scientific evidence which shows that climate change is influenced by human activity. “Greenhouse gases, released into the atmosphere from burning fossil fuels, such as oil, gas and coal act like a blanket around the planet and prevent heat escaping”. Accordingly, the reduction of greenhouse gases (or carbon emissions) has become a primary objective internationally, nationally and regionally in order to prevent the impact of further climate change.

3.3 This scrutiny focuses on a small, but significant part of the County Council’s commitment to reducing carbon emissions within the scope of its activities – specifically, carbon reduction in schools.

Aims of the Scrutiny Review

3.4 To review current County Council support for sustainable schools in Cumbria, including energy efficiency and carbon reduction, travel plans, and how the sustainable schools agenda can create an integrated, realistic, meaningful learning environment.

3.5 To look at how schools are responding generally with support from the schools improvement team and other council officer support, plus external organisations that are proactive in delivery aspects of environmental education. To further encourage behavioural change and a low carbon culture in Cumbria.

3.6 To ensure the pace of change of the County Council’s programme for carbon reductions in schools is sufficiently timely to meet the authority’s carbon emission reduction targets for 2012 and beyond, thereby avoiding punitive charges that could be levied in future under the UK’s Carbon Reduction Commitment.
Methodology

3.7 As part of their consideration of how they could approach this topic, members initially decided to meet with key County Council officers to gain a broader understanding of the issues and challenges that underlay the current position in terms of carbon reduction in schools.

3.8 In addition members agreed to undertake a series of site visits including an existing (older) school premises without a carbon reduction programme and an example of a ‘good practice’ school. Members would discuss issues with the respective bursars and business managers to gain a broad understanding of the current situation within existing schools and their preparedness to reach 2012 targets.

3.9 It was agreed that members of the Task and Finish Group would take a broad look at the Academies programme to understand to what extent new energy efficiencies and sustainable systems are being incorporated into the County’s (new build) design and build processes.

3.10 In order to gain a Primary School perspective, a telephone interview was held with the Head teacher, Strammongate School, Kendal, who is also the Chair of the Kendal Community Partnership of primary schools.

Members arranged for further discussion sessions with key Council officers including:

- Sustainability Manager
- Energy Manager
- Waste Prevention Manager
- Senior Waste Education Officer
- Academies Project Manager (Capita)
- Assistant Director – Planning and Sustainability
- Senior Commissioning Manager, School Organisation, Planning & Support
- Senior Manager, Transport & Access
- Assistant Director – Improvement

Additional information was obtained by a Task and Finish member attending a BSF conference.

3.11 To support this work, desk-top research was provided by the Senior Scrutiny Officer. From the outset, Members agreed limit the scope of this work recognising that there are many factors and many initiatives, which fall under the umbrella of “Carbon Reduction in Schools”.

3.12 With this in mind members agreed to limit the scope of their work to issues of buildings; energy efficiency; and low carbon procurement coupled with County Council support and advisory services to schools.

Limitations of the Review Process

3.13 The subject of a climate change strategy for Cumbria is vast and complex. It covers subjects as diverse as energy generation, housing and buildings, public health, industry and commerce, the natural environment, sustainability, lifestyle, transport, procurement etc etc.

3.14 Under the banner of carbon reduction – this review has purposely been confined to carbon reduction is schools as this accounts for 60% of the authority’s carbon footprint.
3.15 Within this category of local authority business, the focus of the scrutiny has again been restricted; primarily to the school building stock and the level of support and guidance which the County Council is providing to assist schools in reducing their carbon footprint. This report does not go into depth on matters of procurement or waste for example, although it does recognise the valuable work which is being undertaken in these areas.

This scrutiny is a snapshot on the authority’s ability and effectiveness to prepare and support schools in the reduction of carbon emissions.
4 FINDINGS

4.1 The carbon shift agenda forms a central plank of the work programme for the Environment Directorate and authority as a whole. Carbon emissions need to be significantly reduced from the Council’s own estate and operations and from communities and the business sector.

4.2 The authority’s baseline carbon emissions for 2007 stood at 55,090 tonnes. Nearly 60% of emissions were from schools, 21% from corporate buildings, 16% from street lighting and 3% from our outsourced services.

4.3 The breakdown of carbon emissions in schools can typically be attributed as follows:
  - Procurement 45%
  - Buildings 37%
  - Travel and Transport 16%
  - Waste 2%

4.4 Clearly the most effective strategies for addressing this problem are likely to focus on energy efficiency and low carbon procurement. A number of energy surveys in schools have identified measures to improve energy efficiency. These projects are by Salix funding and administered by the energy manager.

Key Drivers and Issues

4.5 There are a number of issues driving the need to reduce carbon emissions in schools:
  - Carbon Reduction Commitment – financial risk to the authority will be minimised by reducing carbon emissions – schools provide the best opportunity to achieve this.
  - Cumbria County Council’s carbon reduction target – 25% by 2012 (60% emissions from schools).
  - Need for a focus on buildings and energy efficiency.
  - Climate Change Communications Strategy – a significant role for schools in helping to deliver this.

4.6 The Climate Change Act 2008 sets out national targets for carbon reduction of 34% by 2020 and at least 80% by 2050. Local authorities are expected to contribute to these targets.

4.7 The Carbon Reduction Plan (CRP) provided a positional statement of where the County Council was in 2009 in terms of managing its carbon emissions and where it wants to be in the future. It has been developed under the Carbon Trust’s Local Authority Carbon Management Programme which Cumbria County Council joined in April 2008. The County was selected against strong competition, to take part in this programme, in partnership with the Carbon Trust.

4.8 The Carbon Trust is an independent company set up by the last Government to help the public and private sectors to reduce CO2 emissions and accelerate progress towards a low carbon economy by funding research and development and by provided start-up funds for new companies making low carbon products.
4.9 The ambitious programme was designed to assist councils in saving money on energy and putting it to good use in other areas, whilst making a positive contribution to the environment by lowering their carbon emissions. The Carbon Reduction Plan (CRP) commits the Council to a target of reducing CO2 emissions by 25% by 2012 (from a 2007 baseline) and underpinned potential financial savings to the council of around £3.5 million up to 2012.

4.10 The CRP does not exist in isolation – it has been developed in the context of and sits alongside several other initiatives including the Cumbria Climate Change Strategy; the County Council's Sustainability Strategy; Sustainable Procurement Policy; Community Strategy; Council Plan and the Council’s Green Action at Work programme.

4.11 In consideration of a school’s carbon footprint, there is no one common formula that fits all. There is a complex range of factors which contribute to a school’s carbon footprint including geographic location; numbers of pupils and staff; school travel; waste; procurement; water usage; school curriculum; cultural behaviour and much more.

4.12 Some large schools serve a huge area, drawing pupils in from villages and communities widely spread throughout that geographic area. The West Lakes Academy, (Cleator Moor) for example, serves a huge rural area and each school day seventeen large buses deliver approximately 800 pupils to the school. By way of contrast very few school buses will be required for the Richard Rose Central Academy, (Carlisle), relying instead on local scheduled bus services, thereby not adding to that establishment’s carbon footprint via public transport.

As part of their information gathering, Task and Finish group Members undertook a small programme of school visits to gain a fuller understanding of the opportunities and barriers to achieving a reduced carbon footprint.

Netherhall School, Maryport

4.13 Netherhall School is a large, older secondary school, having a mix of 1950s and new accommodation and facilities. The school is maintained using a mix of school funds and County Council funds. With the older building comes a range of structural (and sometimes complex) issues such as asbestos and old inefficient and aging heating systems, all of which cost the school thousands of pounds to address.

4.14 The Site Manager informed Members that Carbon reduction is only one of several initiatives within the school to make it more eco-friendly. Other areas of attention include refuse, waste recycling and waste usage. The biggest issue is the ‘zoning’ of the schools heating system which works on one system only, contributing to an unnecessary and expensive waste of energy in those parts of the school where no heating is required.

4.15 Under the Building Schools for the Future programme the school will now be able to isolate different parts of the school's heating system. Using new technology, maintenance workers will be able to respond to leaks or breakdowns without necessarily closing the system down. Four flow and control valves will in future be controlled by one central (remote) panel, thereby making the whole heating system more cost efficient and manageable. A cost benefit analysis was undertaken on the installation costs for the new system. Under the new zoned model the pipe work will be made much more accessible,
rather than under floors where any leak was both difficult to trace, expensive to repair and wasteful in terms of lost water.

4.16 Netherhall School is an extended school, engaging with the local community which use the facilities, particularly the sports hall. Running the school swimming pool is particularly costly now that the Government has stopped free swimming. Up to 30-40 members of the public had been using this facility each morning. Apart from the loss of income to the school, this change could have health implications for local people in the future.

4.17 In terms of managing and monitoring the new energy system to maximum efficiency, new technology enables the Site Manager to get detailed usage figures, thereby enabling the school to levy charges that more closely reflect the true costs to the school.

4.18 Under British Gas pilot scheme, the school will be getting energy display meters, which will enable staff and pupils to understand better what is happening at a given point of time. The Assistant Bursar maintained “The energy bills for the school are staggering”. The school is proactive in looking at ways to utilise energy in the most efficient manner. A small wind turbine (courtesy of E-on) provides sufficient energy for the sports centre floodlights for example. Close examination of energy usage however, found that the floodlights and lights in buildings were still in use when there was no use.

4.19 New opportunities for energy savings are continuously being considered such as greater use of solar panels and a new boiler plant for the swimming pool. This could be part funded through the County Council's Asset management Plan.

4.20 In answer to how the County Council has been driving the low carbon agenda over recent years, Members were informed that the schools in Cumbria were awarded Energy Display Certificates and these are banded. Council Members were unaware of this scheme which acts as a useful benchmark for schools, showing an acceptable level of performance.

4.21 In the view of the site manager the County Council is supportive to the school's various energy saving initiatives. The authority is driving the carbon reduction agenda; helping to replace windows and promoting insulation of roof spaces via the Energy Manager. The County Council's Waste Education and Waste Reduction representatives have actively been engaged in assisting the school to manage its waste.

4.22 In terms of noticeable cost savings, it was explained that while the school had not noticed a significant reduction in energy costs overall, (due largely to the volatility of the energy market), by using measurable units such as Therms or Kilowatts for example, then a 'real' reduction in cost can be demonstrated. The County Council's Procurement Unit does the price negotiating with energy suppliers and because of its capacity to buy in bulk the Unit is able to negotiate better discounts for schools.

4.23 On average the annual cost for gas and electricity for the school is approximately £100k. This does not include the cost of water or waste. There is a legal require for all schools to keep this information as part of the authority’s energy efficiency scheme. Whilst the school is making energy and carbon information available to the authority, the question for Members is how is that information being used? Is it incorporated into other data; helping to inform the choice of suppliers for example?
4.24 Trebling the tariff on energy use at peak times is worrying – ideally the school would want to use a supplier who is capable of providing an even distribution of charges. Schools can if they wish, go outside the County Council’s model and make their own arrangements. In terms of other practical measures to reduce the carbon, these include removing incandescent light bulbs and replacing with low energy bulbs. An attempt to incorporate infra-red sensors was trialled, but so far this has not been reliable. New technologies such as sensors in toilets are trialled where they can.

4.25 Through the County Council’s Asset management Scheme the school has been able to have a full rewiring programme paid for.

*Cockermouth School – Mike Wilde Eco-Centre*

4.26 The Mike Wilde Eco-Centre, Cockermouth, is an award winning conference centre and an example of sustainable new build attached to a large secondary school. The Business Manager explained the Eco-Centre represented only a small part of the schools’ work in the area of sustainability and carbon reduction programme. Much of the school’s activity is about educating pupils and local communities on these issues and the Eco-Centre serves all departments; each using different aspects of the building.

4.27 It is self-sufficient and sustainable; producing more energy than it needs and is virtually carbon neutral. This is in stark contrast to the school, which was built in 1953 at a time when energy conservation and efficiency was not a primary consideration. Any new build scheme on the school site has to address old (inefficient) building design and materials before incorporating much more energy efficient and sustainable solutions.

4.28 As with all large schools, Cockermouth School also serves the wider local community and school facilities are used seven days a week, being open from 7.00 am to 10.00pm. As a consequence, overheads increase, particularly energy bills and these can put an added pressure on school resources.

4.29 In terms of its physical footprint, the school continues to get bigger as more classrooms are added. However, this does not necessarily mean its carbon footprint is also increasing. Recycled materials are used and where possible sourced locally and coupled with more efficient and effective building methods, this helps to stabilise the carbon footprint.

4.30 School transport, however, is a particular area of concern. As this is a rural school, serving many outlying communities, 70% of the pupils use some form of motor transport (47% by bus). More attention is being focused on trying to increase cycling as a means of transport and the school is working closely with the Town Council on safer cycle ways.

4.31 The school is receiving a lot of information from the Authority’s recycling team, however, on carbon reduction initiatives; the Business Manager was unaware of the expertise and support on offer from the County Council. She would like more information on key officer contacts, plus an understanding of what each can offer the school. Notes for guidance would be particularly useful. It was suggested that the Authority needs to look at its range of services to schools and how they are working on the ground. “How much expertise and knowledge is provided by the Authority that others do not know about?”

4.32 The assistance of the Carbon Trust and the Council’s Free Energy Efficiency
Survey was acknowledged. With regard to procurement, past experience at the school has shown that on occasions the Authority has been slow in responding to calls for assistance and in some cases more expensive. For schools, value for money is paramount and in certain situations local suppliers prove to be cheaper and more responsive than the County Council.

4.33 With regard to the removal of waste, the school has purchased a crushing machine which can condense the amount of waste which is charged for by reducing the number of ‘lifts’. This has the added benefit of reducing the number of road journeys (carbon emissions). The school is also actively reducing the amount of paper it uses, particularly photocopying.

4.34 The Premises Manager believes the biggest challenge to the school is in addressing all those parts of the school which are not energy efficient. Old mains water pipes run under new buildings and pipe work and cables have been buried within walls and under flooring, rather than being accessible for maintenance purposes. The school can now isolate sections of its heating system, as well as separate boiler systems.

4.35 The Eco Centre uses a Ground Source Heat Pump technology, which is so efficient it could also serve to heat another building alongside. It has been estimated that carbon emissions from the school could be reduced by up to 25% but the development cost has to be weighed against the likely payback timescale. It is about getting the balance right; for pupils, comfortable surroundings, as well as being fit for purpose.

4.36 An element of signing up to a term contract includes linking up with other schools. These days school Business Managers meet regularly to learn from each other. In the view of the Business Manager, there is a lack of joined up thinking and working between various agencies and initiatives that can support schools. It was suggested that as future funding opportunities reduce, this may prompt agencies to come together in a more integrated manner. At present this disjointed approach can be a problem for schools, who can receive up to six or more telephone calls per day from various agencies offering help. This is seen as a waste of staff time.

4.37 The Primary Heads Association (PHA) and Cumbria Association of Secondary Heads (CASH) were highlighted as effective communication routes, through which key information on sustainability, carbon reduction and other eco matters could be flagged up.

**Richard Rose (Central) Academy – Carlisle**

4.38 From the outset, Members were committed to looking at existing and new schools. They decided to see how well the principles of sustainability and carbon reduction were being taken forward into the County’s new build programme. How well were the new schemes, taking the principles of sustainability and energy efficiency forward?

4.39 T and F Members toured the new academy construction site in central Carlisle and learned that issues of recycling; procurement; sourcing of local materials and energy management, were high on the design and build specifications. The Academies Project manager (PC) maintains new schools have to be built to an acceptable standard as laid down by Government. The BREEAM standard falls into three levels of rating: standard, very good and excellent. The Richard Rose Central Academy is currently working to the Very Good
rating. It was pointed out that a balance has to be struck here between quality and cost. To qualify for ‘Excellence’ rating would cost a further £2m-£3m.

4.40 An estimated 900 wagon loads of the old school were crushed and recycled as the foundations for the new academy. Where stonework has been brought in, it has come from a local (Dumfries) supplier. Velfac windows, made in Belgium of aluminium cast frames, with interior beech finish, provide a sustainable and durable, maintenance free solution to effective double glazing. These windows provide access to masses of natural light throughout the building.

4.41 All school heating is under the floors, all spaces have been designed to reduce the number of separate rooms, working instead to a more open use of space, with an emphasis on learning, rather than teaching. The Staff Room areas are open and positioned on the top of two multi-storey pods, within the huge open space of the academy. KIER Construction, with their IT provider, is installing an IT infrastructure throughout. This will include service installations. All trunking, cables and pipes etc. will be housed in the ceilings for ease of access and maintenance.

4.42 Vast quantities of concrete have been used in the building's construction, including floors and staircases that have been cast on-site. Tension slabs using concrete soffits are used a lot here. Finished concrete will reduce the need for on-going maintenance while Rockwool, made from quarry waste, has been incorporated into the walls of the learning areas for sound insulation purposes.

4.43 Cupboard space has been built into the walls and loose furniture will be used to create spaces for both learning and break-out areas. A vast central atrium, over three storeys in height, will act as a focal point for the whole academy and the air control system has been designed to keep the whole site at a guaranteed temperature at all times. An extensive use of glazed screens will ensure as much natural light as possible is let into the whole building.

4.44 There will be a much stronger approach to electronic burning and a lot less paperwork, compared with more traditional schools. The CHP energy system is a gas fired combined heat and power which provides central heating and electricity for the building. It can pump surplus power back into the grid should the school wish.

4.45 The Central Academy is viewed by KIER as a flagship project and the learning which has come out of this work, will become an inherent part of what they do in other parts of the County. Each Academy will be different, the Academy’s programme Manager maintains that when setting out which BREEAM standard to work to, it will be about getting the balance right between affordability and performance. Additional features can be included such as green roofs, wind turbines, ground source heating etc. It is about making the judgement call in terms of carbon reduction.

4.46 The feeling here, is that the designers and client have got this academy as right as they could. There are sustainability features, although no bio-mass because a combined heat and power solution was required. This effectively gets two energy outputs from the generation process, which is fine for winter but not needed in summer, although the energy output can be used to heat the swimming pool.

4.47 In response to a Member’s question, on how much input the sustainability and energy Managers had in the early design stages of the Academy, the answer was none. The Children and Young People’s Designers and Planners were not aware of the role and function of the Sustainability Unit until this Scrutiny work.
Members were particularly concerned to learn this and feedback from other Scrutiny sources, would suggest that within the County Council, departments do not always know what others can offer within the organisation.

4.48 There has got to be better understanding of the skills and experiences within the Authority. KIER has brought a lot of knowledge and professionalism to the table, it is imperative that the County Council’s expertise should also be a part of that early development process.

4.49 The Academies Project Manager (Capita) believes the County Council has missed an opportunity to take a corporate approach through the organisation and thereby become a more ‘informed’ authority.

**Strammongate Primary School – Kendal**

4.50 In order to gain a Primary school perspective, Mike Hoole (MH), Strammongate School, Kendal was interviewed in his capacity as Head Teacher and Chair of the Kendal Community Partnership of primary schools.

4.51 Schools and head teachers are on board with the whole principle of reducing carbon emissions and energy control. However, although according to MH it all feels rather disjointed; there are a complex range of factors on the subject of carbon reduction and climate change ranging from turning lights off and building insulation to behavioural change. There are two elements; buildings can be made as thermally efficient as we like but if energy is still wasted through the way we all behave, then the improvements that have been put in place will not produce efficiencies or savings. Simple (practical) energy changes to the fabric of the building need to be accompanied by behavioural change.

4.52 What schools require is high quality information and people to advise on matters of carbon reduction, energy efficiency and appropriate behaviour by everyone. The Energy Manager is seen as the sort of person who can advise schools on technical matters, but in a County with 800 County Council-owned buildings, is he enough?

4.53 Should all light bulbs be replaced when they blow or annually? In contemplating a small wind turbine which could enable the school to produce some of its own energy, MH does not know where to go for advice; what are the pre-requisites (including planning) for siting a turbine etc? There has been a lot of positive feedback on heat exchangers – they sound wonderful – but would they suit the old boilers at Strammongate? What are the funding and/or sponsorship opportunities open to schools? Is there a case for more sensor-controlled taps, helping to reduce water waste and the risk of viral infections? This sort of information is not readily available to Head teachers who cannot devote the time required to research this information themselves. “Schools need high quality, informed expert advice to make sure what they do is appropriate and effective”.

4.54 It would be very useful to have information readily available, perhaps in the form of a sectionalised information pack, rather than going through second or third party information. This is about making known and sign-posting the relevant expertise and advisors available within the County Council.

4.55 Similarly, the school uses some automatic light sensors but these are not appropriate in some areas of the school (e.g. toilets) and therefore there has to be different solutions in classrooms, school halls and corridors etc. It was suggested that these are the issues that are very close to school caretakers.
Over the past 5 years three new classrooms have been built, each with a different type of lighting. From a central purchasing perspective, does it make sense to have to order different replacements, rather than to buy one type of light fitting, in bulk?

4.56 In MH’s view there is a larger strategic issue regarding the approach the authority is taking, not only with advice but also on infrastructure issues. Heads would like to see a much more co-ordinated and analytical approach to guiding schools on different energy approaches and solutions – including a cost-benefit analysis of one solution against another. For example if a school is replacing its heating system there will be a range of key questions which will need to be considered as part of the decision-making process. Should it be fuelled by gas, electricity, oil or a combination of both? Are radiators the best solution or heat exchangers? In a large rural county like Cumbria, many schools will not have access to natural gas – what are the options in this case and how does one compare against another? Head teachers’ time is very valuable; in Primary Schools, many spend time teaching and therefore would find it very difficult to undertake detailed cost-benefit analysis work.

4.57 Business managers/bursars and head teachers share information and experiences amongst each other and this can be a useful way of building knowledge. MH believes it would be particularly useful if schools were able to have a ‘route map’ of logical steps, the priorities that need to be taken in tackling energy efficiencies and carbon reduction, which also includes a reference to changing a schools culture. It was suggested that as each school has a five year condition survey, a quinquennial Energy Route Map is appended to it, setting out the broad energy plan and priorities for the first, second, third years etc. This would make the five year audit more purposeful – particularly with regard to energy issues and the additional information could then be fed back to the County Council, helping to inform their thinking.

4.58 MH suggests a weakness of the authority in the past has been the management of its property portfolio. In the Head master’s experience it has not got a good grip on the state of its buildings and therefore the priority of works which must be given to each. Once the County Council’s Property Unit has a full understanding of what is going on, then it will be better placed to prioritise its work. The subject of energy efficiency in MH’s view needs to be given a higher priority with a view to adopting a more harmonised approach to the provision of help and advice.

4.59 A key challenge for the local authority therefore is to get Head teachers, Business managers etc., to recognise the importance of high quality buildings, alongside high level education. The dilemma for many schools when making a choice between retaining teachers or making the school more energy efficient – then there are some very difficult choices to be made.

**County Council Sustainability and Carbon-related Activities**

4.60 The County Council has been supporting a range of internal and external projects that have a schools’ carbon connection. The following examples represent a few of these and have helped Members to build a wider understanding of the Council’s involvement in this matter.

**County Council’s Sustainability Unit**

4.61 Within the Environment directorate a small Sustainability Team has led and managed the development of the Cumbria Climate Change Strategy and Action
Plan, the Council’s Carbon Reduction Programme and the *Green Action at Work* programme. The team also co-ordinates and manages the Council’s response to the forthcoming Carbon Reduction Commitment.

4.62 Officers from the team provide a key link between these cross-cutting work streams enabling each to support the targets and outcomes of the other. They play a key strategic role, helping to develop and inform policies and strategies which support the County Council’s position on a more sustainable and cleaner environment for the future.

4.63 The authority is looking to refocus environmental management work with schools, bringing together work on energy management projects including carbon saving initiatives. This is about involving the whole school in energy saving, linking carbon reduction to schools’ learning and curriculum.

4.64 Importantly, a designated projects officer engages with young people helping to develop and implement sustainable projects within a school environment, serving as a catalyst between the authority; environmental and educational providers and practitioners from private and voluntary sectors, and young people across Cumbria.

4.65 A fundamental aspect of all this work is about working with people to change attitudes as practical and technological solutions alone will not reduce our carbon levels of address other aspects of climatic change.

4.66 In terms of drawing all the Council’s professional expertise together there is currently no one in the authority who has the responsibility to lead collectively on eco-schemes. It has been suggested the Sustainability Unit, with its corporate overview and broad understanding of key global, regional and local issues, potential funding sources and ‘green’ technologies’ is well placed to act as a catalyst for such an initiative.

**Energy Manager**

4.67 In his capacity as Energy Manager for the authority, Doug Machaffie (DM) has been heavily engaged in delivering an energy efficiency programme to schools throughout the County. Over the past six months energy efficiency reviews have been undertaken in approximately 100 schools and in some cases loft and cavity wall insulation projects have been identified. Other projects have included a quotation for a bio-mass boiler; photo voltaic (solar) panels and hot water system.

4.68 Under the Government’s Salix (match) funding programme, £250k has been set aside for schools to improve their loft and cavity wall insulation, with 50% of the costs covered by the school in the form of a loan which is returned to the county council, and 50% covered by the authority. Money brought back into the scheme will go on to help another school.

4.69 The scheme has proved very popular and demand is outstripping supply. DM has had to draw a line under the first group of projects in order to ensure there is enough money to cover them. There is recognition within the Property Unit of the value of taking a more co-ordinated approach to energy efficiency and other climate change issues with the Sustainability Unit and other ‘expertise’ within the County council.

4.70 DM recently attended a meeting of the Primary Heads Association (PHA) where he was able to relay key messages on good (energy) housekeeping to 400
delegates. Head teachers and Business managers are keen to receive this type of advice and support, which will help them to make efficiencies and reduce costs. There is a big demand for this type of guidance. Evaluating levels of efficiency across all schools is a huge challenge, however, there are a range of practical steps that can be taken and which can make a marked improvement on performance.

4.71 A small amount of money (£1000) is also available from the Energy Management Fund, although this has to split with corporate buildings as well as schools. A profile pack has been sent out to all schools in the County.

Waste Reduction & Waste Education

4.72 The prime function of the Waste Education Team is to reduce waste going to landfill by a) engaging with schools to reduce waste from the Cumbrian schools’ estate and b) to use the school population as conduits to spread the waste reduction, re-use and recycling message to the Cumbrian domestic population in order to reduce household waste.

There are two principal drivers for this activity:

- To reduce landfill costs and possible penalties for exceeding our landfill quota, which will rise to millions of pounds
- To respond to the demands of the population for education, information and action about waste

4.73 There are estimated to be in excess of 2,250 tonnes of waste emanating from Cumbrian schools (and if being handled by the county council will be costing approximately £180k to landfill) of which a sizable majority is recyclable or avoidable. Around one-quarter of schools’ waste is paper, which is of high quality and is currently worth around £200 per tonne were it to be readily-available to an industry. Almost half of some schools’ waste comes from their kitchen activities, the majority of which could be turned into a compost-like substance which could be used on their grounds, saving landfill costs, transport miles and greenhouse gas production in landfill as it breaks down.

4.74 Students are one of the greatest influences on household activity, affecting the choice of car, holiday, and buying activity of an everyday kind such as household shopping and clothing purchases. This activity has knock-on effects on the amount of packaging which necessitates disposal, the turnover of household purchases such as electrical devices (mobile ‘phones etc) which could be recycled, as well as activities such as motoring and flying which contribute to greenhouse gas production.

4.75 The prime function of the Team is that of reducing landfill waste, but officers are asked to do further work as a follow-up exercise to reduce waste of energy and water etc, which they have to decline as this work sits with the Sustainability Team, or other areas. The Unit has developed an excellent working relationship with the Energy Manager whom they put in touch with schools to follow up the waste team actions.

4.76 In the view of the Waste Prevention Manager and the Senior Waste Education Officer there could be scope to further extend their work into these areas, having built up a breadth of contacts and good customer relations in the schools as well as valuable cross-directorate links (Energy, Transport, Premises,
Procurement). The Waste Team believe they are well placed to enable other County departments to work in a more coherent fashion.

4.77 The waste work affects the sustainability and carbon reduction, helping to reduce greenhouse gas production from landfill, reducing land and air miles by reduction activities, and generally encourages and fosters a responsible and sustainable approach by schools and their students. As part of their work the Team certify achievement through the Eco-schools Award, which requires schools to work not only at waste reduction but also across the whole sustainability range, including energy reduction and travel, so we are promoting school activity which directly targets the County’s Carbon Reduction Commitment.

4.78 Whilst the Waste reduction/Education Team do not directly fund the actions schools take upon waste (except where exemplar projects are undertaken), they encourage significant savings in waste management costs both to the school and the authority. Officers believe this could be easily replicated on the carbon agenda – through reduced energy consumption, thereby reducing carbon emissions and cashable saving in energy costs.

4.79 The savings to the environment and the budget are produced through ‘behavioural change’ and are truly sustainable. “We would anticipate being able to make an educational programme regarding the schools carbon agenda not only cost effective to the county council, but actually cost neutral to all”.

4.80 In the view of officers, it will therefore be a decision for members and senior management to commit staff and financial resource to addressing the schools carbon agenda. The will and capability exist - the nettle needs to be grasped.

**County Council Procurement**

4.81 The Sustainable Procurement Strategy, which was approved by Cabinet in October 2009, states that the County Council is committed to ensuring its procurement policies and procedures are environmentally, economically, socially and ethically sustainable. The Strategy is supported by an Action Plan which includes targets in support of achieving a reduction in carbon emissions.

4.82 To this extent, the procurement of goods, works and services includes an assessment of sustainability which forms part of the tender evaluation process. This mechanism incorporates a price/quality ration which is used to evaluate all tenders, ensuring sustainability (including community benefit and carbon emissions) form an open, measurable and transparent part of the process in awarding contracts. Examples of where this has been applied recently include the hire car contract which requires the provider to supply only vehicles with low emissions and to provide us with information to evidence this and the implementation of multi-function devices (mfd’s) across the Council. These use less energy than photocopiers and fewer consumables and reductions in carbon emissions were, again, part of the contract award criteria.

4.83 Action 13 of the Sustainable Procurement Strategy states:
| 13 | Carbon reduction | Ensure Councils procurement activity contributes towards 25% reduction in carbon emissions by 2012 |

“It is encouraging to see our work in this area has been recognised with the Procurement Unit winning several national awards for its progress in linking procurement to the delivery of sustainable outcomes”.

**Green Action at Work (GAAW)**

4.84 This has been a hugely successful project, communicating environmental messages within the organisation. In recognition of this success, the area of environmental performance is receiving new corporate backing, being re-shaped into a wider corporate project and brand. This will be supported by the County Council’s Communications Team, thereby adding significant weight to the message.

4.85 The new project will look to the corporate centre to implement and finance some of the ideas and proposals drawn up by the cross-departmental GAAW team. The focus for communication will change as the programme moves more towards an implementation phase on projects developed through the Sustainability Unit.

**School Travel Plans**

4.86 All schools have a School Travel Plan; it is a statutory duty to record how pupils get to school and to identify measures to encourage children and young people to adopt more sustainable methods of travel. Whether the Plans are all active or implemented is another question.

4.87 Six/seven years ago the authority, working with the department of transport (DoT) were funded to introduce and manage this scheme. A small team of officers base at Capita, undertook this work. The programme finished during the last financial year (2009-2010), except for the Capital expenditure which followed the last year’s travel plans. The whole process initiated *Action Travel to School* and a total budget of £137k is likely to be reduced to somewhere between £20k - £100k in the future.

4.88 The current initiative takes a strong health slant and targets particular schools where obesity in young people is seen as an issue. It encourages local solutions to getting to school including ‘economy’ walking, and cycling schemes etc. Secondly, other schools have been identified (not in the obese category) where there is a real chance of moving the modal shift, by promoting active travel. Schools are being targeted via the children, for example; as part of a project. These can come in many forms including classroom learning; outdoor education; writing, physical education etc. This is part of the *Action Travel to School* programme.

4.89 When the travel Plans were first introduced many schools jumped on the bandwagon with some really good schemes. It did get harder to get some of the schools motivated, but as more and more schools were benefitting from new cycle sheds and safer routes etc. they also joined the programme. In the view of the Senior Manager Transport and Access, the original programme was to orientated to getting STPs produced rather than focusing on the projects to improve active travel and modal change.
4.90 The value of this programme, driven by the DfT was not carbon reduction, it nonetheless showed the need for everyone to take ownership of carbon emissions. The STP tended to be seen as a stand-alone programme, seen by some as ‘their’ activity. This is more about attitudes and other people changing their behaviour – rather than the individual. In the view of RT the message has to be one of financial incentive to encourage schools to do things.

**Education 21 Group**

4.91 This is a fairly loose partnership, comprising of environmental and educational providers and practitioners including Field Studies Council; National Trust; Lake District National Park; Forestry Commission; Friends of the Lake District; Eden Rivers Trust; RSPB etc. – many of which have Education officers.

4.92 These bodies provide services to schools, outside the classroom. The message back from pupils who have experienced this style of learning is that they would like to apply this back at their schools. Increasingly, schools are looking to the County Council to advise and support in helping to deliver sustainability projects and linking into and supporting the school’s curriculum.

4.93 At present, when it comes to making that link with the curriculum or with the ‘Every Child Matters’ initiative and engraining that into the school, Sustainability Officers believe that advice/support is generally sporadic or at best, very patchy across the County. They believe the County Council could serve as a link between schools and the education providers, helping to knit this work together.

4.94 In terms of reducing carbon emissions and the need to address the 60% figure in schools, (and thereby reduce the financial risk to the authority), there has never been a better time to make the case for reducing a school’s carbon footprint. The current financial environment is looking for meaningful and quantifiable efficiencies and cost savings, which in turn will reduce financial risk to the authority.

4.95 Addressing carbon reduction and climate change issues has never been more urgent or necessary. The County Council does not have to abandon its sustainable schools approach given that this covers a breadth of subject areas, including health and well being.

4.96 In future, environmental management and energy efficiencies will have a carbon budget price attached to it. There has to be a greater focus on the schools if the Authority is to stand any chance of meeting its carbon reduction targets.
5. CONCLUSIONS

5.1 Given that the County Council’s Procurement team were involved at the early development stages of the Academies programme it seems appropriate that the authority’s Sustainability, Energy and Waste officers are included in such discussions in the future.

5.2 Schools need to be able to pick up on any of projects falling from a range of sustainability-related initiatives, e.g. School Travel Plans, Efficiency Assessments, waste management etc. A reference here to the need for a full sustainability information pack on County Council services to schools.

5.3 The key issues to emerge from the school visits and discussions with officers are:

- There is not a sufficiently holistic approach by the County Council on the range of advisory and professional services that are available to schools. The expertise and the knowledge are in the authority, but it is not being used to its full potential in a co-ordinated manner.

- In terms of new build, have opportunities been missed at the early planning and development stages to consider ‘greener’ options?

- Consideration needs to given to the identification of a Sustainability/Low Carbon Co-ordinator from within the County Council who can bring the authority’s expertise together, helping to manage and co-ordinate a programme of projects and initiatives which support the county council’s sustainability and carbon reduction objectives.

- Schools will go to named County Council contacts, where they know they can get expertise and advice. They would like to go to a single point of contact within the County Council, to have a wrap-around service on sustainability.

- Schools will put in the best that is available and affordable. They require an effective and efficient response to their enquiries – not to be passed from one directorate to another. A comprehensive County Council-led information directory on the range of eco-related services and support should be produced and circulated to all schools and other County Council-owned establishments.

- There is a need for a cultural change within the Authority, particularly with regard to global citizenship and low carbon procurement. “We feel very independent at the moment”.

- The Council has a procurement function which while working towards sustainability has yet to tackle low carbon procurement. Procurement can play a significant role in reducing waste and cost. The technologies that have been applied to the Eco-Centre, have demonstrated that significant energy savings can be made through new build and sustainable procurement.

- In terms of procurement; by linking into major local businesses and buying on bigger economies of scale, the Council’s procurement unit can help reduce schools’ overheads. A good example is the procurement of food for the School Meals Service, where 90% of the food is sourced through local suppliers. As well as supporting local businesses, this approach also reduces the number of road journeys, thereby helping to reduce carbon emissions.
• Sustainable procurement could be extended to include environmental procurement (e.g. furniture, fabrics, flooring etc.), as demonstrated in the Mike Wilde Eco Centre. Members enquired whether schools and the procurement unit are making best use of other local business opportunities.

• Energy bills and waste are major costs to schools.

• A Member questioned whether school budget deficits are largely attributable to energy and on-going costs – particularly in those schools where buildings do not have adequate insulation. In the Member’s view, this is a big opportunity for the Authority to look at such buildings (instead of building new schools) and to look at how the current building stock can be made more energy efficient.

• Does The County Council’s audit of property include School buildings?

• With the cancellation of the Building Schools for the Future (BSF) programme, this is likely to have an increased detrimental effect on the County Council’s older school buildings.

• Levels/structure of officer support to advise and support 300 schools on sustainability and the carbon agenda are inadequate to meet the County Council’s carbon emission targets.

• Schools can insulate themselves but too often people are buying electric fans because it is either too hot in summer or too cold in winter; thereby increasing the cost of energy

5.4 Members and Officers agreed that schools needed to be made more aware of the breadth of expertise and services that are available to them from the County Council. The Senior Commissioning Manager (Childrens’ Services) would like to see the Energy Manager, for example, speaking at CASH and PHA and involving her team. “It is worrying to hear that Business Managers do not know who the key contacts within the Authority are”. Every school has an Improvement Link Officer – information could also be fed through this channel.

5.5 Task and finish group members would like to have the opportunity of revisiting the Richard Rose (Central) Academy next year with a view to seeing first hand how it is working and its effect on Staff and Students.