Issue 15

Sustainable Blewbury

September 2016

www.sustainable-blewbury.org.uk

For the latest news and more information, please see our website

Contents

"Trees – in all their glory"
A talk by Richard Roslyn, Thurs. 15 Sept., 8.00 pm, Blewbury Manor Barn

Apple Juicing 2016: remaining sessions
- **St. Michael's (after Harvest Festival): 25 September, 11.30 am–2 pm**
- **Manor Stable: 9 October, 2–4 pm**
- **Red Lion (Apple Day): 23 October, 12–3 pm**
- **Manor Stable: 6 November, 12–2 pm**

Blewbury Garden Market
Saturday mornings 9.30 – 11.30
Blewbury Garage, until 15 October

Blewbury Garden Market Extra
Saturday mornings 9.30 – 11.30, Post Office, from 22 October until BGM resumes in May

Editorial

Jo Lakeland and Eric Eisenhandler

Welcome to our 15th newsletter. It's been delayed by various things, including most of the SB Core Group being involved in the Blewbury Neighbourhood Development Plan, and also the successful effort to salvage as much as possible of Blewbury's bus services despite the termination of bus subsidies by the Oxfordshire County Council.

The UK situation regarding measures to minimise the effects of climate change has not improved. In our previous issue we described how the government has run down or eliminated most programmes to conserve energy and reduce carbon emissions. We are no longer one of the countries leading the way. And now, with the additional major 'distraction' of Brexit, the new government has abolished the Department of Energy and Climate Change. This doesn't necessarily have to be a bad thing, but it certainly feels like one as the climate change issue has now dropped out of sight. The only bright spot is the continuing government support for offshore wind power.

At the same time, a succession of record-breaking temperatures, carbon dioxide levels in the atmosphere and extreme weather have underlined just how bad things are – we are now dangerously close to the UN's 'aspiration' level of a 1.5°C rise in temperature, long before it was expected.

Locally, we have better news: plans for a new community orchard, how Blewbury school children are learning about gardening and food cultivation, saving our bus services, how our food waste is being used to generate green electricity and where to find locally produced food.

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A community orchard for Blewbury – dream becomes reality

John Ogden

Orchard, by William Blandford Fletcher, 1858–1936

The idea of community orchards was put forward in 1992 by the charity Common Ground and since then the idea has taken off across Britain. Here in Blewbury it was taken up by Mike Edmunds in his

2010 booklet *Orchards in and around Blewbury,* in which he concluded: *'We would like to find some land which could be set aside as a new Blewbury orchard for all to share.'* Locally, Wolvercote in Oxford was one of the first in the county to establish an orchard for their village to enjoy, and more recently Brightwell-cum-Sotwell has planted an orchard of 50 trees in the heart of their village.

Blewbury's opportunity to join the movement arose when Sustainable Blewbury applied for and were offered a grant to cover the costs of creating an orchard. But where? Tickers Folly Field seemed the only sufficiently large open space in the village that could accommodate an orchard of some size, and by putting it in the little-used south-east corner it would not encroach on the sports or play facilities. This attractive position under the downs should enhance, rather than detract from, the sense of spaciousness.

The grant comes from the Trust for Oxfordshire's Environment (TOE2) and permission to use the land came from Blewbury Parish Council, owners of the field. A group of enthusiasts have been carrying out a feasibility study over recent months: first a soil survey was undertaken, with positive results, and then the project was presented to the village in Bulletin articles and exhibitions to test local reaction. The local response has been very enthusiastic, with plenty of volunteers putting their names forward to help and many suggestions for the fruits and varieties that should be included.

An orchard does capture the imagination. They can be magical places and havens for wildlife. And we plan to make the most of this opportunity by creating a wildlife-friendly habitat in the orchard.

The current status, in early September, is that a list of fruits, varieties and rootstocks has been proposed, taking full account of the various suggestions from the village, and a layout of the orchard and the placing of individual trees has been drawn up. Most of the trees will run down the eastern end of Tickers Folly from the south-east corner, with a few trees near the croquet area (see the diagram, based on a Google Earth image). We will now start to approach nurseries for prices and draw up a purchase list for the trees, aiming for delivery and planting during the autumn.

The priority of the orchard team will then shift to focus on how to further enhance the environmental benefits – such as by creating good habitats for pollinating insects. Another priority is to involve village children in the project and to ensure that the community as a whole feels that it 'owns' the orchard! And last, but by no means least, the project team must draw up a 'management plan' to ensure that the project is cared for into the future, long after grant monies have been used up – a very sensible requirement of both TOE2 and the Parish Council.

This is an exciting project. There is up to date information on our website. If you would like to contribute in any way please contact John Ogden (jogden@blewbury.net).

Where the new trees would go. (This Google Earth photo was taken before the play area was built)

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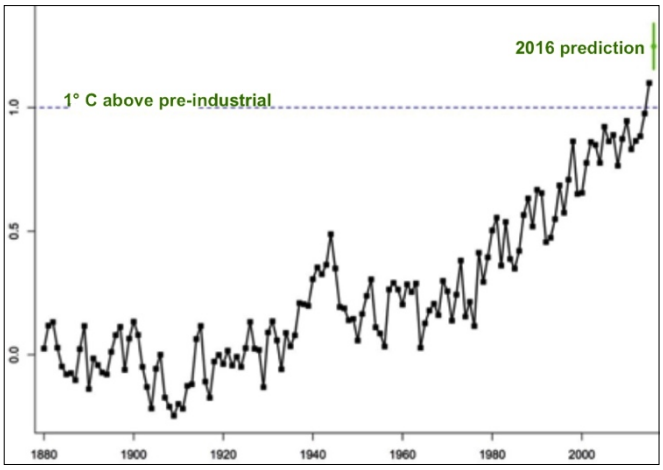
2016 sets all the wrong climate records

Eric Eisenhandler

We are only two-thirds of the way through 2016, but it already looks like it will be the hottest year on record, beating the previous record set just last year and before that in 2014. This is shown in the graph below, displaying the rise of global average temperatures. We've now had 15 months in a row that broke the temperature record for that month, and July was the warmest month on record.

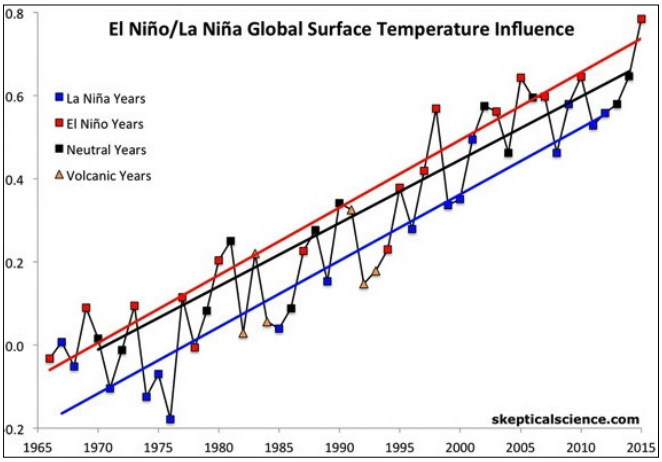


Global surface temperature change (°C) from baseline (1880–1899)

A few years ago climate-change doubters were claiming that the rise in temperatures had paused or stopped. But looking at the longer term situation, we see that the overall trend is certainly rising, although the rate of rise speeds up and slows down. A big part of the explanation for that is what's called the El Niño or La Niña events in the eastern Pacific Ocean near the equator. In El Niño events, warm water is transported from the deep ocean layers to the surface, while for La Niña the surface waters are unusually cold. These events have a surprisingly big impact on the weather over much of the Earth.

The graph below divides the temperature graph into years with El Niño, La Niña and neither. It's clear that El Niño adds to the warming effect but that this is only adding 'wobbles' to the overall rise – it's estimated that El Niño only contributes about one-fifth of the total rise. The big temperature rise in 2015 was partly (but only partly) due to an El Niño, and by the middle of 2016 the El Niño was over.

Another factor is volcanic eruptions, which can send a lot of ash into the upper atmosphere. As seen in the graph, they also have a temporary cooling effect.



Global surface temperature change (°C): El Niño (red), La Niña (blue), neutral (black), and volcanic eruption (orange) years. Note different baseline (1951–80)

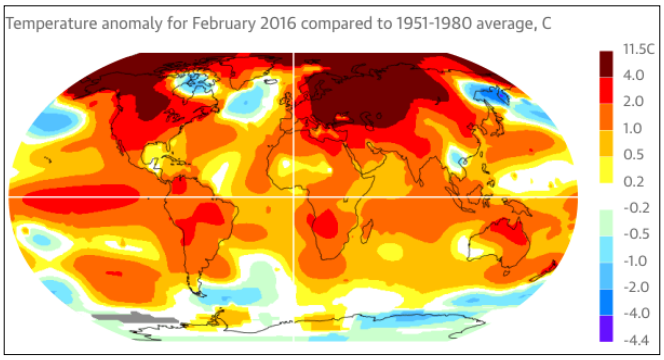
Despite the variations, the result is that 15 of the 16 warmest years on record have been in this century, and the 16th was also recent: 1998.

In addition to rising surface temperatures the oceans, which absorb more than 90% of the carbon dioxide pumped into the atmosphere, have also reached new record temperatures. Water expands as it warms, and combined with melting glaciers the sea level is at a record high. The oceans are about 70 mm higher than they were 20 years ago, and are rising at an average rate of 3.3 mm per year.

These records are driven by our emissions of carbon dioxide and other greenhouse gases. In pre-industrial times the level of CO_2 in the atmosphere was about 280 parts per million (ppm). But in 2013 the CO_2 level surpassed 400 ppm briefly for the first time (it peaks in the northern hemisphere spring), and this year it's been above 400 ppm for virtually the entire year.

We can see the effects of climate change already. Here are some examples.

In 2016 the Arctic's maximum winter sea ice extent was the smallest ever. In February places in the Arctic were up to 16°C warmer than usual. The summer sea ice minimum is now about half of what it was a few decades ago.



Global surface temperature change, showing how badly the Arctic in particular is affected.

In addition to breaking records, another effect of climate change is increases in extreme weather conditions. Although it is not possible to say that any one occurrence of extreme weather was or was not caused by climate change, it now seems clear that extreme weather has become more common and that conditions tend to be more severe than they used to be.

In June last year, a severe heatwave claimed over 1,000 lives in Karachi, Pakistan. Severe drought caused food shortages for millions of people in Ethiopia, and a lack of rainfall resulted in intense and widespread forest fires in Indonesia.

This year there has been scorching heat in many places, and in some months the average global temperature has been 1.3°C above 19th century levels. That's very close to the 1.5°C aspirational limit agreed at the Paris climate conference last December. There was a record of 51°C in India along with a serious drought. In Baghdad, soaring temperatures forced the government to shut down for days at a time. In Kuwait it was 54°C, the highest ever recorded in the eastern hemisphere.

California continues to suffer from its five year, record-breaking drought, while Texas had record flooding. There were unprecedented wildfires in western North America.

The good news: the US and China, who are together responsible for 40% of the world's carbon emissions, have now ratified the Paris global climate

agreement of December 2015. Before this, the 23 nations that had so far ratified the agreement accounted for just over 1% of emissions. But for the Treaty to come into force it must have ratifications from countries producing at least 55% of emissions. If we have any hope of minimising the effects of climate change outlined above, this Treaty is probably our last chance.

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Is climate change just a conspiracy?

On Australia's ABC television, during a debate on 15 August 2016 with Prof. Brian Cox, Australian senator Malcolm Roberts claimed that *'we've had a pause in this so-called warming for now 21 years'*. Prof. Cox showed Mr. Roberts a rising temperature graph like the ones in the article above.
Roberts: *The 1930s and 40s were warmer than the present decade*.
Cox: *Why don't we see that on the graph?*
Roberts: *The data have been corrupted*.
Cox: *What do you mean 'corrupted'?*
Roberts: *Manipulated.*
Cox: *By who?*
Roberts: *NASA*

You can see the exchange at bit.ly/2aPdwou.

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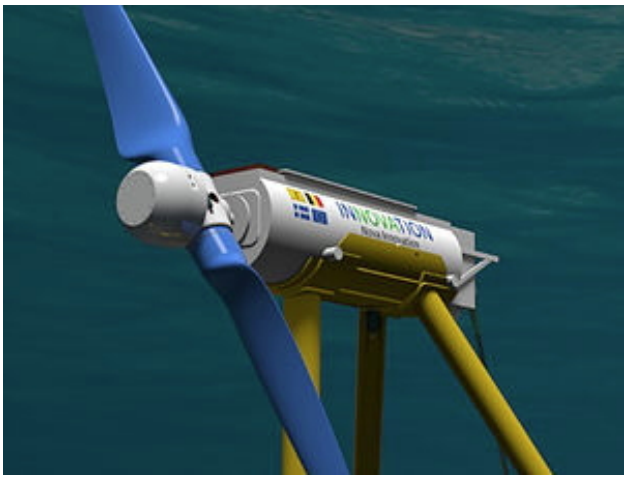
Renewable energy briefs

Eric Eisenhandler

Tidal Power in Scotland

A power company in Shetland has claimed a breakthrough in the race to develop viable offshore tidal stations. The islands, which are not connected to the UK grid, get most of their electricity from a diesel-fuelled power station which is supplied by tankers, despite having some of the world's strongest and most reliable wind, wave and tidal resources.



Nova M100 100 kW tidal turbine

The Shetland Tidal Array is a joint enterprise between Nova Innovation (Scotland) and ELSA (Belgium). Phase 1 of the array will consist of three 100 kW Nova M100 turbines, with more turbines planned in following phases.

Portugal's electricity runs on renewable energy alone for more than four days

From 6.45 am on Saturday 7 May 2016 until 5.45 pm on Wednesday 11 May Portugal used only sustainable electricity. Over that period strong winds and heavy rains maximised wind and hydro power outputs. In fact, not only was electricity demand 100% satisfied by renewables, but in addition Portugal actually exported electricity to Spain. The only complaints came from tourists, not surprisingly as the weather was not at all good.

Over a year, Portugal's high hydro and wind capacity, plus some solar, generates more than 50% of its electricity.

China's carbon emissions may have peaked already

China emits more carbon than any other country, due to huge increases in coal burning for power and industry over the past two decades. A very serious side-effect has been terrible air pollution. However, more recently the harmful effects of the pollution and the recognition of future problems due to climate change have led to a huge surge in new low-carbon energy.

The new low-carbon energy, combined with a significant reduction in coal burning as well as a slowdown in the economy, is producing results. According to a study by Fergus Green and the world-renowned economist Lord Stern of the London School of Economics and Political Science, China's carbon emissions may have peaked already, a decade and a half before its declared target to achieve this.

Overall, renewables investment in China hit an all-time high in 2015 at $110 bn. Low-carbon electricity generation – hydro, wind, nuclear and solar – increased by more than 20% in 2015. For example, China has far more installed wind power than any other country.

Young gardeners at Blewbury School

Jo Lakeland and Roger Murphy

There has been a gardening club at Blewbury C of E Primary School before, but not in the last few years. The school's headteacher, Marion Mills, thinks it important that children are aware of how their food is grown and should have the experience of growing it for themselves. An opportunity to do this arose when the terrapin classroom opposite the school hall was replaced by a new permanent classroom within the school. Two smaller work areas replaced the terrapin, and raised beds and two cold frames were built next to these.

At the same time, Marion heard of a Prince's Trust scheme that helped children to learn about sustainable gardening, and also offered biodomes at a reduced price. Blewbury School's biodome is about 5m in diameter and has both a pumped trickle watering system and a weather station powered by the small solar photovoltaic panel above the door.

The biodome alongside the raised beds and the new work areas

An after-school gardening club was formed and the children started sowing seeds in the cold frames and planting vegetables in both the biodome and the raised beds outside. The first year is rather experimental: a large variety of plants and seeds were donated, which produced varieties of vegetables unfamiliar to some of the children (spotted pinto beans, butternut squash, dill). They learned which vegetables grew best in the biodome and what organic gardening means. They enjoyed learning to sow, transplant and grow the vegetables, but the best thing of all was tasting what they grew. Raw carrots were new to some of them, and the taste of freshly picked strawberries amazed them.

Sustainability has been helped by surplus produce being sold at the Saturday morning Blewbury Garden Market stall. The gardening club will start up again in the spring term, sowing annuals to plant out around the school as well as fruit and vegetables. Donated seeds and plants will be gratefully received, as will offers of help with the gardening club.

Gardening fits very well into the themes of the school's current four-year curriculum plan, which is based on what was considered by the organising team to be fundamental needs to sustain human life: survival, interaction, exploration and innovation. The 2015–6 school year was the year for interaction, which led to interacting with village gardens.

Blewbury School garden trail

In late June a group of children from Class 4 of Blewbury School visited four gardens in different parts of Blewbury as part of a project that they were doing in school on garden design.

The children started with a classroom session given by George Long, a former pupil at the school who is now a Blewbury-based garden designer with his own business, WellGroundedGardens. Class 4 listened intently as George gave them gave an explanation of how gardens are designed. He drew a large right-angled grid on the board, added diagonal lines, then two circles intersecting the lines, and then the children suggested which lines should be used in the design.

After that he found out what features they wanted in their ideal garden and what they knew about plants. It was not surprising that what they wanted most was room to play, but their choice of plants was rather a surprise! The first plant requested was a Venus Fly Trap, but then (and more conventionally) poppies, daisies and daffodils. This provoked a debate about whether daisies were weeds, which was settled by George telling them a weed was the right plant in the wrong place. They decided that after green, for them red was the most important colour they wanted in their gardens.

After a discussion of dangers in gardens (they suggested stinging nettles, no fences, holes, lakes) George and their class teacher Michelle Willmott escorted them around four very different Blewbury gardens. This gave the children a unique opportunity to study cottage gardens, contemporary garden design and water features first-hand.

They started at Stocks, where Norma Bird, an accomplished Blewbury gardener, described traditional cottage gardens.

A very different garden was at The White House on London Road, which had recently been landscaped with a contemporary design including water features. This garden allowed them to see how two-dimensional plans for gardens can be translated to a physical landscaping and planting scheme. In this garden they met George Smith of GreenArt Garden

Design and Landscaping, based in Wallingford, who had been responsible for designing, landscaping and planting this garden in the summer of 2015.

The White House garden

The group then visited Codrington on Pilgrims Way, and finished by exploring Anita Rendell's unique and beautiful water garden at Millbrook Cottage.

'We went to a cottage garden first and are learning how formal and informal gardens are made,' explained 8-year-old Jake. *'I like this one because it's got space for children to play in as well as lots of flowers.'*

Millbrook Cottage garden

Marion Mills, headteacher at the school, said: *'We are very lucky to have such a diverse range of gardens and generous neighbours in the village, which have enabled us to give our students first-hand experience of how a real garden can be created from initial design ideas. They have been able to think about colour, texture and form and have also learnt to identify a few of our more common plants and trees.'*

These visits are one example of the use that the school makes of the local environment in Blewbury. Blewbury Community Orchard will begin to be planted in November 2016 on Tickers Folly Field by an enthusiastic group recruited by Sustainable Blewbury. We hope the children and their families will be able to take part, and make use of the orchard in 2017. (See the separate article on the orchard project).

Saving our buses – a co-ordinated community action

Jo Lakeland and Maranda St. John Nicolle

Last autumn we realised that we could possibly lose our bus services in Blewbury and in other nearby villages. Oxfordshire County Council's (OCC) budget was to be cut, and they were considering either cutting or eliminating their subsidies for *all* their subsidised bus services. In spite of a public consultation exercise in November showing strong support for the bus subsidies, OCC's January budget debate resulted in the complete removal of subsidies from all subsidised routes.

Consultation continues

Earlier in January, Parish Council-appointed Parish Transport Representatives (PTRs) were invited to meet representatives of OCC and our local bus company, Thames Travel (TT), to review the options if the subsidies were removed. Thames Travel ran the 94/95 bus to Didcot eight times a day, six days a week. (In addition to Blewbury and East Hagbourne, the 94 ran through West Hagbourne and Upton and the 95 through the Astons and Moretons.) OCC itself ran the 131 minibus from East Hagbourne through Blewbury and other villages to Wallingford twice each week, on Wednesday and Friday.

When members of Sustainable Blewbury heard about this they were horrified, not only because of the effect on the people who rely on the buses, but because of the sustainability issues involved. We need to minimise the rate of climate change by reducing carbon dioxide emissions, and the loss of our bus services was likely to increase car use significantly. So something had to be done!

DVTG formation

A meeting on 31st January to discuss the problem was attended by the PTRs, the chairs of three local Parish Councils and several regular bus users from the villages on the bus routes. At that meeting the Downland Villages Transport Group (DVTG) was formed, with a mandate to work to ensure continued public transport in the villages. The DVTG brought together a range of people from all the affected villages, each of whom brought particular knowledge – of local government, community-based campaigning, bus usage, sustainability, etc. – that gave us a strong base for action.

DOWNLAND VILLAGES TRANSPORT GROUP

Strategies used

The financial position of the two bus services was very different. The 94/95 had been receiving a subsidy of £88,000 from OCC and provided over 40,000 passenger journeys per year. In contrast the OCC's 131 minibus only cost the council about £3,000 per year to run, but served fewer people.

This meant that our strategies for the two routes needed to be very different: we would negotiate with TT to see if the 94/95 could be made commercially viable, and approach OCC to see if it would be possible for the villages to get together to arrange a once-weekly minibus service to Wallingford on market day. We were fortunate that both TT and OCC wanted the bus services to continue in some form, and that they were impressed by both the promptness of our response and that it was a joint response from all the communities affected.

Data collection

A transport survey was designed and circulated. It was completed by more than 200 people and a report written for TT's use. It was striking to see how important the buses are to village residents: 27% of respondents never use a car, and of those 35% (including several people who depend on buses to get to work) said that if we lost the buses they would have to consider moving elsewhere. Many older people were willing to pay occasionally rather than use their bus pass, and many fare payers were prepared to pay an increased fare to keep the buses.

The survey encouraged the DVTG to continue the campaign to keep our buses and made TT aware of the villager's needs and of the levels of support. Another important factor in keeping the TT bus running was that they negotiated the transfer of the school run from our villages onto scheduled buses, so there would be morning and afternoon buses that serve St. Birinus and Didcot Girls School. This has been a long complicated process but worth it, because when the subsidies were removed on 25th July we retained much of our service.

Thames Travel buses

Thames said explicitly that it was our villages' enthusiasm for the service that made them consider continuing it. So thanks to everyone's work we now have ten 94 buses per day on weekdays going through Blewbury, the Hagbournes and Upton, though we have lost the Saturday buses. And Thames has said that they are willing to reconsider Saturday buses if we make the weekdays a success.

Unfortunately, the 95 was not deemed commercially viable, so although the 94A (school run) bus goes through the Astons and the Moretons, they have only two buses per day and those only on school days. A side effect of including a school run is that many of the buses are now double-deckers, which look out of place in country villages to those who don't remember the double-deckers of years ago.

The new 94/94A bus service

Wallingford minibus

Very successful! DVTG now runs a minibus service on Fridays from Didcot to Wallingford that serves the villages on the old 131 route, stops at the hospital, and gives more time in Wallingford than the 131 did. The mini-bus is hired from OCC including a driver. The Parish Councils have provided some funding, and other start-up funding enabled it to be run without charge for the first six weeks. From 2nd September passengers will have to purchase a ticket; they must register as members of the DVTG in order to do that.

What comes next

We hope to provide some sort of Saturday service. It may not seem important to car owners, but without a car you can feel trapped, at a time when you don't have your weekday routine to occupy you. One elderly lady living alone described the weekend with no bus as a desert where she sat and waited for it to be over!

The first AGM of the DVTG will be held in the Astons Village Hall at 8 pm on Monday 10th October. A committee will be formed, which will include a representative nominated by each of the parish councils and several bus users. Once there is a committee, we can adopt a constitution and open a bank account.

And after that?

The future of our buses is still uncertain: both services are operating on a trial basis that started on 25th July 2016. The 94 bus trial runs for a year and the DVTG minibus for six months, after which they

will both be assessed for viability. But one thing that is certain is that without the enthusiasm and persistence of the PTRs and other members of the current DVTG group the villages would have been left without buses – it has been great to see people from different villages working together to preserve a service which is a lifeline for many.

Remember – the longer term future for both services depends on their economic viability, so it's important that we use the buses as much as possible. Please continue to do your bit: community action is powerful!

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Green electricity from our food waste

Eric Eisenhandler

Last June several people from SB took up an offer of a tour to find out what happens to our food waste, collected every week from our small green caddies.

Food waste from the Vale of White Horse and South Oxfordshire goes to the Wallingford Anaerobic Digestion (AD) Facility, located between Crowmarsh Gifford and Benson. This is run by Agrivert, a company that also runs another AD facility in Oxfordshire at Cassington; the two sites handle all of Oxfordshire's food waste.

Most of the UK's 8 million tonnes per year of food waste still ends up buried in landfill. Landfilled food rots to emit methane, a greenhouse gas that is far more damaging to the climate than carbon dioxide. The EU Landfill Directive requires local authorities to reduce the amount of biodegradable waste (mostly food) in landfill.

In an anaerobic digester, bacteria break down organic waste. 'Anaerobic' means this is done without exposure to oxygen (in the form of air), and this process produces methane, which is also the main component of the natural gas used for cooking and heating homes. The methane produced by a digester can be used in two ways: it can simply be burned locally to fuel an engine powering a generator to produce electricity, or the methane can be fed to the gas mains as 'biogas' for cooking and heating, thus reducing the use of fossil-fuel natural gas.

The Wallingford plant receives about 50,000 tonnes of food waste per year. In addition to household waste, some of it comes from pubs, restaurants, food shops and food manufacturers.

Our tour started with food waste being delivered into tanks. This building didn't smell nice! The initial processing through automatic machinery separates out indigestible packaging, and the waste is then processed into a thick soup.

Food waste being delivered

Part of the machinery for initial waste processing

The waste then goes to one of the five digesters. These look like green cones – if you are driving from Crowmarsh towards Benson on the A4074 you can see the tops of the digesters a short distance from the right-hand side of the road. The green cones are essentially plastic tents that store the methane as it's produced.

At Wallingford, direct electricity production was chosen rather than biogas, and two motor/generators produce 2.4 million watts of electricity. Some of the electricity runs equipment on the site, and the rest is exported to the national grid to power thousands of homes. Unlike green electricity from solar panels or wind turbines, the generators run flat-out 97% of the time to produce baseload power.

After about 100 days, the remains of the food waste is removed from the digesters and pasteurised to kill the bacteria. This 'digestate' can be uses as a valuable bio-fertiliser that adds much-needed organic matter to the soil. It can replace conventional chemical fertilisers, which are produced from fossil fuels in carbon-intensive

processes. The plant produces enough digestate to treat about 2500 acres per year of local farm land.

The digestion of the waste also produces heat, and this is efficiently used to heat both the digesters and the pasteurisers, saving more fossil-fuel energy.

A striking feature of the plant was how few people we saw working there. It is almost completely automatic, and runs reliably with little intervention.

The two motor/generators in front of one of the five digesters

A bolt of lightning

A week before our visit, during a ferocious thunderstorm one of the plant's digesters was directly struck by lightning. About 1200 cubic metres of stored methane ignited, burning out the plastic roof. When the fire brigade arrived 15 minutes later the fire was already out. There were no injuries and no damage to the local environment.

A local resident who was taking a video of the storm captured the 45-metre flare; you can see it here.

The remaining four digesters were still producing methane, so the safest course of action was to restart the motor/generators, which had tripped off. The damaged digester was isolated and normal operation was resumed the next morning. Two weeks later the affected digester had a new roof and was operating.

Why didn't the plant's lightning protection work? The lightning bolt had missed two nearby taller metal structures due to the sheer volume of rain, which provided a path to the top of the digester roof. Additional protection for such a freak storm is not considered to be feasible.

Conclusion

Our household rubbish has four components. In this article we've seen how food waste can be used to produce both green electricity (or alternatively biogas) and fertiliser. Our big green bins are of course for recycling, and South Oxfordshire and the Vale have the highest recycling rates in the country. Garden waste (brown bins) is shredded and turned into compost – Agrivert runs four composting sites in Oxfordshire, including one adjacent to the food processing plant that we visited. Finally, in our previous issue we described how our landfill waste (grey bins) is incinerated at Ardley to produce electricity. It's good to live in an area where all our waste produces something useful and green!

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New local food directory

Jo Lakeland

Good Food Oxford and Low Carbon Oxford North (LCON) have collaborated to produce a 2nd edition of "Act Global, Eat Local – A Food Directory for Oxford". It is described as a new food directory for Oxford, but it actually includes many farm shops, bakers, brewers, local food cooperatives, etc. in the much wider area of Oxfordshire, including some near Abingdon, Wallingford and Wantage.

It is on sale for £1 at many of the places listed, including Q Gardens, but is also downloadable at www.lcon.org.uk/food/local-food-suppliers.

The LCON website also includes an interactive map of the more than 50 places described in the guide, which could be a useful way of planning a fuel-efficient trip round some of them for you and your friends. Lots of lovely local food, and a good way of reducing your carbon footprint at the same time.

(Note that there's also a short list of local food sources centred on Blewbury on our own website at sustainable-blewbury.org.uk/food.htm#localfood)

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The Low Carbon Hub wins prestigious sustainability award

Jo Lakeland

Last year Oxford's Low Carbon Hub (LCH) was short-listed for the Ashden Award for Sustainable Communities, but this year it was joint winner of this award. There were 165 entries for Ashden Awards this year, from the UK and overseas, and the LCH was one of the 12 winners. (See www.ashden.org/awards/2016)

The Low Carbon Hub is a social enterprise working for a massive change in the UK's energy system. They want much more renewable energy and champion locally produced community energy in Oxfordshire, so that the benefits of the generation will strengthen local communities.

They develop community-owned renewable energy in partnership with schools, businesses and community groups, at no cost to their partners. Their successful projects include the Solar Schools

project, which installed solar panels on 20 Oxfordshire Schools.

Money to build these projects is raised through share offers, offering people the opportunity to invest in the LCH directly for a good financial, social and environmental return. LCH share offers give people the opportunity to shape the energy future of Oxfordshire.

As a 'social developer' and a community benefit society they re-invest 100% of their own surplus in their mission to (a) scale up community-owned renewable energy in Oxfordshire and (b) reduce fuel poverty, CO_2 emissions and energy demand.

Osney Lock Hydro, showing the Archimedes Screw and also the solar PV panels over it

An example of LCH projects is Osney Lock Hydro in Oxford. It was the first community-owned hydro scheme to be built on the River Thames and the LCH helped provide funding for legal and share marketing costs. The 49 kWp project started generating in May 2015, and is expected to raise £2 million for local environmental projects and save 3200 tonnes of CO_2 over the project lifetime.

For more information see www.lowcarbonhub.org.

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Light pollution

Glen Meadows

Like moths that get confused
By all the man-made moons
So go gentle in this dark, dark night

'Lights out for Darker Skies', by British Sea Power

Introduction

It was 1986 and my father took me out into our garden in Suffolk to look up at the night sky. I was nine years old, and had been fortunate enough to have had the chance to look at the stars from an early age. I had seen the craters on the moon, I knew where the North Star was and witnessed how bright the 'morning star', Venus, was in the cold winter mornings. However this night was special, this night was the first time Halley's Comet (bit.ly/1UFhT1G) had been back to earth for 75 years. It was dim, it was distant, but it was definitely there.

I had been lucky. I lived in a rural location far from towns, which were smaller, less developed than today. The skies were dark and the stars were bright. Or so it seemed. If Halley's Comet had continued its celestial journey to the eastern horizon then I might not have had a chance of spotting it, as the light from the comet would have had to compete from the orange glow from Sizewell A nuclear power station. Everywhere, it seems, you could not escape from light artificially brightening the night sky.

The problem

A recent publication in the journal Science Advances (bit.ly/1ULEDy5) has shown that 99% of the populations of North America and the European Union are affected by light pollution, with 77% of the UK population unable to see the Milky Way. Here in Blewbury we are in the lucky minority and can just make out the Milky Way arching through the constellation of Cassiopeia.

When light from street lamps, illuminations and office blocks leaks into the sky it interacts with particles and moisture in the atmosphere to create an artificial 'sky glow', according to the ISDA, the International Dark-Sky Association (darksky.org).

This wasted light also means wasted energy. In the US the IDSA has estimated that this pollution adds up to 21 million tons of carbon dioxide per year. Or put another way, 875 million trees would have to be planted to offset this amount of carbon.

The effect on nature

It has long been noted that by changing light levels at night you can impact the natural world. For example, stoking the campfire in prehistory (and today) to frighten the local wildlife and reduce the dangers of the night-time predators.

It has also been known since the time of Aristotle that light attracts some groups of animals. There was even concern in the late 1800s about the effects of lighthouses on seabirds. However it was only in

the 20th century that artificial lighting has had such an effect that research into its impact on the natural world has been warranted.

One of the first and most studied impacts of light pollution has been the effect on sea turtles, particularly on the beaches of Florida (aquaticcommons.org/115). Sea turtles nest at night and artificial lights can lead hatchlings inland from the sea, where they often perish due to dehydration or increased predation.

The effect of lighting is not always so simple. For example, some bats have changed their feeding behaviour to take advantage of disoriented insects around street lamps. However the vast majority of evidence supports the detrimental impacts of wasted artificial light across the spectrum of the natural world, from insects (bit.ly/2bQuFJU), to frogs not croaking at night affecting their breeding, to migrating birds and through to trees unable to tell what season they are in due to high light levels for 24 hours per day (bit.ly/2927YlC).

It's not just stargazers and astronomers that bemoan the lack of dark skies – our own health can also suffer (bit.ly/MJTivH). Humans have evolved for thousands of years accustomed to the 24-hour light–dark cycle. Our circadian rhythm (biological clock) can be disrupted by artificial light, although nowadays probably more due to too much 'screen time than street lamps.

The hormone melatonin is produced in response to this circadian rhythm. Melatonin is an important antioxidant and can boost the immune system as well as inducing sleep. Disruption of our own body clock is like living with permanent jet-lag.

What we can do

There are many simple things we can do right now. We can inspect our own homes for any unnecessary lighting. Fit motion sensors to outdoor lights so they are illuminated only when they need to be. Hoods can be fitted to so that the light we do need is directed to where we need it. Why pay good money to light the sky? You can also report issues to Oxfordshire County Council (bit.ly/2c83wFE). Sustainable Blewbury continues to support the decision not to have street lighting in the village and that dark skies are part of the heritage of Blewbury.

So I hope, if I'm fortunate to still be on Earth, to be able to look up at a dark night sky and show my son Halley's Comet on its next visit in 2061!

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If you would like to read previous issues of our Newsletter you can find them on our website: www.sustainable-blewbury.org.uk

First W. Mike Edmunds Memorial Lecture

Prof Alan MacDonald of the British Geological Survey (BGS) will give the first W. Mike Edmunds Memorial Lecture on Thursday 3rd November 2016, 5.00 pm, at the Blue Boar Lecture Theatre, Christ Church College, Oxford. For many years Prof MacDonald was a colleague of Mike's at the BGS.

Many of you will remember Mike as Chairman of Sustainable Blewbury. He passed away in April last year. In his professional life Mike was a hydrogeologist, for 35 years at the BGS in Wallingford and then 13 years at Oxford University's School of Geography and the Environment, which is part of the Oxford Water Network. Mike was an award-winning scientist and an inspiring teacher, and he made an extraordinary contribution to water science and water resource management globally. This lecture is entitled 'Groundwater and Climate Resilience. Groundwater is the world's largest usable store of freshwater, and is particularly important in the drier parts of the world. Mike was passionate about improving the provision of water in the developing world, often working there to improve the lot of poor farmers.

For more information about this lecture and the work of the Oxford Water Group, go to www.water.ox.ac.uk. There is no charge for attending this lecture, but you will need to reserve a seat. You can do this by online registration at bookwhen.com/oxfordwater.

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A new geological era dominated by mankind?

'The Anthropocene marks a new period in which our collective activities dominate the planetary machinery.

Since the planet is our life support system – we are essentially the crew of a large-ish spaceship – interference with its functioning at this level and on this scale is highly significant. If you or I were crew on a smaller spacecraft, it would be unthinkable to interfere with the systems that provide us with air, water, fodder and climate control. But the shift into the Anthropocene tells us that we are playing with fire, a potentially reckless mode of behaviour which we are likely to come to regret unless we get a grip on the situation.'

Prof. Chris Rapley, University College London; and former director of the Science Museum

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We welcome new members. If you are interested in getting involved please contact us at: info@sustainable-blewbury.org.uk