Gridline

The magazine for
National Grid grantors
Autumn 08

nationalgrid

Going for gold

The sunflowers that are good enough to eat

High flyers

On patrol with the helicopter unit

Energy fix

The rush for renewables

Also in this issue: tunnelling through the city, county show review, win a digital camera

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NATIONAL GRID'S LAND AND DEVELOPMENT GROUP is responsible for acquiring all rights and permissions from statutory authorities and landowners needed to install, operate and maintain National Grid's electricity and gas transmission networks. We act as the main interface for landowners who have our gas and electricity equipment installed on their land. Listed below are your local land and development team contacts.

ELECTRICITY AND GAS

- North west and Scotland 0161 776 0706
- South east 01268 642 091
- South west 01452 316 059
- East 0113 290 8235.

WAYLEAVE PAYMENTS

- For information on wayleave payments, telephone the payments helpline on 0800 389 5113.

ELECTRICITY EMERGENCY

- Emergency calls to report pylon damage to National Grid can be made on 0800 404 090. Note the tower's number – found just below the property plate – to help crews locate it.

ELECTRIC AND MAGNETIC FIELDS

- For information on electric and magnetic fields, call the EMF information line on 08457 023 270 (local call rate). Website: www.emfs.info.

GAS EMERGENCY

- 0800 111 999.

DAVID SNAPS UP COMPETITION PRIZE

Congratulations to David Simons who is the winner of the digital camera competition in the last issue of Gridline.

Simon works at a company in Beckton, East London, which supplies commercial interiors for the construction industry.

"Because I have responsibility for purchasing, a lot of magazines and brochures end up on my desk," he said. "I always take a look at Gridline because I find it has a good mix of interesting articles."

David, who is also a keen guitar player, added; "I might have a go at the Gridline photography competition next."

WE WANT TO HEAR FROM YOU

Please contact us if:

- You have any news of interest to other grantors
- You have a hobby or business which would make a good profile
- You would like to comment on anything you have read about

Phone 01926 654 948 or email gridline@uk.ngrid.com.

Gridline is produced by Summersault Communications, 122 Warwick Street, Leamington Spa, Warwickshire CV32 4QY.

GOT A STORY?
TEL: 01926 654 958
or email gridline@uk.ngrid.com. Or write to Gridline, Summersault, 122 Warwick Street, Leamington Spa, Warwickshire CV32 4QY.

Welcome to Gridline

It is hard to believe it's time for the Autumn issue already. Whatever happened to summer?

Climate change is a subject which continues to dominate the headlines. The debate has moved well past the stage of whether climate change is happening and on to what can be done to head off its worst effects by reducing carbon emissions.

On page 8 we look at how the UK plans to increase the proportion of energy derived from renewable sources. National Grid is playing its part both in connecting up new sources of 'clean' generation such as wind farms, and reducing its own carbon footprint.

We also put a number of questions on renewables to expert John Callaghan from the Carbon Trust, an organisation which advises businesses on how they can cut greenhouse gas emissions and develop commercial low carbon technologies.

On page 14 we focus on a project to construct a new high pressure gas transmission pipeline through the metropolitan suburbs of Hillingdon and Ealing to meet the anticipated demand in West London. A grantor and two National Grid project team members provide their own perspective on the logistical planning required in a job of this scale and complexity.

We profile the work of National Grid's helicopter unit on page 16. The team patrols the entire high voltage electricity transmission network in the UK, inspecting each overhead power line at least once each year.

On page 18 we talk to grantor Anthony Froggatt who has established a very successful business growing and producing cold pressed rapeseed oil on his Staffordshire farm. The whole process, from growing to bottling, takes place on the premises, ensuring complete traceability and almost zero food miles. Now he's working on his next project – cold pressed sunflower oil.

Finally, don't forget to take a look at page 20 for details about entering our photo competition.

Editor, Gridline

SUPPORTERS: Grantors Nigel and Rosie Greenhalgh who own the land

Birds' eye view

A pair of hobby falcons – a comparatively rare summer visitor to the UK – have been nesting on a pylon in north Nottinghamshire. "The overhead linesmen from National Grid do a wonderful job bringing the chicks down to be weighed, ringed and measured at the end of each breeding season," said landowner Nigel Greenhalgh.

Originally the birds took up residence in an old crow's nest. When this was lost, the engineers replaced it with a hanging basket attached to the pylon using ties. "The falcons are safer nesting on a pylon than in a tree, because they can't be got at or disturbed," said local ornithologist Adrian Blackburn, who rings the birds and monitors them.

Understanding agriculture

Recent studies suggest that the UK public has only a limited understanding of how food is produced or the valuable role farmers play in conserving the countryside. But that's not an accusation that can be levelled at National Grid's land and development team.

Just recently, for example, 14 land officers took part in a two-day Agricultural Awareness course at Harper Adams University College in Shropshire.

"It was a valuable opportunity to enhance our understanding of farming best practice as well as some of the pressures that farmers face, such as livestock disease," said organiser Sean Stokoe, regional delivery manager for south west England. "We value the relationship which has been built up with farmers and training courses like this are part of that ongoing commitment."

HANDS-ON: Head teacher Gwen Clifford with Paul Doran and four of the schoolchildren

Look and learn

The grounds of a Hampshire primary school have been transformed into a purpose-built outdoor learning facility for pupils in Basingstoke and the local community as a result of a project funded by National Grid.

The environment project at Chineham Park Primary School was designed to increase children's awareness of healthy outdoor activities, provide a hands-on approach to learning about the environment and encourage parents to become more involved in children's education.

The new facilities include an outdoor classroom, vegetable gardens, a nature trail and raised pond. The centre is also open to pupils from other primary schools, as well as community groups and families.

The school and National Grid teamed up last year when a major expansion at Bramley substation led to the closure of an environment centre provided at the site.

"We were delighted to contribute to this project which will add so much to the community," said Paul Doran, project manager at National Grid.

MARATHON MEN: Martyn (second from the left) and the rest of the team take a break from their exertions

Monster effort pays off

Fundraisers paddle the length of Scotland's canals for charity

Martyn Smith, whose father Malcolm is a National Grid grantor in Branton Middle Steads, near Alnwick, Northumberland, was part of a four-man team that became the first to travel the entire length of Scotland's canals in a pedalo.

Along with Allan Crow, Stu Howe and David Hunter, Martyn completed the 160-mile journey along the length of the Union, Forth & Clyde, Crinan and Caledonian canals in 10 days. The aluminium craft – which was made to look like Nessie the Loch Ness Monster – had a hull made from two Land Rover roofs and seats taken from go-karts.

"Our top speed was just 3mph and we typically pedalled for nine hours each day so it was very hard work," said an exhausted Martyn after completing the epic trip.

The four are hoping to raise more than £3,000 for the British Heart Foundation Scotland. Martyn is no stranger to quirky fundraising events – last year he and his friends walked the 95-mile West Highland Way dressed as bananas.

To make a donation go to: justgiving.com/takingnessiehome.

Be on your guard

Grantors are being warned about companies offering to convert wayleave agreements to a one-off easement payment, and then in many cases charging fees as high as 20 per cent of the payments they negotiate.

Grantor Gordon Robson, from Stockton-on-Tees is advising his neighbours to watch out.

"I received a leaflet implying that if you have a pylon on your land you could be in line for a large payout. But in reality they are only interested in people they can convert to an easement.

"In my own experience the conversion process with National Grid was very straightforward – and it wasn't necessary to pay any fees at all!"

CHANGE IS IN THE AIR

The threat of climate change has created an urgent need to cut greenhouse gas emissions and increase the proportion of energy derived from clean renewable sources

If, five years ago, you asked a group of people what the world's single most pressing issue was, you would have got a mixed result. Some would have said international terrorism, others rapid population growth or poverty. However very few people today would disagree that there is one overriding problem that if we don't solve soon will make every other issue irrelevant – climate change.

Global warming is caused by increased levels of carbon dioxide (CO_2) and other polluting gases in the atmosphere which trap heat and form a blanket around the earth. These greenhouse gases are released through burning fossil fuels – coal, oil and gas. Increases in the planet's temperature have already caused sea levels to rise and made extreme weather events more frequent.

In June, Prime Minister Gordon Brown unveiled what he described as a 'green revolution.' Meeting the European Union's target of producing 15 per cent of the country's energy (electricity, transport and domestic heat) from renewable sources by 2020, will require £100 billion of investment from the private sector over the next 12 years, encouraged by a range of financial incentives.

To meet the overall EU target the proportion of electricity generated from renewable sources needs to increase from the current level of around 5 per cent to at least 35 per cent.

National Grid believes the target can be achieved, but only by reforming the UK's planning laws and energy regulation. The company has signed agreements to connect 16 gigawatts (GW) of renewable generation but more than 75 per cent of this total is stuck in the planning system awaiting approval.

The lion's share of renewables will have to come from wind power – some 33GW of capacity – with the government's strategy (subject to consultation) including plans to build 4,000 offshore and 3,000 onshore turbines. Wind generation recently overtook hydro as the largest renewables technology in the UK in terms of electricity generation.

One man who is doing his bit for clean energy is grantor and Aberdeenshire farmer Ken Barclay, who with his brother Brian, has planning permission to erect eight wind turbines at Tullo Farm, near Laurencekirk.

"If there's one thing you can guarantee in

Aberdeenshire it's the wind," said Ken, whose family manage nearly 3,000 acres of arable farmland producing a variety of crops.

Construction of the 12 megawatt (MW) wind farm by developer West Coast Energy is scheduled to begin next year at a cost of £18 million, with generation beginning in 2010. The turbines – 100 metres tall from ground to blade tip – will be grouped just below the summit of a hill to make the site less visible in the landscape.

According to West Coast Energy the wind farm will generate around 31,000 MW hours of electricity a year. The turbines will also displace 27,100 tonnes of carbon dioxide during each year of their lives by eliminating emissions from conventional fossil-fuelled power stations.

The Barclay brothers are also forming a community farm trust which will contribute around £250,000 to local community projects over the 25-year lifetime of the turbines.

WIND HARVEST: Brian (left) and Ken Barclay will have eight wind turbines on their land

15%

– the UK's target for energy from renewable sources by 2020

"I would advise anybody thinking of developing a wind farm to stick at it," said Ken. "There have been some objections from a vocal minority, but I think the younger generation in particular, can see that something has to be done to stop climate change. Using renewable natural resources has got to be the answer."

The UK government expects homeowners will have an increasingly important role in reducing the current level of carbon emissions. They can do this by becoming more energy efficient (by using energy saving lamps and installing loft insulation, for example) and by generating their own electricity or heat from renewable resources.

So-called microgeneration options include solar photovoltaics, wind, hydroelectric and bio energy options (burning wood, waste or energy crops). Every reduction in overall energy demand reduces greenhouse gases and the amount of renewable energy that needs to be generated to hit the 2020 target.

So everyone has a part to play.

WHAT NATIONAL GRID IS DOING

The company's new global brand position 'the power of action' is a clear statement about how it wants to be judged in every area of performance – including carbon reduction.

"From an employee giving excellent customer service, to the company battling some of the toughest environmental challenges, the bold statement we are making is that we're about more than words – we're about actions," said Laura Barker, director, US customers and markets.

National Grid is investing £2.5 billion over the next five years to maintain and upgrade the electricity transmission network so that new wind farms and other projects can be connected.

It has also committed to reducing its own company-wide emissions by 80 per cent by 2050. The company will introduce 'carbon budgets' from April 2009 for each area of operations – with greenhouse gas reduction becoming a key performance indicator ranking alongside financial and other measurements.

Another priority is energy efficiency. National Grid Property in the UK has an aim that 10 per cent of the energy needs of new and refurbished buildings is met through onsite renewables.

The company is also replacing old iron gas distribution mains with polyethylene pipes to reduce methane leakage. Methane is 23 times more potent than carbon dioxide.

With geo-pressure company 2OC, National Grid has also formed a joint venture – Blue-NG – to produce green energy from new Combined Heat and Intelligent Power (CHiP) generators at some of its gas pressure reduction stations (PRSs).

The units will be fuelled by vegetable oil from sustainably grown energy crops and have an electrical efficiency rating which peaks at more than 80 per cent, making it around a third as efficient again as the next most electrically efficient generator.

Q&A

FUEL FOR THOUGHT

John Callaghan is a renewables expert from the Carbon Trust, which advises businesses on how to cut carbon emissions and supports development of low carbon technologies. He answers some key questions about renewable energy.

Q What is renewable energy?

A It's energy obtained from continuing or repetitive currents of energy in the natural environment, such as the sun or tides. Generally, this energy can be harnessed to generate electricity, produce heat (for example, for heating and hot water) and power vehicles.

Many forms of renewable energy are 'low carbon' with only small amounts of greenhouse gases emitted in transforming the energy to a useful form. This sets them apart from fossil fuels.

Q Why is it important?

A The practical inexhaustibility of renewable energy is in contrast to the finite supplies of fossil and nuclear fuels. Early interest in renewables was spurred by concerns that conventional fuel supplies will physically run out or become unaffordable. Today there is a different and more pressing driver: mitigating climate change. Emissions from fossil fuels contribute significantly to global warming, and using renewable energy is a key way of abating these emissions.

Q What is the potential for offshore wind as a renewable energy?

A Because wind speeds tend to be higher offshore than inland, placing wind turbines out at sea is an attractive option. Also, larger turbines can be used than onshore and wind farms can be larger, with the potential for similar installed capacities to conventional power stations (several gigawatts). Currently, however, offshore wind is being held back by high costs. It's at least twice as expensive to build an offshore wind farm than an onshore one. To address this the Carbon Trust is setting up a major new research, development and demonstration programme – the Offshore Wind Accelerator – focusing on cost reduction.

Energy efficiency is important because it is often the quickest way of reducing emissions

Q What are the issues associated with biofuels?

A Bio-ethanol, a petrol additive/substitute, and bio-diesel, an alternative to diesel, are already in use in the UK. Both produce less carbon emissions than petrol and diesel during combustion. However, there are concerns about their emissions over the entire lifecycle and also other aspects of their sustainability. These include the environmental impacts of land use changes, and the impact on food prices in developing countries caused by farming biofuels instead of food crops. Noting these issues, the Carbon Trust has launched the Advanced Bioenergy Accelerator to accelerate research into second generation biofuels such as algae.

Q What about energy efficiency?

A Given the urgency to act on climate change, energy efficiency is important because it is often the quickest way of reducing emissions. Using less energy also makes good economic sense in providing savings in fuel bills. Analysis by the Carbon Trust indicates that UK industry could save nearly £2.5 billion over the next 12 months through cost effective energy efficiency measures.

For businesses and public sector organisations, it generally makes sense to implement energy efficiency measures before considering on-site renewables generation. Thereafter, however, renewables can play an important role. For example, a wind turbine project at McCain Foods near Peterborough is expected to reduce electricity bills by 45 per cent and save more than 20 kilotons of CO_2 a year.

Q What does the future hold for renewable energy?

A It's presently a fascinating time for renewable energy, with increasing fossil fuel prices making people think seriously about alternatives, new renewable energy technologies being brought to market in response to increasing consumer demands, and support from governments continuing to increase.

For the UK, the EU target of 15 per cent renewable energy by 2020 could mean a tenfold increase in all three of renewable electricity, heat and transport fuels. Delivering this will be a major challenge, but one which is highly worthwhile to help mitigate climate change.

FEATURE

Jolly good show

More than 3,000 grantors joined National Grid for lunch at seven county shows as far apart as Devon and Edinburgh during 2008

County shows represent a valuable connection between town and country and a showcase for many aspects of rural life, including farming, food and drink, forestry and countryside skills.

"National Grid has supported the annual agricultural show programme for more than 10 years and our lands officers have once again very much enjoyed meeting many of you this summer at the various venues," said Hector Pearson, land and development manager.

The only disappointment was the reduction in livestock entries at some events because of bluetongue restrictions. Sadly the Royal Lancashire Show was also rained off for the second year running.

A completely revamped National Grid marquee made its debut at a number of the shows – featuring bold new branding on the exterior, a refreshed interior design, as well as new displays and graphics.

Inside the marquee the walls of the dining area were decorated with a colourful montage of the various activities undertaken by National Grid to maintain the gas and electricity networks.

Information boards gave an overview of current projects affecting grantors, as well as initiatives like the company's support for Special Olympics GB (of which National Grid is official partner) which provides sporting opportunities for athletes with a learning disability.

Depending on the venue, there were also a number of equipment exhibits, including a scale model of a pylon, a section of 48-inch gas pipeline, as well as examples of National Grid's new gas pipeline surface marker post.

Many grantors remarked on the high standard of the catering. "At some of the shows we were able to source locally-produced food and we received very good feedback on this," said Clare White, land and development policy manager. "The aim is to develop relationships with local suppliers further next year."

Regrettably due to catering considerations it is not possible to provide lunch for every grantor who would like attend. "We have to restrict invitations to those directly affected by major works, but many more people were still able to join us for refreshments," said Clare.

"We've already started planning for next year's county show programme and we look forward to meeting many of you again in 2009."

AWARD: (left to right) Nicola Pitts and Elin Jones with Roger Mathias of Furzy Mount Farm, Camrose, Haverfordwest, the overall winner of the farmer category

(LEFT) CHARLES AND SHIRLEY HOCKRIDGE, HOLSWORTHY, NORTH DEVON
DEVON COUNTY SHOW

"The hospitality was excellent – we had a very good lunch and the service was faultless. Although invited previously, this was the first time we have been able to attend and we were very impressed. It was nice to take a break from looking at the livestock and farm machinery and to sit down and have a good meal."

WILSON HOLMES, LANDS OFFICER EAST
ROYAL HIGHLAND SHOW

"County shows are an important opportunity to give something back to grantors and to thank them for their support during the essential maintenance work we need to do on the gas and electricity networks.

"Usually when we speak to landowners it's in a work context, and so it's nice to meet in a more relaxed, informal setting."

EXCELLENCE REWARDED

The 2008 Royal Welsh Agricultural Society (RWAS) Agri-Environment Awards, sponsored by National Grid, were announced in July – with the winners sharing nearly £8,000.

Elin Jones, Minister for Rural Affairs, attended the Royal Welsh Show in Llandelwedd, and presented the awards which recognise outstanding contributions by farmers, young farmers and contractors to environmentally-sensitive farming.

Nicola Pitts, National Grid's head of EU and UK public affairs, said that the company always aimed to protect and enhance the environment when it worked on the land and was delighted to again support an award scheme which did so much to preserve the essential character of the countryside.

Elin Jones also used the occasion to launch this year's prestigious Cymru-National Grid Silver Lapwing Farm Conservation competition. The three regional winners – and the overall winner – will be presented with their awards in November at the Royal Welsh Winter Fair.

ABERTHAW TO TREMORFA OVERHEAD LINE REFURBISHMENT

» When: July to November 2008
» Why: Refurbishment is going ahead on 54 pylons on the 19km line between Aberthaw, on the South Wales coast, and Tremorfa.
» What: The work includes the replacement of overhead lines and all fittings on one of the 275kV circuits, as well as strengthening the pylons. The route is mainly through arable farmland and crosses the Vale of Glamorgan mainline railway and several freight tracks serving Aberthaw coal-fired power station.
» Lie of the land: "Access tracks have been routed round field mounds, which are listed as Scheduled Ancient Monuments," said Duncan Hicks, project manager Electricity Alliance West. "Special mitigation measures are being taken to protect the habitat of slow worms."

Energy fix

Last year alone National Grid invested £800 million expanding and refurbishing its electricity transmission network, and there's no sign of a slowdown

BRITNED INTERCONNECTOR

» When: Work began this year and the link will be operational in December 2010.

» Why: National Grid has teamed up with TenneT, the Dutch transmission system operator to construct the 260km subsea connection between the Netherlands and the UK. It will be a major step towards a single market for electricity in north west Europe.

» What: Over long distances via interconnectors direct current (DC) electricity is the preferred method of transmission. A converter station will be constructed near National Grid's existing Grain station in Kent to convert the electricity into alternating current (AC) for onward connection to the transmission network.

» Lie of the land: "Extensive environmental surveys were carried out in the wetland areas near Grain which are protected by Ramsar Convention and SSSI status," explained Stephen Sudlow, contracts manager BritNed. "Mitigation measures are in place for protected species and there will be stoppages during the main bird breeding season and at times when fish are spawning out at sea."

FRODSHAM ELECTRICITY CABLE INSTALLATION

» When: February to December 2008

» Why: The new 5.5km underground electricity cable is part of a major upgrade by Network Rail to the West Coast Main Line rail service to enable the introduction of new high-speed trains. The cable provides a high voltage connection from Frodsham 400kV substation to the 25kV Trackside Feeder Station at Weaver Junction.

» What: Directional drilling is being employed to pass under the 150-metre span of the Weaver Navigation Canal, as well as a railway viaduct, golf course, the A56 and the West Coast Main Line. The route also crosses numerous services – including pipelines carrying ethylene gas and brine for the chemical industry and a 42-inch diameter aqueduct supplying water to Manchester.

» Lie of the land: "The cable passes mainly through agricultural land and we have erected stock fencing along the 27-metre working strip and frequent cross-over points for the farmers," said Pete Randall, project manager Electricity Alliance East. "Archaeologists have also unearthed finds relating to the former Roman road which ran from Warrington to Chester."

SHEFFIELD CABLES PROJECT

» When: Earlier phases were carried out in 2005 and 2007 with the latest project completed this summer.

» Why: The 10.5km ring of high voltage underground cable which provides electricity for Sheffield requires refurbishment to ensure the security of electricity supplies and to meet growing demand in the area.

» What: Work is currently focused on the sections between Norton Lees and Sheffield City substations and Norton Lees and Pitsmoor substations. The cables are located in the public highway and the project team has liased closely with Sheffield Highways department as required by the New Roads and Streetworks Act (NRSWA). Temporary traffic lights have been deployed on some major roads.

» Lie of the land: "The cables were originally laid in the 1960s in 500-metre sections and it is the joint bays between the sections that now need refurbishment," said Guy Bradbury, National Grid project manager. "Every effort is made to ensure the work is carried out as quickly as possible and that local people are informed about what is happening and why."

Tunnel vision in the city

Completing a major new 1220mm gas pipeline from Harefield to Southall in urban West London is a complex logistical challenge. Two National Grid employees on the project and a grantor provide an insight from their own perspective

THE PROJECT MANAGER: MARTIN MAGEE

"The new high pressure gas transmission pipeline is necessary to meet the increasing demand for gas in West London. Our contractors, Murphy Pipelines, are undertaking the 18.5km project in two stages, with the focus on three major tunnel sections this year. Around 12km of mostly open country will be crossed next year.

"We never put gas transmission pipelines beneath buildings and the aim is to find the shortest and most practical route, with the minimum of bends and turns, and the least environmental impact.

"Around 2.5km of the pipeline will be in tunnels in order to pass through dense urban areas and to minimise traffic disruption. This has contributed significantly to the £88 million cost of the project – which is twice the usual cost for a pipeline of this length.

"The tunnel boring machines (TBM) are similar to those which excavated the Channel Tunnel, although their diameter is much smaller at 2.4 metres. Two of the tunnels had to be designed to follow a curved path – a first in this country – to avoid going under buildings or through problematic ground conditions such as water bearing sands and gravels. At our main site office at Harvill Road we've stockpiled 400 pipe sections – but that's only about half the number that will eventually go into the ground."

THE GRANTOR: IEUAN WILLIAMS, SENIOR LAND AGENT FOR HILLINGDON COUNCIL

"As the land agent I have responsibility for all the agricultural land and green belt estate owned by Hillingdon Council on the route

– including nine farms and numerous parcels of land traditionally used for horse grazing.

"I also represent the interests of the council departments which have responsibility for parks, recreation grounds and other open spaces. The council is the grantor on 12km of the pipeline, equivalent to about 60 per cent.

"The council has committed to retaining a green and attractive borough so it's important that elected councillors are kept well informed about major utility projects. Back in 2004 we invited National Grid to give an aerial fly-by video presentation of the entire route in the council chambers.

"Since then we have worked alongside National Grid's community relations team at public meetings to allay any concerns people might have. I think National Grid has done an exceptional job communicating why they need to do the work and then managing the consent and consultation process. Part of my job is to reassure members of the public that on completion of the project National Grid reinstates the land so that it is at least as good – if not better – than it was originally."

NATIONAL GRID NEW ROADS AND STREET WORKS ACT (NRSWA) COORDINATOR: JULIE ULLIOTT

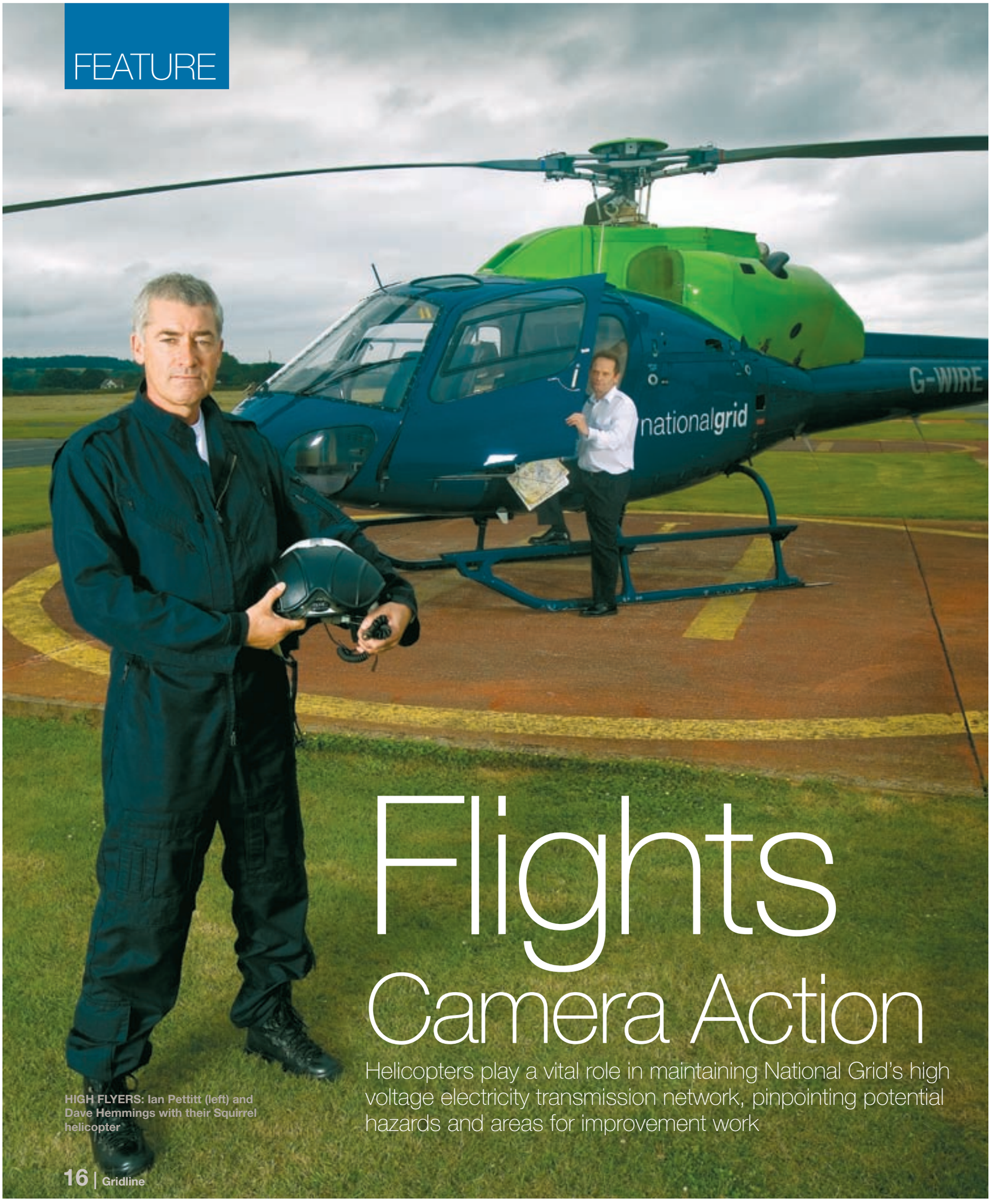
"The pipeline will pass underneath the A40 trunk road – one of the main arteries into London from the M40 and the M25 beyond, and we also have tunnel shafts very close to the road. An average of 78,000 vehicles travel on the A40 over a 12-hour period and so avoiding any disruption to traffic was an absolute priority.

"Part of my job is to act as a go-between with the project team, the constructors Murphy Pipelines and highway authorities. This has involved co-ordinating with Transport for London (TfL), which is responsible for the capital's red routes and the London Borough of Hillingdon Highway Authority which has the responsibility for the local road network.

"A key objective was to arrange access to one of our tunnel sites bordering the slip road from the A40 to Swakeley's roundabout in Uxbridge. These access points are needed for the usual works traffic, but also for the 40-ton trucks which take away the spoil from the tunnel shafts and the incoming articulated trucks bringing pipe sections.

"The temporary solution agreed with TfL was to put in an access apron off the slip road. Specialist traffic management contractors, accredited to work on 'high speed roads', were employed to remove the Armco roadside barriers and construct the entrance to the works compound.

"We have a legal obligation under the New Roads and Street Works Act to log route details on the Street Works Register. These records can then be consulted by other utilities before carrying out excavations in the future."



Flights
Camera Action

Helicopters play a vital role in maintaining National Grid's high voltage electricity transmission network, pinpointing potential hazards and areas for improvement work

HIGH FLYERS: Ian Pettitt (left) and Dave Hemmings with their Squirrel helicopter

The task of inspecting power lines has been revolutionised by helicopters. They are much quicker than either foot or vehicle-based patrols, and the 'eye in the sky' provides a unique aerial perspective of pylons and conductors.

"Our two helicopters patrol more than 7,000km of overhead power lines in England and Wales and last year we logged more than 1,300 flight hours, inspecting every single line at least once," said chief pilot Pete Gibson. National Grid also conducts fortnightly patrols of its 7,000km of gas transmission pipelines but these are carried out by a separate team of pilots.

Pete, a former RAF pilot and instructor, has notched up more than 25 years with National Grid. The unit's other pilots are Dave Hemmings, a former Army pilot, and Liam Hughes, who was an engineer in the RAF before taking his pilot's licence. Joining them are observers Ian Pettitt and Matthew Ward – both former overhead linesmen – and Simon Gudgeon, who transferred to the role after working in HR at National Grid.

The twin-engined Squirrel helicopter is a reliable workhorse, being relatively small and manoeuvrable as well as quiet. "If you are flying at very low heights and if one engine fails it's good to know you can get out of trouble quickly," said Pete.

Visual inspection patrols are carried out in the spring to check for any wear and tear on overhead lines that may have occurred over winter. Typically the helicopter flies alongside the line, at a speed of about 25mph, to enable trained observers to get a good view of the fixtures and fittings.

WALKING THE LINE

Foot patrols continue to play a key role in National Grid's condition monitoring and inspection activities. Lines are walked every 12-24 months on a rolling programme, depending on the age of the line and various other factors. A condition assessment takes place every five years or so and involves engineers climbing the tower to inspect the steelwork and fittings.

Potential problems include broken conductor strands and damage to insulators or spacers. Assessments are made of the condition of paintwork on the pylons and encroachments by objects like trees or buildings noted.

"We keep an eye out for potentially dangerous situations such as people lighting bonfires near overhead lines or building haystacks," said Pete. "Any object that is too close to an overhead line may cause a flashover of electric current with the possibility of severe injury or worse to any person nearby."

The helicopter pilots do their best to avoid flying over livestock and maintain records of sensitive areas. "If grantors notify us in advance, we're happy to contact them when we do need to fly low over a line so that they can move the animals," said Pete.

"Horse riders can be very hard to spot under hedgerows on narrow lanes, for example, and it certainly makes our job a lot easier when they wear high-visibility jackets and fluorescent headwear."

During the autumn and winter months the unit uses infra-red cameras to carry out thermal imaging surveys on selected overhead lines as part of a rolling programme of surveys. "High resistance joints create heat and points of potential weakness show up as white spots," said Pete. "The images are recorded for later analysis and reports generated for engineers to follow up."

Other surveys by the unit involve the use of a high resolution stabilised camera fitted underneath the helicopter to capture video footage of the towers and conductors.

The footage can be reviewed when refurbishment is planned on an overhead line. It makes it more cost-efficient if areas that require attention can be identified in advance. Helicopters from the unit also check overhead lines for faults after power outages caused by extreme weather.

"The technology is evolving all the time and helps us to continually improve the safety, security and reliability of the transmission network so that customers can be sure of uninterrupted power supplies," said Pete.

GAS MARKER POST REPLACEMENT

During the past 12 months National Grid has been carrying out a nationwide installation of new surface marker posts.

Q Why are they being replaced?

A The new posts provide a consistent and distinctive National Grid identity for the whole gas transmission system.

Q Why are they necessary?

A They provide a vital warning and reminder of the presence of pipelines to avoid accidental damage. Each post is numbered and has an orange sticker detailing the National Grid emergency contact number.

Q Why do they need to be so visible?

A They need to stand out from the surroundings – the fluorescent banding helps to make them visible from the air.

Q What should I do if planning work near a marker post?

A Any excavations, building work, fencing or tree planting in the vicinity of the pipeline should be discussed with the Asset Protection Team on 0800 731 2961. Consult National Grid if cultivating to a depth of more than 0.5 metres.

After his award-winning success with cold pressed extra virgin rapeseed oil, Staffordshire grantor Anthony Froggatt is hoping to repeat his winning formula with sunflowers

Fields of gold

While olive oil is almost universally praised for its health-giving qualities, there are alternatives out there that are just as good for you and don't have be imported from abroad.

The Just Oil range of cold pressed extra virgin oils and dressings is produced by Anthony Froggatt and his family on their farm in Hill Ridware, Staffordshire. The family is the fourth generation to farm at Wade Lane Farm.

The Froggatts made a complete conversion to arable farming after the 2001 foot-and-mouth crisis decimated their sheep herd, and today produce a wide variety of crops including beans, potatoes, carrots and rapeseed on more than 1,000 acres of land.

"I toyed with the idea of edible oils for four or five years before taking the plunge and producing the first batch of rapeseed oil in January last year," said Anthony.

Around 300 acres of the farm is devoted to oil rapeseed and Anthony now plans to expand into sunflower oil. He has already planted an experimental crop of 10 acres and the seeds were being harvested as Gridline went to press.

"The beauty of these products is that they are grown, harvested, stored, cold pressed, filtered

and bottled on our farm, which means that we have 100 per cent traceability and can keep down food miles," said Anthony.

Rapeseed oil contains half the saturated fat levels and has 10 times more Omega 3 than olive oil. It also has a high burn point so it's safe to use for frying and roasting, and its natural nutty flavour makes it ideal for salad dressings.

Extra virgin means that the seed is pressed just once and it is cold pressed without the intervention of heat which destroys much of the health benefits.

"Unlike mass market oils we don't use any chemical solvents to extract the oil," explained Anthony. "After mechanically pressing the seed, we triple filter the oil using special processes we have developed and it's this which contributes to the great taste.

"Nothing is wasted – we collect the residue of the seed husks for animal feed, and I'm also looking at the possibility of making our own bio-diesel from a second pressing of the oil."

Just Oil is very much a family business. Anthony's sister Sarah and cousin Jane do the bottling, helped by his mother Sue, while his father Richard does all the deliveries and drives the combine harvester as well.

The farm is operated within the Countryside Stewardship Scheme and a number of measures have been taken over the years to enhance the local environment – including turning a large area back into marshland.

"My grandfather planted a number of oak trees which are now fully grown and both my father and I have continued the tree planting tradition," said Anthony. "I like to think we are continuing to farm the land in a sustainable manner, providing safe and affordable food and caring for the environment as our forebears did."

Just Oil has gone from strength to strength. A contract was signed recently with the supermarket giant Tesco to supply Just Rapeseed Oil to 47 stores in the Midlands and Anthony has also launched a range of salad dressings, marinades and infused oils which are currently available from a network of local farm shops.

His Extra Virgin Rapeseed Oil Dressing with Mustard, Chilli and Ginger won a Gold Award at the Great Taste Awards, organised by the Guild of Fine Food. And the Just Rapeseed Oil was named recently as the overall winner in the Heart of England Fine Foods (HEFF) Diamond Awards beating off 280 other entries.

"Sunflower oil is nearly as low as rapeseed oil in unsaturated fat and has high levels of Vitamin E," said Anthony. "There may be potential to combine it with rapeseed oil and put it in with mayonnaises and dressings.

"It's not grown much in the UK and the crop can be prone to failure – but if all else fails I can sell it as bird seed," he joked.

NAME: Anthony Froggatt,
LOCATION: Hill Ridware, Staffordshire
LAND USE: 1,000 acres devoted to arable crops
GRANTOR TYPE: Electricity

To contact Gridline :
✆ 01926 654 948
gridline@uk.ngrid.com
122 Warwick Street, Leamington Spa, Warwickshire CV32 4QY.

ANOTHER CHANCE TO WIN A CANON DIGITAL COMPACT CAMERA

Once again Gridline is offering you the chance to win a feature-packed Canon IXUS 80 IS digital camera.

The Canon IXUS 80 IS is an 8-megapixel digital camera with 3x optical zoom lens. The camera is small enough to slip into a pocket and has a stylish design.

The camera features Canon's DIGIC III image processor to provide sharper, cleaner images. An optical image stabiliser lens helps you capture blur-free images in low-light. Other features include a 2.5-inch LCD screen and face detection technology.

To be in with a chance of winning, simply answer the following question:

Q What size is the LCD screen on the Canon IXUS 80 IS digital camera?

Send your answer to Gridline Digital Camera Competition, 122 Warwick Street, Leamington Spa, Warwickshire CV32 4QY. NB: you must be a grantor to enter this competition. Entry closing date: 7 Nov 2008.

Just a perfect day

Congratulations to Lorraine Laird, the winner of our last photo competition with this evocative image of a midsummer's evening

"The picture was taken at the end of the first really sunny day of the summer, after a family BBQ," explained Lorraine, who with her husband Donald farms 450-acres near Tannadice, in Forfar, Scotland.

"Our son and daughter-in-law moved their deckchairs right to the edge of the field which borders our house to catch the last rays of the sun.

"I quite often enter crossword competitions but this was the first time I've won a photography prize," said Lorraine. "I'd seen the competition in Gridline and so when we had that lovely summer's evening it inspired me to have a go."

ENTER GRIDLINE'S NEXT PHOTO COMPETITION

'Water' is the theme of this issue's competition. All you have to do is send in your selected photograph for the chance to win a voucher from National Grid grantor Camel Valley Wines, entitling you to 12 bottles of wine (up to a maximum value of £130). Send images* to Gridline photo competition, 122 Warwick Street, Leamington Spa, Warwickshire CV32 4QY. Or email images to gridline@uk.ngrid.com. NB: you must be a grantor to enter this competition. Closing date: 7 Nov 2008.

* Regretably, submitted prints cannot be returned. Visit camelvalley.com for more details about its wine.