Gridline

The magazine for
National Grid grantors
Summer 2010

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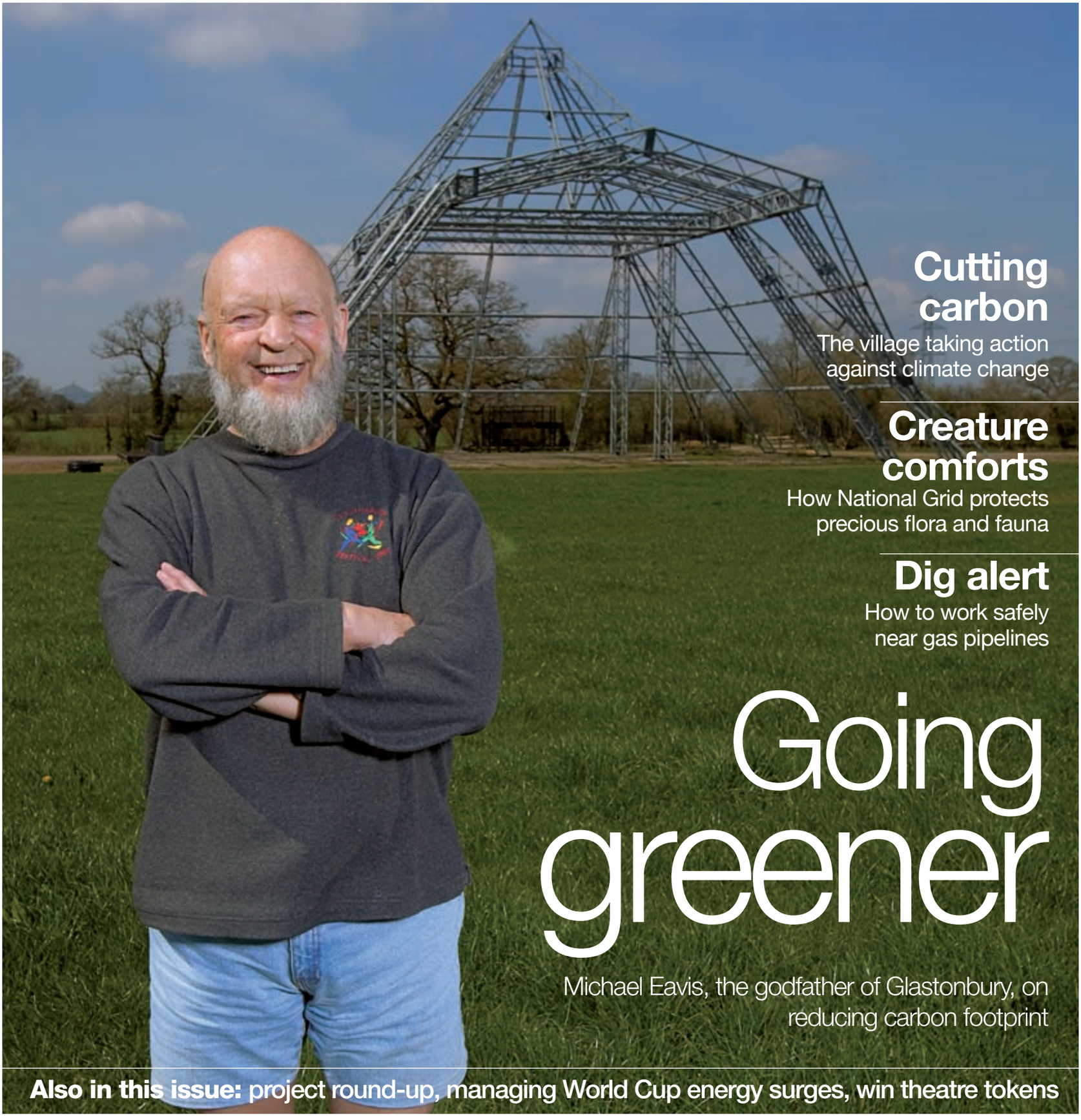


Cutting carbon

The village taking action against climate change

Creature comforts

How National Grid protects precious flora and fauna

Dig alert

How to work safely near gas pipelines

Going greener

Michael Eavis, the godfather of Glastonbury, on reducing carbon footprint

Also in this issue: project round-up, managing World Cup energy surges, win theatre tokens

Contents

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. The Group acts as the main interface for landowners who have 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.

DIAL BEFORE YOU DIG
- Before any work in the vicinity of gas pipelines, overhead power lines or underground electric cables, you should contact Plant Protection on 0800 688 588 so that searches can be made to determine the exact position of any National Grid assets.

CONGRATULATIONS TO DONALD BRUCE, GRIDLINE'S PHOTO COMPETITION WINNER (SEE PAGE 20 FOR DETAILS)

HAMPSHIRE GRANTOR WINS CAMERA COMPETITION

Many congratulations to gas grantor Alan Vaux of Lovells Farm, near Stockbridge, Hampshire, who is the winner of the Sony digital camera competition in the last issue of Gridline.

A tenant farmer, Alan manages 300 acres of arable land producing oilseed rape, wheat and spring barley.

"It will be great to upgrade our old compact camera to something a bit more sophisticated," he said. "My son is getting married later this summer so the camera will also come in handy to record images of the wedding day."

GET IN TOUCH

Please contact Gridline if:

- You have any news which you think would be of interest to other grantors
- You think that your business or hobby would make a good article
- You have any suggestions for topics you would like to see covered in Gridline.

Gridline is produced by Summersault Communications, 23-25 Waterloo Place, Leamington Spa, Warwickshire CV32 5LA. To contact Gridline you can either phone 01926 656 325, email gridline@uk.ngrid.com or write to the above address.

GOT A STORY? CALL 01926 656 325 or email gridline@uk.ngrid.com. Or write to Gridline, Summersault, 23-25 Waterloo Place, Warwick St, Leamington Spa, Warwickshire CV32 5LA.

Welcome to Gridline

A very warm welcome to another issue of Gridline.

In its role as the systems operator of the gas and electricity transmission networks, National Grid is at the cutting edge of the move to a low-carbon economy.

National Grid is investing more than £1 billion this year alone in upgrading its transmission networks and extending them to connect new sources of renewable energy and lower-carbon nuclear and gas generation.

A recurring theme in this issue is how we can all do our bit to reduce our carbon footprint, protect the environment, and move towards the government's target of a 34 per cent reduction in emissions by 2034.

The article on page 8 focuses on the Going Carbon Neutral project developed by the villagers of Ashton Hayes in Cheshire. It's an inspiring example of a 'ground-up' project in which a whole community has decided to take a stand against climate change.

On page 10, Gridline looks at how National Grid carries out its duty of care to protect the environment during essential works. Project ecologists identify any protected site, plant or animal species likely to be affected and provide mitigation strategies to ensure they are preserved – with habitats maintained and, where possible, enhanced.

The green theme continues on page 16 with a grantor profile of Michael Eavis, the 'godfather of Glastonbury'. Finding answers to the logistical problems of running such a mass participation event would be daunting enough, but Michael has also taken a variety of measures to reduce the festival's carbon footprint.

The safety feature on page 14 is a reminder about taking the proper precautions when working near high-pressure gas pipelines. If you are planning any work near one of National Grid's assets, please read this article which explains the processes you should follow in order to ensure that potential risks are managed safely.

Finally, we have more exciting competitions for you to enter on page 20 – including the chance to win theatre tickets to the value of £100 and a Sony digital camera.

Editor, Gridline

Extra consultation for Hinkley project

In response to feedback from the public, National Grid is providing more background information on the 400kV overhead power line that is needed to connect the proposed 3,600 megawatt (MW) Hinkley Point C nuclear power station in Somerset.

The initial 14-week consultation on two potential route corridors ended in January and prompted more than 200 feedback forms, 1,100 emails and letters and 100 telephone calls to the project helpline. Around 4,500 local people attended the 17 public exhibitions held along the potential routes.

From the feedback received, it became clear that many people wanted more information on the other connection options (underground or subsea cables), which National Grid considered before publishing its proposals for a new overhead power line.

Additional information has been sent to all 37,000 homes within the original consultation area, and National Grid is holding further briefings to local councils and public information events.

"The opinions of residents are very important to us and will play a vital role in any decisions we make," promised David Mercer, National Grid's major projects manager.

Depending on which of the routes is eventually chosen, the new overhead power line will be approximately 37 miles long and is planned for construction during 2016.

NEWS IN NUMBERS

£1 BILLION – National Grid's investment in 2010 to upgrade the transmission network and connect new sources of renewable energy

20 GIGAWATTS – of new generation needed by 2020, to make up the shortfall from the planned closure of ageing power stations.

Harvest hazards

As agricultural activity increases in the busy summer months, so does the potential for an electricity-related accident – creating a need for extra vigilance.

"The harvest season is a hectic time for farmers, who often work long hours as they attempt to overcome delays caused by equipment failures or bad weather," explained Alan Whitmore, lands officer north-west and Scotland.

"Most accidents occur because people lose concentration, or because they are tempted to take what seems like a harmless shortcut. As agricultural machinery gets larger, minimum safety clearances for overhead power lines have also been continuously eroded."

Equipment doesn't need to touch power lines for electricity to be transmitted because it can jump or arc across short gaps.

The minimum safety clearance of a specific span depends on the line's construction design and operating voltage, so it is also vital to contact National Grid before carrying out any construction or alteration of ground levels near a power line.

Linking Environment and Farming (LEAF)

REMEMBER

- Ensure contractors and delivery drivers are aware of the position of overhead power lines before starting work
- Avoid operating tall equipment or lifting gear beneath an overhead power line
- Take care when moving ladders, elevators, irrigation pipes or other long objects – move them when they are in the horizontal position or in their lowest position
- Never reduce the clearance under power lines by dumping or tipping waste material, by erecting structures or haystacks that could infringe safety clearances
- Mark out areas where power lines and cables cross your land and use notices and physical barriers such as fences and goalposts where appropriate
- Do not direct jets of liquid slurry or water at overhead power lines as liquids can conduct electricity.

One-minute interview

Nick Henderson-Newton
Job: Lands officer east
Start date: March 2009

BACKGROUND
I owned a florist shop in London for nearly 10 years and have also worked as an events designer in Sydney.

LIKE ABOUT THE JOB?
The fantastic variety.

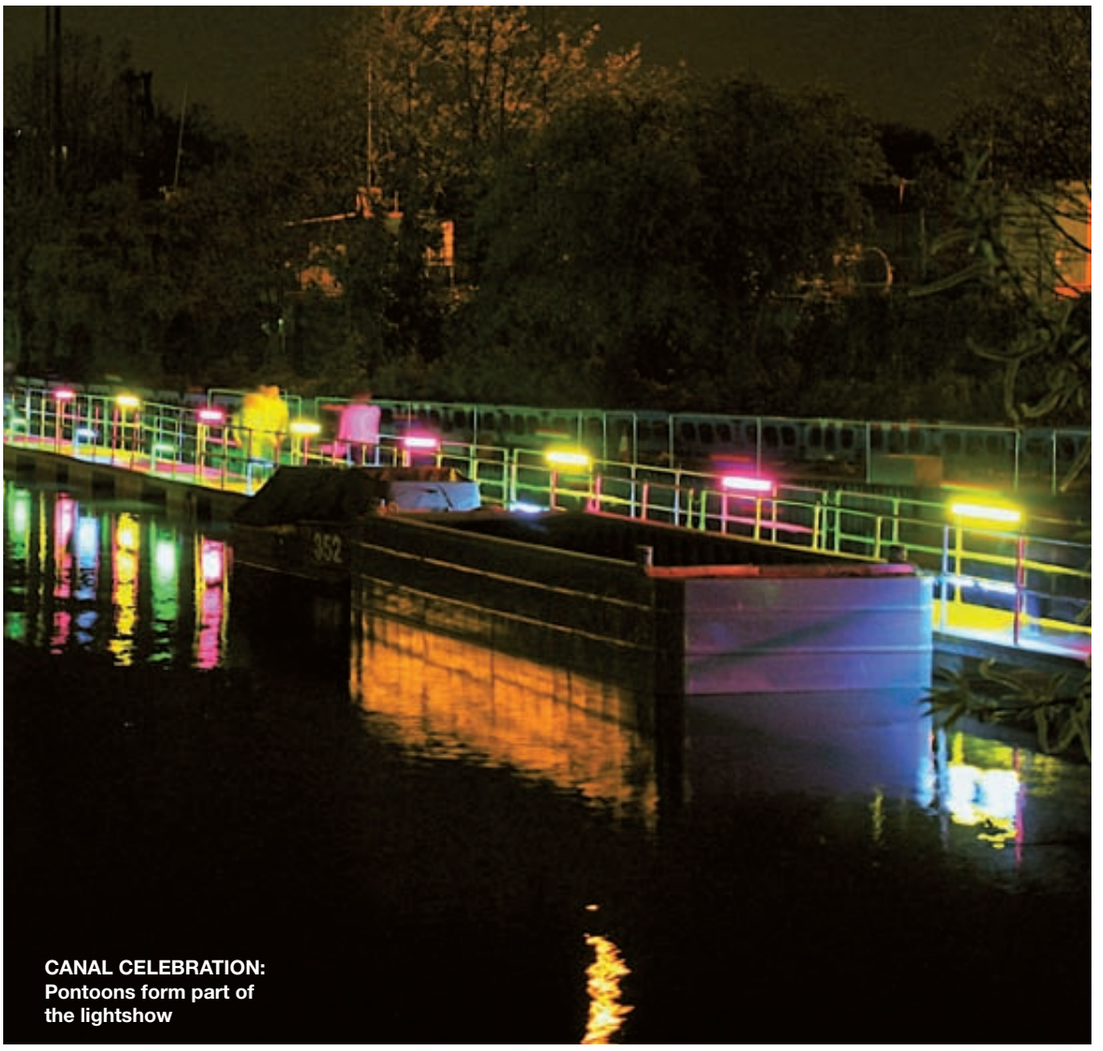
FAMILY MATTERS
Recently married to Victoria and we live in Wetherby, Yorkshire. But I'm originally a 'yellow belly' from Boston, Lincolnshire.

LEISURE TIME
I play rugby for Wetherby RUFC but much prefer the after-game social activities!

ALBUM ON CAR CD?
Primal Scream's Screamadelica. I've played it thousands of times in the past 19 years and it's the best album to play on a Monday morning on the way in to work.

OVERUSED COMMENT
I'm starving! Anybody want something?

NOT A LOT OF PEOPLE KNOW THAT…
I was the Lincolnshire under-10s chess champion.



CANAL CELEBRATION: Pontoons form part of the lightshow

Tripping the light fantastic

A temporary pontoon walkway in the Regent's Canal – erected by engineers from Electricity Alliance East – became part of a spectacular towpath light trail in April.

The pontoon was installed to divert people round a section of electric cable housing on the towpath that is being repaired (see page 7).

Illumination specialists Creatmosphere gained special permission from National Grid to create the dazzling light effects during an arts festival taking place in the King's Cross area in London.

"The lighting-up display was a fitting reminder that National Grid helps to keep the lights on and that our project is an essential part of that mission," said Simon Chandler, National Grid's project engineer.

Approval for first offshore wind farm in US

National Grid has welcomed a decision by the Obama administration to grant approval to the $1 billion Cape Wind project off the north-east coast of America – the first large-scale offshore wind farm in the country.

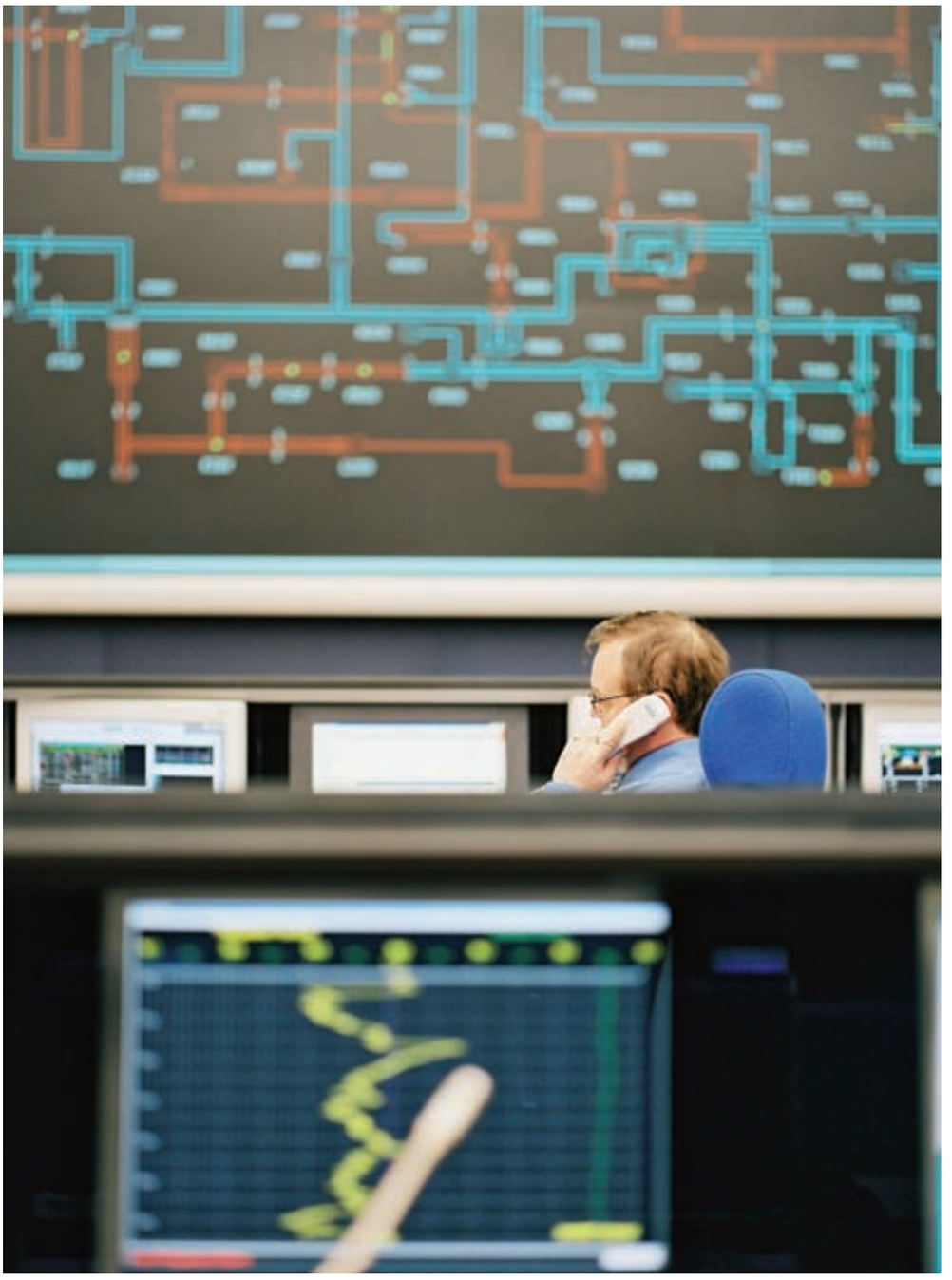
In May, the company, which delivers electricity to 3.3 million customers in Massachusetts, reached agreement to buy 50 per cent of the wind farm's output.

In the short term the deal would raise the price of electricity for customers by around two per cent. But in the longer run wind power could help keep rate increases under control – particularly if the federal government taxes carbon emissions to fight global warming.

Cape Wind expect the 420MW wind farm, which can power about 200,000 homes, to enter service in late 2012.

Surging expectations

World Cup fever has gripped the nation for months… but predicting England's progress is all part of the job for some National Grid employees



Unlike gas or water, electricity cannot be stored in large quantities.

This means that National Grid's Electricity National Control Centre in Berkshire has to balance the generation capacity of power stations with demand on a minute-by-minute basis, 365 days a year, to maintain the operating frequency at 50Hz.

Significant spikes of demand – known as TV pick-ups – often occur at half-time and at the end of big sporting occasions as millions of people reach for the kettle, switch on lights or grab a drink from the fridge.

"As soon as England's draw was announced, we produced forecast profiles for the first-round matches based on previous World Cup games against the same calibre of opponent," said Andrew Richards of National Grid's Energy Demand Forecasting team.

Predicting a TV pick-up is one thing… but how are they managed? The Control Centre has several options, including running frequency higher prior to a surge, bringing on fast-response generation, such as pumped hydroelectric power stations, and using demand management, such as temporarily reducing supply to large industrial customers.

The all-time highest surge was recorded in the 1990 World Cup semi-final between England and West Germany, when a million kettles were switched on at once after a tense penalty shoot-out at the conclusion of the match!

There is some evidence to suggest the multichannel era and on-demand TV is causing a change in viewing habits – with people able to watch programmes when they want to and less likely to take a mass-synchronised tea break.

"There is some smoothing occurring, but high-profile events that are televised can still generate huge peaks in demand," said Andrew.

Some events can cause big drops in demand – for example, the two-minute silence on Remembrance Sunday, the Grand National horse race and royal weddings – followed by a sudden return to normal levels.

Demand for electricity plummeted as millions stopped to watch the solar eclipse in 1999, but this was then followed by a massive 3,000MW rush as people returned to work.

"The duration of some events can also be difficult to predict, so we produce several different scenarios for the Control Centre to work with," said Andrew.

"If the decrease in demand is greater than forecasted, the system can 'spin' too fast and this, too, has to be managed."

TOP 10 ALL-TIME TV PICK-UPS

1 1990 World Cup, England v West Germany (full-time), 2,800MW
2 2002 World Cup England v Brazil (half-time) 2,570MW
3 2002 World Cup England v Nigeria (half-time) 2,340MW
4 2001 EastEnders 2,290MW
5 1991 The Darling Buds of May 2,200MW
6 1991 The Darling Buds of May 2,000MW
7 2003 Rugby World Cup, England v Australia (half-time) 2,110MW
8 1998 World Cup England v Argentina (half-time) 2,100MW
9 1994 Coronation Street 2,100MW
10 2007 Coronation Street 2,070MW

Project watch

A round-up of recently completed,current and forthcoming projects around the country

NECHELLS – HAMS HALL FITTINGS REPLACEMENT

WHEN: March 2010
WHY: Work has been completed on two inaccessible towers on the Nechells to Hams Hall 400kV overhead power line.
WHAT: The towers, which stand in around a metre of water, are on land owned by the Environment Agency. The area is maintained by the Birmingham and Black Country Wildlife Trust as a wetland nature reserve topped up from the River Tame. A floating trackway was used for access by the Electricity Alliance West team. Special measures were taken to avoid impacting on ancient woodland areas, as well as protected plants and animal species, such as water voles and great crested newts.

MARGAM 275KV SUBSTATION

WHEN: Autumn 2010-Summer 2011 (with connection October 2013)
WHY: Planning permission has been given for a new 275kV Gas Insulated Substation (GIS) at Margam, near Port Talbot in South Wales. The facility will provide a high-voltage connection for the proposed Prenergy 350MW woodchip-fuelled power station plant.
WHAT: As part of its mitigation strategy, National Grid has agreed to a 15-year lease of an eight-hectare portion of land to the Wildlife Trust of South and West Wales, which will maintain the area under an environmental management plan.

WOODHEAD TO STALYBRIDGE CABLE TUNNEL PROJECT

WHEN: February 2008-ongoing
WHY: High-voltage cables installed in twin disused Victorian railway tunnels during the 1960s are being replaced to ensure the future security of electricity supplies to Manchester and the surrounding area.
WHAT: The new 400kV cables are being installed by Electricity Alliance East in a third former railway tunnel at Woodhead. The underground route under the Pennines provided an alternative solution to an overhead power line running through the Peak District National Park.

MAIDEN LANE 400KV CABLE TROUGH REINSTATEMENT

WHEN: April-October 2010
WHY: Work is underway on 400kV electricity cable troughs that have suffered from subsidence on a section of towpath along the Regent's Canal, near King's Cross station in London.
WHAT: Electricity Alliance East has liaised with British Waterways and Camden Council to close 150 metres of the towpath for the works. Pontoons are being used in the canal to enable project engineers to lift the cables out while the troughs are being reinstated. Further pontoons are being used to provide safe passage along the canal for walkers and cyclists.

IT'S A FACT
National Grid is investing £3 billion a year in its electricity and gas networks in the UK and US

CASE STUDY

Power to the people

How a community in Cheshire is aiming to become the first carbon neutral village in England

By 2050, the UK government is committed to sourcing virtually all electricity from clean sources, in the drive to cut greenhouse gas emissions by 80 per cent.

For its part, National Grid has implemented its own internal carbon budgets to cut emissions by 45 per cent by 2020. It is investing around £3 billion a year in its electricity and gas networks and is developing new technologies, such as smart meters.

Steve Holliday, National Grid's chief executive, has emphasised the contribution to tackling climate change that all householders can make through simple energy-saving initiatives. He also believes that so-called embedded or distributed generation in the community (using clean energy technologies such as wind turbines and solar panels) could deliver up to 15 per cent of the nation's electricity production.

ECO-HOUSE: Rosemary Dossett and her husband Ian have built the uiltimate green dwelling

One community that has taken a lead in this regard is Ashton Hayes – in many ways a typical rural village in Cheshire, centred around a shop and post office, with a well-attended primary school, church, football team, WI group, and Scouts and Brownies clubs.

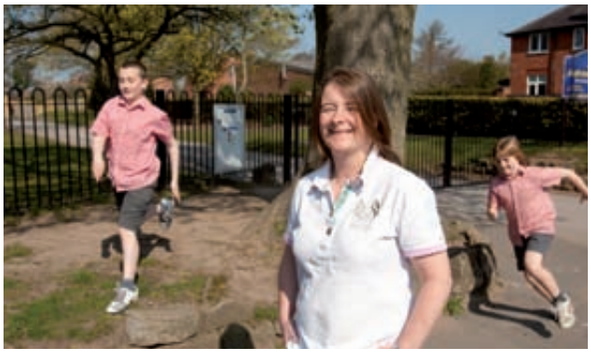
Four and a half years ago, residents came together to launch a Going Carbon Neutral project, which has attracted widespread media attention over the intervening years, and set a template for other communities to emulate.

The man co-ordinating the project is Garry Charnock, a technical journalist by profession and a director of RSK Group – a local company that has supported the project from the start. He is aided and abetted by fellow villager Roy Alexander, who is Professor of Environmental Sustainability at the University of Chester.

"Carbon reduction is taking action to reduce your carbon footprint – the amount of carbon dioxide that you produce through the energy you use," explained Roy. "Carbon neutrality takes that one step further by reducing and then offsetting emissions to zero."

Annual carbon footprint surveys are carried out in the village by second-year students at the University of Chester, as part of their work-based learning experience. Calculations are based on energy use in the home, travel and transport, and each household is then given a customised set of suggested actions on how to make further reductions in carbon emissions.

"Simple steps such as fitting double glazing, cavity-wall and loft insulation or energy-saving lighting, together with lifestyle changes, such as cutting the number of flights and car journeys,



THE SCHOOL: Lucinda Strudwick with her boys (left to right) Hamish and Robert, who both attend the primary school in Ashton Hayes

Did you know?

A third of all CO_2 emissions come from domestic households

The UK government is committed to an 80% reduction in carbon emissions by 2050

TEAM MEET: (above) (l-r) Garry Charnock, Roy Alexander and Kate Harrison, community liaison officer for the project; COMMUNITY SHOP: (left) Deb Deynem, who sources locally produced food

have reduced the village's carbon footprint by 23 per cent," said Garry.

The village has now been awarded up to £500,000 from the Department of Energy and Climate Change via its Low Carbon Community Challenge scheme to take the next step.

"The funding is enabling us to pioneer the first community-owned microgrid in England, where the electricity generated can be used by the village directly, rather than sold to a licensed supplier," said Garry.

The project has focused on the school, church and a number of residential homes fed by a common low voltage 'feeder'.

"An essential first step was to measure existing energy expenditure patterns using special meters installed in the buildings," said Roy. "Weather stations were then utilised to determine the wind and solar power that would be needed to match the load."

Work starts in July on the installation of a biodiesel-fuelled Combined Heat and Power system at the school, with solar panels on the roof, a wind turbine and a means of storing heat in summer.

With the support of the distribution network operator Scottish Power, the intention is to use the feeder to distribute the renewable energy within the microgrid, as well as to potentially sell it back to an electricity supplier.

"An added aim is to encourage people to take more responsibility for their own energy use through demand-side management," said Roy. "To give a simple example, if the wind was blowing strongly in the middle of the night, smart meters would be able to turn your dishwasher on."

Some of the team are now looking at how green energy could power village-owned electric cars, while another sub group is looking at how revenues from selling electricity to the grid could help to subsidise other projects such as the community-owned shop.

"As a village, we've seen how energy efficiency can deliver approximately 25 per cent reduction in carbon footprint, but the renewable energy microgrid could enable us to double that," said Garry.

For more information on the Ashton Hayes project go to: www.goingcarbonneutral.co.uk or contact Garry Charnock on 07968 063624.

DEB DEYNEM, COMMUNITY SHOP MANAGER
"All our meat, milk, vegetables, cheese and ham come from within a 30-mile radius that saves food miles. Above the shop, there's also a time-bank service, where people can volunteer to undertake jobs for other people, or share transport.

LUCINDA STRUDWICK – MIDDAY ASSISTANT AT THE PRIMARY SCHOOL
"At school, the children learn about recycling and simple steps to cut carbon footprint by, for example, growing your own vegetables. They also help to spread the message about energy efficiency at home."

KATE HARRISON, RESIDENT
"A grant from my local energy supplier to install cavity-wall and loft insulation cut our carbon footprint by more than 50 per cent in the first year. We also decided to grow our own vegetables rather than buy produce that has travelled for thousands of food miles with packaging created by burning fossil fuels.

CARON HARDWICK, PUBLICAN GOLDEN LION
"The project focus groups often hold their meetings in the pub and discussions at the bar are just as likely to be about climate change as football. We're also talking to the brewery about installing solar panels on the pub roof."

ROSEMARY DOSSETT, RESIDENT
"We moved here to build our dream eco-house. Features include a ground source heat pump to provide underfloor heating and hot water, 20 square metres of photovoltaic cells on the roof, a wood-burning stove, as well as triple-glazed thermal windows. The house costs about £60 a month to run and is officially a 'power station' because we generate electricity."

Leaving no stone unturned

How National Grid goes to great lengths to protect precious flora and fauna during gas pipeline, overhead-power line and cable projects

They may often be small and seemingly defenceless, but many plants and animals receive a high level of protection under UK and European law, and the consequences can be serious for developers if species are not identified at the correct time, or if appropriate action is not taken.

In 2008, for example, a new bypass in Leicestershire was delayed by three months and cost more than an extra £1 million, when the presence of great crested newts – a protected species – was indicated.

Infringements of the legislation can result in up to six months' imprisonment and fines of up to £5,000 per offence – that is per creature injured, killed or disturbed. The cost to reputation can be incalculable.

Under Schedule 9 of the Electricity Act 1989, National Grid is committed to the preservation of the countryside and to protecting flora and fauna, as well as sites of archaeological and historic value. While there is no equivalent provision in the Gas Act 1986, the company applies the same standards for pipeline projects.

Where possible, designated areas of significance for landscape, wildlife or culture, such as national parks and Areas of Outstanding Natural Beauty (AONB) are also avoided.

"Environmental factors are considered at the earliest stage of planning," explained Caroline Gettinby, an ecologist at ENTEC, an environmental consultancy that regularly acts for National Grid.

> "If at all possible, we will avoid sensitive sites completely. And if appropriate mitigation is not sufficient in itself, new habitat may be created in compensation"

Initial investigations start with a detailed desk-based survey of available data on the flora and fauna likely to be encountered. This is followed by a so-called Phase 1 Habitat Classification survey, using a standardised system of recording semi-natural vegetation and wildlife habitats on site. Specialist surveys then establish the actual presence and number of species.

"An environmental appraisal is made to assess the potential impacts on protected sites, habitats and species," said Caroline. "This details the mitigation measures that will be employed and how habitats and species will be preserved on site during and after the works."

Consultations are also held with local planning authorities, conservation groups, Natural England, the Environment Agency, wildlife groups and biological recording centres.

"If at all possible, we avoid sensitive sites completely," continued Caroline. "And if appropriate mitigation is not sufficient in itself, new habitat may be created in compensation. In some cases it may even be possible to enhance the habitat."

Certain species, such as great crested newts and bats, have restricted survey seasons and can therefore hold up developments if they are not identified at a sufficiently early stage.

More indirect impacts are also considered. For example, hedges provide important habitat for dormice, which are particularly sensitive to habitat isolation, and may also be used as flightlines by bats.

"Badgers can be affected by the loss of feeding areas some distance from setts, and sites of bird interest as far as 20km away must be taken into account if a proposed overhead power line is on a migration route," explained Caroline.

Where necessary, ecologists apply for special licences from Natural England to work in the vicinity of protected species or to handle and rehome them to areas outside the work corridor.

Mitigation can include so-called 'destructive searches', which involve cutting back vegetation and locating refuges for amphibians, reptiles and small mammals. The aim is to complete such clearance work before the bird-nesting season.

On occasion, temporary fencing is erected to prevent recolonisation of the site. Traps can be also be used to capture and translocate amphibians or reptiles such as great crested newts, while one-way gates are employed to prevent badgers using setts close to works.

"Prior to the start of works, project members are briefed to raise awareness about the sensitive ecology in the vicinity," said Caroline.

NEWT HAVEN: Ecologist Caroline Gettinby undertakes a pond survey for great crested newts. The adults are most active at night and the powerful torches pick up the distinctive silver stripe on their back, that mark it out from the other two species of newt

Nature gets a helping hand

National Grid is funding habitat improvements in a popular country park as part of its mitigation provision during a major power line construction project in north-east England

A new 400kV overhead power line being constructed between Norton substation in Stockton-on-Tees and Spennymoor substation in County Durham, passes through the 400-acre Wynyard Woodland Park in two places.

The park, which is based around a three and a half mile section of disused railway, is managed by Stockton-on-Tees Borough Council and includes a local nature reserve. It is also traversed by a national cycle route.

A number of protected species, including badgers, bats, otters and water voles were identified by the Environmental Impact Assessment, but only great crested newts are directly impacted in the park.

"Special measures are being employed under licence from Natural England to protect the newts," explained the project ecologist Caroline Gettinby. "They are being trapped and removed from the construction area and prevented from returning using special one-way fences. We are also creating new ponds."

Lands officer east Deborah Turner liaised with the council on obtaining way leaves and access arrangements for the works. Agreement has also been reached on mitigation measures, which will benefit the biodiversity of the site and increase the enjoyment of future generations of visitors.

"These include clearing the park's main pond of silt and enhancing its value for wildlife, creating new ponds, and under-planting areas close to the line with smaller-species shrubs such as hawthorn and blackthorn," said Deborah. "We are also funding some footpath works and a project to create a 10-hectare wild-flower meadow."

The proposed new meadow will be fenced and planted with grass and wild-flower seed and then managed through an ongoing cycle of cutting and grazing.

"After the hay crop, cattle or sheep will graze the land," explained park ranger Bob Brown. "The animals churn up the ground with their feet which enables the wild flowers to establish themselves."

TEAMING UP: (foreground) Deborah Turner with park ranger Bob Brown (on the bike) in front of the former railway station now used as the Visitor Centre

PROJECT FACTS – NORTON TO SPENNYMOOR

- The 22km overhead power line is the first major new-build since the Second Yorkshire line project in 2003
- It will enable an increased transfer capacity between England and Scotland, needed to connect new renewable projects such as wind farms north of the border
- Most of the construction work will be completed by November 2011
- The existing 275kV overhead power line is being dismantled and replaced by 70 new towers, and there are associated works on a new 400kV substation at Spennymoor and an expansion of the existing Norton substation.

Protect and preserve

Many sites and individual plant and animal species receive protection under EU and UK law

The Habitats Directive makes it an offence to deliberately capture, kill or disturb European Protected Species (EPS) or to damage or destroy their breeding site or nesting place.

Sixteen species or groups of animal are listed for the UK, including bats, large blue butterfly, sand lizard, fisher's estuarine moth, great crested newt, common otter, smooth snake, sturgeon and natterjack toad.

The Wildlife and Countryside Act 1981 is the UK's principal domestic mechanism for protecting wildlife and habitats. Animals and plants listed in Schedule 5 are protected from disturbance, intentional destruction or sale.

Rare or endangered species, in addition to those listed as EPS, include red squirrels, water vole, white-clawed crayfish, badgers, barn owls, grass snakes, slow-worms and several fish species, including salmon and lamprey.

It is also an offence to intentionally kill, injure, or take any wild bird, their eggs or nests. For birds listed in Schedule 1, extra penalties apply for the offences of disturbance at their nests, or to their young. The breeding season for most species in the UK is March to July.

It is also generally an offence to deliberately pick, collect, cut, uproot or destroy a wild plant with protection under the above legislation.

The Mammal Society

COMMON DORMOUSE

Dormouse populations have declined as a result of changes in woodland management. It is a nocturnal animal living mainly in deciduous woodland and scrub, and interconnecting hedgerows. It hibernates in nests on the ground, usually from October to late April/early May.

BADGERS

Specific legislation within the Protection of Badgers Act 1992 (which outlaws badger-baiting) makes it illegal to wilfully kill, injure or take badgers, or to destroy or otherwise disturb their setts. Licences to interfere with setts are normally only issued outside the breeding season from December to June.

GREAT CRESTED NEWTS

The loss of ponds through development, pollution and neglect is one factor in the decline of the great crested newt. They breed in ponds but spend most of their time on land, in habitats such as grassland, woodland and scrub, where they forage and find shelter.

DANGER IN THE PIPELINE

When it comes to working near gas pipelines it's better to be safe than sorry

For the most part invisible in the landscape, some 22,000km of high-pressure pipelines criss-cross the UK, transporting gas, chemicals and oils that are essential to the economy.

Pipelines are not dangerous – in fact they are the most environmentally friendly way to transport large quantities of liquids and gases over long distances.

But, inevitably, some work will always need to be carried out in their vicinity and that's when they can become less benign. A gas leak arising from damage to a pipeline may pose a serious hazard with the potential to ignite.

A report by the UK Onshore Pipelines Association (UKOPA), representing major operators, has highlighted the continued incidence of near misses and actual damage to pipelines as a result of third-party activity.

The association maintains an 'infringement' database of reported incidents in order to share information on trends, to find out how they occur and how they can be prevented.

DIGGING DEEP: The AFT 100 Trencher (above) installs field drainage systems in one pass, but the excavating teeth can penetrate to a depth of 1.6 metres – bringing them into the potential zone of pipelines
(left) Compact trenchers are used for sports fields and golf courses where it is vital to minimise disruption

National Grid is one of the largest pipeline operators with more than 7,500km of high-pressure transmission gas pipelines in the UK.

"A key finding by UKOPA is that landowners and managers are responsible for the largest number of infringements and that farmland is the most common setting," said Rob Greaves, policy planner, Asset Protection at National Grid. "Third parties, such as drainage contractors, are also heavily represented."

High-risk activities include building work, excavations for services, road building, drainage activities, boreholing and earth moving.

"In the event of striking a pipeline, even if there's no apparent damage, it's important to contact us immediately because nicks or scrapes could result in future corrosion and failure," stressed Rob Stockley, gas asset management engineer at National Grid.

Any grantor or third party contemplating work near a pipeline or underground electric cable must contact National Grid's Plant Protection team with full details of the proposed work, giving at least seven days' notice.

"The Plant Protection team will check for any gas pipelines, overhead power lines or underground electricity cable that may be in the vicinity of the work and they will say if the work is of high, moderate or low risk," said Rob.

"In many cases, engineers will visit the site to identify the exact location and depth of the pipeline or cable using detection equipment and mark it out with pegs. They will also provide advice on what can and can't be done."

Plant Protection also provide guidance on safe excavation procedures. For example, no mechanical excavations are normally permitted within 3m of a gas pipeline and no hand-operated power tools within 1.5m.

Gas grantors are also urged to reply to the annual letter requesting ownership and occupier details. "It's critical that we are able to maintain an up-to-date database so that we can make contact quickly when urgent maintenance is required," said Rob Greaves.

WARNING: Always report damage to a pipeline said Rob Stockley, however slight it might appear

BIG BROTHER: A powerful Gammond trencher at work on a construction site

DIAL BEFORE YOU DIG

- It is generally illegal to carry out excavation within 3m of a high-pressure gas pipeline
- Works in the easement strip of a pipeline or cable require written consent
- At least seven days' notice must be given before any work is due to start
- Anyone planning a change in land use or development within the vicinity of underground assets should get in touch. New roadways or services may also have an impact.
- Always contact your local planning authority for guidance where occupied buildings are proposed.

POINTS TO REMEMBER

- Routine agricultural activities such as ploughing (to a depth of about 0.5m) do not normally pose a threat to gas pipelines, which are usually buried at a depth of between 1 and 1.5m
- Always contact National Grid before putting in new drainage using deep excavation methods such as mole ploughing and chain trenching, before fencing operations or clearing out ditches with toothed excavators
- Remember to always notify contractors of the presence of a gas pipeline or cable
- Ground cover should not be reduced or increased, or materials stacked or stored above gas pipelines or underground cables
- Remember gas marker posts can be accidentally moved, and that pipelines change direction and may not always run in straight lines across fields
- Written approval must be gained before any planting on the easement strip above a gas pipeline (usually no trees are permitted within 6m)
- Where permitted, only shallow-rooted hedge specimens should be planted above a gas pipeline
- Do not plant trees directly above or within 3m of an underground electricity cable.

CONTACT US

For all enquiries about proposed work near gas pipelines, underground electric cables and overhead power lines, contact us on 0800 688 588 or write to National Grid Plant Protection, National Grid, Block 1, Floor 2, Brick Kiln Street, Hinckley LE10 0NA. Email: plantprotection@uk.ngrid.com.

Please remember to supply a clearly identifiable plan, site grid reference or postcode, a works start date, contact details and details of the planned work.

SELF-SEARCH

www.linesearch.org is a free online enquiry service giving instant results from a grid reference, postcode or street name. If your result is within a National Grid zone of interest, you can click directly through to the Plant Protection team to request plant location details.

Further information: An excavation safety DVD has been produced by UKOPA and can be downloaded from its website: www.ukopa.co.uk.

EMERGENCY

If you smell gas or are worried about gas safety, or if you suspect a pipeline may have been damaged, call 0800 111 999.

A greener Glastonbury

The largest greenfield music and performing arts festival in the world, the Glastonbury Festival is underway after months of meticulous preparation

At certain times of the year, it's hard to imagine that the lush green fields of Worthy Farm, in the Vale of Avalon, are the venue for the world-famous Glastonbury Festival, which marks its 40th anniversary in 2010.

Only the steel skeleton of the giant Pyramid Stage and a few other structures are normally visible in the 1,200 acre site – including the seven National Grid towers that cross the landscape from east to west.

But it's a very different picture come June, when 185,000 revellers descend on this peaceful valley for five days to watch more than 250 acts on 10 major stages. And that's not including the 35,000 band members, staff and volunteers in attendance.

At 75, Michael Eavis, farmer and National Grid grantor, remains as enthusiastic as ever about dairy farming, protecting the environment and, of course, the world's most famous open-air music gathering, which he has organised since 1970.

While he acknowledges that perhaps the greenest option would be to not hold the festival at all, Michael is determined to set the standard for environmentally responsible mass events of this nature.

"The festival has this image of being a rather non-stop hedonistic indulgence, but

BIN MOUNTAIN: Phil Miller with some of the 40,000 oil drums used as rubbish bins

1970 the first festival in which 1,500 people pay £1 each to see T Rex and drink free farm milk

1981 the festival makes a profit with £20,000 donated to the Campaign for Nuclear Disarmament

1983 new licensing laws restrict crowd size to 30,000 and require the provision of access roads, water supply and general hygiene

GLASTONBURY BY NUMBERS

- £2 million a year raised for charity
- 40,000 recycled oil drums to segregate the rubbish left behind
- 49% of rubbish recycled
- 4,500 toilets
- 10,000 trees planted in the past 10 years
- 2,000 tons of rubbish produced over the five days
- 48 environmental officers monitor the festival

GODFATHER OF GLASTONBURY: Michael Eavis

it's important to get across the message that we also put a lot back, looking after the environment and running the festival as sustainably as possible," said Michael.

First and foremost, the land is managed as a dairy farm with 400 Friesian cows producing 12,000 litres of milk a day. "So we're not hippy farmers," laughed Michael.

"In fact, as far as dairy farming is concerned, putting on the festival is a perfect use of the land because the permanent pasture is cut for silage in May, we clean up the fields for the festival in June, and then afterwards it all recovers and the cows come out again."

Ten thousand trees have been planted during the past 10 years, along with miles of hedgerow and a new pond. Wildlife sanctuaries are created during the festival to protect birds and animals.

Nor should it be forgotten that the festival donates about £2 million a year to charities, such as WaterAid and Oxfam, and generates £82 million a year for the UK and international economy.

Each year, National Grid and the festival organisers work in close partnership to ensure that public safety is maintained in the vicinity of the 400kV overhead power line (running between Hinkley Point and Melksham) and a 1.5-mile section of high-pressure gas pipeline.

"Extra security fencing is erected around towers directly affected," said Richard Biggs, lands officer south-west. "Overhead linesmen also check the anti-climbing guards before, during and after the event.

"In the case of the pipeline, one of our technicians will visit prior to the start of the festival to mark out a 10m exclusion zone. Marquee pegs can penetrate up to one metre into the ground, and therefore only small tents are allowed in this area. One of our representatives will also supervise the erection of the superfortress perimeter fence where it crosses the pipeline."

Meanwhile, the man in charge of organising many of the mind-boggling logistical preparations for the festival is Phil

1984 Michael Eavis sees off five prosecutions from Mendip District Council

1990 235 arrested after security guards clash with New Age travellers

1994 the festival is televised for the first time

2000 attendance doubles to 250,000 due to an invasion of gatecrashers

Miller, the director of infrastructure. He 'jumped ship' three years ago from Mendip Council, where ironically he was involved in monitoring the environmental controls for the festival.

"This year, a great deal of focus has gone on addressing water supply and sewage issues, and reducing carbon footprint," said Phil. "The festival site is supplied by a mains water connection, which has been upgraded this year with a higher water pressure, capable of delivering 25 litres a second. In fact, we've had to change all our taps to cope with it."

The water is stored in two giant reservoirs, each holding one million litres of water, from where it is pumped throughout the site. Another project this year has been to install a new 4km ring main around the outer reaches of the site to supply high-quality water to hundreds of standpipes and basins.

"We've been able to vastly reduce the need for water tankers coming on to the site, cutting the number from 168 in 2008 to just three this year – a 96 per cent reduction," said Phil.

In the meantime, sewage that used to be sent by tanker to a sewage plant in Avonmouth, almost 80km away, will now go to local plants within a 16km radius. Thanks to a new 700,000 gallon, above-ground storage container, the number of tankers needed will reduce from 32 to just two during the festival, with fuel consumption cut by 2,300 gallons.

ON TAP: Waiting to be distributed throughout the 1200-acre site are 400 basins and 600 taps

Renewable energy has been a feature of Glastonbury since 1979. The greenfields area, for example, uses solar and wind power with solar-heated showers and generators using bio-diesel sourced from recycled cooking fat.

Planning permission is currently being sought for 1,500 square metres of solar panels on the cow-barn roofs at Worthy Farm. If given the go-ahead, it will be the UK's largest, private, solar-electricity system, generating enough power to supply 40 homes and delivering annual CO_2 savings of around 100 tonnes.

"We are also exploring having an anaerobic digester using cow slurry, food waste or energy crops to produce biogas, which in turn, can generate electricity," said Phil.

As in previous years, a major emphasis is being placed on the 'Love the Farm – Leave no Trace' campaign. In 2008, a million biodegradable tent pegs were handed out to campers, and last year 49 per cent of the 2,000 tonnes of rubbish at the festival was recycled rather than sent to landfill.

A major aim of the festival organisers is to encourage more people to lift-share with around 40,000 festival-goers expected to travel by public transport this year. Special trains are laid on to the local station, with free shuttle buses to the site.

Like any large city, the festival site never sleeps – least of all Phil who says he works 24/7 during the five days, with just the odd catnap. "There's always something going on. Even on the last day, we have work teams up at 3am to repair the site's roads for the big exodus later."

It's all part of the unseen Glastonbury that never makes the TV screens.

RING OF STEEL

Since 2002, the site is completely surrounded by a 15ft-high 'superfortress' fence, stretching over 8km in length, to prevent the unofficial invasions by gatecrashers of the past. The fence is brought on to the site each year and takes six weeks to erect.

TAKING A BREATHER

No festival is planned for 2012 to take into account the massive demand on logistical services that will occur in the run-up to the Olympics.

2002 the ring of steel is introduced to prevent fence jumpers

2005 flash floods submerge 200 tents in eight feet of water

2007 new ticketing system prevents ticket reselling at rip-off prices

2009 Michael Jackson's music is celebrated during the festival, after news breaks of his death

OUT & ABOUT

National Grid volunteers go back to class to inspire a new generation

School Power – a new online education programme aimed to inspire primary schoolchildren about science and technology – has been launched by National Grid.

About 100 engineers and employees from National Grid have volunteered to go into schools to inspire children about the role that energy plays in their lives and its relevance to science and technology.

A free online programme of lesson plans, activities and assembly presentations will also be available.

The programme was developed in response to a major research report – 'Engineering Our Future' – published by National Grid last year, which found the profession of engineering had become an invisible industry to many young people, as well as their parents and teachers, and had been undervalued and undermined by outdated stereotypes.

Find out more about School Power at: www.nationalgrideducation.com.

ENGINEERS OF THE FUTURE: Primary schoolchildren are being inspired to consider a career in the profession

RIDING FOR CHARITY: James Dean (left) and Ian McKenna

Lands officers riding for the Special Olympics

James Dean and Ian McKenna, lands officers in the north-west and Scotland regional team, are in training for the Mazda London Triathlon in August, with the aim of raising funds for the Special Olympics Great Britain (SOGB) charity.

The two are part of an 11-strong team of National Grid employees who have signed up for the event, the largest triathlon in the world with 11,000 competitors and 30,000 spectators. Both will be competing in the full Olympic distance – a 1500m swim, followed by a 40km cycle and 10km run.

"It's a real challenge that we're taking very seriously," said James. "We both play a lot of football, squash and tennis and being a lands officer is a pretty active job anyway."

The two have already competed in the Kendal Sprint Triathlon (500m swim/17km cycle/5km run) and are entered for the Great London Swim in July – a one-mile race in the cold and choppy waters of the Thames.

The aim is to raise £400 each for SOGB, which National Grid will match through its matched donation programme," said James.

National Grid is the official partner organisation of SOGB, whose volunteers work to bring sports training, competition and enjoyment to people with learning disabilities. To make a donation go to: www.justgiving.com/IanandJames.

National Grid volunteers spring into action

An 11-strong team of employees from National Grid's offices in Berkshire spent a day in the great outdoors earlier this year helping out at the Berks, Bucks and Oxon Wildlife Trust (BBOWT) Warburg Nature Reserve, near Henley-on-Thames.

The volunteers removed an old fence and built a new one to stop sheep straying on to neighbouring land. Several of the team had carried out a similar project last year when they fenced in a newly constructed pond.

National Grid became BBOWT's first gold level corporate sponsor in 2007.

BBOWT is one of 47 Wildlife Trusts working across Britain to secure a better future for wildlife. The organisation cares for 80 nature reserves, works in partnership to look after the wider countryside and inspires people to take action for wildlife. For more information go to www.bbowt.org.uk.

To contact Gridline:
✆ 01926 656 325
gridline@uk.ngrid.com
23-25 Waterloo Place, Warwick Street, Leamington Spa, Warwickshire CV32 5LA.

WIN A FABULOUS SONY DIGITAL CAMERA

Move up the next level of photography with the Sony Cyber-shot W220B digital camera.

The camera combines point-and-shoot ease-of-use with advanced features in a compact body.

Outstanding features include a 12.1 megapixel resolution, a large 2.7-inch LCD screen, 30mm wide angle lens, 4x optical zoom and optical steady shot to eradicate camera shake.

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

Q What is the megapixel resolution of the camera?

Send your answer to Gridline Cyber-shot competition, 23-25 Waterloo Place, Warwick Street, Leamington Spa, Warwickshire CV32 5LA. Please note you must be a grantor to enter. Closing date is 14 August 2010.

TO BOLDLY GO...

Congratulations to gas grantor Donald Bruce of St Cyrus, near Montrose, Scotland, who is the winner of our last photo competition on the theme of 'the weather' for this atmospheric picture of a snowbound scene

WIN £100 worth of theatre tickets!

Enter our competition to win a great night out at the theatre with Theatre Tokens

We've teamed up with Theatre Tokens to offer the winner of our next photo competition the great prize of theatre vouchers to the value of £100.

These unique gift vouchers can be used to watch a variety of shows including drama, musicals and opera, at more than 240 theatres nationwide including all of London's West End venues, so you'll be spoilt for choice.

The theme for this issue's photo competition is 'wildlife'. Just send in your selected photo for a chance to win this great prize.

Send your photo to Gridline Photo Competition, 23-25 Waterloo Place, Warwick Street, Leamington Spa, Warwickshire CV32 5LA, or email your photo to gridline@uk.ngrid.com. Closing date is 14 August 2010. Only grantors are eligible to enter and regrettably prints cannot be returned.

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TERMS AND CONDITIONS: No cash alternative will be provided. Standard Theatre Tokens terms and conditions apply.