nationalgrid

Gridline

Autumn 2011

CLEANER COAL
Carbon capture, transportation and storage

ON COURSE FOR NATURE
The Belfry golf resort pulls out all the stops for wildlife

POWER LINE PATROL
Inspecting overhead transmission lines

GENTLE GIANTS

Devon grantor and shire horse trainer Jonathan Waterer

PLUS: SPECIAL OLYMPICS, ANIMAL LIFELINE, WIN A TWO-NIGHT HOTEL BREAK

National Grid's Land and Development Group

The 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. Your local contacts are listed below.

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 carrying out 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.

Customer comments

- Write to Land & Development, National Grid House, Warwick Technology Park, Gallows Hill, Warwick, Warwickshire CV34 6DA. Or email ld.customercomments@uk.ngrid.com.

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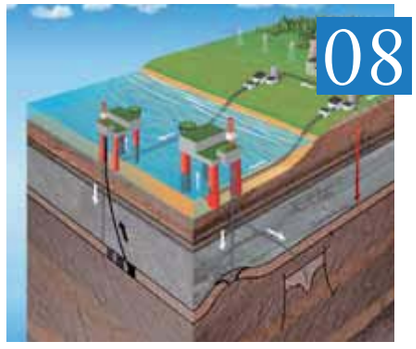

Turn to page 20 for the result of last issue's photo competition

M&S giftcard competition winner

Congratulations to electricity grantor Alan Anderson of Hedchester Law Farm, Belsay, in Northumberland, the winner of Gridline's £150 M&S giftcard competition in the last issue.

"It was great news to be told I had been picked as the winner," said Alan, who added that his wife Katherine had already taken charge of the M&S giftcard.

Shopping vouchers

Also congratulations to Ben Hunt of Three Pots Farmhouse, near Burbage, Leicestershire, whose name was picked out of the hat to win Gridline's draw for £150 of shopping vouchers.

Get in touch

Please contact Gridline if:

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

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To contact Gridline, phone 01926 656 325, email gridline@uk.ngrid.com or write to the address above.

Welcome to Gridline

It's been a busy time for me since the last edition of Gridline, working behind the scenes on our 2011 county show programme.

I hope those of you invited to join us in the marquee at the seven shows we attended enjoyed the hospitality. It was great to meet many of you face-to-face at the Royal Cornwall and Great Yorkshire shows.

Just a quick reminder to all our gas grantors about the importance of letting us know about any changes in ownership of land. In order to make this easier, we are featuring a prepaid insert in this edition for your use. Simply fill in the form and pop it back in the post to us.

I would also like to draw your attention to our free marking-out service for anyone who intends to carry out works near gas pipelines or electricity cables (see page 6). Please make use of this facility, as the safety of grantors – and our assets – is of paramount importance.

Our main feature on page 8 takes an in-depth look at carbon capture, transportation and storage, a suite of technologies that is set to play a major role in the move to a low-carbon energy future.

The case study on page 12 focuses on The Belfry in Warwickshire, which, in common with many golf courses, has taken steps to create wildlife habitats in out-of-play areas.

On page 14 we look at the role of the National Grid linesmen who patrol the nation's overhead power line routes to assess the condition of towers, conductors and fittings.

By providing National Grid with access to its equipment for these inspections, and regular maintenance, grantors make an important contribution to the safe operation of the high-voltage electricity transmission network.

This issue's grantor profile on page 16 looks at Jonathan Waterer, who trains shire horses in North Devon, as well as working the land with these magnificent animals and teaching people driving skills.

Turn to page 20 for the chance to win a fabulous two-night stay at The Belfry golf resort in Warwickshire and a £150 Your M&S giftcard.

Dawn McCarroll
Editor, Gridline

For more information
Tel: 01926 656 325
email: gridline@uk.ngrid.com
www.nationalgrid.com

Newsline

The latest news from **National Grid** and its nationwide grantor network

MEDAL HAUL: The silver medal-winning aquatics team; (l to r) Christina Lewis, Stephanie Beaton, Laura Mitchell and Kaley Heath

Athletes bring home the medals

A team of athletes with learning disabilities from Special Olympics Great Britain – supported by National Grid – have excelled at one of the world's largest sporting events

THE BRITISH TEAM RETURNED FROM the Special Olympics World Summer Games in Athens this June with no fewer than 187 medals, including 73 gold medals.

With 7,000 athletes from 180 countries competing across 17 disciplines, the Games is one of the biggest sporting events in the world, with the number of participants surpassing that expected at the 2012 Olympics in London.

The British medal tally is a tribute to Special Olympics Great Britain (SOGB) – a charity that transforms the lives of people with learning disabilities through sport.

National Grid began working at a grass roots level with SOGB in 2007, and last year extended its position as Premier Partner for another three years, until the end of 2013.

Some 600 employees have volunteered their services, which include mentoring learning disabled athletes, helping to organise sports competitions, spectating at events, fundraising and promoting awareness of the charity's work.

For National Grid, supporting SOGB is an opportunity to make a positive impact in the communities in which it operates. The programme also develops employee skills, raises diversity awareness and provides team-building opportunities within the company.

There are currently 200 SOGB clubs in Great Britain, involving more than 8,000 athletes. National Grid has established a sports development fund to help the clubs develop sports locally and to provide more sporting opportunities for people with learning disabilities.

Last year, National Grid was winner of the Corporation of the Year category at the prestigious Beyond Sport Awards for its achievements working in partnership with SOGB.

For more information…

i on Special Olympics Great Britain, go to www.nationalgrid.com/uk/Community/specialolympics/.

Renewable milestone

ACCORDING TO A REPORT by National Grid, enough transmission-connected renewable generation has been contracted to meet the UK's plans for achieving the government's target of 15 per cent of energy coming from renewable sources by 2020.

The 32GW milestone was passed in November 2010. However, National Grid has warned that reform of the energy market to encourage investment and changes to the planning system are needed to ensure proposed projects come to fruition.

At the time of the report, only 20 per cent of the proposed renewable projects had planning permission.

The UK Renewable Energy Roadmap, published in July, revealed that renewable energy accounted for 3.3 per cent of the UK's total energy consumption in 2010.

PLANTING: Andy (right) and Gordon Baird, another ecologist on the project team

Woodland scheme

NATIONAL GRID HAS donated more than 3,000 trees and shrubs for a new area of woodland in Pembrokeshire.

The trees were given to the National Trust-owned Colby Woodland Garden, near Amroth, as part of a programme of habitat enhancement works associated with a National Grid project. The company is currently working on a refurbishment of its overhead power line from Pembroke to Swansea and has had to cut down a number of trees to make way for the work. To replace them, 300 oak and ash trees, along with 80 hazel whips, were donated to create four acres of woodland.

In addition, 3,000 blackthorn, hazel and hawthorn bushes have been planted to create a new 400-metre-long hedgerow.

The planting scheme was carried out by members of the project team.

"We have been particularly careful to look after the local dormouse population and we're hoping that the new woodland will provide significant new habitat for them," said Andy Weston, National Grid's project ecologist.

News in brief

IT'S A BREEZE

A new wind power forecasting system could help National Grid reduce the expense of bringing more turbines into the electricity network.

The system uses more complex computer models to predict power output from wind farms with greater accuracy, and also gives a better picture of how accurate the forecasts are. This will enable National Grid to be better prepared for times when wind doesn't produce as much power as predicted, by having the right level of generation backup available to balance supply and demand.

MAKING THE GRADE

Six National Grid lands officers have completed the first-ever lands officer diploma qualification, in association with Harper Adams University College in Shropshire.

The two-year course provides a wide-ranging insight into farming best practice and rural issues.

The six are pictured above (from left): Nick Henderson-Newton, Darren Kempson, Rob Miller, Vicky Stirling, Tim Skuse and James Dean.

One minute interview

David Scott, lands officer south-west

Background: I joined National Grid in July 2010, after working as a surveyor for the company's tree contractors. Prior to that, I gained a rural land management degree at the Royal Agricultural College, Cirencester.
Current focus: Transmission and distribution gas projects, as part of my development.
Dream job: Field sports journalist, so I could visit some great places, meet a great mix of people and enjoy some wonderful sport.
Leisure interests: I run a small woodcock shoot.
First purchase if you won the lottery: A pint at least for the person who sold me the ticket!
If you could be anywhere in the world: Kilmacalogue Harbour, County Kerry, with a pint of Guinness and a fresh salmon sandwich.
Last holiday: Kenmare, County Kerry.
Most treasured possession: My grandfather's game books.
Ideal dinner guest: David Niven. He'd provide some great banter.

CAUTION NEEDED: Check with National Grid first if you are using deep excavation methods to put in new drainage

Think safe; dig safe

They may be out of sight, but gas pipelines should never be out of mind when you are planning work nearby

SURVEYS CONTINUE TO HIGHLIGHT that landowners and other land managers are responsible for the largest number of 'near misses' near gas pipelines, with many such incidents taking place on farmland.

Pipelines are buried between 1 and 1.5 metres below the surface, although the depth can vary with ground contours.

Normal agricultural activities, such as ploughing, won't affect a pipeline, but consult National Grid before carrying out excavations in excess of 0.5 metres.

Particular care should be taken when putting in new drainage using deep excavation methods, before fencing operations or clearing out ditches with toothed excavators.

"Our engineers are more than happy to visit, identify the exact position and depth of the pipeline using specialist detection tools, and to mark out the location with pegs,"

said Rob Stockley, gas asset management engineer at National Grid. "They will also advise you on what can or can't be done."

CONTACT NATIONAL GRID FIRST

Before carrying out any work near overhead power lines, underground cables or gas pipelines, contact the Plant Protection team on 0800 688 588 (or email plantprotection@uk.ngrid.com) who will check if there are any National Grid assets in the vicinity.

Keeping National Grid posted

National Grid is required by the Health and Safety Executive to contact its gas grantors each year to establish if they are still the owner/occupier of land crossed by high-pressure gas pipelines. That's why the company sends out an annual letter asking grantors to confirm their contact information.

"It's vital that accurate records are maintained so that we can provide important safety information and contact you when maintenance work is needed," said Helen Worsley, central support manager, land and development.

Grantors may also call the gas grantor helpline on 01926 654 844 or use the prepaid reply form included in this issue to update National Grid at any time.

Project watch

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

1 BRINSWORTH TO CHESTERFIELD OHL REFURBISHMENT

WHEN: July to October 2011

WHY: Work has commenced on a refurbishment of the 275kV overhead line between Chesterfield substation, in Derbyshire, and Brinsworth substation, South Yorkshire. The line, constructed in 1965, has a total length of 22.8km, features 72 towers and runs parallel to the M1 motorway, from junction 28 to 33.

WHAT: Wind-induced vibration fatigue has resulted in wear and tear on the conductors. The route crosses the M1 motorway and five railways, as well as Poolsbrook Country Park, a 180-acre recreational and leisure amenity created from a former colliery in Derbyshire, and the 750-acre Rother Valley Country Park near Sheffield.

2 BOLNEY TO NINFIELD OHL REFURBISHMENT

WHEN: October 2011 to September 2012

WHY: A fittings-only refurbishment is required on the 400kV overhead power line between Bolney and Ninfield substations in Sussex. The line is an important feeder circuit into London, and the planned outage (power cut) for the works is scheduled to finish by the start of the Games in July 2012.

WHAT: The scheme involves 146 towers over a distance of 51km. The line crosses Chailey Common, a 450-acre Site of Special Scientific Interest (SSSI) noted for its heathland plants, and insect and bird communities. Permits for some tree clearance work is being sought from Natural England, the Environment Agency and other statutory bodies.

3 TIRLEY PRESSURE REDUCTION INSTALLATION

WHEN: March 2011 to late 2012

WHY: National Grid is constructing a new Pressure Reduction Installation (PRI) in Tirley, Gloucestershire. The PRI is needed so that a 316km gas transmission pipeline from Milford Haven terminal in South Wales can operate at full capacity. The pipeline is capable of supplying 20 per cent of the UK's gas demand.

WHAT: Permission for the new installation at Flat Farm was refused by Tewkesbury Borough Council in February 2010. The decision was overturned on appeal by the Secretaries of State in December that year. As a result of the new PRI, an existing above-ground installation in Tirley will be decommissioned and the area returned to a greenfield site. The full contracted capacity of 950 GWh in the Milford Haven gas pipeline will be available for winter 2012/13.

4 BRAMFORD TO TWINSTEAD TEE POWER CONNECTION

WHEN: Consultation began October 2009

WHY: National Grid has announced its preferred route corridor for a proposed 400kV power line between Bramford, near Ipswich, and Twinstead Tee, near Sudbury. The new line is needed to connect new power sources.

WHAT: Consultations on four short-listed options began in October 2009 with residents and other stakeholders. Most of the preferred route corridor runs alongside an existing 400kV overhead line. It is also proposed to take down an existing 132kV overhead line running from Burstall Bridge to Twinstead Tee. The next stage of consultation will focus on the specific route alignment and the location of a new substation.

Low-carbon future in the pipeline

It's been called the fossil fuel 'holy grail'. And now, thanks to carbon capture, transportation and storage, clean coal is about to take centre stage in the government's energy strategy to maintain supplies, tackle climate change and move to a low-carbon future

MOST SCIENTISTS INSIST THAT MAN IS TO blame for global warming and climate change, as the level of carbon dioxide (CO_2) in the atmosphere continues to grow.

Large fossil fuel power plants account for about 36 per cent of UK emissions, with most of the rest coming from car engines, heating systems and industrial processes.

To meet climate change targets, the government wants to reduce CO_2 emissions by 34 per cent by 2020 and 80 per cent by 2050, using a range of new, clean, green technology solutions.

National Grid is taking a lead role in developing one of these innovative solutions called carbon capture, transportation and storage (CCS).

In this technology, carbon dioxide is captured at fossil-fuel power stations and industrial plants, and transported by pipeline to storage sites under the seabed, so it cannot be released into the atmosphere. These sites include depleted gas fields or porous rocks saturated with salty water, known as saline aquifers.

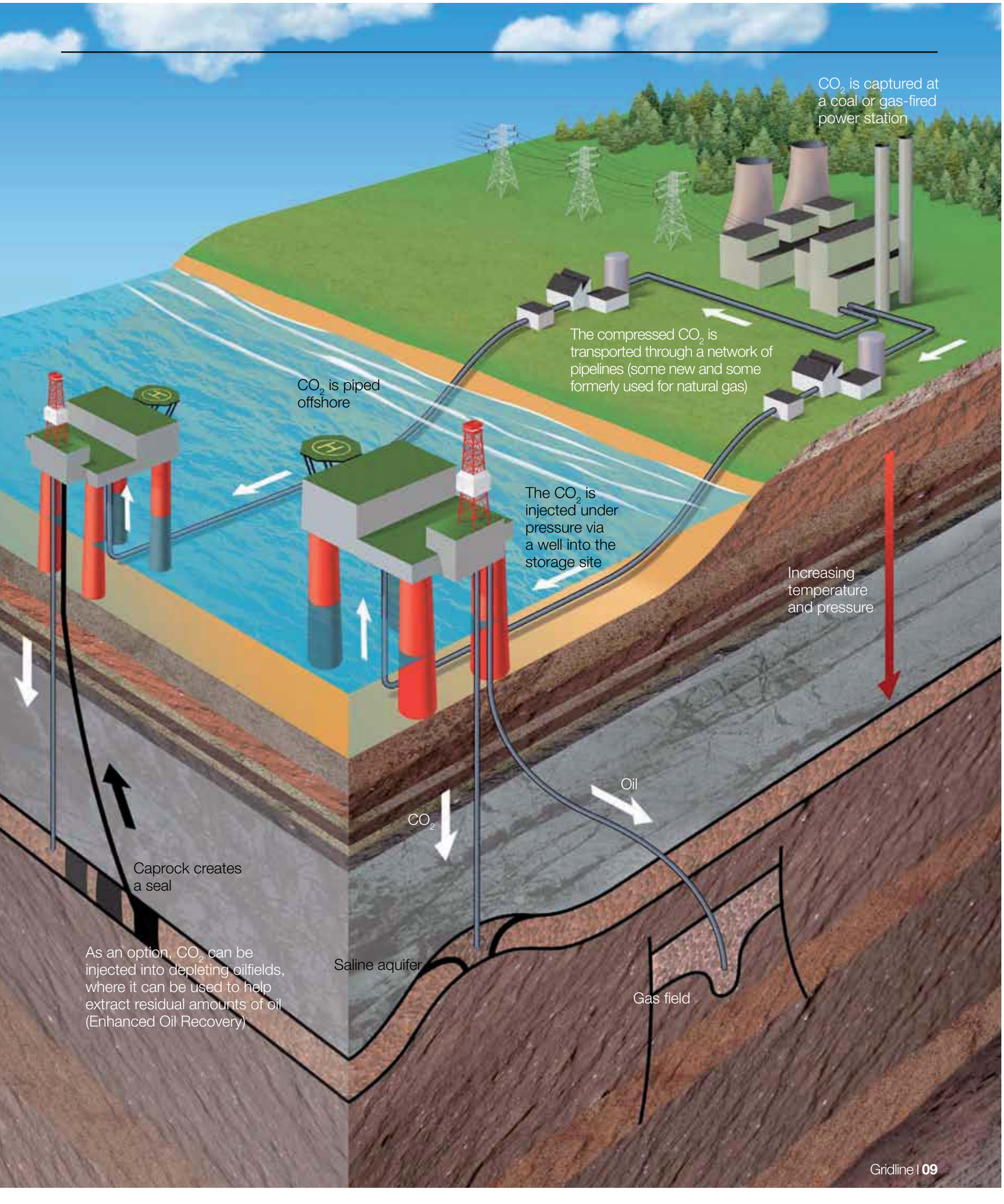
Almost three quarters of UK electricity is produced by fossil fuel power stations, meaning there will be a continued reliance on coal and gas for decades to come.

TACKLING CLIMATE CHANGE

"CCS buys us time, enabling coal and gas to remain part of the solution to tackling climate change until we can develop sufficient renewable sources of electricity generation," said Russell Cooper, project manager at National Grid Carbon, a subsidiary of the company. "Fitted to existing power stations, it can reduce carbon dioxide emissions by as much as 90 per cent."

While it is the most carbon-intensive of fuels, coal is relatively cheap and abundant in the UK. Coal-fired power stations are also flexible in operation and can be ramped up quickly to cope with intermittent electricity supply from renewable energy.

The UK government has stipulated that all future coal power stations must be built with CCS technology. They will be part of a diverse energy mix, along with clean


CO_2 is captured at a coal or gas-fired power station
The compressed CO_2 is transported through a network of pipelines (some new and some formerly used for natural gas)
CO_2 is piped offshore
The CO_2 is injected under pressure via a well into the storage site
Increasing temperature and pressure
Oil
CO_2
Caprock creates a seal
As an option, CO_2 can be injected into depleting oilfields, where it can be used to help extract residual amounts of oil (Enhanced Oil Recovery)
Saline aquifer
Gas field

gas, wind generation, and new nuclear power stations, delivering emission cuts and reducing dependence on energy imports from abroad.

CARBON DIOXIDE NETWORK

National Grid is involved in two projects; at Longannet in Scotland, and at the Don Valley Power Project in the Yorkshire and Humber region. In the Humber region, it is also supporting the Drax/Alstrom and C.GEN projects, which could potentially share a common pipeline in a CCS 'cluster.'

The company also aims to play a lead role in the development of a wider carbon dioxide network throughout the UK.

At Longannet, the CO_2 is being captured post-combustion (after the fuel is burned) in a retrofit to an existing power station. The Don Valley project is a pre-combustion solution (separating CO_2 from the fuel before burning) at a new plant. Both the projects benefit from being close to storage sites in the North Sea.

Post-combustion technology has the advantage that it can be retrofitted to existing plants, while pre-combustion technology is closely integrated into plant design and, therefore, more suited to new power stations.

END-TO-END CHAIN

All the elements of CCS have been in use for decades. There are around 5,600km of long-distance carbon dioxide pipelines in operation around the world.

The pipelines are mainly used for Enhanced Oil Recovery, in which carbon dioxide is injected at pressure to flush out the oil from depleted reserves. CO_2 storage has been carried out in the North Sea since 1996.

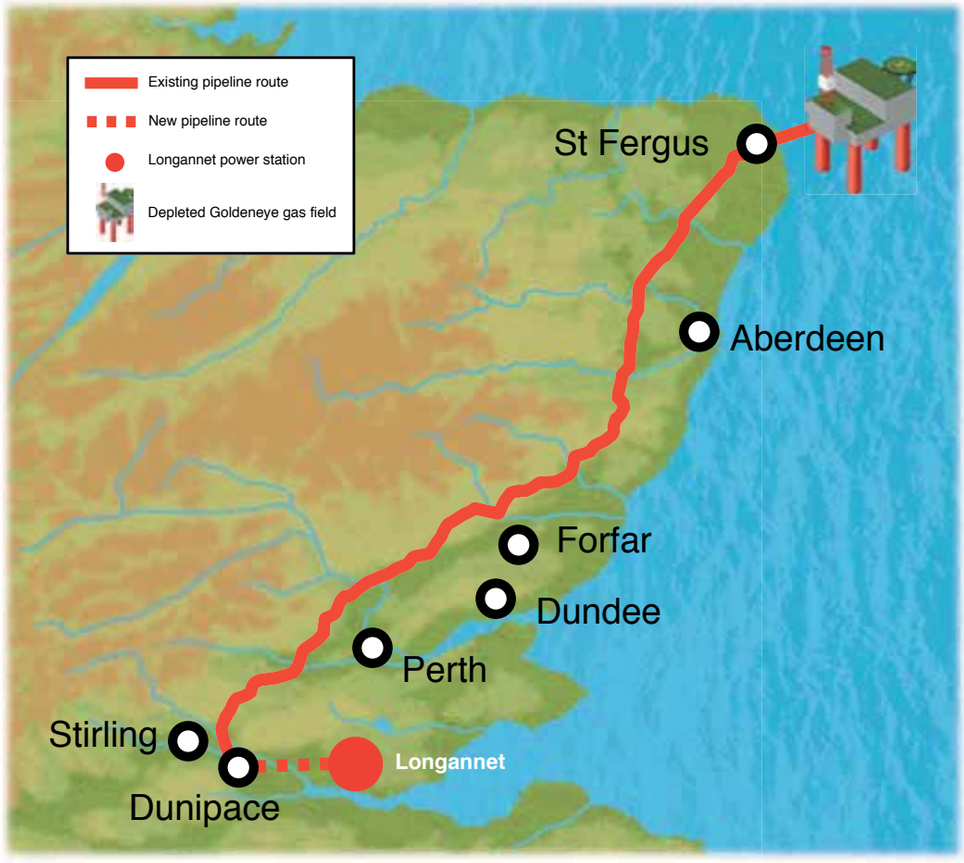
"What is new is putting all these elements together in an end-to-end chain, and applying the technology on a large scale at power stations," said Russell. "Another key priority has been to improve the efficiency of the CO_2 separation process at the power station to make it less energy-intensive."

With its track record of safely building and operating the natural gas transmission system, National Grid is well placed to deliver the transportation elements of projects.

"We're very confident that transporting CO_2 will be as safe, secure and reliable as our existing natural gas network," said Russell. "It puts National Grid at the heart of the drive to deliver a low-carbon future for the UK."

For more information...

on CCS go to www.nationalgrid.com/corporate/About+Us/climate/CCS2/.



Scotland

National Grid is part of a consortium with ScottishPower and Shell UK to develop a full-chain, post-combustion CCS project at Longannet power station on the Firth of Forth – the second largest coal-fired power station in the UK (2400MW).

The project is part of a competition by the UK government to develop proposals to build and operate a full-scale end-to-end CCS system.

The plan is to capture two million tonnes of CO_2 per year and transport it, in a gaseous phase, via a new 18km pipeline from the power station to an existing pipeline at Dunipace. From there, it will be transported in an existing 280km pipeline, converted from carrying natural gas, to the St Fergus gas terminal in Aberdeenshire.

TWO million
tonnes of CO_2 captured per year

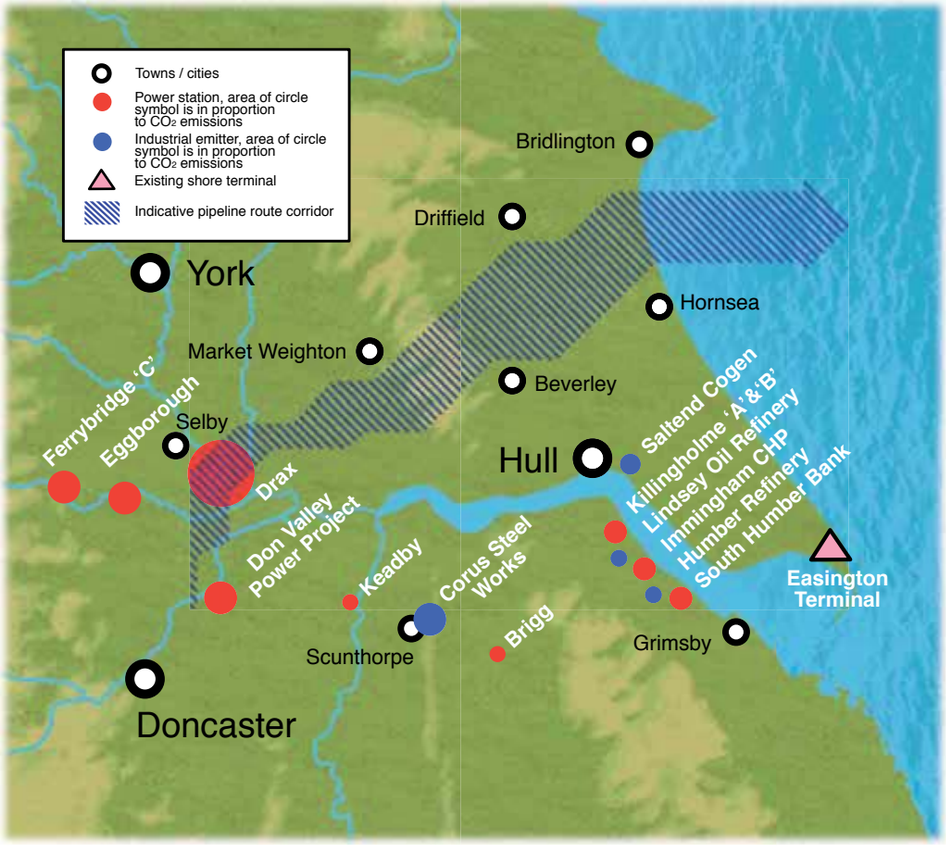
At St Fergus, the gas will be compressed to a dense phase (liquid carbon dioxide) and pumped via an offshore pipeline operated by Shell UK to the Goldeneye depleted gas field for permanent storage.

The capacity to use a natural gas pipeline for CO_2 transportation has arisen because of the decline in North Sea gas reserves. Reusing existing pipelines reduces the cost of the project and results in a smaller carbon footprint than a new-build.

National Grid will renegotiate permanent easements with grantors on the existing 280km pipeline, which will be converted to transport carbon dioxide. A second round of consultation took place this summer, with construction scheduled to begin in 2014, for delivery in 2015.

For more information...

visit www.ccsscotland.com



Yorkshire and Humber

National Grid is a partner with 2Co Energy in the Don Valley Power Project at Stainforth, near Doncaster. The new 900MW Integrated Gas Fuelled Combined Cycle power station is being designed with pre-combustion carbon capture facilities.

The project is part of a €180 million grant from the EU's European Energy Programme for Recovery.

National Grid is responsible for the transportation and storage solution for the project, which will capture five million tonnes of CO_2 a year, equal to 97 per cent of CO_2 emissions from the power station.

It is proposed that a new 65-70km pipeline will transport the carbon dioxide liquid across Yorkshire to the coast, for onward delivery via a 60-90km offshore pipeline to a capped saline aquifer in the North Sea, 1km below the seabed.

Ultimately, it is envisaged that the pipeline will serve a cluster of power stations and industrial plants, which together produce 60 million tonnes of CO_2 a year – equal to half of all UK domestic emissions. CCS clusters, using a single 'backbone' pipeline to a storage site, are a practical and cost-effective solution, avoiding the wasteful duplication of multiple point-to-point pipelines.

2Co Energy is also looking at the option of using captured CO_2 for Enhanced Oil Recovery in central North Sea oilfields.

National Grid started consultations on the broad corridor route options for the pipeline this summer, with the aim being to deliver the project in 2015.

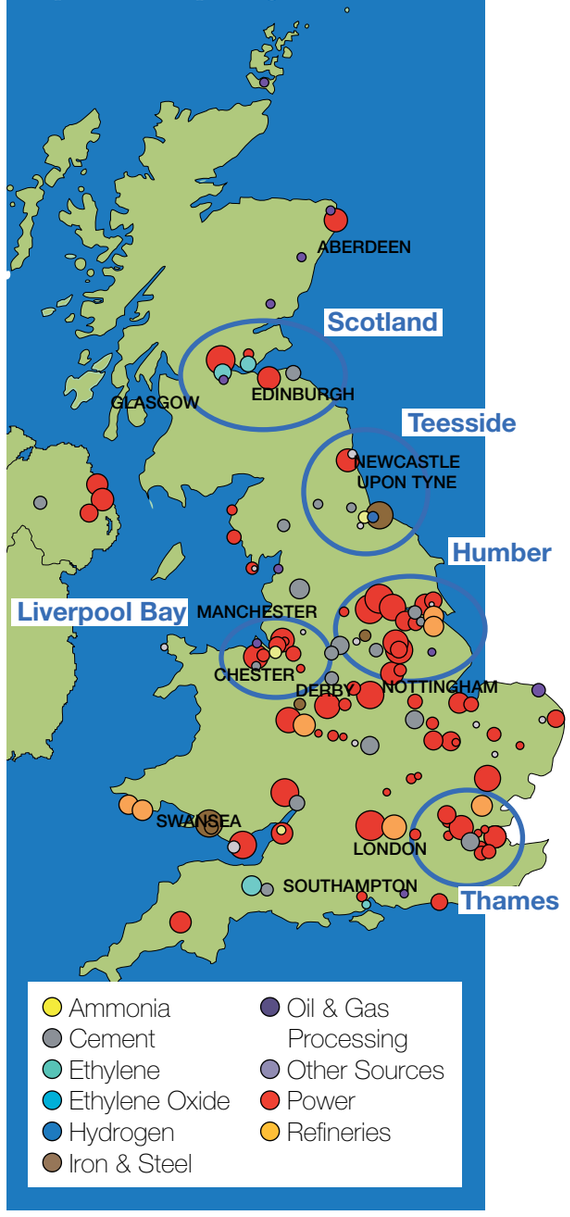
18%

of the UK's electricity is generated in the Yorkshire and Humber region

For more information...
visit www.ccshumber.co.uk

Plan for national CO_2 network

The map below shows the locations of major emitters in the UK. The ringed areas (The Humber, Firth of Forth, Teesside, Liverpool Bay and the Thames Estuary) have been identified by National Grid Carbon as being some of the best sites for CCS clusters – groups of CO_2 emitters best served by a single pipeline. All the locations are close to storage sites, such as saline aquifers and depleted gas fields.



Course of nature

Home to one of the most famous golf courses in the world, The Belfry near Sutton Coldfield is equally proud of its environmental credentials

THERE ARE MORE THAN 3,300 golf courses in the UK. No other sport manages such large areas of the countryside or has such an intimate relationship with the environment.

Every golf course has intensively managed areas (greens and tees), less-managed areas (fairways) and non-playing areas (roughs and natural habitat).

Up to 40 per cent of a course consists of non-playing areas and nationally, there are up to 370,000 acres that could be reserved for wildlife, according to the RSPB. That's more than the total area occupied by the wildlife charity's nature reserves.

In the past, critics have levelled the accusation that golf courses are over-manicured green deserts, lavished with excessive amounts of water, as well as pesticides and fertilizers, to keep the greens and fairways lush.

WORLD-CLASS: The Brabazon course draws golfers from far and wide

> "Larger areas of connected habitat tend to support a greater diversity of species"

But ecologists now believe golf courses can play an important role in a 'landscape scale' approach to the environment.

"Larger areas of connected habitat tend to support a greater diversity of species," said Bob Taylor, head of ecology and environment at the Sports Turf Research Institute (STRI).

"Golf courses can act as stepping stones, providing much-needed food and shelter for birds and other animals.

"About 100 golf courses in the UK are at least partly situated in a Site of Special Scientific Interest, helping to preserve rare sand dune, heathland, wetland and woodland habitats and their ecosystems."

Kenny Mackay is director of golf courses and grounds at The Belfry golf resort in the West Midlands, which hosted four Ryder Cup matches between 1985 and 2002.

"Golf courses can play their part in stemming the decline in many endangered species, and there's a realisation that wildlife also contributes hugely to the enjoyment of the game," he pointed out.

The Belfry boasts three 18-hole championship golf courses (The Brabazon, The PGA National and The Derby), as well as a 324-bedroom hotel, set in 550 acres. The mosaic of greens, fairways, woodland, ponds, ditches, hedges and grassland is

PROMOTING WILDLIFE: Kenny Mackay on the PGA National course, which has tall grass in out-of-play areas

crossed by National Grid's 400kV overhead line between Hams Hall and Ocker Hill substations, and two high-pressure gas transmission pipelines.

An environmental management plan has been in place at The Belfry for 10 years and

BIRDS

More than 50 species of bird are known to inhabit The Belfry site. Birds seen at the many ponds include kingfishers, pink-footed geese, herons and great crested grebes. Grass seed heads provide food for skylarks, meadow pippits, pied wagtail and linnets.




PONDS

The many ponds provide a home for frogs and toads. Aquatic plants, such as purple loosestrife and yellow flag, are important for over-wintering damselflies and dragonflies.


STREAMS

Rich in common weed, sweet grass and brooklime, streams act as ecological corridors through which species can move and disperse throughout the site.


> "The tall grass provides a haven for pollinating insects, such as the common blue butterfly"

the resort is currently seeking accreditation by the Golf Environment Organisation.

The on-site effluent plant recycles 1.5 litres of hotel waste water per second for reuse in the irrigation system. Water is stored in reservoirs connected to the many ponds by a network of streams and ditches, and no additional water is drawn from the mains.

The Brabazon course was constructed in 1977 on a plot occupied by 15 potato fields. Kenny and his team of more than 50 greenkeepers maintain the manicured playing surfaces to impeccable standards.

"We make no apology for that," said Kenny. "For many people, The Brabazon is the Mecca of golf courses. People come here to follow in the footsteps of the greats, and they expect similar playing conditions to those enjoyed by the pros."

Not that The Brabazon is a green desert. There are eight ponds, many with fountains to aerate the water, helping to keep algae at bay and improve conditions for wildlife. One pond has an island where three bumblebee nest boxes have been located.

A focus over the past three years has been to manage the 200-acre PGA National course in as sustainable a way as possible. Established in 1997, this links-style course has large sandy bunkers, ponds fringed with reed beds and swathes of tall grass in the deep rough areas.

The tall grass provides a haven for pollinating insects, such as the common blue butterfly, as well as cover for small mammals, which in turn are a food source for little owls, buzzards and kestrels.

Watering on the PGA National is done by hand according to need, and there is an increasing reliance on the use of drought-resistant turf. Minimal fertilizer is used on the course and fungicide employed only on the greens, not the fairways or rough.

The Belfry is currently trialling golf buggies fitted with an automated GPS control system.

"If anybody strays into out-of-bounds areas, the engine is programmed to cut out. It's just another way we try to ensure the wildlife remains undisturbed," said Kenny.

For more information…
go to www.thebelfry.co.uk/.

WALK ON THE WILD SIDE: Ron Evans, project leader with the Pentir overhead line team, takes a closer look

In the line of DUTY

When not climbing towers to carry out essential maintenance, National Grid's linesmen patrol the UK's power lines

WITH MORE THAN 7,000 kilometres of overhead power lines in the UK – including 22,000 towers – patrolling National Grid's high-voltage transmission network is a year-round activity.

The work is shared by ground-based foot patrols and helicopters, which feed back reports to the company's Condition Monitoring department in Warwick.

"National Grid has a legal obligation to monitor and risk assess the condition and safety of overhead lines," said Mark Simmons, condition monitoring engineer.

"Access rights for essential inspections, as well as maintenance and refurbishment work, are embedded within wayleave and easement contracts with landowners."

FOOT PATROLS

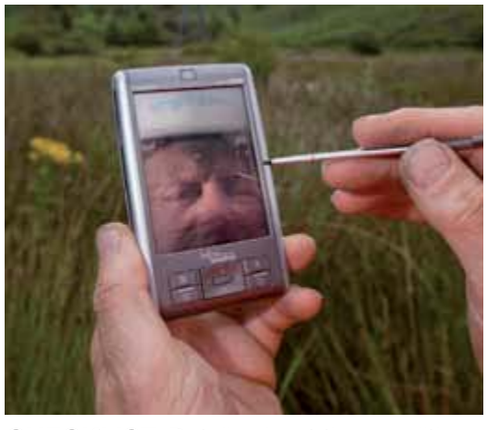
All overhead power lines are inspected on foot at least once every two years, alternating with a visual inspection by a helicopter in the intervening year. In addition, major inspections, known as Condition Assessments, take place every five or six years, involving linesmen climbing every tower on a line.

Visual inspections by helicopter usually take place between March and May to check for any wear and tear that may have occurred over the winter.

In the winter months, helicopters also conduct annual thermal imaging surveys with infrared cameras. Faults show up on the equipment better in winter when the lines carry increased load as a result of raised demand for light and heating.

While helicopters can survey up to 200 spans during a flight, they cannot be used in proximity to built-up residential areas and airports. So there will always be a need for foot patrols.

Foot patrols usually take place from September to March, prior to the main 'planned outage' season in the spring and summer, when the power on certain lines is turned off for scheduled maintenance.



CHECKLIST: Details about the condition of the line are entered on a handheld PDA

POWER FLOW: Inspecting an overhead power line in the Snowdonia National Park

CONDITION

Inspections are done by gangs of linesmen based at 12 substations throughout the UK. Between 10 and 15 towers are walked on a typical patrol, depending on weather conditions and the terrain.

Typically, the men carry binoculars, a mobile phone and handheld PDA. Answers to 300 pre-set questions are entered on to the PDA, relating to the condition of the towers, insulators, conductors and fittings.

A variety of factors are noted, such as trees that infringe safe clearances with the line, any damage to anti-climbing devices, cracks in footings and the presence of birds' nests.

The patrol reports are logged by Condition Monitoring, who communicate directly with the field support engineers responsible for rectifying faults in each area.

Some lines are inspected on foot every year, such as the main power links that run north to south and lines feeding London. This year, patrols of circuits supplying the 2012 Olympics have also been stepped up.

Also visited more frequently are older lines, those with known defects scheduled for repair, and any subject to extra wear and tear, such as lines affected by high winds or towers on the coast, which are at more risk of corrosion.

HAZARDOUS

Foot patrols are also an important tool for identifying potential risks to spans and towers.

Spans can be at potential risk, either because of their location (over a motorway or near a power station, for example) or because activities take place near them that could be potentially hazardous (a fishing lake, for example, or a haystack near a line).

"When a new risk is identified, it is logged and a lands officer will follow-up by visiting the site to carry out an assessment, discuss any mitigation action that might be needed with the grantor, and provide relevant safety advice," said Mark.

Some towers are also considered to have an increased vulnerability. These are typically located in areas where young people gather, including unsupervised playing fields, open spaces near canals and public footpaths. Patrols are often stepped-up, particularly if there have been 'breaches' in the past.

Most foot patrols are timed to occur outside the busy harvesting season, but the linesmen will also take extra care where there are sensitive crops or, for example, young animals in a field.

For more information…

Detailed safety guidance relating to various activities near power lines is available from the Energy Networks Association: energynetworks.org/ and the Health and Safety Executive: www.hse.gov.uk/.

PULLING POWER

The heyday of the shire horse may be in the past, but thanks to dedicated enthusiasts such as Jonathan Waterer, these majestic beasts still have a bright future

TRADITION: Employing working horses on his farm is a matter of pride for Jonathan

THE WORD 'HORSEPOWER' TO describe the performance of a car or lawnmower has its origins in the early 19th century, when engineer James Watt coined the term to describe the number of horses his latest steam engine could replace.

It's a reminder about the dominant role heavy horses once played as the source of power for many everyday jobs in rural, urban and industrial life, right through to the Edwardian period and even beyond.

For farmer and National Grid electricity grantor Jonathan Waterer, these gentle giants remain very much a passion, as well as a livelihood.

Jonathan breeds and trains heavy horses at Higher Biddacott Farm in North Devon, where he also helps his wife Fiona run a bed and breakfast in a 12th century farmhouse, set in nearly 100 acres of rolling pastureland.

Up to 40 horses and ponies a year are taught both for riding and draught purposes – as singles in shafts, or in pairs or teams on a pole. Jonathan also runs training courses in the skills needed for driving horse-drawn carts at all levels, whether people use their own horses or those at the farm.

"I was riding ponies by the age of four and proficient at driving heavy horses by my early teens," recalled Jonathan. "As a young man, I was lucky enough to work in Canada as a cowboy on a ranch in the foothills of the Rockies, where I learnt about breaking draught horses and other aspects of horsemanship."

LARGEST BREED

The couple moved to their present location in 1996, with the intention of combining horse training with running a sheep and cattle farm. But BSE and foot-and-mouth put paid to that, and although they still keep 15 cows, the focus is now very much on the horse training.

Shires are the largest breed of heavy horse in the UK, and are generally black, brown or white, with long legs and characteristic feathered feet. They can weigh a tonne and stand up to 18.2 hands tall.

"They are big, strong animals, so it's very important to gain their trust and form an understanding when they are still young," said Jonathan.

At the moment, there is a nucleus of six working shire horses at Higher Biddacott Farm – Billy, Bobby, Sampson, Bella, Commodore and Abraham – together with a couple of foals and two cross-bred shire/thoroughbreds, which were born on the farm.

Often when he's presented with a young or difficult charge, Jonathan will harness it up with two experienced horses either side to act as 'mentors'. Much of the training is done on local roads to get his charges used to operating in traffic, but they will also be put to work in the fields.

BUSIEST TIME OF THE YEAR

"If you put a young horse to do a job of hay mowing or ploughing, for example, you can get it used to work in no time and it improves them hugely," said Jonathan. "You're always looking for a horse with a bit of ambition to work."

For some of the work on the farm – for example, mowing hay – the horses are used in combination with modern machinery. The shires pull a separate engine unit, which drives the moving parts of the equipment. But other machinery, such as the reaper-binder used for wheat harvesting, is purely horse-powered.

The busiest time of year for the horses at Higher Biddacott is the annual hay harvest in June and July. This year, Jonathan has harvested 34 acres of his

> "You're always looking for a horse with a bit of ambition to work"


Express & Star Newspaper


Julie Wicks Photography

"The reason I employ shire horses is that I like using them"

ALL IN A DAY'S WORK: (above left) Pulling the 16-tonne replica anchor; (centre) the Waterers' 12th century farmhouse; (right) on duty at a wedding

own land, and some additional fields for neighbours.

"In a dry spell, we can mow one day and spread the grass out to dry, and then the next day turn the hay and row it up with a horse-drawn side rake in the afternoon," he said. "Another horse-drawn machine then does the baling part of the operation.

"When you're out in the field, the sun's shining and you're working hard, it's a wonderful feeling to be totally in tune with your horses, working as a team."

For many years Jonathan used shire horses for forestry work in the winter months, pulling out felled logs with chains, until the price of timber for fence posts declined suddenly as a result of cheap imports from eastern Europe.

TITANIC JOURNEY

That's when he diversified his business further and purchased a pretty landau carriage for weddings and a Victorian horse-drawn hearse for funerals. "I suddenly realised I could earn the same in an afternoon as I used to in five days," he said.

These days Jonathan also takes visiting groups on wagon rides drawn by two to four horses, and from time to time will demonstrate driving teams of up to six horses at agricultural shows, pulling farm equipment or wagons. The displays are always popular with the public and they act as a shop window for his horse-training business.

Another fruitful area of work has been providing shire horses for films and TV productions, including Vanity Fair, Ladies in Lavender, Pride and Prejudice and, most recently, Lark Rise to Candleford.

Last year, he was asked to assemble 20 heavy horses to recreate the two-mile journey made by the original anchor for the Titanic in 1911, when it left the foundry in Dudley for the local railway station.

"The re-enactment was for a TV documentary by Channel 4 and the producers spent £50,000 on an exact replica of the 16-tonne anchor," said Jonathan. "I trained all but one of the horses here in Devon and they were a magnificent sight, all lined up and pulling."

Critics suggest that shire horses can never be as quick or efficient as modern tractors. "The reason I employ shire horses is that I like using them, I've always used them and I use them sensibly," Jonathan said. "I don't try and do something that is totally uneconomic, but if you can cut five acres of grass in three hours, that's perfectly acceptable.

"Keeping a shire horse can be expensive if they're kept as a hobby, but we produce our own feed on the farm, and all our horses earn a living," said Jonathan.

History's workhorse

- **The ancestor of today's shire horses was the Great Horse favoured in the Middle Ages to carry knights into battle.**
- **Horses gradually replaced oxen as draught animals on farms, and by the second half of the 18th century, hauled barges on the canal network.**
- **In the 19th and early 20th centuries, shire horses hauled wagons, drays and trams, and were the main form of urban transport.**
- **Increasing mechanisation in the 1950s meant that many shire horses became surplus to requirements.**
- **In their heyday, there were well over a million shire horses, but numbers have declined to about 3,000 today.**

For more information…

i on the shire horses at Higher Biddacott Farm visit http://www.heavy-horses.net/.

Out&About

The latest news from **National Grid** and its nationwide grantor network

Paws for thought

The Animal Lifeline charity (an electricity grantor) was founded more than 30 years ago with the aim of saving unwanted dogs and puppies, and finding them a new home with loving owners.

There can be up to 100 dogs at the charity's Serendipity kennels, near Stoke-on-Trent. No dogs are put down, and those that cannot be found new homes immediately are cared for as part of the 'family'.

"Most of our dogs come from their previous owners after a change of circumstances, so we know a lot about them," said Steve Woodward, who manages the kennels with his wife Karen. "We put a lot of effort and time into matching the right dog with the right person."

The couple run the facility with the help of a dedicated team of eight full-time staff, as well as volunteers from the community.

The charity is entirely self-financing, relying on donations to its two shops in the area, and by fundraising at garden parties, auctions and other events. To find out more or to donate go to www.animallifeline.org.uk.

DEDICATED TO DOGS: (l to r) Karen, Leanne Pascoe (volunteer), Steve, and Alison Davies (staff member)

Working for nature

Pembrokeshire farmer Roger Mathias, of Furzy Mount Farm, Haverfordwest, is the overall winner of the 2011 FWAG Cymru – National Grid Silver Lapwing Award.

The award is given to farmers who go the extra mile to farm sensitively and sustainably. Habitat improvements at the farm include a fenced-off corridor to encourage barn owls, and cereal stubble that is left over winter to support farmland birds and insects.

David Scott, National Grid lands officer and one of the judges, said: "We are delighted to support a scheme demonstrating how successful commercial farming and protecting the environment can go hand in hand."

PRIZE: (l to r) Roger Mathias and David Scott (back row) with other finalists, and representatives from FWAG

FAB FOUR
Lands officers David Knowles, Michael Dutton, James Dean and Ian McKenna (above, l to r) raised £1,000 in sponsorship for the Special Olympics Great Britain charity last month by completing the London Triathlon.

An equal amount has been pledged by National Grid under its matched donation scheme, to bring the total to £2,000.

All four finished the event (1,500m swim, 40km cycle ride and 10km run) in less than three hours.

LIFELINE FOR BIRDS
A new report indicates that leaving patches of ryegrass round the edges of fields to go to seed – rather than cutting for silage – could help farmland birds, such as yellowhammer and reed buntings, survive the winter. For more details visit www.rspb.org.uk.

LastWord

Your chance to enter two great competitions

Contact details
Tel: 01926 656 325
Email: gridline@uk.ngrid.com
Website: www.nationalgrid.com

Photo competition

Rise and shine

Congratulations to Harold Osenton, who is the winner of Gridline's last photo competition on the theme of 'light', with this atmospheric depiction of a sunrise at Wybournes Farm, High Halstow, near Rochester.

Win a luxury hotel break

Enter Gridline's competition to win a two-night stay at The Belfry

GRIDLINE HAS TEAMED UP with The Belfry golf resort to offer the winner of this issue's photo competition a fabulous two-night hotel stay for two people.

Set in 550 acres of beautiful West Midlands countryside, The Belfry has 324 well-equipped bedrooms, as well as a leisure centre, and has hosted the prestigious Ryder Cup between Europe and the USA on four occasions.

The theme for this issue's competition is 'wildlife'. Send in your selected photo to Gridline Photo Competition, 23-25 Waterloo Place, Warwick Street, Leamington Spa, Warwickshire CV32 5LA, or email it to gridline@uk.ngrid.com. The closing date is 8 November 2011. Only National Grid grantors are eligible to enter.

INCLUDED IN THE PRIZE

- Two nights' accommodation in a suite for two.
- Dinner for two in The Atrium restaurant on both nights.
- Full English breakfast in The Atrium both mornings.
- Use of the Health and Wellness facilities.

Please note, use of the golf facilities is not included and will incur a charge.

Terms and conditions:
The prize must be taken by 31 January 2012, subject to availability, and must be taken as detailed, there being no cash alternative. Accommodation is based on two adults sharing a suite. The Belfry reserves the right to withdraw the competition at any time and/or change the prize due to unforeseen circumstances. Standard Belfry terms and conditions apply.

Win a Marks & Spencer giftcard

M&S giftcards can be spent at over 600 M&S stores in the UK or online on fashion, food, entertainment, home, accessories, and more.

The lucky winner will receive the giftcard – similar to a credit card in size – which will be preloaded with £150.

Please note, giftcards are valid for 24 months from the last transaction and the balance cannot be converted back into cash. They cannot be accepted for made-to-measure shirts or large appliances.

To be in with a chance of winning an M&S giftcard, simply answer the following question correctly:

Q WHAT PERCENTAGE OF THE UK'S CARBON EMISSIONS IS CREATED BY FOSSIL FUEL POWER STATIONS?

Send your answer to Gridline M&S Competition, 23-25 Waterloo Place, Warwick Street, Leamington Spa, Warwickshire CV32 5LA. Please note, you must be a grantor to enter. Closing date is 8 November 2011.