Energy MATTERS

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WELCOME

Energy issues in the headlines

WELCOME to the 4th edition of *Energy Matters*. Energy continues to dominate the news with concerns over the country's ability to meet its renewable energy targets, rising tensions on the subject of fracking and proposals to investigate the potential for underground coal gasification in the North Sea.

To my mind, this all points to the realisation that there is no 'silver bullet' but that our future energy needs are going to be served by a variety of sources along with fossil fuels.

On a lighter note, perhaps we should congratulate all those who have invested in photovoltaic technology — their faith in renewable energy appears to have been borne out by record hours of sunshine which we can all enjoy!

The firm has been enjoying the summer season of country shows and game fairs, meeting friends and clients, old and new. A new venue this year was the Royal Highland Show where we announced our merger with Hayes Macfarlane, increasing our offices from 12 to 14 and providing us with a presence in Aberdeen. We had an opportunity to share the celebration with many of the event's 170,556 visitors.

We hope you enjoy this issue and we would welcome any feedback or comment whether directly through your contacts at the firm, by e-mail or via social media. Energy is the subject of much debate and new channels are helping to widen and accelerate the discussion — we look forward to hearing from you.

CALUM INNES Partner

CKD GALBRAITH is the leading independent property consultancy, with 14 offices throughout Scotland.

The firm provides a full range of property consulting services across the commercial, residential, rural and energy sectors. Drawing on a century of experience in land and property management, the firm is progressive and dynamic, investing in its 250 people and in technology.

CKD Galbraith provides a personal service, listening to clients and delivering advice to suit their particular opportunities and circumstances.

Our associate, CKD Kennedy Macpherson, is based in London.

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INSIDE

BETTER MOBILE PHONE reception in rural areas moved a step closer in May when the Government appointed communication infrastructure and media services company Arqiva to launch its Mobile Infrastructure Project (MIP).

The £150 million project will now start to be implemented. It should be completed during 2015.

Many rural areas at present lack mobile phone coverage because the telecom operators — whose licences do not oblige them to provide 100 per cent population coverage — believe there is not enough mobile traffic to make extending their networks a profitable venture.

The Government's view is that improving mobile phone coverage by building additional masts in areas with poor or no service will help to connect rural communi-

Rural revolution

Mobile coverage in more remote areas is about to improve dramatically thanks to a Government initiative. **Mike Reid** explains what potential landlords should expect.

> "THE RENTS TO BE OFFERED FOR THESE MORE REMOTE SITES ARE LIKELY TO BE MUCH LOWER THAN THE MARKET RENTS BEING PAID FOR OTHER RURAL SITES.

ties and create local jobs, so contributing to economic growth.

All four main mobile network operators will provide their services from the MIP infrastructure, maximising the benefits to consumers.

Our initial feedback from the Arqiva agents who are rolling out this project is that the rents to be offered for these more remote sites will be more than 50 per cent lower than the current market rent being paid for other rural sites, particularly when taking into account that all four mobile operators will be using the sites.

Even so, we envisage that many landlords will welcome these sites and will agree to the lower rents because of the improved coverage and other benefits they and their communities will receive.

They should nevertheless still give careful consideration to the other lease terms to protect their position and mitigate the operational impact of the sites on their land.

For the wider market, these sites should not be seen as comparable with current rural sites since they would not be built without Government assistance. Knowledge of these sites will be important to ensure the major telecom companies do not use them as 'market' evidence to try to drive down rental levels on their current network.

With our experience and knowledge of the market, CKD Galbraith is well placed to help landowners to maximise their potential from telecommunication sites.

The areas which will be targeted by the MIP project are detailed at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/89372/2013_02_20_-_MIP_Maps_vFinal.pdf

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Finding the finance for farm renewables

Sarah Tyson looks at possible funding in the current less favourable lending climate.

DESPITE SOME SIGNS of economic optimism, many landowners with the necessary consents for a renewable energy project continue to experience difficulty in securing loans to get their schemes off the starting block.

In recent years, some of the obvious providers of finance for green projects have become less enthusiastic and pulled out of the market, leaving landowners struggling.

But funding sources are available for the right projects. The Agricultural Mortgage Corporation (AMC), for example, continues to be a competitive and farmer-friendly option for those looking to invest in all types of renewable schemes. Wind, solar and hydro all offer potential new income streams and may also help to provide all or part of a business's energy needs.

A renewables project can be well suited to an AMC loan, which can be taken out without disrupting existing bank arrangements.

As a rule there are no annual reviews — or the fees so often associated with them — and as long as repayment obligations are met, AMC leaves its client alone during the loan period. Renewable projects can be eligible for repayment loans up to 20 years, with either fixed or variable interest rates.

As AMC agents, CKD Galbraith meets the farmer or landowner to go through the application procedure. Our affinity with agricultural businesses enables a practical overview of recent accounts and projected incomes to be submitted.

As with all major schemes, the necessary planning permissions, SEPA licences, grid connections and other consents need to be in place before seeking funding.

The strength of many farm businesses means that loans of up to 50 per cent of available security can often be serviced by the existing business. This enables a faster turnaround and simpler process, especially where any Feed-In Tariff (FIT) income does not need to be included in serviceability.

In some circumstances, AMC can take into account a proportion of FIT income in addition to existing trading income. In this case, projected figures are scrutinised through greater due diligence procedures, but it may be the means of unlocking a renewables project.

In addition, AMC often has access to specific European funding for renewable schemes, enabling a discount to be offered on loans. These discounted rates have already helped a number of our clients to install solar and wind projects.

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Lochinvar coke looks like the real thing

The Borders metallurgical coal project is yielding positive results. **Calum Innes** reports.

THE COMPANY BEHIND the Lochinvar coking coal exploration project in the Borders updated its investors with some good news in July.

New Age Exploration announced that initial tests of core samples indicated an attractive low-ash metallurgical coal, suited to the UK and European coking coal markets.

Metallurgical or coking coal is used as a fuel and a reducing agent in smelting iron ore in blast furnaces. Customers have very specific requirements for the type of metallurgical coal they use, and initial results indicate that Lochinvar can meet these requirements. The project proposes to exploit a resource of metallurgical or coking coal via underground mining methods.

Coking coal for UK steel mills is 100 per cent imported from Australia, the United States and Canada. Coking coal from Lochinvar could provide a domestic and secure feed source for the domestic steel industry, which includes facilities at Port Talbot, Redcar on Teesside and Scunthorpe.

NAE managing director, Gary Fietz commented: "Working closely with the CKD Galbraith team we have now secured all the land access agreements necessary for our next phase of drilling which will re-commence in a few months. The support that we have had from local landowners in the area has generally been very positive and we are excited about advancing the project and working closely with all major stakeholders."

CKD Galbraith continues to work with the company's other consultants in taking this exciting project forward.

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The power of plasma

Scotland is set to enter the world of waste gasification, says **Richard Higgins**.

CKD GALBRAITH has recently received its first instruction to acquire a site for an energy-from-waste facility in Scotland. The client is an international concern seeking to develop three large plants that will use plasma gasification technology.

The process of converting organic matter into synthetic gas is commercially proven, with plants operating in Japan and India, but plasma gasification is a new technology for the UK. One site is currently being built by Air Products on Teesside in north-east England.

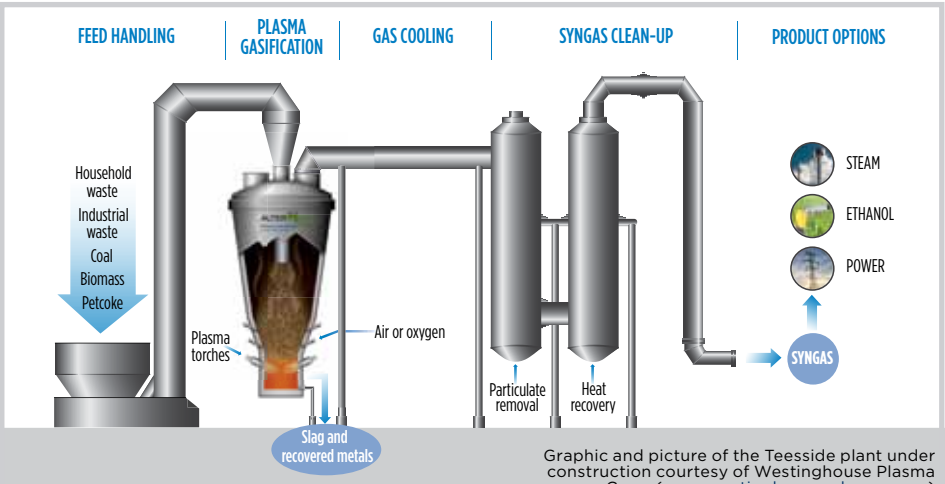
Our client wants to develop up to 10 acres, taking up to 330,000 tonnes of mixed waste a year. This will be converted into a synthetic gas which will be used to drive a gas-fired turbine at the site and generate about 34MWh a year to the grid.

Little waste is produced. It amounts to an inert slag which can be used as an aggregate in the building and ceramic industries.

Plasma gasification is not incineration. Rather, it is the treatment of waste using very high temperatures, and the total amount of emissions in a year are approximately the same as a normal garden barbecue.

There are clear benefits to local communities and Scotland as a whole in using waste which would normally be sent to landfill to generate clean electricity. Gasification produces useful waste by-products that do not need to be landfilled. The plant would help Scotland to fulfil its zero waste policies, and it is an exciting opportunity for us to be involved in.

PLASMA GASIFICATION: HOW IT WORKS



Graphic and picture of the Teesside plant under construction courtesy of Westinghouse Plasma Corp. (www.westinghouse-plasma.com)

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Flight plan

Thinking about a wind turbine development? A little preparation could save you flying into trouble with the aviation authorities, says **Robert Patrick**.

AS THE NUMBER of wind farms and individual turbines continues to rise across Scotland, the operators of both civil and military radar are increasingly expressing concern over the impact of these turbines on air traffic safety.

Even a marginal increase in risk to air traffic safety is generally considered intolerable, so an objection from National Air Traffic Services (NATS) is almost certain to lead to a planning application being refused. Similarly, any objection from the Ministry of Defence (MOD), whether on the grounds of military air traffic safety or national security, will also lead to refusal. It is therefore essential to fully understand the possible aviation constraints and any mitigation that may be possible.

When considering civil aviation issues, there is a set process for establishing the NATS view at the pre-application stage. First, a self-assessment of the site can be carried out using a NATS-supplied dataset in a Geographic Information System (GIS) programme. This will show whether the proposal falls in a NATS consultation zone. If it does, information is provided on the height of a turbine likely to affect NATS operations.

Assuming the site is in a consultation zone, the next stage is to seek a pre-application assessment from NATS. There is a significant fee for this, but it does provide a degree of certainty, as the report delivered by NATS should be identical to their formal response at the planning consultation stage.

> "WHERE AN OBJECTION IS RECEIVED FROM THE MOD, SECURING MITIGATION CAN BE A COMPLICATED MATTER.

If an objection is received, there are options in terms of mitigation. For a single turbine, NATS may be able to 'blank' it from the radar, but this is reliant on there being no other turbines within a 20km radius. For larger wind farms, it is possible to enter into a mitigation agreement with NATS.

The situation is more complicated when it comes to the MOD. Claiming limited resources, the MOD currently does not engage with applicants or their agents at the pre-application stage, so there is no way to ascertain its view short of submitting a planning application. The only way to get some idea of whether an MOD objection is likely is to research similar applications in the area, but this cannot provide a definitive answer.

Again, where an objection is received from the MOD, securing mitigation can be a complicated matter. For smaller-scale proposals, attempting to negotiate mitigation with the MOD has proved challenging. Preparing a mitigation strategy which may prove acceptable to the MOD usually involves employing aviation experts, at significant cost. This cost may be affordable for larger-scale wind energy proposals, but it may render smaller schemes unfeasible.

CKD Galbraith has been involved in a number of recent applications where aviation issues have arisen. Our experience is that early analysis of the potential constraint is crucial. If you are contemplating a wind energy development, we recommend following the same approach, and we are happy to provide advice based on our experience.

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The end of the life of a wind farm

Harry Stott picks out the key points of a new report about decommissioning of wind farms.

THIS YEAR'S EXCELLENT summer reminds me of the old saying 'make hay while the sun shines'. It is easy to become complacent about the present when the going is good, rather than looking to the future.

So a report commissioned by Scottish Natural Heritage, providing research and guidance on restoration and decommissioning of onshore wind farms, is timely. It seeks to prepare landowners and wind farm operators for the future by addressing some important considerations involved in decommissioning wind farms.

Most onshore wind farms in Scotland have an expected operational life of 25 years and little guidance has been written specifically about decommissioning. The report looks at the main issues that need to be addressed in restoration and decommissioning plans.

One of the earliest wind farms in Scotland is Windy Standard in Dumfries and Galloway, which became fully operational in 1996 and is now more than two-thirds through its operational life. In the coming years the operators' attention will be drawn to restoration and decommissioning.

Most wind farm planning applications will have addressed decommissioning in the Environmental Statement (ES) or Environmental Impact Statement (EIA). However, the report found that the ES or EIA often concentrated on the construction and operational impacts rather than the decommissioning impacts.

The main decommissioning impacts are largely similar to the construction impacts. These include the treatment of the turbine foundations, the treatment of accesses, water course crossings, crane pads and lay-down areas — those set aside for putting down construction materials — and visual impact.

On the face of it, addressing visual impact for wind farms seems fairly straightforward — simply removing turbines will have almost instant result — but at close range there remain other issues such as the access roads and the turbine foundations.

The size of the foundations will vary with the size of turbine, the type of land and wind speed at the site. Reinforced concrete is widely regarded to be a relatively inert material and can remain in situ. Total removal of wind turbine foundations is likely to require substantial rock-based backfill to voids. So one possible measure is to remove the concrete to a certain depth and then cover it with a layer of native topsoil and vegetation to allow re-colonisation.

Access tracks may involve a range of materials and can cover significant distances if a wind farm is particularly remote. The report recommends that consideration is given to the management of restoration soils at the design stage. If tracks are not intended for future use, excess or unwanted vegetation can be removed and consideration should be given to localised regrading, using existing materials to suit the profile of the land. Similar measures can also be applied to substation sites, crane pads and lay-down areas.

There may even be some cost benefits in decommissioning, such as the sale of second-hand turbines, for which there is a growing market in Eastern Europe, where they are seen as a viable option because the waiting time for new turbines can be long. Revenue could also be generated from the resale of steel, copper, cast iron and other elements of the turbine mechanisms.

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● **The report can be downloaded from the Scottish Natural Heritage website: www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=2007**

How forest fuel can cut heating costs

Biomass heating is becoming more attractive on economic as well as environmental grounds. **Anneka Walker** offers some advice and looks at the experience of one client.

HEATING THE AVERAGE home now costs about £600 a year — an increase of £350 since 2007 — and according to the Office of Budget Responsibility this cost is set to rise a further seven per cent by next winter.

Almost everyone is feeling the pinch, and, in an effort to reduce costs, many rural home owners and landlords are considering using renewable energy to heat their properties. Biomass fuels are considerably cheaper than fossil fuels, and landowners with large woodlands could find it worthwhile to switch from oil to biomass and supply their own fuel.

The chip feeder at Netherwitton Hall.

Biomass offers an opportunity for landlords to save on their own energy costs and also make a profit from selling energy to tenants.

One CKD Galbraith client, John Trevelyan, of Netherwitton and Longwitton Estate, recently installed a 184 kW biomass district heating system to serve Netherwitton Hall and four immediately surrounding two- and three-bedroom cottages. The energy produced is sold to tenants at 2.9p/kW. Oil is currently about 6.5p/kW. The system has proved so successful that Mr Trevelyan has installed a second district heating system in Netherwitton village which serves 11 properties including the village hall.

If you are thinking of installing a biomass boiler there are some important points to keep in mind to ensure the project is viable.

The location of the boiler house and hopper in relation to the main chip store shed should be carefully considered to ease fuel handling. The hopper at Netherwitton holds 40 cubic metres of wood-chip and needs to be filled every six weeks in summer and up to every 10 days in winter. Siting the chip shed near the hopper reduces the cost in manpower and fuel for transport.

It is also important to consider what infrastructure is required, such as heat exchangers, meters and the pipe routes used to carry the hot water round the system, as well as ensuring an adequate electricity supply to the boiler house.

If you are converting a redundant farm building into a boiler house you may need planning permission and/or a building warrant. Investigating this early on in the project can avoid unnecessary delays.

You should also explore the funding available at the time of your installation as this could influence the specification of your boiler. At present, the Renewable Heat Incentive tariffs range from 1p per kWh for a boiler over 1000kW to 8.6p per kWh for a boiler of less than 200kW.

Once you have decided what system you require, we recommend you obtain quotes from a number of established contractors and ensure the tenders are like-for-like. Some offer a maintenance contract which is highly beneficial — unless you're a technical expert on biomass heating.

Next you need to secure your fuel supply. If you are going to self-supply you may need to revise your woodland maintenance scheme and plan the handling from standing timber to chip. It is vital that before any timber is chipped it is dried properly to prevent composting in the chip store. Three-metre logs left stacked on bearers in a windy location can dry sufficiently in nine months if felled with a harvester. Longer is needed if they are hand-cut as the bark is not punctured in the same way.

Finally, if you want to install a medium to large boiler and sell energy to tenants, you should take advice from your accountant on the tax implications and how to make best use of the tax reliefs. In some cases it may be beneficial to set up a limited company which will own the biomass system, buy wood from the estate (tax-free) and sell the energy to your tenants at a price set by you.

Clearly there is a lot to consider before installing a district biomass heating system.

They involve considerable capital outlay, but there is much to recommend them. The Renewable Heat Incentive, the Government initiative to promote sustainable energy, covers the capital cost, and the heating costs are dramatically reduced for all, meaning that owners and tenants heat their properties affordably.

Biomass-heated properties are more attractive to prospective tenants due to the lower costs. Also, any existing oil tanks and boilers can be removed, giving tenants more space and removing potential oil spillage liability.

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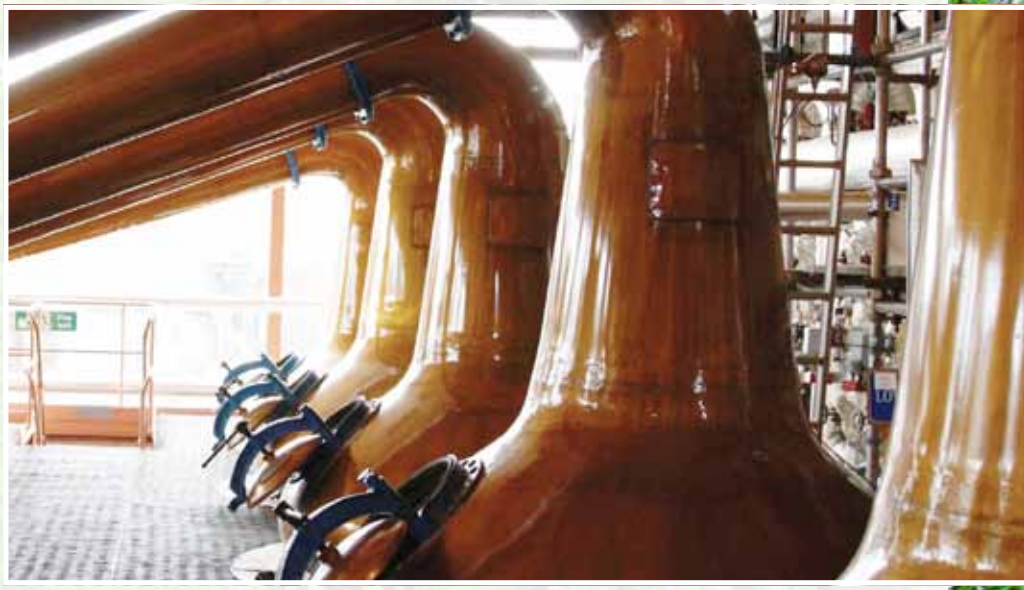
As The Macallan opts for sustainable energy for its distillery, **Sarah Tyson** toasts biomass opportunities for forest owners.



Getting up steam on Speyside

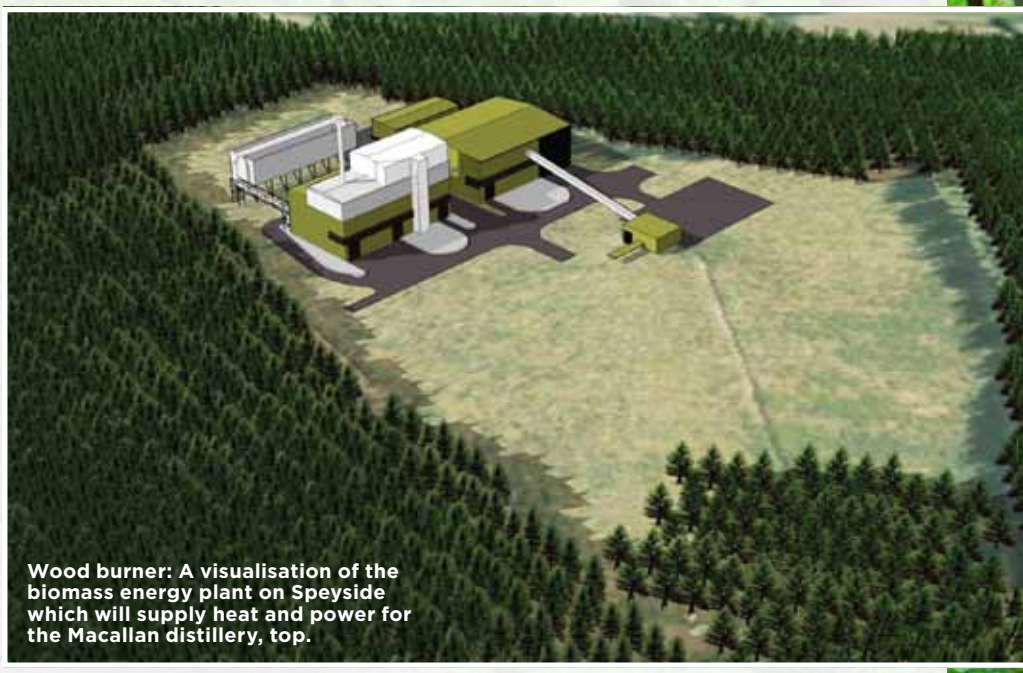
SPEYSIDE IS FAMOUS for its malt whisky distilleries and now, as the whisky industry turns to biomass as a key energy source, local forest owners have a potential new market for their woodland produce.

The developer Estover has been given planning permission for a combined heat and power plant for the Macallan distillery near Craigellachie on Speyside. The 10-acre site, with its existing commercial forestry plantation to provide screening, will produce up to 50 megawatts of electricity as well as steam for the distillery.

One of the keys to such a project is sourcing local, sustainable wood for fuel, and within a 50-mile radius of the site there are about 750,000 acres (303,520 hectares) of forestry — more than 10 per cent of the UK's total forest cover.

Local woodland owners, including clients of CKD Galbraith, have the opportunity to commit their low-grade timber products — or an agreed percentage of them — to the plant. The contract provides a guaranteed market for the seller and security of supply for the operators. This could be particularly helpful for products with limited alternative markets, such as diseased timber or poor-quality lodge pole pine, providing a comfort to some forest owners.

Twelve-year contracts are available while the plant is being constructed, but once it is up and running, there will continue to be a demand for additional timber on an ad hoc basis. This helps to reinforce the local market for low-quality products, making this aspect of forestry more sustainable in the longer term. As foresters and agents write their long-term forest plans, the biomass market could have an increasingly important role.



Wood burner: A visualisation of the biomass energy plant on Speyside which will supply heat and power for the Macallan distillery, top.

Throughout Scotland, biomass plants are coming on-stream as industries 'tick the sustainability box' and this should lead to better prices for forest owners.

Large estates with extensive commercial forestry may be able to commit an agreed tonnage of small round wood each year, but there is also an opportunity for smaller woodland owners to provide fuel when their rotation permits.

In addition, the increasing interest in baling forest brash from clear-fell sites provides a further product for biomass, and removing brash gives foresters a cleaner site for replanting.

Overall, biomass plants will broaden the market for forest products — and maybe forestry owners will be able to enjoy a dram which their own trees have helped to produce.

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‘Unconventional hydrocarbons’ are likely to play a big part in Britain’s future energy requirements. **Calum Innes** looks at developments on either side of the Border.

Debate heats up as Government warms to shale gas

IN THE LAST EDITION of *Energy Matters* we briefly examined the case for shale gas. In the short period since then the opportunity offered by ‘unconventional hydrocarbons’ has generated huge attention. As shown by protests in West Sussex, events are moving fast.

The British Geological Survey recently published a study of the potential for shale gas in the North of England in which it estimated the region might contain as much as 1,300 trillion cubic feet of gas — a significant increase on previous estimates. This figure is only an estimate of the amount of gas within the shale — how much could actually be extracted is unknown, since that depends on economic, geological and other factors.

In Scotland, the Australian company Dart Energy is pursuing an application for permission to drill for coal-bed methane at a number of sites in the Forth Valley. This project aims to extract gas from coal measures located below the central belt at much shallower drilling depths than the shale deposits identified in the North of England.

> “DART ENERGY IS PURSUING AN APPLICATION FOR PERMISSION TO DRILL FOR COAL-BED METHANE AT A NUMBER OF SITES IN THE FORTH VALLEY.

The application has generated considerable public opposition, and, in response to concerns raised in environmental and other circles, Dart has indicated that gas extraction can be achieved without hydraulic fracking and that commercially viable levels of coal-bed methane can be produced by means of directional drilling. The matter has now been referred to the Scottish Government for determination.

The fact that the UK has gone from being a net exporter of gas at the turn of the century to now relying on imports for almost 50 per cent of our needs has led the Westminster Government to announce various incentives to encourage unconventional gas production.

The shale gas controversy has even attracted the attention of Hollywood, with a film — *Promised Land* — released earlier this year starring Matt Damon, telling a tale of the shale boom in rural America. The movie portrays local landowners welcoming the gas prospectors with their life-changing cheque books. Of course, in the UK the hydrocarbon reserves are vested in the State so the incentives which might be promoted by the Government are unlikely to be life-changing for the communities affected.

The controversy and uncertainty surrounding the harvesting of gas from shale and coal deposits will continue. However, there is clear support from Government to create a robust energy resource and it will be interesting to monitor these UK developments.

It must also be remembered that hydrocarbons are a global commodity, and whether they can be won economically from deep shale deposits in the UK will depend on the price of gas. The announcement in August that energy prices will outstrip the increases forecast by the Government is unlikely to discourage the exploration rush.

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The Forth Valley. PICTURE: ALAN CAMPBELL
Top: A shale gas well in the United States

Helping to maximise YOUR potential

WHEN YOU TALK TO ONE OF OUR ENERGY EXPERTS, you can rest assured you are getting knowledgable, independent advice. Whether you are looking for a hydro scheme or single wind turbine to power your home, dairy parlour or farm business or a biomass boiler to heat your home, we offer the entire range of mainstream solutions. You're not tied to a single ideology, and neither are we. We work with other experts in relevant fields so everyone benefits.

For further information, please contact a member of the team:

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CURRENT PROJECTS

CKD Galbraith's experience in renewables extends across Scotland, including the islands, and into the north of England.

KEY

- Wind
- Biomass
- Hydro
- Solar

CKD Galbraith

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