2013 will be a key year for energy policy which could well, for the first time since the 1970s, help dictate the outcome of the next general election. Parliament is now debating the most important energy legislation since electricity privatisation 20 years ago, but what will the Energy Bill deliver to reduce prices and help secure energy supplies?

The Government’s new ‘Gas Generation Strategy’ could result in up to 25 new gas fired power stations over the next 15 years to replace all of the coal and oil fired plants which must close to meet EU rules. These plants will also be paid to ‘shadow’ weather dependent renewables such as wind so we have power when the wind doesn’t blow. This will make the UK one of the most gas dependent states in the world with up to 80% of that fuel being imported, by 2025, as the North Sea declines. Importantly it will effectively end energy generating diversity which the UK has enjoyed for the last 20 years. Where the energy mix has traditionally featured coal, nuclear, gas, oil and some renewables, the UK will now become dependent on imported gas for over 70% of its electricity.

The Government’s own gas strategy concedes that electricity prices will become tightly linked to gas prices; rises in the gas price will therefore impact consumers and industry without much scope to rely on other fuels which might enjoy lower prices, as we have enjoyed in the past. For example, at the moment Britain is heavily reliant on coal for electricity and less so gas due to a low world coal price, but these coal plants will soon close.

New nuclear plants are still on hold. The Government is negotiating a ‘strike price’ where it will pledge to guarantee the price paid for electricity from new plants when they are built; this announcement was expected before Christmas. The new nuclear programme is now four years behind schedule and a new reactor is unlikely to be opened before 2022. This delay will exacerbate the UK’s dependence on gas.

Whilst the potential of shale gas is encouraging, expectations should be managed, warns Tony Lodge, who says the UK’s topography and urban layout will restrict shale extraction.

Fuel poverty now affects six million households and could reach nine million by 2016

Whilst the potential of shale gas is encouraging, expectations should be managed; the UK’s topography and urban layout will restrict shale extraction. Consequently UK shale gas risks being unable to make a large impact against our looming vast gas import dependency or being able to provide a significant downward pressure on UK gas prices, unlike in the US. Alternatively, underground coal gasification (UCG), where gas is extracted from in-situ coal...
Energy efficiency ought to be one subject on which everyone can agree. Cutting down on leaks from Britain’s draughty homes would be a win on all fronts – saving money for cash-strapped households, particularly those on lower incomes, while making homes more comfortable, and cutting carbon dioxide emissions. As Ed Davey put it: “What’s not to like?”

Quite a lot, if you listen to the critics of the Government’s flagship energy efficiency policy, the Green Deal. Unveiled in late January, the scheme allows people to sign up for insulation through a loan that covers the upfront costs and is repaid over 10 to 25 years through additions to their energy bill. The additions are outweighed by the savings from using less fuel.

But critics have focused on the cost – the loans will be offered at 7% interest, which many green campaigners fear will be off-putting. Households will also have to pay up to £150 upfront for an assessment, there are penalties for early repayment, and the loans will attach to the property rather than the billpayer – so if you sell your home, the buyer must agree to take on the liability.

For Ministers, this adds up to an attractive package, as energy bills continue to rise. DECC has also secured £250m from the Treasury to be offered in ‘cashback’ deals to consumers who sign up early, which may prove an incentive. For the opposition, some green groups and some business organisations, it looks just too complicated.

A key aspect is the ‘hassle factor’. Energy efficiency, for all its manifest advantages, is notoriously hard to do in practice. According to the Government, most homes now have some measure of loft insulation. That was the easy bit. Far harder are the next steps needed to improve our ageing housing stock – cavity wall insulation, solid wall insulation, double glazing, replacing doors.

All of this requires not just financial investment, but a willingness to put up with the inconvenience of major building work. The benefits will only become apparent over many years, while the hassle must be borne today. For that reason, the Committee on Energy and Climate Change has suggested a more effective option may be to sign people up for
improvements on a street-by-street basis, making it easier for people to opt in if their neighbours are doing the same.

It will be many months before the success or failure of the Green Deal can be judged. What is certain is that – given that this is the Coalition’s flagship energy and environmental policy affecting consumers

If the Green Deal has been problematic, the next initiative aimed at getting households to save energy could prove even more so – the result will determine how the Government’s overall performance on energy policy is seen. As the Mid-Term Review of the Coalition showed, this Parliament will set an energy policy whose effects will be with us for decades to come, so getting it right is crucial for businesses, consumers and the UK’s climate change targets.

If the Green Deal has been problematic, the next initiative aimed at getting households to save energy could prove even more so. Smart meters should start to be rolled out across the country in the next two years. Like the Green Deal, on paper they are a great idea – energy billpayers will be able to see in real time how much electricity they are using and for what purposes. Utilities like them because they will put an end to manual meter readings and provide much more detailed information on what their customers are doing. That information could help reduce the demand on the grid at key times.

The issue is – who will pay? Utilities, the National Grid and consumers will all benefit, but as yet there is no clear model for meeting the cost, which could run to billions. Much will depend on how the Green Deal progresses – if it is a success, there is likely to be a warm welcome for a smart meter roll-out. If it flops, the reception could be decidedly chilly.

Fiscal stability and a policy landscape which encourage investment are critical to sustain the UK’s oil and gas industry

Stuart Haszeldine is Professor of Carbon Capture and Storage, University of Edinburgh

The UK is part-way through an electricity-supply revolution. By 2025, all of our coal and most of our nuclear power will be gone. Left alone, that leaves us with renewables, gas combustion, and maybe new-nuclear. As usual, there are policies and practicalities, which point in opposite directions.

A reduced emissions pathway meets the Committee on Climate Change (CCC) carbon budgets in 2030 by means of greater efficiency and renewables development, augmented by gas and coal with carbon capture and storage (CCS), and an unknowable build of new-nuclear. On the rival pathway, to least cost and greatest certainty, is a huge increase of gas power,

Oil and gas – key to the UK’s energy mix

- Oil and gas provides some three quarters of the UK’s total primary energy
- Production from the UK’s continental shelf (UKCS) satisfies about half of the country’s primary energy demand
- Seventy per cent of primary energy in the UK will likely still come from oil and gas into the 2040s
- The UKCS has the potential to satisfy close to 50 per cent of the UK’s oil and gas demand in 2020 if the current rate of investment is sustained
- A total of 41 billion barrels of oil equivalent (boe) have so far been recovered from the UKCS, with an estimated 15-24 billion boe still to be recovered

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a slowdown of renewables, and stuttering success for new-nuclear. CCS on gas or on coal remains blocked by lack of commercial demonstration. An “emission performance standard” of 450gCO2/kWhr will not help, because it is too lax. This route means that the CCC budget for 2030 is unobtainable. And that means that building low carbon anything in the UK becomes much less investable – so we lose a lot of business.

On CCS, the solution is staring us in the face. The UK has four full-chain CCS projects currently bidding into a DECC competition. The UK needs not run a competition for a single winner, but needs to enable the birth of a new industry by serial successes. This can use the unique mechanism of the Contract for Difference (CfD) premium price for electricity, within the Electricity Market Reform, to guarantee funding of the operational costs and provide a guaranteed rate of return which enables borrowing to fund construction costs.

Of the £1bn available to fund CCS construction, about £200m is available now. This can be used to pay for FEED (engineering design) preparations on all four of these candidate CCS projects, which are at different stages of readiness. After design studies, in July 2014, one project can start construction, the ‘losers’ will have extremely well-costed proposals to put into CfD – to become operational from 2017 to 2020. One last item needs to be in place: a revenue from reduced carbon electricity must be gathered. This will need a transitional period of ‘obligation’ or a ‘CCS certificate’ for each electricity supplier to purchase off low carbon generators.

“\[The UK needs to enable the birth of a new industry by serial successes\]”

In this scenario, the call is not for up-front capital, but for longer and larger support for the increased generation costs – like renewables have had. £7.6bn a year is available by 2020 to fund additional costs of low-carbon generation: renewables, nuclear, and CCS. How can this best be spent? Arithmetically (Fig 1), it’s possible to develop four CCS projects and two new-nuclear, but only if offshore wind targets are deferred to 2025. A series of CCS projects will reduce costs, incentivise follow-on projects, and can enable CO2-Enhanced Oil Recovery to supply billions to the UK Treasury. It will also meet the 2030 carbon budget.

Figure 1: Proposed allocation of £7.6bn to fund additional costs of low-carbon generation 2020. This enables CCS as well as new-nuclear, but with the full development of offshore wind deferred to 2025.