



UKIP has the solution

UKIP ENERGY POLICY 2014

KEEPING THE LIGHTS ON

Britain faces an energy crisis this decade

As much as 30% of our UK generating capacity will close down by 2020. Some 24 coal-fired power units are expected to close by 2015, typically of 500 Megawatts capacity. This figure could rise to 36 units (18,000 Megawatts) by 2020.¹

Meantime 12 of our 17 nuclear reactors will reach the end of their working lives.

Brussels is demanding that 15% of the UK's total energy consumption should come from renewables by 2020. In practical terms, most of this will come from electricity generation, and our government's preferred choice is wind. This means (depending on average size per turbine) around 4500 on-shore and 6000 off-shore wind turbines by 2020.

The cost of spinning-reserve backup

Sometimes the wind doesn't blow. And it just isn't true that "the wind is always blowing somewhere" — often we see a high pressure area covering most of Britain. For example on 21 December 2010, the contribution of wind to the UK's energy consumption, according to the BBC, was 0.04%², and even on an average summer night, the industry is only running at 13% capacity.³

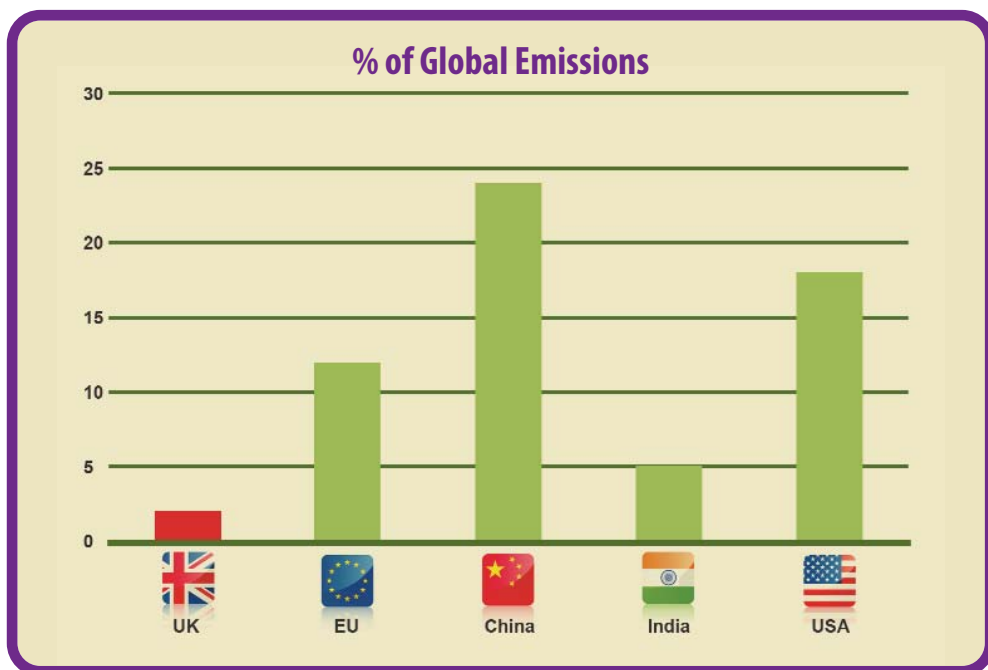
So we need conventional "spinning reserve" back-up, usually gas. But no one is building it. At best, we're told "we have plenty of gas capacity, providing the flexibility to back up wind". But with power stations closing, we'll need all of that, and more, to keep the wheels of industry turning. We must have **additional** conventional capacity to back-up wind.

We're paying twice for the same capacity — once for the wind turbines, and again for the back-up. It's fair to ask: why build the turbines at all? Why not just build the gas? A recent study conducted by Professor Gordon Hughes of Edinburgh University has demonstrated that the capital costs of wind plus gas back-up are up to **ten times** that of gas alone; that the net reductions in CO₂ emissions are trivial or zero, and that even on the most favourable assumptions, the return on capital invested in wind plus back-up is around a derisory 0.5%.⁴

In addition a recent report by Ruth Lea and Civitas makes essentially the same case: "Electricity costs: the folly of wind".⁵

"Climate Change" is so last-century

There are three levels of problems with the government's "green" policies. First, there are increasing doubts about the theory of man-made climate change. Second, the actions we are taking will not reduce atmospheric CO₂ while countries like China and India are building four new coal-fired power stations every week.⁶ And third, wind turbines may not, in fact reduce CO₂ emissions by very much – or at all.



Doubts about climate change^{7,8}: There is little argument that CO₂ is a greenhouse gas, but there remains considerable doubt over the sensitivity of climate to atmospheric CO₂. There has now been no significant climate change for nearly two decades, which argues for a much lower sensitivity than the IPCC uses⁹. Many scientists believe that the sun is more important than CO₂ in determining global climate – and the Sun seems to be entering a quiet phase.^{10,11}

UKIP believes that the small changes we have seen in global temperatures in the last century (+0.7°C) are entirely consistent with well-understood, long-term, natural climate cycles.

Increasing global reliance on coal: Environmentalists love to talk about China's investments in renewables. Yet China and India between them are building four new coal-fired power stations a week. Nothing we do in the West will have a material effect of global emissions – but our policies may well damage our economies beyond repair.

Wind farms may not in fact cut emissions significantly: As above, we have discussed Professor Hughes' research showing that the emissions savings we thought we were making are largely offset by inefficiencies in the conventional back-up.

These problems are reflected in the eye-watering subsidies we pay for renewables. For a start we pay massive subsidies on the actual turbines, and implied subsidies as utility companies are required to take expensive "green" electricity. Then we are about to start making "capacity payments" for back-up. It's not economic to run gas power stations intermittently, so we have to subsidise them to do so.

What it takes to generate 9 Million Megawatt-Hours of electricity per year

1

**1154-Megawatt
Nuclear Power Plant**
• 90% capacity factor, constant output, offline
for refueling, maintenance • 60-year life span

OR

2077

**2-Megawatt
Wind Turbines**
• 25% capacity factor, variable output based
on weather conditions • 20-year life span



Source: James Correia, <http://ansnuclearcafe.org>

Now the government, in a panic over OfGem's warnings of power outages, has come up with a new scheme. It proposes to contract with organisations that have their own generators to supply additional power to the grid in emergencies. These generators are generally diesel. So we'll end up paying many times over the odds for electricity that's less "green" than a gas-fired power station. Nothing could better illustrate the futility of current "green" policies.²²

What about those green jobs?

We hear a lot about "green jobs" in the renewables industry. The reality is rather different. A recent report called "Worth The Candle?" by Verso Economics demonstrates that for every job created in the renewable sector, four jobs are destroyed elsewhere in the economy.¹³ How? By driving up energy costs, reducing competitiveness and deterring investment.¹⁴

A Spanish study entitled "Effects on employment of public aid to renewable energy sources" by Professor Gabriel Calzada Alvarez at King Juan Carlos University questions whether "green jobs" are worth the public investment.¹⁵ According to this document renewables have received €28.7 billion in subsidies. This is nearly €600,000 for each of the 50,200 jobs created.

Meanwhile renewables businesses are collapsing. In the US, President Obama touted solar-PV company Solyndra as a text-book example of renewables and green jobs: it soon went belly-up. A study by The Washington Post shows that of the approximately \$19 billion loaned so far, a total of just 3,545 jobs have been created.

That comes to over \$5 million per job.¹⁶ In China, solar PV manufacturers are facing a crisis as demand fails to match projections and prices slip below costs.¹⁷



Renewables are not about “green jobs”.¹⁸ They’re about green unemployment.

In the UK, the world’s largest wind turbine manufacturer, a Danish company called Vestas, has scrapped plans to build an offshore wind factory in Kent.¹⁹ The 70 hectare site would have housed a facility designed to build the Danish company’s 7MW V164 offshore wind turbines but a lack of confirmed orders led to the project being cancelled.

This decision is the second time that Vestas has opted out of the UK market; in 2009 it closed down a plant making onshore turbines on the Isle of Wight.²⁰

Contrary to the claims of the green lobby, the renewable industry is unsustainable. It needs massive ongoing public subsidy. Such levels of subsidy are unaffordable, especially in current economic times. **These subsidies are also profoundly regressive. They take money from poor consumers, including pensioners, and give it to rich landowners and corporations.**

How Brussels drives up energy costs

The EU's ETS (Emissions Trading Scheme): ²¹ This is the EU's flagship carbon tax.

CO₂ Permits (ETS)

+ £73
per household

Companies such as electricity generators must buy permits to emit CO₂ or face equivalent fines. The ETS also hits energy intensive industries and eventually drives them abroad to escape higher costs. Yet it also clearly fails to reduce CO₂, a double failure. ²²

The UK has been a vocal supporter of the EU's ETS. The ETS had the perverse effect of transferring money from British to continental companies.

The carbon price "floor": As the ETS suffered unexpectedly low prices which failed to

Carbon Price Floor

+ £105
per household

provide market incentives, the UK has gone out on a limb in the 2011 budget and put a minimum carbon price "floor" in place, which ensures electricity will remain more expensive. This approach is favoured by the government for tax purposes, and by nuclear energy companies which recognise it as a hidden subsidy. The price floor has been controversial, and attracted criticism even from green groups, arguing that the only benefit is to the Treasury.

Closure of Coal Fired Power Stations: Britain is required by the EU's Large Combustion

- 20%
UK Generating
Capacity

Plant Directive to close all its efficient coal-fired power stations, even though they may have years of useful life left. These power stations provide reliable, competitive energy and are capable of using indigenous coal. This policy threatens closure of more than 20% of UK generating capacity. Industry ²³ estimates that 12 Gigawatts of coal-fired plants will close by 2015. Meantime the government imagines it can replace this capacity with expensive and intermittent wind power

And our UK government makes matters worse:

The 2008 Climate Change Act: This Act is one of the most expensive ever passed in peace time, threatening costs of £18 billion a year for forty years — £720 billion in all. We must repeal this Act as it underpins all these damaging taxes and red tape policies.

The CRC (Carbon Reduction Commitment) Energy Efficiency Scheme: More businesses and jobs are being hit by the less well-known UK CRC Energy Efficiency Scheme, the UK's first mandatory carbon trading scheme for non-energy-intensive organisations. It will affect up to 5,000 organisations using at least 6000 megawatts of electricity per year. They will have to pay a tax of £12 per ton of CO₂ arising from their usage. This will add £1 million or so to the electricity bill of an organisation like a large university, or an airport the size of Edinburgh. Commercial buildings will be targeted next for the treatment, then landlords and smaller property owners. Legislation is now so complex that organisations will require legal and technical consultants to advise them on how to minimise the impact.

Government Feed-In-Tariffs (FITs), following the controversial German model, have encouraged households to become small-scale electricity producers with solar PV panels on south-facing roofs connected to feed into the grid. Different schemes have encouraged take-up, with the early adopters getting the highest payments. Payments are guaranteed for 25 years, tax-free and index linked, and can be many times the real costs of generating electricity in a proper power station.



Fuel poverty: In 2009 over 4 million households in England were classified as being in fuel poverty²⁴ — that is, spending over 10% of their disposable income on fuel. That figure equates to 18% of households, three times the number of households that were in fuel poverty in 2003. Since then, rising fuel prices have doubled domestic energy costs and estimates suggest that this figure has now reached 6 million households.²⁵ As a result of “green” policies, DECC’s²⁶ own predictions show that by 2020 households on the lowest incomes can expect to see their energy bills increase further, pushing even more people into fuel poverty.

How green policies are impacting households

It is difficult to calculate the exact effect of green taxes, since there are many knock-on effects that can only be estimated. For example, use of intermittent renewables imposes great inefficiencies and therefore costs (and extra emissions) on the essential conventional back-up.

But we have the estimate of the House of Commons Energy & Climate Change Committee saying that green levies will add a third to household electricity bills by 2020 – and that’s before expected increases in wholesale prices are factored in.²⁷ And the MPs point out, quite rightly, that the effect is regressive – it hits the poorest hardest.

Meantime The Taxpayers' Alliance predicts that green charges and tax will comprise £620 of a typical UK household's electricity and gas bill by the end of the decade. Green charges, says the TPA, which are used to fund wind and hydropower projects, and VAT currently make up 11pc of gas bills, or £91 of an average £830 statement. They account for 16pc of electricity charges, equivalent to £100 of the £630 average bill.

Analysts at Liberum Capital make similar predictions. They expect green policies to push power costs up 29pc by the end of the decade. This means the average electricity bill hitting £812, of which £285 would be green taxes and VAT.²⁸

Are there any “good” renewables?

UKIP is not opposed in principle to renewables. Hydroelectricity, for example, is predictable, controllable and economic. But we are against widespread use of wind and solar, which offer an unpredictable and intermittent trickle of very expensive electricity, requiring 100% back-up. These renewables undermine economic competitiveness, damage our economy and threaten security of energy supply. We have no problem with private companies investing their own money in renewables, if they can do so without subsidy. Solar and wind may have sensible niche applications — for example providing power in remote locations.

UKIP's WAY FORWARD



We believe that the market should play a key role in the selection of technologies in this (and other) industries — although we recognise that given the very long investment horizons of major infrastructure development, there may be a case for government guarantees.

In this context we criticise the EU for creating serious market distortion by favouring some low-carbon technologies (wind, solar) over others (e.g. nuclear).

There are, however, some clear priorities: gas, nuclear, and coal.





Gas

More energy security, lower prices?²⁹

Natural gas offers the best solution to Britain's twin crises of rising energy prices and the capacity crunch caused by previous governments' poorly-conceived and negligent energy policies. Gas-fired power stations can be constructed in just three to four years, whereas equivalent nuclear power stations can take twelve years or longer to complete. New discoveries of huge deposits of shale gas under Britain's soil could lower prices and help Britain's economic recovery. However, the possibility of exploiting our indigenous shale gas supplies has been held up by undue fears about the safety of hydrological fracturing — 'fracking' — and new gas power plants have been delayed by the coalition government's Energy Market Reform bill.

Imported gas

Just under half of Britain's current gas demand is met by imports. This is a substantial increase from just a decade ago, when all of Britain's gas demand was by domestic production. As global demand for gas increases there are increased risks of supply shortages and increasing prices.

The Department for Energy and Climate Change has claimed that global gas prices will rise substantially in the near and medium term, as demand grows and that recent increases in domestic energy bills are the result of volatile global markets. However, energy companies such as NPower dispute this figure, and claim that increased energy bills have instead been caused by green energy policies. Whatever the truth of these arguments and counter-arguments, domestic gas production offers three distinct advantages over imports.

Producing gas in the UK means the significant costs associated with transporting gas from thousands of miles away can be avoided. It creates substantial returns for the Treasury, and many benefits for the wider economy. And domestic production increases our security of supply by minimising our dependence on imports from politically unstable regions.

North Sea gas

Although North Sea gas production is understood to have passed its peak, the region is likely to continue to be productive for at least the three to four decades. New drilling technologies and new discoveries of oil and gas fields continue to draw investment into North Sea exploration and extraction. However, it seems clear that the North Sea is not likely to be able to meet the UK's demand for gas by itself as it has done in the past.

Shale gas in the USA

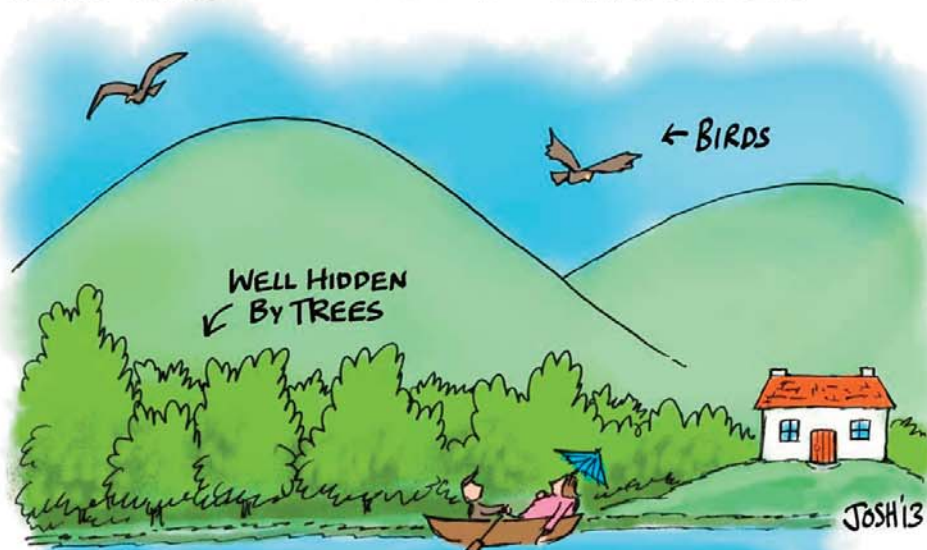
Although the process of hydrological fracturing — 'fracking' — to release oil and gas trapped in shale has been practiced for many decades, it has boomed in the USA in recent years. This has led to dramatic falls in gas and electricity prices, and a substantial boost to parts of the US's manufacturing sectors. The country's reserves are understood to be more than 2,300 trillion cubic feet — enough to meet the USA's demand for gas for many decades or longer.

FRACT SHEET No.1

YOU NEED HUGE NUMBERS OF WIND TURBINES



... COMPARED TO A SINGLE SHALE WELL

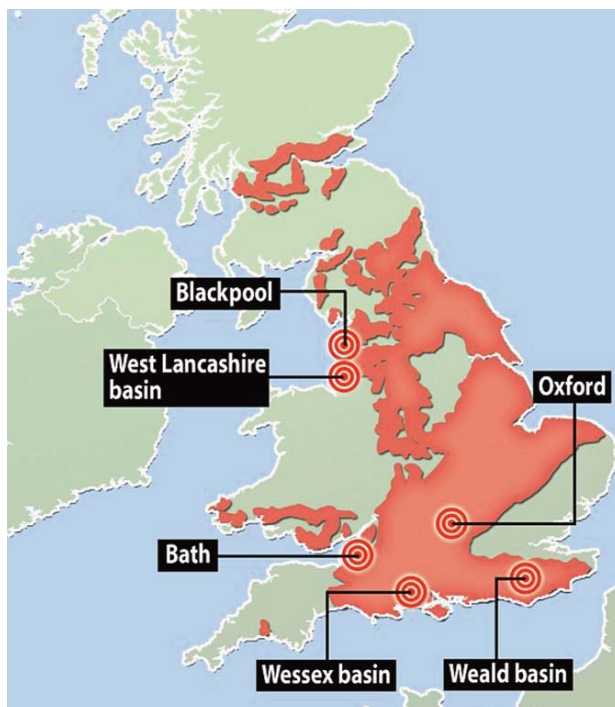


However, controversy has been caused by high profile environmental activist organisations. Their campaigns aim to generate public anxiety about the risk of contamination of water supplies by gas, and by chemicals used in the fracking process. But official investigations by US environmental authorities have found no links between fracking and contamination, in spite of the many thousands of shale gas wells in operation.

What the US experience of shale gas shows is that the UK's commitment to expensive renewable energy policies may leave it at a substantial competitive disadvantage while other countries exploit much cheaper sources of energy.

Shale gas in the UK ³⁰

The UK has abundant shale gas reserves. According to the British Geological Survey, there are potentially 1,329 trillion cubic feet (TCF) in the Bowland–Hodder shale formation that runs under the north of England. Although only a fraction of this may be recoverable — around 10% -- it represents decades of gas supply at current levels of consumption. In addition, the BGS has yet to survey other known shale gas deposits in Scotland, and in the west, midlands and south east of England.



Safe and clean fracking

A year-long moratorium on experimental shale gas exploration was put in place when fracking was linked to two minor earth tremors. Prior to the lifting of the ban, the UK's Royal Society — the UK's science academy — investigated the safety and environmental concerns raised by environmental organisations. They advised the government that the risk of earthquakes and contamination of water supplies is very low, and that appropriate regulation and monitoring would be sufficient to prevent accidents. The minor earth tremors that can be linked to fracking pose no risk to individuals or to property and are substantially less powerful than those routinely caused by coal mining.

The process of fracking occurs at levels far beneath water tables, meaning that the possibility of water supply contamination is very remote.

Although monitoring and regulation will not appease environmental campaigners who are ideologically opposed to shale gas, the US experience demonstrates that fracking can be done safely if overseen by technical expertise, and by authorities who are able to ensure that companies are held to account for any damage they cause.

However, there is no such thing as zero risk. The low levels of risk that may be associated with fracking are outweighed by the benefits that cheaper and abundant energy can create, and by the risks that are associated by rising energy prices and a growing energy gap.

Gas policies

The Chancellor has announced support for fracking companies to help kick start shale gas exploration in the UK. This amounts to a reduction in the tax paid by companies from 60% to 30%. While this is a welcome move, there is a need of more urgent progress if an energy gap and rising prices are to be avoided. An energy policy that suits the consumer needs to make its priorities clear, but the Energy Market Reform bill that is now being considered in Parliament is merely delaying investment, in spite of promises to deliver 'certainty' to the market.

The development of gas production and gas-fired electricity generating capacity in the UK offers the consumer the best deal with the least government intervention. It can be achieved by allowing gas production to happen by removing policy and regulatory barriers, rather than by poorly-conceived target-driven policies and subsidies. Finally, a sensible gas policy needs to be able to confront its critics — especially in the environmental movement — and explain its priorities to a confused public.

New sources of gas: Promising research is underway on the recovery of natural gas from methane hydrates. These are found in the sea-bed around the edges of the continental shelf. Confirmed and inferred deposits could provide gas for decades or even centuries. UKIP is concerned that while the USA, Canada, Russia and Japan are working on methane hydrates, Britain has little involvement. Our long experience of off-shore drilling should be exploited in this area.



We believe that nuclear is a vital part of the energy mix. Despite the black propaganda of the green movement, and the quite understandable concerns of the public following the Fukushima incident, nuclear remains the safest mainstream generating technology available — far safer than coal or hydro.³¹ It is a matter for regret that we in Britain have sacrificed our early lead in nuclear technology, that the former Labour government sold off the Westinghouse nuclear business, and that we have to a large extent lost the skills-base needed for a major nuclear programme. Sadly, we will need help, probably from the French, to get back into the business, but get back we must.

In 2010, the UK's 17 commercially operational reactors produced 62 terawatt hours (16 percent) of the UK's electricity supply. All the UK's reactors will be closed by 2023, except the newest one, Sizewell B, unless there is some new build in the meantime.³²

Costs: Nuclear requires massive up-front investment, but once the plant is in place, it delivers low-cost electricity, consistently, for decades, so that the overall life-time electricity cost is highly competitive, even after factoring in the costs of waste disposal and subsequent decommissioning. Anti-nuclear campaigners say “No nuclear power station has ever been built without subsidy”. This is not true — for example nuclear plants have been built commercially in Finland.³³ Some politicians have grudgingly accepted the need for nuclear but insisted there should be no public subsidy. UKIP supports free markets and prefers to avoid subsidies — but this must apply to all technologies, not just nuclear.

No wind turbines would have been built in the UK without massive subsidies. In fact they’re not farming wind at all — they’re farming tax-payer subsidies.

Nuclear Waste Disposal: Techniques for long-term storage of nuclear waste in appropriate geological structures are well developed, for example in Olkiluoto, Finland. This is no more than a technical problem with well-understood solutions. The British Geological Survey advises that suitable safe sites exist in the UK. Future reactor developments (fast-breeder reactors) will dramatically reduce amounts of high-level waste.

Anti-nuclear lobbyists love to argue that the waste will remain dangerous for tens of thousands of years. But our descendants in a few hundred years will have made vast technical strides that we cannot even imagine today. They may be mining our waste deposits, safely, to reuse in new ways.

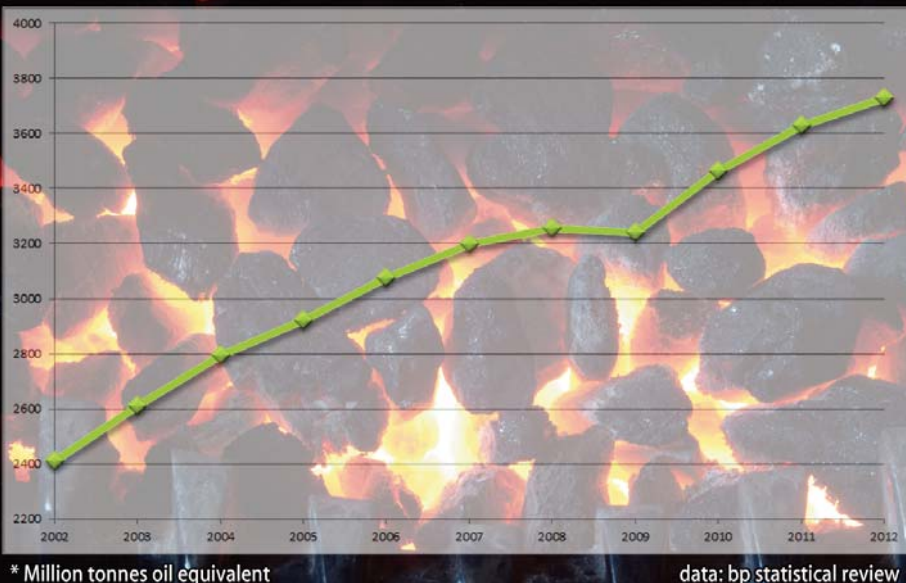
New nuclear technologies: Thorium: Thorium as a fuel for nuclear fission has several potential advantages: it produces less waste suitable for weapons, and thorium is plentiful. In principle, we are in favour of thorium development.

New nuclear technologies: Fusion. Nuclear fusion, the creation of helium and energy from hydrogen, offers the potential for very clean nuclear energy in unlimited quantities. On the other hand, development will take many decades and is hugely expensive. It is being undertaken by an international consortium in which Britain is represented by the EU. UKIP regrets that our involvement is *via* the EU, but believes that the potential of fusion, the prize of unlimited cheap energy, is so great that we must support the project.



Britain's industrial revolution was built on coal, and the UK still has substantial coal reserves — enough for 200 years, on some estimates. UKIP strongly supports a clean environment and clean air. Coal-fired power stations must use clean technology to remove sulphur and nitrogen oxides, particulates and other pollutants.

World Coal Consumption in Mtoe* 2002-2012



http://www.bp.com/content/dam/bp/pdf/statistical-review/statistical_review_of_world_energy_2013.pdf

We do not however regard CO₂ as a pollutant. It is a natural trace gas in the atmosphere which is essential to plant growth and life on earth.

Higher CO₂ levels increase agricultural crop yields and “green” the planet. Manmade CO₂ emissions amount to only around 3% of the natural carbon cycle. We therefore do not believe that CO₂ should be a barrier to coal development, nor do we support costly and wasteful attempts to achieve “Carbon Capture and Storage” –which is expensive, difficult and pointless. The Greens worry about nuclear waste storage — but no one has demonstrated a reliable method of sequestering CO₂ for very long periods.

We recognise the concerns of citizens and voters who don’t want open-cast mines on their doorstep — but they don’t want wind turbines either. With all energy extraction and generation technologies there are issues that require a balance between the need for indigenous energy and the interests of local people.

In this context, there are emerging technologies enabling energy to be recovered from coal by underground combustion. This allows recovery of energy from coal reserves that cannot be economically mined; it reduces the surface impact; and means fewer underground workers in the industry.

The problem, as usual, is the EU. We cannot restore the UK coal industry as long as we are bound hand-and-foot by the climate alarmists and green zealots in Brussels.

Key energy issues

- ★ Our current energy policy is dictated by Brussels
- ★ It will drive up electricity prices, undermine UK competitiveness, and force jobs, industry and investment offshore
- ★ It will force millions more families into fuel poverty
- ★ Dependence on wind farms will not significantly reduce emissions
- ★ Brussels has ordered the closure of our coal-fired power stations by 2015

What we should do:

- ✚ Cancel all renewable subsidies and feed-in tariffs
- ✚ Stop wind power development
- ✚ Tell Brussels we have to keep our coal-fired power stations
- ✚ Repeal the 2008 Climate Change Act, expected to cost £720 billion over forty years
- ✚ Urgently assess shale gas potential in the UK
- ✚ Urgently build gas generation capacity
- ✚ Base our energy strategy on gas, nuclear and coal

Britain faces a double energy crisis - *and it's made in Brussels!*

Here in the UK, we face an energy double-whammy. Policies imposed by Brussels in pursuit of their climate obsession are **driving up costs** and **undermining competitiveness**, at a time when our major global competitors — the USA, China, India — are all switching to low-cost fossil fuels, shale gas and coal.



This is real, this is immediate, and it's hitting jobs and growth. We talk of rebalancing our economy towards manufacturing, yet we're driving energy-intensive businesses off-shore.

At the same time we're sleep-walking into an **energy supply crisis** as Brussels forces us to close perfectly good coal-fired power stations. We have set ridiculous targets for renewable capacity, which can't be met, and we're failing to provide the necessary back-up — so when the wind drops, the lights will go out.

Meantime families and pensioners suffer as energy prices rise relentlessly. It's time for a re-think — on energy, and on the EU. This energy crisis offers the clearest possible confirmation that we'd be **Better Off Out**.

References: You will find references on many of the points raised in this booklet via the electronic version, at <http://www.ukip.org/images/PDFs/energypolicy2014.pdf>
The references are hyperlinked from the text.



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