

Keeping the lights on

*How UKIP would prevent the
impending electricity shortfall*



Rolling blackouts by 2020?



UKIP has the solution

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 stations 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

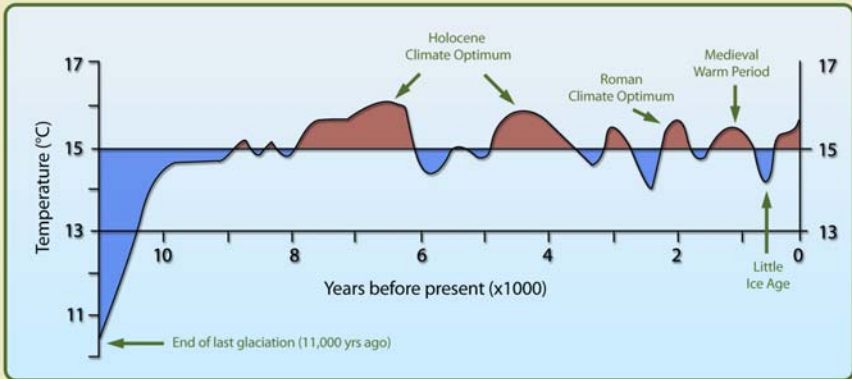
In addition a recent report by Ruth Lea and Civitas makes essentially the same case: "Electricity costs: the folly of wind"⁵

“Climate Change” is so last-century

More and more scientists are challenging the conventional wisdom on Global Warming. The ground-breaking 2004 Channel Four film “The Great Global Warming Swindle” set out the scientific case against climate alarmism, with interviews with top scientists in the field. In the eight years since then, it’s been confirmed by events — Professor Phil Jones of the Climate Research Unit at the University of East Anglia recognises that there has been no statistically significant warming for fifteen years.⁶ In fact over the last century the temperature has increased by only about 0.7° C.

Even green guru James Lovelock, inventor of the “Gaia” hypothesis and godfather of environmentalists, has conceded that climate alarmism has been hopelessly over-hyped. He says “Twenty years ago we knew what the climate was doing. Now we don’t”.⁷

Temperature variation over the past 11,000 years

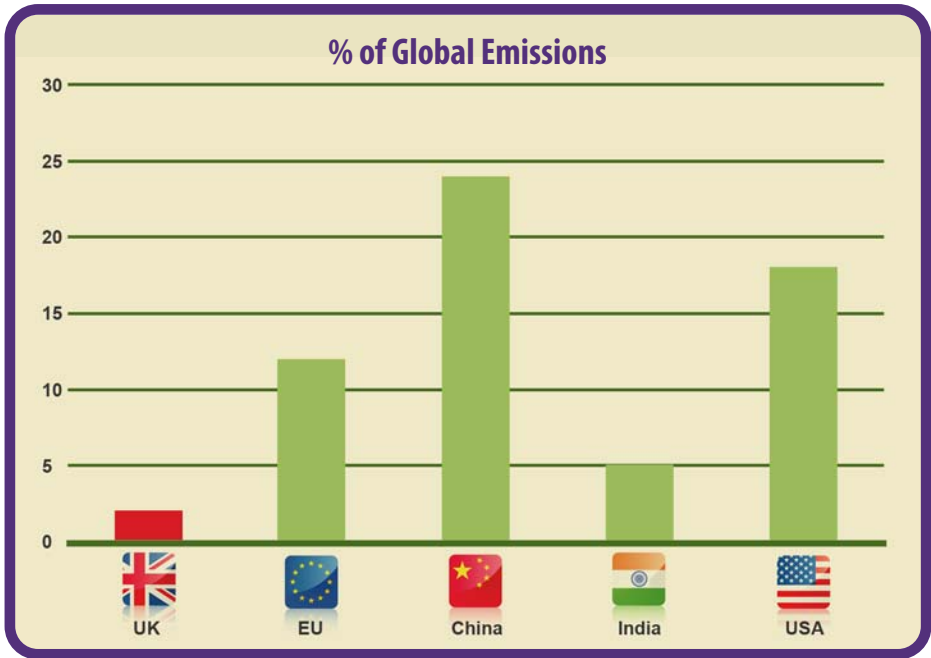


Average near-surface temperatures of the northern hemisphere during the past 11,000 years

(Data compiled by David Archibald after Dansgaard, Johnson, Moller & Langway, 1969; and Schönwiese, 1995.)

The slight warming in the last hundred years is entirely consistent with well-established, long-term natural climate cycles — the Roman Optimum, the Dark Ages, the Mediæval Warm Period, the Little Ice Age. And now we seem to be moving into a new, natural 21st century optimum.

There is simply no need to appeal to CO₂ as an explanation for natural variation. But even if you accept the IPCC⁸ CO₂ theory, there are two more serious problems.



We are approaching emissions reduction in just about the most expensive way possible. A report by Professor Stephen Bush for the National Grid Consultation shows how⁹ we could achieve Brussels' emissions targets more cheaply, and more securely, by a combination of gas and nuclear.

Any action by Britain or Europe will have little impact globally. If we were to close down the British economy totally — no industry, no vehicles, no lighting, no heating — the **increase** in China's emissions would make up for our emissions saving in around twelve months.

The UK is less than 2% of global emissions; the 27 Countries of the EU together around 12%. Meantime China (c. 24%) is building a new coal-fired power station every week, with India (c. 5%) not far behind. The USA (c. 18%) is looking forward to a new industrial renaissance based on cheap, indigenous shale gas — and is recovering more oil from tar sands. The EU likes to "lead on climate change", but no one else is following.

These data once again clearly show that UK's cuts in CO₂ emissions will have no meaningful effect on global climate and that the Climate Change Act's unilateral action is in vain.¹⁰



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.¹¹ How? By driving up energy costs, reducing competitiveness and deterring investment.¹²

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.¹³ 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.¹⁴ In China, solar PV manufacturers are facing a crisis as demand fails to match projections and prices slip below costs.¹⁵

Renewables are not about “green jobs”.¹⁶ 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.¹⁷ The 70 hectare site would have housed a facility designed to build the Danish company’s 7MWV164 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.¹⁸

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

CO₂ Permits (ETS)

+ £73
per household

The EU’s ETS (Emissions Trading Scheme):¹⁹ This is the EU’s flagship carbon tax. Companies such as electricity generators must buy permits to emit CO₂ or face equivalent fines. Using EU statistics, this increased UK family fuel bills by £73 in 2010. This is set to climb each year as the rules tighten. 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.²⁰

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.

Carbon Price Floor

+ £105
per household

The carbon price “floor”: As the ETS suffered unexpectedly low prices which failed to 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.

The combined cost of the EU ETS and the UK government carbon price floor is about £178 per household in 2010 prices, per year.



- 20%
UK Generating
Capacity

Closure of Coal Fired Power Stations: Britain is required by the EU's Large Combustion 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. Industry²¹ 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. 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. But the costs come back to other consumers, with Ofgem reckoning the average householder to be subsidising the favoured few by £70 per year.



Source:www.alamy.com

Fuel poverty: In 2009 over 4 million households in England were classified as being in fuel poverty²² — 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.²³ As a result of “green” policies, DECC’s²⁴ 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.

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. **We believe that there is also a case for investigating tidal power to see if it can generate electricity at competitive prices.**

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.



Shale Gas

Our get-out-of-jail card?

More gas capacity: Britain urgently needs more gas-fired capacity, because at this stage, and given the urgency of the UK's generating capacity crisis, only gas-fired power plants can be built fast enough to fill the gap. Gas-fired power stations can be built in three to four years, whereas nuclear plants take ten to twelve years.

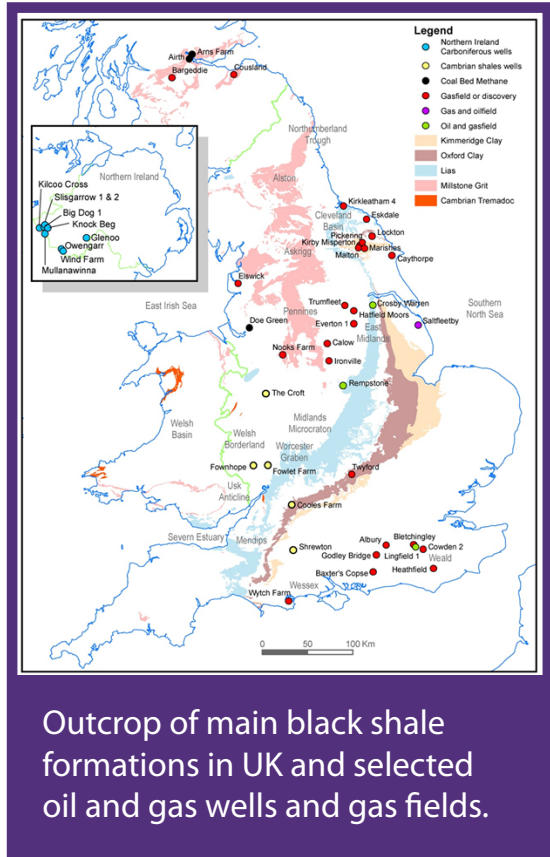
North Sea Gas: Contrary to media assumptions, North Sea Gas has not run out, but it is clearly declining, and cannot be relied on long-term.

Imported gas: Currently, we seem set to rely increasingly on imports. This creates several problems. We have no control over the pricing. With Japan and Germany currently planning to phase out nuclear, we may see global demand, and prices, increase. Much of our imported gas comes from politically unstable areas — we have seen Russia deliberately using gas supply as a political weapon against its neighbours.

Shale Gas: America is reported to have reserves of shale gas for up to 500 years. Already gas prices in the USA have roughly halved. America is looking forward to a new industrial renaissance based on cheap, indigenous natural gas. It will become increasingly difficult for the EU, with its expensive renewables, to compete with the US with shale gas, and India and China with cheap coal-fired electricity.

Shale Gas in Britain and Europe: It's early days, but there are believed to be large commercial deposits of shale gas in the UK, especially in the North West, but also across the Midlands. So far the government is sounding equivocal on shale gas. It should be pressing for urgent development.

Fracking: The techniques for recovering shale gas have been developed largely in the US, and are well understood. Needless to say there have been scare stories and black propaganda from the green lobby, which seems to be opposed to just about every viable energy technology.



Outcrop of main black shale formations in UK and selected oil and gas wells and gas fields.

Source: <http://www.bgs.ac.uk/research/energy/shaleGas/howMuch.html>

So we need to get the facts straight. We see lurid headlines about “earthquakes”. In fact fracking occasionally produces minor tremors, comparable to those caused by coal-mining, and almost indistinguishable from natural low-level seismic activity. We hear about possible pollution of aquifers and the water table. But fracking takes place much deeper than the water table, and leakage risks are minimal. Meantime stories of gas igniting from bathroom taps are exaggerated, and cannot be definitely linked to fracking.

Let’s be clear: no energy extraction technology is entirely risk-free, but the risks can and must be managed. They are trivial compared to the very real risk of running out of energy and electricity if we fail to adopt new technologies.

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.²⁵

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.

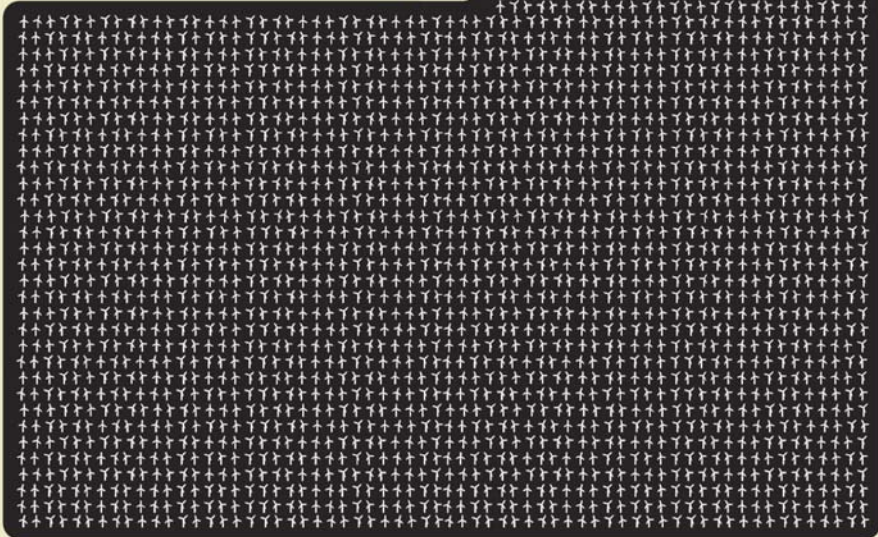
In 2010, the UK’s 17 commercially operational reactors produced 62 terawatt hours (16 percent) of the UK’s electricity supply. All the UK’s reactors will be closed by 2023, except the newest one, Sizewell B, unless there is some new build in the meantime.²⁶

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://ansnuclearcave.org>

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.



Olkiluoto Nuclear Power Station in Finland:

No subsidies, and not bad looking

<http://en.wikipedia.org/wiki/File:Olkiluoto.jpg>

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.²⁷ 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.

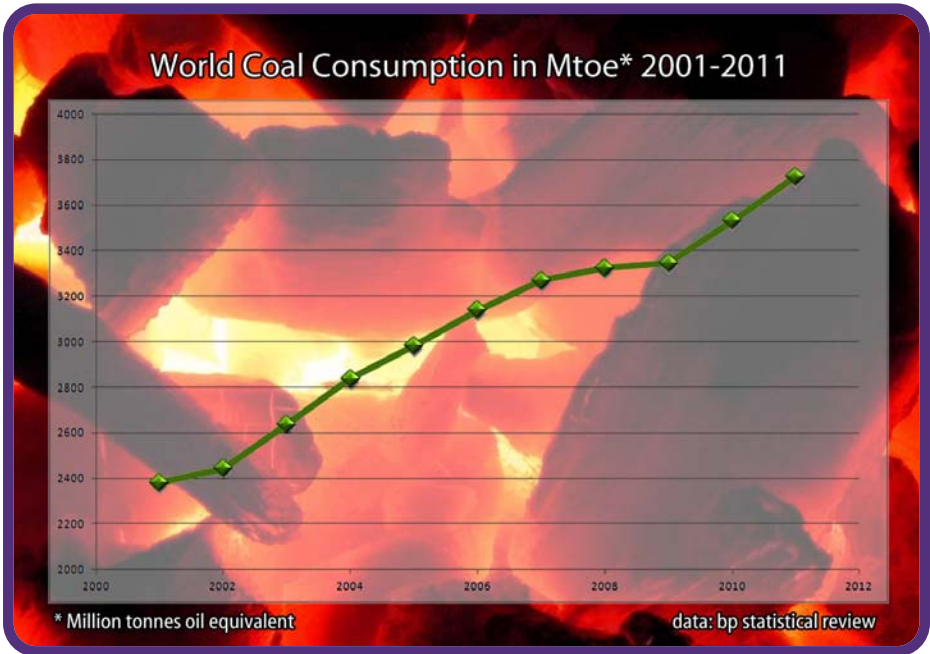
New nuclear technologies: Fusion. Nuclear fusion, the creation of helium and energy from hydrogen, offers the potential for very clean nuclear energy in unlimited quantities. On the other hand, development will take many decades and is hugely expensive. It is being undertaken by an international consortium 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.



Coal Time for a re-think

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.

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. Man-made 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://ukip.org/content/ukip-policies/energypolicy.pdf>. The references are hyperlinked from the text.



ROGER HELMER MEP

Roger Helmer is a Cambridge graduate. After a successful thirty-year career in international businesses, he was elected as an MEP in 1999, and re-elected in 2004 and 2009. He has campaigned on climate issues since 2007, and published books and DVDs on the issue. Representing the East Midlands, he is now UKIP's spokesman on Industry and Energy.

Michael Jose is an Advisor with the UKIP delegation in Brussels
Francesca Salierno is a Researcher in Roger Helmer's office.

Published by United Kingdom Independence Party, Lexdram House, Unit 1,
King Charles Business Park, Heathfield, Newton Abbot, Devon TQ12 6UT - www.ukip.org

Printed by Printbridge - 16 Castle Street, Bodmin, Cornwall PL31 2DU - www.printbridge.co.uk

References

- ¹ **Euracoal** - The Eu Association for Coal and Lignite - <http://www.euracoal.be/pages/home.php?idpage=1>
- ² **Civitas, Ruth Lea**, *Electricity costs: The folly of wind-power*, January 2012 <http://www.civitas.org.uk/economy/electricitycosts2012.pdf>
- ³ **G Sinden**, *Characteristics of the UK wind resource: Long-term patterns and relationship to electricity demand*. <http://www.eci.ox.ac.uk/publications/downloads/sinden06-windresource.pdf>
- ⁴ **G Hughes**, The Global Warming Policy Foundation. *Why is wind power so expensive?* - <http://docs.wind-watch.org/hughes-windpower.pdf>
- ⁵ **Civitas, Ruth Lea**, *Electricity Costs: The folly of wind-power* - <http://www.civitas.org.uk/economy/electricitycosts2012.pdf>
- ⁶ **bbc.co.uk**, *Interview to Professor Phil Jones*, <http://news.bbc.co.uk/2/hi/8511670.stm>
- ⁷ **msnbc.com**, *James Lovelock's interview: 'I made a mistake.'* Read more: <http://tinyurl.com/72mbldz>
- ⁸ **IPCC**, Intergovernmental panel on Climate Change - <http://www.ipcc.ch/>
- ⁹ **S F Bush**, Prosyma Research Ltd, 2009. *Maintenance of United Kingdom Electricity Supplies to the year 2020 and Proposals for a Secure Energy Strategy to 2050* - <http://britain-watch.co.uk/wp-content/uploads/2009/10/GridPaper6.pdf>
- ¹⁰ **B Pile, F Kelly-Tuncay**, *Repeal or Suspend the Climate Change Act. Unilateral action on the climate is futile* - <http://tinyurl.com/7q3s2k8>
- ¹¹ **T Miers, R Marsh**, Verso economic, *'Worth The Candle?' The Economic Impact of Renewable Energy Policy in Scotland and the UK*, March 2011 - <http://www.versoeconomics.com/verso-0311B.pdf>
- ¹² **Lavecchia, Stagnaro**, 2010, *"Are Green Jobs Real? The case of Italy"* <http://docs.wind-watch.org/IBL-Green-Jobs-May-2010.pdf>
- ¹³ **G C Alvarez**, *Study of the effects on employment of public aid to renewable energy sources* - <http://tinyurl.com/d7z9ye>, Read more <http://tinyurl.com/6wf5hjj>
- ¹⁴ **The Washington Post**: *Obama green-tech program that backed Solyndra struggles to create jobs* - <http://tinyurl.com/5tbv3vd>
- ¹⁵ **J A Lesser**, *Solyndra, Subsidies, and the Green Jobs Debacle*, November 2011 https://www.energyintegrityproject.org/uploads/Lesser_November_2011_Column.pdf
- ¹⁶ **M. Sinclair**, *Let Them Eat Carbon*, 2011.
- ¹⁷ Read more: <http://www.businessgreen.com/bg/news/2186454/vestas-scraps-kent-offshore-wind-factory-plan>
- ¹⁸ Read more <http://www.guardian.co.uk/environment/2009/apr/29/vestas-wind-turbines-environment> and <http://www.businessgreen.com/bg/news/1801150/vestas-confirms-isle-wight-factory-closure>
- ¹⁹ **EU ETS** - EU Emissions Trading Scheme - http://ec.europa.eu/clima/publications/docs/ets_en.pdf
- ²⁰ **M Sinclair**, *Let Them Eat Carbon*, 2011, p. 52
- ²¹ **ENTSO-E**, European Network of Transmission System Operators for Electricity - <https://www.entsoe.eu/>
- ²² Read more: <http://www.poverty.org.uk/80/index.shtml>
- ²³ **H Stockton, R Campbell**, National Energy Action - *Time to reconsider UK energy and fuel poverty policies?* <http://www.jrf.org.uk/sites/files/jrf/fuel-poverty-policy-summary.pdf>
- ²⁴ **DECC** - Department of Energy and Climate Change - <http://www.decc.gov.uk/>
- ²⁵ **R Helmer**, *The extraordinary safety of nuclear power*- <http://tinyurl.com/844pnn7>
- ²⁶ **DG Energy** - European Commission - http://ec.europa.eu/dgs/energy/index_en.htm
- ²⁷ **Olkiluoto** - http://www.tvo.fi/www/page/ol3_en/