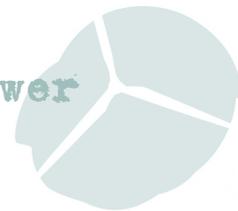


No.46 December 2012

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# 1. Hinkley Delays

EDF Energy is reported to have postponed its decision on whether to build two new European Pressurised water Reactors (EPRs) at Hinkley Point in Somerset. The utility was supposed to make a final investment decision by the end of 2012, but now looks unlikely to decide before April 2013. The delay puts the UK's nuclear renaissance into further doubt. (1)

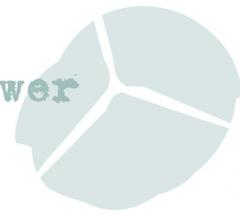
EDF admitted the cost of building its prototype EPR reactor at Flamanville in Normandy has risen by €2bn (£1.6bn) to €8.5bn as its partner in the scheme, Enel of Italy, announced it is pulling out. Flamanville was originally expected to cost €3.3 billion and be ready around 2012, but the opening date is now expected to be 2016. (2) Enel will be reimbursed €613 million for its 12.5% stake in the project, which the companies have been working on since 2007. Enel is also exiting from plans to build five other EPR reactors in France. (3)

Construction of Hinkley has now slipped by a full two years. First concrete pour on the nuclear island, which was originally expected to take place in 2013, is not now expected until mid-2015 - two years late. (4) Cases where nuclear reactors have been built on time and on budget are incredibly rare. There are only four other nuclear reactors being built in Europe right now. Besides Flamanville two new reactors are being built at Mochovce in Slovakia where construction began in 1985 and, after many delays and shortage of finance they may be complete in 2012 or 2013. That's a mere 28 years. The new reactor at Olkiluoto in Finland is currently six years behind schedule and at least €3.6 billion over budget. (5)

Not surprisingly the government now expects only 3.3 gigawatts (GW) of new nuclear plant to be built by 2025 and 9.9GW by 2030 (down from 4.8GW and 12GW respectively in the 2011 energy and emissions projections). As Greenpeace points out the energy bill is proposing to replace cost-effective support for renewables with complicated feed-in tariffs designed to cover up billions of pounds of public subsidy for new nuclear reactors. It's time the government admitted that nuclear is going to be too expensive "*and rule out blank cheques for a technology that has no future.*" (6)

EDF and the Department of Energy and Climate Change (DECC) have been engaged in lengthy negotiations to finalise the guaranteed price of electricity that will be offered to the company through the government's new contract for difference (CfD) support mechanism. The government remains insistent the support mechanism does not constitute a subsidy as it will be offered to other forms of clean energy and has been pushing to ensure the guaranteed price offered to new nuclear projects is competitive with other projects such as offshore wind farms. (7)

Meanwhile Centrica is widely expected pull out of the project, in which it has a 20% option, in part due to concerns about spiralling costs and delays. The plant is now estimated to cost £14bn, so there are doubts about the attractiveness of returns on the investment. (8) EDF is in talks with other companies, thought to include Chinese nuclear groups, about joining the venture. (9) Centrica is expected to write off £200m when it pulls out. (10) According to senior company sources, only a dramatic change in Government policy on subsidising nuclear power would create a business case for investment. (11)

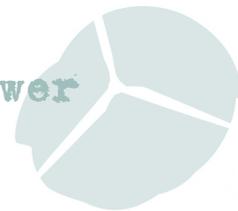


Hinkley Point C has been granted a Nuclear Site Licence (NSL) by the Office for Nuclear Regulation (ONR). The regulator has signalled its confidence that NNB GenCo, the new nuclear build subsidiary of EDF Energy, has developed the required organisation, management structure, plans and procedures needed for the construction, commissioning and operation of its proposed new nuclear power station in Somerset. Conditions of the licence include the development, implementation and maintenance of adequate safety arrangements throughout the life of Hinkley Point C. (12)

The six month examination phase by the Planning Inspectorate finished in September. The Inspectorate is due to make its recommendation to the energy secretary on 21<sup>st</sup> December. Ed Davey then has a further three months to decide whether to rubber stamp the recommendation.

Over the other side of England in Suffolk, EDF Energy has begun an eleven-week public consultation on the proposed Sizewell C nuclear project. (13)

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  8. Telegraph 1st December 2012 <http://www.telegraph.co.uk/finance/newsbysector/energy/9716627/Centrica-considering-500m-share-buyback.html>
  9. Telegraph 13th December 2012 <http://www.telegraph.co.uk/finance/newsbysector/energy/9741486/Investment-decision-on-Hinkley-Point-new-nuclear-plant-may-be-delayed-until-2013-EDF-admits.html>
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## 2. Sellafield – a “nuclear slum”

Sellafield represents an "*intolerable risk*" with costs spiralling out of control according to a National Audit Office report. (1) The projected cost of safely storing waste at Sellafield has increased by more than £900m in the last 10 months. (2) For 50 years, the operators have failed to develop a long-term plan for waste and some of the older facilities have "*deteriorated so much that their contents pose significant risks to people and the environment*". The plant is the UK's largest and most hazardous nuclear site, storing enough high and intermediate level radioactive waste to fill 27 Olympic-sized swimming pools. The NAO report states however, that owners of the station do not know how long it will take to build storage and treatment centres for the hazardous material or how much the final bill for decommissioning the plant is likely to be.

According to DECC's 2012/13 budget dealing with "nuclear legacy" issues costs around £2.5bn/yr, more than 42% of the Department's total budget. Of that, around £1.6bn/yr is spent Sellafield. The NAO anticipates the total future costs for decommissioning Sellafield, over a century or so, will be £67 billion. This has risen from £47 billion since 2009 – a remarkable rise in just three years.

The NAO report concluded that progress in 12 of the 14 major buildings and equipment projects considered "critical" for reducing risk, which range in cost from £21m to £1.3bn have failed to achieve what they were supposed to and had not provided good value for money. The total anticipated cost of these 14 projects rose by £900m in the ten months between May 2011 and March 2012. Most of the projects already under construction are running behind schedule as well as over budget. (3)

The report says the NDA "*inherited a legacy of poor planning and neglect,*" and although it has taken steps to provide a better strategy for cleanup at Sellafield, significant uncertainties and scheduling risks remain. The NAO report said that while the current cleanup plan is significantly better than previous ones, the NDA did not use sufficiently robust benchmarks to make judgments on proposed levels of performance. In particular, the report said there is considerable uncertainty over the time required and cost of constructing facilities to treat and store radioactive material that is in onsite ponds and silos. (4)

To date the performance of some of the major projects at Sellafield has been poor, but the report says it's too early to judge whether the appointment of Nuclear Management Partners Limited as the 'parent body' of Sellafield Limited is delivering value for money.

The NDA achieved an important milestone in May 2011 when it approved a more robust lifetime plan for the clean-up of Sellafield site by 2120, replacing a previous unrealistic plan. The improved lifetime plan contributed to an increase in the Authority's provision for decommissioning the site to £67 billion (undiscounted) as at March 2012, up from £47 billion as at March 2009.

The report is at [http://www.nao.org.uk/publications/1213/sellafield\\_risk\\_reduction.aspx](http://www.nao.org.uk/publications/1213/sellafield_risk_reduction.aspx)



The NDA admitted at a meeting of the West Cumbria Sites Stakeholder Group (WCSSG) the day before the NAO report was published that the cost of Sellafield's already delayed Evaporator D project had risen above £400m to £643m. Designed to reduce the volume of liquid High Level Wastes produced by Sellafield's reprocessing plants, Evaporator D was estimated to cost £90m in 2006. Adding insult to injury, Sellafield Ltd also confirmed that assembly of the dozen or so modules that will make up the Evaporator is not now expected to be completed on site until early 2016 - two years later than projected in the Sellafield Performance Plan published by the NDA just 18 months ago. Allowing for a further period of two years for the active commissioning of the new facility, Evaporator D is unlikely to be in full operation until 2018 at the earliest - after the two reprocessing plants have closed. (5)

Margaret Hodge MP, chair of the House of Commons Public Accounts committee, urged the NDA to "get a grip" on the spiraling costs. "My concern is that unless the authority holds Sellafield Limited to a clear and rigorously benchmarked plan, timetables will continue to slip and costs spiral."

The House of Commons Committee of Public Accounts (PAC), which examines reports made to it by the head of the National Audit Office - the Comptroller and Auditor General (C&AG) - decided to hold an off-site evidence session away from Westminster to take evidence on Managing Risk at Sellafield: The Nuclear Decommissioning Authority. (6) Hodge said "*Looking at the NAO report I'm pretty shocked and appalled at delays in work and by how costs at the site keep rising. We are a pretty tough committee and we will be asking searching questions*". (7)

During the Committee session, Austin Mitchell, MP for Great Grimsby described Sellafield as "*probably the biggest nuclear slum in Europe*." The hearing heard that Sellafield managing director Todd Wright received a £1.2m salary for the past financial year, while £44m has been paid to US based Reachback over four years while another £32m has been paid to 16 Sellafield Ltd executives for the same period. Ms Hodge said: "*These are shocking, shocking figures in a poor economy in the north of England*." The committee will now make recommendations on whether it feels taxpayers' money has been wasted and make suggestions on measures to cut costs. (8)

Greenpeace campaigner Richard George said "It's one thing to keep forking out buckets of cash to clean up the wastes we already have - given how dangerous it is the government doesn't really have any other option. What would be utter madness would be to make any more of the stuff. Yet that's exactly what the nuclear lobby wants us to do. Before the last election, David Cameron pledged that there would be no new reactors until we had a plan for the wastes. The Sellafield shambles shows why the government has no option but to cancel plans for new nuclear power stations and get to work building us a future powered by clean, renewable energy." (9)

The NDA says it will recruit 500 extra workers to help with the decommissioning. (10)

- Meanwhile Sellafield Ltd. faced nine charges on 12<sup>th</sup> December following alleged illegal nuclear waste dumping after joint action from the Environment Agency and Office for Nuclear Regulation. The regulators action follows an extensive investigation which has led to allegations that Sellafield sent and disposed of four bags of low-level radioactive waste from its site in West Cumbria, to Lillyhall landfill site, in nearby Workington, in



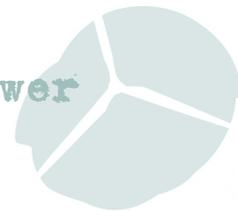
2010. Sellafield faces nine charges, to be heard before Workington Magistrates Court on 12 December. Eight charges have been brought by the Environment Agency and one by the Office for Nuclear Regulation. (11)

- Cleaning up and decommissioning existing nuclear waste will cost £100bn and take 120 years, according to the chief executive of the NDA. The amount represents a near-doubling of the £56bn cleanup cost announced when the NDA began operating in 2005, and could rise still more. The NDA is spending £3bn a year on the cleanup, with about £1.6bn of that going on Sellafield alone. Since Britain's first nuclear power station opened in 1956, they have generated 2.5 billion megawatt hours of electricity — worth £125 billion at today's prices. If the cost of building Britain's 20-odd nuclear power stations (around £10bn-£12bn each in today's money), is included, the clean-up costs far exceed the value of the power produced. (12)
- The NDA is consulting on its draft Business Plan for 2013-2016 The consultation runs until 1st February. The document, which reflects the Strategy published in 2011, sets out key objectives and the progress the NDA expects to be made across all its sites during the next three years. Among the key tasks for the coming year will be to review the Sellafield contract which enters the final year of the first term in 2013/14, and to continue with the Magnox and RSRL competition process following its launch in the summer. As the body responsible for implementing geological disposal for higher activity wastes in accordance with Government policy, the NDA will be progressing the plan for the Radioactive Waste Management Directorate (RWMD) to become a separate legal entity that can apply for and hold the regulatory authorisation needed to develop the facility. (13)

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<http://www.guardian.co.uk/environment/2012/nov/07/sellafield-audit-safety-costs-spiralling?intcmp=122>
  3. Guardian 16th November 2012 <http://www.guardian.co.uk/environment/2012/nov/16/nuclear-waste-sellafield> - includes some very useful graphs showing these cost overruns.
  4. NAO Press Release 7th November 2012  
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  8. NW Evening Mail 28th November 2012 [http://www.nwemail.co.uk/home/sellafield-branded-a-nuclear-slum-1.1017333?referrerPath=home/love\\_going\\_out](http://www.nwemail.co.uk/home/sellafield-branded-a-nuclear-slum-1.1017333?referrerPath=home/love_going_out)  
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### 3. Generic Design Assessment – sprints to finishing line

The Office for Nuclear Regulation (ONR) and the Environment Agency (EA) have confirmed that the UK EPR generic nuclear reactor design is suitable for construction in the UK. The regulators are satisfied this reactor, designed by EDF Energy and Areva, meets regulatory expectations on safety, security and environmental impact. Additional site-specific approvals are required before this reactor can be built at any UK location. (1)

Back in October ONR announced they had closed out another five outstanding GDA issues bringing the total closed out to only nine of the original 31 GDA Issues detailed in December 2011 – an average of only one per month. At that time the programme was thought to be at risk of extending into 2013. Even if EDF and Areva are successful in closing out the 22 remaining GDA issues on the UK EPR by the end of the year as planned, nuclear engineer John Large said he feared they will do so only by shifting unanswered safety questions into the licensing phase of the new reactors. He said this could turn EDF's planned project for two EPR reactors at Hinkley Point C into an "Olkiluoto-3"-style situation with cost overruns and project delays inevitable as regulators grapple with last minute design changes. The ONR disputed Large's criticism. (2)

Then on 9<sup>th</sup> November four more issues were closed leaving 18 issues still outstanding. (3) The number outstanding fell to thirteen ten days later. (4) Then on 5<sup>th</sup> December the regulators announced that a further 12 had been closed, leaving only one remaining. (5)

John Large described the regulators decision to approve the EPR design as "Absolutely astonishing – last time I looked at this the ONR were floundering in both the technicalities and timescales involved but, behold, a miracle has occurred – bah Humbug!"

See Large & Associates on the GDA process

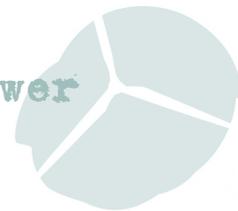
<http://www.largeassociates.com/cz3206/cz3206.htm>

Environment consultant and member of the Sizewell Stakeholder Group, Pete Wilkinson, accused the regulators of being driven by political expediency and making compromises in order to meet a Government target for resolving safety issues. But ONR rejected the claim.

Wilkinson said: "My interpretation of the outstanding issues has been that some require quite substantial design changes. I would not be surprised if the remaining issues are conditional upon further assessment findings being resolved sometime in the future. I believe this could introduce a degree of compromise and risk for the ONR during the construction programme."

Wilkinson said he suspected there was some "fast footwork" going on in order to enable the ONR to claim it had met the Government timetable. (6)

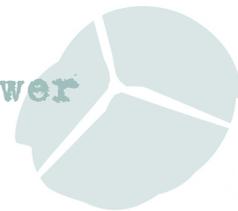
Stop Hinkley point out that only a couple of months ago that resolving the outstanding Control & Instrumentation issues by the end of 2012 deadline appeared to be an 'unachievable objective'. According to the ONR's quarterly report in Spring this year, there were at least three control and instrumentation issues that were experiencing significant delays that:



“Delays cannot be recovered and will impact on the target closure date for GDA Issues ...Closure of the GDA Issue is in serious doubt with major risks apparent. Resolution of the GDA Issue is unlikely to be achieved by performing the planned safety analysis or changes to the design of the NPP and further GDA Issue Actions and amendments to the Resolution Plan are required.”

Stop Hinkley would also like to know why the ONR don't intend to publish the assessment records for public scrutiny until March 2013. A spokesperson said: “*We issued a joint statement with the NFLA earlier this year expressing our concerns that political pressure is being brought to bear on UK nuclear regulators and the GDA process in order to facilitate nuclear new build, given this recent development this has only added to concerns.*” (7)

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  3. ONR 9<sup>th</sup> November 2012 <http://news.hse.gov.uk/onr/2012/11/closure-confirmed-of-four-more-issues-on-reactor-design/>
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  7. Stop Hinkley Press Release 18<sup>th</sup> Dec 2012 <http://stophinkley.org/pressrelpage.htm>



## 4. Energy Bill becomes reality

The Energy Bill was finally launched on 29<sup>th</sup> November. Secretary of State for Energy and Climate Change, Ed Davey said it will yield "*once in a generation*" opportunities to cut bills and greenhouse gas emissions. It will be "*the biggest transformation to Britain's electricity market since privatisation*" and the product of a "*grand bargain*" within the coalition – the legislation has taken months of tough negotiation between the parties.

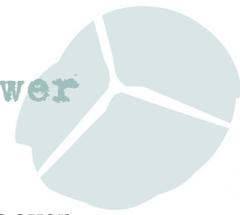
Under the new Bill, companies producing low-carbon energy – including nuclear power – would receive a higher price for their energy than for that produced in fossil fuel power plants. But the prices will not be set until next summer, at the earliest, leaving investors in such power plants hanging. The government has also refused to set 2030 as the target date for "decarbonising" the UK's power generation sector. A decision on this has been postponed until 2016, after the next election. (1)

Crudely speaking, the bill has been a battleground between Chancellor George Osborne, who favours gas-powered generation, and the Liberal Democrats, who wanted to set 2030 as the decarbonisation target date. Ed Davey argues that in the long term low carbon energy will save money because renewables and nuclear are dear to build but relatively cheap to run, and that gas prices are likely to continue rising. The chancellor, on the other hand is adamant that gas will help keep down power bills in the future. The compromise is that the decarbonisation target has been delayed but the Chancellor has conceded that householders should pay around £100 a year extra on bills by 2020 to fund low carbon energy, including nuclear. Labour says this was a "*humiliating failure*" for the Lib Dems who wanted gas banished from the electricity system almost entirely by 2030 to reduce CO<sub>2</sub> emissions in line with the Climate Change Act, although gas will be needed as a back-up. (2)

The Treasury has set a Levy Control Framework Cap of £7.6bn by 2020. In other words it will allow energy firms to charge households an extra £7.6bn until 2020, which will go towards the development of low-carbon electricity generation. This means that although household energy bills will rise they should be, on average, between 5% and 9% lower than they would be otherwise between 2016 and 2030, if the government's forecasts are correct.

However, crucial details are missing from the Energy Bill. These include details on the support for the nuclear power industry, which is expected to receive a minimum price for electricity generated under the reforms. That price is expected to be greater than that for renewable energy such as offshore wind, but the details of how much taxpayer-funded support will be available for each technology will not be available until next year. That is likely to delay investments, industry experts have warned. Campaigners said the energy bill was a "*lost opportunity*" to make substantial changes to the UK's energy infrastructure and would fail in the long term, because it did not give investors enough incentive to put money into renewable energy rather than gas or other fossil fuels.

SSE, the nation's second-biggest energy supplier, described the Bill as "over 1,000 pages of information, which shows just how complicated the proposed electricity market reforms have become". (3)



The Liberal Democrats were claiming victory in the fight with their Tory coalition partners over green energy despite the fact that the chancellor had vetoed the plan to introduce a decarbonisation target before the next election. Ed Davey claims the Treasury has sanctioned him to give advice to the National Grid on the need to prioritise renewable energy, adding that it is implausible that the National Grid will not follow these very clear signals. He says he now intends to use that power within months to send the message "very clearly" to increase the ratio of green energy consumed. Davey also states publicly for the first time that he asked the prime minister to remove responsibility for green energy from his energy minister John Hayes, a known anti-windfarm campaigner. (4)

A joint NGO briefing for the 2nd reading of the Bill on 19th December states that:

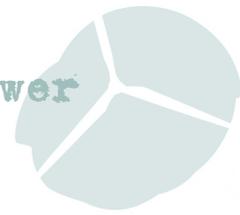
"There is now an overwhelming consensus that the best way to position the UK as a modern, efficient economy attracting investment and creating jobs, while cutting carbon emissions and controlling energy bills, is to use the Energy Bill to decarbonise our electricity supply by 2030." (5)

Joss Garman, political director of Greenpeace, said: "There is a gaping hole in the energy bill in the shape of a 2030 decarbonisation target. Billions of pounds of investment rest on this target being made law. Without it, there is serious risk of an investment vacuum after 2020, and of jobs and money being lost to our economic rivals."

Andy Atkins of Friends of the Earth said it "is a kick in the teeth for everyone working towards a low-carbon future in the UK ... Ignore the Government spin, the headline news is this: the Bill doesn't contain a crucial target for making our power sector carbon-free. It's a green light for business-as-usual, high carbon, high cost energy generation for decades to come. While some media headlines are claiming £100s will be added to the average household energy bill to pay for more green power, in reality this announcement signals a continued addiction to expensive fossil-fuels." (6)

In allowing George Osborne's dash for gas to run, the coalition has staked our energy bills on a long-odds gamble, says Damian Carrington in the *Guardian*. We'll all pay the price. Ministers are effectively negotiating with one company for the nuclear power it believes is needed soon – scarcely the scenario to deliver a bargain for energy bill payers. Those building new gas plants are demanding payments too, in case carbon targets mean the plants can only run part-time. Of course, renewable energy providers are also arguing hard for their subsidies. But they have a trump card: while the cost of gas and nuclear power is on an upward trend, the cost of green energy and its subsidies is already falling. The greatest failing of the new energy policy is the woeful underplaying of the cheapest option of all: energy efficiency. Almost all the incentives are aimed at producing more power, none at reducing the demand. Why is the UK planning for an increase in electricity demand of up to two-thirds in 2050, when Europe's manufacturing powerhouse, Germany, is planning for a cut of a quarter? Overall, in the great energy gamble, we've chosen a long odds bet rather than back the favourite and we will pay the price. (7)

On subsidies for nuclear power Tom Burke gives an optimistic assessment. The government has agreed to establish, in effect, a publicly owned purchasing body to buy electricity from the generators, with money to be raised by levying the suppliers. Whilst detail on this is sketchy, it is likely that very little of the money available under the levy cap – possibly a few hundred



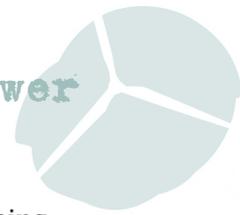
million – will be for new nuclear before 2020 – it will take until then for any new nuclear stations to deliver electricity reliably to the grid anyway. So potential nuclear operators need to know what will happen to the levy control framework cap beyond 2020. The cap has been set to rise to £7.6bn by then. This will have been used to finance CFDs for renewables for a minimum of 15 years. Thus any CFDs for new nuclear would have to be financed from additional levies. These could amount to a further £5.5–12.6bn/year depending on the contracted price for new nuclear electricity. This would require the levy cap to rise to £13.1–20.2bn/year. Dream on. Without an increase of this magnitude there is no likelihood that the government can meet its goal of 16GW of new nuclear by 2025. If it does not meet this goal it will have to pay for other measures to find low-carbon replacements for the shortfall, or risk failing to meet the existing carbon budgets. Davey has locked in the delivery of a third of our electricity from renewables by 2020 and pre-empted a lot of the money needed to subsidise new nuclear. He has won on the vexed issue of a single counterparty thus increasing investor confidence. (8)

Dave Toke, Senior Lecturer in Energy Policy, says what these changes mean (if the details implementing them are sorted out properly) is that the programme going forward under the current Renewables Obligation (RO) will be continued under the CfD arrangements. The expected blank cheque for nuclear that would help to hide the awkward truth about costs has not emerged. The scheme will have Treasury-imposed caps on spending meaning that just over 20% of UK electricity will be supplied by renewable energy by 2020. That is not enough to meet the targets under the EU Renewable Directive of course, and certainly not the carbon reduction targets. So let us not get out the bunting. But it is working out not to be quite the nuclear-carve-up-fix that we suspected two years ago. Ironically, because of the Treasury imposed cap (the so-called 'levy control framework'), this progress will be heavily reliant on implementing as much onshore wind as possible since this is cheaper than offshore wind. Alan Whitehead MP has indicated how the alleged largesse to be permitted by the Treasury does not translate into as much money for new schemes as might be imagined. (10)

Of course EDF Energy is still in negotiations with the government over what precisely the strike price for Hinkley Point C will be. And now it is clear that any subsidies given to nuclear power will reduce the amount available for renewables after 2020, assuming the Levy Control Framework is still in place. Vincent de Rivaz, chief executive of EDF Energy, says much still has to be done before his company can move ahead with Hinkley. "*It is not a done deal,*" he told the *Financial Times*. The company has made clear that it will not proceed unless the strike price is adequate. Mr de Rivaz said he expects the transitional arrangement - with the strike price - to be agreed before Christmas, by the time of the bill's second reading. (11)

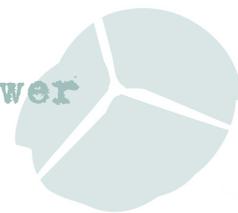
Greenpeace reminded us that "the Coalition Agreement pledged not to subsidise new nuclear reactors. Yet the Energy Bill offers massive public subsidies to anyone willing to build new nuclear reactors. Such overt public subsidy may breach European Law and would force cash-strapped households and businesses to pick up the tab for this expensive and risky technology. Greenpeace's QC will be looking closely to see if the government has broken the rules and put clean, safe renewable energy at an unfair disadvantage."

In 2006 a Lib Dem report written by Ed Davey and David Howarth asked Where will Blair hide his nuclear tax bombshell? Now we know a little bit more about where the Lib Dems will hide theirs. (12)



Just as we go to press, Energy and Climate Change Committee Chair, Tory MP Tim Yeo is being lauded for a speech at Bloomberg's HQ in London in which he launched a blistering attack on the chancellor and his pro-gas allies, accusing them of embracing a "short-sighted", "extremely risky" and potentially "costly" energy strategy. He confirmed he would table an amendment to the energy bill that would deliver a decarbonisation target for the electricity sector. He will propose a target range for the electricity sector in 2030 that would require "power plants to produce less than 100 grams of carbon dioxide per kWh of electricity". Yeo's intervention paves the way for a potential backbench rebellion against the government. Outlining his plan, Yeo argued a decarbonisation target represented the most effective means of providing the energy sector with the investor certainty, which would help to reduce the cost of capital for green energy projects. He also rejected arguments put forward by the Chancellor and his supporters that an increased reliance on gas would automatically lead to lower energy prices. "Lumbering the UK economy with a centralized power system largely reliant on gas, would be like running an office using a fax machine in the age of the iPad," he said. (13)

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  5. Energy Bill: Decarbonising Power by 2030, Joint NGO briefing December 2012  
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  6. FoE 23rd Nov 2012 [http://www.foe.co.uk/green\\_blog/climate\\_goals\\_at\\_risk\\_38279.html](http://www.foe.co.uk/green_blog/climate_goals_at_risk_38279.html)
  7. Guardian 23rd Nov 2012 <http://www.guardian.co.uk/environment/damian-carrington-blog/2012/nov/23/energy-bill-wind-power-davey-osborne?intcmp=122>
  8. Guardian 29th November 2012 <http://www.guardian.co.uk/environment/2012/nov/29/energy-bill-lib-dems-tories>
  9. Dave Toke's Energy Blog 5th Dec 2012 <http://realfeed-intariffs.blogspot.co.uk/2012/12/the-energy-bill-is-improvement.html>
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## 5. Gas Strategy

The government's failure to put forward a "decarbonisation target" for 2030 in the energy bill was a major missed opportunity to convince investors in the renewable energy supply chain that the UK was open for business, according to WWF. (1) The recent publication of the Gas Generation Strategy (2) and the Nuclear Supply Chain Action Plan (3) has left many renewable investors worried about government's commitment to the industry. Leonie Greene, Head of External Affairs, questioned the timings, saying that "*it begs the question if government is running two parallel energy strategies, and the extent to which they are in competition*". Some renewable developers have expressed concerns that the development of nuclear will take up a proportionally large amount of the £7.6 billion set aside under the levy control framework to develop low carbon projects. (4)

Omnishambles – the Oxford English Dictionary's word of the year – no longer even begins to do justice to the chaos in Whitehall and Westminster, says Geoffrey Lean. Deep divisions between coalition partners is one thing, but open warfare between top Tories in defiance of an agreed policy is something else. George Osborne's father-in-law, Lord Howell and Peter Lilley, a former cabinet minister and deputy leader of the party, were shown denigrating the Prime Minister and his promise to lead "*the greenest government ever*" and reporting that the Chancellor was deliberately undermining the Government's climate and energy policies. And Mr Hayes remains a minister despite defying official policy.

The dithering is largely down to George Osborne, who has been pressing to scale down plans for renewable energy and further boost gas, which already dominates our energy supply. He seems to believe that increasing clean energy and "decarbonising" electricity generation will be bad for business, increase household bills and impede growth. Yet even the CBI says green business is one of the few parts of the economy "growing steadily" through the recession. (5)

In trying to square the circle of the two competing energy policies set out by the Department of Energy and Climate Change (DECC) and the Treasury, Cameron told the House of Commons Liaison Committee that support for low carbon energy generation had to be set alongside a gas strategy, new fracking projects, and a deferral of the decision to introduce a decarbonisation target for the power sector. The Prime Minister claimed this approach was necessary in order to leave the "door open" for a potential "gas revolution" that would deliver near limitless cheap power for the UK. But Cameron was forced to admit that the only way significant investment in gas is compatible with the UK's carbon targets is if Carbon Capture and Storage (CCS) technologies work. And we do not yet know if carbon capture technologies can prove cost effective and technically effective at scale. Even the sector's most optimistic cheerleaders do not foresee CCS plants becoming cost competitive with other forms of low carbon power any time in the near future. Without a decarbonisation target to guarantee that a new dash for gas does not breach the UK's carbon targets, and substantial, urgent and (most importantly) successful investment in CCS, Cameron is running a huge risk that his decarbonisation efforts will fail. (6)

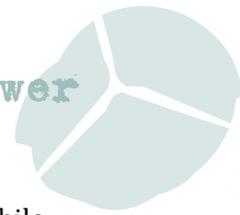


Policy Statement on Energy (EN-1)(July 2011) in numbers <sup>(7)</sup>	
Total Current Generating Capacity	85GW
Peak electricity demand now & 2020	60GW
Average demand	43GW
Large combustion plant directive closures by 2015	12GW
Nuclear closures over next 20 years	10GW
Generating Capacity required in 2025	113GW
Of which new build	59GW
Of which renewable	33GW
For industry to determine	26GW
Non-nuclear already under construction	8GW
Proposals for new reactors already proposed	16GW

According to the *Financial Times* previous government plans had estimated that 10-20 GW of new gas generating capacity would be required by 2030. But DECC recently raised its estimate of how much additional electricity the UK will need by 2030 from 64 gigawatts to 84 gigawatts – equivalent to an extra 20 gas-fired power stations. So the amount of new gas generating capacity required by 2030 has been raised to 26GW. The increased new capacity requirement in 2030 reflects in part an increased forecast for demand from the transport network, with the advent of electric cars and the electrification of rail lines. New gas capacity is needed, says the FT, as back-up for renewables given the intermittent nature of wind and solar energy. (8) 26GW of new gas capacity by 2030 is the Gas Strategy's central scenario. But the strategy also models 37GW of gas capacity if the government approves the Chancellor's plan to relax the 4th Carbon Budget that requires a halving of carbon emissions against 1990 levels by the late 2020s. The chief executive of the Committee on Climate Change, David Kennedy, warned that while the 26GW could prove compatible with the UK's carbon targets the 37GW plan would breach the targets. (9)

Yet securing a reliable supply of gas for decades to come will be a challenge as North Sea reserves decline. Lord Howell was recently filmed by undercover activists warning about the dangers of relying on Qatar, Britain's biggest source of liquefied natural gas (LNG). "If jihadis took over Qatar we would be up s\*\*t creek," he said. So the Tories are rather reliant on the UK emulating the shale gas boom that has transformed US energy security. (10)

But no-one even knows yet how much shale gas can be profitably extracted. Estimates of the exploitable reserves vary wildly. In fact, no one can be sure whether it will be viable to get any of it at all out of the ground. There have been some 50 experimental wells across Europe to date.



Not a single one of these appears to have produced gas which is commercially viable. So while the frack-heads fantasise about a bonanza, the reality is that not so much as one cubic metre of shale gas has been profitably extracted anywhere in Europe.

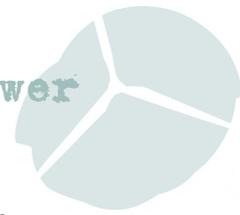
The risks of this “dash for gas” are multiple. It locks Britain into a continued reliance on an expensive, polluting fossil fuel. Money spent on gas diverts investment from renewables, which is especially bonkers when the green energy sector is one of the few parts of the British economy that is currently displaying good growth. It makes it less likely that we will meet our targets for reducing carbon emissions. Should shale gas truly turn out to be viable, there would be dividends. But if, which seems much more likely at the moment, the claims made for it prove to be false, then Britain is going to be even more exposed to future price shocks and blackmail by foreign suppliers. (11)

Andrew Raingold, executive director of the Aldersgate Group of companies (12) said the gas strategy would lead the UK straight back to economic decline by leaving businesses vulnerable to volatile energy prices and insecure supplies. *“Investors who heaved a sigh of relief with the publication of the Energy Bill last week will now be thrown back into a state of confusion about the UK’s energy future,”* he added. *“This undermines investment and jobs, and will raise the capital cost of renewing our energy infrastructure: a cost that will be passed straight onto the bills of businesses and consumers.”* (13)

A report by Cambridge Econometrics for Greenpeace and WWF predicted the UK would be £20bn better off by 2030 through pursuing wind energy rather than gas and save up to £8bn a year on imports. By comparing a future scenario where there is a steady growth in offshore wind capacity through the 2020s to a future where no new offshore wind is built after 2020 and the UK uses significantly more gas for its electricity needs, today's report says GDP will be 0.8 per cent higher by 2030 in the wind scenario with 70,000 more jobs also being created. (14) Rob Gross, an energy expert at Imperial College London, said: *“This report is a hugely important contribution to the UK policy debate. Economic impacts in the round are poorly understood and this report remedies that. I recommend this to all analysts of energy policy.”* It would also be a good place for our chancellor to start. The fundamental problem is that Osborne simply has different “facts” to almost everyone else. Waging a war on reality is a desperately poor way to run a country. (15)

Charlotte Morton, chief executive of the Anaerobic Digestion and Biogas Association says Osborne should be pushing for more green gas generated from waste rather than shale gas. Green gas is something of a no-brainer, ticking boxes for energy policy, environment and the economy. It should lead the future of unconventional gas in the UK. Putting it at the centre of the government's strategy would deal with the hurdles to deployment, and allow gas to be part of energy decarbonisation rather than a challenge to it. Green gas has the potential to deliver £2-3bn of green gas a year and create 35,000 jobs. Morton says the maximum potential of biomethane from anaerobic digestion (AD) is equivalent to 10 per cent of our domestic gas demand. (16)

Alan Whitehead MP says there is something of a co-incidence here, in that the claims for anaerobic digestion and shale gas in the UK are not that far apart. Utilising much of the UK's biodegradable waste for AD they could supply about 10% of the country's domestic gas



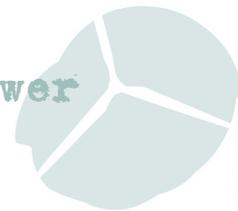
requirements; utilising most of the recoverable shale gas could supply, subject to depletion, about 10% of the UKs overall gas requirement. But compare, for a moment, the economics of the two methods of putting that gas into the grid, setting aside all the other issues about carbon, etc. One shale gas well costs between £6 -10 million to drill and frack. It is difficult to assess total output of gas, but the average well in Texas at the moment is producing about 2 million cubic meters of gas per year, with much of it depleting fast as drilled wells tend to do after about five years of production.

One large farm size Anaerobic Digestion plant costs about £2million to build (the BV dairy plant pictured cost £2.3 million) and then provides a steady stream of gas from then onwards, varying only to the extent that cows stop producing manure or people stop eating food. The first plant currently operational and injecting gas into the grid (the Poundbury plant in Dorchester produced about 850 cu mtrs of gas in a day in November, which grossed up over a year, represents a bit more gas produced over a period than the average shale gas well. Oh, and by the way, you have to factor in the by-products. A shale gas well will consume between two and seven million gallons of water and around five thousand gallons of chemicals per frack, much of which (the 'flowback' water) has to be treated and adds to the cost of the well drill. An AD plant produces varying amounts of digestate, depending on its size, which can be used as fertiliser. (17)

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  9. See also Deconstructing the numbers behind the Dash for Gas by Richard George, Energy Desk 5th Dec 2012 and Clive Bates' comments below:  
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  10. Business Green 5th Dec 2012 <http://www.businessgreen.com/bg/news/2229923/autumn-statement-chancellors-cheap-gas-strategy-undermines-investment-and-jobs>
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12. See also Energy Desk 14th Nov 2012 <http://www.greenpeace.org.uk/newsdesk/energy/data/where-do-we-get-our-gas>
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16. A Study into the Economics of Gas and Offshore Wind, Cambridge Econometrics, November 2012 [http://assets.wwf.org.uk/downloads/a\\_study\\_into\\_the\\_economics\\_of\\_gas\\_and\\_offshore\\_wind\\_nov2012.pdf](http://assets.wwf.org.uk/downloads/a_study_into_the_economics_of_gas_and_offshore_wind_nov2012.pdf) and Business Green 4th Dec 2012 <http://www.businessgreen.com/bg/news/2229288/report-uk-gbp20bn-better-off-choosing-wind-over-gas>
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## 6. Waste Notes

Dr Jeremy Dearlove, a geologist who has been advising the West Cumbria Managing Radioactive Waste Safely Partnership says:

“There remain two potentially suitable rock volumes in West Cumbria for which insufficient data and no published authoritative reviews are currently available, that have the potential to be suitable GDF host rocks. **Neither of these two rock volumes should be regarded at this stage as particularly promising**, in terms of their potential to eventually be identified as suitable GDF host rock, but until available data have been reviewed by a suitably impartial authoritative body, they cannot be ruled out at this stage from the MRWS Partnership process.” (1) [Emphasis added]

The two rock volumes concerned are the Mercia Mudstone Group (MMG) of northern Allerdale and the Eskdale/Ennerdale granite in Copeland. (For a map see slide 12 here [http://www.geos.ed.ac.uk/homes/rsh/Copeland\\_Deep\\_repository\\_Smythe\\_7sep12\\_V1.pdf](http://www.geos.ed.ac.uk/homes/rsh/Copeland_Deep_repository_Smythe_7sep12_V1.pdf))

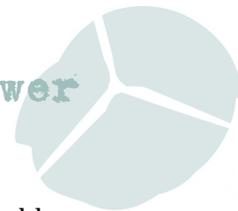
As we know from the history of nuclear waste dumping proposals in the UK (See <http://www.no2nuclearpower.org.uk/radwaste/history-of-nuclear-waste-disposal-proposals-in-britain/>) making statements like this is quite a good way to get new opposition groups set up.

As mentioned last month the Solway Plain Against Nuclear Dump was set up earlier this year. ( See <http://www.spand.org.uk/> ) At a public meeting in November plans for a nuclear dump which could be built near Silloth were given an emphatic thumbs down. All but one of the 350-strong audience who turned up to hear the views of two respected academics on the proposal voted against the dump. The show of hands came after the meeting heard from Edinburgh University based geology Professor Stuart Haszeldine, and David Smythe, a retired Professor of Geophysics. Both men spent considerable time explaining why they believe the geology of the Solway Plain is eminently unsuitable for storing high-level radioactive waste. (2)

Another meeting also organised by Solway Plain Against Nuclear Dump (Spand) was attended by more than 250 people at Maryport's Wave Centre. It heard Smythe and Haszeldine describe a nuclear dump covering an area the size of Carlisle which would create massive waste spoil with toxic chemicals which, when excavated, could seep into watercourses and the sea. (3)

Now a group called No Ennerdale Nuclear Dump ( <http://noend.org.uk/Index.htm> ) has set up. Around 160 local residents turned up to the first public meeting. At the end of the meeting those present were asked (on a show of hands) whether they wanted the repository project to proceed or not? There was unanimity that the project should not proceed and various actions were agreed in this regard. During the meeting Dr Dearlove admitted that there was a low probability of even the two rock volumes he identified being geologically suitable. He acknowledged this identification had been in response to independent geologists Professors Smythe and Haszeldine indicating that in their view all of West Cumbria was unsuitable.

Stage 4 and 5 of the Managing Radioactive Waste Process - desk based studies and more detailed geological investigations could take about 15 years. (See page 155 of the Partnership



report <http://www.westcumbriamrws.org.uk/images/final-report.pdf> ). Stage 5, which could take a decade could entail 20-30 boreholes drilled to a kilometre depth. New roads constructed on Ennerdale Fell to allow heavy plant to bring drilling rigs on to the fell - each drilling rig takes 10-20 lorry loads to move would be needed and 60,000 holes drilled for the seismic survey, with 200 grams of dynamite being used in each one as a seismic source. This could result in the mountain being sealed off for up to two years whilst the drilling and dynamiting took place, the drilling headquarters being constructed at Gillerthwaite. (4)

Although the Radioactive Waste Management Division of the NDA says it would probably know at the earlier end of the 15 year period if an area was going to be unsuitable, it is still possible that new reactors will be opening before we know whether or not there is going to be a way of dealing with the waste.

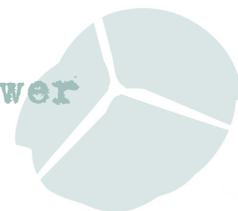
The NDA insisted that no sites have yet been identified. Copeland council leader Elaine Woodburn also insisted: "Ennerdale has not been identified as a site for test drilling or any part of the MRWS process. In fact no site has yet been identified in any report. The meeting would seem to be jumping the gun and scaremongering in the extreme." (5) She said on twitter that Dearlove "...might have given his opinion but partnership didn't nor has identified any specific area."

Meanwhile, the nuclear industry's biggest staff union, Prospect, wants Cumbrian councils to start searching for a nuclear waste dump site. (6) Prospect and the Sellafield Workers' Campaign has drawn up a briefing paper highlighting areas of concern research by Professors Haszeldine and Smythe. (7) *But the Union leaflet doesn't contain any evidence that any independent expert opinion was sought - it merely states the opinion of the Union that the professors' approach and findings are flawed.*

Jamie Reed MP claims that plans to bury nuclear waste in Cumbria would actually improve brand Cumbria. (8) He said the only way Copeland can survive brutal budget cuts is by hosting an underground nuclear waste repository. At a public meeting Mr Reed said failing to back a nuclear new-build, including the potential major waste disposal facility, would "*seal the area's fate*". (9)

But now the Lake District national park has added its huge clout to growing concern that nuclear waste burial in Cumbria is a dangerous and economically damaging non-starter. The park's governing authority has written to the Department of Energy and Climate Change (DECC) minister responsible for nuclear waste, warning for the first time that fears about losing nuclear industry jobs in the region need to be balanced by potentially disastrous effects on tourism. (10) In the letter, the authority chair, Bill Jefferson, tells Baroness Verma, the junior energy minister:

"There are growing and increasingly widespread concerns that a repository below the national park or indeed a perception of such a proposal would not be in the long-term interests of the Lake District, its farming and resident communities and visitor economy. Evidence suggests a potential risk to the Lake District's brand image, and on communities that rely on this brand. The lengthy process, necessary for considering such a facility, could exacerbate this risk. While we do not know what precise impacts a repository under the national park would have on its special qualities, I am concerned such a proposal could adversely affect the Lake District's brand image, its national and international standing, reputation and integrity, prejudicing the delivery



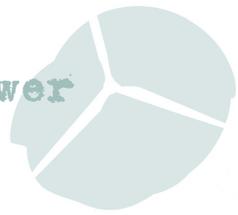
of the vision to the detriment of the Cumbrian tourism economy and our statutory responsibilities.”

Campaigners from Friends of the Earth, Save Our Lake District - Don't Dump Cumbria! and Radiation Free Lakeland released the final report of a survey of more than 500 visitors in Keswick, which found that 89% of people thought a dump would have a negative impact on the image of the National Park. Visitors said they thought it would put people off coming and would be detrimental to the image of unspoilt landscape, natural beauty, clean air and clean water. (11)

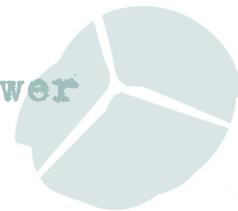
In November 2012 a new Chairman and six new members were appointed to Committee on Radioactive Waste Management (CoRWM) by sponsor Ministers from DECC and the Devolved Administrations for Scotland, Wales and Northern Ireland. Laurence Williams, formerly Chief Inspector of Nuclear Installations, was appointed chair. New Members of the Committee are Greg Butler; Paul Davis; Helen Peters; Stephen Newson; Lynda Warren (re-appointed); Janet Wilson. (12) Bill Lee, Brian Clark, Simon Harley, Francis Livens, Rebecca Lunn, and John Rennilson, remain members of CoRWM until October 2014.

The remaining ten disused boilers at Berkeley nuclear power station in Gloucestershire will be recycled as part of a £15m deal. Decommissioning firm Studsvik will transport the ten 300-tonne heat exchangers from the Magnox site to its processing site in Sweden for recycling. The first five were removed in March and are currently being treated by Studsvik. The boilers were used to produce electricity at the plant before it ceased operation in 1989. (13) The news comes less than three months after the discovery of a consignment of kitchenware imported from India was found, in Colombo Sri Lanka, to be radioactive. (14)

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## 7. Plant Life Extensions

On 4th December 2012 EDF Energy announced that it will extend the operating life of two of its nuclear power stations by seven years. (1) The announcement made no mention of the Periodic Safety Review which regulators will carry out in 2015. Even then, regulatory approval is no guarantee of safety. The oldest reactor at Fukushima in Japan received a ten year life-extension from regulators just one month before the earthquake and tsunami.

Hinkley Point B and Hunterston B power stations are now expected to remain operational until at least 2023, according to the utility. The decision follows the five year extensions to Heysham 1 and Hartlepool announced in 2010 and “comes after extensive reviews of the plants’ safety cases and continuing work with the independent nuclear regulator”.

EDF Energy expects an average of seven-year life extensions across all its Advanced Gas-cooled Reactor (AGR) stations and a 20-year extension for Sizewell B, the only Pressurised Water Reactor (PWR) in the UK.

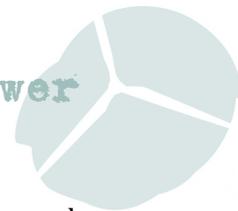
Hinkley Point B and Hunterston B opened in 1976 which makes them older, or the same age as, all but one of the eight reactors which Germany has already shut down. A major study of reactor hazards by two leading scientists and an international energy specialist, published by Greenpeace in April 2005, concluded that risks from ageing reactors are higher because age-related degradation mechanisms are not well understood and are difficult to predict. AGRs do not have a secondary containment, so there is a high potential for large radioactive releases. (2)

A report by Large Associates – an independent nuclear engineering consultancy – on problems at Hinkley Point B which analysed a bundle of documents received under the Freedom of Information Act, and concluded that there are:

*“...significant uncertainties over the structural integrity and residual strength of the moderator cores in ... AGR plants ... in view of the increased risk presented by continued operation of these nuclear plants, the reactors should be immediately shut down and remain so until a robust nuclear safety case free of such uncertainties has been established.” (3)*

John Large said it was “gambling with public safety” to allow Hinkley Point and Hunterston to continue operating. (4) The documents, written by the former Nuclear Installations Inspectorate, reveal that AGRs are structurally defective and their continued operation is increasing the risk of a radioactive accident. The bricks which make up the reactor cores of the AGRs are cracked. These bricks, made of graphite, help control the nuclear reaction by influencing the speed of neutrons. Channels also run through the bricks which enable key safety mechanisms, such as the entry of rods designed to shut-down the reactor in an emergency. However, the cracked graphite bricks could cause safety mechanisms to fail in a severe event and the nuclear fuel to overheat, potentially resulting in a radiological release. (5)

The UK Office for Nuclear Regulation (ONR) says it is working with EDF Energy to extend the life of its nuclear power stations and that it is “content for the plants to continue to operate”, as long as they pass regular safety tests. Hunterston B and Hinkley B are both due to undergo a



periodic safety review (PSR) in 2015 with a decision on whether to grant EDF Energy a renewed license in 2016. A PSR is carried out for each operating nuclear power station in the UK every ten years. The review requires an operator to prove that its nuclear power plant is safe and complies with site license conditions. (6)

The Union of Concerned Scientists (UCS) describes the profile of risk over the lifetime of a reactor as a 'bathtub' curve. New reactors start out as a high-risk as they are 'broken-in'. In the middle of their life, reactors should be in peak health where the risks are at their lowest. Then as reactors get older they enter a 'wear-out' phase with a high risk that components will wear out and fail. (7)

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