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1. Hinkley Notes

Legal difficulties likely

The contract for building Hinkley Point C (HPC) might not be "*valid*", according to a leading legal academic. Former Liberal Democrat MP David Howarth, who lectures at Cambridge, said the Hinkley deal could be seen as an "*unjustifiable subsidy*" under EU law. Mr Howarth told BBC Radio 4's *Today Programme* there was a "*problem with whether this is a valid contract at all*". He argued that, under EU law, its terms could be described as an "*unjustifiable subsidy*" and that "*because the system doesn't allow for non-British generators to come within it, it might be a violation of the basic principle of EU law of freedom of movement of goods*". (1)

Howarth said that the 35-year deal with EDF Energy, which guarantees a price for EDF's electricity that is 40% higher than current prices if EDF builds a new £16 billion plant, is an "*extraordinarily good deal*" for the French energy giant and could flout EU laws designed to prevent subsidies that distort markets. (2)

In a report co-written with Simon Deakin, director of the Centre for Business Research at Cambridge, the academics highlight what they call "*a number of legal flaws*" in the government's contract with EDF, suggesting that the company could make "*excessive returns*". They added that the cost of public subsidies for the project could also "*vastly exceed the cost of even the most extensive power outages that might happen*" if the plant is not built.

Deakin says the Hinkley Deal is likely to run into legal difficulties, especially at EU level, and to require renegotiation. Those difficulties are largely the result of the proposed contract being too favourable to EDF. Renegotiation is therefore in the interest not only of the UK government but also of EDF itself, since otherwise EDF might find that it cannot protect its investment and might find itself holding some very large stranded assets. As part of that renegotiation, the government should address the problem that in the course of very long term contracts, not only technological, economic and political conditions are likely to change but also the very legal environment on which the contracts depend. It should also address the problem that such contracts, when legally binding, restrict the ability of future parliaments to influence policy, so that excluding parliament from decisions to make them is highly questionable. (3)

Solar attack

In a new video on the Solar Power Portal website, Fergus March delves into the HPC deal. He highlights a quote from the European Competition Commission report: "*The Commission is worried that the Government's claim that new nuclear power is necessary to keep the lights on makes no sense since the new stations will not be ready until 2023 whereas problems with continuity of supply will come to a head before 2020*".

The Simon Deakin and David Howarth report says "*The cost of support is way beyond the cost to society of even the most costly power outages that might happen at that time*". It goes on to say that the only benefit being secured is a four year acceleration of nuclear deployment, because the Commission says HPC would go ahead without subsidy according to UK Government figures

by 2027. March says we need to ask more questions of the Government especially when financially viable green renewable alternatives already exist. (4)

Illegal State Aid finding likely

The European Commission will almost certainly find that the HPC funding mechanism is illegal state aid, according to Franz Leidenmuhler - an Austrian law professor. Leidenmuhler specializes in EU state aid cases and European competition law. He says "*a rejection is nearly unavoidable. The Statement of the Commission in its first findings of December 18, 2013 is too clear. I do not think that some conditions could change that clear result*." Leidenmuhler says he doesn't believe the funding mechanism meets the criteria to be granted an exemption for state aid.

However, George Borovas, an energy lawyer at Shearman and Sterling in Tokyo, said he believes some form of negotiation is likely take place. "*While the Commission has expressed substantial criticisms and concerns, it would be unusual for a project of this nature to be prohibited outright on State aid grounds … instead, there will likely be a negotiation between the UK and the EU, resulting in a settlement of some sort, on issues such as the period of the CfD and the level of the strike price*."

The issue of a potential precedent being set was a point emphasized indirectly by Leidenmuhler in his presentation, when he cited the recent decision by the Czech government not to offer aid guarantees for the construction of a new nuclear unit at Temelin that would be similar to the guarantees offered by the UK government for Hinkley Point C. (5)

David Cameron told Parliament he is "confident" Somerset will have a new nuclear plant despite the EU investigation. He said the investment was "*part of a balanced plan to provide core energy … Countries in Europe should be able to invest in nuclear energy as part of a balanced plan to provide core energy and to keep carbon emissions down … I'm sure the [EU] commissioner will see that is the point and I'm confident this will go ahead*." (6)

HPC deal will cost consumers £12.4bn

According to the Westminster-based think tank, CentreForum, the HPC deal will cost British consumers £12.4bn more over 35 years than government backed procurement. The think tank said the lack of government investment will result in an additional bill of at least £15 a year per UK household "*for a generation, while the taxpayer underwrites double digit returns to French and Chinese nationalised industry*". The report made eight recommendations, which included, setting a new nuclear strike price by auction and building long-term infrastructure to support nuclear growth such as laboratories and research centres. (7)

The report by Centre Forum says that new nuclear is a "mature technology" and should therefore be included in the CfD reverse auction. This would have help would "ensure value for money" for consumers. (8)

Significant concerns Waste Transfer Price will cost the taxpayer extra

Greenpeace's submission to the European Competition Commissioner highlights, amongst other things, one aspect of the proposed State Aid for Hinkley Point C (HPC) which hasn't received much coverage - aid for decommissioning and waste.

The NNB Generation Company Limited (NNBG) – a subsidiary of EDF Energy - has submitted a draft "*Funded Decommissioning Programme*" (FDP) covering the management of the waste produced by the HPC. However, the UK government has not yet approved such a programme. This means that, at present, the Commission is not able to verify whether the arrangements between the UK and NNBG will comply with the polluter pays principle, or whether the arrangements will entail the provision of additional State aid to the operator of HPC, in the form of a reduction of waste management costs.

The Department of Energy and Climate Change explained the Waste Transfer Price (WTP) aspect:

"*Our policy is that title to spent fuel and ILW from new nuclear power stations will transfer to Government, in return for payment of a "waste transfer price", for disposal in the geological disposal facility (GDF) to be built for the disposal of legacy wastes. The waste transfer contract will set out how the price and also the date of title transfer will be determined*".

The UK government policy is that the WTP will be set at a capped limit. There are significant concerns that, due to the many uncertainties surrounding nuclear waste disposal (e.g. technical and financial), the WTP will not be sufficient to cover the actual costs of waste disposal.

The UK government is expected to submit the formal notification of the waste transfer pricing scheme to the Commission - as per its waste transfer pricing methodology, published in December 2011 - within the next few months. Greenpeace calls on the Commission not to take any decision on the notified measure before investigating whether the regime for the management of waste in the UK complies with the applicable Euratom rules, and whether the regime provides NNBG with additional state aid. (9)

FORATOM: "nuclear needs subsidies because of low carbon price".

FORATOM, which represents Europe's nuclear industry, says new reactors need financial support because carbon prices are low. "*FORATOM regrets that the European Commission did not limit its comments solely to the state aid and competition aspects of the Hinkley Point deal, but expressed misgivings about the use of nuclear power per se*."

FORATOM says the market has failed to deliver the high-capital low-carbon investments needed to meet the EU's (and the UK's) energy policy goals. (10)

ONR running to stand still

At the start of what the Government hopes will turn out to be the most ambitious civil nuclear programme in this country's history, Les Philpott, the deputy chief executive at the Office for Nuclear Regulation (ONR), says that although the organisation has undertaken a "*massive*" recruitment programme, it is "*running just to stand still*" - a

reminder of how easy it is for ambitious governments to forget about the simple things – like having enough experts around to make sure the country doesn't suffer a nuclear disaster. (11)

1. BBC 6th May 2014 http://www.bbc.co.uk/news/uk-politics-27291087
2. Times 6th May 2014 http://www.thetimes.co.uk/tto/business/industries/naturalresources/article4082169.ece
3. Prof Simon Deakin 6th May 2014 http://www.law.cam.ac.uk/people/academic/sf-deakin/22/blog/#article93
4. Solar Portal (Video) 9th May 2014 http://www.solarpowerportal.co.uk/news/green_energy_news_review_more_questions_over_new_nuclear_3378
5. Platts 8th May 2014 http://www.platts.com/latest-news/electric-power/london/european-commission-likely-to-find-hinkley-aid-26784747
6. BBC 9th May 2014 http://www.bbc.co.uk/news/uk-england-somerset-27346693
7. Construction News 8th May 2014 http://www.cnplus.co.uk/news/sectors/infrastructure/energy/hinkley-point-in-spotlight-as-taxpayers-foot-124bn-bill/8662275.article
8. Utility Week 8th May 2014 http://www.utilityweek.co.uk/news/new-nuclear-should-be-in-cfd-auctions-says-centre-forum/1006492
9. Greenpeace submission to European Commission on Hinkley subsidies, 7th April 2014 http://www.greenpeace.org/eu-unit/en/Publications/2014/Greenpeace-submission-to-the-European-Commission-on-the-UK-nuclear-plan-at-Hinkley-Point/
10. Reuters 10th April 2014 http://af.reuters.com/article/commoditiesNews/idAFL6N0N24KU20140410 and Foratom 10th April 2014 http://www.foratom.org/news-report/239-ec-unfairly-discredits-nuclear-energy-in-hinkley-point-c-analysis.html
11. Independent 9th May 2014 http://www.independent.co.uk/news/business/comment/mark-leftly-the-reactors-are-coming-but-the-nuclear-inspectors-are-going-9341744.html

2. Renewable Politics

An effective onshore wind moratorium will be in place within six months of a Tory election victory next year, says Energy Minister Michael Fallon, because we already have enough wind power in the pipeline to meet 2020 EU targets. But what is the Conservative strategy for decarbonisation post-2020? To meet its climate targets the UK will need to build around another 10GW of onshore wind by 2030. Onshore wind is the cheapest source of low carbon electricity. If this is replaced with offshore wind instead it will cost consumers an extra £2-3bn. Although most of the 35GW of renewable capacity required to meet the EU 2020 target is built or in the pipeline, we will need 64GW by 2030 according to the Committee on Climate Change, and that is with fairly ambitious targets for nuclear and carbon capture and storage.

The Conservative manifesto will pledge to scrap subsidies paid by bill-payers for onshore wind and change the planning system to allow local councils (in England and Wales) to block any which do not already have planning consent. (1) Fallon says any project not granted planning permission before the election would not get funds. The Lib Dems accused the Tories of pandering to its right wing and trying to stop voters turning to UKIP. (2)

Subsidies for existing onshore wind would remain in place and wind farms currently under construction or given legal consent would still be completed, almost doubling current onshore capacity by 2020. But no more onshore turbines would be put in place beyond that. (3)

Onshore wind capacity is currently about 7.3 gigawatts (GW) — enough to power four million homes. Facilities already under construction or with planning permission will add another 5GW. Britain has an obligation under EU law to generate 15% of its energy – not just electricity – from renewables by 2020. To meet this target we need to have a renewable capacity of around 35GW. Of this around 11-13GW is expected to come from onshore wind. Onshore wind is currently the cheapest renewable option, but the view seems to be that ending subsidies would release cash for more investment in other renewable sources: "*This is a mature industry which has had 20 years of subsidy*." (4)

There seems to be little doubt this policy will eventually sink the onshore wind industry in this country. The potential for the technology to compete without subsidies is poor and the handing over of power to local authorities will likely be the final nail in the industry's coffin. Tories and many industry leaders are loath to admit this will put an end to onshore wind, saying that current capacity will be maintained and even grow for a time as projects granted permission before 2015 come online. But what industry survives without long-term growth? For onshore wind to continue to generate investment in research and development (and therefore to stay competitive) it will need to have the potential for new growth and projects. As Jennifer Webber, from RenewableUK says, this policy "*will kill the industry dead*". (5)

The trouble with this policy is not going to be meeting the 2020 target for onshore wind, but problems will arise after that. According to the Committee on Climate Change (CCC) if the country's going to reduce greenhouse gas emissions in line with its targets under the act, the power sector must be emit virtually no greenhouse gases by 2030. This means onshore wind capacity must keep rising to about 25 GW by 2030. Onshore wind is a well developed

technology, and it's relatively cheap compared to other low-carbon power sources. Experts from the Royal Academy of Engineering recently estimated replacing a single onshore wind turbine with an offshore wind turbine would cost £300,000 in subsidies, for example. The government expects the cost of offshore wind to come down in the 2020s - but not enough to overtake onshore wind. Overall, investing in 10 GW of onshore wind in the 2020s rather than other less-developed clean technologies could save the economy two to three billion pounds, the CCC predicts. Or to put it another way - failing to invest in 10 GW of onshore wind could cost the country two to three billion pounds in the 2020s. (6)

So what is the Conservative strategy for decarbonisation post-2015? The Tories have evidently done the electoral maths and decided a strategy of all out attack towards onshore wind farms could prove a winner. Labour and the Lib Dem's are equally convinced there are votes in publicly supporting renewable energy. If the Tories want to make a virtual moratorium on new onshore wind farms and the creation of a giant shale gas industry the central planks of their energy strategy then they also need to explain how this approach fits into a long term decarbonisation strategy for the rest of this decade and beyond.

James Murray, writing on the Business Green website, says there is vague talk of "*solar and offshore wind energy playing a bigger role ... vague talk from the Prime Minister of carbon capture and storage playing a crucial role [and] vague talk of an increased focus on energy efficiency, even if it is contradicted by Number 10's disgraceful decision to water down existing energy efficiency policies in pursuit of a short term and marginal reduction in bills. However, none of these mooted ideas could seriously be described as a comprehensive decarbonisation strategy, let alone a means of compensating for the emissions that would result from ending onshore wind farm development and ramping up fracking activity*." (7)

The anti-wind Renewable Energy Foundation (REF) says there is already enough renewable energy capacity in the pipeline to meet the target of 35GW of capacity by 2020. This 35GW figure for operational, under construction or consented capacity seems to be broadly accepted. It is pretty much in line with the Department of Energy and Climate Change (DECC) renewable energy roadmap, which was updated last November. About half of the capacity (16GW) is operational now. Another 4GW is being built. The trouble is that at least 10% of consented onshore wind turbines and 20% offshore never get built.

REF seems to assume there is no need to build more renewables once the EU 2020 target has been met. It is true that there is currently no EU target for renewables in 2030. The UK has been one of the major opponents of such a target. But other targets still apply, not least the UK's legally binding Climate Change Act that requires an 80% cut in carbon emissions by 2050. This law could be scrapped. For now, though, it is still supported by all the major political parties. There are a number of ways to reach the binding 80% carbon reduction. All of them involve a substantial increase in renewable electricity capacity beyond 2020, according to the government's Committee on Climate Change. Its projections involve at least 64GW of renewable electricity capacity in 2030. It's also a minimum that assumes ambitions on nuclear power, carbon capture and storage or energy efficiency are ramped up significantly. (8)

Chris Goodall at Carbon Commentary points out that Scottish independence could throw the UK's renewable energy targets into disarray. If Scotland votes to break away, the remaining UK

will not come close to achieving its targets without wind. About 15 GW of 2020 renewables will be in Scotland or in Scottish waters. Only about 18 GW will be in England and Wales. Independence will mean 40% of total renewables will disappear but only 10% of UK electricity consumption. Scottish renewables are cheap to generate - needing a subsidy of on average £44 or less than half the rest of the UK. A move away from onshore wind in England and Wales will further increase the average levels of subsidy required, raising household bills. (9)

Table 1: 2020 renewables output in England + Wales and Scotland

	England + Wales	**Scotland**
2012 renewables output	25.2 TWh	14.8 TWh
Share of 2012 national consumption, including transmission losses	8%	44%
Expected 2020 figure	56.2 TWh	39.6 TWh
(Add in small-scale renewable power covered by FITs) (1)	*6.3 TWh*	*1.4 TWh*
Total expected renewables output	62.5 TWh	41 TWh
Share of 2020 national consumption, including transmission losses. (2)	20%	123% (3)

Notes

(1) Curiously, the DECC paper omits any mention of FITs for PV and wind in England and Wales. But smaller scale PV will be a major user of subsidy by 2020.

(2) Assumes 2020 demand is equal to 2012 figure.

(3) DECC says, without providing supporting justification, that Scotland has underestimated its electricity demand. But other sources in DECC agree with the Holyrood figure.

Table 2: 2020 subsidy cost per megawatt hour of renewable electricity

	England + Wales	**Scotland**
2020 subsidy (under 'Levy Control Formula')(1)	£5,800m	£1,800m
Renewable electricity production in 2020	62.5 TWh	41.0 TWh
Subsidy cost per megawatt hour	£93	£44

1. Daily Mail 24th April 2014 http://www.dailymail.co.uk/news/article-2611714/Tories-Well-end-scourge-onshore-wind-farms.html
2. BBC 24th April 2014 http://www.bbc.co.uk/news/uk-politics-27137184
3. Telegraph 23rd April 2014 http://www.telegraph.co.uk/earth/energy/windpower/10783823/No-more-onshore-wind-farms-if-Conservatives-win-2015-election.html
4. Times 24th April 2014 http://www.thetimes.co.uk/tto/news/politics/article4071244.ece
5. Guardian 24th April 2014 http://www.theguardian.com/environment/2014/apr/24/will-tory-plans-kill-onshore-wind-in-the-uk
6. Carbon Brief 24th April 2014 http://www.carbonbrief.org/blog/2014/04/cutting-emissions-without-onshore-wind-it-may-be-possible,-but-it-would-cost-us/
7. Business Green 28th April 2014 http://www.businessgreen.com/bg/james-blog/2341900/where-is-the-tories-alternative-decarbonisation-strategy
8. Carbon Brief 8th May 2014 http://www.carbonbrief.org/blog/2014/05/does-the-uk-already-have-enough-green-energy/
9. Carbon Commentary 22nd April 2014 http://www.carboncommentary.com/2014/04/22/3544

3. Solar 'shafted' yet again

The Government is proposing to make drastic reforms to the solar subsidy regime which could kill off solar farm development. Under the proposals large scale solar farms would no longer receive subsidies through the Renewables Obligation (RO) regime from April 2015. At the same time the Government says it wants to improve the support regime for rooftop installations and community-owned projects. (1)

The consultation document (2) proposes to halt RO subsidies for solar farms larger than 5MW in capacity from April 2015, in line with ministers' plans to curb the development of new ground-mounted solar farms. DECC said it was concerned that large solar farms would exceed their available budget under the RO, as the industry is deploying at a much faster rate than previously expected.

However, solar farm projects will still be eligible for support through the new Contract for Difference (CfD) regime, which guarantees energy prices for clean energy generators, while the consultation also promises a "grace period" for solar farms already in the pipeline allowing a handful of projects to still access the RO.

In addition to the effective cut to subsidies for solar farms, the government has announced plans to split the banding for projects larger than 50kW under the feed-in tariffs scheme, in order to slow the rate at which subsidies for building mounted projects will be cut. This aims to boost deployment of mid-scale rooftop projects, like the installation recently opened by Jaguar Land Rover. The government's stated goal is for a slowdown in solar farm development to be replaced by acceleration in the development of large scale solar rooftops on supermarkets, offices, warehouses, and public building. But the proposed changes simply promise a slower rate of future reductions to support levels, not the increase in support developers argue is needed to jolt the commercial rooftop sector out of the doldrums. (3)

The Government has retained an ambition to deliver 10-12GW of solar farm capacity by 2020. With 2.7GW already installed, the proposed cuts are likely to create a rush of new developments over the next year, taking total capacity to around 4GW by next April. It's not too much of a stretch to then get to 10-12GW from there - solar technology costs are projected to continue to fall.

However, the solar industry is frustrated over the way in which the new consultation has been handled and is concerned that the shake-up to the subsidy regime will seriously restrict new development. Seb Berry of Solarcentury and the Solar Trade Association said solar developers had been sidelined as the government worked on plans that will have major implications for the industry. "*As we await the umpteenth solar review this Parliament, it's worth reflecting that it didn't have to be like this. The reality is that the current level of uncertainty, bewilderment and anger right across the industry is entirely of the government's own making. In the aftermath of the disastrous and illegal feed-in tariff consultation at the end of 2011, the whole industry warmly welcomed the establishment of DECCs new high level solar strategy group in 2012, followed subsequently by new specialist working groups including the minister's own solar farm land use*

task-force. But in developing DECCs new approach to the treatment of large-scale solar, this structure has been completely bypassed in recent months."

The government has also announced new plans to boost community ownership of renewable energy projects, by making it easier for mid-sized anaerobic digestion, hydroelectric, onshore wind, and solar PV to secure subsidies. DECC launched a consultation (4) on changing the cut-off point for community anaerobic digestion, hydro, onshore wind and solar PV projects to qualify for feed-in tariff incentives from 5MW to 10MW. Feed-in tariffs are widely regarded as easier to manage than alternative RO or CfD mechanisms and are therefore thought to be more suitable for community developers. The consultation will also look at whether community renewables projects should be allowed to combine separate grants with feed-in tariff payments for installations with up to 5MW of capacity, potentially making it easier for community groups to secure the upfront capital they need to develop mid-sized wind farms or solar arrays.

Fergus March on the *Solar Power Portal* website says the UK is now the latest country where the renewable energy industry has fallen foul of negative political intervention. The Coalition Government has completely removed its renewable obligation certificates for solar farms above 5MW just as these were beginning to do really well. PV businesses have been built around the world based on promises made by governments that support would be in place. And yet the PV industry gets consistently 'shafted'. Solar makes enough sense to those who understand it that it bounces back every time. Are we really living in a world where governments are so enthralled to the oil companies that cheap clean, safe, sustainable energy needs to be swept under the carpet? (5)

Seb Berry said the "*announcement is unnecessary and totally at odds with the government's desire to reduce the cost to energy bill payers of delivering the 2020 renewable energy target. Following close behind recent unhelpful media coverage of onshore wind policy, this policy proposal will undermine investor confidence in the entire UK renewable energy sector, by removing at a stroke the short and medium-term policy certainty required for major project investments. It is very surprising that such a deeply damaging policy proposal has been cleared by the Treasury."* (6)

Any industry executive looking for a silver lining might reflect on the fact the latest proposed changes are a direct result of the sector's staggering success. The drastic reduction in the cost of solar technologies - by some industry estimates solar farm costs have fallen over 30% in two years - coupled with the breakneck speed with which solar panels can be installed presents a unique challenge to policymakers. A challenge Whitehall is still yet to get to grips with.

1. Business Green 13th May 2014 http://www.businessgreen.com/bg/news/2344434/breaking-decc-unveils-shock-changes-to-solar-farm-subsidies
2. Consultation on changes to financial support for solar PV, DECC 13th May 2014 https://www.gov.uk/government/consultations/consultation-on-changes-to-financial-support-for-solar-pv
3. Business Green 13th May 2014 http://www.businessgreen.com/bg/james-blog/2344534/solar-industry-once-again-falls-victim-of-its-own-success

4. Support for community energy projects under feed-in tariffs scheme, DECC 13th May 2014 https://www.gov.uk/government/consultations/support-for-community-energy-projects-under-the-feed-in-tariffs-scheme
5. Solar Portal 14th May 2014 http://www.solarpowerportal.co.uk/news/the_uk_becomes_the_latest_country_to_scrap_solar_subsidy_genr_14th_may_2014
6. Edie 13th May 2014 http://www.edie.net/news/6/Solar-subsidy-Government-review-renewable-energy-industry-reaction/

4. The Importance of Energy Independence

As the Ukraine crisis escalates David Cameron and other leaders in the European Union have set themselves a deadline of June to find a way to break Europe's dependence on Russian gas imports.

The EU currently imports around a third of its gas for heating and power from Russia. But that average figure masks a dependency more than 50% for some countries including Austria, Finland, Greece, Poland, Hungary, and the Czech Republic. Here in the UK we don't import from Russia, but because we buy gas from Europe any cut to EU supplies would hit prices. (1) Ed Davey has been promoting a package of measures to boost energy security including expediting electricity interconnectors to Belgium, France and Norway, accelerating UK exploration of shale gas as well and alternative gas supplies, and boosting energy efficiency. Davey adds that Japan, which switched off all its nuclear reactors in the wake of the Fukushima disaster, may consider bringing some reactors online. (2)

An opinion piece in *The Financial Times* argues that "*If the EU really does want to be independent, it needs to launch a medium-term programme made up of shale gas-friendly regulation, increasing alternative imports, improving interconnections between member states, energy efficiency, rational renewables, more nuclear, perhaps even more coal*." (3) Odd that a financial paper should be suggesting burning yet more carbon, just two days before the latest International Panel on Climate Change report which said that in order to avoid dangerous climate change we need to reduce global emissions by at least two fifths by 2050, and triple or quadruple the share of energy the world gets from low-carbon energy by the same date. (4)

Imported gas from the US, Qatar or elsewhere is likely to be much more expensive than Russian gas because of competition from Asian buyers. Indeed some analysts suggest London gas prices would more than double if we tried to replace Russian gas entirely and the idea hasn't gone down that well in the US which would be likely to see further drilling or higher gas prices as a result. US gas won't arrive in Europe for a few years.

Even under the most optimistic scenarios, shale gas is projected to meet just 10% of European gas demand by 2030, although 2-3% is a more realistic estimate.

A study by the National Grid found that biogas produced from waste materials could meet between 5 -18% of the UK's existing gas needs by 2020 - more than most predict could be met by shale gas.

In Germany big-six utility Eon is experimenting with technology which uses wind power to produce gas for injection into the grid. If either of these come through the UK's natural gas use could be reduced to nil - eventually.

More than half of the gas we use isn't used to generate electricity but is instead used to power industry and heat homes, so insulation and efficiency are two of the more immediate ways in which we can cut our gas use. The UK's energy efficiency strategy concludes that efficiency measures such as home insulation which save money over time could cut gas use by 196TWh by 2020, a 23% cut in current consumption (current gas use is 858TWh) though it is unlikely to

happen without changes to the government's flagging Green Deal energy efficiency scheme. Renewable sources of heat, including biomass and ground sourced heat pumps could save a further 62TWh of gas - though this is less certain (5)

Of course this still leaves almost half of UK gas which is used to generate electricity. A study by Cambridge Econometrics based on scenarios from the government's independent climate advisors suggested UK gas imports would be 45% lower (worth about £8bn a year) by 2030 if the government pushed for a 65% renewable energy target by 2030 (about double the likely deployment by 2020). (6)

Concern that continued dependence on fossil fuels could derail the UK economy is supported by a report from the UK Energy Research Centre. The report states that the government's apparent insistence on "*scaling back the UK's low carbon ambitions*" would prolong "*the exposure of consumers and the UK economy to the potential impacts of high fossil fuel prices*." Since 2010, UK household energy bills have risen by 40%, a trend that is likely to continue under the government's current energy policies focusing on shale gas.

Ex-Treasury adviser James Meadway was asked what, if anything, could be done to achieve a healthier economy. He suggested three key strategies: "*End austerity, both to end its social impact and to support local demand; break up the major banks, setting up accountable regional and local institutions with clear mandates to provide socially responsible credit; and invest heavily in green infrastructure, including the promotion of community-owned wind farms, micro-hydro, and other renewable energy projects, along with a German-style home insulation scheme. What you're aiming for is to set up robust local and regional economies that do not depend on the Westminster-City hub to sustain themselves*." (7)

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1. Energy Desk 23rd April 2014 http://www.greenpeace.org.uk/newsdesk/energy/analysis/briefing-can-uk-cut-its-reliance-gas-imports
2. Business Green 22nd April 2014 http://www.businessgreen.com/bg/news/2340861/g7-countries-aim-to-cut-energy-ties-to-russia
3. FT 11th April 2014 http://www.ft.com/cms/s/0/80ed21b6-c0cd-11e3-bd6b-00144feabdc0.html
4. Carbon Brief 15th April 2014 http://www.carbonbrief.org/blog/2014/04/degrees-of-change-the-ipcc's-predictions-for-future-temperature-rise/
5. Energy Desk 23rd April 2014 http://www.greenpeace.org.uk/newsdesk/energy/analysis/briefing-can-uk-cut-its-reliance-gas-imports
6. A study into the economics of gas and offshore wind for Greenpeace and WWF-UK, Cambridge Econometrics, Nov 2012 http://www.camecon.com/Libraries/Downloadable_Files/A_Study_into_the_Economics_of_Gas_and_Offshore_Wind.sflb.ashx
7. Guardian 1st May 2014 http://www.theguardian.com/environment/earth-insight/2014/may/01/treasury-economy-recovery-hype-growth-osborne-crash-risk

5. Review of Current Welsh Policy on the Disposal of Higher Activity Radioactive Waste

The Welsh Government is seeking the views of stakeholders about whether it should review its current policy on the disposal of Highly Active Radioactive Waste (HAW), and if so the options it should consider. (HAW encompasses Intermediate and High Level Waste, as well as Low Level Waste which are unsuitable for disposal at the Low Level Waste Repository near Drigg)

Stakeholders are invited to respond to this call for evidence by responding to this consultation document by 24th June: www.wales.gov.uk/consultations/environmentandcountryside/disposing-of-higher-activity-radioactive-waste/?lang=en

In the 2008 White Paper - *Managing Radioactive Waste Safely: a Framework for Implementing Geological Disposal* – (1) the then Welsh Assembly Government reserved its position on geological disposal and neither supported nor opposed the policy while stating its intention to continue to play a full part in the MRWS programme in order to secure the long term radioactive wastes, to ensure the implementation of a framework appropriate to the needs of Wales and to ensure that the interests of Wales are taken into account in the development of policies in this area.

The Assembly Government also supported the Committee on Radioactive Waste Management's (CoRWM's) recommendations regarding the safe and secure interim storage of waste, maintaining the security of such storage against terrorist attack, and the need for research and development to support the optimised management and disposal of waste.

The Assembly Government also stated that should a community within Wales wish to put forward an Expression of Interest in potentially hosting a geological disposal facility it should do so to the Welsh Assembly Government, and that if this were to happen the Assembly Government would at that point consider its position in respect of the geological disposal programme and the specific Expression of Interest.

The Welsh Government considers it is now the right time to review its policy for the following reasons:

- The Welsh Government is now actively supporting the construction of new nuclear reactors at Wylfa on Anglesey.
- The Spent Fuel and Radioactive Waste (SF&RW) Directive (Directive 2011/70/Euratom), which came into force in 2011 requires Member States to establish and maintain a national policy for the safe and responsible management of radioactive waste be implemented through a national programme and to report on that programme by 23 August 2015.

- DECC is restarting the siting process in England following the closure of site selection discussions in Cumbria.

This makes it sound like the Welsh Government is preparing to change its policy to fit in with Westminster's policy. But there is a strong argument that the Welsh Government should instead adopt the Scottish Government policy on HAW which is:

"*…that the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved*." (2)

The Scottish Government has been developing a Strategy to implement the policy. To achieve this it convened a Project Management Board which included members from a wide range of stakeholders including local authorities. The Scottish Government is expected to publish a consultation document on its proposed implementation strategy during the summer.

How Wales compares with Scotland

Scotland has two Magnox nuclear power stations at Hunterston and Chapelcross and two AGR stations, at Hunterston and Torness, and a nuclear research site at Dounreay. Scottish policy also covers some waste at the Rosyth Royal Dockyard, but not the HAW which is expected to arise from dismantling submarines at the base.

Similarly, Wales is the site of two Magnox stations, but there are no AGR stations or nuclear research sites located in the country.

In Scotland the total reported volume of radioactive waste at 1 April 2013 and in estimated future arisings is 264,000m^3. Most waste is from Dounreay and the Magnox power station sites at Chapelcross and Hunterston. In summary:

Scotland	**Volume at 1st April 2013 plus estimated future arisings**.	**Packaged Volume**
HLW	Nil	Nil
ILW	25,600m^3	41,200m^3
LLW & VLLW	237,000m^3	LLW 271,000m^3
		VLLW 1040m^3

In Wales the total reported volume of radioactive waste at 1 April 2013 and in estimated future arisings is 131,000m3. In Wales nearly all waste is from the Magnox power station sites at Trawsfynydd and Wylfa. There is a small amount of ILW generated at the Cardiff GE Healthcare plant. In summary:

Wales	Volume at 1st April 2013 plus estimated future arisings.	Packaged Volume
HLW	Nil	Nil
ILW	14,200m^3	22,300m^3
LLW & VLLW	117,000m^3	LLW 133,000m^3
		VLLW 40m^3

So the HAW arisings in Wales (22,300m^3) once packaged will be around half the volume of the HAW arisings in Scotland (41,200m^3). (3)

A significant portion of HAW waste in Scotland will not arise for many years because under current planning assumptions Magnox reactors will be left in place for several decades to allow radioactivity to decay before they are dismantled. The most significant HAW produced at Scottish sites will be irradiated graphite and this will not arise until after 2080. Graphite accounts for 45% of Scotland's HAW.

In Wales Trawsfynydd will be only the second UK site to enter the care and maintenance phase in 2016. Final Site Clearance is expected at Trawsfynydd in 2073. (4) Final Site Clearance at Wylfa isn't expected until 2091. (5) Unlike Scotland, Wales has no raffinate (liquid resulting from reprocessing) or plutonium contaminated waste, so an even higher proportion of HAW arising will accounted for by irradiated graphite which will not arise until 2070-2090.

By the time the care and maintenance phase begins at Trawsfynydd (2016) and Wylfa (2025) all the early arisings of HAW will have been placed in interim storage.

A recent NDA options paper pointed out that dissolution of Fuel Element Debris (FED) is not considered to be an appropriate treatment for FED at Trawsynydd due to progress already made in the construction of interim waste storage facilities. (6) And FED is not generated at Wylfa because desplittering of spent fuel elements is not undertaken at the site**.**

Under Scottish Government Policy although the term "*near-surface disposal facilities*" is used, the word 'disposal' is used simply to indicate that waste is being placed in a facility without the intention to retrieve it. But this does not mean the waste cannot be retrieved if that proves necessary – it just means there is no present intention to retrieve it. (Ref (2) para 2.04.26) The Chair of CoRWM pointed out at the recent meeting in Workington, Cumbria, that the term 'disposal' is used in Scotland as a legal term to mean the transfer of waste.

"*...Scottish Government Policy at the present time is that long-term* ***storage is still the primary*** *long-term management option*" (Ref (2) para 2.04.03) (emphasis added).

So a significant proportion of Welsh HAW will not arise until Final Site Clearance at the two Welsh reactor sites in 2073 and 2091. By the time the care and maintenance phase begins at Trawsfynydd in 2016 and Wylfa in 2025 all the early arisings of HAW will have been placed in

interim storage, so there is no need to rush decisions and, for instance, start emplacing waste in a deep geological repository with inadequate geological barriers.

Even if new reactors are built at Wylfa spent fuel will need to be stored for up to 100 years before it can be emplaced in a geological disposal facility. So again, there is no need to rush decisions. The Committee on Radioactive Waste Management (CoRWM) recommended that a quite separate discussion should be held on the political and ethical issues raised by creating new wastes by building new reactors. The Welsh Government should implement this recommendation.

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1. Defra, BERR and the devolved administrations for Wales and Northern Ireland: Managinradioactive waste safely: a framework for implementing geological disposal. June 2008. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/68927/7386.pdf
2. Scotland's Higher Activity Radioactive Waste Policy, Scottish Government, January 2011 http://www.scotland.gov.uk/Resource/Doc/338695/0111419.pdf
3. 2013 UK Radioactive Waste Inventory: Waste Quantities from all sources, DECC & NDA, Feb 2014 http://www.nda.gov.uk/ukinventory/documents/upload/2013-UK-Radioactive-Waste-Inventory-Waste-Quantities-from-all-Sources.pdf
4. See http://www.nda.gov.uk/sites/trawsfynydd/
5. See http://www.nda.gov.uk/sites/wylfa/index.cfm
6. Optimising the number and location of: Interim Intermediate Level Waste (ILW) storage facilities on Magnox Limited and EDF Energy sites and FED Treatment (Dissolution) Facilities in Magnox Limited, Preferred Option for Comment NDA, November 2013 http://www.nda.gov.uk/documents/upload/Optimising-the-number-and-location-of-facilities-on-Magnox-Ltd-and-EDF-Energy-Sites-Preferred-Option-for-Comment-November-2013.pdf

6. Wrong kind of cat litter - WIPP could be out of action for three years

The Waste Isolation Pilot Plant (WIPP) in New Mexico could be out of action for up to three years after a leak was discovered in February. (1) One possible cause of the leak beginning to emerge involves the use of the wrong kind of cat litter.

The WIPP complex in the Chihuahuan Desert in southeastern New Mexico was designed to permanently seal in salt chambers clothing, tools and other materials contaminated with radioisotopes like plutonium from U.S. nuclear labs and weapons sites. (2)

When a radioactive waste truck caught on fire inside WIPP on February 5, it seemed like it was probably an isolated incident, not the beginning of a saga that could affect U.S. radioactive waste policy permanently and even radwaste policy internationally. But the truck fire was followed by a still unexplained offsite radiation release–including plutonium – on February 14. That was then followed by a second, for a time unrevealed, and also still-unexplained, radiation release on March 11. And it became clear that the WIPP saga will have long-term ramifications, not only for the nuclear weapons radwaste WIPP was built to handle, but also for the far larger and much more radioactive inventory of commercial high-level nuclear waste. (3)

Crews continue investigating the cause of the radiation release which halted operations in February. Specially trained workers have been making trips into the repository in an effort to pinpoint the source of the release. Based on those trips, the focus has turned to a set of waste drums that came from Los Alamos National Laboratory.

There is a possibility that there may have been a chemical reaction inside the drums, but at this stage this is only a theory. Traditional cat litter made from various inorganic geologic silicate minerals is often used to stabilize certain kinds of radwaste that have nitrate salts in solution to stop them igniting when they dry out. Unfortunately, someone working with this waste, before it was to be shipped to WIPP, used a new “green” cat litter made with materials like wheat or corn instead of the silicate material needed. (4)

Los Alamos is under a tight deadline to get the plutonium-contaminated waste off its northern New Mexico campus before wildfire season peaks. The state of New Mexico pressured the lab to hasten the cleanup after a massive wildfire in 2011 lapped at the edges of lab property. (5) Now Los Alamos has had to halt transfers of waste to a temporary storage facility in West Texas in case chemical reactions cause another leak.

Investigators looking into the Feb. 14 leak have so far ruled out a roof collapse or a roof bolt puncturing a waste container in the deep salt cavern room, where air monitors detected radiation. Investigators saw several large bags of magnesium oxide had been damaged and moved. The bags are placed on top of waste containers to prevent radiation leaks. (6)

Interestingly the company responsible for running the Los Alamos transuranic waste programme, which involves excavating, packaging, characterizing and transporting the waste to WIPP is Energy*Solutions* (7) – the very company which has just lost the contract to

decommission the UK's Magnox sites is suing the Nuclear Decommissioning Authority for awarding the 14-year contract to a joint venture between Babcock and Fluor. (8)

WIPP, until the recent problems was the only deep geologic disposal facility operating in the world (in Europe, especially Eastern Europe, it is frequently–and incorrectly–described as a "high-level" radioactive waste site by nuclear advocates), the lessons, whatever they turn out to be, from the series of WIPP failures surely will affect other proposed and potential sites for years to come.

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1. Chron 8th May 2014 http://www.chron.com/news/texas/article/DOE-Could-be-3-years-to-fully-reopen-NM-nuke-dump-5464486.php
2. Reuters 10th May 2014 http://www.reuters.com/article/2014/05/10/us-usa-nuclear-new-mexico-idUSBREA4901M20140510?rpc=401&feedType=RSS&feedName=domesticNews&rpc=401
3. Green World 26th March 2014 http://safeenergy.org/2014/03/26/the-wipp-story-will-be-a-saga/
4. Forbes 10th May 2014 http://www.forbes.com/sites/jamesconca/2014/05/10/nuclear-waste-leak-traced-to-kitty-litter/
5. Chron 8th May 2014 http://www.chron.com/news/texas/article/DOE-Could-be-3-years-to-fully-reopen-NM-nuke-dump-5464486.php
6. New Mexican 9th May 2014 http://www.santafenewmexican.com/news/local_news/nuke-expert-believes-kitty-litter-switch-led-to-wipp-leak/article_99d82721-b20c-5991-8f41-f03424714c9d.html
7. See http://www.energysolutions.com/community/new-mexico
8. Times 29th April 2014 http://www.thetimes.co.uk/tto/business/industries/naturalresources/article4075627.ece

7. Drigg erosion virtually certain

Britain's low level waste dump is virtually certain to be eroded by rising sea levels and to contaminate the Cumbrian coast with large amounts of radioactive waste, according to an internal document released by the Environment Agency (EA). The one million cubic metres of radioactive waste disposed of over the last 55 years is going to start leaking onto the shoreline in "a *few hundred to a few thousand years from now*", the document says.

The EA is currently considering a plan by the companies that run Drigg to dispose of a further 800,000 cubic metres of waste there over the next 100 years. This will include radioactive debris from Britain's nuclear power stations, nuclear submarines, nuclear weapons, hospitals and universities.

Erosion from storms and rising tides caused by climate change this is now thought to be almost certain. The document suggests that in retrospect it was a mistake to site the Drigg Low-Level Waste Repository (LLWR) on the coast. "*It is doubtful whether the location of the LLWR site would be chosen for a new facility for near-surface radioactive waste disposal if the choice were being made now*," it says.

The EA is concerned about "*the potential appearance on the beach and in its accessible surroundings, during the process of erosion, of discrete items carrying a significant burden of radioactivity individually.*" They could range from tiny particles to larger objects like hand tools, the EA document says. Although Drigg was meant to be for low-level radioactive waste, there are fears that some of the disposals in the past may have included higher-level wastes.

Drigg's operator, LLW Repository Ltd, said it had introduced new restrictions on the amounts of radioactivity that can be disposed of at the site in order to make sure that radiation doses to people will be "very small" if the wastes are exposed by coastal erosion. But Martin Forward, from Cumbrians Opposed to a Radioactive Environment, pointed out that more than 1,200 radioactive particles from Sellafield had been found on nearby beaches in recent years "*This should be warning enough of the insidious pollution that can be expected as coastal erosion gathers pace and inundates Drigg, spewing its toxic inventory far and wide*," he said."*The potent threat of rising sea levels makes the future use of the site unsustainable, unethical and highly dangerous for future generations*."

1. RobEdwards.com 22nd April 2014 http://www.robedwards.com/2014/04/masses-of-radioactive-waste-will-leak-from-cumbrian-coastal-dump-says-environment-agency.html

8. Sellafield fails again

The latest figures from Sellafield Ltd show that both reprocessing plants have again failed to meet their respective annual targets. The Company maintains however that the currently scheduled 'end of reprocessing' dates – 'around 2020' for Magnox and 2018 for THORP- will be met. (1)

For the ninth successive year the Magnox reprocessing plant missed its annual target – reprocessing 470 tonnes out of a target of 664 tonnes for 2013/14. The failure was blamed on an extended outage last summer and a 'blockage' accident earlier this year which forced the plant to close from 23rd February to 16th April. (2).

Setting a target of 529 tonnes for the current financial year 2014/15, Sellafield Ltd has calculated that if achieved by the ageing plant, which is now half a century old, such an annual rate would see the reprocessing of the remaining 2970 tonnes of magnox fuel completed by the scheduled 2020 closure date, though it recognised that the frailties of the reprocessing plant itself and of some associated facilities offered no guarantee on the final closure date being met. The previously published 2017 closure date now appears to have been completely abandoned.

THORP completed only 346 tonnes out of an annual target of 423 tonnes for 2013/14, The target for this current financial year (2014/15) has been set at 439 tonnes. A similar level has already been set for each year up to the plant's scheduled closure in late 2018. For a plant designed to reprocess 1200 tonnes per year, this low projected annual throughput of around 400 tonnes reflects the catalogue of technical problems and accidents that have dogged THORP since it started operating in 1994 – the 2005 leakage accident (which closed the plant for over 2 years) resulting in irreparable damage which, in one stroke, reduced future throughput performance by some 50%.

The NDA says that if THORP were to operate beyond 2018 it would need to procure replacement highly active storage tanks at a cost of around £500m, so it is not expecting to keep the plant operating after that.

According to the recent DECC consultation document (3) around 300 tonnes of overseas origin spent fuel remain to be reprocessed. DECC is consulting on whether to deal with a residual 30 tonnes of this fuel by virtual reprocessing. This fuel is made up of small amounts of prototype fuels, experimental fuels, MOX fuels and some materials leftover from research programmes, which would be challenging to deal with, through reprocessing, before THORP shuts in 2018.

If enacted, a policy of virtual reprocessing would see the 'products' of reprocessing (plutonium, uranium and nuclear waste) drawn from existing stocks at Sellafield and repatriated to customers without the spent fuel actually being reprocessed. Whilst such a policy has long since been advocated by NGOs - as a means of closing the reprocessing plant at the earliest possible opportunity, successive governments have routinely rejected the idea outright. That rejection was confirmed by the NDA in 2007 when, after THORP's 2005 accident, it assessed the pros and cons of not re-starting the stricken plant – with virtual reprocessing as one option under

consideration. In the event, the NDA concluded that '*Virtual reprocessing would represent a departure from current government policy, and the terms of the reprocessing contracts*…'

The obvious question is why other overseas fuel currently contracted to THORP cannot be managed similarly, thereby bringing the plant's closure significantly further forward. (4)

See No2 Nuclear Power Comment "Time to End Reprocessing at Sellafield"
http://www.no2nuclearpower.org.uk/news/comment/time-to-end-reprocessing-at-sellafield/

Meanwhile the Government has responded (5) to the Public Accounts Committee (PAC) report "*Progress at Sellafield*" published in February this year. (6) In its response the Government admonishes the NDA for "inappropriately" withholding information from the public - backing the findings of the heavily critical PAC report.

The NDA stunned the industry when it handed Nuclear Management Partners (NMP) a five-year extension to its contract last October despite poor performance. A review by accountants KPMG only seemed to confirm how badly NMP had managed Sellafield, stating that the project was run in the interests of the consortium's shareholders rather than those of the taxpayer. But great swathes of the highly detailed, 292-page document – obtained in a Freedom of Information request by nuclear-issues expert Dr David Lowry – were blacked out.

PAC chairwoman Margaret Hodge was furious that the NDA had redacted pages of vital information on the basis of commercial confidentiality. The PAC report concluded: "*The Authority should revisit its approach to disclosing information to ensure it does not use grounds such as commercial confidentiality inappropriately to withhold information on performance on its sites and by its contractors*." The Department of Energy and Climate Change has said it agrees with this, and other committee recommendations, such as asking the National Audit Office to investigate whether there has been any improvement in the management of Sellafield a year into the contract extension. (7)

1. CORE 10th May 2014
   http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=338
2. CORE 16th April 2014
   http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=336
3. The consultation document, published by the Department of Energy and Climate Change on 3rd March, can be found here: https://www.gov.uk/government/consultations/management-ofoverseas-origin-nuclear-fuels-held-in-the-uk
4. NFLA response to the Consultation on the Management of Overseas Origin Nuclear Fuels, May 2014
   http://www.nuclearpolicy.info/docs/radwaste/Rad_Waste_Brfg_50_Thorp_and_overseas_radwaste.pdf
5. Treasury Minutes, April 2014
   https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/302527/39796_Cm_8847_Print_Ready.pdf
6. Public Accounts Committee Report, Progress on Sellafield, 11th Feb 2014
   http://www.publications.parliament.uk/pa/cm201314/cmselect/cmpubacc/708/70802.htm
7. Independent on Sunday 20 April 2014 http://www.independent.co.uk/news/uk/home-news/nuclear-body-rebuked-over-redacted-report-9271478.html