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1. Where is UK Energy Policy Going?

“Denmark has a policy to reduce total energy demand by 50% by 2050 – that is reducing sales by 50% and providing energy from new technologies, and by new investors. That is a major change in who is making money out of the energy system. It is because of this that there is a huge fight going on about which technological pathway to follow.” Catherine Mitchell, Professor of Energy Policy Exeter University.

Developing a sustainable energy system requires us to rapidly reduce carbon emissions without producing yet more waste that we don't know what to do with. Over the past few months attacks on sustainable energy have been inexorable. It was particularly depressing to see over the last week-end in June that while some sections of the media attacked climate policy and renewable energy the counter arguments were almost nowhere to be seen. If the so-called nuclear renaissance has taught us anything it is that supporters of sustainable energy cannot assume that the virtual consensus within government at the moment on the need to tackle climate change means we don't need to continue arguing the case.

Maybe we have got so used to people like Christopher Booker in the *Daily Telegraph* calling for the scrapping of the Climate Act (1) and screaming about “*useless and ludicrously expensive wind turbines*” that we have forgotten that we need to argue back to stop the slow drift of public opinion in his direction? After all the 2015 General Election isn't that far away. Labour's Baroness Worthington says:

“The Chancellor believes low carbon concerns should play second fiddle to a new dash for gas – the high prices somehow failing to penetrate his consciousness; the Environment Secretary doesn't believe climate change is real; and the part-time Energy Minister has dismissed it as a question of ‘theology’.” (2)

With some commentators suggesting that UKIP now has more influence on this Government than the Lib Dems, (3) and others worrying about “*the lunatic fringe*” of the Conservative Party, (4) perhaps it's time to catch up on the arguments in favour of a sustainable energy system. (5)

Climate Change

Despite what Nigel Lawson (6) and Christopher Booker might think, 97% of climate scientists think that humans are causing global warming. Yet only 45% of the public think there is scientific agreement on climate change. (7)

For more information a good place to start is the Scientific Guide to Global Warming Skepticism, by John Cook, December 2010 http://www.skepticalscience.com/docs/Guide_to_Skepticism.pdf

Carbon Logic

It is clear from looking at the numbers that the world is going to have to make some serious reductions in carbon emissions over the next 15 years if we are to have any hope of avoiding dangerous climate change.



Greenpeace International first argued in 1997 that if we want to keep the global average temperature rise below 2°C and avoid dangerous climate change, we need to set a carbon budget by calculating the maximum level of greenhouse gas emissions that we can afford to release into the atmosphere. (8) This “Carbon Logic” made clear that we can only afford to burn a small fraction of the fossil fuels already discovered - most will have to stay in the ground. Unfortunately 16 years later this idea has yet to be understood by the political mainstream.

For a more up to date and inspiring explanation of these numbers watch “Do The Math” which chronicles the work of climate crusader Bill McKibben:

<http://www.youtube.com/watch?v=IsIfokifwSo>

McKibben gives us three numbers: Firstly 2°C was the only number that everybody agreed on at the Copenhagen Climate Talks in 2009. Every signatory pledged to prevent global warming rising above that figure.

Secondly, the amount of carbon we can pour into the atmosphere and still have a reasonable chance of staying below 2°C has been calculated at 565 more Gigatons. The problem is we pour 30 Gigatons a year in now, and it goes up at 3% a year. That means we have about 15 years before we reach the threshold. This is why we need to start making big reductions in emissions now, not in ten years time when Hinkley C might start operating, or 15 years time when Wylfa and Oldbury might open.

Finally the third number is the number of tons of carbon in already proven reserves - 2795 Gigatons. In other words proven fossil fuel reserves already amount to five times the amount needed to take us to 2°C warming. (9) The World Bank, (10) the International Energy Agency (11) and Price Waterhouse Cooper (12) all told us at the end of 2012 that if we dig up those reserves we are headed towards a 4-6°C increase in global average temperature. Despite this, Exxon alone is spending \$100m per day exploring for new fossil fuels.

Shale Gas

Given what we know about the amount of proven fossil fuel reserves we can afford to burn, searching for shale gas and other unconventional fossil fuels is bonkers. It is hardly surprising that the Committee on Climate Change called the “dash for gas”, plan Z. (13)

Some argue that shale gas could be used to displace coal, and thereby reduce carbon emissions. But evidence from the US, where shale gas now makes up a quarter of electricity generation, shows that while it has brought down carbon emissions in America, it has resulted in spare US coal flooding onto world markets lowering prices, and sparking a bonanza for the high-carbon fuel increasing emissions elsewhere. (14) Without effective policies to limit carbon emissions there is no reason to think that shale gas in Europe will push out coal – it could just as easily push out renewables. As former Friends of the Earth Director, Tony Juniper, says shale gas can be cleaner than coal and could be a transition fuel displacing a worse energy source. But the problem is we don’t, as a country, know how we are going to meet our overall carbon-reduction goals. (15)

For more on Shale Gas See Fracking facts: Ten things you need to know about shale gas. Campaign Against Climate Change 29th June 2013 <http://www.campaignccc.org/node/1348>



Energy Costs

For many that accept the need to reduce carbon emissions and build a new low carbon infrastructure, decisions about how to do this come down to cost.

This argument has taken a new twist now that the Government has released draft proposals on strike prices for renewable technology. Onshore wind will get a strike price of £100/MWh in 2014/15 falling to £95/MWh in 2017/18. Offshore wind projects will qualify for £155/MWh of support in 2014/15, falling steadily over the next five years to £135/MWh in 2018/19. Similar proposals are on the table for biomass conversion, hydro, and large solar projects, with DECC proposing strike prices of £105/MWh, £95/MWh, and £125/MWh respectively. Wave and Tidal will get £305/MWh. (16)

The Telegraph called these figures, as far as wind is concerned, “*potentially more generous than the current regime that hands developers more than £1 billion a year.*” (17) Ed Davey said they were broadly similar to what wind developers get at the moment. George Osborne ordered a 10 per cent cut in subsidies for onshore wind farms last year and senior Conservatives had hinted that there would be more cuts to follow, so the figures are “*likely to anger backbench Tories, after 100 MPs campaigned to stop the spread of onshore turbines blighting the British countryside.*”

The right-wing media view seems to think that Ministers will look pretty silly in five years time when we are drowning in cheap shale gas if they have signed long-term contracts to support expensively priced renewables and new nuclear. (18) But analysts tend to agree that the exploitation of shale gas in the UK is unlikely to have any impact on prices. (19)

Mark Lynas says the renewable strike prices show that nuclear is likely to be highly competitive with all the renewables, and may still be the cheapest option. Current negotiations around the ‘strike price’ to be paid for nuclear-generated electricity from Hinkley Point C are understood to be converging on a price in the £90-£100 range. This means that nuclear will cost about the same as onshore wind, and may even be slightly cheaper, as onshore wind has a strike price of £100 until 2017, after which it falls to £95. (20) He does admit though that the strike price for nuclear will be for a decade or more longer than the 15 years for renewables, reflecting the 60-plus lifetime of the proposed reactors as opposed to the 25 or so years average lifetimes of wind turbines and solar panels.

Dr David Toke says the Government’s claims to be offering similar support to all electricity generators under Electricity Market Reform is false since better terms are being offered to nuclear developers compared to developers of renewable energy, because the former will get premium price support (subsidies) for much longer. If, for example, nuclear developers are given 25 years of premium price support compared with renewables 15 years, but are given the same ‘strike price’ then the nuclear developers will receive two thirds more in total compared to renewable developers. This appears to be justified by assertions that renewable energy plant lasts for a shorter period compared to nuclear plant. This will indeed usually be the case, but such an assertion ignores the fact that, in the case of wind plant, the existing infrastructure can be re-used following refurbishments, perhaps with new blades. Perhaps a second project, consisting perhaps of no more than new blades, may require a guaranteed contract price of no more than the wholesale electricity price. A further factor is that wind power plant costs could



well have declined after the first fifteen years. By comparison consumers become 'locked in' to paying a high premium price to nuclear power plant for longer than is necessary.

In fact EDF has been lobbying for a contract length of 40 years, so the strike price for a given amount of energy production, paid by the consumer for nuclear could be more than twice the amount of total support paid for wind power. (21)

The Generation Plan

By blocking the adoption of a decarbonisation target for 2030 for the power sector in the Energy Bill, the Government has introduced huge uncertainty for the energy industry as a whole. The UK is being left behind in the development of environmental technologies, including renewables and carbon capture. If the renewable industry can only foresee expansion to 2020, it is not going to build a manufacturing base in the UK.

The Overarching National Policy Statement for Energy (EN-1) foresees a need for 113 gigawatts (GW) of electricity generating capacity in 2025 compared with 85GW now. 59GW would be new capacity, and of this 33GW would be renewable energy, mostly wind, 16GW would be new nuclear, with 26GW left for industry to determine. But in more recent scenarios the Government anticipate that total electricity generating capacity increasing to about 120GW by 2030. These show that the Government foresees a sudden levelling off in the growth in renewables, between 2020 and 2030 and a rapid growth in nuclear and gas. (22)

If instead we allow the offshore wind to continue growing at the rate it will have to grow between now and 2020, we should start to see price reductions as a result of development work that has gone into the technology. Dong Energy, for example, says it has a clear strategy for cutting the cost of offshore wind to £85/MWh for projects being sanctioned in 2020 – a cost reduction of up to 40 per cent compared with today and a challenging target that requires the building of bigger wind farms, using more powerful turbines. In other words, in order to deliver these cost reductions, Dong will need to capture economies of scale, and develop a strong pipeline of projects within a clear and stable policy framework. (23)

If we also start to bring on a batch of other renewable technologies, including solar, geothermal, hydro and wave and tidal we can move towards a more sustainable renewable energy system which doesn't require new nuclear power or large-scale gas.

The Government says more gas stations are needed, but operating at lower load factors to balance a very significant increase in intermittent renewables by 2030, allowing renewables to become the biggest source of energy generated. For this reason 'capacity payments' are required to make the economics of gas work, because the new stations aren't used very often.

In a Friends of the Earth (FoE) scenario produced using DECC's pathways calculator, in which renewable energy supplies 73% of electricity by 2030, with no new nuclear, the renewable contribution is made up of 60 TWh from onshore wind; 195 TWh from offshore wind; 50TWh from Hydro, Wave, Tidal and Geothermal and 36TWh from solar. (24) The FoE scenario assumes more switching of transport and heating to electricity than the Government scenario, hence the higher demand, but FoE also note that a massive 155 TWh could be saved through extra efficiency measures – 140 TWh of which would be at a negative cost.



Energy System 2030	UK Government Scenario	FoE Scenario
Unabated Fossil Fuels	150 TWh	60 TWh
Renewables	140 TWh	350 TWh
Nuclear	90 TWh	10 TWh
Carbon Capture & Storage	10 TWh	50 TWh
Total	390 TWh	470 TWh

For more info see NFLA Briefing February 2013 “Energy Scenarios 2020 – 2030: Alternatives to the UK Government’s gas / nuclear /renewable scenarios - a look at the potential of non-wind renewables coming to the fore”.

[http://www.nuclearpolicy.info/docs/briefings/A220_\(NB106\)_Energy_scenarios_2020-2030.pdf](http://www.nuclearpolicy.info/docs/briefings/A220_(NB106)_Energy_scenarios_2020-2030.pdf)

The Energy Efficiency Plan

A report for DECC published in November 2012, by energy consultancy McKinsey concluded that the government could use energy efficiency measures to cut 103TWh off the country’s electricity demand by 2030. Almost all of these savings “*have net savings from a societal point of view*”, it adds. But, even if the government successfully enacts all of its policies on energy efficiency, it still won’t achieve these levels of savings. McKinsey says there is a significant “uncaptured potential” that the government’s policies are not reaching. (25)

The Overarching National Policy Statement for Energy (EN-1), which is probably the closest thing we have got to an energy plan, states that the UK Government expects electricity consumption to double or even triple by 2050 as a result of the electrification of demand (such as for heating and transport). (26) But the Government’s own evidence shows something quite different. In March 2011 the Coalition Government published Pathways 2011 (27) presenting 16 different scenarios, detailing various ways forward regarding energy policy in order to both keep the lights on and achieve 80% CO₂ reductions by 2050. Only nine of the pathways showed anything like a doubling of electricity demand, (6 showed there is no need for new reactors).

Germany, which is planning an entirely non-nuclear route, even with the same 2050 objective of an 80% reduction in greenhouse gases, expects electricity demand to be 25% below present levels by 2050 – compared with our doubling – by implementing energy efficiency programmes. (28) If, instead of planning for a doubling or tripling of electricity demand by 2050, the UK Government was planning for a reduction of 25%, as in Germany, then the capacity required by 2025 would fall by around 15%, removing the need for new reactors.

The Association for the Conservation of Energy shows in its evidence to the House of Commons Environmental Audit Committee that it is possible to come up with Energy Pathways which are cheaper, achieve climate and energy security objectives, but do not require new reactors. These scenarios could save £98.4 billion – £998.8 billion over the next 40 years. (29)



Not only is energy demand reduction compelling from an economic point of view, because it is far cheaper than building new generating capacity, but it is also key to reducing CO₂ emissions without driving thousands more householders into fuel poverty. So not planning for a doubling of demand should be the priority alternative to building new reactors. The Coalition Government is supposed to be committed to eradicating fuel poverty by 2016 “*as far as reasonably practical*”, so there clearly needs to be a huge national effort on energy efficiency for low income households in any case. (30)

The domestic sector uses around 30% of the final energy consumed in the UK. If the UK Government is to meet its target to reduce carbon emissions by 80% by 2050, it will need to implement a set of policies which can cut emissions from the domestic sector by 80% by 2050. It should be doing this anyway to meet its legal obligations on fuel poverty. Every house will need excellent insulation and some form of Low and Zero Carbon Technology –microgeneration or community heating schemes. This means carrying out installations in all of the UK's 25 million dwellings over the next 37 years or 676,000 dwellings every year between now and 2050.³ So the obvious question is why are we not planning to refurbish existing households at, say, 700,000 houses per year? (31)

The Telegraph is right about one thing: UK Energy Policy is suffering from paralysis? But it is an obsessive focus on short-term costs that is causing the Government to get confused. Nuclear was supposed to be the cheap option – EDF talked about £45/MWh in 2008, (although it's a mystery why anyone believed them) but now with nuclear at around £100/MWh the Government sees all potential ways of meeting climate change commitments as being expensive, which is making them waiver about meeting targets. The idea that shale gas might somehow provide a cheaper alternative has led to dithering. The UK is already looking like it might miss its 2020 renewable targets, (32) and may backtrack on its target of reducing carbon emissions by 50% by 2025. (33)

If instead the Government made moving to a Sustainable Energy system the priority, this might require more investment now but in the longer-term energy costs would become more stable. Sticking with the status quo is an extremely risky course for the UK – we are importing more oil and gas every year, and prices are likely to continue rising. Our net imports of gas alone cost £6 billion in 2011, with heavy reliance on Qatar. DECC and other analysts predict that gas prices will continue to rise. Even with a UK shale gas boom, we would still need to import a greater percentage of our gas than we do now. Moving away from fossil fuels is the correct course to avoid ever-increasing electricity costs. But this transition needs to be managed well to ensure costs of new technologies are driven down fast. (34)

Writing on Exeter University's IGov website, Professor Catherine Mitchell said that on 4th June 2013, when 290 MPs voted against an amendment to the Energy Bill to include a decarbonisation target of 30% by 2030 (with 267 in favour) they voted for a 'dirty' business-as-usual energy system and gave two-fingers to the idea of climate policy. Without a legislative target by 2030, the current conventional fossil based energy system can continue for a while longer doing exactly what it has always done; with private incumbent interests rather than society's long term benefit taking priority. A rapid move to an efficient energy system and a high proportion of renewable energy will negatively impact the current incumbents and their supply chain. For example, Denmark has a policy to reduce total energy demand by 50% by 2050 – that



is reducing sales by 50% and providing energy from new technologies, and by new investors. That is a major change in who is making money out of the energy system. It is because of this that there is a huge fight going on about which technological pathway to follow, and this vote was part of that fight. (35)

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2. Energy Subsidies

In his submissions to the Environmental Audit Committee's investigation into Energy Subsidies, former Labour MP Alan Simpson (1) argues that subsidies should be treated as transitional mechanisms rather than permanent support; addressing market defects and moving the energy market from its current structure towards the energy system that will replace it. This means subsidies should be targeted towards new technologies rather than established ones; have built-in 'degression' rates, offering diminishing rates of support, towards full market viability; prioritise renewable over non-renewable energy systems; require all technologies to cover their own environmental clean-up costs; be consistent with government carbon reduction targets; maintain social cohesion and resilience, and deliver a more open, democratic and sustainable UK energy system.

He says: "*Parliament has just voted to create a separate welfare state for new nuclear power, guaranteeing it a market and price for the next 35-40 years. It will be a subsidy (in all probability to a single monopoly supplier) that exceeds all other energy subsidies. It also comes on top of the annual taxpayer contribution of £2.3bn for nuclear waste disposal, the £5bn bailout of British Energy in 2005, and government underwriting of insurance liabilities (in excess of £1.2bn) for any nuclear accident. These are barely recognised in the current 'subsidy' debate.*"

Simpson says the Government puts over £15bn of annual subsidies into its energy sector, over 80% of which go to old, dirty, non-renewable energy sources.

Meanwhile it looks as though the Government has agreed that the guaranteed fixed price for electricity from Hinkley will be fully linked to inflation, adding tens of billions of pounds to the total cost of electricity from the reactors. (2) The agreement to inflation-link the electricity price EDF would receive—known as the strike price—for 35 years substantially eases the financial risks for the French utility for constructing two nuclear reactors, but there is still no deal on the actual price. Roland Vetter, head of research at CF Partners, an environment and energy advisory, trading and investment firm says a strike price of around £95 per megawatt hour linked to inflation will yield accumulated revenues to EDF of around £143.5 billion over the 35 years of the contract, compared with \$85.75 billion if the contract weren't linked to inflation.(3)

Alan Whitehead MP says the Levy Control mechanism (basically a cap on the total spent on all subsidies) only works if we know the total of existing forward commitments in relation to new money, and, importantly, that it stays the same. On the assumption that there will be a levy control framework in place at the time nuclear comes on stream with this new arrangement, how will everyone else's CfDs be managed? Does it mean that Hinkley C will eat up a lot of the money earmarked for new entrants, through the effect of its indexing. This would leave less in the coffers than potential entrants might be expecting, thereby making their plans to enter the market at that point very uncertain. (4)

Not satisfied with giving EDF Energy a potential nuclear windfall of up to £143bn over the next 35 years for its Hinkley Point C project, the Government now plan to remove most of the risk for potential investors in the £14bn project. Chief Secretary to the Treasury, Liberal Democrat,



Danny Alexander has announced that “...*the proposed new nuclear power station at Hinkley Point C is eligible for a UK Guarantee.*” (5)

In a speech to the House of Commons, Alexander confirmed that the Government is prepared to guarantee £10bn of the expected £14bn cost of building two new reactors at the Somerset site. However, Alexander admitted that the long-running negotiations between the government and EDF over the level of support the project can expect have not been resolved and no deal has yet been done. (6)

The UK Guarantee scheme is basically a way for the Government to pass on its “*hard-won fiscal credibility ... to support the UK economy*”. (7) The idea is that it will kick start critical infrastructure projects that may have stalled because of adverse credit conditions. So the Hinkley Project should be able to borrow money from investors at a lower interest rate than would otherwise have been the case. According to European Community Competition Law (8) this kind of loan guarantee does represent state aid, so, in theory, the Government should seek European Commission permission before going ahead with this scheme.

It is not surprising that investors want some sort of guarantee when EDF’s other nuclear project at Flamanville in Normandy was originally expected to cost €3.3 billion and be ready around 2012. Now it is expected to cost €8.5bn and won’t be ready until at least 2016. The other reactor of the same type being built in Europe at Olkiluoto in Finland was due to be completed in 2009, but is now not expected to be ready until 2016, with a similar increase in cost.

Another Liberal Democrat, Energy Secretary Ed Davey said at a press conference: “...*the purposes of offering to EDF the opportunity to have one of the Treasury’s UK infrastructure guarantees is to help that project, but it’s actually separate from our negotiations on the strike price and I can’t give you a time for them. There is an intense negotiation with EDF on (Hinkley Point C) HPC and when we conclude – if we conclude – then we will publish a strike price with all the terms and conditions.*” (9)

The UK Guarantees scheme will cover construction risk for Hinkley Point, one of the main sticking points for investors on new nuclear schemes. Yet the Government continues to insist nothing it is offering to the nuclear industry represents a subsidy – because the guarantees will be offered at a commercial rate. (10)

The EU could delay the new contracts for difference (CfD) subsidy mechanism beyond the April 2014 target launch date. The European Commission has to approve the CfD model before it can come into force, as it constitutes state aid. The Department of Energy & Climate Change (DECC) has said this approval could take about 18 months, and the process has not yet begun. This adds to the uncertainty surrounding the CfD structure, which industry sources say are undermining investor confidence. Years of delay need not impact new nuclear plants though as long as EDF has the confidence that the CfD will be approved by the Commission, a delay of several years would not matter much since Hinkley Point C will not start generating energy until 2024. (11)

EDF doesn’t want to mention the fact that inevitably nuclear power will be given better terms than wind, even though EDF’s demands are still a long way from being met. Dr David Toke speculates that DECC and the Treasury are engaged in a battle to pin the blame for the failure of the nuclear new build programme on each other. Certainly a lot of people have an interest in



prolonging the notion that new nuclear power is coming. However, just as in the Samuel Beckett play characters wait (in vain) for 'Godot' to arrive, the nuclear hopefuls will be waiting in vain. (12)

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 4. Alan Whitehead MP 18th June 2013 <http://alansenergyblog.wordpress.com/2013/06/18/indexing-the-cuckoo-pushes-another-fledgling-out-of-the-nest/>
 5. HM Treasury June 2013 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/209279/PU1524_IUK_new_template.pdf
 6. Nucnet 27th June 2013 <http://www.nucnet.org/all-the-news/2013/06/27/uk-announces-gbp-10-billion-of-guarantees-for-hinkley-point>
 7. HM Treasury 18th July 2012 <https://www.gov.uk/government/news/government-uses-fiscal-credibility-to-unveil-new-infrastructure-investment-and-exports-plan> Also See <https://www.gov.uk/government/news/government-uses-fiscal-credibility-to-unveil-new-infrastructure-investment-and-exports-plan>
 8. Vademecum, Community Law and State Aid Handbook, September 2008 http://ec.europa.eu/competition/state_aid/studies_reports/vademecum_on_rules_09_2008_en.pdf
 9. Construction News 27th June 2013 <http://www.cnplus.co.uk/news/spending-review-2013/treasury-confirms-uk-guarantees-for-hinkley-point-c-and-mersey-gateway/8649841.article?blocktitle=Spending-review-latest&contentID=9880>
 10. Guardian 27th June 2013 <http://www.guardian.co.uk/politics/2013/jun/27/danny-alexander-guarantees-nuclear-power>
 11. ICIS 21st June 2013 <http://www.icis.com/heren/articles/2013/06/21/9680983/power/edem/european-approval-of-uks-cfd-subsidies-may-set-back-launch---decc.html>
 12. Dave Toke's Blog 19th June 2013 <http://realfeed-intariffs.blogspot.co.uk/2013/06/will-edf-get-inflation-proofed-deal.html>



3. Regulation and the Geological Disposal Facility

The Environment Agency (EA) and the Office for Nuclear Regulation (ONR) have teamed up again to look at plans for a Geological Disposal Facility (GDF). But it seems like they haven't really got the hang of this openness and transparency thing. It took a year for the two regulators to report on a summary of the work they carried out between April 2010 and March 2012 to scrutinise, and advise on, the work of the Nuclear Decommissioning Authority (NDA) Radioactive Waste Management Directorate (RWMD). (1) The resulting report has very few links to supporting documents many of which don't seem to be available at all.

The EA and ONR will regulate any future GDF for radioactive waste in England and Wales. The two regulators have no role in site selection, but should a site be selected they are responsible for making sure that any future facility *"meets the required high standards for protecting people and the environment when it is being developed, while it is operating, and after it has closed, and we would be responsible for granting the necessary licences and permits throughout this period"*.

Of interest is mention of RWMD's report on its approach to issues management (2), given that RWMD had listed 900 outstanding issues that need to be investigated, (3) and Nuclear Waste Advisory Associates Issues Register, (4) identifies 100 unresolved issues. The Regulators say they considered 'issues management' ahead of a meeting with RWMD in March 2011 aimed at getting clarification of RWMD's process for managing issues and to gain confidence they are being managed appropriately. EA and ONR stressed that RWMD must be vigilant in identifying future changes that may escalate the significance of issues that had previously not been identified as key issues, particularly where new information may impact on previous regulatory decisions and result in the need for them to be revisited.

The regulators say they agree that RWMD's issues process should help to promote transparent, justifiable decision-making – and yet don't bother to give a link to the "Concept Issues Management Meeting Minutes" (dated 19 April 2011) or Concept Selection Process Meeting Minutes (dated 28 November 2011).

Because the Regulators have taken a year to publish this document, it doesn't comment on RWMD's second Approach to Issues Management Report, dated March 2012. (5) In the absence of the above minutes, this means you get a better idea of what is going on in this area by looking at the NWAA website here: <http://www.nuclearwasteadvisory.co.uk/docs/nwaa-documents/>

The Regulators encourage RWMD to include more discussion in their Issues Management documents of uncertainty, highlighting key uncertainties, explaining their impact and how RWMD plans to manage this. They also want to know whether the selection and screening of issues will involve any kind of external scrutiny.

ONR & EA have carried out a regulatory review of RWMD's generic Disposal System Safety Case (gDSSC). Early comments were published in February 2011 and a full report in December 2011. (6)



The early comments don't appear to be available on the Regulators' website.

Briefing December 2011 on gDSSC http://www.environment-agency.gov.uk/static/documents/Business/Regulatory_Review_of_RWMDs_generic_Disposal_System_Safety_Case_V2.pdf

Joint Regulatory Scrutiny of RWMD's Work Relating to Geological Disposal of Higher Activity Radioactive Waste: Regulatory Review of the Disposal System Safety Case, December 2011. <http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/genw1211bvdX-e-e.pdf>

The Environment Agency says it has provided comments on RWMD's Environmental Safety Case Strategy, (See <http://www.nda.gov.uk/documents/biblio/upload/GD-Environmental-Safety-Case-Strategy.pdf>) but again these comments don't appear to be available.

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1. Regulatory scrutiny of RWMD's work relating to geological disposal of radioactive waste: Summary of work (April 2010 to March 2012) http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8184_f462dc.pdf
 2. RWMD Approach to Issues Management, August 2011 <http://www.nda.gov.uk/loader.cfm?csModule=security/getfile&pageid=47986>
 3. This number was mentioned verbally at Geological Disposal Implementation Board meetings. The Update on RWMD Approach to Issues Management, NDA/RWMD March 2012 gives the figure as 500. The issue groups are listed in RWMD Approach to Issues Management, NDA, August 2011. The note also says that 400 internally raised issues have been removed because these have already been identified as information needs within the RWMD R&D programme.
 4. NWAA Issues Register Commentary, March 2010, <http://www.nuclearwasteadvisory.co.uk/wp-content/uploads/2011/06/NWAA-ISSUES-REGISTER-COMMENTARY.pdf>
 5. RWMD Approach to Issues Management, March 2012 <http://www.nda.gov.uk/documents/upload/Geological-Disposal-RWMD-approach-to-issues-management-March-2012.pdf>
 6. See Speeding Up Nuclear Waste Dumping, NuClear News No.37 February 2012. <http://www.no2nuclearpower.org.uk/nuclearnews/NuClearNewsNo37.pdf>



4. Generic Design Assessment

Large & Associates, Independent Nuclear Consulting Engineers, have completed their year-long Review of the the Office for Nuclear Regulation's (ONR) Generic Design Assessment (GDA) process.

The GDA process was developed by the ONR and the Environment Agency to consider the technical design issues and environmental matters with EDF's EPR design and Westinghouse's AP-1000 design (the AP-1000 process was put on hold in 2012) in a generic manner so as to resolve nuclear safety issues and speed up the construction process later on. Final-Design Approval Compliance (FDAC) of the EPR design was given by the ONR in November 2012.

The conclusions of the Large & Associates review make worrying reading, since the ONR have already given the go-ahead for the design, despite the fact that many of the 'closed-out' safety issues have not been settled, but deferred for later resolution at various times during construction.

Final Report on the ONR Generic Design Assessment, Large & Associates 6th June 2013
<http://www.largeassociates.com/cz3206/3206%20GDA%20Review/R3206-I3-04-06-13.pdf>

See also NFLA Press Release 19th June 2013 for further information:

http://www.nuclearpolicy.info/docs/news/NFLA_GDA_independent_assessment_June_2013.pdf

Meanwhile, now that Hitachi's Advanced Boiling Water Reactor (ABWR) has entered the Generic Design Assessment process we will no doubt continue to be told that "*...the ABWR reactors in both Japan and Taiwan were built on time and to budget.*" NuClear News No.45 reported on the poor capacity factors for these reactors – between 44 and 73%. Peter Lux has dug out data from the International Atomic Energy Agency which shows their performance is even worse than this.

1. Peter Lux 17th June 2013 <http://www.plux.co.uk/hitachi-abwr-one-of-the-least-reliable-in-the-world/>



5. Energy Costs

As we reported in April (NuClear News No.49 – also see No.51) the Government says energy bills will be on average £166 per year in 2020 lower than they would otherwise have been without its policies. Average bills in 2013 are around £1,267; in 2020 they will be £1,331, but without policies they would be £1,496. (1)

Now consumer body, Consumer Futures, has challenged this idea by publishing new research (2) by the Centre for Sustainable Energy on the impact of energy policy on consumers' energy bills, examining different groups by expenditure. The report, entitled 'The hardest hit', says the government's policy of charging for changes to the UK energy system mostly through electricity bills disproportionately affects those who have electric heating - many of whom are among the worst-off in society.

One of the report's co-authors says he hopes the research will help highlight a group that is still falling through the gaps when it comes to government support: *"Instead of looking at savings the average household might make, government needs to look at who might be disadvantaged disproportionately right at the start, and ensure that they are not adversely affected."* (3)

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1. DECC Press Release 27th March 2013 <https://www.gov.uk/government/news/policies-are-putting-a-cushion-between-energy-prices-and-household-bills-davey> Policy impacts on prices and bills, DECC 27th March 2013 <https://www.gov.uk/policy-impacts-on-prices-and-bills>
 2. The Hardest Hit: Going Beyond the Mean, by CES for Consumer Futures, June 2013 <http://www.consumerfutures.org.uk/files/2013/05/The-hardest-hit.pdf>
 3. Carbon Brief 7th June 2013 <http://www.carbonbrief.org/blog/2013/06/researcher-the-government-needs-to-build-fairness-into-energy-policies>



6. Green Gas

In November last year Alan Whitehead MP (NuClear News No.46) compared one shale gas well which might cost between £6 -10 million to drill and frack and produce about 2 million cubic meters of gas per year for about five years, with a large farm size Anaerobic Digestion plant which might cost £2million to build and produce about 0.3 million cubic metres of gas per year for as long as cows produce manure and people continue eating food. (1)

He has now had another look at the numbers and it seems that the average shale gas well might last 7.5 years and produce 22.6 million cubic metres of gas over that time. So if you spent £6million on three farm size Anaerobic Digesters you could produce about the same amount of gas in twenty years. (2)

A green gas revolution took another step forward in June when the Health and Safety Executive (HSE) agreed to relax regulations controlling renewable gas plants. Because biogas has a higher oxygen content than conventional North Sea gas, safety regulations have until now prevented it being carried in the pipeline network for fear it could cause corrosion and lead to explosions. (3) Instead, gas from AD plants is generally burnt to produce electricity, with just one commercial-scale plant supplying gas into the grid. The Poundbury plant, opened by biomethane advocate Prince Charles on his estate in Dorset last year, had to gain special exemptions. But the HSE has concluded the higher oxygen content is safe and relaxed the rules, to make it “easier, quicker and less costly” for AD plants to supply gas to the grid.

Charlotte Morton, chief executive of the Anaerobic Digestion and Biogas Association (ADBA), says up to 40 new biomethane plants are likely to link up to the grid over the next two years and could produce enough gas to heat 128,000 homes. The National Grid estimates that green gas could eventually meet up to 50% of the UK’s residential gas demand and says the cost compares well to other green technologies such as wind farms. (ADBA puts the contribution at a more modest 10% (4)) Morton says that to speed up the industry’s growth, ministers should ban food waste being sent to landfills, and councils should collect it separately, securing supplies for the plants. There are currently more than 100 plants, with AD generating more UK electricity than solar panels, ADBA says. (5)

The Green Investment Bank (GIB) has said anaerobic digestion (AD) projects are “at the heart” of its waste investment strategy, revealing that it is currently considering direct investment of up to £50m in the sector. The news comes in a report from the Bank which assesses the investment potential of the UK’s AD sector, which currently amounts to around 106MW of capacity in operation or under construction, with a further 148MW in the latter stages of planning. (6)

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1. Alan Whitehead MP 28th November 2012 <http://alansenergyblog.wordpress.com/2012/11/28/exclusive-not-the-gas-strategy-revealed/>
 2. Alan Whitehead MP 27th June 2013 <http://alansenergyblog.wordpress.com/2013/06/27/not-very-big-news-three-fsads-equal-one-fgw-its-about-fracking-by-the-way/>



3. **Telegraph 22nd June 2013** <http://www.telegraph.co.uk/finance/newsbysector/energy/10136884/Gas-from-cow-manure-to-heat-British-homes.html>
4. **Business Green 6th December 2013** <http://www.businessgreen.com/bg/opinion/2229968/why-we-need-a-green-gas-strategy>
5. **Telegraph 22nd June 2013** <http://www.telegraph.co.uk/finance/newsbysector/energy/10136884/Gas-from-cow-manure-to-heat-British-homes.html>
6. **Business Green 11th June 2013** <http://www.businessgreen.com/bg/news/2273923/green-investment-bank-mulling-gbp50m-anaerobic-digestion-investment>



7. Emergency Planning

The Office for Nuclear Regulation (ONR) is finalising the size of the detailed emergency planning zone (DEPZ) and other matters relating to the Sizewell nuclear power plant offsite emergency plan following a public consultation on this plan carried out by the Suffolk Resilience Forum which advocated an increase in the size of the DEPZ. ONR will apparently advocate a small increase in the size of the DEPZ, but not to the 20 - 30kms evacuation zones which had to be implemented after Fukushima in 2011.

One of the concerns over nuclear site emergency plans raised by the Nuclear Free Local Authorities has been the availability of potassium iodate tablets. This issue came up recently at a Torness Local Liaison Committee meeting when Edinburgh Green Councillor Chas Booth asked how many potassium iodate tablets were available to give out to the local community in the event of a nuclear incident, and were there adequate numbers of tablets if a significant increase in the evacuated area is required (as occurred at Fukushima).

Emergency plans for protecting communities around the two nuclear power stations in Scotland - at Torness in East Lothian and at Hunterston in North Ayrshire - include provisions for distributing potassium iodate tablets. But although there are tablets ready for use within two or three kilometres of the plants, it is unclear how populations further away will be protected. The government's official guidance says that authorities should be able to distribute the tablets up to 15 kilometres away, but there has been growing pressure in the wake of Fukushima to extend the zone to 30 kilometres.

The operator of Torness, EDF Energy, says that there are 11,500 tablets in stock that are distributed to the 220 households that live or work within three kilometres of the plant. The plant keeps a further 5,000 tablets for its staff, and gives the local ambulance service 200.

But when councillors on the Torness local liaison committee asked where the tablets were for the people that lived within 30 kilometres, they were referred to the local authority and to the National Health Service (NHS). Dunbar, Haddington, North Berwick and East Linton are all within that distance, and have a combined population of 25,000. Chas Booth, asked Lothian NHS about its stocks of potassium iodate tablets, and was told they had none. When environment journalist Rob Edwards asked Lothian NHS and East Lothian Council, they both responded with a statement from the Scottish government. But the Scottish government refused to say how many pills there were, and where they were kept.

Bill Butler, a Glasgow Labour councillor who chairs the group of nuclear-free local authorities group in Scotland, condemned current plans to extend emergency zones to 30 kilometres as "totally inadequate". This was demonstrated, he argued, by "the confusion over the simple issue of potassium iodate tablets." (1)

Chas Booth said he was "astonished" Scottish authorities had failed to "learn the lessons from Fukushima and Chernobyl". The SNP councillor for Dunbar and East Linton, Paul McLennan said "there is no way these tablets could be distributed to people living 15 or 30km from Torness in the event of an emergency." (2)



For Ben Elton's take on the Torness Emergency Plan see
<http://www.youtube.com/watch?v=HMkHmaP-BLQ>

Meanwhile, an emergency exercise near Glasgow has exposed serious weaknesses in Britain's ability to cope with a catastrophic motorway pileup in which a nuclear bomb convoy burns and spreads a cloud of radioactive contamination over nearby communities. An internal report released by the Ministry of Defence reveals that the emergency services faced "major difficulties" in responding to the mocked-up accident near Glasgow because they had no help from MoD weapons experts for more than five hours. At times the response, which involved 21 agencies, was disorganised, the report says. Heated disputes with ambulance staff over how to handle casualties contaminated with radioactivity at the crash site caused "considerable delay", resulting in one victim being declared dead. Other problems included outdated, paper-based communications systems, poor mobile phone signals, conflicting scientific advice on health hazards and confusion over radiation monitoring. (3)

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1. Rob Edwards 18th June 2013 <http://www.robedwards.com/2013/06/where-are-the-anti-radiation-pills-meant-to-prevent-cancers-no-one-will-say.html>
 2. Edinburgh Evening News 20th June 2013 <http://www.scotsman.com/edinburgh-evening-news/latest-news/torness-nuclear-survival-manual-updated-1-2972065>
 3. Guardian 12th June 2013 <http://www.guardian.co.uk/world/2013/jun/12/nuclear-convoy-disaster-exercise-emergency>



8. Sellafield Notes

On 14th May this year a holding tank at the THORP reprocessing plant at Sellafield was inexplicably filled with the wrong substance – formaldehyde instead of hydroxylamine. Both are used in the operation to reprocess spent reactor fuel but at wholly different stages of the process and for completely different outcomes. Had this major human error not been detected in time the consequences could have been catastrophic for THORP’s internal workings. THORP is now in its 20th year of operation and, some 8 years behind schedule and reduced to reprocessing just a quarter of the volume of spent fuel it was originally designed for. The plant has been scheduled to enter an 8-week ‘outage’ in June/July this year. (1)

Sellafield Ltd was fined £700,000 at Carlisle Crown Court in June after a range of charges were brought by the Environment Agency (EA) and the Office for Nuclear Regulation (ONR), relating to the dispatch of 4 bags of Low Level Waste (LLW – 1 bag containing material in the Intermediate Level Waste range) to the Lillyhall landfill site at Workington on 12th April 2010. The delivered bags had been incorrectly classified as general ‘exempt’ waste by faulty monitoring equipment at Sellafield rather than LLW which should have been sent to the LLW facility at Drigg. The mistake was only discovered by chance following a training exercise on the faulty equipment 20th April, and the bags containing various materials collected from within controlled areas of the Sellafield site eventually recovered from the Lillyhall landfill site between 22nd and 29th April and dispatched to Drigg. (2)

The head of the Nuclear Decommissioning Authority has admitted having “real disappointments” over the performance of the private consortium in charge of the Sellafield nuclear site. John Clarke said he had expected “to be further along than we are” at Sellafield. However, he insisted the past four and a half years had not been a complete waste of taxpayers’ money. (3) The management of Sellafield came in for criticism from the National Audit Office, in November 2012 in a report that said “underperformance” on major projects at the site had caused £1bn of cost overruns.

The Companies which make up Nuclear Management Partners (NMP), which runs Sellafield Ltd on behalf of the NDA - URS, Areva and Amec - could lose the contract to manage the £22bn nuclear-decommissioning programme at Sellafield. The NDA says the programme will be placed under review in September. The joint venture was appointed in 2009 on a 17-year contract, which is reviewed every five years. The result of the first review will be announced in September and will decide what happens at Sellafield from April 2014. The NDA can either: continue with NMPs contract for another five years; run a fresh competition for a new parent body organisation; or bring management of the site in house. (4) The NDA is understood to be drawing up plans for how the site would be run if it opted to bring management back in house. (5)

1. CORE Press Release 10th June 2013
<http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=318> and Morning Star
12th June 2013 <http://www.morningstaronline.co.uk/news/content/view/full/134123>



2. CORE Press Release 14th June 2013
<http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=319>
3. FT 17th June 2013 <http://www.ft.com/cms/s/0/0b655270-d66c-11e2-9214-00144feab7de.html>
4. Building 20th June 2013 <http://www.building.co.uk/news/breaking-news/nuclear-giants-could-face-sellafield-dismissal/5056577.article>
5. Telegraph 20th June 2013 <http://www.telegraph.co.uk/finance/newsbysector/energy/10133528/Sellafield-clean-up-could-be-taken-into-state-hands-as-22bn-contract-up-for-review.html>



9. Renewables and Jobs

Every British wind farm job is subsidised to the tune of £100,000 per year, according to the *Sunday Telegraph*. (1) The paper says its analysis reveals the “true cost of wind farms”, and undermines the wind industry’s claim to generate both energy and economic growth. The *Carbon Brief* website examines the claims.

The *Sunday Telegraph* appears to have relied on high-end estimates for how much it costs – and a somewhat pared down estimate for the number of jobs generated. The calculation is also rather simplistic, and ignores any other benefits wind power brings to society. For example, wind turbines generate power for the National Grid, providing just over five per cent of the country’s electricity in 2012. Generating power from an alternative source – for example gas or coal – could also cost the country money. According to the Organisation for Economic Cooperation and Development in April, the UK government’s subsidies to fossil fuels actually increased by £500 million between 2010 and 2011 to £4.3 billion of support. Finally, generating electricity from wind power reduces greenhouse gas emissions. The *Sunday Telegraph* doesn’t seem that convinced that reducing emissions is a good idea, however – arguing somewhat grudgingly that it might be a good idea “in an ideal world”. (2)

As many as 32 new factories will be needed to build the components for the fleet of British offshore windfarms envisaged under the government’s current renewable energy plans, potentially creating tens of thousands of jobs, a new report has found. So far, only 10 such factories have been built or are planned in the UK, according to Renewable UK, the trade association for wind companies. (3)

The “Energiewende” is Germany’s ambitious energy transformation, which aims to move the country to at least 80% of electricity from renewable energy sources by 2050. Germany already gets nearly 25% of its electricity from renewable sources, up from just under 7 percent thirteen years ago. That is no small feat. Germany is a manufacturing powerhouse: It’s the world’s fifth largest economy and third largest exporter. Germany’s commitment to renewables has helped create jobs and drive economic opportunities. Since 2004, clean energy investments grew by 122%. Jobs in the renewable energy sector have more than doubled to around 380,000 jobs in the same timeframe. (4)

Meanwhile, Greg Barker, the energy and climate change minister, managed to upset the *Telegraph* when he announced an “ambition” for 20GW of energy to be produced by solar panels by 2020. The newspaper decided this meant a ten-fold increase in the number of solar farms currently built or being planned with panels, many up to ten feet tall, covering a total area of land equivalent to more than 100 times the size of London’s Olympic park. (5)

Barker pointed out that he is talking about industrial rooftops not solarfarms. (6)

Utility Week said Barker is touting a target for solar PV double what the network can handle, according to National Grid analysis. National Grid has previously warned that building more



than 10GW would make it “*significantly more challenging*” to manage the network in its current form. It could require constraint payments to shut off solar in the sunniest periods. (7)

Will the countryside be covered by solar panels producing more electricity than consumers really need, at “astronomical” cost to the consumer asks Carbon Brief? National Grid told them it’s “highly unlikely” that the 20GW mark will be achieved by 2020. A spokesperson for solar energy company Solarcentury puts it slightly more bluntly: “*The only person who thinks that’s possible is Greg Barker*”. But National Grid doesn’t seem overly concerned about the future of solar: “*System Operation is constantly evolving to respond to a changing generation mix, and we are used to this at National Grid.*” It emphasised that what might not work now could be possible in a few years time, as systems adapt to new ways of producing energy. So while adapting to more solar on the grid may be a challenge, the system operator doesn’t seem to think that it’s impossible. (8)

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1. Telegraph 15th June 2013 <http://www.telegraph.co.uk/earth/energy/windpower/10122850/True-cost-of-Britains-wind-farm-industry-revealed.html> and <http://www.telegraph.co.uk/comment/telegraph-view/10121584/Wind-power-has-failed-to-deliver-what-it-promised.html>
 2. Carbon Brief 17th June 2013 <http://www.carbonbrief.org/blog/2013/06/has-the-sunday-telegraph-revealed-the-true-cost-of-wind-farms>
 3. Guardian 12th June 2013 <http://www.guardian.co.uk/business/2013/jun/12/renewable-uk-windfarm-factories-jobs>
 4. Bloomberg 15th May 2013 <http://www.bloomberg.com/news/2013-05-15/u-s-energy-policy-should-take-a-lesson-from-germany-s-energie-wende.html>
 5. Telegraph 22nd June 2013 <http://www.telegraph.co.uk/earth/energy/solarpower/10136576/Push-for-solar-power-that-could-cover-a-hundred-Olympic-parks.html>
 6. Greg Barker 22nd June 2013 <https://twitter.com/GregBarkerMP/status/348572585962897408>
 7. Utility Week 24th June 2013 http://www.utilityweek.co.uk/news/news_story.asp?id=198770&title=National+Grid+analysis+clouds+Barker%27s+20GW+solar+ambition
 8. Carbon Brief 24th June 2013 <http://www.carbonbrief.org/blog/2013/06/is-more-solar-power-a-problem-for-the-grid-no,-says-the-grid>