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1. From “No Public Subsidy” to “State Aid”

As reported in nuClear News No.59, the European Competition Commission has launched a full investigation into whether Britain is providing up to £17bn of potentially illegal public guarantees to the proposed Hinkley Point C nuclear power station. The Commission is examining the contract between the UK government and EDF to see whether the ‘contract for difference’ constitutes illegal state aid. (1)

A public consultation has now been announced in the Europe Union’s Official Journal. (2)

Interested parties have one month from 7th March to submit comments to:

European Commission
Directorate-General for Competition
State aid Registry
Rue de la Loi/Wetstraat 200
1049 Bruxelles/Brussel
BELGIQUE/BELGIË
Fax No: (32-2) 296 12 42
E-mail: stateaidgreffe@ec.europa.eu

The Commission says it believes that the measures the UK Government proposes to provide certainty of revenues and a credit guarantee to a private investor to build Hinkley Point C involve State aid, and since the measures do not involve a genuine Service of General Economic Interest (SGEI) they favour an undertaking selectively, threatening to distort competition and affect trade between Member States.

The Commission has serious doubts on whether the measures can be deemed to pursue the common objective of security of supply, and that it can pursue decarbonisation. The Commission also has serious doubts on the need for State aid in relation to nuclear energy, and the fact that the combination of credit guarantee and Contract for Difference (CfDs) are appropriate instruments.

Also, based on the assessment conducted, the Commission has serious doubts on whether the combination of aid measures, and in particular of a CfD with inflation indexation and a credit guarantee, is proportional to the potential benefits of the aid. Finally, the Commission believes that the measures have the potential to seriously distort competition and trade between Member States.

The Commission says modelling undertaken by the UK government's Department for Energy and Climate Change ('DECC') points to the fact that new nuclear plants would not be an attractive commercial proposition in the absence of government intervention before 2027 or 2030, depending on the model used. But the Commission also says all existing reactors apart from Sizewell B are due to close by 2023.

It’s not clear why in the Commission’s “Description of Context” it hasn’t mentioned the fact that the May 2010 Coalition Agreement between the Conservative and Liberal Democrat Parties stated that the new UK Government would allow for the:



“...replacement of existing nuclear power stations ... provided that they receive no public subsidy.” (3)

The Commission says “it appears difficult to argue that the measure can help the UK achieve security of supply, given that the plant will not be operational before 2023 ... and that capacity levels are forecast by Ofgem to be relatively low before 2020.”

The Commission also says the measures could hardly be argued to contribute to affordability – at least at current prices, when they will instead and most likely contribute to an increase in retail prices. The measures would only seem to be able to contribute to affordable prices under very specific conditions in the future.

The Commission considers at this stage that the notified measures involves State aid and doubts this aid might be considered as compatible aid for the provision of a Service of General Economic Interest. The Commission also doubts that the measures address a genuine market failure.

A briefing on the joint submission to the European Commission by the Nuclear Free Local Authorities (NFLA), Cities for a Nuclear Free Europe (CNFE) and Stop Hinkley is available at http://www.nuclearpolicy.info/docs/nuclearmonitor/NFLA_New_Nuclear_Monitor_No34.pdf

Greenpeace Briefing on the European Commission decision on UK State Aid:

<http://www.greenpeace.org.uk/newsdesk/energy/news/briefing-european-commission-decision-uk-state-aid-hinkley-point-c-nuclear-plant>

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1. European Voice 18th Dec 2013 <http://www.europeanvoice.com/article/2013/december/eu-investigates-support-for-nuclear-and-renewable-energy/79116.aspx>
 2. Official Journal 7th March 2014 <http://eur-lex.europa.eu/JOHtml.do?uri=OJ:C:2014:069:SOM:EN:HTML> See <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2014:069:0060:0098:EN:PDF>
 3. The Coalition: Our Programme for Government, Cabinet Office, May 2010 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/78977/coalition_programme_for_government.pdf



2. The world's most expensive power station – a massive unjustified cost to consumers

Writing in *The Spectator*, Peter Atherton of investment analyst Liberum Capital, asks “*Why has Britain signed up for the world's most expensive power station?*” (1)

He says MPs owe it to the taxpayer to throw out the Hinkley deal, because the more we learn about it, the more we can see the deal is one of the worst ever signed by a British government. Even the European Union can smell a rat. Last month, the European Commission published an initial report suggesting that the contract involves illegal back-door government subsidies to EDF, and will now carry out a full investigation. But it is already obvious that Hinkley is not a good deal for Britain.

At £5m per MW of capacity, Hinkley will be the most expensive conventional power station in the world. By way of comparison, a new gas-fired power station costs around £0.7m per MW and takes two years to build. The price and the time needed for Hinkley have somehow doubled. In the initial proposal, the estimate was that it would cost less than £4bn per reactor, and take about five years – now its £8bn per reactor and nine years to build.

The government has guaranteed that EDF would be able to sell the power from Hinkley Point at a price of £92.50 per MWh, which compares to a current wholesale power price of around £50 per MWh. The £92.50 is in 2012 money: it will be inflated by the Consumer Price Index (CPI). If we assume that CPI inflation averages 2.5 per cent over the next decade, the price EDF will be guaranteed for its output in 2023 will be more like £121 per MWh, or £130 per MWh if CPI averages 3 per cent. Amazingly, the indexing continues throughout the 35 years of the contract. So by 2030 the guaranteed price would be about £150 per MWh.

Atherton calculates that Hinkley Point will produce annual profits before tax of up to £2 billion in its early years, rising to £5 billion by the end of the 35-year contract. Bear in mind that the combined operating profit of all the power stations owned by the so-called ‘big six’ energy companies in 2012 was only £2.1 billion.

The contract is structured so that EDF can recover the full value of its investment over the 35 years, even though the power station is expected to have a life of 60 years. EDF and its partners should be able to extract £65 billion to £80 billion in cash dividends in addition to paying off all of the debt taken on to fund construction. That's an average annual return on equity of between 25% and 35%. No wonder Atherton called the deal “*Economically Insane*”. (2)

Amory Lovins, Chief Scientist at the Colorado-based Rocky Mountain Institute says “*Britain's plan for a fleet of new nuclear power stations is ... economically daft.*” The guaranteed price is over seven times the unsubsidised price of new wind in the US, four or five times the unsubsidised price of new solar power in the US. Nuclear prices only go up. Renewable energy prices come down. There is absolutely no business case for nuclear. “*The British policy has nothing to do with economic or any other rational base for decision making.*” In the end, he says, “*economics tends to win over stupid policy. The energy revolution is under way.*” (3)



Consumer Futures (CF) - the New National Consumer Council - is a statutory organisation created through the merger of Energywatch, Postwatch and the National Consumer Council. The organisation says nuclear should be treated the same as mature renewable technologies. Echoing concerns published by the European Commission, CF says: *"This kind of undue discrimination in favour of one technology over others constitutes a failure in the UK stimulus regime... Our fear is that failures like this will contribute to a massive and unjustified transfer of wealth from the consumer to the project proponents."* (4)

Plug us into Iceland, it will be cheaper than a nuclear plant, says the *Sunday Times*. Iceland's parliament is poised to approve the next phase of an audacious plan to lay 1,000 miles of cable under the Atlantic to send geothermal and hydroelectric power to Britain. Edi Truell, the City financier appointed by Boris Johnson to run the capital's £4.2bn local authority pension scheme, has set up Atlantic Supergrid to bring the project to fruition. Truell wants to lay a cable to transport 1.2GW of electricity, mainly from Iceland's under-utilised geothermal sources. (5)

By the time the election comes about in May 2015, the UK solar PV industry could have installed a cumulative PV capacity of more than 7GW. This would correspond to 35% of the 20GW by 2020 aspiration of Greg Barker. 2.5GW is expected to be installed in 2014, a further five years at that rate will get the industry to the 20GW mark, something that was unthinkable a few years ago but is quickly becoming a figure that may need to be upgraded to reflect the changing status of solar PV within the overall energy mix of the UK. (6)

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1. Spectator 22nd Feb 2014 <http://www.spectator.co.uk/features/9141142/why-has-britain-signed-up-for-the-worlds-most-expensive-power-station/>
 2. Bloomberg 30th October 2013 <http://www.bloomberg.com/news/2013-10-30/u-k-risks-looking-economically-insane-with-edf-nuclear-deal.html>
 3. Guardian 17th Feb 2014 <http://www.theguardian.com/environment/2014/feb/17/amory-lovins-renewable-energy>
 4. Utilities Week 4th March 2014 <https://sites.google.com/site/nonukesorguk/news/hinkley-point-c-deal>
 5. Sunday Times 16th Feb 2014 <http://www.thesundaytimes.co.uk/sto/business/Industry/article1375919.ece>
 6. Solar Portal 11th March 2014 http://www.solarpowerportal.co.uk/guest_blog/npd_solarbuzz_upgrades_uk_pv_market_forecast_to_2.5gw_in_2014



3. The Levy Control Framework

The European Commission is concerned that subsidies for new reactors might unfairly crowd out alternative investments. This is made all the more likely by the fact that the UK Government's Levy Control Framework sets annual limits on the overall costs of DECC's levy funded policies. These comprise the Renewables Obligation (RO), small scale Feed-in Tariffs (ss-FIT), Investment Contracts for Final Investment Decisions Enabling for Renewables (FIDeR) and Contracts for Difference (CfDs).

This means that the total pot of money available to fund subsidies to low carbon energy is limited. Forecast expenditure in 2014/15 is, for example, £3.5bn. Levy funded costs for low-carbon electricity cannot exceed £7.6 billion in 2020/21. (1) But DECC points out that out of the £6.45bn allocated for 2018/19, only £2.9bn is available for new entrants.

Government modelling has estimated the total capacity projected in 2020 for each different form of renewable technology given the strike prices agreed by the Government. These figures are dependent on industry cost reductions over time as well as future policy decisions such as the strike prices for 2019/20 and 2020/21. The figures are not Government forecasts or targets and do not include deployment supported under the small-scale Feed-in Tariff. The generation capacity actually built will depend to a large extent on the costs faced by developers and on future changes to these costs.

The UK Government is currently planning a competitive allocation process for renewables which it believes is the best way to allocate the available budget given the strong progress of the renewables pipeline, and the potential high demands that this strong pipeline of projects could place on the funding available through the Levy Control Framework (LCF). (2) So, whilst there may be competition between different types of renewable generation on cost, the overall amount of renewable electricity generated will be limited by the amount of money available, and there will be no competition with nuclear electricity.

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1. Electricity Market Reform Delivery Plan DECC 2013
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268221/181213_2013_EMR_Delivery_Plan_FINAL.pdf
 2. Electricity Market Reform: Allocation of Contracts for Difference, DECC 16th January 2014,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/271919/Competitive_allocation_consultation_formatted.pdf



4. Plant Life Extensions (PLEX)

The UK Government claims, in its submission to the European Commission, that it needs to support Hinkley Point C for energy security reasons because 3.9GW of nuclear capacity will close by 2020, and then the remaining capacity, apart from Sizewell B will be closed by 2023. (1)

However, EDF Energy now expects to be able to increase the average lifetime of its advanced gas-cooled reactor (AGR) stations in Britain by eight years. Achieving this goal would mean all eight of its existing nuclear stations in Britain would be operational until at least 2023 with three of its seven AGR stations operating until nearer 2030. (2)

The first station under consideration for a life extension is Dungeness B. (3) EDF Energy is hoping to extend the life of this plant by ten years to 2028 with a decision expected during 2014. Bearing in mind that Hinkley Point B and Hunterston B have already had their lives for accounting purposes extended to 47 years – a 45 year life for all the other AGRs would mean all seven AGRs will still be operating in 2023 with three still going until 2028 and two until 2033. Hartlepool and Heysham 1, which are both currently scheduled to close in 2019, are next in line for life extensions, with a decision expected in 2016. Heysham 2 and Torness have not yet been awarded a life extension, but they are not scheduled to close until at least 2023 but are likely to be given extensions. (4)

EDF Energy has awarded a contract to Doosan Babcock which is expected to be worth £70 million a year over several years. The contract covers all seven of EDF's AGRs. Under the so-called lifetime enterprise agreement (LEA), Doosan Babcock will support the ongoing operation of the power stations and deliver projects to support life extension. (5)

EDF Energy's Stations	Station Type	Net Capacity (MW)	Date Commissioned	Closure date for accounting purposes	Next PSR	45 th Birthday
Dungeness B	AGR	1,040	1983	2018	2017	2028
Hartlepool	AGR	1,180	1983	2019	2018	2028
Heysham 1	AGR	1,155	1983	2019	2018	2028
Hinkley B	AGR	880	1976	2023	2016	2021
Hunterston B	AGR	890	1976	2023	2016	2021
Heysham 2	AGR	1,220	1988	2023	2019	2033
Torness	AGR	1,185	1989	2023	2019	2033
Sizewell B	PWR	1,198	1995	2035	2015	2040

1. See <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2014:069:0060:0098:EN:PDF>. NB the 3.9GW includes the 490MW Wylfa 1 Magnox reactor – Britain's last remaining first generation reactor.
2. Reuters 13th February 2014 <http://uk.reuters.com/article/2014/02/13/edf-britain-idUKWLB0075T20140213?rpc=401&feedType=RSS&feedName=mergersNews&rpc=401>
3. EDF Energy 13th Feb 2014 <http://newsroom.edfenergy.com/News-Releases/EDF-Group-results-February-13-2014-252.aspx>
Utility Week 19th Feb 2014 <http://www.utilityweek.co.uk/news/edf-agrees-nuclear-life-extension-deal-with-doosan-babcock/979782>
4. Hartlepool Mail 19th Feb 2014 <http://www.hartlepoolmail.co.uk/news/north-east/nuclear-deal-safeguards-1-000-jobs-1-6448736> and BBC 19th Feb 2014 <http://www.bbc.co.uk/news/uk-scotland-glasgow-west-26256193>



5. Old Reactors

Greenpeace activists across Europe have been highlighting the risk of ageing nuclear reactors. In Belgium, Switzerland, Sweden, Spain, France and the Netherlands, where extending the lives of old reactors has become an issue, activists took action at the start of March. Greenpeace says Europe can't rely on old reactors to deliver the carbon reductions needed to save the climate and a single greenhouse gas reduction-target for 2030 is therefore out of the question. We need three binding European and national targets of 45% renewables, 55% carbon emissions cuts and 40% energy efficiency by 2030. (1)

The Greenpeace actions coincided with the release of a report commissioned by the group on the *"Lifetime extension of ageing nuclear power plants: Entering a new era of risk"*. (2) The report focussed on Boiling Water Reactors (BWRs) and Pressurised Water Reactors (PWRs), but pointed out that five UK reactors make it to the top 25 oldest reactors in Europe: Wylfa 1 at 43 years old is the second oldest; Hinkley Point B2 and Hunterston B1 are both 38 years old; Hinkley Point B1 is 37 years old and Hunterston B2 is 36 years old.

Out of 151 operational nuclear reactors in Europe (excluding Russia), 66 are more than 30 years old and 25 more than 35 years. Seven of them are even older than 40 years. (3) That means 44% of European nuclear reactors are over 30 years old - the average age across Europe is now 29, while a typical design lifetime is 30 or 40 years. It raises the prospect of a new era of nuclear risk across Europe – unless governments resist calls for reactors to be operated beyond their intended lifetimes.

In spite of upgrades and repairs, the overall condition of nuclear reactors deteriorates in the long term. The likelihood of an accident and the amount of potential complications increases. Nuclear reactors contain components that cannot be replaced, including the reactor pressure vessel and the containment, whose condition deteriorates over time. While replacement of old components may reduce some risks, it also introduces new ones: for example, in some cases large components are replaced by breaking through the reactor's containment, as a result of which the strength of this vital protective structure is inevitably impaired.

In the event of a serious accident involving one or more nuclear reactors, the current European nuclear liability coverage is – depending on country – too low by a factor of between 100 and 1,000 to cover the likely costs. At the same time, the likelihood of a serious accident happening in Europe continues to increase as the reactor fleet grows older. The increasing risk posed by the ageing of nuclear reactors should be reflected in an increase in insurance premiums to cover the costs of a possible nuclear accident. Countries should only opt for reactor lifetime extension if the provision to compensate victims, of any accident, is substantially improved.

The public has the right under the Aarhus and Espoo Conventions to be consulted on political and corporate plans that include lifetime extension of ageing nuclear reactors. Involvement of the public and independent media can improve the quality of regulatory oversight of ageing reactors.

1. Greenpeace 5th March 2014 <http://www.greenpeace.org/international/en/news/Blogs/nuclear-reaction/ageing-nuclear-reactors/blog/48405/>
2. Lifetime extension of ageing nuclear power plants: Entering a new era of risk, Greenpeace March 2014 <http://out-of-age.eu/wp-content/uploads/2014/02/Lifetime-extension-of-ageing-nuclear-power-plants-Entering-a-new-era-of-risk2.pdf>
3. Briefing on Lifetime extension of ageing nuclear power plants: Entering a new era of risk, Greenpeace March 2014 http://out-of-age.eu/wp-content/uploads/2014/02/20140228_Briefing_Ageing_english.pdf



6. Is the EPR a busted flush?

Construction of the first Areva-designed EPR reactor began in 2005 at Olkiluoto in Finland. It was originally scheduled for completion in 2009. Reports now suggest the start-up of the reactor could be delayed until 2018. The Finnish company buying the reactor - TVO – says it is still waiting for supplier Areva-Siemens to update its work schedule following a reduction of 400 workers at the site this year. Areva Finland says it cut staff to focus its efforts on the most critical tasks, but TVO said more could be done.

Asked about the risk to Areva's reputation of a conflict with a client, Areva says the two EPRs being built in Taishan, China were on budget and on schedule. But a fourth EPR being built in France, now 57 percent complete, has also been haunted by multi-year delays and billion-euro cost overruns. (1)

The EPR nuclear reactor is a busted flush, says David Toke, Reader in Energy Politics in the Department of Politics and International Relations in the University of Aberdeen, and the taxpayer will pay a huge price. If the British scheme experiences similar delays to France and Finland, then the British taxpayer is bound to pick up the tab, over and above the already high price that we will be paying for the plant's construction. (2)

According to Le Monde, EDF and Areva now want to overhaul the EPR design to make it more competitive and exportable. (3)

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1. Reuters 28th Feb 2014 <http://www.reuters.com/article/2014/02/28/tvo-olkiluoto-idUSL6N0LX3XQ20140228?rpc=401&feedType=RSS&feedName=rbssIndustryMaterialsUtilitiesNews&rpc=401>
 2. Ecologist 4th March 2014 http://www.theecologist.org/blogs_and_comments/commentators/2306876/uk_taxpayer_will_be_liable_for_hinkley_c_billions.html
 3. Le Monde 1st March 2014 http://www.lemonde.fr/economie/article/2014/03/01/edf-et-areva-veulent-rendre-l-epr-enfin-exportable_4375969_3234.html



7. Geological Disposal Facility Siting Process Review

In June 2008 the Government published a White Paper on “*A Framework for Implementing Geological Disposal*” (1) which set out an approach to the siting of a geological disposal facility (GDF) for radioactive waste based on voluntarism and partnership.

The only Councils to formally engage with the Government on this were the District Councils of Copeland and Allerdale in association with the waste management authority Cumbria County Council. But, in January 2013, after a thorough consideration of the issues, the Cabinet of Cumbria County Council decided not to go ahead with the next stage to begin a search for a site for a Geological Disposal Facility (GDF).

The process had failed, partly because of the intractability of the nuclear waste problem, but also because of the Government’s refusal to accept most of the recommendations of its own advisory committee – the Committee on Radioactive Waste Management (CoRWM). (2)

DECC launched a new consultation in September 2013 on how to take forward the MRWS policy. (3) This was seen by many as a thinly disguised attempt to change the rules so a new site selection process could start in West Cumbria despite opposition from the County Council. The former Conservative Leader of Cumbria County Council Eddie Martin called the proposed changes laid out in DECC’s new consultation “*astonishingly undemocratic*”.

A new White Paper is expected to result from this process, but its publication has now been delayed until around September 2014. Meanwhile DECC has published the responses to its consultation (4) along with a summary of responses. (5)

Of the 719 responses DECC received – from councils, individuals and other interested parties around the country including a high number from Cumbria – more than 50% disagreed with new proposals that would see a district authority, such as Copeland or Allerdale, take the decision-making power away from the county. Copeland and Allerdale Councils say they “broadly support” this revised approach, albeit with countywide consultation, while Cumbria County Council and Cumbria Association of Local Councils (CALC) are among those who give the view that the county should have the overriding decision. (6)

Cumbria Trust (CT), whose membership includes many of those involved in the opposition campaign against a search for a site for a geological disposal facility in Cumbria, says it is very pleased, but not at all surprised, that the majority of respondents have rejected the exclusion of County Councils from the process. Most people clearly regarded the proposal as a form of gerrymandering by DECC to get the result they want and that given the magnitude of what is involved County Council’s must play a lead role. (7)

CT says the Government should start again by commissioning an independent report on the UK’s suitable geology for a geological disposal facility as well as giving serious consideration to better interim storage namely a proper near surface store for high level waste at Sellafield to facilitate decommissioning where waste can be monitored in the short to medium term and



retrieved for ultimate disposal. No sensible community will volunteer for a geological disposal facility without knowing its geology is safe.

There is strong public opposition to the notion of giving district councils the final say on whether to go ahead with the search for a dump site. Cumbria County Council leader Stewart Young said he fears DECC may still have its sights set on Cumbria as a possible home for the dump – despite last year’s decision to end the search. He said: *“The whole thing is deeply, deeply, flawed. They just don’t seem to be listening. It’s perverse to suggest that the county council should have no say in the decision-making process. Cumbria said no last January, and as far as we are concerned the reasons why we said no are still there”*. (8)

Meanwhile, the Radioactive Waste Management Directorate (RWMD) of the Nuclear Decommissioning Authority (NDA) has announced that Professor Bruce Yardley has been appointed to the new role of Chief Geologist. Professor Yardley will provide advice to RWMD and its stakeholders on all Earth science aspects of geological disposal and will work for RWMD on a part-time basis whilst continuing with his role as a professor in the School of Earth and Environment at the University of Leeds. (9)

Professor Bruce Yardley gave evidence to a select committee of Cumbrian MPs, a month before the vote at which Cumbria County Council decided to pull out of the Managing Radioactive Waste Safely process. In his evidence he said he agreed with Professor Stuart Haszeldine that there could be better sites than Cumbria found in the UK for a repository, but he is from the school of thought that believes the challenge is to design the repository with engineered barriers to suit the geology in question. (10)

Bruce Yardley went on to write a rather insulting piece about Professors David Smythe and Stuart Haszeldine for the Soapbox column of *Geoscientist*, the house magazine of the Geological Society of London in which he claimed the Professors were mere campaigners and not proper scientists. A response was published in December 2013 in the same magazine. (11) David Smythe has supplementary arguments on his website. (12)

Cumbria Trust says to his credit, Professor Yardley has publicly acknowledged that West Cumbria’s geology is less suitable than large areas of flat-lying Eastern England, but he views the current condition of the Sellafield site as so precarious and vulnerable to terrorist attack, that it would be better to bury the waste almost anywhere than leave it for longer on the surface. This logic has been used to suggest that the delay required to conduct a proper national geological survey, and seeking volunteers from an area with suitable geology, is outweighed by the risk of leaving the waste on the surface for an extra 10-15 years. Conducting a national geological survey and seeking volunteers from geologically prospective areas could delay the completion of a repository from the current target of 2040, until perhaps 2050-55. This could delay the emplacement of some Low and Intermediate Level Waste by 10-15 years. However it would have no effect at all on the emplacement of any of the most dangerous High Level Wastes which seem to concern Professor Yardley. The GDF would still be complete with 20-25 years to spare for that purpose, and more than 80 years before plutonium and uranium emplacement can begin. (13)



1. Managing Radioactive Waste Safely: A Framework for Implementing Geological Disposal, DEFRA etc June 2008 <http://www.officialdocuments.gov.uk/document/cm73/7386/7386.pdf>
2. Review of the Siting Process for a Geological Disposal Facility – Advice note to NFLA Member Authorities in Responding to the Consultation, NFLA October 2013
http://www.nuclearpolicy.info/docs/radwaste/Rad_Waste_Brfg_43_MRWS_Siting_Consultation.pdf See also Climate News Network 13th Feb 2014 <http://www.climate-news-network.net/2014/02/nuclear-waste-gets-expensive/>
3. Review of the Siting Process for a Geological Disposal Facility, DECC, September 2013
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239237/Consultation_Review_of_the_siting_process_for_a_GDF_FINAL.pdf
4. DECC 27th Feb 2014 <https://www.gov.uk/government/consultations/geological-disposal-facility-siting-process-review>
5. Review of the Siting Process for a Geological Disposal Facility: Summary of Responses, DECC 27th Feb 2014 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/285444/2014-02-07_Summary___Consultation_on_Review_of_the_Siting_Process_for_a_Geological_Disposal_Facility_-_Final.pdf
6. Whitehaven News 6th March 2014 <http://www.whitehavennews.co.uk/news/let-county-councils-have-a-say-on-burying-n-waste-decc-told-1.1121010>
7. Cumbria Trust 8th March 2014 <http://cumbriatrust.wordpress.com/2014/03/08/the-decc-consultation-responses/>
8. Carlisle News and Star 11th March 2014 <http://www.newsandstar.co.uk/news/underground-nuclear-store-debate-reignited-1.1122037>
9. NDA 28th Feb 2014 <http://www.nda.gov.uk/stakeholders/newsletter/chief-geologist.cfm>
10. Fact-finding session on Geological Disposal Facility by Cumbria MPs 10th January 2013
<http://www.westcumbriamrws.org.uk/images/Cumbrian%20MP%20Fact%20finding%20session%20with%20experts%20-%20note%20of%20session%2010%20January%202013.pdf>
11. Fallout over Radwaste, Smythe and Haszeldine, Geoscientist, December 2013/ January 2014
<http://www.davidmysmythe.org/nuclear/Haszeldine%20&%20Smythe%20response%20to%20Yardley%20Geoscientist%20Dec2013.pdf>
12. David Smythe (accessed) 1st March 2014
<http://www.davidmysmythe.org/nuclear/bruce%20yardley.html>
13. Cumbria Trust 4th March 2014 <http://cumbriatrust.wordpress.com/2014/03/04/nda-appoints-professor-bruce-yardley-as-chief-geologist-of-rwmd/>



8. Justifying the Unjustifiable – again

The Government has launched a consultation to seek responses to an application submitted by the Nuclear Industry Association (NIA) for a regulatory justification decision in relation to the Advanced Boiling Water Reactor (ABWR). The consultation runs until 25th May 2014 (1)

Under European Union regulations, companies hoping to build a nuclear facility must show the benefits outweigh the potential health risks – this is known as the Justification Process. In March 2008 the Government issued Guidance for applications for a justification decision for new nuclear reactor designs. (2) Nuclear companies were invited to put forward new reactor designs by June 2008 for a justification decision. An application was made by NIA in June 2008 on behalf of those energy utilities interested in developing new reactor designs relating to four new reactor designs: the EPR, AP1000, the Advanced CANDU Reactor (ACR) and the Economic Simplified Boiling Water Reactor (ESBWR).

In December 2008 DECC published a consultation document (3) and the NIA application. (4) The consultation closed on 25th March 2009.

Almost a year later, between November 2009 and February 2010 the Government held another consultation on the Secretary of State's proposed decision, but this time it was restricted to the AP1000 and EPR. (5) The Justification draft decision documents pointed out that the Government's Committee on the Medical Aspects of Radiation in the Environment (COMARE) was undertaking a further review of the incidence of childhood cancer around nuclear power stations, with particular reference to the KiKK study in Germany, but this wasn't expected to be published until after the consultation had closed.

The Nuclear Free Local Authorities published a briefing on responding to the Justification consultation in December 2009. (6) NuClear News No.16 looked at some of the highlights from submissions to the consultation. (7)

Despite a strong push for a public inquiry the Secretary of State, Chris Huhne, published his decisions as Justifying Authority on 18 October 2010, (8) which agreed that two nuclear reactor designs, Westinghouse's AP1000 and Areva's EPR, would be Justified - that is, that their benefits outweigh any radiological health detriment they may cause.

The ABWR is the reactor type which Hitachi and Horizon proposes to build and operate at Wylfa on Anglesey and Oldbury in Gloucestershire. With the ABWR Justification Process the Government is again proposing a two stage process. There will be a second consultation on a draft regulatory justification decision by the Secretary of State as Justifying Authority. This is expected to take place, along with public engagement events, between July and October this year. If the benefits of operating ABWRs reactors is found to outweigh the health detriments i.e. be Justified, then the Secretary of State (the Justifying Authority) will make a regulatory justification decision in the form of secondary legislation (a Statutory Instrument) between January and March 2015. Clearly any slippage in the timetable could mean a decision being delayed until after the General Election.



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2. The Justification of Practices involving Ionising Radiation Regulations 2004: Guidance for applications relating to new nuclear power, BERR, March 2008.
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5. Consultation on Proposed Regulatory Justification Decision on New Nuclear Power Stations (AP1000 and EPR)
http://webarchive.nationalarchives.gov.uk/20121217150421/http://www.decc.gov.uk/en/content/cms/consultations/reg_just_cons/reg_just_cons.aspx
6. UK Government's 'Justification' draft decision on new nuclear power stations – responding to the official consultation, NFLA, December 2009,
<http://www.nuclearpolicy.info/docs/nuclearmonitor/NewNuclearMonitorNo18.pdf>
7. Nuclear News No. 16 <http://www.no2nuclearpower.org.uk/nuclearnews/NuClearNewsNo16.pdf>
8. See <https://www.gov.uk/guidance-for-operators-of-new-nuclear-power-stations>



9. It's Scotland's Heat!

In August last year the Scottish Government published a study which showed that as much as a third of the heat needed to keep Scotland warm could be provided by tapping geothermal energy from old coal mines across the central belt. (1) Warm water piped up from abandoned mine shafts between Glasgow and Edinburgh and in Ayrshire and Fife could help heat many thousands of homes and other buildings for decades. The report urged Scottish ministers to embark on an ambitious attempt to make geothermal energy a major new source of clean, renewable power within a few years starting with the development of a national geothermal energy strategy. and two major new "demonstrator" projects, at the Clyde Gateway in eastern Glasgow and at Shawfair just outside Edinburgh, by 2016. It points out that two small geothermal schemes in Scotland that tap the warmth of mine water have been running since 2000. One is at Shettleston in Glasgow and the other at Lumphinnans in Fife, each serving fewer than 20 homes. (2)

Now a new study from engineers at Glasgow University has calculated that there is roughly twice the amount of untapped thermal energy in hot rocks deep underground as there is in abandoned mine workings nearer the surface, which means Scotland has enough geothermal energy to provide green heat for almost the entire country. (3)

The Scottish Government has now published its Draft Heat Generation Policy Statement for consultation. (4) New initiatives in the Draft Plan include: new work on exploiting Scotland's geothermal energy. The Government says it will support the development of a geothermal industry initially through developing a call for a geothermal heat or heat and power demonstration projects. There is also a plan to produce a national heat map, and a target for 40,000 more homes to benefit from district heating as part of a target of 1.5TWh of heat delivered by district heating by 2020 to both domestic and non-domestic properties. Funding for the District Heating Loans Fund will be increased by over £4 million, making a total of £8 million available over the two years 2014 to 2016.

Commenting on the extra £4m for district heating Tim Rotheray, Director of the Combined Heat and Power Association said: "*District heating is one of the most cost effective methods for tackling fuel poverty, making it an important tool to help the nearly one-third of Scottish households classed as 'fuel-poor'. These ambitious targets will be vital for attracting the additional investment needed to benefit the thousands of families across Scotland that struggle to pay their heating bills.*" (5)

The Scottish Greens reiterated their call for more national and local investment in district heating schemes – a mature technology used far more widely to heat communities in other European countries. Speaking in a debate at Holyrood, Lothian MSP Alison Johnstone highlighted the success of the Combined Heat and Power schemes at the University of Edinburgh, and the potential of large development sites such as at Fountainbridge for new, future-proof schemes. Alison Johnstone, Green MSP for Lothian said: "*In decades to come, we'll think it was incredible that a housing development of 70 flats had seventy boilers. Efficient district heating technologies are ready to be rolled out in Scotland, but we need to see more ambition from councils to make this happen.*" (6)



WWF Scotland, Energy Action Scotland and others welcomed the draft heat generation policy statement (HGPS). Heating Scotland's buildings and hot water currently accounts for more than half our total energy demand and nearly half our CO2 emissions. However, today only around 3 per cent of our heating comes from renewables. With rising energy prices and 27 per cent of households in Scotland estimated to be in fuel poverty, the need for cost-effective and cleaner means of heating our homes is an even greater priority. The draft HGPS is an opportunity to kick-start a surge in renewable heat in order to reduce dependence on volatile international oil and gas markets, insulate homes from fuel poverty and stimulate a new industry.

The groups called for the final document is to flesh out the framework with a robust package of regulation and support that builds investor and consumer confidence in already proven technologies. It is clear from the Scottish Government's own analysis that strong policy signals and political leadership are required to support households and businesses to make the transition to low carbon heating. (7)

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1. Study into the potential for deep geothermal energy in Scotland, Scottish Government, August 2013 <http://www.scotland.gov.uk/Resource/0043/00437977.pdf>
 2. Herald 17th Nov 2013 <http://www.heraldscotland.com/news/home-news/water-from-coal-mines-could-heat-our-homes.22719673>
 3. Times 20th Feb 2014 <http://www.thetimes.co.uk/tto/business/industries/naturalresources/article4010595.ece>
 4. Towards Decarbonising Heat: Maximising the Opportunities for Scotland: Draft Heat Generation Policy Statement for Consultation, March 2014 <http://www.scotland.gov.uk/Resource/0044/00445639.pdf>
 5. CHPA 6th March 2014 http://www.chpa.co.uk/scottish-government---105-million-to-support-heat-generation_2077.html
 6. Scottish Green Party 6th March 2014 <http://www.scottishgreens.org.uk/uncategorized/district-heating-can-help-fund-public-services/>
 7. Scotsman 7th March 2014 <http://www.scotsman.com/news/opinion/letters/turn-up-the-heat-1-3331653>



10. Sellafield Consultation – Shutting THORP in 2018

The Government has launched a consultation on proposals to allow the Nuclear Decommissioning Authority (NDA) to manage by means of interim storage and disposal any small quantities of overseas origin oxide fuels that are either not economic to reprocess or cannot be reprocessed in THORP before it closes in 2018. This approach would permit the NDA to close out the remaining overseas contracts in a cost-effective and timely way, providing more certainty over the future plans for THORP and for the future decommissioning of the Dounreay licensed site. (1)

This consultation concerns overseas origin spent fuel sent to Britain for reprocessing at Sellafield in THORP, or for processing at Dounreay under commercial contracts, with either BNFL or the UKAEA. All of the original contracts date back to the 1970s and 1980s. Since these contracts were signed, the international nuclear landscape has changed considerably and, with the passage of time, the required facilities have either closed or, without significant infrastructure investment, will soon reach the end of their useable life.

The proposal only applies to a limited number of cases where the NDA would like to manage relatively small quantities spent fuel which has not yet been reprocessed by means of interim storage pending disposal, taking ownership of the fuels where necessary. This option would be used where the option of reprocessing is no longer available, practical or economic to deploy.

To ensure that the UK does not become a net importer of nuclear waste as a consequence of this, rather than physical reprocessing the NDA will enact “virtual reprocessing”. With “virtual reprocessing” the NDA proposes that a radiologically equivalent amount of waste will be allocated and then returned to the customer as if the fuel has been reprocessed.

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. It expects to be able to reprocess the great majority of the remaining 300 tonnes of overseas origin spent fuel as originally intended. However, a residual 30 tonnes of this fuel (out of the original 5000 tonnes overseas order book) is made up of small amounts of prototype fuels, experimental fuels, MOX fuels and some materials leftover from research programmes to substantiate the in-reactor performance of irradiated fuels, which would be challenging to deal with, through reprocessing, before the planned closure of THORP in 2018.

The 30 tonnes of residual fuel also includes roughly two tonnes of overseas-origin fuel currently held at Dounreay which will be transferred to Sellafield for future management, alongside similar UK-owned materials, in line with NDA’s published strategy for Exotics fuels. In the main, the spent fuels in question have already been ‘Advance Allocated’ meaning that the NDA already owns them having previously swapped, with the customer, an equivalent amount of products (uranium and plutonium) and wastes with that contained in the spent fuel.



In 1996 when the dissolver in the plutonium reprocessing plant at Dounreay failed there were 2.1 tonnes of overseas “customer material” remaining at Dounreay from sixteen outstanding overseas contracts for spent fuels and nuclear materials management. With Government approval a series of ‘Advanced Allocation’ arrangements were put in place for thirteen of the sixteen outstanding contracts, with the UK taking title to 1.6 tonnes of spent fuel and nuclear materials. Intriguingly this means three of the sixteen contracts, comprising ~0.46 tonnes, remain unsettled. The customers for these contracts were not prepared to close out the contracts on an advanced allocation basis.

If the Government can sanction “virtual reprocessing” for 30 tonnes of residual spent so that THORP can shut in 2013, it begs the question why can’t the same be done now for the remaining 300 tonnes of overseas fuel and any remaining AGR spent fuel which is still slated for reprocessing so that THORP can shut now.

Sellafield has been under the microscope recently as the House of Commons Public Accounts Committee, the National Audit Office and KPMG have all investigated the performance of NDA and Nuclear Management Partners. Performance has been found to be woefully lacking which is bad news for the UK taxpayer. Some 60% of the NDA’s entire UK budget is being lavished on Sellafield where clean-up costs are put at £70bn and rising.

However, whilst this clean-up and decommissioning work continues to catch the media’s eye, it inadvertently obscures the equally important flip-side of the NDA/NMP’s portfolio - the site’s commercial operations of reprocessing. Whilst reprocessing continues to be sanctioned today - largely because of the (declining) revenue it provides to help offset spiralling clean-up costs - the Magnox and THORP plant continue to churn out yet more unwanted plutonium, create unnecessary additional volumes of higher activity nuclear waste and further pollute the environment through their radioactive discharges. For financial year 2013/14, the NDA projected revenue of £633M from these operations against a combined expenditure (operations and capital) of £972M. (2)

Yet, strangely, these commercial operations remain largely unchallenged. Evidence by Cumbrians Opposed to a Radioactive Environment to the Public Accounts Committee highlights how, over the last decade, operational targets have been missed and the record has been getting worse since the NDA took ownership of Sellafield in 2005.

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1. DECC 3rd March 2014 <https://www.gov.uk/government/consultations/management-of-overseas-origin-nuclear-fuels-held-in-the-uk>
 2. CORE 22nd Feb 2014 <http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=335> CORE’s submission to PAC ‘Commercial Operations at Sellafield -Underperformance and Missed Targets’ (which also includes Appendices on the individual facilities) can be accessed at <http://www.no2nuclearpower.org.uk/wp/wp-content/uploads/2014/02/Commercial-Operations-at-Sellafield.pdf>



11. The Russians might still be coming.

In August last year it was reported that Russian state nuclear company Rosatom was considering selling reactors in Britain and might apply for a UK reactor licence through the Generic Design Assessment process. Jukka Laaksonen, a former Finnish regulator and now a vice president in Rosatom's export branch, said in June 2013 that the Russian firm would offer a new design to the UK market. He said Rosatom was unlikely to apply before 2015 for a license from British regulators - an expensive process that takes about four years to complete. He could be thinking of the VVER 1200 reactor-type. Rosatom is building four VVER 1200 at the Turkish Akkuyu nuclear plant for an estimated total of \$20 billion. (1)

Later in August Rosatom announced it was teaming up with Finnish utility Fortum and UK-based Rolls-Royce to explore opportunities for the construction and operation of VVER nuclear power plants in the UK. The companies will work together preparing to submit the VVER reactor design to the Office for Nuclear Regulation for a generic design assessment. The UK government and Rosatom have also signed a Memorandum of Understanding to facilitate this commercial work. (2)

Now, despite the developing situation in the Crimea, Hergen Haye, head of new nuclear development at the Department of Energy and Climate Change (DECC), has told students at Edinburgh University that active discussions with Rosatom are ongoing. *"I can tell you that, behind closed doors and with microphones switched off, there are interesting debates happening in Whitehall,"* he said. *"Russia wants to build a nuclear power station in the UK."*

Haye chairs a UK-Russian working group on nuclear power, and was in Russia recently for discussions. Haye regards the Russian VVER reactor proposed for the UK as "perfectly safe", but he cautioned that there would be problems convincing the public that a deal with Russia was acceptable, especially given the current crisis in the Crimea. *"It's a long road, a very long road,"* he said. (3)

Rosatom's reactor design is unlikely to be considered by the Office of Nuclear Regulation before 2017. There is still work to be done on the AP1000 which Toshiba wants to build at Sellafield, and the Hitachi ABWR has also started its assessment for possible construction at Wylfa and Oldbury. But approval by the British regulator would be an invaluable boost to Rosatom. It claims to have orders to build more than 12 reactors outside Russia and is in talks to build in the Czech Republic, Finland, Jordan and Bangladesh. Two Chinese groups have teamed up with EDF Energy to build a reactor at Hinkley Point, Somerset. In return for providing much of the investment, the Chinese want to build their own reactors at Bradwell, Essex. That leaves sites at Hartlepool and Heysham as possible sites for Russian reactors.

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1. Reuters 13th Aug 2013 <http://www.reuters.com/article/2013/08/13/nuclear-russia-britain-idUSL6N0GD2DZ20130813>
 2. Modern Power Systems 8th Sept 2013 <http://www.modernpowersystems.com/news/newsrosatom-announces-collaboration-in-uk-nuclear-new-build>



3. **Guardian 11th March 2014** <http://www.theguardian.com/environment/2014/mar/11/russian-nuclear-firm-build-power-station-uk> and **Rob Edwards 11th March 2014** <http://www.robedwards.com/2014/03/whitehall-considering-russian-nuclear-deal-says-government-official.html>
4. **Times 27th Feb 2014** <http://www.thetimes.co.uk/tto/business/industries/utilities/article4017286.ece>



12. Nuclear Liability

The private consortium that will manage the decommissioning of Britain's ageing Magnox nuclear reactors will not be held financially liable if they suffer a major radioactive incident – even if it costs billions of pounds to clear up. The government will indemnify the private contractors, which means the taxpayer will be left to foot the bill for any leak, a similar arrangement to how things stand now. Critics complain that granting the multimillion-pound contract to a private consortium while freeing it of liability for a nuclear incident is such a poor deal for the taxpayer that it will render its new management unaccountable. The government has rejected this claim. (1)

Labour MP, Paul Flynn says "*Nuclear installations are uninsurable in normal commercial terms. Only gullible governments can bear the enormous risk. If operators paid for their own insurance indemnities, their case for economic production of nuclear electricity collapses.*"

He dismissed government comments downplaying the risk. He says if the risk really is minimal then why can't nuclear sites be insured commercially? Flynn claimed the indemnification for Magnox decommissioning exposes the public purse to potentially enormous costs as witnessed following Japan's catastrophe at Fukushima. "*The cost of the Fukushima cleanup and damages ranges from £150 billion to £300 billion and rising.*" (2)

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1. Observer 23rd Feb 2014 <http://www.theguardian.com/environment/2014/feb/23/nuclear-leaks-bill-paid-taxpayer>
 2. Utility Week 25th Feb 2014 <https://sites.google.com/site/nonukesorguk/news/gullible-governments>