nuClear news

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1. Desperate UK uses bullying tactics to save increasingly moribund Hinkley.

David Cameron has threatened to retaliate over Austria's plans to mount a legal challenge to the Hinkley Point nuclear project, according to a document written by Vienna's ambassador to London. Britain's concerns are highlighted in Mr Eichtinger's account of a meeting with Vijay Rangarajan, a senior official at the Foreign Office. According to the letter, the UK has said that it could retaliate in several ways, with officials working on a "systematic creation of countermeasures" against the country. (1)

Austria confirmed that it would launch a legal challenge against the European Union's (EU) decision to allow billions of pounds of subsidies for Hinkley on 21st January. (2) The Green Party said this challenge could deal a fatal blow to the project. "*I think that this* [Austrian] *court case is certainly going to delay the signing and also the construction of Hinkley*," said Molly Scott Cato, the Green Party MEP for the South West region, which includes Hinkley. "*As one of the government's main arguments for Hinkley was that it would solve the 'energy gap' before renewables could be brought on-stream, it is a fatal blow to Hinkley as part of a future energy strategy for the UK*." (3)

The UK could retaliate by mounting a legal challenge to Austria's electricity (source) labelling on the basis that this breaches common market rules. It could also apply pressure on Austria to shoulder a higher burden in EU "*internal effort-sharing*" in the bloc's transition to a low-carbon economy. Britain could also begin an investigation into whether Austria's suit violated the Euratom treaty on nuclear power.

Doug Parr, chief scientist at Greenpeace, criticised the government for bullying the Austrians for daring to question the "*huge and wasteful energy project*", which would raise bills for British consumers. Thankfully the Austrian Government has said it won't be intimidated by threats. (4)

A spokeswoman for Mr Cameron said he believed that Britain had the right to choose its own energy mix. The UK government said it had no reason to believe that Austria was preparing a legal case that had any merit. (5) On the other hand Dr Dörte Fouquet, a lawyer for the Brussels-based law firm Becker Büttner, which specialises in energy and competition law, said she thought that Austria's chances of success were "*pretty high*." (6) And as the Nuclear Free Local Authorities pointed out in letters to the *Guardian* and *Independent* if Hinkley Point goes ahead, with a £17 billion state aid package between the UK Government and EDF Energy, it could see other EU states like the Czech Republic, Poland and Slovakia - all close to Austria - seek to replicate such contractual operations for their own new nuclear ambitions.

It is important to note in 2006 the then Chancellor Alasdair Darling said it will be up to the private sector to "initiate, fund, construct and operate" the nuclear plants. And the UK Coalition Agreement between the Tories and Liberal Democrats allowed the Government to promote the construction of new nuclear reactors provided they receive "*no public subsidy*".

Councillor Mark Hackett for the NFLA says the UK Government's churlish response is mainly due to it knowing that the writing is on the wall - Hinkley Point will be subject to another long delay, and this makes it ever less likely to be built. Austria should be commended for bringing us

to our senses and forcing us to see the necessity of a quite different low carbon strategy; where renewables, energy efficiency and decentralised energy can become the norm.

Investment Decision Delayed or Not? That is the Question

The Times reported on 7th February (7) that an investment decision would be delayed until several months after the general election because the project's Chinese backers have demanded that the French government protect them if it goes bust. The Chinese were reported to have serious concerns about the EPR reactor design and are refusing to invest unless the French government promises to bail out Areva, if necessary, and cover their share of any cost overruns.

Complex negotiations involving British ministers, their opposite numbers in Paris, EDF Energy and the Chinese have been complicated still further by the legal challenge brought by Austria against Hinkley Point. Now EDF Energy is seeking assurances from the UK Government that if Austria wins the case and the project has to be abandoned halfway through, the company will receive compensation for the money invested up to that point.

At first, according to the Burnham-on-sea.com website EDF Energy denied reports that an investment decision would be delayed until the Autumn. And the Stop Hinkley Campaign pointed out that if EDF Energy or the Chinese demanded any new financial guarantees these would require approval from the European Competition Commissioner. (8)

Just two days later, *The Telegraph* reported that EDF Energy appears to have abandoned its March 2015 deadline for making an investment decision and has warned that talks on the project may still take a "considerable" time. EDF described finalising agreement on Hinkley as a "major challenge" facing the company in 2015. EDF said that before it could take a decision it needed to sign deals with co-investors, gain European Commission and UK government approval of waste transfer contract arrangements, finalise a £10 billion loan guarantee from the Treasury and finalise a subsidy contract that was provisionally agreed with the UK Government in 2013. (9)

Earlier the *Financial Times* (FT).reported that several potential investors have backed away from the project despite the promise of a 35-year index-linked price guarantee backed by the UK taxpayer. (10) The Kuwaitis, the Qataris, the Saudi Electric Company and even Hermes, the UK based investment fund — have all been mentioned as possible investors but none has signed up. On top of all this Areva, the French, mainly State-owned company which would be the main equipment supplier, will have difficulty funding its expected 10 per cent share of the project. Areva is struggling to survive the ongoing mess of the Olkiluoto nuclear plant in Finland, which is years behind schedule and billions over budget. Areva's losses in Finland are currently estimated at €3.9bn. The loss of Areva's share of Nuclear Management Partners Consortium's contract to decommission the Sellafield will not have helped.

Areva's share price has collapsed. It ended its market year with a decline of 52% as a result of financial difficulties caused by mismanagement, hazardous speculations and acquisitions, repeated technical fiascos (i.e. the EPRs in Finland and Flamanville), the regression of global nuclear market, and especially the cessation of the Japanese market since the Fukushima nuclear disaster. (11)

One of the main reasons for this reluctance to invest is the deep uncertainty which now exists in the nuclear industry about the EPR reactors — the type that would be used at Hinkley. Cambridge nuclear engineer, Tony Roulstone, recently described the EPR as 'unconstructable'. He said Areva is no longer actively selling power stations of this type. (12)

The House of Commons Public Accounts Committee has abandoned plans to scrutinise the Hinkley deal because an agreement over state support would probably not be struck before the general election in May. The committee had intended to carry out an inquiry in the next few months, but the National Audit Office has said that it looks increasingly unlikely that anything will be agreed before the election. (13)

The National Audit Office has expressed concern that the UK guarantee scheme which was introduced in 2012 to encourage lending to projects which had stalled during the financial crisis. A total of £34bn is expected to be invested in 46 projects, of which half could go to Hinkley. The National Audit Office (NAO) says the scheme will cost taxpayers an extra £35m-£120m a year — depending on whether Hinkley Point C is included —compared with direct lending by government. (14)

Re-examining the Deal?

Tom Greatrex, shadow energy minister, said, last November, that he wants the NAO to scrutinise the 35-year subsidy deal to ensure that it represents value for money. (15) However, the Secretary of State for Energy and Climate Change, Ed Davey, made clear to the House of Commons Energy and Climate Change Committee that it is usual practise for the NAO to audit this type of agreement AFTER it has been signed. So if the NAO expresses any kind of concern about the deal it will be too late to do anything about it. (16)

Chinese Investment

Meanwhile, the government is refusing to say whether it has followed its own rules in allowing the Chinese to invest in Hinkley, citing questions of national security. Chinese involvement in UK energy schemes remains controversial, not least because of the historical links between its industry and the military. The National Security Council is supposed to review critical projects. But ministers have consistently refused to say whether this has been the case. The BBC requested information, under Freedom of Information laws, about whether the National Security Council had discussed China's investment in Hinkley and if it had, whether it had been approved. In a delayed response, the government confirmed the information was held by the Cabinet Office but refused to say whether the NSC had approved or even discussed China's expected 30-40% stake. The Labour MP Dr Alan Whitehead, a member of the Energy and Climate Change Committee, said the government's refusal to say whether it had followed its own rules was "not acceptable". (17)

1. FT 11th February 2015 http://www.ft.com/cms/s/0/905342fa-b214-11e4-80af-00144feab7de.html
2. Guardian 21st Jan 2015 http://www.theguardian.com/environment/2015/jan/21/austria-to-launch-lawsuit-hinkley-point-c-nuclear-subsidies
3. Guardian 22nd Jan 2015 http://www.theguardian.com/environment/2015/jan/22/uk-nuclear-ambitions-dealt-fatal-blow-by-austrian-legal-challenge-say-greens

4. Bloomberg 12th Feb 2015 http://www.bloomberg.com/news/articles/2015-02-12/austria-says-it-won-t-be-intimidated-by-u-k-in-nuclear-dispute
5. FT 11th February 2015 http://www.ft.com/cms/s/0/905342fa-b214-11e4-80af-00144feab7de.html
6. Guardian 22nd Jan 2015 http://www.theguardian.com/environment/2015/jan/22/uk-nuclear-ambitions-dealt-fatal-blow-by-austrian-legal-challenge-say-greens
7. Times 7th Feb 2015 http://www.thetimes.co.uk/tto/business/industries/utilities/article4346816.ece
8. Burnham-on-sea.com 10th February 2015 http://www.burnham-on-sea.com/news/2015/hinkley-point-delay-10-02-15.php
9. Telegraph 12th February 2015 http://www.telegraph.co.uk/finance/newsbysector/energy/11407745/Hinkley-Point-new-nuclear-plant-faces-further-delays.html
10. FT 11th Jan 2015 http://blogs.ft.com/nick-butler/2015/01/11/new-nuclear-2015-is-the-critical-year/
11. Co-ordination Antinucleaire Sudest 1st Jan 2015 http://coordination-antinucleaire-sudest.net/2012/index.php?post/2015/01/01/Areva-s-effondre-financi%C3%A8rement
12. Carbon Commentary 22nd Oct 2014 http://www.carboncommentary.com/2014/10/22/cambridge-nuclear-engineer-casts-doubt-on-whether-hinkley-point-epr-nuclear-plant-can-be-constructed/
13. FT 28th Jan 2015 http://www.ft.com/cms/s/12dc82ea-a6df-11e4-9c4d-00144feab7de.html
14. FT 28th Jan 2015 http://www.ft.com/cms/s/0/ee92d278-a610-11e4-abe9-00144feab7de.html
15. FT 20th Nov 2015 http://www.ft.com/cms/s/0/41934cb8-70ca-11e4-9129-00144feabdc0.html
16. See Q57 & 58 here http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/energy-and-climate-change-committee/decc-annual-report-and-accounts-201314/oral/17713.pdf
17. BBC 15th Jan 2015 http://www.bbc.co.uk/news/uk-politics-30778427

2. Nuclear Subsidies

The Energy Fair group has examined (1) the findings by the Directorate General for Competition of the European Commission (EC) (2) that, with regard to the proposed new nuclear power plant at Hinkley Point, "the package of measures notified by the UK involves State aid which, as amended by the commitments provided, is compatible with the internal market. It concludes that some key arguments and conclusions in the commission document are false. And it appears that the errors in these arguments and conclusions arise largely from seriously deficient understandings of technical aspects of nuclear power and technical aspects of electricity supply systems.

The EC document's main focus is on the proposed "Contract for Difference" (CfD), "Credit Guarantee" (CG), and "Secretary of State Agreement" (SSA). But Hinkley Point C (HPC), if it were to be built, would benefit from several other subsidies, several of them large, and most of them not widely recognised.

Energy Fair estimates that if the cost of all these other subsidies were to be included the cost of electricity generate would be at least £196.50/MWh In fact, taking account of the costs arising from nuclear waste that will be dangerous for thousands of years, it is entirely possible that the true costs associated with any nuclear plant, including HPC, will be greater than the total value of the electricity that it may produce.

Energy Fair shows how renewables, including conservation of energy, are more than sufficient to meet our needs, and can do so better than nuclear power, and more cheaply.

1. Energy Fair 14th Feb 2015 https://b37c3a15-a-62cb3a1a-s-sites.googlegroups.com/site/nonukesorguk/home/HPC_nuclear_subsidies2a.pdf
2. See http://ec.europa.eu/competition/state_aid/cases/251157/251157_1615983_2292_4.pdf

3. Nuclear Power and Saving the Climate

Keith Barnham Emeritus Professor of Physics at Imperial College says claims that nuclear power is a 'low carbon' energy source fall apart under scrutiny. Far from coming in at six grams of CO_2 per unit of electricity for Hinkley C, as the Climate Change Committee believes, the true figure is probably well above 50 grams - breaching the CCC's recommended limit for new sources of power generation beyond 2030. (1) He says given the difficulties it is entirely possible that the planned Hinkley C reactor will not be completed until 2030 or beyond. It will then be subsidised for the first 35 years of its projected 60 year lifetime - taking us through until 2090.

In a recent paper in Energy Policy, Daniel Nugent and Benjamin Sovacool critically reviewed the published Life Cycle Analyses of renewable electricity generators. All the renewable technologies came in below the 50gCO_2/kWh limit. The lowest was large-scale hydropower with a carbon footprint one fifth of the CCC limit (10 gCO_2/kWh). A close second was biogas electricity from anaerobic digestion (11 gCO_2/kWh). The mean figure for wind energy is 34 gCO_2/kWh, and solar PV comes in a shade under the 50g limit, at 49.9 gCO_2/kWh. Bear in mind that rapidly evolving PV technology means that this last figure is constantly falling.

There have been nearly three hundred papers on the carbon footprint of nuclear power in scientific journals and reports in recent years. Two peer-reviewed papers have critically assessed the literature in the way Nugent and Sovacool compared renewable LCAs. The first was by Benjamin Sovacool himself. He reviewed 103 published LCA studies and filtered them down to 19, which had an acceptably rigorous scientific approach. The carbon footprints ranged from 3 to 200gCO_2/kWh. The average carbon footprint was 66gCO_2/kWh, which is above the CCC limit.

Barnham says his conclusion from looking at the eight most rigorous LCAs is that it is as likely that the carbon footprint of nuclear is above 50 gCO_2/kWh as it is below. The evidence so far in the scientific literature cannot clarify whether the carbon footprint of nuclear power is below the limit which all electricity generation should respect by 2030 according to the CCC. The variation in the nuclear carbon footprint seems to result from assumptions about the greenhouse emissions of the energy mix used to produce the nuclear fuel. And the carbon footprint of nuclear power depends strongly on the concentration of the uranium in the ore. The inescapable fact is that the lower the concentration of uranium in the ore, the higher the fossil fuel energy required to extract uranium.

Barnham's survey of the scientific literature suggests that it is quite possible that the carbon footprint of Hinkley Point C could be as high as that of electricity generation from natural gas before it closes in 2090.

Meanwhile, Steve Kidd, an independent nuclear consultant who used to work for the World Nuclear Association says the climate change argument may not be the best argument to use to promote the nuclear industry. The other benefits of nuclear power such as reliability and security of supply deserve more emphasis. He says nuclear advocates have failed to make much progress with gaining public acceptance over the past few years. He wants to abandon climate change as a prime argument for supporting a much higher use of nuclear power. (2)

(1) Ecologist 5th Feb 2015 http://www.theecologist.org/News/news_analysis/2736691/false_solution_nuclear_power_is_not_low_carbon.html
(2) World Nuclear Industry Status Report 21st Jan 2015 http://www.worldnuclearreport.org/Nuclear-Engineering-International.html

4. World Nuclear Futures

The world needs to quadruple the rate it is adding nuclear power capacity to the grid by the 2020s if it is to meet climate targets, according to a new report from the International Energy Agency (IEA). The 2015 technology roadmap for nuclear energy, published jointly with the Nuclear Energy Agency, suggests nuclear power capacity needs to more than double by 2050 as part of 'cost-effective' efforts to limit warming to two degrees.

IEA thinks nuclear power capacity will need to reach 930 gigawatts (GW) by 2050. That's significantly less optimistic than the IEA's 2010 nuclear roadmap, which put 2050 nuclear capacity at 1,200GW. This is because nuclear new build is estimated to be a fifth more expensive since the previous report and competing technologies such as solar and wind have become much cheaper and the aftershocks of the Fukushima disaster in Japan have taken their toll.

Most additional capacity will be in China. Other growth areas include Russia, India and the UK, which has "one of the most ambitious new build programmes" in the OECD group of wealthier nations, according to the IEA. The IEA says the global growth rate set out in its report is "formidable". Achieving this growth rate would cost an estimated $4.4 trillion between 2011 and 2050.

But the world is adding new nuclear capacity far more slowly than needed to match the IEA roadmap. The nuclear industry needs to show it can deliver projects on time and within budget so that financing costs can be reduced, the IEA says.

Even if the IEA's formidable ambition for nuclear power is achieved, it would only cut emissions by 2.5 gigatonnes of carbon dioxide per year, against current annual global emissions of around 50 gigatonnes. While that's a sizeable amount, it goes to show that nuclear can only be a small part of the solution to climate change.

The report itself is full of so much optimism and highly-dubious speculation that it's hard to take too seriously, says Michael Mariotte of the Nuclear Information and Resource Service. At least there is an acknowledgement that "*This scenario is not a prediction of what will happen*." Indeed, it's merely wishful thinking by the dwindling body of international nuclear enthusiasts. But really, you'd expect a report five years in the making (the report is an update of one released in 2010) would at least get its numbers straight internally. The report claims in the introduction and elsewhere that 72 reactors were under construction at the end of 2014. In another place, that number is 70. But when you add up the number when the report breaks it down by global region, you get 63 under construction. Where are those missing nine reactors?

As one investment analyst put it when the news broke that Georgia's Vogtle reactors are delayed yet another 18 months with at least $700 million more in cost overruns, "*who in their right mind would want to build a nuclear power plant?*" (2)

Michael Mariotte points out that the choice isn't clean energy versus coal; it's clean energy versus fossil fuels and nuclear because the baseload power model–which is the only model in which nuclear works–prevents the integration of all but a small percentage of renewables into the grid. The Institute for Energy Economics and Financial Analysis (IEEFA) says that while the

media has been obsessed with the notion of a "war on coal," the real war going on is the war on solar power. The war on solar is really a war over what kind of energy system we will have in the 21st century. Will it be the 21st century model based on clean renewable energy, distributed generation and the rest? Or will it be a continuation of the 20th century model of large baseload power plants, whether they be coal or nuclear? That's the fundamental issue and how it is resolved may well determine the future of our planet. (3)

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1. Carbon Brief 31st Jan 2015 http://www.carbonbrief.org/blog/2015/01/nuclear-power-additions-need-to-quadruple-to-hit-climate-goals,-iea-says/
2. Green World 2nd Feb 2015 http://safeenergy.org/2015/02/02/nea-wants-a-nuclear-future/
3. Green World 6th Feb 2015 http://safeenergy.org/2015/02/06/clean-energy-vs-nuclear/

5. Sellafield Update

Just six years into what was supposed to be a 17-year deal, estimated to worth some £22bn, to run the Sellafield site under contract to the Nuclear Decommissioning Authority (NDA), the consortium Nuclear Management Partners (NMP) has been stripped of its contract by the Government. The consortium, made up of the US company URS, France's Areva and Amec (UK), gave assurances that their combined and unrivalled technical knowhow was more than up to meeting Sellafield's undoubted challenges. (1)

Tom Greatrex, shadow energy minister, asked why the government had renewed the contract only 15 months ago, given criticism from parliament's Public Accounts Committee (PAC) and National Audit Office (NAO). "*This is a frantic U-turn and a reversal of a decision that probably should never have been made in the first place*," he said. The committee had questioned the renewal of the contract given the "*poor performance and spiralling costs*" at Sellafield.

Mr Davey said the coalition had had to "endorse" the recommendation of the decommissioning authority to give NMP the contract extension in 2013. The original contract had been set up under the last Labour government in which Ed Miliband — now party leader — had been energy secretary, he pointed out. "*At that time, when I looked at the structure that was in place, that was inherited from the last government, I had concerns about the model and it was the model I . . . wanted to change in the long term*," said Mr Davey. The minister emphasised that there would still be opportunities for the private sector at Sellafield in the future. But this would be along the lines of a government body appointing a "*strategic partner*" to improve commercial capability and help manage capital projects. (2)

Writing in *The Ecologist* Dr David Lowry said this is just the end of a long and scandalous tale of corporate profit at taxpayers' expense, and the active collusion of ministers and senior officials in fighting off Parliamentary scrutiny. (3)

Since Sellafield was described as an "*intolerable risk*" and a "*significant risk to people and the environment*" in November 2012, a lot has happened. But has there been much progress? It is still home to the most dangerous and second most dangerous industrial buildings, and could cause the evacuation of an area between Liverpool and Glasgow. **No2Nuclear Power** has produced a 2015 update on its report – *Towards a Safer Cumbria* for the Cumbrian Energy Revolution website. (4)

1. CORE 13th Jan 2015 http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=353
2. FT 13th Jan 2015 http://www.ft.com/cms/s/0/02523db8-9b2a-11e4-882d-00144feabdc0.html
3. Ecologist 19th Jan 2015 http://www.theecologist.org/News/news_analysis/2719912/sellafield_how_the_nuclear_industry_fleeced_taxpayers.html
4. N2NP 10th February 2015 http://www.no2nuclearpower.org.uk/wp/wp-content/uploads/2015/02/Sellafield-Catch-Up-2015v2.pdf

6. Moorside – All Spin and No Substance

A new report from Cumbrians Opposed to a Radioactive Environment (CORE) describes the Moorside site near Sellafield as a green-field site with questionable geology which is highly remote from where electricity is actually needed. As if attempting to make the best of the less than optimum site was not sufficiently challenging, NuGen also faces an uphill struggle against the unrealistically tight schedule projected by Toshiba/Westinghouse for the construction and operation of three AP1000 reactors – a Pressurised Water Reactor (PWR) with an output of 1,110 MWe – in just six years. An investment decision is currently scheduled for 2018, and construction is due to start in 2020.

CORE's assessment outlines a range of site-related issues that have the potential to delay if not derail NuGen's planned investment decision in late 2018. Once construction starts a significantly greater threat to the schedule is posed by the need to fabricate and assemble - 'lego-style' - 600-plus modules – many weighing hundreds of tons - that will make up Moorside's three reactors. Based on Westinghouse's current inability to do this at the four separate AP1000 projects overseas - where building just two reactors per site is taking up to seven years (and still counting) – NuGen's schedule for Moorside is neither credible nor achievable.

Without exception, the build time for all overseas AP1000 projects (twin reactor projects on two sites in both the US and China) now extends to between six and seven years - and still counting. The inference to be drawn from the catalogue of uncertainties and unsubstantiated claims in NuGen's project schedule, together with the AP1000 construction experience of Westinghouse overseas as exposed in this CORE assessment, is that the Moorside project is indeed based on spin – and has no substance. Adding incontrovertible support to this inference is the recent view of a nuclear expert in China that Westinghouse had "oversold the system, oversold the technology and promised more than they could really deliver" – a damning indictment that wholly undermines the viability of NuGen's current plans.

In summary, those issues that underpin the weakness of NuGen's project schedule, and which pose disruptive and damaging threats to its viability, are highlighted in CORE's assessment as:

- NuGen's belief that site-related issues, including its geology, grid connection and securing all permissions will be resolved or secured in advance of its late 2018 investment decision.
- completion on time of the regulators' Generic Design Assessment of the AP1000 reactor
- the restrictive timeline for what is a novel experience for Westinghouse of building three reactors on one site within a 6-year period starting in 2020.
- the claim to be producing electricity from all three reactors by 2026 when, as a 'first of a kind' and immature technology, the AP1000 has yet to produce electricity anywhere in the world.
- the failure to account for the complexities of fabricating and transporting giant reactor modules via West Cumbria' inadequate transport infrastructure.

- a naivety in the belief that the problems that continue to dog overseas projects will not cross the water to Moorside, and that schedule-busting gremlins are extinct in West Cumbria.

On employment numbers for Moorside, the confusing range of jobs projected to be created are also assessed and found to be overstated. The currently fashionable official figure of '14,000 to 21,000' jobs is collectively signed up to by Government, NDA and NuGen, all of whom have subsequently refused to provide a further breakdown of the numbers or reveal the sources upon which they are based. A comparison with the twin-reactor AP1000 project jobs overseas, scaled up to the three reactors proposed for Moorside, suggests an estimate of a peak on-site construction workforce for all three reactors totalling 5,000 with around 300 operational jobs per reactor. Many positions are likely to be filled either by workers transferring from Sellafield's closed-down reprocessing plants and their supporting facilities, a Westinghouse workforce shoe-horned into the project, or by West Cumbria's transient contract workers.

CORE's assessment can be found at: http://www.no2nuclearpower.org.uk/wp/wp-content/uploads/2015/02/Moorside-Build-and-Job-Projections..pdf

7. Welsh Waste Policy

The Welsh Government is carrying out a review of its Policy on the Management and Disposal of Higher Activity Radioactive Waste. The Welsh Government's preliminary view is that it should adopt a policy on HAW similar to that developed by the UK Government's – deep geological 'disposal' through a Geological Disposal Facility. It also rejects the Scottish Government policy. In this second consultation it is seeking final views on HAW policy before it determines whether to make a final view on its formal policy. The Nuclear Free Local Authorities (NFLA) response recommends that the Welsh Government adopts the Scottish Government policy on HAW**.** The consultation closed on 22nd January 2015. (1&2)

Friends of the Earth Cymru agreed: "*The Scottish Government has decided to deal with its own nuclear waste and not take on the burden of England's radioactive legacy. The Welsh Government should follow Scotland's lead and take responsibility solely for Wales' nuclear waste*." (3)

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1. NFLA Nuclear Waste Briefing No.53 http://www.nuclearpolicy.info/docs/radwaste/Rad_Waste_Brfg_53_Welsh_radwaste_policy_statement.pdf
2. NFLA Press Release 15th Jan 2015 http://www.nuclearpolicy.info/docs/news/NFLA_Welsh_radwaste_Jan_15_response.pdf
3. Wales Online 22nd Jan 2015 http://www.walesonline.co.uk/news/wales-news/wales-should-rule-out-ever-8500082

8. Wind and Sun Advancing Rapidly

It no longer makes sense for any country to install a technology that can create a catastrophe such as Chernobyl or Fukushima — especially when far better alternatives are available, says Vivek Wadhwa, a fellow at Rock Center for Corporate Governance at Stanford University, writing in the *Washington Post*. Technologies such as solar and wind are advancing so rapidly that by the time the first new nuclear reactors are installed in India, they will be less costly than nuclear energy.

Most importantly, the alternative technologies are cleaner and safer. Solar power has been doubling every two years for the past 30 years — as costs have been dropping. At this rate, solar is only six doublings — or less than 14 years — away from meeting practically all of today's energy needs. Even with this, we will be using only one part in 10,000 of the sunlight that falls on the Earth. In places such as Germany, Spain, Portugal, Australia and parts of the United States and India, residential-scale solar production has already reached "grid parity" with average residential electricity prices. In other words, it costs no more in the long term to install solar panels than to buy electricity from utility companies — without government subsidies. (1)

Investment bank Deutsche Bank is predicting that solar systems will be at grid parity in up to 80 per cent of the global market within 2 years, and says the collapse in the oil price will do little to slow down the solar juggernaut. In his 2015 solar outlook, leading analyst Vishal Shah says solar will be at grid parity in most of the world by the end of 2017. That's because grid-based electricity prices are rising across the world, and solar costs are still falling. Shah predicts solar module costs will fall another 40 per cent over the next four to five years.

While short term policy fluctuations and uncertainty – in particular in Japan and UK – have caused it to revise down total uptake in 2014 and 2015, Deutsche Bank says demand for solar in the world's two biggest economies is about to "take off". In the US, solar demand is expected to jump five-fold to 16,000MW in 2016, making it the biggest market in the world ahead of China (which is expected to be about 13,000MW a year). The US market will be underpinned by a sharp rise in rooftop solar demand and the expansion of solar leasing, as well as new sources of financing. (2)

In Queensland, solar has now moved so far down the cost curve that you can buy a 6kW rooftop solar PV system for about £4,000 (£2,000 with subsidy). Ignoring subsidies now and then, such a large system would have cost £27,000 five years ago. This system will supply you with electricity at a fraction of the price you currently pay to your electricity retailer. At a global level, the dramatically positive positions of solar and wind on their respective cost curves mean that the £150bn invested in clean energy last year paid for almost twice the clean electricity capacity compared with three years ago. (3)

Energy 'too cheap to meter? This time it could be true thanks to the fast rising proportion of zero marginal cost renewable power in our electricity system, writes Roger Kemp Professorial Fellow at Lancaster University in the *Ecologist*. But that has profound implications for how we pay for our electricity - indeed the entire electricity market and consumer pricing system must be radically rethought. On a typical day in November 2014, 37% of the UK's electricity was produced by 40-year old coal-fired power stations, 31% came from gas power stations, many

built during Margaret Thatcher's 'dash for gas', and 14% from nuclear power stations, all but one of which are scheduled to close in the next ten years. The rest came from renewables and imports from the continent.

A free market for electricity would be likely to produce extremely high prices in winter, particularly at periods of peak demand, but very low prices at times when the demand can be met entirely by renewable energy. If these energy costs are passed on to the customer, we could see the cost of using an electric kettle to make a cup of tea at 18:30 in January being many pounds, but electricity costing almost nothing during long periods in the summer. (4)

After a slowdown in 2013, the wind industry set a new record for annual installations in 2014. Globally, 51,477 MW of new wind generating capacity was added in 2014 according to the global wind market statistics released today by the Global Wind Energy Council (GWEC). The record-setting figure represents a 44% increase in the annual market, and is a solid sign of the recovery of the industry after a rough patch in the past few years. Total cumulative installations stand at 369,553 MW at the end of 2014. (5)

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