



No.67 October 2014

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1. Hinkley: Economically Bonkers

According to media reports the UK Government has agreed terms with Brussels to secure approval for billions of pounds of public funding for Hinkley Point C. While the conditions are not yet public, Europe's competition chief says he is satisfied the revised deal meets EU rules on state support and will propose the project is approved by a college of all the European Commissioners on the 8th October, just weeks before the end of their mandate in November. (1)

The Stop Hinkley Campaign welcomed a letter sent by a group of over 20 academics, politicians and renewable energy companies to the European Competition Commissioner as well as Commission President Jose Manuel Barroso and his successor Jean-Claude Juncker to urge them not to rush through any decision and warning that doing so could mean the decision would face legal action. (2)

The two proposed nuclear reactors at Hinkley Point will infringe single market rules on the internal energy market, if the £16 billion mega-project proceeds on its present basis. The project has not been subject to any kind of competition with alternative ways of providing the same service.

"Irrespective of what we think about the possibility of an accident or routine emissions of radioactivity into the environment, or the fact that there is no solution to dealing with the dangerous waste, this deal is economically bonkers", said Stop Hinkley Campaign spokesperson Allan Jeffrey. "Britain has 7 million homes with lofts that need to be insulated; 5 million with cavity walls that need to be filled and 7 million with uninsulated solid walls, (3) yet this deal will lock consumers into paying about twice the going rate for electricity until almost 2060 while the cost of renewable energy is falling rapidly. It would be hard to devise a worse deal for consumers or tackling climate change if you tried."

Stop Hinkley also wrote to the Competition Commissioner, Joaquín Almunia, highlighting a flurry of reports over the past month from multinational investment banks predicting the continuing rise of solar capacity around the globe and plummeting prices. Most recently HSBC has predicted that affordable battery storage will increase the use of solar panels on household and business rooftops, further reducing demand for electricity from the grid. The group called on Almunia to urgently reconsider his decision, and order the UK Government to subject the Hinkley proposals to a proper competitive process. (4)

Greenpeace EU legal adviser Andrea Carta said: *"If competition commissioner Almunia has backed State aid for Hinkley, it risks a backroom deal prevailing over the rule of law. Only a year ago the Commission said that Hinkley was "in principle incompatible under EU State aid rules". Now, under pressure from the UK government and French nuclear operator EDF, the Commission is preparing to perform a U-turn.*

"European Commissioners should oppose the plan and resist rushing through a controversial and far-reaching decision in the dying days of this Commission. The Hinkley plan would lock two generations of UK taxpayers into subsidising outdated and risky nuclear power until almost 2060 at a time when increasingly cheaper renewables are re-writing the rules of energy systems around



the world. This money would be better spent on genuinely clean technologies and more ambitious energy saving measures.” (5)

A leaked paper disclosed by German magazine der Spiegel on 1st October (6) showed that the European Commission was on the verge of approving eye-watering amounts of public funding for Hinkley. The paper drafted by outgoing competition commissioner Joaquín Almunia with the support of Commission president José Manuel Barroso, recommends that the project submitted by the UK government be approved almost entirely unchanged. Without opposition from a majority of the 28 European commissioners at the vote on 8 October, the European Union could for the first time allow taxpayers to fund the construction of nuclear power plants in Europe. (7)

Outgoing energy commissioner Günther Oettinger last year described the plan as “Soviet”. Commenting on the leak, Greenpeace EU legal adviser Andrea Carta said: *“If this deal is approved, the outgoing Commission will be leaving Brussels in a getaway car after the heist of the century. Taxpayers would be left paying for one of the most expensive power stations in the world, and for the consequences when things go wrong, while EDF rakes in subsidies. What’s worse, they want to do this in the name of climate change, locking in support for nuclear for decades, just as major banks are telling investors the smart money is in renewable energy. European commissioners voting next week should think hard about the threat to generations of Europeans and put a stop to this madness”.*

By taking a diversionary path to expensive options like nuclear we are delaying the point at which we inevitably achieve cheap renewables that can be deployed anywhere by anyone. So put simply, if the extraordinary amounts of money spent on the nuclear fuel cycle were redirected to renewables we would get a lot more electricity generated for every dollar invested. (8)

Austria says it will take the European Commission to the European Court of Justice if it approves the Hinkley deal. At least 7 of the commissioners are also opposed to the deal. Austria's chancellor Werner Faymann and vice-chancellor Reinhold Mitterlehner sent a letter to the European Commission's president Jose Manuel Barroso on Friday 3rd October saying Austria would "reserve" the right to take legal steps should the project gain a stamp of approval in Brussels. *“Hinkley Point ... would set a negative precedence to open this type of subsidy for nuclear energy. The EU-Commission must prevent this, if not it must expect a lawsuit from Austria at the European Court of Justice,”* Mitterlehner said. (9)

The president of the Green parliamentary group in Brussels, Rebecca Harms, said she was disappointed with the investigation’s outcome. *“It is unbelievable that Commissioner Almunia wants to wave through this obviously illegal state aid to finance Hinkley Point,”* she said. *“It is like the bursting of a dam – other countries will want to follow. The financing of such outdated, dirty and highly risky technology should be averted by all means.”* (10)

Molly Scott Cato, Green MEP for South West England and Gibraltar said: *“A decision like this demonstrates why so many British people are sceptical about the EU. The rules on fair competition are perfectly clear but can apparently be ignored when there is a political deal to be made. Agreeing such a huge implicit subsidy for Hinkley will make it impossible for those who generate electricity in a clean and sustainable way to compete. It will destroy thousands of potential jobs in the renewables sector and set back South West innovation in the energies of the future.”* (11)

Andrea Carta said: "*The proposed deal pays no attention to either European law or the interests of the consumer. The UK government plan to subsidise Hinkley is not offering good value to UK citizens. We can decarbonise using cheaper technologies with fewer long-term liabilities. Furthermore, the government has failed to run a transparent tender procedure, which should lead the Commission to reject the plan. Instead of integrating renewable energy into the grid and creating a more competitive energy market, the UK wants to waste taxpayers' money to prop up a risky technology.*" (12)

Dave Toke, a reader in Energy Policy at Aberdeen University says observers might be forgiven for imagining that the 35 year contract for Hinkley C, underpinned by £10 billion of state loan guarantees paying higher premium prices (£92.50) than privately built onshore windfarms receive for only 15 year contracts, will give EDF and their Chinese partners big profits. However this impression is an artefact of the ludicrous propaganda perpetrated for many years that nuclear power stations are potentially profitable, competitive, operations. They are no such thing. Hinkley C is most likely to result in further major commitments being made by British electricity consumers or taxpayers to bail out the near inevitable cost-overruns of building Hinkley C. The fact that only state owned companies (French and Chinese) are prepared to undertake the risk of this project, and even then backed by what will emerge in the fullness of time as an effective blank cheque by the British state, is a testament to the sheer bankruptcy of new nuclear build as a commercial proposition. (13)

Meanwhile *the Guardian* reports that nuclear experts receiving EDF pensions were involved in the Generic Design Assessment (GDA) of the EPR reactor design, sparking concerns about a conflict of interest over the approval of the project. The involvement of senior executive grade officers at the Office of Nuclear Regulation (ONR) made it "very difficult" for the regulator to take a critical eye, warned an independent industry consultant. The revelations, obtained via a series of freedom of information (FoI) requests, raise wider concerns about the use of consultants due to a lack of experienced staff inside the ONR. Critics argue that vital safety issues highlighted in the regulatory process were ignored, which may have happened to ensure the project's approval met the deadline set out by the UK government. "*The ONR bypassed a number of safety issues with the rationale of 'although it is not solved we think it will be solved by the time we need',*" said nuclear industry consultant John Large. "*I suspect the political pressure was on them. The government was putting the pieces in place to give an announcement [that Hinkley Point C had been approved] in January 2013.*" In August 2012, six issues related to the instrumentation and control system were highlighted. Four of these were given a red alert, which, according to the report means the resolving of these issues are "*in serious doubt with serious risks apparent*". By December the nuclear regulators approved the EPR design, signing off all of these alerts without much explanation. (14)

If you are reading this before 8th October, please write to Almunia to express your opposition to this deal here: http://ec.europa.eu/commission_2010-2014/almunia/contact/commissioner/form_en.htm

1. FT 22nd November 2014 <http://www.ft.com/cms/s/0/18df0ab6-4238-11e4-a9f4-00144feabdc0.html>



2. See Reuters 22nd September 2014 <http://www.reuters.com/article/2014/09/22/eu-britain-edf-nuclear-idUSL6N0RN4AY20140922> Signatories include South-west Green MEP Molly Scott Cato.
3. National Insulation Association 23rd November 2013 <http://www.nia-uk.org/media-and-information/index.php?mact=News,cntnt01,detail,0&cntnt01articleid=302&cntnt01returnid=16>
4. Stop Hinkley 3rd October 2014 <http://www.stophinkley.org/Temporary/Dear%20Commissioner.pdf>
5. Greenpeace 22nd Sept 2014 <http://www.greenpeace.org/eu-unit/en/News/2014/Comment-on-Almunia-support-for-Hinkley-nuclear-plan/>
6. Der Spiegel 1st October 2014 <http://www.spiegel.de/politik/ausland/beihilfen-bruessel-knickt-vor-atomlobby-ein-a-994700.html>
7. Greenpeace EU Unit 1st October 2014 <http://www.greenpeace.org/eu-unit/en/News/2014/Leaked-paper-shows-Commission-could-grant-unprecedented-taxpayer-funding-for-Hinkley-nuclear-power-station/>
8. Business Spectator 22nd Sept 2014 <http://www.businessspectator.com.au/article/2014/9/22/energy-markets/rio-tintos-great-big-nuclear-delu>
9. Reuters 5th Oct 2014 <http://www.reuters.com/article/2014/10/05/uk-austria-eu-edf-nuclear-idUKKCN0HU0EY20141005?irpc=932>
10. Euractiv 23rd Sept 2014 <http://www.euractiv.com/sections/climate-environment/hinkley-nuclear-reactor-project-gains-eu-approval-leak-reveals-308645>
11. Western Daily Press 23rd Sept 2014 <http://www.westerndailypress.co.uk/South-West-Green-MEP-Molly-Scott-Cato-shocked/story-22966873-detail/story.html>
12. Observer 28th Sept 2014 <http://www.theguardian.com/environment/2014/sep/28/hinkley-point-new-nuclear-reactors-deal-europe>
13. Dave Toke's Blog 4th Oct 2014 <http://realfeed-intariffs.blogspot.co.uk/2014/10/european-commission-issues-smokescreen.html>
14. Guardian 1st Oct 2014 <http://www.theguardian.com/environment/2014/oct/01/hinkley-nuclear-project-edf>



2. Nuclear battles global trend towards solar and storage

The UK Government is expecting a positive decision on 8th October from the European Commission which will allow it to go ahead with the deal with EDF Energy to subsidise the proposed Hinkley Point C nuclear power station. This deal could cost consumers a total of £17.6bn over 35 years. (1) At the same time the Department of Energy and Climate Change (DECC) has confirmed that it will scrap support for solar over 5MW from April 2015, despite the majority of respondents to a recent consultation opposing the proposals. (2) In much of the world the same battle between large centralised utilities is ongoing. Some say that large utilities have already lost the battle, but has the UK Government stitched up the energy market to help save these dinosaurs?

The International Energy Agency (IEA) is sending chills down the spine of nuclear and coal utility executives across the world, according to Michael Mariotte, President of the Nuclear Information and Resource Service (NIRS) in the US. The IEA says solar power could become the dominant source of global electricity production by 2050. This is the same IEA that has consistently and dramatically underestimated the potential contribution of renewables over more than a decade. In fact, since at least 2000, Greenpeace has been far more accurate at predicting renewable energy growth than the IEA. (3)

As RenewEconomy, based in Australia, put it, *“The forecasts from the IEA are not the most dramatic that can be found, but they are significant because the IEA is essentially a conservative organisation that was created in the 1970s to defend developed countries’ access to fossil fuels.”*

Now even the IEA says that given the right policies solar power could account for 27% of all global electricity generation by 2050 making it the biggest power source with 16% coming from photovoltaics (PV) and 11% from utility-scale concentrating solar power (CSP). (4)

Mariotte says *“when you make your living selling uneconomic nuclear power, or dirty coal-generated electricity, the skyrocketing deployment of solar power—especially when combined with rapid growth of wind and other renewables as well—is an impending omen of bad times ahead.”*

Solar photovoltaic (PV) panels constitute the fastest growing renewable energy technology in the world since 2000. Global capacity has exploded from 1.5 gigawatts (GW) at the turn of the century to 136GW currently, according to the IEA. Meanwhile, the price of solar panels has plummeted 80% since 2008 thanks to generous state subsidies aimed at promoting clean energy. It's still less than one percent of energy capacity worldwide, but the surge in installations of rooftop solar panels is beginning to hit utilities and their business model of charging customers on the basis of consumption.

To deliver on its potential solar technologies will have to overcome a number of challenges such as access to grid connections and the high and variable cost of capital, which currently means solar is more expensive in sunny Greece than Germany. The high level of political and policy risk in developing countries can also force up cost competitiveness points for solar in many markets, undermining the case for PV investments, according to the IEA. Clear, credible and consistent



signals from policy makers are essential to lower deployment risks to investors and inspire confidence. The solar industry's potential has never been more obvious, but delivering on it still requires targeted action from investors, engineers and policymakers alike. (5)

Solar's rapid rise - along with warmer weather, more energy efficient appliances and various geopolitical factors - has pushed down demand for traditional electricity and cut into utilities' profits across the world. Earlier this year, German energy giant RWE blamed plant closures caused by solar demand for its 2.76 billion euro loss in 2013; its first annual net loss in more than 60 years. It and the two other German energy companies - E.ON and EnBW - have seen their combined market value dwindle by an average 54% since 2007.

But old energy is fighting back, and lobbying governments to reverse decades of subsidies to renewable energy such as solar and, in some cases, to tax them. Germany, the world's largest solar market following years of generous state subsidies, imposed a levy in 2014 on small businesses which use self-generated solar power - referred to as the "sun tax". Arizona has become the first U.S. state to introduce a solar tax. As one Spanish renewable energy expert put it: "*Utility companies know that the future is in renewables, but they're not going to go down without putting up a fight.*" In the "sunshine state" of Queensland, Australia, electrical engineer David Smyth says the war waged by some governments and utilities against distributed energy, is already lost. "*The utilities are in a death spiral.*" (6)

As we reported last month giant multinational investment bank, UBS, has declared that it is "*time to join the [solar] revolution*", and that large centralised power stations, like the proposed £16 billion Hinkley Point C nuclear power station could be obsolete within 10 to 20 years. (7) This followed similar analysis by other large financial institutions and energy experts who expect new solar and renewables to drive rapid change in large scale utility companies. (8) Barclays has downgraded its credit rating for the entire US electric utility sector (9) on the basis of its predictions for falling solar and battery costs, while Citibank has forecast distributed electricity generation will halve the size of the market open to utilities over the next two decades. Ex-npower boss Volker Beckers told *Business Green* in August that the centralised model has "*reached its natural end*". (10)

The baseload argument

Britain's solar industry has the capability to deliver the same amount of electricity every year and at a comparable cost, as is expected to be produced by Hinkley Point C but in two years time rather than having to wait until 2023 (11) The Nuclear Industry Association (NIA) argues that without an energy storage breakthrough solar cannot provide the same level of base load power as nuclear. Hinkley Point C alone is expected to meet seven per cent of the UK's electricity needs, more than half the current renewables total. (12)

This baseload aspect supposedly makes nuclear a more attractive resource in the long run since the grid needs more stable power as increasing amounts of intermittent renewables enter the landscape. But in California the closure of big resources like the San Onofre Nuclear Generation Station (SONGS) is actually making the grid much more stable and allows for the use of more solar and wind. "*Baseload has gone from being valuable to being problematic as we add more wind and solar,*" according to Dave Olsen of the California Independent System Operator Corporation (CAISO). "*When we shut down other fossil plants we will avoid curtailing thousands of megawatts of wind and solar.*" California faces severe midday energy over-generation. In 2013



alone, California was forced to curtail more than 19 GWh of pre-purchased renewable energy in order to run its inflexible baseload sources, and this number will likely rise in the coming years. Adding more of these resources will only make this situation worse. (13)

Solar Jobs

The Centre for Economics and Business Research (CEBR) says that backing British solar power will boost jobs, drive economic growth and dramatically reduce the UK's overall energy bill. A study carried out by CEBR to quantify the economic impact of Britain's solar boom suggests that with a stable policy, large-scale solar projects are on track to becoming the cheapest way to generate electricity in the UK. (14) It concludes that bold Government action to back British solar could create 60GW of generation capacity by 2030 and employ 50,000 people across the supply chain. (15)

Solar could add £25.5 billion in value to the UK economy by 2020. In addition, solar farms could create nearly twice as many jobs as new nuclear per kWh generated, while also saving around £425 million in reduced energy bills for consumers. (16)

Energy Storage

Conventional electricity generators around the globe have been undoubtedly received a battering from the revolution inspired by rooftop solar, and are struggling to make a profit. But things are likely to get worse. The influx of battery storage is destined to further reduce demand from conventional generators. A major new analysis from global investment bank HSBC – *Energy Storage, Power to the People* – says the boom days for the fossil fuel generation are over. “There is no prospect of any return to anywhere near the level of profitability seen in the latter part of the last decade in generation,” it writes. The HSBC analysis looks at a range of storage technologies and how that will impact the conventional energy systems. Its major conclusion is that affordable battery storage will increase distributed generation – solar panels on household and business rooftops – and further reduce demand from the grid.

Large-scale energy storage is on the horizon and conventional generation is at a disadvantage. The major utilities could lose out unless they leverage their client base and their level of integration by becoming full-service providers. (17)

End of the centralised utility model?

As far as delivering on the solar industry's potential in the UK is concerned, the problem is that the electricity market, even after it has been reformed, has an inherent bias towards maintaining, the conventional utility model.

In a new Exeter University IGov Paper, Catherine Mitchell, Anthony Froggatt and Richard Hoggett say the Department of Energy and Climate Change (DECC) has been so focused on implementing its very complex Electricity Market Reform (EMR) that it hasn't taken any notice of what is happening elsewhere in the world with respect to consumer drivers, energy technology development, falling renewable electricity costs, changing business models and energy system operation and management. (18)

The development of renewable energy outside of the UK is quickly reducing the dominance of major utilities in some markets. In Germany for example, there are over 1.4 million individual



PV units, and in terms of generating capacity the “big four” generators, Eon, RWE, Vattenfall and EnBW, had at the end of 2012 a combined installed capacity of 80 GW, less than 50% of the market. At this time the installed capacity for Solar PV was 33 GW and for wind 31 GW with the big four owning just 5% of this capacity. However, this is not just a German story, large scale deployment of renewable, particularly solar PV has occurred across the EU, with deployment at the end of 2013 reaching nearly 80 GW

In the UK the incumbents still appear to hold the power and challengers find it difficult to get much purchase. However, there are a number of factors which appear to be building up pressure on the incumbents and having an impact on this top-down, narrow energy policy decision-making world. This includes an increasing level of dissatisfaction from households and individuals with the current energy system, the cost of energy, mistrust in main suppliers and the regulation of the market. This is leading to growing levels of switching from the Big 6 suppliers to independents, thereby increasing the potential for new entrants and challengers to be able to offer new services. In fact Citibank predicts that the Big 6 market share will fall from the current 92% to 70% by 2020. (19) At the same time, there is increasing consumer interest in taking control over their energy use, including steps to reduce demand and/or generate power at the building or community scale, which will create further momentum for change within the energy system, from the bottom up.

By the end of the first quarter of 2014 over 500,000 homes had installed solar PV in Britain, and it has been suggested that there might be a million by 2015. A number of other potentially disruptive technologies are also coming to market that will further enable individuals to become more active within the market, such as smart meters, smart appliances, thermostats and other controls; whilst other technologies are seeing significant cost reductions such as LED lighting and storage.

Mitchell, Froggatt and Hoggett say that globally it seems clear that the dominance of centralised energy systems has been broken. There is a slow but steady move from centralised to decentralised energy systems which results from a complex mix of social preference, technological ability, regulatory flexibility, political processes, and economic reward. But what we don't know yet is whether Britain's rules and regulations which are biased towards the conventional utility model and where the Government is determined to go nuclear, are sufficient to withstand the assault and maintain a conventional utility model. Or will social, economic and technological change force change on the alignment of the Government, the Regulator and the traditional utility model?

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1. Telegraph 31st Jan 2014 <http://www.telegraph.co.uk/finance/newsbysector/energy/10611003/Nuclear-setback-as-EC-attacks-Hinkley-Point-subsidy-deal.html>
 2. Solar Portal 2nd Oct 2014 http://www.solarpowerportal.co.uk/news/decc_confirms_ro_closure_for_solar_over_5mw_421
 3. Green World 30th Sept 2014 <http://safeenergy.org/2014/09/30/nuclear-heartburn/>
 4. IEA Press Release 29th Sept 2014 <http://www.iea.org/newsroomandevents/pressreleases/2014/september/how-solar-energy-could-be-the-largest-source-of-electricity-by-mid-century.html>



5. Business Green 29th Sept 2014 <http://www.businessgreen.com/bg/analysis/2372671/solar-to-be-worlds-largest-power-source-by-2050-iea-set-to-say>
6. Reuters 28th Sept 2014 <http://www.reuters.com/article/2014/09/28/us-solar-battlelines-insight-idUSKCN0HN07P20140928?feedType=RSS&feedName=environmentNews>
7. Will Solar, batteries and electric cars re-shape the electricity system? UBS 20th August 2014 <https://neo.ubs.com/shared/d1V0tO4LmKMZuB3> A summary of the report is published in The Guardian 27th August 2014 <http://www.theguardian.com/environment/2014/aug/27/ubs-investors-renewables-revolution>
8. Including Goldman Sachs, Barclays, Bloomberg and Citigroup. See <http://safeenergy.org/2014/08/27/ubs-its-time-to-join-the-solar-revolution/>
9. Business Green 30th May 2014 <http://www.businessgreen.com/bg/news/2347374/barclays-downgrades-us-power-sector-over-solar-threat>
10. Business Green 28th August 2014 <http://www.businessgreen.com/bg/interview/2362114/fossil-fuel-energy-system-has-reached-its-natural-end-says-ex-npower-boss>
11. Renewable energy boss tells PM solar power could match Hinkley in two years, Nextgen 24th October 2013 <http://www.nextgenmedia.co.uk/news/solar/809-renewable-energyboss-tells-pm-solar-power-could-match-hinkley-in-2-years>
12. Nichols, W. *Renewables industry vows to undercut nuclear prices*, Business Green 22nd Oct 2013 <http://www.businessgreen.com/bg/analysis/2302016/renewables-industry-vowsto-undercut-nuclear-pric>
13. Renewable Energy World 30th Sept 2014 <http://www.renewableenergyworld.com/rea/news/article/2014/09/fyi-geothermal-industry-youre-doing-it-wrong>
14. Edie 25th Sept 2014 <http://www.edie.net/news/6/Solar-industry-calls-for-decisive-Government-action-to-unlock-60GW-potential/>
15. Business Green 25th Sept 2014 <http://www.businessgreen.com/bg/analysis/2372039/solars-multi-billion-pound-potential-stalled-by-unreliable-policy-industry-warns>
16. Solar Portal 25th Sept 2014 http://www.solarpowerportal.co.uk/news/uk_solar_could_employ_50000_people_by_2020_worth_25.5_billion_to_the_eco234
17. Renew Economy 1st October 2014 <http://reneweconomy.com.au/2014/energy-storage-generators-biggest-losers-50615>
18. Governance and Disruptive Energy System Change, Mitchell, Froggatt and Hoggatt, IGov 22nd September 2014 <http://projects.exeter.ac.uk/igov/wp-content/uploads/2014/09/Post-stuttgart-1-final-paper.pdf>
19. Guardian 1st October 2014 <http://www.theguardian.com/business/2014/oct/01/big-six-energy-firms-lose-quarter-customers-2020-analysts>



3. Efficiency plan will fail to eliminate fuel poverty until 2030

A Labour government would insulate at least five million draughty homes over the next ten years, shadow energy secretary Caroline Flint announced at the Annual Conference. (1) She unveiled a new five-point strategy designed to tackle fuel poverty and carbon emissions by saving energy in the home: reforms to the Energy Company Obligation (ECO) scheme, interest free loans for home improvements, new free energy audits for households, tougher energy efficiency regulations for landlords, and the designation of energy efficiency as a national infrastructure priority. The full detail of the new strategy, including costings, will be published in the coming weeks through a new Green Paper from the Party. (2)

Labour's plan to make five million homes more energy efficient within 10 years, would be "*without spending any more money or adding to anyone's energy bill*", Flint claims. The *Carbon Brief* website asks what are the new policies, and how do they differ from the government's current schemes? Most importantly, would it work? (3)

Firstly 200,000 low income households would be made more energy efficient each year, for ten years, by paying for them to install insulation and more efficient boilers, among other measures. That would be two million homes in total by 2025. The UK currently has around three million households in fuel poverty and six million classified as low income. The scheme's focus, unlike the current Government's is on low income households, rather than just those in fuel poverty. So this means four million low income households would remain untreated by 2025.

Labour also promises to bring the homes up to energy efficiency grade C in one go rather than in stages, as the government currently plans to do. It also says the improvements will be made street-by-street, rather than one property at a time. It also hands control of the scheme to councils, taking it out the hands of energy firms.

For those not in fuel poverty, Labour plans to offer free energy assessments and interest free loans to make improvements - the second and third parts of its plan. That should help overcome two of the main obstacles to people participating in the government's current scheme, the Green Deal, it says.

Green groups and efficiency campaigners mostly welcomed the Labour announcement, but most thought more needs to be done. Friends of the Earth said 4 of the 5 million homes needed to be treated in the next Parliament, not left until the next decade. The Association for the Conservation of Energy (ACE) welcomed the commitment to require private rented accommodation to meet a decency standard by 2027, but urged Labour to ensure that this standard is set high enough (EPC band C) to deliver homes that are fit for purpose in a low energy, low carbon economy.

ACE asked why Labour is confining itself to a level of action that can be achieved without spending any more money? This could leave families living in dangerously cold homes for a further 30 years. The six million low income families living in homes that are too expensive to heat need real priority to be given to this investment. Using only a very small portion of the £45



billion invested in infrastructure each year would enable the level of action to be increased enormously. ACE urge Labour to increase the ambition of their implementation plans to match the strength of their pledge. (4)

The National Insulation Association said additional funding would enable all 6 million low income households to be treated more quickly and this could be forthcoming from the National Infrastructure Fund. In addition it called for the Interest Free Loans to be supplemented by additional long term demand drivers including council tax and stamp duty incentives. There are over 7 million homes that have inadequate Loft Insulation, over 5 million that require Cavity Wall Insulation (CWI) and almost 8 million homes that need Solid Wall Insulation (SWI). (5)

It is now clear that the Green Deal has failed to deliver any significant amount of energy efficiency. Its existence has also resulted in ECO being focussed on areas where it was less effective. Together this has been a major setback for UK energy efficiency policy. Jan Rosenow of Ricardo-AEA Ltd and Nick Eyre of the Oxford University Environmental Change Institute have now proposed a roadmap to address these problems. The Green Deal would be used for the more expensive refurbishments, with lower interest rates and no Golden Rule, but ECO would be targeted initially back on the low cost measures for which it is a proven approach, but also to provide incentives for other energy efficiency investments at a scale consistent with their public benefits. (6)

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1. Guardian 21st Sept 2014 <http://www.theguardian.com/politics/2014/sep/21/caroline-flint-labour-conference-insulate-five-million-draughty-homes-policy-pledge>
 2. Business Green 23rd Sept 2014 <http://www.businessgreen.com/bg/news/2371662/labour-declares-war-on-cold-homes>
 3. Carbon Brief 1st October 2014 <http://www.carbonbrief.org/blog/2014/09/analysis-will-labour's-energy-efficiency-overhaul-work/>
 4. ACE 23rd September 2014 <http://www.ukace.org/2014/09/labour-conference-puts-energy-efficiency-centre-stage/>
 5. National Insulation Association 23rd Sept 2014 <http://www.nia-uk.org/media-and-information/>
 6. Jan Rosenow 5th Sept 2014 <http://eng.janrosenow.com/uploads/4/7/1/2/4712328/rosenow-eyre-residential-energy-efficiency-programmes-in-the-uk.pdf>



4. Other reactor sites

Moorside

For the Toshiba/GDF Suez consortium called NuGen behind plans for three AP1000 reactors on a green-field site adjacent to Sellafield –the imminent decision by the EU’s competition commissioners on the legality of the range of subsidies and guarantees being offered to developers by the UK Government, represents just one of many major hurdles along the Sellafield new-build route. (1)

These hurdles include the costly and highly contentious National Grid transmission connections with their threat of giant pylons and sub-sea tunnelling under Morecambe Bay and also the site specific problems of geology and the cooling system for the reactors. On 3rd July 2014, NuGen’s Head of Communications told a local Business Cluster meeting that the National Grid will have to fund the £2bn-£3bn project themselves to upgrade the current Grid system across Cumbria and that will involve two lines going north to Carlisle and two going south to Heysham - they might even have to put a tunnel under Morecambe Bay. It is envisaged this would entail a string of pylons, 46metres/152 feet high marching across the north and south of the county (the existing pylons are 25 metres tall).Areas along the transmission corridors will potentially face property blight. (2)

According to Cumbrians Opposed to a Radioactive Environment the geological constraints of the Moorside site include the depth of the bedrock which ‘in some areas is so great that construction is unreasonable’ - as revealed in documents published by Greenpeace UK in 2011 from responses to FoI requests. Similarly described in an earlier report to Cumbrian local authorities as being ‘less than optimal’, NuGen is likely to be hard pressed to safely site one new AP1000 reactor without incurring significant additional costs, let alone three new reactors as proposed.

Equally challenging will be the problems associated with cooling the reactors – either through direct (seawater) or indirect (cooling towers) cooling systems. A 2011 Generic Design Assessment published by the Environment Agency (EA) describes direct cooling via seawater extraction/ discharge as the most appropriate environmental option for large power stations sited on the coast. The case against cooling towers is bolstered by the increasing reluctance of planning authorities to accept cooling towers and their plumes because of the visual impact. But the use of direct cooling via seawater extraction would bring its own problems. It would require the construction of an offshore submerged intake/discharge system which will involve tunnelling through the seabed and banks of radioactive sediment (including plutonium) that have accumulated over decades from Sellafield’s reprocessing operations. This has long been recognised as being a major difficulty for new-build on the West Cumbria coast.

NuGen’s overly optimistic forecast that all three AP1000 reactors will be up and running by 2026 looks more remote by the day. The claims for build time, and employment numbers, appear overly optimistic; and somewhat implausible given current experience in the US where the construction of AP1000 reactors at Vogtle in Georgia and Summer in South Carolina (the first new-build in the US for 30 years) are already 12 months or so behind schedule and over



budget. Similar delays are also reported for AP1000 construction in China at Sanmen and Haiyang. Toshiba's claim that its NuGen venture will be faster and cheaper than EDF's development of EPR reactors at Hinkley C in Somerset appears equally implausible. There is also scepticism as to whether Toshiba will deliver on another claim that it will ask for a lower (strike) price than the £92.50 (per Megawatt/hour) given for Hinkley C.

See also Radiation Free Lakeland Report: Moorside: Biggest New Nuclear Development in Europe, Myth vs Reality 28th Sept 2014.

<http://mariannewildart.files.wordpress.com/2014/09/moorside-rafl-report-19-9-141.pdf>

Wylfa

Horizon nuclear has launched a ten week consultation into its proposal to build a new nuclear power station at Wylfa on Anglesey. (3) Exhibitions and public meetings are to be staged across North Wales as part of the consultation which is the first major step in the planning process. (4)

Horizon is a subsidiary of Hitachi which bought the site in 2012 for around £700m. Hitachi has opted to build a smaller plant, deciding to construct two reactors - called Advanced Boiling Water Reactors (ABWR) - instead of three. (5)

People Against Wylfa B (PAWB) said the plans would be a "hard read" for the average visitor to the exhibition. *"We know that people on the island have very real concerns about basic questions. The main concerns are the danger from nuclear waste, the security of the site and, of course, the economy - I don't just mean the local economy, which is a major concern, but the wider economy. This is a very expensive technology we're talking about - also the question of evacuating the island in the event of an emergency."*

Meanwhile, the Magnox station at Wylfa will be allowed to continue generating electricity until December 2015 – it was originally scheduled to close in 2010. (6)

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1. CORE 5th Oct 2014 <http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=345>
 2. CORE 6th Sept 2014 <http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=344>
 3. Horizon 29th Sept 2014 <http://consultation.horizonnuclearpower.com/>
 4. Daily Post 29th Sept 2014 <http://www.dailypost.co.uk/news/north-wales-news/plans-new-wylfa-nuclear-power-7850026>
 5. BBC 29th Sept 2014 <http://www.bbc.co.uk/news/uk-wales-north-west-wales-29402167>
 6. Wales Online 30th Sept 2014 <http://www.walesonline.co.uk/news/wales-news/stay-execution-wylfa-nuclear-plant-7859790>



5. Saudi Arabia: Why go nuclear as solar costs tumble?

Saudi Arabia has announced plans to incentivize both private and public investments in energy sources other than oil. Within 20 years, the Saudi Royal Family aims to invest \$80 billion and \$240 billion so that nuclear and solar, respectively, will each provide 15 percent of the Kingdom's power (18GWe and 40GWe respectively). The first nuclear reactor is expected to come online in only eight years.

But how will the Sunni-Shia conflict play out as the Middle East goes nuclear? Iran is the only Shia-led government in this potential nuclear group. Saudi Arabia is Sunni. Jordan, which recently discovered huge uranium reserves within its borders, is Sunni. The wealthy moderate nations like Qatar and the UAE are Sunni. (1)

In April 2010 King Abdullah issued a royal decree stating that "*development of atomic energy is essential to meet the Kingdom's growing requirements for energy to generate electricity, produce desalinated water and reduce reliance on depleting hydrocarbon resources.*" In order to fulfil the decree, the King Abdullah City for Nuclear and Renewable Energy (KACARE) was established in Riyadh. In 2011, plans were announced for the construction of 16 power reactors. According to KACARE, the "*likely energy mix*" in 2032 will comprise hydrocarbons (60 GW capacity); nuclear (17.6 GW); solar PV (16 GW); concentrated solar power (25 GW); wind (9 GW); waste-to-energy (3 GW); and geothermal (1 GW).

Does Saudi Arabia's nuclear power program make sense? There is no pretence that hydrocarbons will be left *in situ* as a climate change mitigation measure – the plan is to increase hydrocarbon exports by partially substituting (growing) domestic demand with nuclear power and renewables. A detailed economic analysis by Ali Ahmad and M.V. Ramana concludes: "*Our results suggest that for a large range of parameters, the economics of nuclear power are not favorable in comparison with natural gas, even if the currently low domestic natural gas prices in Saudi Arabia were to rise substantially. Further, electricity from solar plants has the potential to be cheaper than nuclear power within the next decade if the rapid decline in solar energy costs in the last decade continue, i.e., before the first planned nuclear power plant would be completed. However, unless the price of oil drops substantially below current values, it would be more economically optimal to export the oil than using it for generating electricity.*" (2)

The question is: is Saudi Arabia's motivation for pursuing nuclear options a reaction to the Iran's pursuit of uranium enrichment? Is this the start of a Sunni/Shia arms race. (3) Senior Saudi Arabian diplomats have reportedly stated that "*if Iran develops a nuclear weapon, that will be unacceptable to us and we will have to follow suit*", and officials in Riyadh have said that the country would reluctantly push ahead with their own civilian nuclear programme. (4)

In addition to lowering the barriers to a weapons capability, a Saudi nuclear power program – coupled with sabre rattling about developing weapons – may be designed to force a stronger international response to Iran's nuclear program (in particular its enrichment program); and it could be used to leverage greater Saudi access to conventional military hardware (and on better terms).

More Information: See N2NP Briefing: Civil Nuclear Power and Nuclear Weapons Proliferation, August 2012
<http://www.no2nuclearpower.org.uk/reports/CivilNukesandproliferation%5bAug2012%5dv2.pdf>

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1. Oil Price 21st Sept 2014 <http://oilprice.com/Alternative-Energy/Nuclear-Power/Saudi-Arabia-Aims-For-Nuclear-Power-Within-20-Years.html>
 2. Nuclear Monitor No.791, 18th Sept 2014
 3. Nuclear Programmes in the Middle East: In the Shadow of Iran, IISS, May 2008.
<http://www.iiss.org/publications/strategic-dossiers/nuclear-programmes-in-the-middle-east-in-the-shadow-of-iran/>
 4. Burke, J “Riyadh will build nuclear weapons if Iran gets them, Saudi prince warns”. Guardian 30th June 2013 <http://www.guardian.co.uk/world/2011/jun/29/saudi-build-nuclear-weapons-iran>



6. Radioactive waste update

Radioactive Waste Management Limited (RWM) has published a comprehensive Science and Technology Plan. For the first time ever, all of the generic Research and Development activities to enhance the scientific underpinning of the safety case for a Geological Disposal Facility are set out in one publication. The document is primarily an internal document, however publication of this document will provide opportunities for dialogue and involvement of interested parties in the development of our knowledge base for the safe geological disposal of radioactive waste. This document provides significantly more detail of our research needs, objectives and indicative scope than previously published. Feedback is welcomed, particularly in relation to innovative approaches which may address the identified research needs and objectives. (1)

The Government has asked Radioactive Waste Management Ltd (RWM) to undertake a national geological screening exercise to support the implementation of its policy for geological disposal of higher activity radioactive waste. RWM has set out how this national exercise will *“help communities better understand their area’s geology and how results will help identify a potential site for a geological disposal facility (GDF)”*. RWM will develop guidance and apply it to existing information about the geology of England, Wales and Northern Ireland, and draw all this information together in one place. RWM is also accessing experience of geological screening from other countries. A more detailed explanation about the potential scope of the geological screening exercise will be discussed at a series of public meetings during the autumn, at which RWM will seek the views of a wide range of stakeholders. These meetings will also explain the process and timing of the screening exercise, and how the scientific and academic communities, industry, and wider public can participate in the process. (2)

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1. NDA 2nd Sept 2014 <http://www.nda.gov.uk/2014/09/views-sought-on-science-and-technology-plan/>
 2. NDA 26th Sept 2014 <http://www.nda.gov.uk/2014/09/rwm-provides-more-information-on-geological-screening/> and <http://www.nda.gov.uk/rwm/national-geological-screening/>



7. Radiation and health

When nuclear reactors are refueled, a 12-hour spike in radioactive emissions exposes local people to radiation levels up to 500 times greater than during normal operation, writes Ian Fairlie on *The Ecologist* website. The spikes may explain infant leukemia increases near nuclear plants - but operators provide no warnings and take no measures to reduce exposures.

Operating nuclear power plants (NPPs) contain large volumes of radioactive gases at high pressures and temperatures. When their reactors are depressurised and opened to refuel every 12-18 months, these gases escape creating a spiked emission and a large radioactive plume downwind of the station lasting for 12 hours or so. However the emissions and plumes are invisible, and no advance warning is ever given of these spikes. The public is effectively kept in the dark about them, despite their possible health dangers. For years, I had tried to obtain data on these spikes, but ever since the start of the nuclear era back in 1956, governments and nuclear power operators have been extremely loath to divulge this data. Only annual emissions are made public and these effectively disguise the spikes. No data is ever given on daily or hourly emissions.

Is this important? Yes: these spikes could help answer a question which has puzzled the public and radiation protection agencies for decades - the reason for the large increases in childhood leukemias near NPPs all over the world. Governments have insisted that these increased leukemias could not be caused by radioactive emissions from NPPs as their estimated radiation doses were ~1,000 times too low. But these don't take the time patterns of radioactive emissions into account, and so are riddled with uncertainties.

1. Ecologist 29th Sept 2014

http://www.theecologist.org/News/news_analysis/2574389/radioactive_spikes_from_nuclear_plants_a_likely_cause_of_childhood_leukemia.html