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1. Moorside pies-in-the-sky

A so-called “clean energy park” could be created on the vacant Moorside site, a Copeland Council report has revealed. A team set up under Cumbria Local Enterprise Partnership’s (LEP’s) ‘Clean Energy’ Sector Panel – including representatives from the LEP, North West Nuclear Arc, Jacobs and the council – has developed the vision for the park adjacent to Sellafield.

The report, which was put together by the council’s nuclear sector development manager, Rob Ward, said the council and the team have been approached by two consortiums looking to develop new projects in the area which could form part of the park.

A new low-carbon power station around a small, light-water reactor has been proposed by the UK SMR Consortium, which is made up of Rolls-Royce, Jacobs, the National Nuclear Laboratory, Nuclear AMRC, BAM Nuttall, Assystem, Laing O’Rourke, Atkins/SNC-Lavalin and TWI. The consortium has £18million from the Industrial Strategy Challenge Fund, which will be matched by partners, and will support an initial phase of technology development this year.

Also, the Moorside Consortium of EDF Nuclear New Build and partners has proposed building two EPR-type reactor units at Moorside; the same reactor design that is being constructed at Hinkley Point C. But development would not be led and owned by EDF and CGN would not be involved.

A finance model would need to be agreed with the Government but the report confirmed a feasibility study had already concluded the site would be suitable. The report also said the Cumbria LEP team was working to support both consortiums with their plans and that it was expected that other “advanced nuclear technologies” proposals will be forthcoming for the site. (1)

Councillor David Moore, who is also the deputy leader of the authority said: *“I think we need to manage that; these are very early steps.”* (2)

Radiation Free Lakeland said: *“Whoever did this “feasibility study had tunnel vision. The Moorside site adjacent to the sprawling Sellafield Nuclear Waste site is not suitable for any sort of development – let alone new nuclear development no matter how prettily it is dressed up in green garb.”* (3)

According to the brochure, the Moorside ‘Clean Energy’ Hub could result in the development of new nuclear plants, linkages with renewable energy generation, hydrogen production plus energy storage. (4)

The hub is being promoted by a consortium of fifteen companies and trade unions, including EDF and several engineering firms and will eventually be majority owned by institutional investors, the statement said. It would also likely need some kind of support from the UK government. Other members include Atkins, Balfour Beatty Bailey, Laing O’Rourke, Mott MacDonald and the GMB and Unite trade unions. (5)



1. **NW Evening Mail 30th June 2020** <https://www.nwemail.co.uk/news/18550149.plans-new-clean-energy-park-moorside-revealed/>
2. **Carlisle News & Star 7th July 2020** <https://www.newsandstar.co.uk/news/18564573.councils-deputy-leader-keen-manage-expectations-around-moorside-plans/>
3. **Radiation Free Lakeland 30th June 2020** <https://mariannewildart.wordpress.com/2020/06/30/clean-energy-who-are-they-kidding-the-moorside-site-again-under-threat-of-new-nuclear-crapola/>
4. **Atkins 30th June 2020** <https://www.atkinsglobal.com/~media/Files/A/Atkins-Corporate/group/sectors-documents/nuclear/library-docs/brochure/moorside-vision-brochure.pdf>
5. **Reuters 30th June 2020** <https://uk.reuters.com/article/uk-britain-nuclear/edf-other-firms-launch-new-nuclear-plans-for-uk-cumbria-site-idUKKBN2411TT>



2. China Syndrome

The *Telegraph* reports that the new head of China General Nuclear (CGN) - the minority owner of the Hinkley Point C power station - has close ties to the Chinese Communist Party and the country's military nuclear programme. Yang Changli previously served as deputy general manager at China National Nuclear Corporation (CNNC), the organisation responsible for developing the country's nuclear weapons. The newspaper says the appointment is likely to spark speculation that CGN will be merged with CNNC. (1)

Senior Conservatives have been demanding a review of the Hinkley Point C nuclear plant after the *Telegraph* found that CGN is more closely involved in the project than previously disclosed. Sir Iain Duncan Smith said he believes that ministers had been misled. Theresa May's government was assured in 2016 the Beijing-controlled company would be a financial partner only when it took a 33.5pc stake in Hinkley. But the *Telegraph* found conflicting statements from the Chinese and the French over the number of Chinese workers on the site. CGN has said it has "more than 100 engineers and technical experts working on Hinkley", while EDF has put the number at between 20 and 30.

Nick Timothy, who tried unsuccessfully as Mrs May's top adviser to block the Chinese deal, said: *"Hinkley Point was supposed to involve French expertise and Chinese investment, and even then it was a bad deal on several fronts. If it is true that China has a significant operational role at Hinkley then there are many questions that need to be answered. Is this consistent with what ministers signed off in 2016? Have these employees been given full security clearance? By whom are they employed? Has EDF been fully transparent with the British government?"*

Referring to Sizewell C and Bradwell B, Mr Timothy said: *"We must not allow China any further role in our critical national infrastructure, especially our nuclear power stations."* (2)

The *Telegraph* also alleged that Chinese engineers had proposed a way to lift a concrete dome onto a reactor at Hinkley Point C which would have involved dangling the heavy structure above 5,000 workers. It was later deemed too dangerous.

The claims about increased Chinese influence at Hinkley Point C are 'untrue', according to EDF. It denied any suggestion that CGN's role in the project is "increasing." A spokesman for EDF said: *"Allegations in Sunday Telegraph's story about Hinkley Point C are untrue. The role of CGN is not increasing at Hinkley Point C and at no stage did anyone on the project suggest lifting a structure over workers, nor has there been any disagreement over the approach to be taken to the dome lift."* (3). The company said: *"Hinkley Point C is a European designed nuclear reactor – being built with experience and innovation from similar reactors around the world, including the reactors built by EDF, Framatome and CGN at Taishan. This co-operation has always been made public."* (4)

In June the US Department of Defense publicly accused CGN for the first time of having ties to China's military forces. US pressure on the company has been mounting since the Department of Justice in 2016 accused it of involvement in a plot to steal sensitive US technology. A year later



an engineer pleaded guilty to helping CGN procure technology from the US and in 2018 the company was blacklisted. (5)

The Chancellor, Rishi Sunak, refused to rule out a U-turn on the involvement of China in the building of the Bradwell nuclear power station in Essex, in an interview on LBC radio. He said the Government's position hasn't changed adding "*decisions haven't been made*" for the project. Mr Sunak said he thought the UK should have an "*eyes wide open relationship with China*". (6)

Wylfa Trumped

Donald Trump is understood to have intervened in discussions about the proposed nuclear site at Wylfa on Anglesey. The US president's administration is reported to have warned Hitachi, the company behind the site, not to sell it on to the Chinese government. (7)

Hitachi said it has no plans to sell the site to a Chinese corporation. A Horizon Energy spokesman said: "Our focus remains on securing the conditions necessary to restart this crucial project, which would bring transformative economic benefits to the region and play a huge role in helping deliver the UK's climate change commitments." Horizon is owned by Hitachi and was set to lead the project to build the site. "We are not aware of any plans to sell the project to China," Hitachi told the Reuters news agency. (8)

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1. Telegraph 1st August 2020 <https://www.telegraph.co.uk/business/2020/08/01/new-head-chinese-investor-hinkley-nuclear-plant-brings-military/>
 2. Telegraph 25th July 2020 <https://www.telegraph.co.uk/business/2020/07/25/tories-demand-review-chinese-involvement-hinkley-nuclear-site/>
 3. Somerset Live 28th July 2020 <https://www.somersetlive.co.uk/news/somerset-news/claims-increased-chinese-influence-hinkley-4369253>
 4. Energy Live News 27th July 2020 <https://www.energylivenews.com/2020/07/27/edf-denies-increasing-role-of-chinas-cgn-at-hinkley-nuclear-plant/>
 5. Telegraph 25th July 2020 <https://www.telegraph.co.uk/business/2020/07/25/china-takes-bigger-role-hinkley-nuclear-reactor-pressure-rises/>
 6. LBC 7th Aug 2020 <https://www.lbc.co.uk/radio/presenters/tom-swarbrick/chancellor-says-uk-needs-eyes-wide-open-relationship-with-china/>
 7. Times 28th June 2020 <https://www.thetimes.co.uk/article/donald-trump-warns-hitachi-not-to-sell-anglesey-nuclear-site-to-china-qlwp87js3> Daily Post 28th June 2020 <https://www.dailypost.co.uk/news/north-wales-news/donald-trump-intervenes-anglesey-nuclear-18502362>
 8. BBC 28th June 2020 <https://www.bbc.co.uk/news/uk-wales-politics-53212790>



3. (Nuclear) Power Corrupts

The French market watchdog has levelled a €5m (£4.5m) fine against EDF for misleading investors about the cost of Hinkley Point C (HPC). The regulators found that EDF spread “false information” about its agreement with the UK government to build HPC. The French financial regulator Autorité des Marchés Financiers (AMF), said the company may have set EDF’s share price “*at an abnormal or artificial level*” by claiming in a news release dated October 2014 that the terms of its deal with the UK government were “unchanged” from the 2013 agreement. “*There had in fact been significant changes to the financing plan by guaranteed debt,*” according to the AMF. They also levelled a €50,000 fine against Henri Proglio, EDF’s chief executive officer at the time, for overseeing the company’s failure to disclose key changes to the Hinkley Point contract. (1)

EDF has no credible means to finance the Hinkley Point C (HPC) project – that is the logical conclusion that can be drawn from hearings held by the French financial regulator Autorité des marchés financiers (AMF) and the Court of Audit, Cour des Comptes. The reports of the hearings identify a number of specific allegations. These include that EDF disseminated false information to the market in 2014, and then delayed disclosing inside information in 2015. On the former, when the European Commission approved the deal under state-aid legislation EDF promptly informed the market that it had obtained the approval of the European authorities with a press release. It is this press release that is considered “litigious” by the AMF. The press release stated that *‘the main elements of the October 2013 agreements remain unchanged while the measures aimed at sharing potential future gains with consumers will be strengthened’*. However, according to the AMF, the essential conditions of the contract had been modified since 2013. The UK Treasury had added new clauses likely to significantly affect the Sovereign credit guarantee, such as the requirement of a minimum amount of equity to be provided by partners. (2)

AMF further criticized EDF and its current CEO for having delayed communicating important information to the market. AMF claimed that on September 21, 2015, the electricity group indicated that Hinkley Point would be financed by equity and that this major transaction would be consolidated by full integration into EDF’s accounts, which was not what EDF had planned. AMF alleged that EDF should have communicated this information to the market three months earlier.

In June 2013, the UK government announced that credit guarantees would be offered to the consortium that would build HPC, New Nuclear Build (NNB). One of the key elements of the subsequent EC state-aid inquiry was examining these credit guarantees. The EC approved the deal in October 2014. Although one of the conditions of acceptance of the deal was an increased fee for providing the credit guarantees from about 2.25% to 2.95%, this would not seem to be a major factor in deciding whether to take the guarantees. But the existence of a ‘Base Case Condition’ (BCC) was also revealed. The Base Case Condition was that satisfactory evidence has to be provided that Flamanville 3 had completed a trial operation period. In short, if Flamanville 3 was not in commercial operation by the end of 2020, the offer of credit guarantees would be withdrawn. The rationale for this condition was the credit guarantees should not be given to



fund an untested technology. As things currently stand the loading of fuel into the reactor has been delayed until the end of 2022. In a document published by EDF in February 2018, the Company announced it was not taking up either tranche of the credit guarantees.

EDF initially anticipated taking only 45-50% of NNB (£6.3-7bn of the cost), with other investors expected to include China General Nuclear (CGN) and China National Nuclear Corporation (CNNC) (30-40% between them), Areva (10%) and other unspecified investors taking up to 15%. In fact, the other investors never materialised leaving EDF with 66.5% of the project. By 2019, the expected cost had increased to £21.5-23.2bn so instead of taking 45% of £14bn i.e. £6.3bn, EDF was left with 66.5% of up to £23.2bn i.e. £15.5bn.

In June 2017, because of the high risk that NNB would seek further financial support from the UK Government, notwithstanding the contractual terms of the deal, the UK National Audit Office (NAO) concluded: *“the Department’s deal for HPC has locked consumers into a risky and expensive project with uncertain strategic and economic benefits.”*

In November 2019, BEIS acknowledged that EDF had refused the credit guarantees. Whether it was because fulfilling the Base Case Condition was impossible or because EDF had chosen not to take up the offer for other reasons is unclear, but it was obvious to EDF from early 2017 that, because about 70 critical welds needed repair at Flamanville including eight that would require robotic techniques that did not exist then, that there was no hope that it could fulfil the BCC. (3)

The Covid-19 pandemic is threatening delays and further cost increases in the construction of the Hinkley Point C, EDF has warned. A slowdown in work at the Somerset site has increased the risk that Hinkley will not be ready to generate power by December 2025 as planned. Costs have risen from £18 billion when it was approved in 2016 to between £21.5 billion and £22.5 billion. EDF had already warned of a risk that the first reactor could be delayed by 15 months and the second by nine months, which would lead to a further £700 million cost increase. EDF says that the impacts of Covid 19 *“increase the risk of postponement of planned commissioning dates”* and a *“comprehensive study to assess the need for an updated schedule and costs”* was under way. (4)

In a report issued on 9th July 2020, France’s Court of Audit, the national public auditor cast doubt on the future of the Sizewell C and Bradwell B. The auditor said the HPC project *“weighs heavily”* on EDF’s balance sheet, adding that the company, which is 83.6% owned by the French state, is exposed to 63.5% of the project’s risks. EDF ended 2019 with net debts of €41bn (£37bn), €7.7bn (£7bn) worse than a year earlier. The auditor warned that the eventual profitability of HPC, which has been revised downwards repeatedly since it was signed off, could fall further still. It also noted that while HPC will benefit from a favourable guaranteed price for the electricity it will eventually produce, this benefit will not extend to subsequent projects. The auditor’s report observed that while the Sizewell scheme will aim to replicate the Hinkley project to cut construction costs by 20%, the price of the electricity produced will only be competitive if the cost of financing the project can be considerably reduced, such as through adoption of the regulated asset base approach. (5)

The Court of Audit report also said that Jean-Bernard Lévy, Chairman & Chief Executive Officer of EDF since 27 November 2014, had won boardroom approval for HPC after suppressing an



internal review labelling it as risk- laden. The Court of Audit said HPC represented a “high financial risk” for EDF. The court said that the risks had been pointed out as long ago as 2015 in a review by Yannick d’Escatha, a former chairman of the French National Centre for Space Studies. He outlined dangers stemming in part from the involvement of China General Nuclear, which has a minority stake in the project. He “*considered that the political and legal risks linked to agreements with the British government and the Chinese partner remained high for the economy of the project and the financial equation of EDF*”, the court said.

The review went on to say that “*organisation and governance*” of the project “*were not efficient enough to guarantee that risks would be controlled*”, that the timetable was unrealistic and that there were “*worrying industrial weaknesses*” in the supply chain. The court said that Jean-Bernard Lévy, EDF’s executive chairman, had “*refused to transmit the full report*” to directors or the government, even though the state has an 83.7% stake in the Company. They only received a synopsis. (6)

Steve Thomas and Alison Downes conclude:

“It is hard to avoid the conclusion that EDF has been proceeding with HPC since as long ago as 2015 on the assumption that the HPC project and EDF as a whole is too big to fail and that some means of supporting it will emerge. The only options remaining appear to be the granting of sovereign credit guarantees by either the UK or French government, unlocking debt finance or, as foreseen by the NAO, a renegotiation of the contract terms removing the technology risk from EDF.”

“If the project collapses or requires a costly rescue package, it will be British taxpayers and electricity consumers left to foot the bill. There will also be the opportunity cost of the options not pursued for more than a decade because it was assumed that HPC would provide 7% of our electricity, with a further 12% to come from the follow-on stations of Sizewell C and Bradwell B.”

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1. Guardian 31st July 2020 <https://www.theguardian.com/uk-news/2020/jul/31/hinkley-point-c-french-watchdog-fines-edf-5m-for-false-claims-on-cost>
 2. Nuclear Engineering International 6th Aug 2020 <https://www.neimagazine.com/news/newsfrench-financial-markets-authority-fines-edf-over-hinkley-point-c-8064671>
 3. Financing Hinkley C by Steve Thomas and Alison Downes, June 2020. <https://stopsizewellc.org/core/wp-content/uploads/2020/01/Hinkley-finance-and-AMF-final.pdf>
 4. Times 31st July 2020 <https://www.thetimes.co.uk/edition/business/hinkley-point-risks-further-delays-due-to-impact-of-virus-jq0zsn9bl>
 5. Construction News 13th July 2020 <https://www.constructionnews.co.uk/civils/edfs-uk-nuclear-projects-in-doubt-after-court-of-audit-report-13-07-2020/> and <https://www.telegraph.co.uk/business/2020/07/11/doubts-cast-edfs-ability-build-power-stations-time-budget/>
 6. Times 10th July 2020 <https://www.thetimes.co.uk/edition/business/edf-boss-suppressed-report-calling-hinkley-point-risky-gd5vcdhrx>



4. Hinkley Mud

Campaigners are calling for plans to dump mud from the construction of Hinkley Point C into the sea off Cardiff Bay to be halted. Campaign group Geiger Bay are pressing for extensive testing of the sediment following what they say is evidence of plutonium contamination, a claim that Westminster's Environment Agency (EA) denies. In February Natural Resources Wales confirmed they had received an application from EDF Energy, who want to dump 800,000 tonnes of sediment dredged near the site of the disused Hinkley Point A facility. Geiger Bay are a coalition of scientists, experts, individuals and organisations formed to oppose the plans. Two years ago, EDF were given the green light to dump 300,000 tonnes of mud off the Cardiff coast. Despite protests and a petition signed by over 7,000 people, and the support of Senedd Member Neil McEvoy, a full Senedd debate failed to convince the Welsh Government to halt the dumping.

A freedom of information request from Geiger Bay in October 2018 uncovered evidence from Magnox Ltd, who are now responsible for the Hinkley Point A plant, that accidents occurred when the reactors were producing plutonium for the Ministry of Defence.

As damaged fuel elements were hoisted from the cooling ponds, pieces of irradiated uranium fuel containing plutonium dropped to the bottom of the ponds. The damaged fuel elements, with some irradiated fuel exposed, were loaded into flasks for transport to Sellafield. At this time uranium, plutonium and pieces of the Magnox cladding could have been distributed on the site.

Geiger Bay's FOI request also revealed that Westminster's National Radiological Protection Board (NRPB) knew that, as a result of the accidents, plutonium leaked from the HPA cooling ponds for 20 years, between 1965 -1984.

Despite this, the Environment Agency only assessed the mud with gamma ray tests. Plutonium nuclei do not emit gamma rays. They decay into short-range alpha nuclei which are highly radiotoxic. All this evidence was presented to the Senedd before the debate two years ago. Research published in Nature in 1985 by a team led by Emeritus Professor Keith Barnham, Physics Department, Imperial College London shows that Hinkley Point A was run as a plutonium factory from 1965 to 1970. They calculated that Magnox reactors like Hinkley Point A produced 0.36 tonnes of weapons-grade plutonium. Their results were confirmed in 2000 when the Ministry of Defence published an inventory of its weapons-grade plutonium. At the end of the inventory was the entry "From unidentified sites, 0.37 tonnes". (1)

Geiger Bay has now launched petitions to the Senedd and on Change.org. in an effort to mobilise public support to stop the sediment from Hinkley Point C being dumped off the Welsh coast and to demand an EIA now on the dumping. (2)

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1. Nation Cymru 18th July 2020 <https://nation.cymru/news/campaigners-press-for-full-testing-of-nuclear-plant-sediment-in-effort-to-halt-dumping-off-cardiff-coast/>
 2. Geiger Bay <https://www.geigerbay.com/#english>



5. Sizewell C proposals expose problems with mega-nuclear projects

On 24 June, the UK Planning Inspectorate accepted for examination the planning application for Sizewell C. The decision means the Inspectorate is satisfied that the eight years of public consultation by the project was conducted properly and that full examination of the proposals can now take place. (1)

A copy of the full planning application and supporting documents are available on the Planning Inspectorate website. The Planning Inspectorate has three months from 24th June to prepare for the Examination. During this Pre-examination stage, people can register to become an Interested Party on the application by making a Relevant Representation. Registration closes on 30th September 2020. (2)

Meanwhile questions are being asked about whether Sizewell C can be built without the Chinese? Ian Duncan-Smith has described Sizewell as *“the next Huawei”*. *“With Huawei, with Sizewell C, one by one you will see the scale of dependency we have created on China and we have to deal with it,”* the former Conservative leader said. Dr Paul Dorfman, of University College London’s energy institute and founder of the Nuclear Consulting Group, said it was hard to see who else would invest in Sizewell if the Chinese pulled out.

Simon Gray, CEO of the East of England Energy Group, said: *“There are other ways a finance package could be developed – but that would clearly take time, which we do not have if we want to achieve net zero by 2050.”* If China were to pull out or be banned from involvement, the Government would need to balance the need for nuclear in the UK against the *“huge sums of money it would need to find as an alternative funding solution”*, he added.

Professor Anthony Glee, international security expert at the University of Buckingham, added: *“In theory, Sizewell C could happen as CGN has only a 20% stake ... in practice, I doubt EDF would wish to go ahead without the cushion of Chinese cash if, as seems probable, the project overruns.”*

One option is for the Government to help finance the £20bn project, with something called a Regulated Asset Base (RAB) – where consumers would be charged a fixed price in exchange for the infrastructure. Results of a Government consultation into this option are due to be published shortly.

Alison Downes, of Stop Sizewell C, said: *“China’s withdrawal would expose the fundamental problem with nuclear mega-projects; they are such high risk and so expensive that no-one is queuing up to put money in.”* Peter Wilkinson, of Together Against Sizewell C, added: *“I wish the government would bite the bullet, say they’ve made a mistake, and pour all this money into a renewables programme creating tens of thousands of jobs.”* (3)

- Electricity consumers who have signed up to utilities who supply 100% renewable electricity and consumers in Scotland will not be best pleased about having to pay extra to fund new nuclear reactors (see <https://electricityinfo.org/uk-domestic-electricity->



suppliers/). Juliet Davenport, of Good Energy, a renewable energy supplier, commenting on the fact that EDF is being paid between £55 million and £73 million for halving power output from Sizewell B this summer, claimed that the contract was “*evidence that inflexible, expensive nuclear power is not fit for the clean energy system we need*”. (4)

- Extinction Rebellion held a protest on the beach at Sizewell. The group laid out pairs of shoes in the form of its ‘XR’ logo in the sand to represent what it says will be future lives devoid of wildlife and a stable climate due to the planned construction of Sizewell C. Opponents of Sizewell C say that if it is built it will devastate the local environment, which includes an Area of Natural Beauty and a Site of Special Scientific Interest surrounding nearby RSPB Minsmere. (5)
- The UK Secretary of State for Business, Energy and Industrial Strategy, Alok Sharma, is of the view that the proposed Sizewell C nuclear power plant is not likely to have significant effects in any other states outside of the UK. (6) The Planning Inspectorate provided information about possible transboundary environmental impacts according to international conventions as part of its review of the DCO application for Sizewell C. (7) “*Taking into account the United Nations Economic Commission for Europe (UNECE) Convention on Environmental Impact Assessment (EIA) in a Transboundary Context (the Espoo Convention) and the UNECE Convention on access to information on environmental matters (the Aarhus Convention), the UK government has chosen to inform all signatory states and their public of the Proposed Development and invite their participation in the decision making process,*” the Planning Inspectorate said. (8)
- The invitation to comment on the Sizewell proposals has been issued to neighbouring countries. The Irish Government has been invited to make observations, however, and a spokesperson for the Department of Communications, Climate Action and Environment said they would be responding. “*The UK authorities have officially notified Ireland through the Department of Housing, Planning and Local Government (DHPLG) of an application for development consent for a nuclear plant at Sizewell C,*” the spokesperson said. “*DHPLG is currently consulting with other government parties and agencies to decide whether a public consultation is required. This department intends to respond to the notification, once the Environmental Protection Agency has had sufficient time to consider these issues.*” Attracta Uí Bhroin, environmental law officer with the Irish Environmental Network, urged the public to make their views on the plant known. “*The fact that it's not on the west coast of England might make people think it's not so important but that is irrelevant. Chernobyl was a lot further away and we still received radiation from that,*” she said. “*The possibility of something going wrong is very low but there is no going back from the ramifications if something does go wrong. Three Mile Island, Chernobyl and Fukushima have shown us that.*” (9)
- Sizewell is just 300 kilometers from the German border as the crow flies. The deadline for the participation of the federal government, the federal states and the German public in the cross-border environmental impact assessment (EIA) expires on August 19. The chairman of the Bundestag Committee on the Environment, Nature Conservation and Nuclear Safety, Sylvia Kotting-Uhl (Greens), complained that the British environmental



report was confusing and not available in German. *“The UK is again trying to escape its commitments, this time in an insidious way,”* she said. In mid-July, Kötting-Uhl asked the federal government whether they were considering taking part in the EIA process. *“In a previous screening process, the UK had determined that this new development had no cross-border environmental impact,”* the response said. But on the website of the Ministry *“the contact details of the British authority have been published so that interested individuals or associations can register directly with the competent authority”.* (10)

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1. Nuclear Engineering International 30th June 2020 <https://www.neimagazine.com/news/newssizewell-c-planning-application-accepted-for-examination-7999234>
 2. See <https://infrastructure.planninginspectorate.gov.uk/projects/eastern/the-sizewell-c-project/>
 3. Eastern Daily Press 27th July 2020 <https://www.edp24.co.uk/news/politics/when-will-sizewell-c-be-built-in-suffolk-1-6761674>
 4. Times 8th Aug 2020 <https://www.thetimes.co.uk/edition/business/national-grid-pays-sizewell-b-owner-for-halving-power-output-0h6gh02z9>
 5. East Anglian Daily Times 9th Aug 2020 <https://www.eadt.co.uk/news/extinction-rebellion-holds-beach-protest-against-sizewell-c-1-6784523>
 6. BEIS Press Release 7th July 2020 <https://www.gov.uk/government/news/proposed-nationally-significant-infrastructure-projects-in-england-and-wales-sizewell-c-nuclear-power-station>
 7. Planning Inspectorate’s Transboundary Screening Assessment <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-002271-EN010012%20Regulation%2032%20Transboundary%20Screening.pdf>
 8. Nuclear Engineering International 9th July 2020 <https://www.neimagazine.com/news/newssizewell-c-npp-unlikely-to-affect-other-states-8018140>
 9. Irish Independent 9th July 2020 <https://www.independent.ie/irish-news/public-urged-to-have-a-say-on-uk-plan-for-new-nuclear-power-plant-39352631.html>
 10. Taz 6th Aug 2020 <https://taz.de/Neues-Atomkraftwerk-in-Grossbritannien/!5700229/>



6. Bradwell 2B or not

Andy Blowers, chair of the Blackwater Against New Nuclear Group, writing in the *Regional Life* magazine says three matters, each with profound implications for Bradwell B, have seamlessly and simultaneously intertwined, each a setback for the Chinese state-backed nuclear developer - CGN - but which together deal a possibly fatal blow to Chinese ambitions on the Blackwater.

First, in early March, CGN revealed its plans, on the eve of lockdown, for a Stage 1 public consultation. Despite pleas for the consultation to be aborted since public participation was heavily constrained during the pandemic, BRB ploughed on. This did not play well with the public. To describe the plans as shocking might be considered understatement. The sheer scale, environmental destruction and danger of building twin 1.1GW reactors with long-term high-level radioactive waste stores, cooling towers, port facilities, accommodation blocks in a watery and potentially waterlogged environment was folly of the highest order. The plans unleashed a firestorm of protest on both sides of the estuary and the proposals were torn to shreds both in principle and in measured, carefully articulated detail. The sense of outrage was palpable.

Second, a cloud no bigger than a man's hand was developing into a political catastrophe for CGN. A Planning Application for land investigations and load test in connection with the new power station was lodged with Maldon District Council. It drew a large number of comments (143) with 138 objecting and only 1 supporting. An example of the tenor of public reaction: *"These ground investigations represent the initial stage of creating a monster which will dwarf the landscape and disrupt the peaceful way of life of the communities surrounding the Estuary forever"*.

Nevertheless, it was widely presumed that Maldon Councillors would approve the proposal. At the Council meeting, one after another the Councillors spoke out against granting permission mainly on the grounds that the investigations were a precursor for a nuclear power station of a scale that should not be contemplated on such a vulnerable site. The eventual result was 24 against, none for – an overwhelming and totally unexpected rejection of the plans from a Council hitherto favouring Bradwell B. Although the application was of itself small beer, the result was a minor political earthquake.

The third was a matter of national political significance: the growing concern with Chinese involvement in the UK's strategic security. The Golden Relationship has soured in recent years in the face Chinese repression of human rights, suppression of Hong Kong's independent status, its assertion of regional dominance in conflicts in the South China Sea and on the Indian border and the developing rivalry with the USA. Huawei has already been removed from future participation in the UK. Attention is now being focused on the nuclear sector, and specifically on CGN, a company directly linked to the Chinese state and military.

Blowers concludes: *"one cannot help thinking that the Chinese company, battered by a hostile public reaction to its plans, denied a Planning Permission by a local council and beleaguered by geopolitical concerns about risks to the UK's national security, will take a little while to lick its wounds. Whether it will reflect and withdraw or return emboldened to the fray remains to be seen."*



I think the Bradwell B power station is rather less likely to happen now than at the beginning of the year but I am not yet holding my breath.” (1)

The first stage of consultation on proposals for the new station closed on 1st July 2020, but the documents are still available here: <https://bradwellb.co.uk/previous-consultation/>

Energy experts Professor Andrew Stirling and Dr Philip Johnston in response to the consultation said: *“The last full UK Energy White Paper not successfully challenged by judicial review was published in 2003 and, even then, found that nuclear power presents an unattractive option for the UK.”* They say the Government should publish a justification for nuclear power compared to other low carbon energy sources. (2)

More than 1,600 people and organisations took part in the consultation. Alan Raymant, Bradwell B chief executive officer, said: *“It has been an important opportunity for the project team to talk to members of the community and it will really help us improve the plans for Bradwell B.”* Opposition group BANNG – Blackwater Against New Nuclear Group prepared a 13,000 word response to the public consultation. BANNG chairman Prof Andy Blowers said: *“This is not a done deal as CGN would have us believe. A new nuclear power station is not needed, and especially it is not needed at this site. Bradwell B would savage a landscape, community and environment that can never be replicated or replaced. To pursue the project in the face of such destructiveness would be an act of reckless irresponsibility.”* (3)

On 12th August there was unanimous agreement from Colchester Borough Council to oppose Bradwell. (4)

BANNG’s submission is here: <https://www.banng.info/wp/wp-content/uploads/2020/06/BANNG-Response-to-Stage-1-Consultation.pdf>

The Nuclear Free Local Authorities submission is here: https://www.nuclearpolicy.info/wp/wp-content/uploads/2020/05/NFLA_New_Nuclear_Monitor_No61_Bradwell_B_S1_submission.pdf

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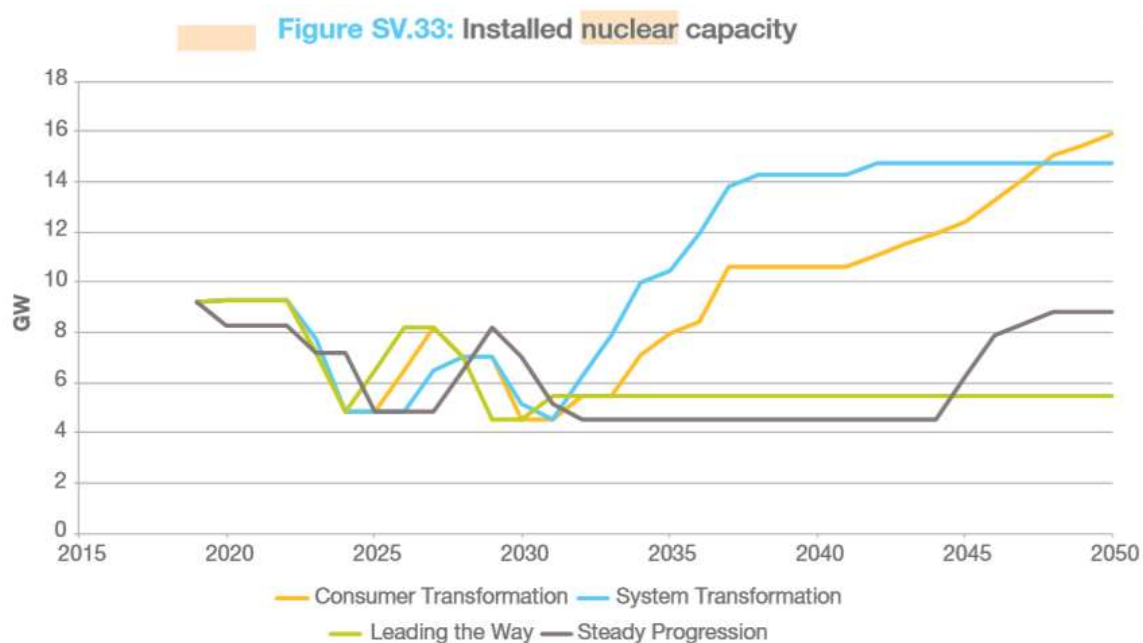


7. Future Energy Scenarios

The National Grid Electricity System Operator (ESO) has published its 2020 Future Energy Scenarios (FES) (1). For the first time three of its four scenarios achieve net zero carbon emissions. Consumer Transformation and 'System Transformation' achieve net zero by 2050, and one scenario – 'Leading the Way' – by 2048. The remaining scenario – Steady Progression – still emits 258 MtCO₂e in 2050, equivalent to a 68% reduction compared to 1990 levels. (2)

Nuclear continues to play a role in the net-zero pathways, but its prospects vary widely. Today, the UK has around 9GW of nuclear capacity. By 2050, National Grid sees this changing to as low as 5GW or as high as 17GW, depending on the scenario. At the low end, this would see Hinkley Point C in Somerset as the only large new nuclear plant built in the UK over the next 30 years. (3) National Grid sees a reduction of nuclear capacity in the 2020s in all four scenarios as stations reach the end of their life and only one new station comes online by 2030. In the 'System Transformation' scenario the ambition to decarbonise with more centralised technologies leads to a focus on large-scale nuclear generation, while in the 'Consumer Transformation' scenario, despite the focus on decentralised generation, we still see nuclear, but mostly SMRs.

The other 2 scenarios – 'Steady Progression' and 'Leading the Way' - have low levels of nuclear capacity. In Leading the Way there is a mix of technologies to decarbonise, including development of small modular reactors in 2031. Despite this, rapid deployment of renewable and BECCS generation, combined with lower electricity demands than the other net zero scenarios, reduces the need for new nuclear. In Steady Progression there is some ambition to develop new nuclear projects, but the first new project after Hinkley doesn't come online until the 2040s.





It was only in June last year that Theresa May's Government committed to meeting a net zero target by 2020. (4) This was only a month before ESO published its 2019 Future Energy Scenarios, leaving little room for a complete reworking of the scenarios, although ESO managed to, very quickly, put something together on net zero. Only two of the other four scenarios met even the original 80% target for 2050. (5) This year's Future Energy Scenarios (FES) have undergone a monumental reworking to bring them in line with the significant changes made across the energy industry over the past twelve months. For instance, in 2019 the ESO recommended rolling out at least 2.5 million domestic heat pumps by 2030. In its 2020 version, it sees up to 20 million heat pumps installed by 2050, with as many as 8 million homes actively managing their heating demands by storing heat and shifting their use outside of peak periods. The message is clear: a 2050 net zero is possible, but we need to crack on with it before it's too late. (6)

The 'Leading the Way' scenario shows the electric power sector delivering net-negative emissions by 2033 after rapidly scaling up the use of bioenergy and the installation of carbon capture, usage and storage (CCUS) technologies. This scenario would also require rapid and far-reaching improvements to energy efficiency across the nation. The report describes energy efficiency improvements as a "*no-regret action*" for policymakers and corporates, given that the business case already stacks up favourably in the majority of cases.

'Leading the Way' also sees total energy demand for road transport fall by 75% between 2019 and 2050, due to a combination of electrification, automation, increased efficiency (carsharing, more efficient logistics) and modal shifts towards active travel and public transport. Similarly, the energy consumption of the average home falls to 25% of current levels, as housebuilders, local authorities, central government and individual homeowners invest in deep retrofits and smart technologies. (7)

A new scenario framework – the level of societal change - was also included, but the impact of COVID-19 has not been factored into this year's FES due to the full extent not becoming apparent until too late. It will be examined fully in 2021, the ESO confirmed.

Across all the net zero scenarios, the carbon intensity of GB electricity will have become negative by the mid-2030s. The scenario with the most renewables is 'Consumer Transformation', which has 2.8 times more capacity than today and over 480TWh of wind and solar. A surge in new clean energy projects including the installation of 40GW of wind capacity, as well as new solar projects and bioenergy will significantly reduce emissions, while other changes, including carbon capture technologies, battery improvements and increased consumer flexibility will help plot a course towards an overall removal of more CO₂ from the environment than is produced. (8) National Grid expects to see at least 3GW of new wind capacity and 1.4GW of solar installed every year from now until 2050.

The FES report says that "electrification is key to the decarbonisation of transport" and sees the number of electric vehicles (EVs) on the road rising to around 30m by between 2040 and 2050 (11m by 2030). This compares to the current total of 32m cars on the road. But in the 'Leading the Way' scenario there are only 20m vehicles. Smart-charging "batteries" will help balance the electricity grid, with vehicles generally being charged at home during off-peak hours. The report



suggests that V2G could supply up to 38 gigawatts (GW) of electricity supply by 2050, during periods of peak demand - nearly two-thirds of the current peak of 58GW. (9)

Heat decarbonisation, in particular, requires “urgent policy decisions” in order to drive change across the whole energy system. The technologies used for decarbonising heating vary between the scenarios, with 65% of homes using hydrogen for heating in System Transformation. The energy required for residential heating for net zero could be over 50% lower by using high levels of insulation and electric heat pumps, such as in the Consumer Transformation scenario, rather than hydrogen boilers. Better insulation contributes one-third of this reduction, with the other two-thirds due to heat pumps. ‘Leading the Way’ takes the best of both, with a mix of hydrogen and electrification for heating as well as significant lifestyle changes for consumers.

A shift away from use of gas boilers for home heating towards use of heat pumps, would also make for greater efficiencies and considerably lower fossil fuel emissions. 8m of up to 20m heat pumps could be used in conjunction with heat batteries to also help balance the grid. By 2050, “the input energy required to heat an average house could drop to as little as a quarter of what it is today”, the report states, but it adds that “significant investment in low carbon electricity generation will be required across all net zero pathways”. (10)

In all three of the net zero scenarios, four technologies produce over 90% of electricity generation: wind, solar, nuclear and bioenergy with carbon capture and storage (BECCS).

Electrolysers using excess electricity to make hydrogen are another important source of flexibility in the FES pathways. Capacity climbs from less than 1GW today to as much as 10GW by 2035 and 73GW by 2050, with the higher end meaning less fossil gas is used to make hydrogen. As early as 2035, there is also 20GW of electricity storage capacity such as batteries and pumped hydro – up from 3.8GW today – with the total reaching up to 40GW by 2050.

Four key messages were identified:

- Firstly, reaching net zero carbon emissions by 2050 is achievable. However, it requires immediate action across all key technologies and policy areas, and full engagement across society and end consumers.
- Secondly, hydrogen and carbon capture and storage must be deployed for net zero. Industrial scale demonstration projects need to be operational this decade.
- Thirdly, the economics of energy supply and demand fundamentally shift in a net zero world. Markets must evolve to provide incentives for investment in flexibility and zero carbon generation. In all net zero scenarios the levels of Vehicle to Grid (V2G) export in 2050 offset the peak demands leading to a net negative effect on EV demand at peak times.
- Fourthly, open data and digitalisation underpin the whole system thinking required to achieve net zero. This is key to navigating increasing complexity at lowest cost for consumers.

With flexibility, such as vehicle-to-grid systems, batteries and the use of heat batteries in conjunction with heat pumps, now being factored into mainstream scenario planning, the National Grid has shown, for those who claim it is impossible to reach net zero in 2050 without



new nuclear reactors, it is in fact possible in the 'Leading the Way' scenario to come pretty damn close.

- In an interview by Utility Week, Sir John Armitt, Chair of the National Infrastructure Commission, comments on lack of energy policy coming out of BEIS. *"We're risking missing net zero targets if it doesn't make its mind up soon. We're still no wiser what government's plans are for long-term investment, and we still don't have a National Infrastructure Strategy"*. Armitt says, the big decisions on things like low carbon heat, carbon capture and storage, the energy mix and plans for nuclear power and how we want to pay for the carbon transition, need to be taken now. *"We've been due an energy white paper for quite a long time ...The energy mix still remains the big challenge. We can see that at the moment the government has a policy, which is some 10 years old, involving a reliance on nuclear. But arguably it's a policy which at the moment would appear to be undeliverable, because the basis of the investment by any potential nuclear investor requires the government to take some of the risk, and they haven't in the last two or three years been able to reach a conclusion on how that might be handled ... Nuclear is never going to be able to meet the cost base of renewables. Nuclear only has a real future if in fact there is a capacity argument which says that at the end of the day, we see a need for nuclear as a fallback means for a baseload of generation."* (11)

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8. Flexibility Notes

Andrew Cruden, Professor of Energy Technology, University of Southampton writes (1): The UK plans to build huge batteries to store renewable energy – but there’s a much cheaper solution. The government recently announced the removal of planning barriers to building energy storage projects over 50MW in England and 350MW in Wales. This, the government feels, will enable the creation of significant new energy storage capacity. (2)

The UK currently has 1GW of operational battery storage units and an additional 13.5GW of battery projects under development at the planning stage. This intervention by the government creates a planning environment that could enable the country to reach its target of net zero carbon emissions by 2050. This could happen with either a high proportion of large-scale, centralised renewable generation, or with more of a priority on smaller community schemes such as locally owned wind turbines and solar panels.

Batteries will, in particular, contribute significantly to the grid regulation of a further 30GW of offshore wind by 2030 (to achieve the UK target of 40GW of offshore wind by that year). But pursuing ever larger, stationary battery systems may not be the optimal solution for the UK to have a renewable energy future. Instead, the answer could lie in the country’s garages and car parks. This has led to a growing focus on the introduction of plug-in hybrid and all-electric vehicles, and vehicle-to-grid technology (V2G). There are 38.2m licensed vehicles in the UK, including some 31.5m cars. If these were all battery electric vehicles (each storing an average of 50kWh of energy and connected via a 7kW charger), this could create a nationwide distributed mega battery with a capacity of 220.5GW. This would be over 15 times the size of the currently planned large battery storage.

Vehicle-to-grid storage is still a nascent concept. It requires dedicated two-way charging equipment that can also communicate with the vehicles, as well high-level aggregator control systems. However all of this technology exists. Indeed, there are a range of V2G demonstrator projects within the UK. Nissan, in particular, has embraced this technology and already offers a more limited_ vehicle-to-home (V2H) system that lets people use their cars to store energy from rooftop solar panels until it is needed in the home at night.

So, while the UK government is correct that the national grid needs more energy storage to support the shift to further renewable energy generation, a focus on building large, expensive batteries isn’t necessarily the answer.

- SSE Enterprise has joined a project hoping to create the largest smart city-wide energy system in the UK. The £2 million Peterborough Integrated Renewables Infrastructure Project is being led by Peterborough Council, with the aim to cut energy bills and provide green heat, electricity and transport. It brings together a local electricity network and heat network with energy generation and local demand, such as EV charge points. This, SSE said, unlocks efficiencies not deliverable under the existing siloed energy system, adding it is “particularly effective” in built up areas where the electricity network is constrained. As part of the project, demand and supply balancing technology will be used, with buses to be charged at night when demand is lower and businesses to



use additional electricity at different times of the day to boost their resilience and reduce their carbon emissions. (3) Jointly funded by the government's UK Research and Innovation (UKRI) body and the private sector, the Peterborough Integrated Renewables Project (PIRI) is expected to slash the city's energy bills by as much as a quarter. (4)

- The Heating Swaffham Prior project has received a £2.146 million grant to help provide sustainable heating to homes in Cambridgeshire. Cambridgeshire County Council is working with the Swaffham Prior Community Land Trust to develop the project, which will help to transition the 300 strong village of Swaffham in East Cambridgeshire to clean heating. The grant has been received from the Heat Networks Investment Project (HNIP), which itself is supported by the Department for Business, Energy and Industrial Strategy (BEIS) and will help drive forwards the project that has been under development since 2017. It will include 130 200m deep boreholes being drilled into the ground to extract heat to form a heat network. This will be supplemented by a large air source heat pump, which will be powered by solar panels at the energy centre. (5)
- Good Energy has launched a new flexible tariff for homes that use heat pumps, in a move designed to help customers capitalise on the government's recently-announced £2bn Green Home Grant scheme to support energy efficiency improvements. The Green Home Grant scheme will allow homeowners to claim up to £10,000 to help upgrade their homes to become more energy efficient and install technologies such as heat pumps. Good Energy said its new "competitive" tariff, which will be powered by renewable electricity, would help homeowners drive down costs of operating heat pumps, offering cheaper energy rates at specific times of the day to allow them to use their heat pumps cost-effectively. (6)
- Construction work has begun in Lincolnshire on the world's longest subsea power cable, which will run between Britain and Denmark to share renewable energy between the two countries. The 475-mile (765km) cable is a joint-venture between National Grid in the UK and Denmark's Energinet. By 2023, the high-voltage, direct-current link will transmit the equivalent of enough electricity to power 1.5m British homes between Bicker Fen in Lincolnshire and the South Jutland region in Denmark. The €2bn Viking Link project will surpass the 450-mile North Sea link, which will begin importing Norwegian hydropower to the UK from 2021. Viking Link is one of several new super-cable projects, which are each considered a significant step towards the UK's goal of net-zero carbon emissions because National Grid will be able to tap more renewable energy resources to replace fossil fuels. The UK has about 5GW of power cable capacity connecting Britain's electricity system to power generated in the Netherlands, France and the Republic of Ireland. By the middle of the decade, this capacity is expected to rise fivefold to 25GW through a string of projects including more subsea cables to France and Ireland as well as new connections with Norway, Denmark, Germany and Belgium. A more ambitious project has been proposed to connect Britain to Iceland via a 620-mile subsea cable, but progress on these plans has been slow. (7)



- Two “world-leading” machines are to be installed at a power site in Moray in a £20million project to make using renewable energy in the electricity grid easier and cleaner. The “Rotating Stabilizer” equipment will provide stability of supply without producing harmful carbon emissions. It will remove the need for fossil fuel-powered generation to run at the same time to ensure the electricity system remains stable as increasing amounts of energy are supplied from renewable sources, such as wind and solar. (8) The giant flywheel should help to prevent blackouts across Britain by mimicking the effect of a power station. The Norwegian energy company Statkraft hopes that from next winter the new flywheel, designed by a division of General Electric, will be able to mimic the spinning turbines of a traditional power station, which have helped to balance the grid’s frequency at about 50 hertz for decades. (9)

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9. Advanced Nuclear Reactors

The UK Government is investing £40 million to help speed up the development of the next generation of nuclear energy technologies. £30 million will support three Advanced Modular Reactor (AMR) projects in Oxfordshire, Cheshire and Lancashire. The three companies with successful AMR projects, receiving £10 million each, are Tokamak Energy, Westinghouse and U-Battery.

Around £5 million from the funding will support British companies and start-ups with smaller research, design and manufacturing projects. They will develop new ways of manufacturing advanced nuclear parts for modular reactors both at home and abroad and are expected to create up to 200 jobs. The remaining £5 million will be invested in strengthening the UK's nuclear regulatory regime, in an effort to ensure it remains "*one of the most robust and safest in the world*". (1)

The House of Commons Library has published the ninth version of its briefing on new nuclear developments in the UK. (2) Apart from failing to mention that the decision of Horizon Energy's application for a Development Consent Order has been postponed twice (now expected 30th September 2020) (3), the summary on new large-scale nuclear reactors is quite handy. It's also a useful summary of where we're at with Advanced and Small Modular Reactors.

We looked at UK Government support for Advanced Nuclear Technologies in nuClear News No. 126 <http://www.no2nuclearpower.org.uk/wp/wp-content/uploads/2020/06/nuClearNewsNo126.pdf> But, with the array of different technologies being supported, it can all get rather confusing, not least because the terminology keeps changing.

The Government's Policy Paper on 'Advanced Nuclear Technologies' (ANTs) (4) specifies that there are two broad categories based on technology level: Generation III and Generation IV. The Government is now calling Generation III ANTs – Small Modular Reactors (SMRs) and Generation IV ANTs – Advanced Modular Reactors or AMRs.

According to a speech to the Nuclear Industry Association Conference by the then Parliamentary under Secretary of State for BEIS Richard Harrington, on 7th December 2017, Government support for ANTs was based on three key requests from industry that emerged as part of the SMR competition which had been run by the Cameron Government from 2016. These requests were for:

- Better and earlier access to regulators
- Help to turn new developer's ideas into detailed designs
- Creating the right market conditions to enable developers to bring new reactors to market.

According to Richard Harrington's Ministerial Written Statement on 7th December 2017 total funding available to develop and regulate designs (the first two requests from industry) was £56 million and would be spent on a two-phase advanced modular reactor project over three



years (the Policy Paper on ‘Advanced Nuclear Technologies’ clarifies that only Generation IV reactors are eligible for this support):

- Phase 1 comprised up to £4 million for around eight reactor vendors to carry out detailed technical and commercial feasibility studies and up to £7 million to further develop the capability of nuclear regulators who support and assess advanced nuclear technologies.
- Subject to Phase 1 demonstrating clear value for money through a formal reapproval process with the Treasury, up to £40 million will be available for three to four vendors of advanced modular reactor R&D projects to accelerate the development of their designs and up to a further £5 million for regulators. (5)

The 8 companies that received Phase 1 funding were listed in nuClear News No.126. Then on July 10th the 3 successful projects for Phase 2 funding were announced:

Tokamak Energy – a fusion reactor

Westinghouse – a lead-cooled fast reactor

U-Battery – an advanced modular fission reactor

The project descriptions are available here:

<https://www.gov.uk/government/publications/advanced-modular-reactor-amr-feasibility-and-development-project/advanced-modular-reactor-feasibility-and-development-successful-projects>

To address the third request from industry, “*to create the right market conditions to enable developers to bring new reactors to market*”, the then Minister stated that an expert finance group will be set up to “*advise how small and advanced reactor projects could raise investment in the UK [...] and demonstrate the commercial proposition of small reactors in the emerging nuclear market.*” The Expert Finance Working Group on Small Reactors was established and reported in August 2018. (6)

SMRs

The December 2017 speech did not include any specific announcement for small modular Generation III reactors. This includes the reactor by Rolls Royce which could breach the technical definition of an SMR of being less than 300 MW as the Rolls Royce design is 220 - 440MW.

However, in July 2019 the then Secretary of State for BEIS (Greg Clark) announced that the May Government was proposing up to £18 million of funding for a consortium led by Rolls-Royce to develop a first-of-a-kind SMR.

The Johnson Government later confirmed in November 2019 the £18 million funding.

In January, a Rolls-Royce-led consortium said it aims to have mini-nuclear power stations in operation across the UK from 2029. It plans to build small nuclear reactors at former nuclear sites in Cumbria and Wales. Under the plan, between 10 and 15 mini-nuclear power stations could be built across the UK, with each reactor producing 440MWe of electricity. (7)



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10. NDA and Waste Notes

- Campaigners will be disappointed that the Magnox reprocessing programme on the Sellafield site is not now expected to be completed until 2021. The most recent NDA Business Plan (2020-2023) said reprocessing operations would finish in 2020. (1) Sellafield carried out a controlled shutdown of the Magnox reprocessing plant in March due to the coronavirus, (2) It resumed operations at the beginning of August. (3)
- There will also be disappointment, but no surprise, that Copeland Council's executive has voted to "open up discussions" on the possibility of building an underground nuclear waste repository in the borough. (4) Cumbria Trust says if, as expected, other areas of the country don't volunteer the desire to make this succeed risks political expediency taking precedence over science once again. On the positive side, Copeland has not repeated the key failure of the last process, by this time ruling out the Lake District from the very start. (5)
- Trawsfynydd has been selected to lead on Magnox's early reactor decommissioning project. The move should secure employment for the next two decades and could lead to further opportunities for local people in the future. (6) Under the original plans, the twin reactor buildings that tower over the landscape were due to be reduced in height by two-thirds, and then left in a care and maintenance phase, before the site is completely cleared in 2083. The new programme will see the remaining reactor buildings demolished, while a new low-level radioactive waste store is built on the site to hold the material. (7)
- All Magnox reactors have now been de-fuelled, and Dounreay's stock of civil separated plutonium moved to Sellafield, according to the NDA's Annual Report.. The Low Level Waste Repository celebrated diverting 11,000 containers from having to be disposed at the site - although it is unlikely the people living near the alternative destinations - landfill sites, incinerators and metal recycling plants will be celebrating. (8)
- The NDA is also pleased that it has poured the first concrete on the Sellafield Product and Residue Store Retreatment Plant (SRP), which it says "will provide safe storage of special nuclear materials for at least 100 years and is a vital part of our hazard and risk reduction progress. Irrespective of what the Government finally decides to do with the UK's plutonium stockpile, the NDA must, in the interim, ensure that it is stored safely and securely. The hazards of current storage systems were highlighted in a 2018 National Audit Office report (NAO) which described some storage facilities as being amongst the 'highest hazard' facilities at Sellafield and flagged up concerns about stored plutonium canisters decaying faster than anticipated - with a leak from any package leading to an 'intolerable risk' as defined by the Office for Nuclear Regulation (ONR). Such hazards were to be mitigated by the transfer of plutonium from old to new stores (principally the Sellafield Product & Residue Store SPRS which opened in 2010 and saw the first transfers in 2012) and the repackaging of plutonium in the new repackaging plant (SRP) for which the concrete was just poured. (9)



- CoRWM has published its 16th Annual Report. (10) The Membership of the Committee now includes Mark Kirkbride Chief Executive Officer of West Cumbria Mining Ltd since 2014 (11) and Professor Geraldine Thomas who thinks that people in Great Britain were not exposed to radiation from Chernobyl and that there will be no death toll from Fukushima. (12)
- The scars left on barren landscapes by uranium mining and the vast areas of land, containing small mountains of mine tailings, which will be dangerous to intruders for billions of years, along with the terrible price paid by the poor miners and indigenous peoples who have had their lands torn apart are now laid bare in a new publication - The Uranium Atlas, Facts and Data about the Raw Material of the Nuclear Age. The central message of the Atlas is uncompromising: *“The price for keeping the nuclear power stations in South Korea, China, Japan, Russia, the EU and USA online is paid by the people in the mining regions: their health and livelihoods are destroyed.”* (13)

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11. Cost of Renewables

The latest round of offshore wind farms to be built in the UK could reduce household energy bills by producing electricity very cheaply. Renewable energy projects, including onshore and offshore wind and solar farms, have so far been subsidised by government support schemes. This has led to some to complain that clean energy is pushing up bills. However, the most recently approved offshore wind projects will most likely operate with ‘negative subsidies’ – paying money back to the government, according to new research carried out at Imperial College. The money will go towards reducing household energy bills as the offshore wind farms start producing power in the mid-2020s. (1)

Lead researcher Dr Malte Jansen, from the Centre for Environmental Policy at Imperial, said: *“Offshore wind power will soon be so cheap to produce that it will undercut fossil-fuelled power stations and may be the cheapest form of energy for the UK. Energy subsidies used to push up energy bills, but within a few years cheap renewable energy will see them brought down for the first time. This is an astonishing development.”*

The amount of renewable energy capacity is rapidly growing around the globe. At the same time, their specific investment costs are falling. Surprisingly, the prices received in recent auctions for offshore wind have already fallen below what analysts were predicting for 2050, some 30 years early. This fuels the controversial question of when renewable energy will reach the status of being “subsidy-free”.

The Imperial study finds that offshore wind is already commercially competitive at good sites in mature markets, such as the UK. Thus, our analysis equips policymakers, academics and industry experts with evidence of an extraordinary story of success for a relatively young industry.

In fact, the offshore wind farms auctioned last September in the UK will most likely be the world’s first “negative subsidy” projects – wind farms that will pay money back to the government over their lifetime. (2)

The six offshore windfarms – with a capacity of 5.5GW - awarded contracts in September 2019. Those due to start operating in 2023/24 are coming in at £39.65/MWh (in 2012 prices, £44/MWh adjusted for inflation) and those for 2024/25 at £41.61/MWh. These are some £8-9/MWh below the government’s “reference price”, the level it expects to see for electricity on the open market in each year. If the market follows the government’s reference price expectations, then the new renewable schemes will pay more than £600m towards consumer bills by 2027, instead of receiving a subsidy. (3)

These results show that UK renewables will soon pass the second of two “tipping points” predicted in 2017 by Michael Liebreich, founder of Bloomberg New Energy Finance. The first of these tipping points is when electricity from newly constructed renewables becomes cheaper than from new fossil-fired generation. The second is when it becomes cheaper to build new renewables than to keep running existing fossil-fuelled power stations. Perhaps another tipping



point should be when it is cheaper to build new renewables than it is to keep existing reactors operating.

- Scottish Power has called on the government to scrap the limit on its next offshore wind subsidy auction to help power a green economic recovery, claiming it will not lead to a rise in energy bills. If the auction were to be opened up to as many new projects as possible this could deliver a “huge wave” of investment and jobs following the pandemic. In previous auctions the government has capped the amount of renewable energy that can win a subsidy contract, which is paid for through energy bills, to encourage developers to lower their costs. But, of course, if offshore wind is able to operate at a negative subsidy this is no longer necessary. Keith Anderson, Scottish Power’s chief executive, said there was “minimal risk” to household energy bills because the cost of sea-based turbines is so low the projects may even help to make Britain’s energy cheaper. (4)
- The UK currently has a pipeline of 61GW of renewables and storage projects, with 18GW deemed ‘shovel-ready’, that if developed could bring in £125 billion to the UK economy. This is according to trade association Regen, which released new analysis of the UK’s pipeline. It found that this pipeline could provide 200,000 jobs. The pipeline breaks down into offshore wind scooping up just over half that figure at 31.7GW, with onshore wind (11.9GW), solar PV (8.6GW) and storage (8.5GW) splitting the remaining half. To help “unlock” these projects, Regen is calling on the government to implement three key policies that it said would remove barriers. The first of these is to publish the forthcoming energy white paper. Secondly, Regen is calling on the government to commit to annual Contracts for Difference (CfD) auctions. Its final recommendation is to end what it described as anti-onshore wind policies in the English planning system. (5)
- New research carried out for the National Infrastructure Commission shows how sharp falls in the cost of renewable generation mean that Britain should aim for renewables to meet two thirds of electricity needs by 2030 and that this can be delivered at the same overall cost as meeting only half of total demand by that date. The findings show the UK could make significant progress towards its net zero greenhouse gas emissions target if the right steps are taken – leading the Commission to update its recommended target for deployment of renewables as part of a low-cost low carbon electricity system, from 50 per cent to 65 per cent by 2030. The latest analysis reflects the impact of the falling cost of renewable electricity technologies and the relative speed with which they have proven to be built. (6) NIC recommends a “refreshed pipeline” of “contracts for difference” auctions to accelerate more offshore wind, onshore wind and solar power projects. The report also highlights that renewables alone cannot create a resilient energy system for future decades, and that further work on new storage technologies, efficient interconnectors, and other innovations are needed to support renewables and ensure the security of the electricity system. This could include an increased role for low carbon hydrogen generation, as envisaged in the Commission’s report Net Zero: Opportunities for the Power Sector, published in March 2020. (7)



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12. Energy Efficiency is not “sexy” says Cummings

Hundreds of thousands of homeowners and landlords will receive vouchers of up to £5,000 to insulate their homes under the Government’s “green recovery” plans. The £2 billion green homes grant will cover up to two thirds of the cost of upgrades such as installing double glazing and loft or wall insulation. The poorest households will get up to £10,000 for the full cost of the work. Applications will open from September to March. The Treasury said about half of the fund would go to households with the lowest incomes. (1)

A further £1bn will be made available to improve the energy efficiency of public sector buildings. (2) Mike Childs, head of policy at Friends of the Earth, called the funding a good “stepping stone” but added it was “not yet a green recovery”. Greenpeace UK’s Rosie Rogers pointed to funding by other countries for a green recovery, including £36bn by the German government and £13.5bn by France, and said the UK’s £3bn “*isn’t playing in the same league*”. (3)

Ed Matthew, associate director of the E3G environmental thinktank, said £18bn was needed in the next 10 years to make all buildings energy efficient and get the UK on track to meet its net zero emissions target by 2050. “The funding announced today is a decent start only if it is a down-payment on a much larger, more ambitious investment programme,” he said. (4)

Boris Johnson pledged to spend £9.2 billion on energy efficiency measures in the Tory manifesto. Energy efficiency has emerged as the lead theme in post-lockdown green recovery stimulus packages put forward by organisations from all sides of the political spectrum to help meet climate change targets and create green jobs. Spending on energy efficiency can deliver a ‘quick payback’, says the CBI in its proposed green recovery package. It describes a national energy efficiency programme as a ‘long overdue’ and an essential element of reaching the 2050 net-zero emissions target. (5)

According to the FT the £9.2bn spending pledge is snarled up in a Whitehall turf war after Downing Street chief adviser Dominic Cummings sought to water down the policy. There is still enthusiasm for the scheme in the Treasury and the business department (BEIS), but several Whitehall figures have blamed Mr Cummings for the deadlock, saying he has described it as “boring old housing insulation”. Cummings is said to believe that new housing is a bigger priority and should take the lion’s share of the £9bn capital spending. (6)

80% of homes today will still be around in 2050 when the UK aims to reach net zero emissions. Heating our buildings accounts for over a third of emissions. There are 2.5 million UK households in fuel poverty - 25% of households in Scotland, and 11.3% in extreme fuel poverty. The Scottish Government’s Just Transition Commission calls energy efficiency “a good example of Just Transition in action”.

But Dominic Cummings thinks a Just Transition to zero carbon is boring.



The Scottish Fuel Poverty Act has a statutory target to reduce fuel poverty to no more than 5% of households by 2040, and extreme fuel poverty to no more than 1% by 2040. Though exactly why we should accept any level of fuel poverty in an advanced western country is difficult to comprehend. Energy Action Scotland has been campaigning for the elimination of fuel poverty since the 1980s, yet the level of fuel poverty today is around the same level it was 40 years ago, with families having to choose between going hungry and staying warm.

But Dominic Cummings calls tackling fuel poverty boring.

Scotland has a relatively good energy efficiency programme compared to England. But even that needs to be doubled in size if Scotland is to meet its climate change commitments. 6,000 new jobs could be created in Scotland. The Scottish Existing Homes Alliance is calling for the fuel poverty programme to upgrade 30,000 homes every year, including the installation of renewable heating systems supported by grants for the fuel poor. There should also be a statutory target for Energy Performance Certificates (EPC) of band C for the vast majority of homes by 2030, and zero carbon by 2045. Around 40,000 homes were upgraded in Scotland last year. The EPC target would mean this would have to be doubled to just over 80,000 renovations on average each year to the end of 2030 –about 200 per day. (7)

But Dominic Cummings calls meeting climate change commitments boring.

The path to better insulated and lower carbon homes is strewn with failed policies and rollouts – not least the disaster that was the Green Deal. Over the past decade progress has gone backwards. Energy efficiency needs a very practical road map. There is no point setting rules and then not providing the money to do it and training for the workforce.

After a spending boost delivered by the last Labour government, the Committee for Climate Change (CCC) calculated that the annual number of installations has crashed to an estimated 90 per cent of 2012 levels as the Green Deal programme backfired spectacularly. Since then, the main support for energy efficiency has come from the industry funded and organised Energy Companies Obligation (ECO) scheme, the level of which has plummeted in recent years. The experience has been “tremendously disillusioning” for the industry’s supply chain.

Energy efficiency investment has the potential to unlock substantial long-term economic returns – for every £1 spent on insulating the fabric of a building, £3 is generated in economic benefits. The job creation benefits would be spread over the whole of the country. The added twist in the wake of the pandemic is the health benefits that energy efficiency can deliver. And while the current phase of the pandemic has hit as the weather has been warming, next winter is likely to see a second wave. The prospect of respiratory conditions being exacerbated by poorly insulated buildings during a second wave doesn’t bear thinking about.

The energy efficiency industry is reliant on a host of small-scale contractors. These companies may have secured a respite during the lockdown through the employee furlough scheme but will nevertheless be at risk of going under unless they can secure new orders. Spending has to start now because otherwise we are in severe risk losing the skill base we already have in the industry. It’s all very well £9.2 billion being there somewhere in the kitty but it needs to be produced now or people will be at risk of losing their jobs.



But, according to Utility Week “Dominic Cummings is looking for the next big shiny things and energy efficiency is not as sexy as technological or glamorous projects”. Small Modular Reactor anybody?

The government is supporting the installation of less than 2% of the heat pumps needed each year to meet the UK’s net zero goal according to a new report from think tank IPPR. At least 12 million homes across England alone will need to be fitted with heat pumps and energy efficiency measures, such as insulation, over the next 30 years for the UK to meet the 2050 target. The report suggests nearly £10.6 billion a year of public and private investment would be needed in England until 2030 and an additional £7 billion a year from 2030 to 2050 to meet the pace and scale of action needed. The scale of investment in a combination of heat pumps and energy efficiency, as well as local heat networks, could create around 275,000 jobs in England alone and potentially lower energy bills for households. (8)

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