



# SAFE ENERGY E-JOURNAL No.86

May 2020

The content of this e-journal was for the most part originally prepared for Nuclear Free Local Authorities and also appears here: [https://www.nuclearpolicy.info/wp/wp-content/uploads/2020/05/A314\\_NB201\\_NFLA\\_Scotland\\_report.pdf](https://www.nuclearpolicy.info/wp/wp-content/uploads/2020/05/A314_NB201_NFLA_Scotland_report.pdf)

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The Safe Energy Journal doesn't usually deal with the UK Government's proposed new reactor programme, although this issue includes an update. If the new reactor programme is your main interest you should watch out for our other newsletter here:

<http://www.no2nuclearpower.org.uk/nuclear-news/>

## 1 New Nuclear Update

The UK's Nuclear Industry Association (NIA) has been lobbying hard for the government to support the Regulated Asset Base financing mechanism to support investment in new build projects.

The Government's long-awaited 30-year National Infrastructure Strategy (NIS) was supposed to be published alongside the budget has been delayed until "before May".

In February it was announced that a long-awaited energy white paper would be published in "a matter of weeks. The white paper was supposed to be published last summer to detail the UK's path to net zero by 2050, including which technologies would receive support. But the only thing which has been announced is plans to increase the UK's offshore wind capacity to 40GW by 2030.

The government announced in June 2018 that it would review the viability of a Regulated Asset Base model, but it has yet to respond to a public consultation on the Treasury's proposal that took place between 22<sup>nd</sup> July and 14<sup>th</sup> October last year. (1)

The BBC reported that the NIA had sent a confidential letter to Chancellor Rishi Sunak because of fears that the government would ditch plans to pay for new nuclear plants through a levy on energy bills in the March Budget. (2) In the event there was only mention of nuclear fusion in the Budget.

In the letter NIA chairman, Dr Tim Stone, wrote: "*The timing of the implementation of ... a financing model is critical in ensuring the stability of the UK nuclear supply chain and workforce, and in delivering value for money to the national economy.*" Stone says the business case for Sizewell C is dependent on the transfer of operations in a timely fashion from Hinkley Point C. The Horizon site Wylfa Newydd, which was suspended in January 2019, also depends on a more favourable financial model. "*Work being undertaken by the industry towards achieving the 30% reduction in new build costs by 2030 can only be realised with a programme of new build activity to address those cost reductions.*" (3)



## Hinkley Point C

EDF Energy has reduced the workforce at its Hinkley Point C nuclear construction site by about half because of the coronavirus outbreak to about 2,200. The remaining skilled workers will focus on critical areas and work in shifts with extra transport and staggered breaks to minimise contact. EDF Energy's website states that there are normally 4,500 workers on site. The reduction will allow easier social distancing in operational areas and sites such as canteens, an EDF statement said. (4)

Opponents of the project criticised the decision to carry on and called on the Government to tell them to stop. Lots of reports of failures to social distance, and now a report that one worker at Hinkley Point B has sadly died.

*"This is putting lives at risk right across Somerset and the whole of the country,"* said Stop Hinkley campaign spokesperson Katy Attwater. *"Why hasn't the Prime Minister ordered them to stay at home – is he just pandering to the nuclear lobby?"* (5)

Hinkley Point workers describe the site staying open as 'totally bonkers'. (6) Concerns have continued to be raised about the risk of coronavirus spreading among workers at the site despite a reduction in the workforce. Pictures have shown workers not observing social distancing. (7)

The village which has the Hinkley C construction site on its doorstep feels EDF is not going far enough in its measures to combat the coronavirus. Chris Morgan, the chairman of Stogursey Parish Council, says residents are becoming 'increasingly concerned'. In a letter to EDF, Cllr Morgan writes: *"Residents of the parish are increasingly concerned that HPC contractors temporarily housed in the area, especially the village, are continuing to travel cross country to visit family at weekends, and then returning. Many of them travelling to their homes in South Wales and the West Midlands – currently Covid-19 hotspots."* Cllr Morgan states the in light of the latest guidance from the government regarding unnecessary travel and the potential spread of the virus, this position was 'unacceptable and unsustainable'. (8)

The Nuclear Free Local Authorities (NFLA) sent a joint letter with the NGO Co-Chair of the BEIS NGO Forum, Professor Andrew Blowers, and the NGO Co-Chair of the ONR NGO Forum, Dr Jill Sutcliffe, to Stephen Speed, Director of the Office for Nuclear Development at BEIS; and to Adrienne Kelbie and Mark Foy, Chief Executive and Chief Nuclear Inspector of the Office for Nuclear Regulation (ONR). The letter said continued operation of the site is inconsistent with Government guidelines on coronavirus and poses an unnecessary and unjustifiable danger to workers and the local population. Construction should cease immediately. (9)

EDF announced further steps on 1<sup>st</sup> April to ensure the safety of its remaining critical workers and the community during the Coronavirus pandemic. Site workers using local accommodation will now be housed at Hinkley Point C's two Campus sites. Bus pick-up stops used by HPC workers in Bridgwater will no longer be used from Monday. All buses will instead collect and return passengers to our three secure park and ride locations where social distancing measures are being supervised. Pick-ups from village locations outside Bridgwater will be phased out as quickly as possible. (10)

Meanwhile, the NFLA has published a summary of its detailed submission to Natural Resource Wales calling for extensive research in the application process by EDF to dredge up to 600,000m<sup>3</sup> material from the seabed near Hinkley Point and dump it at the Cardiff Deep Grounds. (11)

## Bradwell

The Office for Nuclear Regulation announced in February that it had completed Step 3 of its Generic Design Assessment (GDA) for the UK HPR1000 nuclear technology which the Chinese Company CGN is intending to build at Bradwell in Essex. Step 4 will take another two years. General Nuclear System Limited (GNSL) (CGN 66.5% and EDF Energy 33.5%) then started its first stage public consultation exercise on 4th March 2020. It was intended to run for 12 weeks until 27th May 2020 and include 15 public exhibitions and events, but many of these have now been cancelled due to the Corona Virus. The end date for the consultation has now been extended to 1<sup>st</sup> July.

Step 3 of the GDA was essentially a review by ONR of the arguments (or 'reasoning') supporting the Requesting Party's (RP's) claims regarding the safety and security related aspects of the proposed design. (12) ONR will now move on to Stage 4 which is a more detailed assessment of the design and supporting evidence provided by CGN. CGN is hoping to complete Step 4 in 23 months taking us to January 2022. (13)

Less than a week after ONR's announcement the Blackwater Against New Nuclear Group (BANNG) learnt that GNSL, was about to launch its pre-application public consultation for planning permission. This was a surprise to the group. A pre-application should follow, not overlap, Step 4 of the GDA. (14)

The project says it is introducing new ways for the community to participate in the consultation online and on the phone, as well as allowing people to book 20-minute discussions with nuclear experts to answer questions throughout April. (15)

The Bradwell B plans are more horrendous than feared, according to BANNG, because of the scale of the devastation presented in the Chinese developer's glossy brochure. Prof. Andy Blowers said: *"The scale is enormous, the power station if built will cover an area around 230 times Trafalgar Square. Foundations for the power station will extend down to 60 feet below the ground and the two reactors and turbines will be constructed on a 'nuclear island' 25 feet above sea-level. Directly opposite Mersea Island will be cooling towers 200 feet high (higher than the remaining buildings of Bradwell A) and 500 feet wide. A building close to Bradwell Village in which the highly radioactive spent fuel will be stored for upwards of 150 years is also included"*.

Peter Banks, BANNG's Co-ordinator said: *"...people need to make the strongest possible protest against these plans now, before it is too late. Apathy is not an option! Contrary to the impression the developer wishes to convey, Bradwell B is not a done deal."* (16)

## Sizewell

EDF was reported in mid-February to be poised to submit its formal application for a Development Consent Order to build Sizewell C to the National Infrastructure Commission (NIC). The NIC is expected to take about a year to approve or reject the application. (17) EDF has now announced a

delay of a “few weeks” because of the crisis to allow more time for people to register as participants for the public examination phase of the process. EDF managing director of nuclear Humphrey Cadoux-Hudson said: *“We are ready to submit the application, but we recognise that many people in Suffolk, including the local authorities, are adjusting to new circumstances created by the coronavirus crisis. We will defer the submission for a few weeks and, once submitted, we will extend the period for registration to make it easier for people to participate.”* (18)

Campaigners are calling for a longer delay until government declares the coronavirus emergency completely over. More than 50 town and parish councils have sent a letter to EDF urging it not to submit a Development Consent Order until the virus restrictions are fully lifted. EDF’s token offer to extend the period for interested parties to register does nothing to address concerns; and won’t help communities who are not online. (19)

Sizewell is surrounded by protected marshland and bird habitats including RSPB Minsmere. (20) Suffolk Wildlife Trust has serious concerns about the effect upon wildlife of Sizewell C and, despite years of working closely with EDF, is far from convinced the company is taking the impacts seriously. (21) Suffolk Preservation Society says Sizewell C will cause environmental damage on an unprecedented scale in a highly sensitive location, much of which is designated an Area of Outstanding Natural Beauty. (22) Friends of the Earth add that two enormous pipes, each bigger than a double-decker bus, would suck in water at 130,000 litres per second needed for cooling the reactors. Many tonnes of fish would be killed. (23)

Talking to the NFLA Conference held in Saxmundham on 14th March; Linda Pentz-Gunter of Beyond Nuclear said at the moment when we are looking at the Climate Crisis which is clearly upon us, which will involve sea level rise and increasing storm surges, to put a nuclear power station on a beach is some sort of level of insanity. You can walk away from a wind farm and the wind turbines will keep spinning but you cannot call your workforce home from a nuclear power plant. It cannot be abandoned. To go ahead and build another structure that cannot be abandoned is also some sort of level of insanity. (24)

## Wylfa Newydd

A planning decision on Wylfa Newydd has been postponed for another six months. Having been pushed back last year to allow more information to be made available on the environmental impacts, a decision had been expected by Tuesday, March 31. But the issue has once again been kicked into the long grass, with no judgement now expected until late September. (25)

The National Infrastructure Planning Commission said following initial analysis of the further information provided, the Secretary of State concluded that an additional period of time is required in order to complete his consideration in respect of environmental effects and other issues which were outstanding following the examination. (26)

Greenpeace responded to the first extension saying the analysis used by Horizon to demonstrate the ‘urgent need’ for nuclear new build is out dated and must not be given significant weight in the determination of the Application. Horizon says *“the principle of the need for new nuclear power stations, and that this need is urgent, is firmly established in NPS EN-1 and...EN-6”*, and further that

EN-1 and EN-6 are the “*primary policy basis*” for the determination of the Application. This is simply not the case. Greenpeace demonstrates how the landscape has changed in the last two years, and why the argument that nuclear new build is both necessary and urgent is in itself out dated, meaning that significant weight should not and cannot be placed on the policy support for new nuclear on this basis. (27)

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  2. BBC 5th March 2020 <https://www.bbc.co.uk/news/business-51733117>
  3. NIA letter to the Chancellor for the 2020 Spring Budget <https://www.niauk.org/wp-content/uploads/2020/03/NIA-letter-to-the-Chancellor-for-the-2020-Spring-Budget.pdf>
  4. Reuters 24th March 2020 <https://www.reuters.com/article/health-coronavirus-britain-nuclearpower/update-1-edf-reduces-workforce-at-uks-hinkley-point-c-nuclear-power-project-idUSL8N2BH711?rpc=401&>
  5. Dundee Courier 24th March 2020 <https://www.thecourier.co.uk/business/business-news/1218520/workforce-building-new-power-plant-cut-because-of-covid-19/>
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  8. Bridgwater Mercury 27th March 2020 <https://www.bridgwatermercury.co.uk/news/18340829.village-neighbouring-hinkley-c-labels-virus-measures-unacceptable/>
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  13. Times 14th Feb 2020 <https://www.thetimes.co.uk/edition/business/china-designed-nuclear-reactor-is-cleared-to-face-last-hurdle-xjckwzz7d>
  14. BANNG 18th February 2020 <https://www.banng.info/news/press-release-18th-february-2020/>
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21. For more on Suffolk Wildlife Trust see their presentation to the NFLA conference on 14th March here [https://www.nuclearpolicy.info/wp/wp-content/uploads/2020/03/SWT\\_Sizewell\\_C\\_threats\\_to\\_protected\\_species\\_habitats.pdf](https://www.nuclearpolicy.info/wp/wp-content/uploads/2020/03/SWT_Sizewell_C_threats_to_protected_species_habitats.pdf)
22. Telegraph 23rd Feb 2020 <https://www.telegraph.co.uk/opinion/2020/02/23/letterstory-supporting-constituencies-wont-happy-see-hs2-completed/>
23. Watch FoE's video here: [https://youtu.be/2p6q\\_Vx\\_EQQ](https://youtu.be/2p6q_Vx_EQQ) and Stop Sizewell C video here <https://youtu.be/F9zLp1pjiB8>
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27. NIPI 25th Feb 2020 <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010007/EN010007-003935-Greenpeace%20Ltd-Response%20to%20SoS%20Consultation%202.pdf>

## 2 Hunterston

EDF Energy has extended the planned outages at Reactor 3 (R3) and 4 (R4) at Hunterston B until 1<sup>st</sup> and 15<sup>th</sup> June 2020 respectively. It is likely that the big jump in expected return dates has been influenced by staff absenteeism, both at Hunterston and the ONR, during the C19 crisis. EDF says it is limiting the number of people coming onto the Hunterston site. (1)

It was reported in February that work on the R3 safety case was continuing but the return to service was changed from 28<sup>th</sup> February to 10 April 2020. The final safety case was expected to be submitted to ONR in early April. Reactor 4 was allowed a trial operation between August 2019 and 10<sup>th</sup> December 2019 EDF said it is continuing its detailed graphite inspections and liaising closely with the ONR on the results. EDF had been aiming to return R4 to service on 24th April 2020. (2)

R3 has been offline for more than two years, since March 2018. R4 was first shutdown on 2nd October 2018.

### REPPIR

North Ayrshire Council's Cabinet considered a report into a proposed new boundary for the Detailed Emergency Planning Zone (DEPZ) around Hunterston B. The size and shape of the DEPZ around the

site was previously determined by the Office for Nuclear Regulation (ONR) before the introduction of new legislation last year, called Radiation Emergency Preparedness and Public Information. The legislation sets the boundary of the Outline Planning Zone (OPR) as a distance of 30km from Hunterston.

The main change sees local authorities now determining the size of the much smaller DEPZ – the immediate area around a nuclear facility. Currently, the DEPZ is delineated by a 2.4km circle around the nuclear facility. The council is obliged to set the boundary on the basis of recommendations from EDF as operator which recommended 2km. This was independently checked with Public Health England, Centre for Radiation, Chemical and Environmental Hazards and those who live within the current 2.4km zone were also consulted.

The report states that the DEPZ boundary should include everyone currently within the DEPZ. It would no longer be a circle but will take into account the local geography and topography, meaning it will, in future, be more reflective of conditions on the ground. Every one of the households currently within the DEPZ will continue to receive information and pre-distributed stable iodine tablets to allow them to be prepared in the unlikely event of an offsite release of radiation. (3)

Officers in North Ayrshire Council submitted their report to the Council's Cabinet, but they passed it on for full discussion at a planned meeting of the full Council on the 25th March. Due to the Covid-19 outbreak, that meeting was cancelled, and the decision delegated to the Chief Executive with no discussion. There is considerable local concern about the small reduction in the DEPZ and the lack of pro-active measures such as pre-distribution of iodine tablets to the 30kms area, and the lack of democratic discussion in this area.

### Graphite Debris in Spent Fuel Flask

At the March meeting of the Hunterston Site Stakeholder Dialogue SEPA reported that it had been informed in January that graphite debris had been found in a spent fuel flask received from Sellafield. SEPA believes that the debris constitutes radioactive waste as defined in the Environmental Authorisations (Scotland) Regulations 2018 (EASR) and that the station is not authorised to receive this type of waste. SEPA said *"Although there appears to be no environmental impact from the receipt of this waste, it represents a contravention of the station's permit. SEPA and EDF continue to investigate the event."* There does not appear to be any way the debris could get out of the flask.

EDF said: *"An investigation has been carried out after inspection of a fuel flask arriving from Sellafield identified loose material present at the bottom."* Hunterston B followed its procedures and immediately informed the environment regulators – the Scottish Environment Protection Agency. (4)

Sellafield described the waste as a "mis-consignment", while Hunterston's operator, EDF Energy, said it was a "non-compliance". They are both now investigating where the waste came from, as is Sepa. The Edinburgh-based nuclear consultant and critic, Peter Roche, urged Sepa to complete its investigation as quickly as possible. *"If it's getting into fuel flasks it could be getting elsewhere,"* he said. *"We can't have Sellafield accidentally distributing radioactive debris around the country."*

According to EDF, the material did not come from the core of R4 while it was operating between August and December 2019. (5)

### Five other safety breaches

Hunterston has breached radiation safety rules and suffered five other problems with its safety systems. The Office for Nuclear Regulation (ONR) report to the SSG revealed that Hunterston “*failed to adequately account for*” radioactive materials last October. ONR issued an enforcement letter on 22<sup>nd</sup> October 2019.

Whilst R4 was operating at full power a fault developed with one of the reactor’s cooling systems – needed to prevent overheating when a reactor is shut down - because of confusion over valves.

EDF informed ONR that data used to define the mechanical strength of part of the graphite bricks may not be sufficiently conservative.

ONR also raised “two regulatory issues of low significance” with EDF about cooling systems, but required no formal action to be taken. One concerned an “incomplete maintenance record card” and the other was because the potential for radioactive tritium in cooling water had not been fully described.

Friends of the Earth Scotland argued that the Hunterston B reactors should shut instead of trying to struggle on. “*This is a remarkable catalogue of failures, especially from a company entrusted to run probably the most dangerous industry in the country,*” said the environmental group’s director, Dr Richard Dixon. “*Losing track of radioactive sources, not understanding how crucial valves work and not paying proper attention to health and safety are pretty strong indictments of EDF fitness to run Hunterston B. The reactors are well past their sell-by date.*”

In addition, ONR required EDF to re-run an emergency exercise conducted on 17 October 2019. This was meant to test responses to a nuclear accident “*under security lockdown conditions*” with the Civil Nuclear Constabulary (CNC), which polices nuclear power stations. ONR said: “*The exercise was challenging and showed that there is a need to enhance the operability of the EDF corporate emergency arrangements in conjunction with the CNC response procedures.*” (6)

NFLA Scotland Convenor, Councillor Feargal Dalton said:

*“Taken in their totality, [these breaches] suggest the site is struggling at a time when it is under intense scrutiny due to the aging nature of the reactors. It is worrying to say the least that the site operators are not able to account for radioactive materials or why an empty transport flask contained radioactive graphite debris. EDF need to review their safety procedures as a result of these incidents, and I call on the ONR and SEPA to thoroughly investigate how ‘empty’ flasks are containing radioactive material. These incidents confirm in our view that these aging reactors would be better being closed and the workers transferred into the long-term process of decommissioning Hunterston B.”*

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2. EDF 5<sup>th</sup> Feb 2020 <https://www.edfenergy.com/media-centre/news-releases/letter-hunterston-site-stakeholder-group-6-feb-2020>
3. Ardrossan Herald 23<sup>rd</sup> Jan 2020 <https://www.ardrossanherald.com/news/18178163.cabinet-considers-public-safety-zone-changes-hunterston-b/>
4. Largs & Millport Weekly News 2<sup>nd</sup> April 2020 <https://www.largsandmillportnews.com/news/18352441.faulty-flask-issue-sparks-probe-hunterston/>
5. The Ferret 10<sup>th</sup> March 2020 <https://theferret.scot/radioactive-waste-hunterston-sellafield/>
6. The Ferret 9<sup>th</sup> March 2020 <https://theferret.scot/hunterston-nuclear-safety-incidents-cracks/>
7. NFLA 11<sup>th</sup> March 2020 <https://www.nuclearpolicy.info/news/nfla-concerned-safety-transport-risks-hunterston-north-ayrshire/>

### 3 Torness Periodic Safety Review: EDF gets a C-minus

The Office for Nuclear Regulation (ONR) published its Project Assessment Report (PAR) setting out the regulatory justification for the issue of a Decision Letter relating to the third periodic safety review of Heysham 2 and Torness. The Decision Letter will confirm that EDF Energy Nuclear Generation Ltd (NGL) “the licensee” has carried out an adequate periodic safety review (PSR) of the Heysham 2 and Torness nuclear power station safety cases to justify continued safe operations at the facility for the period 2020 – 2030. (1)

A PSR is carried out every 10 years to revalidate the safety case and ensure the plant and operations remain adequately safe and fully reflect the site licence requirements. This is achieved by reviewing the previous 10 years of operation together with considering changes in activities that impact on nuclear safety over the following 10 years. The review takes into consideration compliance with modern standards and potential impact of ageing and obsolescence. This was the third periodic safety review (PSR3) completed for Heysham 2 and Torness.

ONR has previously assessed the equivalent PSR3 submissions for Hunterston B and Hinkley Point B, Dungeness B, and Heysham 1 and Hartlepool. Whilst the Nuclear Generation Ltd (NGL) process for conducting the PSR has improved, the timing of the Heysham 2/Torness PSR3 meant it did not adequately address all of the PSR shortfalls identified by ONR in the earlier PSR3 assessments. NGL are currently implementing improvements to close out the remaining shortfalls, ONR continue to engage, ensuring that improvements are implemented in a timely manner to support the Sizewell B PSR3 submission expected in 2024.

A key outcome of ONR’s assessment of PSR3 and the graphite safety cases is ONR’s intention to continue to challenge EDF NGL to ensure that it demonstrates that operations of the four reactors remain safe as the graphite cores age. Fundamental to this is the continuing requirement for EDF

NGL to undertake regular inspections and analysis of the graphite core to demonstrate that they remain within the limits and conditions defined within the safety cases.

The PSR recommends that conditions be included in the Decision Letter with agreed timescales to address these outstanding recommendations and ONR findings.

On Control and Instrumentation (C&I) ONR does not consider that EDF NGL have satisfactorily addressed the following findings and recommendations that were raised during earlier, ONR's PSR3 assessments:

EDF NGL should undertake a station wide review of **cyber security** arrangements as part of the PSR process, and clarify how cyber security issues are integrated / addressed in the equipment reliability process.

EDF NGL should consider including further information in future periodic safety review submissions regarding the following - Confidence of C&I ageing mechanisms; Changes in C&I ageing and obsolescence predictions since the previous PSR; The benefits that research and / or testing has had in providing an accurate understanding of the age conditioning process.

Overall, the ONR graphite specialist inspector was content with the evidence sampled concerning the graphite integrity aspects. However, demonstration of the continued fitness for purpose of the graphite core requires regular inspection; this will enable NGL to demonstrate tolerance to the expected degree of core cracking and oxidation.

NGL states that the expected evolution of graphite material properties at Heysham B and Torness is based on that of Hinkley point B and Hunterston B due to similar grades of graphite being used at each station. NGL are undertaking further work to review predictions relating to the divergence in material property behaviour. But the design of the graphite moderator bricks at Heysham B and Torness is different from the rest of the AGR operating fleet in that it incorporates seal rings between graphite bricks. NGL states that a systematic failure of the seal rings could occur post KWRC. This could lead to debris with the potential to challenge the ability to move or adequately cool fuel.

ONR is aware that work is ongoing to address all potential consequences of a seal ring / brick interaction. This includes stress analysis and experimental activities. The results of these activities will be incorporated within the onset of KWRC safety case. The ONR graphite specialist inspector will track progress on these updates.

The ONR graphite specialist inspector identified that at the time of the production of the PSR report, NGL did not have a clear strategy for raising the mean active core weight loss limit (currently 14%) as it was NGL's view that the current limit would not be challenged until ~2022. Due to the significance of this operational limit and the apparent absence of a strategy to manage the risk, the ONR graphite specialist inspector will track this issue to ensure appropriate visibility of NGL's actions in addressing the active core weight loss limit.

To address these perceived shortfalls, the ONR graphite specialist inspector will monitor the actions being taken by the licensee to mitigate any risk.

Torness is only 30 miles east of Edinburgh so there is a slim chance the city could one day be hit with deadly radioactive fallout. Staying indoors and closing all windows are some of the more obvious instructions issued in the emergency plan. Perhaps lesser known is the fact staff at the Royal Infirmary of Edinburgh have been assigned to work alongside the SAS decontaminating casualties in the event of a nuclear incident. The emergency plan – has been written up in consultation with Edinburgh City Council and Office for Nuclear Regulation. Nuclear fallout would bring with it a number of nasty and potentially fatal consequences. You could be exposed to radiation by breathing in contaminated air or touching contaminated surfaces. Eating or drinking contaminated food or water could also expose you to toxic radiation. This radiation can damage or kill cells as it passes through your body. The longer your exposure to radiation the greater the risk of long-term harm such as cancer, while extremely high exposure to radiation can cause radiation sickness. Authorities would be required to provide timely information in the event of a radiation emergency occurring. Police Scotland has standing arrangements with BBC/ITV and local radio stations to make such urgent emergency announcements. (2) (3)

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  2. Edinburgh Live 30th January 2020 <https://www.edinburghlive.co.uk/news/edinburgh-news/what-nuclear-disaster-declared-edinburgh-17659973>
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## 4 Dounreay

The Dounreay site has been in use since the 1950s. It was used for reprocessing, fuel fabrication and experiments on materials and reactor systems. During its long history, it has been both at the cutting edge of nuclear technology and derided for bad waste management practices.

There have been successes in waste management in recent times. They include dealing with volatile liquid metal coolant, isolating the site's underground waste shaft from the environment and dismantling many old plants. Currently work is under way to extract failed fuel elements from the Dounreay Fast Reactor (DFR)

Dounreay's fuel cycle area (FCA) is a segregated part of the site. It comprised facilities, some very old, where materials were examined, fuel was fabricated, irradiated material was dissolved, and special rigs were created to learn about materials and reactions. It includes one of the most hazardous facilities at the site, the high-active liquor (HAL) store which stores high-active raffinates (liquids separated during reprocessing) before they are treated and cemented at the nearby cementation plant. It contains MTR raffinates, DFR raffinates, contaminated solvents and oils, and ammonium diuranate (ADU) floc. The floc results from decontamination of high-alpha medium-active and low-active liquors from the PFR fuel reprocessing plant.

The last of the MTR raffinates were cemented in drums in 2013. Between 1958 and 1966 13,000 MTR fuel elements were reprocessed at Dounreay, including fuel from other reactors in the UK and abroad. The raffinates were remotely transferred from underground tanks to the Dounreay Cementation Plant (DCP), where they were mixed with cement powder inside the 500-litre drums in a remote handling facility. The end result is nearly 5000 drums of solid waste. The last of the DFR raffinates were immobilised in 2016. In total 232 cubic metres of raffinates was put through the DCP and grouted in 875 drums for long-term storage.

The main hazard at the HAL store is now four tanks of PFR raffinate. This is a nitric acid solution containing 96.6% nitric acid, 3.4% metals in solution (copper, sodium, iron, cadmium, nickel and zinc), fission products and trace quantities of uranium and plutonium. Over 200 cubic metres of this waste was produced by reprocessing PFR fuel.

The long period that the waste has been stored means it has cooled down. It is now classified as intermediate level waste (ILW). The existing cementation plant has undergone engineering modifications so workers could start to immobilise PFR raffinates. In March 2018, initial commissioning of the process started with a quantity of PFR raffinates being immobilised as 15 cubic metres of solid waste. Up to 100 drums were cemented in phase one of the PFR raffinates programme, which is now complete. Phase two of the programme is currently on hold pending the construction of a new waste store, which is due to be completed at the end of 2021. The purpose of long-term stores at Dounreay is to hold waste in accordance with Scottish government policy of waste storage near-site and near-surface.

The PFR raffinate is probably the highest single remaining hazard at Dounreay. Immobilisation of this will be a significant step towards reducing the remaining hazards. Completion of the store will enable decommissioning of the major facility where the material is currently stored, moving the site closer towards its interim end state. (1)

- Babcock International could lose the contract to decommission Dounreay. Cavendish, a division of Babcock, runs Dounreay in a joint venture with American engineering companies Aecom and Jacobs. The deal was signed in 2012 and runs until the 2030s. However, the NDA is understood to be considering stripping the company of the contract. Ministers tore up another Babcock nuclear contract — for the decommissioning of former Magnox sites — after a judge ruled in 2016 that the procurement process had been “manipulated” and “fudged” by the NDA. Ministers then set up an independent inquiry into the botched £6bn deal, led by former National Grid boss Steve Holliday, but the outcome has yet to be published after a long delay. Sources said the NDA, which is run by former BP executive David Peattie, was considering restructuring the Dounreay contract or taking it over entirely. The NDA said this was “speculation” and that “no decision has been taken”. (2)

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1. Nuclear Engineering International 25th March 2020 <https://www.neimagazine.com/features/featurefrom-strategy-to-reality-7838493/>
  2. Times 9th Feb 2020 <https://www.thetimes.co.uk/edition/business/babcock-chaired-by-ruth-cairnie-faces-new-contract-wrangle-over-nuclear-power-station-clean-up-lk9zx5cb9>

## 5 Vulcan

The nuclear submarine testing facility adjacent to Dounreay is to be demolished after the Ministry of Defence invited firms to decontaminate and dismantle the facility. The Vulcan Naval Reactor Test Establishment (NRTE) – formerly HMS Vulcan – houses prototype nuclear propulsion plants used by the Royal Navy in its submarines. But operations at the facility, where construction began in 1957, ceased in 2015. NRTE, currently operated by Rolls-Royce, is now in a post-operations phase, with preparations underway to defuel the short test facility, and reduce the sites radioactive inventory. The defueling is expected to take until 2022. A ten-year contract aims to leave behind a brownfield site, with the Ministry of Defence then giving up its lease.

Over the years, HMS Vulcan prototyped five different reactor cores and provided data for seven different classes of submarine, including the Vanguard and Astute classes. (1)

Vulcan NRTE has two reactors. The first was operational from 1965 to 1987 and the second was shut down in 2015. (2)

Decommissioning is expected to start in 2023 and will run until the late 2020s/early 2030s with the programme of work to be fully aligned with the work going on at Dounreay.

Newly appointed Dounreay Stakeholder Group chairman Struan Mackie said: *“We should put out a call to action to companies in the far north that have been involved in decommissioning not just Dounreay but other nuclear reactors in the UK and throughout the world. We have world-leading skills and want these companies to be part of this.”* (3)

### SMR for Vulcan?

Rolls-Royce is leading a consortium to build small modular reactors (SMRs) and install them in former nuclear sites in Cumbria or in Wales. The Company told the BBC’s Today programme that it plans to install and operate between 10 and 15 factory-built reactors by 2029. The Mini nuclear stations can be mass manufactured and delivered in chunks on the back of a lorry, which makes costs more predictable. (4) The UK Government is investing £18m in the consortium. The investment from UK Research and Innovation (UKRI) will be matched by the industry consortium, whose partners include Atkins, the National Nuclear Laboratory and Wood, who have been working on the preliminary design for four years. The plan is that each modular 440 MW reactor would cost £1.8bn once five have been built with further savings possible, the industrial partners said. Each station would be capable of operating for 60 years and generate enough power for a city the size of Leeds. The combined £36m will be used to prepare the design for regulatory assessment and help make decisions on which innovations to pursue. (5)

Peter Faccenda of the Caithness and North Sutherland Regeneration Partnership told Highland Council economy and infrastructure meeting that the loss of Dounreay was a massive challenge, due to the loss of 2,000 highly-paid jobs and an £80m hit to the local economy. The prospects for Vulcan’s workforce would be radically brighter if the Royal Navy decided to deploy PWR3 – the next generation of nuclear submarine test reactor – at the Caithness site. A local councillor also suggested Rolls-Royce could take advantage of the highly-skilled workers at Vulcan, even if the Navy do not put

their reactor there. Struan Mackie said: “Rolls-Royce winning the SMR competition gives an opportunity for the Vulcan workforce to service that programme, even if PWR3 doesn’t come here.” (6)

1. Construction Manager 20th March 2020 <http://www.constructionmanagermagazine.com/news/dounreay-nuclear-submarine-test-facility-be-demoli/>
2. BBC 18<sup>th</sup> March 2020 <https://www.bbc.co.uk/news/uk-scotland-highlands-islands-51927359>
3. John O Groat Journal 12th March 2020 <https://www.johngroat-journal.co.uk/news/preparations-begin-on-vulcan-site-clean-up-193563/>
4. BBC 24<sup>th</sup> January 2020 <https://www.bbc.co.uk/news/business-51233444>
5. Chemical Engineer 3<sup>rd</sup> Dec 2019 <https://www.thechemicalengineer.com/news/uk-government-match-funds-small-modular-nuclear-reactors/> and UK Research & Innovation <https://www.ukri.org/innovation/industrial-strategy-challenge-fund/low-cost-nuclear/>
6. Press & Journal 7<sup>th</sup> Feb 2020 <https://www.pressandjournal.co.uk/fp/news/inverness/2004097/glimmer-of-hope-for-future-of-hms-vulcan/>

## 6 Radioactive Waste

*The Ferret* reports that Faslane nuclear base and nuclear power plants have been given the green light to break safety limits on radioactive waste. The Scottish Environment Protection Agency (SEPA) has relaxed environmental rules for specific sectors, notably the military and civil nuclear industry. A “temporary regulatory position statement” has been posted on its website. (1)

According to SEPA, during a significant outbreak of COVID-19 the ability of operators to run their operations may be compromised by a lack of available staff, the need to protect staff and minimise transmission of the COVID-19 virus.

During this period, SEPA says it expects regulated businesses to make their best endeavours to meet their environmental obligations. But it has created a temporary regulatory position statement that applies to authorisations for the management of radioactive substances on nuclear sites in Scotland, which includes Ministry of Defence sites and the Dounreay Low Level Waste Facility. This also applies to authorisations for the management of radioactive substances held by tenants located on nuclear sites during the COVID-19 public health emergency. (2)

SEPA added: “Any failure by the operator to comply with the conditions of their authorisation will not be treated as a non-compliance”. This only applied “where non-compliance with authorisation conditions is unavoidable and a direct result of emergency resulting from Covid-19 outbreak and will not lead to significant environmental harm,” Sepa said.

*"NFLA has been concerned that the nuclear industry is being given a privileged status during this covid-19 outbreak, as can be seen with the continuing work at the Hinkley Point site. These new rules*

*from SEPA seems to allow further leeway on nuclear sites over the handling of radioactive waste at defence and civil nuclear sites. Whilst we are living in very difficult times in undertaking normal activity, they are for the reasons of public safety. SEPA should be very wary of relaxing rules and find ways of continuing to regulate the industry in the robust, safe and secure way the public expects."*

The Scottish Campaign for Nuclear Disarmament warned that more dangerous radioactivity could be discharged into the environment. *"It is outrageous to suggest that the pandemic is a reason for relaxation of the regulatory requirements,"* said campaign chair, Lynn Jamieson. *"Willingness to tolerate possible breaches of regulations by civil or military nuclear facilities demonstrates shocking inadequacy on the part of the Scottish Environment Protection Agency. Whose environment are they in place to protect?"*

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1. The Ferret 12th April 2020 <https://theferret.scot/pollution-checks-coronavirus-crisis-sepa/>
  2. SEPA (accessed) 10<sup>th</sup> April 2020 <https://coronavirus.sepa.org.uk/regulatory-position/management-of-radioactive-substances-at-nuclear-sites-regulatory-position/> and <https://coronavirus.sepa.org.uk/media/1041/covid19-management-of-radioactive-substances-at-nuclear-sites.pdf>

## 7 Climate Change Plan

Climate Change Secretary Roseanna Cunningham has confirmed that the Scottish Government will delay publication of its update to the national Climate Change Plan in response to the escalating coronavirus outbreak. An update to the decarbonisation plan had been expected by the end of April, following last year's ratcheting up of Scotland's emissions target to deliver net zero emissions by 2045. (1)

The Cabinet Secretary said:

*"I have written to the Committee on Climate Change to request its independent expert advice on the best way forward in these unprecedented circumstances and how the Climate Change update can contribute, in due course, to a green recovery for Scotland."* (2)

Climate Change Committee (CCC) chief executive Chris Stark said the delay was *"entirely reasonable in the present circumstances"*. He also praised the invitation for the Committee to advise on how the economic recovery can be constructed to support climate goals, hailing it as *"a welcome sign of what is to follow"*.

Friends of the Earth Scotland also said the delay was *"understandable"*.

*"The climate emergency remains urgent, and solutions to the climate and environmental crises must be socially just. This pandemic shows how important it is that climate action tackles existing inequalities and protects the most vulnerable – both at home and around the world. The climate crisis continues unabated and around the world, people will be dealing with the interlinked crises of*

*climate, COVID-19, poverty and inequality. We will continue to work with Government and MSPs to help deliver a just recovery for Scotland that avoids future climate catastrophes and creates a fairer society.” (3)*

1. Business Green 1st April 2020 <https://www.businessgreen.com/news/4013416/coronavirus-scottish-government-delays-publication-beefed-climate-change-plan>
2. Scottish Government 1st April 2020 <https://www.gov.scot/news/climate-change-plan-update/>
3. FoE Scotland 1<sup>st</sup> April 2020 <https://foe.scot/press-release/coronavirus-delay-to-scottish-government-climate-change-plan-understandable/>

## 8 Scottish Budget

The Scottish Government has unveiled a major £1.8bn net zero spending plan for the coming year, pledging to ramp up support for green infrastructure, low carbon heating, and tree planting as it seeks to place tackling the climate emergency “at the heart” of its programme.

Setting out the Scottish Budget for 2020-21 yesterday, public finance minister Kate Forbes announced a major package of funding to accelerate Scotland’s transition to a net zero economy, which she claimed would support high quality jobs, boost public services, and tackle inequalities. The net zero investment includes £220m seed funding for the Scottish National Investment Bank “to support its mission to drive the transition to a net zero economy”, and a new £120m Heat Transition Deal to help decarbonise homes and buildings in Scotland.

Energy efficiency spending has been increased to £151m this year, while the Scottish Government also said it would set out a wider programme of work on green heat and energy efficiency in the summer. In addition, public transport has secured a Budget boost, with increased investment in rail services of £270m, taking total investment in rail and bus services to £1.55bn in 2020-21, as well as more than £85m investment towards increasing active travel. A further £5m has been earmarked to fund the roll out of electric police cars.

FoE Scotland said the budget fails to deliver the action needed to bring down emissions, because the Budget includes next-to-nothing to transform the transport system. The final budget must contain a commitment to stop new motorways, with funding diverted for councils to set up their own bus services, and increased investment in walking and cycling infrastructure.

FoE also said:

*“One of the only sources of encouragement was the proposal to invest in heat pump and renewable heat network technologies of the future – backing up their commitment to move away from fossil fuel heating. However, we hope the final budget rules out using public money to explore how the fossil fuel industry can be propped up by hydrogen, which risks undermining the benefits this creates.” (2)*

Extinction Rebellion described the proposals as “*business as usual*”. A spokesperson said: “*While our Government claims to be putting action on this existential crisis at the heart of the Budget, it continues to prioritise motorway and road building, the development of new air routes and support for the oil and gas sector. Emissions are only increasing, fossil fuel companies are only increasing their outputs, and we are entering the sixth mass extinction.*” (3)

In the event the Budget was passed by the Scottish Parliament with the support of the Green MSPs who gained agreement from the Finance Minister for every young person under 19 in Scotland to be given access to free bus travel, and an increase in the walking and cycling budget to £100m, funds for new rail projects, and a commitment to provide warm homes through energy efficiency measures. (4)

Gina Hanrahan, head of policy at WWF Scotland, said: “*While some additional funding for energy efficiency is a move in the right direction, this falls short of the transformational funding needed to tackle our leaky homes, cut fuel poverty and put Scotland at the forefront of the transition to high-performing, green homes.*” Grahame Smith, general secretary of the Scottish Trades Union Congress said “*While there are some new measures to tackle climate change, the funding levels proposed are still not sufficient to tackle the climate emergency,*” (5)

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1. Business Green 7th Feb 2020 <https://www.businessgreen.com/news/4010285/scottish-government-unveils-plans-gbp-8bn-net-zero-spending-blitz>
  2. FoE Scotland 7th Feb 2020 <https://www.businessgreen.com/news/4010285/scottish-government-unveils-plans-gbp-8bn-net-zero-spending-blitz>
  3. The National 7th Feb 2020 <https://www.thenational.scot/news/18217598.mixed-response-scottish-budget-climate-council-proposals/>
  4. Scottish Greens 5th March 2020 <https://greens.scot/news/free-bus-travel-for-young-people-passed-at-holyrood-in-historic-budget>
  5. Times 7th Feb 2020 <https://www.thetimes.co.uk/edition/scotland/budget-2020-spending-on-electric-cars-leads-charge-against-climate-change-jq7s5ks7f>

## 9 Scottish Heat Networks Bill

Scotland will be the first country in the UK to legislate on the development of heat networks to help meet climate change targets and tackle fuel poverty. The Heat Networks (Scotland) Bill will introduce regulation and a licensing system for district and communal heating to accelerate use of the networks across Scotland. District or communal networks deliver heat from a central source through insulated pipes to local homes and other buildings, and have the potential to reduce or remove emissions from heating buildings and homes right across Scotland. Heat networks are generally more efficient than individual gas boilers and can also be run wholly from renewable sources, reducing the need for customers to procure and maintain their own boilers.

To mark the publication of the bill, Minister for Energy, Connectivity and the Islands, Paul Wheelhouse, visited a heat network under construction at the St James Centre in central Edinburgh. Engie is developing the Edinburgh St James' heat network project. (1)

The Heat Networks Bill is available here:

<https://www.parliament.scot/parliamentarybusiness/Bills/114590.aspx>

Meanwhile, Midlothian Council and Swedish state-owned energy firm Vattenfall have established an innovative new Energy Services Company (ESCo), to deliver a range of innovative energy projects including a district heating network at the Shawfair development just south-east of Edinburgh. The low temperature system, which is expected to be operational in 2021. Costing £20m, the project is supported with £7.3m from the Scottish Government's Low Carbon Infrastructure Transformation Project, which is part funded by the European Regional Development Fund. The heat feeding the network will be sourced from waste heat supplied by the Millerhill waste incinerator. (2)

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1. Scottish Government 3rd March 2020 <https://www.gov.scot/news/heat-networks-bill/>
  2. Business Green 12<sup>th</sup> Feb 2020 <https://www.businessgreen.com/news/4010514/scottish-swedish-energy-partnership-aims-bring-low-carbon-district-heating-south-east-scotland>

## 10 Just Transition

The Just Transition Commission has published its interim report, summarising emerging themes from their work, initial recommendations and plans for the year ahead. (1)

The Chair's Foreword says *"the next phase of Scotland's fight against climate change will be harder, and will have a much more visible impact on people's day-today lives. This will bring significant opportunities, but also inevitably challenges which must be managed by Government. It is imperative that we ensure fairness and a just transition for all as we move into this next phase if we are to have any hope of ending our contribution to climate change."*

The report ends with an open call for evidence, which it says will play a crucial role as the Commission looks to develop its final recommendations.

The report looks at the failure to capitalise fully on manufacturing opportunities which has been criticised, particularly by the trade union movement in Scotland. The reasons for this are complex, but failure to plan and invest long-term appears to have been a significant factor. If we are serious about maximising the economic opportunities associated with decarbonisation, this cannot happen again. Achieving net-zero emissions will also require increasing deployment of renewable energy generation. Government and industry should be jointly considering how demand can be met in a way which secures economic benefits for Scotland.

There is a need for on-going and proactive dialogue with all corners of society that will be affected by the transition to net-zero. This is required to generate buy-in for the scale of change that will ultimately be needed to meet Scotland's climate change ambition.

Action taken to tackle climate change has the potential to create both winners and losers. The imperative of a just transition is that Governments design policies in a way that ensures the benefits of climate change action are shared widely, while the costs do not unfairly burden those least able to pay, or whose livelihoods are directly or indirectly at risk as the economy shifts and changes. The just transition debate has often focused on jobs and the potential for either their creation or destruction. But consideration of equity needs to be much broader than this. For example, policies to reduce emissions could impact consumer bills in ways that are unfair to those on lower incomes, while investment decisions, if not properly designed, could adversely affect the connectedness of rural communities. On the other hand, there are opportunities to improve wider social outcomes like health and health inequalities as a result of low-carbon investments. Mechanisms are needed, across all levels of Government, to identify these equity considerations and then make sure they are properly addressed as policy is developed (while acknowledging the split of devolved and reserved responsibilities). The risk associated with not doing so is great – if action taken to reduce emissions is unfair, or is perceived by the public as being unfair, then it risks the kind of backlash seen in France with the 'gilets jaunes' protests. This should serve as a reminder of the importance of ensuring we understand and address public concerns regarding the net-zero transition.

According to the BBC, the report says that if today's politicians want to keep their jobs while creating a new and cleaner revolution, they'll need to avoid pushing workers in polluting industries on to the dole. They'll also have to shelter poor people from the costs of home insulation, zero-carbon heating and electric cars.

This led some of the media to declare that *"rioting similar to the yellow vest protests in France threatens to break out in Scotland if measures to cut emissions are not seen to be fair, ministers have been told."* (3)

The DeSmog website commented that:

*"...we know that neither the causes of climate breakdown nor the catastrophic consequences are distributed equally. We know that both a relatively small number of fossil fuel producers and their investors could hold the key to tackling climate change - and that the poorest communities suffer disproportionately from the results of the precarity and instability brought about by the ecological crisis. So what the Just Transition Commission is doing is absolutely the right approach, pointing to the injustices inherent in the current system and the need to bring the general public with you on a journey that is going to involve dramatic changes in lifestyle and expectations. ... A just transition under The Green New Deal represents an alternative future. It is one that will involve large-scale and rapid changes to our ways of life. But, despite media headlines, it does not have to lead to riots."* (4)

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1. Scottish Government 27<sup>th</sup> Feb 2020 <https://www.gov.scot/publications/transition-commission-interim-report/>

2. BBC 5<sup>th</sup> March 2020 <https://www.bbc.co.uk/news/science-environment-51733952>
3. Times 28th Feb 2020 <https://www.thetimes.co.uk/article/scottish-climate-action-could-cause-riots-green-groups-warn-clp7f0gdd>
4. DeSmog 9th March 2020 <https://www.desmog.co.uk/2020/03/09/comment-just-transition-scotland-doesn-t-mean-riots-streets>

## 11 Powering Our Ambition

The NFLA Scotland Forum has outlined its thoughts on what the benefits might be, in developing a Scottish Energy Development Agency in response to an initiative by Common Weal and the Energy Poverty Research Initiative.

At present local authorities, housing associations, communities and their partners compete nationally for funding for energy projects, a system which passes the need to gather evidence and quantify the benefits and co-benefits of any proposal to those who will deliver them. This is not only highly cost and resource inefficient but also introduces an element of inequality in terms of the levels and types of expert support the proposals attract, and subsequent weight of evidence included in them. This in turn means proposals from poorly-resourced communities where such projects may offer substantial co-benefits risk losing out to otherwise stronger competitors.

The establishment of a Scottish Energy Development Agency (SEDA) as a strategic body directing and enabling the development of energy infrastructure, generation and sustainable fuel supply chains, would make it possible to identify new projects, explore the costs and finances and to prioritise those projects that offer the greatest benefits and co-benefits to local communities, and particularly those in areas of high fuel poverty.

There is an underlying assumption that SEDA's role will be to organise a major Scottish District Heating Revolution. In the NFLA view this is a debate which still needs to be won. The proposed DHS revolution in Scotland appears to rely quite heavily on the introduction of new solar thermal district heating systems which are practically unknown in Scotland. A study tour or virtual tour of a Scandinavian project for key local authority and Scottish Government actors might be worthy of consideration (taking into account the carbon implications of travelling to Denmark). (1)

Meanwhile, Willie Rennie, leader of the Scottish Liberal Democrats, has been calling for an inquiry into the collapse of 'Our Power' the energy company backed by the Scottish government. He said without an inquiry a public energy company planned by the SNP could repeat its mistakes. (2)

Nearly half of Scotland's offshore wind installations are in public ownership. The trouble is the state-controlled companies are from other countries. The other half are owned by foreign multinationals such as Iberdrola. The Scottish Government has committed to setting up a national energy company by 2021, but campaigners say it must not just become another supplier, but instead invest in renewables. Andrew Cumbers, professor of regional political economy at Glasgow University claimed lessons should be learned from Statoil, Norway's publicly owned oil company which was set up in 1972 to ensure oil use was in the interests of all Norwegians. Scotland should look to Denmark for

inspiration with its public energy company taking on a strategic role that will allow for a just transition away from fossil fuels. The Scottish Government should examine how to ensure a percentage of local investment – set at 30-40% – in all renewable projects. Anna Markova of Platform London says Scotland could create a People’s Wind Fund for future generations. We shouldn’t privatise yet another common resource. (3)

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1. NFLA 4<sup>th</sup> Feb 2020 [https://www.nuclearpolicy.info/wp/wp-content/uploads/2020/02/A308\\_NB195\\_Scottish\\_Renewable\\_Energy\\_Agency.pdf](https://www.nuclearpolicy.info/wp/wp-content/uploads/2020/02/A308_NB195_Scottish_Renewable_Energy_Agency.pdf)
  2. Times 2nd March 2020 <https://www.thetimes.co.uk/edition/scotland/snp-must-learn-from-collapse-of-energy-firm-our-power-says-willie-rennie-wzd7mtph>
  3. The National 8th March 2020 <https://www.thenational.scot/news/18289660.scotland-must-act-now-stop-renewable-energy-squandered-just-like-oil/>

## 12 Renewable Notes

Renewable energy accounted for 90% of all electricity used in Scotland last year. The Scottish Government said more electricity was generated from renewable sources in 2019 than ever before – 30 terrawatt hours (TWh), up from 26.5 TWh in 2018. (1)

As of December 2019, Scotland has 11.8 GW of installed capacity operational with 13.0 GW in the pipeline. How quickly these projects become operational, how favourable the climate is for renewable electricity generation and the extent to which gross consumption falls in the next year could determine if the target of 100% by 2020 is reached. (2)

Scotland exported a record £745m worth electricity last year as wind power increasingly becomes the country’s second North Sea Oil. New official statistics show more than 17,000 gigawatt-hours was transmitted to England and Wales in 2019, more than ever before. (3)

### Floating Wind

Scotland can lay claim to installing one of the world’s first floating offshore wind farm, the 30MW Hywind project, to which it added in June 2018 a 1MW onshore battery storage system. (4)

The North Sea is the world’s capital for offshore wind because it is unusually shallow, but in many other parts of the world (such as America’s Pacific Coast) the seabed quickly becomes deep. That’s where floating wind farms come in. While many of the country’s offshore wind farms today are off the east coast, floating farms could see more built off Scotland and the Celtic Sea off Wales and England’s south-west, says Rebecca Williams at RenewableUK. That geographical diversity would help ensure electricity supplies because when one area is less windy another may be more windy. Deeper waters usually mean higher, more stable wind speeds, too.

There are now 10 projects worldwide, as companies work through research and development towards the commercial stage. In March, Spanish energy giant Iberdrola announced it was investing

in two demo projects, one in Norway and the other in Spain. (5) Iberdrola's goal is to slash the levelized Cost of Energy (LCOE) for floating offshore wind to €40-60 per MWh by 2030. (6) Shell says while the technology is still definitely at the demo and R&D stage, "great progress" is being made towards commercialisation. The technology holds appeal for oil and gas firms, says Williams, because it could be key to helping them meet the net-zero carbon targets they are setting, by providing green electricity supplies to oil rigs. Those companies also have a lot of similar skills – such as assembling structures in deep water and handling huge equipment in ports – that will be key for deploying floating foundations, she adds.

The world's biggest floating windfarm, a 50 MW project off the coast of Aberdeen, is due to be finished this year. There is also a global race on to be the leader in the technology. France, which has been a laggard in offshore wind so far, has the strongest policies in place and is likely to lead the charge. It could have up to 750 MW of floating wind power by 2030, due to auctions of government subsidies starting next year. The UK also recently said it is looking to allow floating wind farms to access subsidies. (7)

### Offshore Wind

The Crown Estate Scotland has announced it will use a multi-million investment to increase the scale of commercial offshore wind leasing in the North Sea. The new three-year funding plan, aimed at managing Scotland's sea, land and coastlines, will see the Crown Estate invest £70 million. The Crown Estate manages the ScotWind leasing round for offshore wind that is specific to the waters around Scotland and accounts for the new draft process for the next batch of giant offshore wind farms. The draft sector marine plan was released by Marine Scotland in December. A number of big energy firms, including Equinor, Shell and Total, have all stated their interest in the new leasing areas around Scotland. (8)

### Tidal

Simec Atlantis Energy has been awarded a £1.5 million grant by the Scottish Government to develop its Meygen tidal turbine project. The funding, part of a £10m Saltire tidal energy pot supporting the commercial deployment of tidal energy, will be used to design, install, connect and commission the subsea hub and associated subsea connection infrastructure. The Highland MeyGen tidal power array, based in the Pentland Firth, is currently the world's largest tidal stream power project. The subsea hub, which will be assembled and tested in Scotland, will be installed in late 2020. (9) Simec Atlantis also managed to raise £4m in a successful bond issue. (10)

Orbital Marine Power has signed up to a second berth at the European Marine Energy Centre (EMEC) in Orkney, which will pave the way for the company to deliver its first floating tidal turbine farm. Orbital is currently in the process of manufacturing its first commercial O2 turbine. At 2MW it will be the world's most powerful tidal turbine and will be capable of meeting the annual electricity demand of over 1,700 UK homes. The company was successful in raising £7 million in crowd-funding to deliver the first O2 turbine and received a £3.4 million award by the Scottish government through the Saltire Tidal Energy Challenge Fund. The O2 project is also being supported with European funding. (11) The first of two turbines is expected to be connected to the grid by the end of this year,

with a view to being fully operational in early 2021. When up and running, the pioneering floating devices could generate around a third of Orkney's needs. (12)

A 20-metre long wave energy device is being fabricated in Fife ahead of trials in the sea off Orkney this autumn. The Blue Star wave energy converter, designed by Edinburgh start-up Mocean Energy will be constructed at Fife fabricators AJS Production Ltd. This prototype will be made up at half-scale to try out the technology in the sea. (13)

Another wave energy device - the Archimedes Waveswing - developed by AWS Ocean Energy in Inverness, will be made by Malin Renewables at its site in Renfrew in a contract worth £1 million. The project is backed by Wave Energy Scotland, the publicly funded development agency. The 50-tonne Waveswing is a submerged structure resembling a giant buoy that converts the motion of waves into electricity. The device will allow the technology to be tested further and give the engineering teams additional data for creating the equipment in different sizes. Ben Sharples, director of Malin Marine, said: *"This project enables the team to utilise their expertise in hydraulics, electrical power, air systems, pressure vessels and mooring, delivering an integral piece of equipment for the wave energy sector."* Malin is creating a Scottish marine technology park in West Dunbartonshire - construction work started in January. (14)

There are more than 20 marine energy projects in the UK, some still in the research and development stage, but many already being scaled up for deployment at special testing grounds in Scotland's Orkney islands and the West of England. The chairman of Ocean Energy Systems (OES – an offshoot of the International Energy Agency) Henry Jeffrey, from the University of Edinburgh, says the group's new annual report communicates the sizeable global effort to identify commercialisation pathways for ocean energy technologies. The annual report shows cumulative energy produced from wave and tidal stream sources surged from less than 5GWh in 2009 to 45GWh in 2019. (15)

However, Jeffrey warned that while the sector continued to take huge strides forward, there were several challenges ahead "centred around affordability, reliability, installability, operability, funding availability, capacity building and standardisation. *"In particular, significant cost reductions are required for ocean energy technologies to compete with other low-carbon technologies."* (16)

## Energy Storage

ScottishPower had already announced plans for bank of lithium ion electricity storage units at its giant Whitelee wind farm – and this was approved by local and national authorities last year. But now the chief executive of ScottishPower Renewables, Lindsay McQuade, says she intends to develop similar facilities up and down the country. The super battery revolution effectively marks a second stage in Scotland's transition to renewable electricity. Bluntly, McQuade said, it means we are less likely to need to turn on the gas if the wind stops blowing. (17)

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1. The National 26<sup>th</sup> March 2020 <https://www.thenational.scot/news/18338083.renewable-energy-made-90-scots-electricity-usage-2019/>



2. See: <https://scotland.shinyapps.io/Energy/?Section=RenLowCarbon&Subsection=RenElec&Chart=RenElecTarget>
3. Herald 4<sup>th</sup> April 2020 <https://www.heraldscotland.com/news/18358222.record-745m-wind-power-exported-scotland/>
4. Renew Economy 28<sup>th</sup> June 2018 <https://reneweconomy.com.au/worlds-first-offshore-wind-farm-battery-switched-scotland-54470/>
5. GTM 30<sup>th</sup> March 2020 <https://www.greentechmedia.com/articles/read/iberdrola-kickstarts-floating-offshore-wind-drive>
6. Business Green 31<sup>st</sup> March 2020 <https://www.businessgreen.com/news/4013283/iberdrola-led-consortium-build-10mw-floating-wind-demonstration-project>
7. Fix the Planet 2<sup>nd</sup> April 2020 <https://mailchi.mp/edf447fd3a43/floating-wind-farms-are-spinning-into-action?e=f5c10ce9d3>
8. Energy Voice 2<sup>nd</sup> April 2020 <https://www.energyvoice.com/otherenergy/232156/crown-estate-scotland-to-use-70m-investment-to-increase-north-sea-wind-leasing/>
9. Energy Voice 25<sup>th</sup> March 2020 <https://www.energyvoice.com/otherenergy/230572/simec-atlantis-energy-wins-1-5m-scot-gov-grant-for-meygen-project/>
10. John O Groat Journal 27<sup>th</sup> Feb 2020 <https://www.johnogroat-journal.co.uk/news/almost-4-million-raised-for-company-behind-meygen-project-192432/>
11. Machinery Market 3<sup>rd</sup> April 2020 <https://www.machinery-market.co.uk/news/26636/Orbital-to-deliver-first-floating-tidal-wind-farm>
12. Scotsman 31<sup>st</sup> March 2020 <https://www.scotsman.com/news/environment/scotlands-first-floating-tidal-power-farm-be-set-orkney-2523859>
13. Dundee Courier 23<sup>rd</sup> March <https://www.thecourier.co.uk/fp/business/business-news/1210654/fife-fabrication-firm-starts-work-on-wave-energy-prototype/>
14. Times 21<sup>st</sup> Feb 2020 <https://www.thetimes.co.uk/edition/scotland/wave-energy-machine-plugged-in-w3v72b9lv>
15. Maritime Journal 25<sup>th</sup> March 2020 <https://www.maritimejournal.com/news101/marine-renewable-energy/huge-rise-in-wave-and-tidal-energy-production>
16. Climate News Network 31<sup>st</sup> March 2020 <https://climatenewsnetwork.net/blue-energy-revolution-comes-of-age/>
17. Herald 5<sup>th</sup> April 2020 <https://www.heraldscotland.com/news/18359195.scotland-leads-charge-towards-new-ion-age/>

## 13 Glasgow's path to net zero

ScottishPower has launched Zero Carbon Communities (ZCC) in Glasgow – the first detailed roadmap setting out the scale of the challenge for local communities in reaching the city's Net Zero targets. Based on forecasts commissioned by ScottishPower from Capital Economics, the independent

research consultancy, the figures reveal for the first time Glasgow's transport and home heating requirements to meet its 2030 Net Zero target.

The scale of the challenge in Glasgow is clear. Capital Economics forecasts suggest that the city will need to install more than 175,000 charging points between now and 2030 to reach Net Zero, including nearly 17,000 chargers in non-residential areas. Capital Economics estimates the costs of installing these to be £298 million, and also estimates that converting Glasgow to electric heating will require about £1.4 billion for the installation of electric heat pumps in over 244,000 homes. Glasgow's energy network will need considerable investment to support these changes, with Capital Economics estimating that £648 million will be required to achieve Net Zero. By investing in a planned and strategic way, SP Energy Networks believes there is potential to reduce significantly these network investment costs by 30%-40%. As part of plans to modernise the city's electrical network infrastructure, SP Energy Networks is investing £20m between now and 2022 to facilitate an increase in available network capacity and to support regeneration initiatives.

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1. Scottish Power 6th Feb 2020 [https://www.scottishpower.com/news/amp-pages/glasgows\\_path\\_to\\_net\\_zero\\_revealed\\_in\\_detail.html](https://www.scottishpower.com/news/amp-pages/glasgows_path_to_net_zero_revealed_in_detail.html)

## 14 Boris Bridge & Nuclear Waste

Bomb-disposal experts have warned it would be too dangerous to build a bridge between Northern Ireland and Scotland if it was to involve spanning the vast offshore munitions dump that lies on the most direct route over the Irish Sea. The idea of building a 28-mile bridge would involve crossing Beaufort's Dyke, a trench that contains more than 1m tonnes of unexploded munitions, plus chemical weapons and radioactive waste. (1)

Instead of focusing on Boris Johnson's bridge distraction, lets focus on Beauforts Dyke – and the wider toxic legacy of the British State, says the Bella Caledonia website. (2)

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1. Guardian 14th Feb 2020 <https://www.theguardian.com/politics/2020/feb/14/bombs-dumped-in-irish-sea-make-bridge-plan-too-dangerous>
  2. Bella Caledonia 11th Feb 2020 <https://bellacaledonia.org.uk/2020/02/11/scotland-the-dump-2/>



commitment to staunching nuclear proliferation and the country's reliance on the US for a central plank of its defence strategy. (1)

The NFLA said the UK is now so dependent on US technical knowledge and assistance for its nuclear weapons programme that it is almost impossible for it to diverge from any development path the US decides to take. This could lock the UK into the exorbitant costs of US technical development with little effective control should such costs increase exponentially. It also diverges from the UK's legal steps towards promoting nuclear disarmament under the Nuclear Non-Proliferation (NPT) Treaty. With the five-yearly review of the NPT starting at the end of April, it looks clear that the UK is moving in the completely opposite direction in developing new nuclear weaponry. (2)

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1. Observer 22nd Feb 2020 <https://www.theguardian.com/uk-news/2020/feb/22/pentagon-gaffe-reveals-uk-deal-replace-trident-nuclear-weapon>
  2. NFLA 24th February 2020 <https://www.nuclearpolicy.info/news/nfla-dismayed-uk-government-planning-highly-expensive-new-trident-warheads/>

## 16 Faslane

The Nuclear Free Local Authorities (NFLA) and KIMO International have submitted a joint response to a Scottish Environmental Protection Agency (SEPA) consultation considering a Ministry of Defence (MoD) application to vary radioactive discharges at the Faslane and Coulport naval site on the Clyde Estuary, particularly affecting the Gare Loch.

The MoD submitted an application to SEPA for the disposal of radioactive waste at Her Majesty's Naval Base (HMNB) Clyde, Coulport and Faslane. The application covers discharges from a new effluent treatment facility at Faslane and seeks to update existing arrangements.

The core conclusions of NFLA and KIMO to this application include:

The MoD's application involves expected increases in discharges of tritium by as much as 30-fold and discharges of cobalt-60 by almost 50-fold.

Whilst the individual and collective doses estimated by the MoD and FSA are relatively small, there are considerable uncertainties involved with the modelling especially with regard to tritium.

Doses attributed to tritium should be multiplied by around 20 in order to use a precautionary approach.

UK Government policy is that unnecessarily introducing radioactivity into the environment is undesirable, even at levels where doses to humans and other species are purportedly low and, on the basis of current knowledge, are unlikely to cause harm.

The Clean Technology choice for powering submarines would not involve using a nuclear reactor. Non-nuclear air-independent propulsion (AIP) submarines offer particular advantages over nuclear submarines. NFLA recommend MoD pursue such an option.

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1. NFLA 2nd March 2020 <https://www.nuclearpolicy.info/news/nfla-views-proposed-changes-radioactive-waste-discharges-faslane-coulport-nuclear-weapon-naval-bases/>