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| **From:** | [redacted] |
| **To:** | Wylfa Newydd |
| **Subject:** | Welsh Anti Nuclear Alliance - Post Hearing Submission on Climate Change from Issue Specific Hearing Friday January 11th 2019 |
| **Date:** | 16 January 2019 10:28:01 |
| **Attachments:** | Climate change + sea level rises.odt |

Dear Madam/Sir

Please find attached a Post Hearing Written Submission on Climate Change following an oral presentation at the Specific Issue Hearing on Anglesey on Friday January 11th 2019.
Please confirm you have received this submission and can open the attached file. I would also be grateful if you could let me have further details about further open and issue specific hearings scheduled for March .

I can confirm that the Welsh Anti Nuclear Alliance would like to make a further submission at the Open Floor Hearing and issue Specific Hearings March 5th - 8th 2019 and await further details re. location and agenda.

Thank-you

Mag Richards - Secretariat to the Welsh Anti Nuclear Alliance
www.wana.wales
Tel [redacted]

Welsh Anti Nuclear Alliance
Cynghrair Wrth Niwclear Cymru
PO Box 90. Llandrindod Wells. Powys LD1 9BP info@wana.wales www.wana.wales

# CLIMATE CHANGE and WYLFA NEWYDD

## INTRODUCTION

The first words you read on the Horizon website re. Wylfa Newydd are "

- The site is ideally suited for low carbon nuclear power production"
- It will bring significant investment and benefits to the region
- Its high above sea level to manage flood risks

We dispute all 3 statements but focus on the low carbon claim and outline reasons why this Planning Application should be rejected.

1. Climate change is the most important issue facing us today and we have to do something about it NOW

2. Wylfa Newydd is a costly distraction that is neither low carbon , renewable or needed and requires enormous government subsidies

3. Reports suggest climate change will impact on coastal nuclear plants earlier and harder than previously expected eg. sea rises, sea surges, and possible flooding. The Planning Inspectorate should ensure that a 2018/2019 assessment on the impact of sea rise at Wylfa is in place before any DCO is considered.

4. We need to invest in low carbon renewable technologies NOW – we cannot afford to wait

5. Support for this technology conflicts directly with the sentiments of the "Wellbeing of Future Generations Act (Wales) 2015".

## 1. CLIMATE CHANGE IS NOW

Part of the rationale we understand , for building Wylfa Newydd is to address climate change by providing a low carbon alternative to fossil fuels. However , nuclear energy is not the answer to climate change – its not low carbon and its too little too late.

According to the latest research we have 12 years to act on climate change before it becomes seriously problematic. Currently Wales generates no energy from nuclear and the most optimistic scenario for new nuclear generation at Wylfa Newydd is 2027.

A new analysis of the history of nuclear power projects since 2010 has shown that the cost of building new nuclear power plants is nearly 20 % higher than expected due to delays. These delays, which can run into years or even decades -- increase the cost compared with older projects and are often overlooked when new projects are planned. In the analysis , published in May 2018, the authors also suggest that because these delay costs make nuclear projects high risk, decision makers might instead focus on more low-risk low-carbon technologies such as wind or solar power. (J. Portugal-Pereira, P. Ferreira, J. Cunha, A. Szklo, R. Schaeffer, M. Araújo. **Better late than never, but never late is better: Risk assessment of nuclear power construction projects**. *Energy Policy*, 2018; 120: 158 DOI: 10.1016/j.enpol.2018.05.041)

Even at the most optimistic build rate, 10 new reactors by 2025, the UK's carbon emissions would be cut by just 4%. The UK has a binding target of a 34 % cut by 2020, meaning that new nuclear's ability to help meet our obligations is tiny. We have limited time and money to spend so must prioritise technologies with the greatest potential to meet our energy needs and cut emissions and increase efficiency of electricity use. https://greenpeace.org.uk/what-we-do/climate/energy/dirty-energy/nuclear-power/

This view is echoed by Tom Burke, Chairman of E3G (Third Generation Environmentalism) …"We have to think about the deadlines for our emissions targets, if we wait for new nuclear plants to be built we will fail to meet them. Nuclear is also too expensive, and new reactors are actually based on old, twentieth century technology, and are an inherently inflexible energy source. Our modern energy system needs flexibility, nuclear power cannot keep up." https://www.e3g.org/

## 2. WYLFA NEWYDD –A COSTLY DISTRACTION TO CLIMATE CHANGE

Wylfa Newydd is also a hugely expensive distraction from work to limit the impacts of climate change**.** Nuclear power is not a low carbon technology, the nuclear fuel cycle is a filthy, dangerous and unhealthy process leaving a legacy of radioactive wastes at all stages ; from fuel production to decommissioning.

Uranium the vital fuel component for nuclear reactors is a finite resource and not re-newable. Uranium is imported from countries such as Kazakhstan and Niger and its production is energy intensive. This fuel travels an average distance of 2,500 + miles before it reaches us. In addition emissions will increase as the quality of uranium ore declines and supplies diminish. Lower grade ores require more energy per unit and consequently cause higher CO2 emission. If no new large high-quality resources are discovered, the nuclear CO2 emission will eventually surpass that of fossil-generated electricity. .https://www.stormsmith.nl/Media/downloads/nuclearEsecurCO2.pdf

Rossing Uranium mine Namibia

In Niger AREVA established mining 40 years ago, creating what should have been an economic rescue for a depressed nation but their operations have been largely destructive. There are great clouds of dust, mountains of industrial waste and sludge sit in huge piles, exposed to the air; and the shifting of millions of tonnes of earth and rock is corrupting the diminishing groundwater source, due to industrial overuse. The " Left in the Dust" Report shows how AREVA extracts Niger's natural resources, earning billions and leaving little behind but centuries of environmental pollution and health risks for the people, where death rates linked to respiratory problems are twice that of the rest of the country .https://www.greenpeace.org/denmark/Global/denmark/p2/other/report/2010/left-in-the-dust.pdf

Wylfa Newydd is supposed to have an operational life of 60 years once it is built so will probably reach the end of its expected life during 2080 – 2090. If the World Nuclear Association low growth scenario is assumed as a starting point, the currently operated uranium mines would be exhausted between 2043 and 2055. On this assumption it would not be possible to supply a nuclear power plant being planned now with uranium until the end of its lifetime.
https://www.energyagency.at/fileadmin/dam/pdf/publikationen/berichteBroschueren/Endbericht_LCA_Nuklearindustrie-engl.pdf

It is only the power station operational side that is relatively low carbon. Greenhouse gases are emitted at all stages of the nuclear cycle, fuel production, construction, operation, dismantling and waste disposal. Leaving out any of these stages biases estimates towards lower values. The last two, dismantling and waste disposal are particularly difficult to estimate. Not many commercial reactors have been fully decommissioned and there is still no scientific or political consensus on the approach to be used for the long-term storage of waste.

Claims that nuclear power is a 'low carbon' energy source fall apart under scrutiny, says Professor Keith Barnham. Far from coming in at 6 grams of CO2 per unit of electricity for Hinkley C, as the Climate Change Committee believes, the true figure is probably well above 50 grams breaching the CCC's recommended limit for new sources of power generation beyond 2030.

https://theecologist.org/2015/feb/05/false-solution-nuclear-power-not-low-carbon

## 3. CLIMATE CHANGE SCENARIOS

Flooding at a nuclear power station site can be catastrophic because it can knock out electrical systems, disabling cooling mechanisms and leading to overheating and possible meltdown causing a dangerous release of radioactivity. Flooding at the Fukushima Daiichi plant in Japan as a result of the March 2011 tsunami caused severe damage to several of the plant's reactors

A number of reports published in 2018 suggest that climate change will impact on coastal nuclear plants earlier and harder than the industry, governments or regulatory bodies have expected, and that the safety standards set by national nuclear regulators and the IAEA, are out of date and take insufficient account of the effects of climate change on nuclear power.
https://www.nasa.gov/feature/goddard/2018/new-study-finds-sea-level-rise-accelerating

In 2012 an assessment, carried out by the Department of Environment, Food and Rural Affairs, of the risk of flooding and storm surges for the UK's nuclear sites did not show a high risk of flooding and erosion by 2080 at Wylfa .
Guardian 7th March 2012 https://www.theguardian.com/environment/2012/mar/07/uk-nuclearriskflooding [Unpublished Government Analysis available at https://www.scribd.com/document/84289220/Nuclear-sites

The 2012 assessment was before the increasing volume of melting of the Greenland ice cap was properly understood and when most experts thought there was no net melting in the Antarctic. Now estimates of sea level rise in the next 50 years have gone up from less than 30cm to more than a metre, well within the operating lifespan of Wylfa B – let alone the period before final decommissioning of the reactors, and the period when spent nuclear fuel is likely to be stored on site.

Some researchers say sea levels could rise by six metres or more even if the 2 degree target of the Paris accord is met. Sustained warming of one to two degrees in the past has been accompanied by substantial reductions of the Greenland and Antarctic ice sheets and sea level rises of at least six metres – several metres higher than what current climate models predict could occur by 2100. Guardian 6th July 2018 https://www.theguardian.com/environment/2018/jul/06/globaltemperaturerises-could-be-double-those-predicted-by-climate-modelling

The IPCC says sea-level rise is not expected to kick in for some time. BUT the most comprehensive research conducted by NASA shows that the 2013 IPCC estimates of sea-level rise are thought to be outdated. The IAEA's current global safety standards were published in 2011. These relate to a projected sea level rise of 18- to 59-centimeter by 2100 in the IPCC assessment report of 2007.

Since 1970, the magnitude and frequency of extreme sea levels have increased throughout the world and sea level rises are accelerating claims the NASA Report. Professor Steve Nerem (member of NASA's Sea Level Change Team) says this acceleration has the potential to double the total sea level rise projected by 2100 when compared to projections that assume a constant rate of sea level rise. If the rate of ocean rise continues to change at this pace, sea level will rise 26 inches (65 centimeters) by 2100 -- enough to cause significant problems for coastal sites

**https://www.nasa.gov/feature/goddard/2018/new-study-finds-sea-level-rise-accelerating**

Sea level rise + high tides and a storm surge, increases the risk of coasts and nuclear stations being swamped, ( Michael Mann, Director of the Earth System Science Center at Pennsylvania State University.) There have been many close calls of major problems caused by storm surges "Nuclear stations are on the front line of climate change impacts both figuratively and quite literally," Mann says. "We are likely profoundly underestimating climate change risk and damages in coastal areas." https://ensia.com/features/coastal-nuclear/

Nuclear technology does not adapt well to climate change and can only operate under predictable and controlled conditions.

Nuclear power stations require massive amounts of water and droughts and heatwaves are becoming more frequent. Reactors in France had to be shut down during the recent heat wave because their cooling waters were too warm to be discharged without causing damage to ecosystems.
www.independent.co.uk/news/world/europe/france-nuclear-reactors-shut-down-edf-europe-heat-wave-a8477776.htm

**At the Issue Specific Hearing re. the Application by Horizon for an Order Granting Development Consent for Wylfa Newydd held January 11th 2019 (Item on Climate Change).** We asked for reassurance that up to date data on sea level rise had been incorporated into the Application for Wylfa Newydd it appeared that 2009 date was being used to estimate the likely flood / sea level rise for the site. From memory the Inspector did make specific reference to 2018 data. Consequently if 2018 data is available and particularly if significantly worse than 2009 data then both Horizon and NRW are taking a view that is dated and possibly inaccurate. It is our view that the Planning Inspectorate must see an assessment of the effect of sea-rise based on 2018 data before any DCO is considered.

## 4. INVEST IN RENEWABLES NOW

Nuclear power is an outdated technology. Nuclear proponents claim that baseload energy is necessary because renewables are too intermittent. However, so called baseload plants (such as nuclear and fossil fuel plants) cannot power up or shut down quickly and operate more or less continuously - In fact, nuclear energy has the lowest flexibility and the worst response speed compared to all other power technologies. Since the world is clearly moving towards much more distributed electricity production and microgrids, baseload power providers like nuclear energy are no longer suited to 21st century electricity needs. The focus is now on renewable energy, and on flexible generation, demand management, and energy efficiency.
https://www.worldfuturecouncil.org/the-climate-nuclear-nexus/

In February 2018 the National Grid published its four energy scenarios . These are used to examine ways in which the UK could meet its emission reduction targets of 80% by 2050 - community energy is seen as the most effective way forward in terms of meeting these targets
https://gallery.mailchimp.com/d919930dfbffc8e4d3684958d/files/0bc135c0-4c87-4f99-8b1d-3d85c4066e25/SFD_article_v1.0.pdf

The Zero Carbon Britain Project - Rethinking the Future – www.zerocarbonbritain.org

The ZCB scenario demonstrates that we could rapidly reduce UK Greenhouse gas emissions to zero by 2030 using only currently available technology. It outlines how we can provide a reliable energy supply with 100% renewable energy sources and flexible carbon neutral back up - without fossil fuels, nuclear power, or gambling on the promise of future technology. In addition it can deliver a modern lifestyle, create employment, improve our wellbeing, and ensure a safe and sustainable future for future generations

For renewable technologies such as wind, hydro and solar there are no imported fuels they are the second biggest source of electricity in the UK, and there is massive scope for Wales to lead the way in developing low carbon sustainable energy whilst creating green jobs across the Country. Instead of having to 'host' a nuclear facility that destroys habitats , leaves a legacy of waste and does nothing to address climate change.

## 5. AT VARIANCE WITH " THE WELLBEING OF FUTUTRE GENERATIONS ACT (WALES) 2015".

Proposed new developments at Wylfa , in our view , are at variance with the Welsh Government's "Wellbeing of Future Generations Act (Wales) 2015" . This flagship legislation offers a huge opportunity to make long-lasting, positive changes for future generations around clean energy. If Wylfa Newydd goes ahead it will create a massive additional legacy of radioactive waste that future generations will have to manage long after the stations have been shut-down .

Climate change is clearly the most pressing problem facing the planet and clean energy is a vital component . However, the 2018 IPCC Report attacks the notion that nuclear power is the solution by stating …. "Nuclear energy can increase the risks of proliferation, have negative environmental effects eg for water and have mixed effects for human health when replacing fossil fuels . It also cites the long-term storage of nuclear waste as a politically fraught subject, with no large-scale long-term storage operational worldwide. " http://report.ipcc.ch/sr15/pdf/sr15_chapter5.pdf

The production of nuclear fuel is a high energy process creating wastes at every stage and to date no safe methods have been found to deal with these wastes. It is unethical to produce more and leave their legacy for future generations to sort out. So we urge you to refuse this Application