

**From:** [Kate Veale](#)  
**To:** [NDE](#)  
**Subject:** Response to Draft National Development Framework including name and address  
**Date:** 12 November 2019 11:49:32  
**Attachments:** [Dear Welsh Government 1A.docx](#)

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Dear Ministers,

Please find attached my response to the Consultation on the Draft National Development Framework including name and address.

I have concentrated on policies 10, 11, 12, and 13 regarding proposed wind-turbines.

I am passionate about the future energy security of Wales and the UK and believe that we are at a turning point, with a choice of routes to take. Taking the wrong route could lead us to poverty, and a dull and poverty shackled future due to lack of affordable and reliable power.

**Kate Barker**



## Response To Proposed Draft National Development Framework

12<sup>th</sup> November 2019

Dear Welsh Government,

Friends have brought to my attention the Welsh Government Consultation regarding Energy Policy Proposals for the future of Wales. The map you have produced to identify 'Priority Areas' for the erection of large on-shore wind-turbines (WT's) indicates large areas amounting to around 20% of the area of Wales.

Below is my response to the consultation, in particular regarding energy policies relating to Wind and Solar Energy, policies 10,11,12, and 13.

I live on Anglesey and a large proportion of the people living on Anglesey are very concerned and distressed about the proposals to install large or very large wind-turbines of up to 250 metres (820 feet) tall to tip on the Island.

Reducing CO2 emissions globally is clearly necessary, but installing massive wind turbines across around 20% of Wales is not the answer. I set out the arguments below.

### Tourism, Wind turbines, Green energy, and the future prosperity of Anglesey and North Wales

The Welsh Government is suggesting covering around 20% of the land area of Wales with massive industrial-scale turbines, some of which are suggested to be 250m or 820 feet high. There is a very large area of Anglesey that is indicated to be a 'Priority Area' suitable for these very large machines with moving rotary arrays.

Wind-turbines are large, intrusive machines. Large or very large WT's with their moving rotary arrays would clearly have a devastating effect on the wellbeing and health of many people on Anglesey and in Wales, and on the future prosperity of a country heavily reliant on

Tourism. Anglesey is relatively flat and the rotary arrays would be seen from across Anglesey and they would backcloth Snowdonia.

GOV.WALES states that tourists and visitors bring in £6.3 billion pounds a year to Wales. Tourism and Public Services have taken over as the main employers and there is the chance for this to burgeon into even more important sources of revenue as people start up new small business to cater for the movement towards health and wellbeing, interests in wildlife and history and the need to 'get away from it all'. Anglesey is dependent on Tourism, with its subsidiary service industries, and many people have invested heavily in creating businesses to cater for tourists, providing beautiful places to stay in an area which is considered to be a haven, rich in wildlife and birds, in history and blessed with some of the most beautiful landscapes in the world, including the astonishingly beautiful backcloth of Snowdonia. People come to Anglesey and North Wales to get away from it all, for peace and quiet.

All of this will be ruined by the proposed energy policies concerning the installation of on-shore WT's being put forward by the Welsh Government as set out in your Consultation. The issues of compensation have not yet been addressed by the Welsh Assembly.

The cumulative effect that WT's would have across North Wales would be considerable. From Anglesey, for example from red Wharfe Bay, the turbine factories off shore near to Rhyl can be seen on clear days. The off-shore turbines can be seen from miles around and have turned what used to be a peaceful and calming sea scape into a tangled mess of metal. At night, all the lights give the impression of a large foundry.

### Health and Wellbeing

The low amplitude modulation from WT's can have a serious adverse effect on health, causing sickness, loss of balance and stress. Research has determined that the effects of low amplitude modulation can be felt several miles from the source. The strobe effects created by the blades cutting across the sun can also cause severe health problems. No research has

been carried out on how WT's of the size being proposed by the Welsh Government affect people's health, but the larger machines can only exacerbate the problems of Low Amplitude Modulation and flicker. It cannot be right to install machines that are known to cause illness and to destroy a person's wellbeing near to their homes when other, more efficient and cleaner forms of energy are available to reduce CO2 emissions.

The issues of compensation have not yet been addressed by the Welsh Assembly.

### Wind turbine footprint and the damage they do to the environment.

As Michael Shellenberge, a Time Magazine Hero of the Environment, recently wrote: "Had California and Germany invested \$680 billion into nuclear power plants instead of renewables like solar and wind farms, the two would already be generating 100% or more of their electricity from clean energy sources'. Renewables, especially wind, are now recognised to use up a forbidding amount of land, plus maintenance and decommissioning pose a serious recycling challenge.

The materials WT's are made from are causing irreversible damage to the environment. Although wind energy is often claimed to provide clean renewable energy without any emissions during operation (U.S. Department of Energy 2015), a detailed ecological study indicates otherwise. The manufacturing stage is energy-intensive and is associated with a range of chemical usage (Song et al. 2009). The very large foundation is made from concrete; the tower is made from steel or concrete; the nacelle is made mainly from steel and copper; the blades are made from composite materials. Considering these materials only, concrete and composites are the most environmentally problematic at end of life, as there is no established industrial recycling routes for them. Presently most WT blade waste is sent to landfill, but this is not environmentally acceptable.

None of these materials are easily degradable and there is a serious problem caused by wind-turbine spent parts and how to dispose of the vast amount of waste. There are estimated to

be around 50,000 tonnes just of rotary blade waste in the system at the moment, with no established recycling solution. Large numbers of turbines are now at the end of their lives, or are not economically viable and therefore not operational. By 2050 the problem is estimated to be around 43 million tonnes of blade waste world-wide, with Europe possessing 25% of that. (University of Cambridge Institute for Manufacturing)

Albers notes that every one-kilowatt of wind power needs 10 kilograms of WT blade materials. 900 tons of material are needed to build a single WT of 337 feet from ground to hub. Warren Buffet states that the only reason he builds Wind-farms is the tax credit he gets 'they don't make sense without the tax credit'.

Wind-turbines and their support infrastructure of roads, transformers, large grid infrastructure, have a very large land requirement. The footprint of so many thousands of machines laying to waste FOR EVER very large areas of land is not acceptable, particularly when compared with the small land requirement associated with the new nuclear and the advanced small modular reactors.

Wildlife Conservation Ecology and Habitats

Wind-turbines irreversibly damage the environment, they have a severe adverse effect on habitats and kill very large numbers of birds and bats. There have been many scientific studies on this and it is very well documented. Bats are killed in their thousands because they are trapped by the vortices created by the spinning blades when the bat's lungs explode due to the drastic change in air pressure. Large raptors are killed by the moving blades as are very large numbers of migratory birds.

The vast amounts of land required world-wide for the cement footings destroys the land take in-perpetuity and the vast amounts of blade waste, which is not able to be processed, also takes up a vast land requirement in landfill. The sheer scale of the footprint required to create and install such a large number of machines world-wide and to deal with their end of life waste is in itself a major environmental problem, and WT's all still require the back up of a reliable source of power from the Grid.

### CO2 Emissions

Cement has a massive carbon footprint. It is the source of about 8% of the world's carbon dioxide (CO2) emissions, according to the think tank Chatham House. If the Cement Industry were a country, it would be the third largest emitter in the world- behind China and the US. It contributes more CO2 than aviation fuel (2.5%) and is not far behind the global agriculture business (12%)

### Saving CO2 Emissions using measures of economy of use

At the moment China is the largest emitter of CO2, being responsible for 29% of global emissions of CO2, USA 16%, India 7%, Russia 5%, Japan 4%, Germany 2%. The UK is responsible for just 1%. (Sources 'Union of Concerned Scientists, published July 16 2008, Updated October 10 2019' )

The report from 'Carbon Brief' in 2018 shows that the use of renewables saved less energy than the simple exercise of swapping the old style halogen lightbulbs with LED, and by using

lower voltage appliances. LED lightbulbs give the same amount of light as a halogen bulb whilst using 85% less power.

The Carbon Brief Report states that the use of Renewables reduced fossil fuel energy by the equivalent of 95 Terawatt hours between 2005 and now but that humble energy efficiency has contributed cutting energy demand by 103 Terawatt hours.

Simple measures of economy of use of power in the UK have produced the greatest saving in CO2 emissions in the past few years, and policies that encourage, subsidise or create new methods of doing this are obviously crucial.

CO2 emissions in the UK have gone down in the last year, partly as identified by 'Carbon Brief' but also because the UK no longer has much heavy industry or manufacturing. CO2 emissions globally have increased, despite the thousands of built WT's, because we are using more power, including all the electricity needed to power electric cars.

#### New Nuclear and The Advanced Small Modular Reactors and 'New Nuclear'

The UK government is already interested in SMR and now AMR concepts, with the Department for Business, Energy and Industrial Strategy (BEIS) investigating ways to develop a new two phase advanced modular reactor designed to incorporate a wider range of reactor types. There appears to be support from MP's in Parliament. On 20<sup>th</sup> February 2019 Trudy Harrison secured a debate in Parliament 'That this House, has considered small modular reactors', with the debate pointing out that some of the UK's greatest and most innovative companies are now interested in building small reactors in the UK: Moltex, Atkins, NuScale; EDF; DBD; U-Battery Developments; Westinghouse; Sheffield Forgemasters and Rolls Royce – these companies and hundreds of others involved with their supply chains, such as Goodwin, need political, financial and industrial support.

The debate was well supported by MP's from all over the country, including by Liz Saville-Roberts (amongst other roles, Plaid Cymru Westminster Leader).

### The New clean, safe, affordable Nuclear alternatives

In Western Europe, including the UK, private companies are now investing in the third generation of SMR's (Small Modular Reactors) and ASMR's (Advance Small Modular Reactors). To have such significant investment from private companies illustrates that we have reached a turning point. The new generation of ASMR's have a small land-use footprint, particularly when compared with the 'Forbidding' land requirement for WT's. The SMR's/ASMR's can be safe to operate with no possibility of 'meltdown'. Because they are modular they can be small, about the size of a small house, or for the floating versions the size of a barge. They can be manufactured as modules in factories and the modules transported to site. They can be built close to the areas that need the power and are therefore suitable for brown-field sites. Because they can be installed close to their point of use there is no need for the massive Grid infrastructure carrying power from its place of origin to its place of use. Some types of the new 'third generation SMR's' use up the contaminated waste produced by old style nuclear reactors. They produce no CO2.

The potential for growth in this new generation of nuclear technology, research, manufacturing and installation is huge. Its use would cut global CO2 emissions to safe levels because it is reliable enough and affordable enough to replace large sections of the existing fossil fuel infrastructure.

The potential for creating jobs from continued research to development, from manufacturing the modules to maintenance and supply chains is also huge.

As identified by Michael Shellenberger of Time Magazine, if investment had been made into this technology instead of investing billions of pounds in wind, an unreliable source of energy which is reliant for its very existence on continuous back up from the fossil fuel run grid, we would have addressed the global CO2 emissions problems.

The SMR's/ASMR's have a small land-take footprint, can be sited underground or they can float. They can be used in clusters. There are at least four main technologies being pursued



and SMR development is proceeding in Western countries with a lot of private investment, including small companies.

The development of Advanced Small Modular Reactors indicates a profound shift towards the deployment of AFFORDABLE, CLEAN ENERGY WITHOUT CARBON DIOXIDE EMISSIONS.

The rest of the world is developing Generation III and III+ nuclear power with the advanced small modular reactors, 'meltdown-proof' techniques of producing new nuclear power, using Thorium and Molten Salt technologies amongst several others. The nuclear power industry has been developing and improving reactor technology for more than five decades and is starting to build the next generation of nuclear power reactors to fill new orders. The first Generation III and III+ are in operation in Japan and Generation IV designs are in development with one being built in China in Fujian Province that is expected to begin operation by 2023.

Washington –based TerraPower has been developing a sodium-cooled system that can be powered with spent fuel, depleted uranium, or uranium straight out of the ground. Bill Gates is an investor. (Technology Review, The new, safer nuclear reactor)

Another generation IV variant, the molten-salt reactor, is safer than earlier designs because it can cool itself even if the system loses power completely. Canadian company Terrestrial Energy plans to build a 190 MW plant in Ontario, with its first reactors producing power before 2030 at a cost it says can compete with natural gas. (Technology Review, The new, safer nuclear reactor)

One generation IV reactor could go into operation soon. Helium –cooled, very high temperature reactors can run at up to 1,000 degrees centigrade, and the state-owned China National Nuclear Corporation has a 210 MW prototype in the eastern Shandong province set to be connected to the grid this year. (Technology Review, The new, safer nuclear reactor)

We are at a turning point, the fork in the road. One route, concentrating on Wind Turbines, leads to consigning Wales to the Poor Bin, by destroying its landscape, its major industry of

tourism, its ecology and the health and wellbeing of thousands of its people. It will condemn large numbers of its population to the misery of living close to very large, inefficient and unreliable on-shore wind turbines, which create vast mountains of unrecyclable waste, cause immense loss of habitat and damage the ecology. They are reliant on the back up of the Grid.

The other route leads to a place where there is an opportunity for Wales to take the lead. Welcome the 'Nimble Dragon' by investing in the Generation III, III+ and IV new nuclear Advanced Modular Reactors, thus cutting CO2 emissions to a safe level, creating our own reliable, clean source of power, and growing our economy with long term stable jobs in new research, resulting in huge growth in manufacture, production and installation of the modules. If the Welsh Government does not seize this opportunity now, and instead invests in more On-shore Wind, the biggest White Elephant the world has ever known, it will look back forever with regret at this point in time, when it took the wrong turning.

Yours sincerely

Mrs Kate Barker

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Other Sources:

World Economic Forum

World Nuclear Association