

13th april 2013



**ASSIGN  
BUSTER**

13th April 2013 Dear Mr. Cameron, I am writing to express my opinion about the Wylfa nuclear power station issue. It is quite a controversial topic and I hope that you will listen to all I have to say. This map shows Cemaes Bay in Anglesey, Wales, which is the location of the Wylfa power plant. The current Wylfa power plant is due to shut down in 2014, but nuclear regulators have signed an agreement for plans to build new reactors in North Wales. This is the start of Horizon Nuclear Power's proposals for a new nuclear power station at Wylfa on Anglesey. Horizon's owner Hitachi (a Japanese multinational corporation specialising in high-technology and services) wants to build new Advanced Boiling Water Reactors (ABWRs) in the UK, including at Wylfa. However, ABWR plants are operating at four different sites in Japan but haven't yet been approved in Britain. Nuclear power is an energy source obtained through nuclear fission, a process where neutrons (sub-atomic particles) are smashed into the nuclei of uranium atoms, causing them to split and release energy in the form of heat. This heat is then used to turn water into steam to turn turbines, much like in power stations that produce energy from burning fossil fuels, except without the carbon dioxide emissions which contribute to the greenhouse effect and air pollution. The reactors use uranium rods as fuel and each rod can last for several years before needing to be replaced. The map on the right shows the locations of nuclear power stations in the UK, their generating capacity and anticipated closure dates. Natural uranium isn't very radioactive, as it consists of only 0.7% "uranium-235", the type of uranium which undergoes fission inside the nuclear reactor. The rest is "uranium-238", which hinders the nuclear fission by getting in the way of the neutrons in the reactor. This is why nuclear reactors are not the equivalent of nuclear bombs just waiting to explode-you

would need a very high concentration of U-235 to make a bomb. Nuclear power stations are also not prone to " meltdowns" because they have special " control rods" that can be lowered into the reactor to block the neutrons if it is overheating. When they are first delivered to the nuclear power station, the uranium rods aren't very dangerous and can be handled with thin plastic gloves alone. This is why I think nuclear power is a safe source of energy. On the other hand, it is a different story when the uranium rods need to be removed from the reactor-they are highly dangerous and need to be handled with the greatest care using machinery. Also, if someone doesn't know what they are doing or if something goes wrong, the effects can be devastating. What makes it even worse is that if something does go badly wrong, most of the world can be affected. For example, some radioactive dust, or " fallout", from a nuclear accident in Chernobyl, Ukraine, landed in the UK, which is a long way for it to travel. This map shows just how far it actually was: This shows the more dangerous side to nuclear power, which is why I think it would be a good idea to use it as a source of energy, but not so much that the chance of an accident happening raises to dangerous levels. This is why nuclear energy is a controversial issue, although a lot of people are against it because they only know the dangerous side of things. There are many advantages to using nuclear power as a source of energy. Firstly, it costs about the same amount of money as coal, so it's not expensive to use. Secondly, it does not produce carbon dioxide or other harmful gases that can damage the environment and the nuclear waste is kept safely inside the reactor. In addition, a small amount of nuclear fuel can produce large amounts of energy and a small amount of waste. Finally, nuclear power is a reliable energy source-it won't run out very quickly and it can be produced

all the time (unlike wind energy, for example, which requires a windy day). However, nuclear energy also has its disadvantages. Although there is not much waste produced, that which is produced is highly dangerous. It must be sealed away for thousands of years before it loses its radioactivity. During that time it needs to be kept safe from floods, earthquakes, terrorists and a lot of other things. Also, nuclear power may be reliable, but a lot of money has to be spent on safety because, if something was to go wrong, a nuclear accident can be a major disaster. Worry about this has increased-in the 1990s nuclear power was the fastest-growing source of energy for most of the world, but in 2005 it was the second slowest-growing. The project in Anglesey could prove to cost £8 billion in total, which is a lot of money. However, I feel that it could be worth it because nuclear power may be the only option when fossil fuels run out. Renewable energy sources will never run out, but they may not be enough to provide electricity to a rapidly growing world. In conclusion, after studying both sides of the argument, I think that nuclear power is a sustainable option for future energy. Sustainable means that it can be continued with only a small negative impact on the environment. I think this because it is a method which does not produce greenhouse gases and it can provide a lot of energy from a small amount of fuel. This means that it won't run out very quickly, because there is a lot more of it left than coal, natural gas or oil. I hope you will take this into consideration in the future. Yours sincerely, Paul Winstanley