It has been suggested that nuclear and/or wind power will fill the gap left by oil and gas. Discuss the advantages and disadvantages of such a proposal with reference to the UK and/or China.

Introduction

With peak oil predictions from a range of sources e stimating that peak oil will occur within 2005-2038, countries are being forced to develop other type of energy sources to provide energy security for the future. When peak oil occurs, the supply of oil will start declining meaning demand won't be met. The refore, countries will need to look to other sources of energy to meet their demand. When peak oil will occur is a mystery due to a range of reasons such as limited information on countries reserves. This means some countries aren't worried about it compar ed to other countries which are already looking to other sources of energy.

Countries such as the England are also trying to reduce the amount of CO2 they are emitting. This is achieved by using more eco -friendly sources of energy such as wind power, solar energy or even nuclear energy. A compromise needs to be achieved between being eco-friendly and producing enough energy to fill their demand.

By using a variety of different energy sources which are both renewable and non -renewable will provide a country with energy security for the future. However, the amount of non -renewable resources being used has to be reduced to allow them to last for longer. Different countries will have different options in terms of their choices of energy, such as the UK can benefit from wind power and other countries can benefit from their volcanic activity and use geothermal.

Main Body

There are three options for countries in terms of energy supplies, they can conserve their energy, do nothing and finally, they can even find othe r sources of energy to become energy secure

The first option of energy conservation involves countries cutting their energy demand meaning supplies will last longer. This method wouldn't be successful in many countries though due to the importance of energ y in terms of the development and power of countries. Therefore, this option isn't very suitable for the majority of the people in the world.

The second option of "do nothing" is also not very suitable. This is because with many sources predicting that pea k oil will occur within the next couple of years, energy reserves won't be able satisfies the demand of countries. Therefore, when oil runs out countries won't be prepared and people will have to reduce their demands until other oil reserves are discovered or until other energy sources are developed.

Therefore, both of the above options aren't appropriate to many countries due to the main fact that countries would find it hard to reduce their demand and many countries unwilling to lower their demand in case other countries overtake them in terms of development.

Consequently the best option is the multi energy solution which involves developing other renewable sources to meet demand. The two main energy sources which are best suited to be developed is that of wind power and nuclear power. Both of these options have their positives and negatives which need to be assessed before being used to reduce a countries oil demand.

Nuclear

Nuclear power is one of the few energy sources which can provide a huge amount of energy and releases very little greenhouse gases. Another benefit of using nuclear power is that Uranium is relatively cheap and easy to mine and its thought that reserves of Uranium will last for up to 150. Due to the little amount of uranium needed in a nuclear plant, it's cost effective to transport.

The output though is the main benefit of using nuclear power. For example, in USA they have 100 nuclear plants and this has enabled them to produce 19% of their energy demand from nuclear power and 29.2% of the world's nuclear power. In smaller countries such as France, the productivity levels are massive. France are able to produce 79% of their energy demand just from nuclear power meaning their emissions will be extremely low and have achieved energy security for years to come.

Although nuclear power releases little emissions, plant construction and Uranium mining does release emissions but in comparison to oil or coal mining, very little is produced. It's thought that less emissions is produced when using nuclear compared to wind power, hydro and even solar energy.

However, the main worry in terms of using nuclear is that of the safety. The main concern is the toxic waste which is produced. This toxic waste last for up to 10,000 years and no safe containment has yet been created. Therefore the cost of developing this will cost a lot.

The risk of nuclear plants when under attack causes a massive issue in the case of the power plants being targeted. People believe that the money used in developing nuclear power would be better used to develop renewable energy and more efficient energy sources. With the increased nuclear technology being developed, production of nuclear weapons will be increased.

The safety of nuclear power has been highlighted in 1986 in Chernobyl where the whole world suffered from the toxic waste which was emitted during the incident. It is thought that modern power stations have been designed to overcome any safety issues and therefore a situation such as Chernobyl will never occur again. This said accidents do occur so it is inevitable that another occurrence of that will occur again in the future. Finally, the costs involved in research and development of these safe power stations and transportation along with the construction of the power plants can cost several billion pounds.

In relation to China's views, they like nuclear power due to the high productivity levels of it. This will help them continue their rapid industrialisation of their country for years to come. China is a communist country so therefore they don't care what the population of their country think. This means in terms of nuclear power, they will be able to build these high risk nuclear plants wherever they want without any consultation with its people. China also

doesn't care about the environment and global perspective, only about the productivity of the energy source.

China is forecasted to create 300 power plants by 2050 which will make them the highest energy producers in nuclear energy. This rapid development of this many nuclear plants has raised issues with the safety levels of the plants and the amount of money being used to do this which is estimated to reach $500 billion to create all 300.

The UK aren't so favourable towards nuclear compared to China because of the pr oblems involved in the safety and political issues surrounding the locating of the power plants and the large amount of money being used to develop and create the plants. The UK government have to consider the right choice for all considerations and consid er the environmental and the global perspective.

The main issue is that the majority of the population would oppose the creation of plants near to where they live in case of an accident occurring. The cost of developing nuclear would also be opposed with p eople saying the money could be better spent.

However, the UK needs to reduce their dependency upon the Middle East and Russia. This would contribute towards the UK gaining energy security. Currently, the UK has 19 nuclear plants and they plan on replacing these with modern more safe power plants to maintain their 20% production level of nuclear power. With more emphasise being put upon carbon reduction and targets being set to reduce our emissions, nuclear power would be the easiest way to achieve the emis sion reduction and therefore, nuclear power is a great possibility to the UK especially with the improvements on the safety of nuclear plants with the recent political agreement with France to share information on nuclear with us which will improve the development of nuclear power in the UK.

Wind

Wind power produces very little emissions similar to nuclear but it can't produce anyway near the energy which nuclear plants are able to. However, there is no safety risks involved with wind turbines and the only problems with them are the noise and eye pollution they cause. This can easily be avoided though by simply building the wind turbines in quiet regions where minimal people will see them or even off shore. This can cause problems to the marine life and boat routes though. Some people even oppose wind farms because of the potential interference they have with the wildlife, particularly birds flying into them.

Although wind farms are extremely cheap and sustainable they only produce a low amount of energy. It's thought that the whole of the UK would need to be covered with wind turbines for us to be able to stop using fossil fuels as an energy source. This is obviously unachievable for the simple reason that people won't want turbines everywhere. At the moment only 1% of the world's electrical supply is produced from wind turbines.

Therefore, wind turbines aren't suitable for the replacement of fossil fuels but can be used on a small scale to reduce our demand of fossil fuels which will make the peak oil predic tions lengthen in time.

With the amount of energy which China demands, wind power just wouldn't have any impact in reducing their demand for fossil fuels. Consequently, wind farms aren't suitable for China

due to the relatively low energy production of the m in comparison to other methods. All China want is rapid industrialisation and wind turbines won't help them achieve this and China doesn't pay any attention to the environmental affects so the positives of wind turbines will be overlooked by minimal prod uctivity.

The UK can make use of its potential windy areas by building wind farms around the country. Wind power has the least issues surrounding it with the only problems being noise and visual pollution which isn't as bad as the dangers that arise from o ther types such as nuclear and hydro. Therefore, the UK can benefit from this by building many wind farms to reduce their demand from other countries for fossil fuels.

Wind power isn't a suitable source of energy to replace fossil fuels but the aim of them is to gradually reduce our dependence on fossil fuels. This will slow down the expected time of peak oil and demand would be reduced meaning we have even more time to develop other sources of energy to replace fossil fuels. The cheapness and sustainabilit y of the wind turbines makes it easy for the UK to quickly produce them and get instant results without spending lots of money on developing and safety as they would on nuclear plants.

Conclusion

Each country demands differ and this makes certain types of energy sources suitable and equally some sources not appropriate. China and UK is a perfect example of this as one country wants high productivity levels where as the UK want more sustainable, cheap and eco-friendly options.

Each type of multi energy sourc ing has its advantages and disadvantages and these need to be evaluated. Each country will have different opinions upon the suitability of different energy sources depending upon what they expect and want.

However, every country needs to be prepared for th e time when oil supplies begin to run out and there isn't a definite option which is right or wrong. Everyone will have their own opinions and only time will tell who was right.