

Pros cons,
advantages
disadvantages of
nuclear energy fossil
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Pros/Cons, advantages/disadvantages of nuclear energy/fossil fuels Essay Sample

Much of the world's energy is produced from Uranium. This energy is commonly referred to as "nuclear energy" because uranium reacts in nuclear reactors to form heat. When fossil fuels are used for heat, they are just simply burned instead of reacted, so they create only mediocre amounts of heat for the plant. Nuclear power is responsible for over 11% of the world's energy, without the enormous amounts of coal or the pollution that fossil fuels cause. Natural uranium is only 0.7% uranium-235, which is the uranium that undergoes fission in this type of reactor. The rest of the uranium is uranium-238, which does not react almost at all, and is only mixed in with the uranium-235, because it is too expensive and a waste of time to separate from it. Although that was the kind of Uranium that was used in plants in the past, most plants currently use enriched uranium, which has a much higher composition of the isotope uranium-235, making the plant much more efficient.

Nuclear energy has proved to be both reliable and safe to use, not to mention very efficient, especially as a power source. An important reason as to why we often use this nuclear energy is because of all of its advantages over conventional energy sources. Nuclear power plants only need to be refueled once a year, an obvious advantage over coal using plants. Coal plants have to use a whole lot of coal every day to operate, almost a trainload a day. The energy that can be obtained from only one pound of coal is the same amount that is obtained from a million pounds of coal.

That isn't the only advantage of nuclear plants over coal ones. The coal that is brought to the coal plants in the east often has to be transferred from the west coast, because western coal has less sulfur so it produces less pollution than eastern coal. This way, towns and people are bothered by the passing trains, and the trains themselves are expensive to operate and fuel. Coal plants also produce plenty of pollution. Only the type of pollution produced changes by the coal used. The pollutions caused by this coal, are one of the causes of acid rain. Therefore, coal plants are still inferior to nuclear power plants.

Another benefit of nuclear energy is that it is more abundant than fuel or petroleum, so it will last us much longer as the years progress. Nuclear energy will last much longer, especially with the possible invention of fusion reactors, in which nuclear plants will require hydrogen, which is plentiful here on earth. And since the only 2 sources of energy on earth are fossil fuels and nuclear energy, and fossil fuels will run out, nuclear energy will be the only alternative left to us. Also, coal plants can be shut down due to the extremely large amount of pollution that they allow into our atmosphere

Another thing that is great about nuclear energy as a source is that it is much more reliable, notably among bad weather conditions, such as extreme heat or cold. In extremely cold weather, coal can freeze, or the conveyor belts, trains, barges, and other vehicles that are used to transport the coal can fail, or even rivers or railroad tracks could be deemed to dangerous to transport the coal on. This makes nuclear energy especially vital in bad conditions.

While Nuclear plants use uranium to function, coal plants have to use the plentiful but very harmful coal deposits. Uranium is a metal found in various parts of the world, in 2 to 4 parts per million. It is as common in the earth's crust as tin and tungsten. It is a very dense metal, and can be recovered from the ocean if its prices rose enough. Uranium is plentiful enough for our use of it, as we do not require large amounts of it to have our desired effect.

Coal, on the other hand, consists of a complex range of materials, and one deposit of it can greatly differ from another. The differences in coal deposits can be for a number of reasons: the varying types of vegetation from which the coal originated, the depths of burial, the temperatures and pressures at those depths, and the length of time the coal has been forming in the deposit as well. Coal is generally classified by what is known as "rank" which is based on the degree of transformation of the original plant material to carbon. These ranks affect the coal's effectiveness, as high-rank coals are high in carbon and therefore heat value, but low in hydrogen and oxygen, while low-rank coals are low in carbon but high in hydrogen and oxygen content.

While there are many positives of using nuclear energy, it has its share of negatives as well. The first problem comes to us in the form of waste disposal. Although nuclear plants don't produce very much waste, the waste produced is extremely dangerous, and needs to be disposed of with much caution. There are two different kinds of waste, high level and low level. High level waste is kept at the plant under exceptionally high security, as they are extremely radioactive and can be used by terrorists or other violent groups to make bombs. Lower level waste is just transported to a deep burial

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ground, but it is still handled with care as it is dangerous and hazardous to one's health.

Another disadvantage of using nuclear plants is the chance of nuclear meltdown. These meltdowns are extremely dangerous, as demonstrated by Russia's nuclear reactor that suffered a meltdown, Chernobyl. Meltdowns like such cause large explosions and emit an extremely large number of radiation in the surrounding area. The third and final disadvantage of using nuclear energy is its thermal pollution. Thermal pollution occurs when hot effluents from a plant are placed into a lake or ocean. This causes the temperature of the water to rise slightly, making the location more favorable to creatures not already there. This problem can pretty easily be solved by cooling these effluents before placing them in the water, making it slightly more expensive but solving this problem completely.