Powerpoint idea for nuclear storage

SLIDE 2: Underground nuclear waste storage is a controversial topic that accompanies the question of whether nuclear energy is, overall, a good idea. The question of where and how to store the radioactive waste that follows nuclear energy production has been at the heart of concerns with the energy source. The best way to store nuclear waste remains an open question, as the world seeks to deal with the radioactive waste it is currently storing in above-ground facilities, which are generally considered less safe than deep underground storage facilities. SLIDE 3: One of the main problems with storing the waste is that there is no permanent way of disposing of it. The spent fuel rods from a nuclear reactor are the most radioactive of all nuclear wastes. There is, as of now, no permanent storage site of spent fuel rods. Temporary storage is being used while a permanent site is searched for and prepared. Most nuclear power plants have a temporary storage pool next to the reactor. The spent rods are placed in the pool, where they can cool down. The spent fuel rods are supposed to stay in the pool for only about 6 months, but, because there is no permanent storage site, they often stay there for years. Many power plants have had to enlarge their pools to make room for more rods. Permanent disposal of the spent fuel is becoming more important as the pools become more and more crowded. Obviously this is all time consuming and very expensive. Another method of temporary storage is now used because of the overcrowding of pools. This is called dry storage (as opposed to " wet" storage which we outlined above). Basically, this entails taking the waste and putting it in reinforced casks or entombing it in concrete bunkers. This is after the waste has already spent about 5 years cooling in a pool. SLIDE 4: There are many ideas about what to do with nuclear waste. The low-level (not extremely radioactive) waste can often be

buried near the surface of the earth. It is not very dangerous and usually will have lost most of its radioactivity in a couple hundred years. The high-level waste, comprised mostly of spent fuel rods, is harder to get rid of. Some of these include burying the waste under the ocean floor, storing it underground, and shooting it into space. The most promising option so far is burying the waste in the ground. This is called " deep geological disposal". Because a spent fuel rod contains material that takes thousands of years to become stable (and non-radioactive), it must be contained for a very long time. The waste will probably be encapsulated in large casks designed to withstand corrosion, impacts, radiation, and temperature extremes. This is a process that already has taken a lot of time and is something that is costing the energy companies millions. In the US a permanent storage site has been selected at Yucca Mountain, Nevada. Yucca Mountain is in an extremely dry area of Nevada. This minimizes the possibility of water seeping through the rock and corroding the casks. Additionally, if the casks do get corroded, there is not much water flow to carry the nuclear wastes away. It is also far from the nearest population center in Las Vegas. There are several volcanoes in the vicinity, but scientists believe that they have been dormant for almost a million years and think it unlikely that they will erupt in the next 10, 000 years. But in 2009 Obama cancelled funding for the project, due to Americas economic problems. SLIDE 5: Environmental problems are a one of nuclear energy’s biggest downfall, we all remember Chernobyl afterall? The routine health risks and greenhouse gas emissions from nuclear fission power are small relative to those associated with coal, but there are " catastrophic risks"[1] such as the possibility of over-heated fuel releasing massive quantities of fission products to the environment. A major European

Union funded research study undertaken over the period of 1995 to 2005 found that the environmental and health costs of nuclear power, per unit of energy delivered, was €0. 0019/kWh, which in comparison makes it one of the better energy resources. One environmental problem occurs when the nuclear waste is disposed underground. It can then leak into local groundwater and therefore damage local ecosystems and also get into water sources that could be used for drinking water. Nuclear waste can travel miles from its initial dumping ground and can also migrate into soil affecting local plants and maybe crops being grown for food. The nuclear waste can also find its way into the sea and affect the local fauna, for example fish may be killed or mutated and this heavily affects the trade for local fishermen. Slide 6: Judging from what we have already learnt it is clear to see it isn’t very safe to store nuclear waste. Due to most of the waste being stored above ground a lot of safety problems arise: For example in Japan last year after the tsunami. When the tsunami flooded the Power Plant several pieces of equipment failed and caused the reactors to overheat. This resulted in a nuclear meltdown and the release of a lot of radioactive material. In the intense heat caused by the reactors, a reaction occurred between the nuclear fuel and the water causing huge hydrogen explosions, these luckily weren’t as severe as in chernobyl but did result in their being an evacuation of the local area. Also some radioactive material is suspected to have leaked into the floodwater. The accident was given a level 7 for severity the highest on the scale. This represents just a concentrated number of the safety problems that can occur harvesting nuclear energy, radiation poisining is also a huge problem associated with nuclear energy, as it can cause cancer so is something power plants have to take very seriously although, the

effects of radioactivity on a power plant worker are only estimated to reduce their life expectancy by 15 minutes. Slide 7: To conclude, these are only the disadvantages of nuclear power, there are ofcourse many advantages, and this is obviously why energy companies continue to pursue using it as a reliable energy resource.