

According to Global Change Data Lab The world uses a whopping 160 trillion watts per hour as of 2021. This number is so big it is fifteen digits long and it increases two percent every year as there is an increase in the demand for energy across many countries due to the growing wealth and population throughout the world. We can expect our global energy consumption to continue to increase year after year unless we can offset this increased demand with improvements in energy efficiency elsewhere. Our energy systems are increasingly dependent on fossil fuels for energy, making the transition to low-carbon sources more challenging. An efficient energy source should be able to meet this additional demand while displacing existing fossil fuels in the energy mix. Nuclear energy would be the best fit for the future as it is the most powerful and clean power source and It deserves to be the main power source in the future. Nuclear power is ultimately powered by a reaction called fission According to the United State office of energy. Nuclear fission is a reaction where a particle of a neutron is fired at an atom. When the particle strikes an atom, it splits the atom into two smaller ones and a few neutrons. These neutrons then hit other atoms starting the process again and again. As a result of the fissioning process, a large amount of energy is released as heat. How can this reaction be used to create power? A nuclear power plant works by supplying water to a reactor core, cooling it down which creates steam. The steam is used to turn a generator producing power to the power lines. Nuclear power plants have a unique way of storing and getting rid of nuclear waste as it is a byproduct of nuclear fission. The waste is first stored in submerged water where the radiation as water shields the radiation from getting out to the world. Then the waste is covered in zirconium encoding then stainless steel container helium and then concrete. This is to ensure no radiation will ever escape even from disasters or terrorist attacks. Then the storage container will be permanently stored underground in a mountain forever. The next big power source for the world has to be very safe. People often associate nuclear power plants with catastrophic disasters and huge meltdowns releasing tons of radiation but that fear is completely wrong as nuclear power is way safer than any other source out there. Even when nuclear power becomes disastrous it is not as bad as you may think. According to the world nuclear association, there have been only two nuclear power plant disasters from the 1960s to today. One was Three Mile Island where there was severe damage to the reactor, but the radiation was contained and not spread to the outside and there was no one injured and no damage to the environment. In Chernobyl there was a steam explosion and fire destroyed the reactor, which initially killed two people along with 28 more who contracted radiation poisoning and there was some damage to the environment. The nuclear industry has learned from these two mistakes and the chance of this happening again is nonexistent. From the time nuclear power came out only 30 people have been hurt or killed because of it. That is almost nothing compared to many other energy sources in the world. Permanent storage of nuclear waste is also feared even though it is extremely safe. According to the United States Nuclear Energy Institute In spite of what the U.S. nuclear industry has created since the 1950s, all of its waste is safely contained and takes up very little space. Nuclear plants produce enormous amounts of energy with very few byproducts due to the energy density of nuclear fuel. As a matter of fact, the total amount of waste produced in the United States would fill an entire football field, 10 yards deep. Nuclear power has generated as much waste by volume throughout its history as a coal plant generates in an hour. This is almost nothing compared to every other energy source. Even if the waste was not sealed, Almost all nuclear waste is not very radioactive and has been responsibly disposed of, for many

decades. Nuclear power is one of the most regulated in the world. Everything to how waste is stored to how the plant is built. There is always a couple of backup plans and there is always an eye to catch if something is wrong so there is a guarantee that nothing will ever go wrong. Nuclear energy is also way more compact and efficient and long lasting than any other power source in the world by a lot. According to the Office of NUCLEAR ENERGY Nuclear power plants can last a very long time. Most old reactors are allowed to run for 30 to 40 years but today the plants can last as long as 80 years or more. Compared to solar panels which last only 20 years at most and coal plants for only 25 years and windmills for 25 years. Nuclear power can produce one billion watts of electricity and can run for 24 hours non stop in fact it only stops every one or two years to refuel. Nuclear power plants can run maximum energy output 92 percent of the year while geothermal is 75% coal is 40% wind is 35% solar is 25%. In the end nuclear power is the best power source in the world and it should be incorporated more in the future. Today the reason why there are not as many nuclear power plants is because of its increasing cost and past fear about it. The cost to build and maintain a power plant rose from 13 billion dollars to 25 billion dollars.