

NUCLEAR POWER

Introduction

It is human nature to strive, to push boundaries, to discover new inventions that will help improve our way of life. The history of the development of nuclear energy is the story of a centuries-old dream becoming a reality.

Ancient Greek philosophers first developed the idea that all matter is composed of invisible particles called atoms. The word 'atom' comes from the Greek word 'atomos', meaning indivisible. There were big moves forward in the 18th and 19th centuries which revised the concept based on various experiments. This knowledge built up so that by 1900, physicists knew that the atom contained large quantities of energy.

Steps forward in the creation of Nuclear Power

Ernest Rutherford (1871-1937), a New Zealand physicist became known as the father of nuclear physics. In the early part of Rutherford's work, he discovered:

- concept of radioactive half-life
- the radioactive element radon
- diffused and differentiated and named

-alpha and beta radiation

Once Rutherford moved to the UK, he continued his work by theorising that there is a small nucleus within an atom where they have their charge concentrated. He went onto discovering what became known as the Proton in 1919. This helped Enrico Fermi a lot.

Enrico Fermi was a physicist who first showed that neutrons could be split into atoms so atoms could split. Fermi led a team that in 1942 achieved the first atomic nuclear chain reaction, under a stadium at the University of Chicago.

In the 1940's, there was a significant advancement in the knowledge and use of nuclear power.

Nuclear power was not just used for electricity.

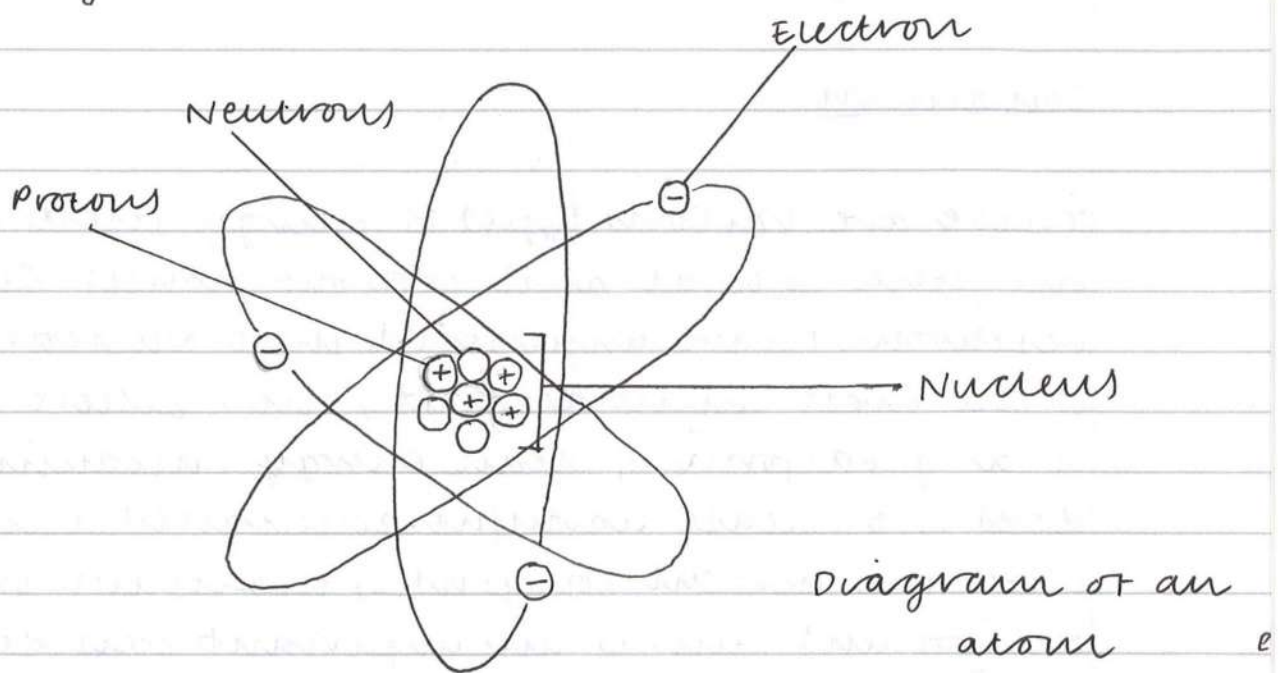
One of the biggest controversial decisions came in World War II, three years after Fermi's experiments.

In order to force Japan to surrender and bring an end to World War II and in retaliation to Japan's attack on Pearl Harbour. The United States dropped nuclear bombs on Hiroshima and Nagasaki.

It was actually after this, when the Oak Ridge Laboratory in Tennessee started to create the first nuclear power for use by civilians. It was widely seen that Nuclear Power could be used as a viable alternative to the traditional fossil fuels used to make electricity, with plans beginning in 1948.

Nuclear power plants split uranium atoms inside a reactor in a process called fission. In further description, in nuclear physics and nuclear chemistry, nuclear fission is a nuclear reaction or a

radioactive decay process in which one nucleus of an atom splits into two or more smaller, lighter nuclei. The fission process often produces gamma photons and releases an exceptionally large amount of energy even by the energetic standards of radioactive decay.



About the main creator

Enrico Fermi was an Italian physicist and the creator of the world's first nuclear reactor, the Chicago Pile-1. He has been called the "architect of the nuclear age" and the "architect of the atomic bomb". He was one of very few physicists to excel in both theoretical physics and experimental physics. Fermi was awarded the 1938 Nobel Prize in physics for his work on induced radioactivity by neutron bombardment and for the discovery of transuranium elements. With his colleagues, Fermi filed several patents and related to the use of Nuclear Power, all over which were taken over by the US

government. He made significant contributions to the development of statistical mechanics, quantum theory, and nuclear and particle physics. In his personal life, he had a wife named Laura Fermi and his parents called Alberto and Ida Fermi. He was born 29 September 1901 and died at the age of 53.

Conclusion

There are various types of energy used to power our cities to heat and cool our homes. During my research, I have understood that Nuclear Energy is the most misunderstood, but I believe that it is a good form of clean energy, meaning it does not release harmful pollutants into the air, with the current concerns of the strain on our environment, this is an important consideration. A lot of people have tried to make Nuclear power better. James Hansen, former NASA climate scientist, and three other prominent climate Energy scientists are calling for an enlarged focus on nuclear energy in the ongoing Paris climate negotiations.

10% of the world's electricity comes from Nuclear power, this goes up to 20% in the UK. Nuclear power stations cannot last forever, with the average lifespan between 20 and 40 years. A large problem is storing Nuclear waste, which has a safe lifespan of 90 years. Currently nuclear waste tends to be stored within the power stations. The UK has implemented a thorough assessment process for a new reactor design with the first

of a new generation nuclear power stations being built.

Personally, nuclear energy is both good and bad as a scientific discovery for lots of reasons. Nuclear energy might be a failed experiment. In over 60 years the technology was not only failed to keep its promise of cheap, clean, and safe energy, it could cause major catastrophes and enabled more nuclear weapons while the nuclear waste problem it is still not solved.

However, the advantages of nuclear power are:

- one of the most low-carbon energy sources
- It is one of the smallest carbon footprints
- It is one of the answers to the energy gap.
- It is essential to our response to climate change and greenhouse gas emissions; Reliable and cost-effective.

Sources:

- Google
- BitSize
- Wikipedia
- Bing