

NUCLEAR ENERGY

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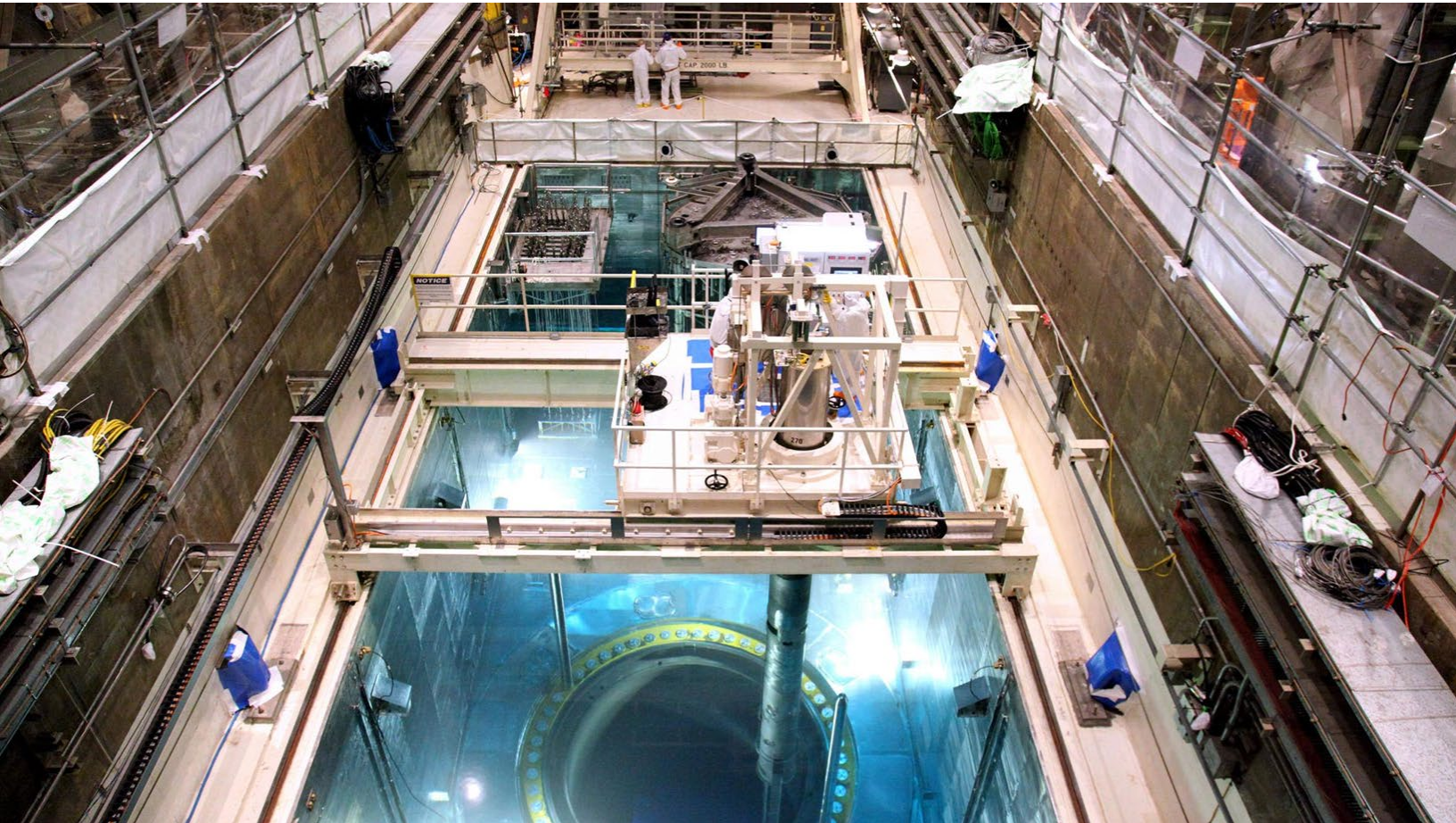
The world's first grid-connected nuclear power plant, Atomic Power Station 1 Obninsk, was opened on June 27, 1954 at the Institute of Physics and Power engineering in Obninsk, Soviet Union. Although since decommissioned, this nuclear power plant paved the way for future nuclear innovations.

Nuclear Energy has been a controversial topic since the first nuclear reaction took place on December 2, 1942 at the University of Chicago. It has been proven useful in scientific research, and as an efficient energy source, but the misuse of nuclear energy can have disastrous consequences.



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Nuclear energy refers to the energy harnessed from nuclear fission reactions. Unlike a conventional power plant, which uses the combustion of fossil fuel (such as coal or natural gas) for heat generation, a nuclear power plant uses the heat generated from a controlled nuclear fission reaction.

Each country has a differing opinion on the benefits vs risk ratio of nuclear energy. For instance, France generates 75% of its electricity from nuclear power plants, while the US uses nuclear energy to supply approximately 20% of its electricity requirements.

Nuclear energy has some great benefits. It has a very low lifecycle carbon footprint and does not contribute to global warming. It does not produce gaseous emissions and does not depend on the fossil-fuel market. It is more reliable than conventional plants, and more efficient than other low-emission energy sources such as wind or solar. Finally, we have improved our ability to transport and store radioactive materials, including neutron sources such as ^{252}Cf , and have allowed much safer nuclear energy generation processes in general.

Of course, there are some drawbacks to nuclear power. While unlikely, the consequences of an accident can be devastating and far-reaching. Additionally, nuclear waste must be stored safely for a significant amount of time.

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The use of nuclear power for energy reaction is a complex process, with many unique advantages and disadvantages. However, the environmental concerns associated with nuclear energy — such as the shipping of radioactive materials and neutrino sources and the storage of nuclear waste — are now being addressed more effectively thanks to various technological advances and innovations.

The ability to more safely and efficiently contain and ship nuclear material is making this reliable, emission-free technology a more viable option every day.