

GLOBAL PROBLEMS OF MODERN NUCLEAR ENERGY

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Today the topic of nuclear energy has become very popular since there are many factors that prevent it from developing, including such as the competition in the electricity market, nuclear waste, climate impact, the probability of a nuclear catastrophe, etc. So, in this paper I am going to investigate these issues and analyse how they affect the environment.

The biggest problem is the handling of spent nuclear fuel. Its half-life is tens of thousands of years, and during all this time it remains radioactive and dangerous. Despite the great efforts of the world community, there are still no ways of permanently burying it. Currently, only temporary storage is available (Nuclear power industry in Ukraine, 2008, August 9).

Even under the incredible condition of developing a technologically safe reactor, it is impossible to get rid of the human factor. In other words, even theoretically, the possibility of an accident at a nuclear power plant cannot be ruled out. All stages of the nuclear cycle involve the risk of accidental or deliberate misuse of radioactive materials. This means that radioactive materials can fall into the hands of terrorists.

For the last decade or more, it has been the conventional view in the nuclear industry that construction costs must be around \$1,000 per kilowatt for nuclear generation to compete with closed-cycle gas plants, for which construction costs are around \$500 per kilowatt. However, the fact that the projections converge around the \$2,000 per kilowatt cost mark suggests that the reactor models are being designed with the projected cost in mind (Ecoaction, 2021, July 9).

Nuclear energy, in comparison with the energy of wind, sun, and geothermal energy, does not even come close to the concept of “clean”, or “environmentally friendly” energy. Nuclear power plants emit dangerous radionuclides during normal

operation. It also has a tangible “carbon footprint”, which is significantly higher than that of solar and wind generation. Nuclear plants use a lot of water at a time when the problem of water supply is becoming more serious due to global warming. For their operation, nuclear power plants require a long and “dirty” fuel production process. Nuclear energy can kill thousands of people and make hundreds of square kilometers of territory unsuitable for human life. And it is for these reasons that nuclear energy cannot be considered “environmental” (Ecoaction, 2018, June 19).

References:

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