

Код УГПС – 14.00.00

ОБЛАСТЬ ОБРАЗОВАНИЯ – ЯДЕРНАЯ ЭНЕРГЕТИКА И ТЕХНОЛОГИИ

Тема 2. Проблемы современной цивилизации



The world we live in is working on electricity. It allows us a far better quality of life than ever in human history. Electricity can be produced in many different ways – be it by burning coal, utilizing the power of wind or sun, even taking advantage of sea tides. The safest and most efficient way to produce electricity, however, is by harnessing the power of the atom.

Nuclear power is the use of nuclear reactions to produce electricity. For the process to start you need fuel – uranium, or, more specifically, u-235 (enriched uranium). Uranium itself doesn't produce power, instead it is formed into rods and gets sent to nuclear power plants where they are inserted into the nuclear reactor. The process that occurs in a nuclear reactor is known as nuclear fission, and it generates quite a lot of heat. This heat is used to turn the reactor's coolant, water, into steam, that is then channeled to spin steam turbines that generate the final product – electricity.

At the moment, nuclear power is considered to be the safest and most eco-friendly option. It is, however, a bit controversial from certain points of view. The most obvious downside is the threat of nuclear contamination of a rather large area of land in a case of some catastrophic failure that will make it uninhabitable for a long time. Another point of contention is nuclear waste – despite the efficiency of nuclear fuel, you have to replace it from time to time. After using a fuel rod you get a pile of rather useless and very radioactive material that you have to deal with somehow, and that usually means burying it. Both points are understandable, but somewhat unfounded. Technological progress has enabled us to construct contingency systems that minimize the possibility of a Chernobyl-like event to a minimum, and the amount of nuclear waste generated by power plants is rather small and simple to manage.

Key words:

Electricity - электричество

Nuclear reaction – ядерная реакция

Coolant – охладитель

To utilize – использовать

Nuclear Fission – ядерное деление

Contamination – загрязнение

To harness – укротить

A rod – стержень

Contingency – Чрезв. ситуация

Task 1. Look through the list of keywords

Task 2. Answer the questions

1. What is nuclear energy?
2. What is used to produce nuclear energy?
3. Are there any challenges in dealing with nuclear power?

Task 3. Look up whether there are any nuclear power plants near where you live. Note whether it has any distinct features in it's functionality. Make a presentation featuring the information you gathered.