

## **Abstract**

The aim of this thesis is to evaluate the impact of a nuclear power plant during normal operation on the environment in the Czech Republic, and to compare it with the impact of other types of power plants such as coal-fired power plant, hydroelectric power plant, wind farm or solar power plant.

Considering the continuous increase in consumption of the electric energy, nuclear power plants seem like a suitable solution. Due to its installed capacity, we can hardly compare it to the energy generated from renewable sources. Comparison of the environmental impact of various types of power stations is very complicated. Any interference with the environment influences the natural landscape. Major advantage of renewable sources is that they do not emit emissions, however, their installed capacity is not big enough to fulfil the increasing consumption of the electric energy. On the contrary, coal-fired power plants have a sufficient installed capacity, however, they produce high level of emissions into the air, including greenhouse gasses, and therefore significantly influence the environment.

The impact of nuclear power plantations on the environment is not as serious as some people assume. In fact, nuclear energy contributes to a reduction of the level of greenhouse gasses, mainly of the carbon dioxide. Radioactive substances do escape in a small degree, however, their escape is strictly controlled and monitored. Human health and the environment are not in danger. The largest part of a radioactive waste created during the operation of the nuclear power plant is a spent nuclear fuel. The spent nuclear fuel is safely stored in an interim storage of a spent fuel and subsequently moved into a deep geological repository. By choosing this process, the negative impact on the environment is minimized.

Part of my thesis is a questionnaire that focused on researching the level of public knowledge about the nuclear power in the Czech Republic. The findings of the questionnaire show that with increasing educational level of respondents, the knowledge of nuclear energy increases, along with their interest about its development. Furthermore, fear of a negative impact on the environment or possible accidents decreases with higher educational level of respondents. This fear is based on, for example, that respondents with only primary education are against construction of new sectors of the Temelin and the Dukovany and prefer not to live near nuclear power plants. Despite these worries, respondents with a primary education as well as

respondents with a secondary and higher education agreed that the nuclear power has a great future potential in the Czech Republic.