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### **ENVIRONMENTAL CONSEQUENCES OF SOLAR ENERGY DEVELOPMENT**

Solar energy is a type of alternative energy which is based on the direct use of solar radiation to generate energy. Solar energy uses renewable energy sources, it is "environmentally friendly", does not produce waste in the process of use. The

production of energy with solar power plants is perfectly combined with the concept of distributed energy production.

Energy in the modern world is the basis for the development of fundamental industries that determine the overall progress of production. The use of energy is an important condition for the existence of mankind. Energy available for consumption has always been necessary to meet many human needs, improve conditions and increase the duration of life. At the same time, energy is one of the centers of adverse effects on humans and the environment. It affects the atmosphere (gas emissions, consumption of oxygen, moisture, solid particles), the hydrosphere (creation of artificial reservoirs, water consumption, discharges of heated and polluted waters, liquid waste), the lithosphere (landscape change, consumption of fossil fuels, emissions).

During the production of photocells, the amount of pollution does not exceed the permissible level for manufacturing enterprises of the microelectronic industry. Photocells have a specified service life of 30-50 years. The use of cadmium in the production of some types of photocells to increase the efficiency of conversion creates a complex issue of their neutralization and disposal, which does not have an acceptable solution from an environmental point of view, although such elements are not widely distributed, and a worthy alternative has already been found in modern production of cadmium compounds. Recently, the production of thin-film solar cells, which contain only 1% silicon relative to the mass of the substrate, where thin films are deposited, has been intensively developed. Due to the low consumption of materials for the absorbing layer, thin-film silicon photocells are cheaper to manufacture, but so far, they have irreparable degradation of characteristics and lower efficiency over time.

Considering the noted factors of the negative impact of energy on the environment, the increase in energy consumption did not cause particular concern among the public. This continued until the 70s, when experts announced numerous data indicating significant anthropogenic pressure on the climate, which poses a threat of disaster with an uncontrolled increase in energy consumption. Since then, no other problem has attracted such close attention as the problem of present and future climate change. It is generally accepted that one of the main reasons for this change was energy. Energy is understood as any area of human activity associated with the consumption and production of energy. A significant part of the energy resources provides energy released by burning fossil fuels (coal, gas, and oil) which leads to the release of a huge number of substances into the atmosphere. Thus, it is believed that renewable energy sources, such as wind, geothermal, solar, wave, etc., modular stations using natural gas or fuel cells, utilization of exhaust steam, as well as waste heat, are real ways to protect against climate change without the emergence of new threats to the modern world.

Summing up, we note that solar concentrators cause huge areas of shading of land, which subsequently leads to very strong changes in soil conditions, changes in the flora, radiation concentrated by mirror reflectors, which leads to changes in humidity, heat balance, and the direction of the winds. In addition, in certain cases, systems may ignite and overheat. The use of low-boiling liquids, together with their inevitable leakage in solar energy systems during long-term operation, can lead to severe contamination of drinking water. Also of danger are various liquids that contain nitrites and chromates, which are highly toxic substances.