

ENVIRONMENTAL PROBLEMS OF SOLAR POWER

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Solar power becomes one of the main renewable power sources in the modern world. The International Energy Agency stated that the Sun could be the planet's biggest source of electricity by 2050 [1]. Solar power can reduce carbon dioxide emissions, decrease the impact on climate change in the energy sector, and significantly reduce natural gas consumption.

However, production, operation and repair of solar power devices, as well as storage and disposal of unsuitable batteries and other existing industrial wastes can have a significant negative impact on the environment. Thus, energy facilities require large land areas. Land plots, shaded by their objects, are characterized by natural plant forms and gradual degradation of the soil. Animal migration occurs as well as other affects such as microclimate alterations due to the excess thermal energy created by the Sun's rays. Additionally, such factors as air humidity, heat balance, wind speed and direction may change too.

Solar power requires significant water consumption for cooling solar thermal panels. The complexity of the situation lies in the lack of water resources.

This negative impact on the environment of solar power must be investigated in full cycle: the production of raw materials and supplies – the manufacture of energy devices – the operation of devices – the disposal of waste. Production and subsequent use in manufacture such substances as gallium hydride, telluride, cadmium sulfide, phosphorus hydride, indium diselenide, copper, chromium, lead, molybdenum leads to an adverse effect on the elements of the biosphere. Exhaust of micropollutants into the environment (Cd, CdTe, etc.) considers impermissible in terms of modern environmental approaches. Moreover, other pollutants (distinctive to semiconductor devices) such as acids and solvents may form in the solar cells manufacturing.

The key to solving environmental problems of solar power lies in improvement of raw materials and supplies production; development of new and improvement of existing technologies for energy devices manufacture; increase level of safe behavior with waste as well as recycling processes.

References

1. How will we power the planet in 2050? <https://www.cnbc.com/2016/10/07/how-will-we-power-the-planet-in-2050.html#>