

**GREEN TRANSITION THROUGH THE ENERGY SAVING
TECHNOLOGIES**

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Many people are convinced that our current lifestyle is exerting an extremely harmful and detrimental effect on the environment. Pollution of the ocean, land, and air with polymeric gases, produced by burning fossil fuels, is creating a harmful ‘greenhouse effect’ and ozone hole. Actions of humankind damage the environment

and deplete mineral resources.

In my opinion, however, Earth can still have a chance of salvation. Today it is possible, for example, to reduce the energy costs for heating by 60% of existing costs. At least, such goals are set by European states, and very quickly it becomes a reality.

Green energy requires both an increase in the share of renewable energy generation and a reduction in total energy consumption. The process of reducing energy consumption began in Europe in the early 2000's and is now accelerating significantly due to rising energy prices and the possibility of gas shortages in Europe. This problem is solved by energy-saving technologies, among which the following ones should be mentioned:

1. **Solar energy:** The Sun is an extremely powerful energy source, and sunlight is by far the largest source of energy received by Earth; thus, solar energy has long been used directly as a source of thermal energy. Since the beginning of the 20th century, technological advances have increased the applications of the sun's thermal energy, opening the door for solar power generation. Thus, energy experts have the prerequisite to claim that by 2030 solar energy is expected to power 13% of the world.
2. **LED lights:** Reducing your lighting energy consumption by 50-60% can be achieved with the help of LED lighting. The key benefits of LED lights include minimal power, longer lifespan, and instant illumination when switched on. Moreover, they fit perfectly into the existing sockets, which allows to minimize the need for switching.
3. **Heat pumps:** Being an alternative way of heating your premises, heat pumps provide both heating and cooling. This is particularly useful if we take into account that heating is not only a major part of the running costs of industrial and commercial facilities but also a major source of carbon dioxide emissions.
4. **Wind power:** Today, wind energy undeniably is the fastest-growing renewable energy source, and, thus, it plays a crucial role when it comes to achieving a zero-carbon future.

5. **Battery storage solutions** are battery units installed on-site allowing to store and discharge electricity at specific times. These units do not depend on the national grid and, consequently, provide backup power and supply security even at peak demand periods.

All things considered; we can summarise that energy saving technologies are urgent at the moment. Annually, their importance and necessity will only increase. High temperatures, droughts, wildfires, floods, problems of fresh water availability - all of these are the results of global warming. Using energy-saving technologies can help to prevent it and save the Earth.

References:

1. USDM. (2023). *Regarding modular construction technology and production of modular building structures*. Retrieved from: <https://usdm.com.ua/en/energy-efficient-technology/>
2. Britannica. (2024, October 17). *Electricity generation*. Retrieved from: <https://www.britannica.com/science/solar-energy/Electricity-generation>
3. ESB Energy. (2022). *6 technologies that can help businesses reduce energy costs*. Retrieved from: <https://www.esbenergy.co.uk/articles/business-solutions/6-technologies-that-can-help-businesses-reduce-energy-costs>