Renewable Energy: Production and Storage

General Objective

In the current global political context of fighting pollution and climate change, it has become necessary to develop alternative energies to fossil fuels. Renewable energies are nowadays often perceived as environmentally friendly energy sources that do not produce CO_2, which is their main attraction.

A renewable energy is defined as an energy source that replenishes itself fast enough to be considered inexhaustible on a human time scale. These energies come from regular or constant natural phenomena, often caused by celestial bodies and mainly the Sun (radiation, evaporation cycle, etc.). There are different types of renewable energy that will be discussed later: solar, wind, hydraulic, marine, geothermal, and biomass.

In this context, oil, natural gas, and coal are not renewable energies, since it would take millions of years to rebuild the fossil energy reserves we are currently consuming. Likewise, current nuclear energy, derived from the fission of uranium atoms, cannot be considered renewable because the uranium reserves available on Earth are limited.

In contrast, the Sun, water, wind, wood, and other plant products are renewable natural resources capable of generating energy thanks to technologies developed by humans.

However, it is important to examine the various production technologies in order to understand their significance from ecological, economic, political, and geopolitical perspectives.