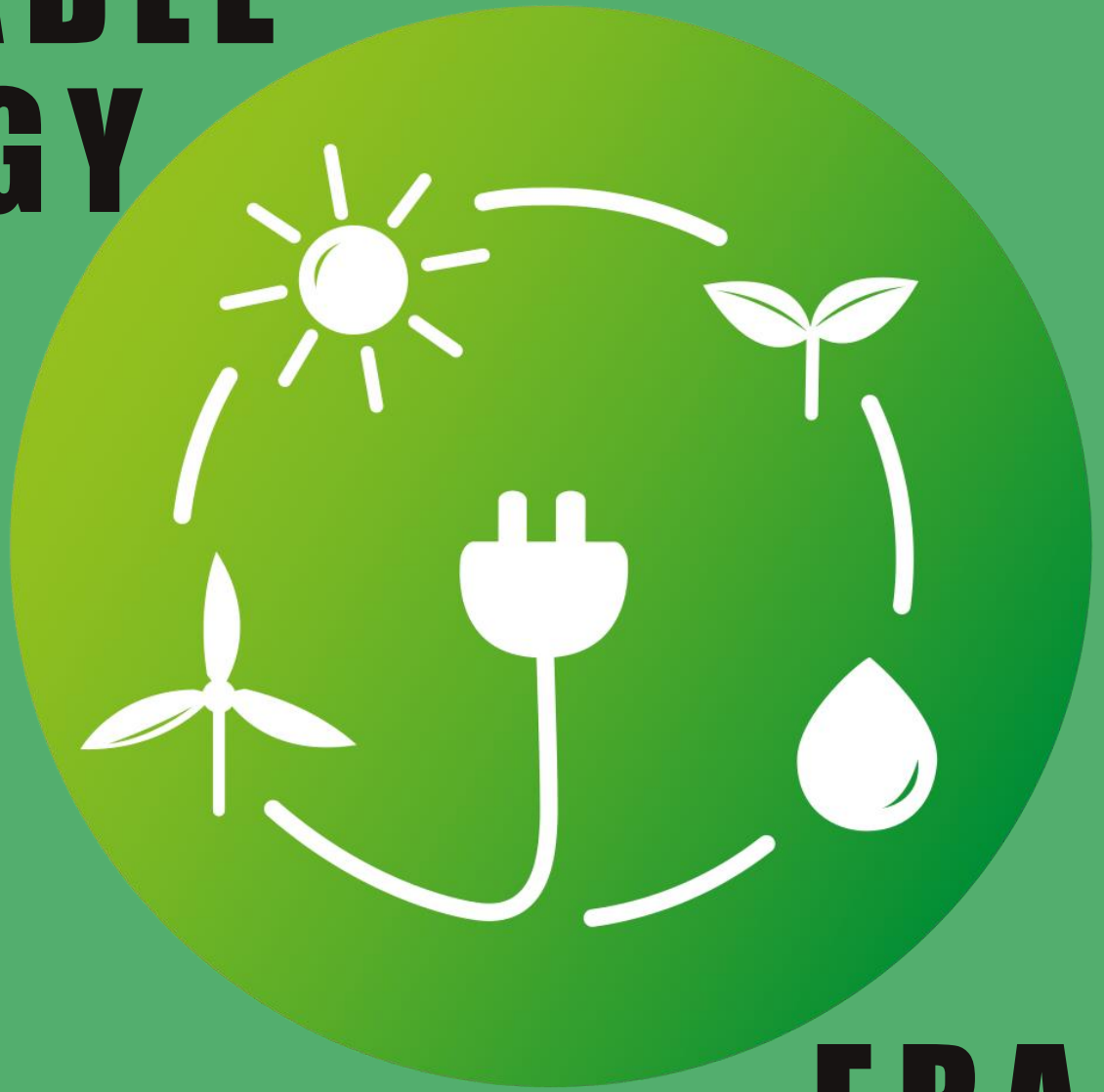
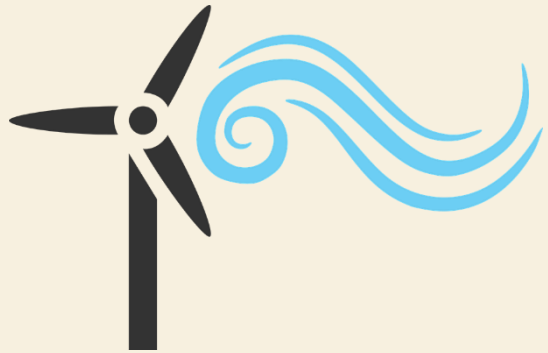
RENEWABLE ENERGY



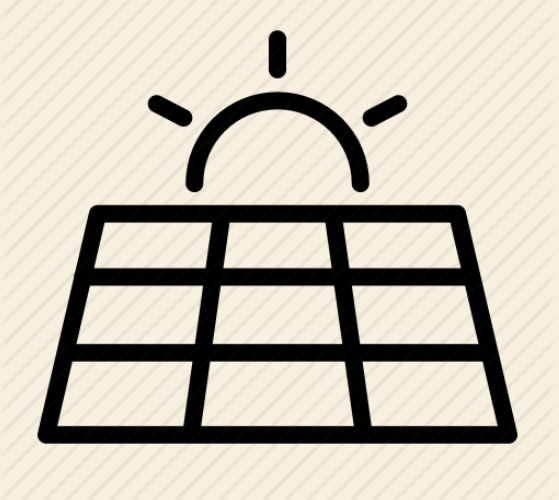
ERASMUS +

WINDMILL ENERGY



- Wind energy, which transforms the power of an inexhaustible resource such as wind into electricity, is a sustainable and valuable investment for the future. Utilising wind requires the construction of wind farms, either on land or at high sea, with dozens of wind turbines. These giants have become part of the landscape in recent years, but do we know how they work?
- How is wind generated? Solar radiation does not affect the earth's surface equally: some areas are warmer than others, and in these areas the air, which weighs less, tends to rise, creating low pressure areas, while in colder areas the air descends and weighs more, creating high pressure areas. The difference in pressure causes the air to move and creates wind, an element so powerful that it can be used to generate energy.

SOLAR ENERGY

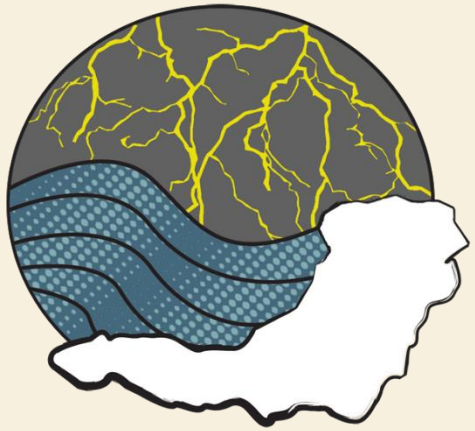


- Solar energy uses the sun's light and heat to generate renewable or 'green' power. The most common form of solar energy is harnessed by solar panels, or photovoltaic cells. In photovoltaic power stations, they're arranged almost edge-to-edge to capture sunlight in large fields. You'll also see them on top of houses and other buildings at times, as well. The cells are created from semiconductor materials. When the sun's rays hit the cells, it loosens electrons from their atoms. This allows the electrons to flow through the cell and generate electricity.

GEOTHERMAL ENERGY

- Geothermal energy is the heat that comes from the sub-surface of the earth. It is contained in the rocks and fluids beneath the earth's crust and can be found as far down to the earth's hot molten rock, magma.

HYDROPOWER



- People have a long history of using the force of water flowing in streams and rivers to produce mechanical energy. Hydropower was one of the first sources of energy used for electricity generation, and until 2019, hydropower was the largest source of total annual U.S. renewable electricity generation.
- In 2020, hydroelectricity accounted for about 7.3% of total U.S. utility-scale[1] electricity generation and 37% of total utility-scale renewable electricity generation. Hydroelectricity's share of total U.S. electricity generation has decreased over time, mainly because of increases in electricity generation from other sources.

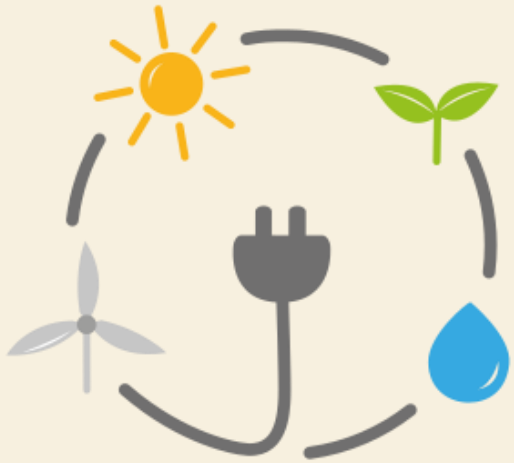
BIOMASS

- Biomass is renewable organic material that comes from plants and animals. Biomass was the largest source of total annual U.S. energy consumption until the mid-1800s. Biomass continues to be an important fuel in many countries, especially for cooking and heating in developing countries. The use of biomass fuels for transportation and for electricity generation is increasing in many developed countries as a means of avoiding carbon dioxide emissions from fossil fuel use. In 2020, biomass provided nearly 5 quadrillion British thermal units (Btu) and about 5% of total primary energy use in the United States.
- Biomass contains stored chemical energy from the sun. Plants produce biomass through photosynthesis. Biomass can be burned directly for heat or converted to renewable liquid and gaseous fuels through various processes.

BIODIESEL

- Biodiesel is an alternative fuel similar to conventional or ‘fossil’ diesel. Biodiesel can be produced from straight vegetable oil, animal oil/fats, tallow and waste cooking oil. The process used to convert these oils to Biodiesel is called transesterification. This process is described in more detail below. The largest possible source of suitable oil comes from oil crops such as rapeseed, palm or soybean. In the UK rapeseed represents the greatest potential for biodiesel production. Most biodiesel produced at present is produced from waste vegetable oil sourced from restaurants, chip shops, industrial food producers such as Birdseye etc. Though oil straight from the agricultural industry represents the greatest potential source it is not being produced commercially simply because the raw oil is too expensive. After the cost of converting it to biodiesel has been added on it is simply too expensive to compete with fossil diesel.

TIDAL ENERGY



- Tidal energy is a form of hydropower that converts energy obtained from tides into useful forms of power, such as electricity. Tides are created by the gravitational effect of the moon and the sun on the earth causing cyclical movement of the seas. One of the strengths of harnessing power from tidal ranges and tidal streams over other forms of renewable energy is that the process is entirely predictable.

BGWEA (BULGARIAN WIND ENERGY ASSOCIATION)

- Bulgarian Wind Energy Association (BGWEA) is a representative organization for the wind energy sector in the country. BGWEA brings together the majority of wind energy producers over 1 MW and companies actively engaged in the sector. BGWEA`s members represent a major share of the total installed wind power capacity in Bulgaria.

BGWEA`S MAIN GOALS

BULGARIAN WIND ENERGY ASSOCIATION

BGWEA

- Propagation of the concept of general wind energy utilization with the goal to sustainably promote the ecologically and economically necessary development of this energy source.
- Active work for the improvement of the legislative, regulatory, political and public framework and support for the use of wind energy.
- Support for the promotion and development of other renewable energy sources.
- Promotion and conduction of practical wind energy research in cooperation with universities and scientific institutions.
- Distribution of expert knowledge on the use of wind energy.

THANK YOU FOR YOUR ATTENTION!