

Alternative Sources of Energy

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What will we learn?

Existing types of alternative energy:

- Solar energy

How could a community be self-sufficient in energy?

What will we learn?

Existing types of alternative energy:

- Solar energy
- Wind energy

How could a community be self-sufficient in energy?

What will we learn?

Existing types of alternative energy:

- Solar energy
- Wind energy
- Hydroelectricity

How could a community be self-sufficient in energy?

What will we learn?

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- Geothermal energy

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- Geothermal energy
- Biomass

How could a community be self-sufficient in energy?

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How could a community be self-sufficient in energy?

- Is it possible?

What will we learn?

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How could a community be self-sufficient in energy?

- Is it possible?
- When?

Alternative sources of energy

- Alternative energy is any energy source that is an alternative to fossil fuel.

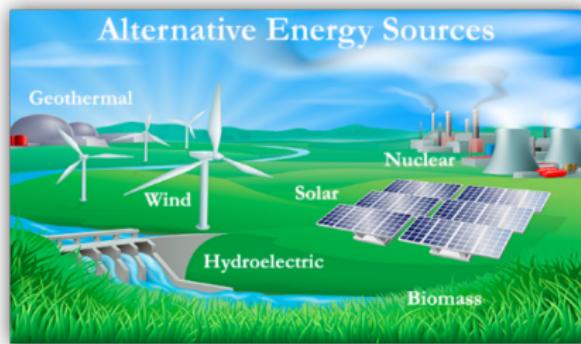


Figure: Most known types of energy

Alternative sources of energy

- Alternative energy is any energy source that is an alternative to fossil fuel.
- They are natural resources that are partially or completely renewed when consuming gradually.



Figure: Most known types of energy

Solar energy

Solar energy can be used for heating, cooling or electrical power generation using the sun. **Solar powerplant:**

- Uses photovoltaic panels (made of silicon, the conversion of light into electricity)
- When the sun rays fall on the panels, electrons are released which is involved in the generation of electric current.

Advantages:

- Easy to use

Disadvantages:

- High initial costs
- Solar fluctuations



Figure: Solar panel

Wind power plant

Wind power plants uses **wind flow** as a source of energy. They are mostly used in **Spain, Germany and Denmark, Netherland and Austria**. Electricity production in the Czech Republic is around 1 %.

Advantages:

- Without emissions
- Without waste
- Without burdening the land

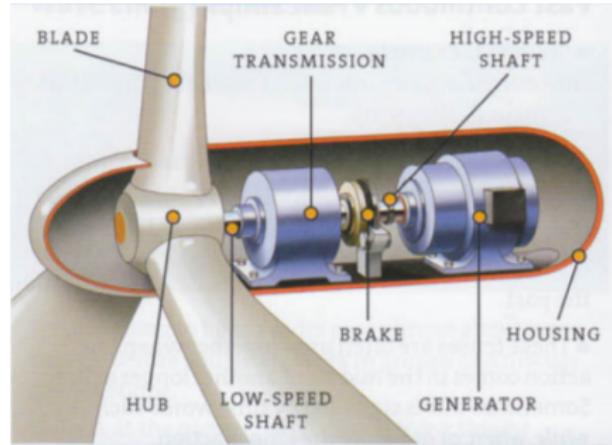
Disadvantages:

- Variability of wind power
- Noisy
- Complex location

Wind power plant

How it works?

- Turbines are on towers (50-80 metres)
- Electromagnetic induction



Biomass

Is organic matter (wood, straw, ...) Energy is obtained through the combustion (burning) process

Electricity production in the Czech Republic is around 2,8 %

Advantages:

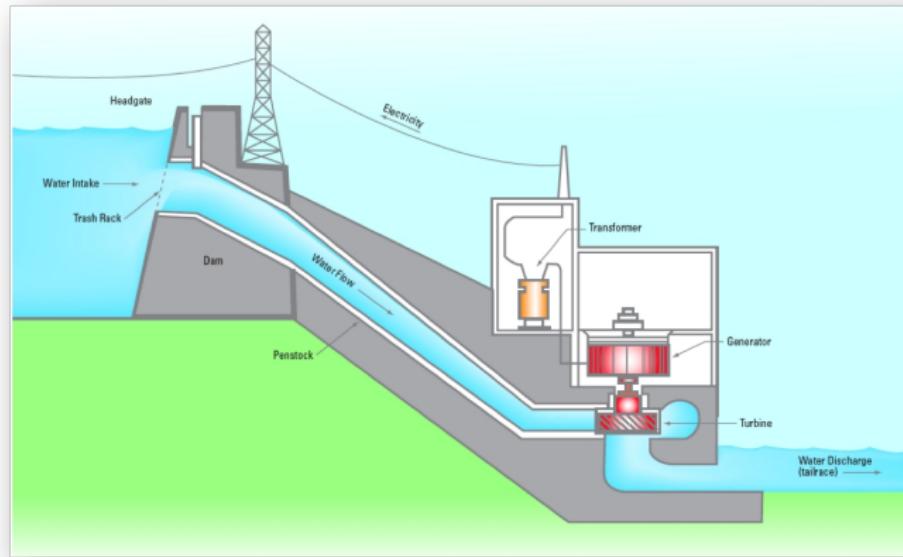
- Low CO₂ emissions
- Availability

Disadvantages:

- Low efficiency
- Storage space

Hydroelectric power station

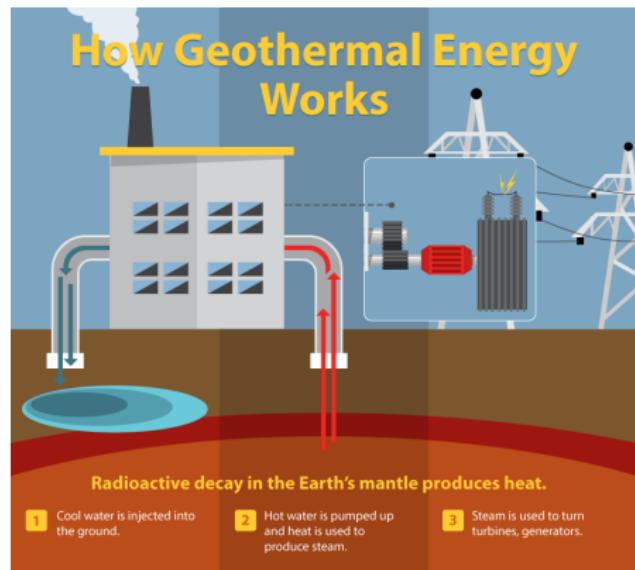
The flowing water rotates the turbine, the generator converts mechanical energy into electrical energy and transforms it into places of need.



Geothermal energy

Geothermal power plant

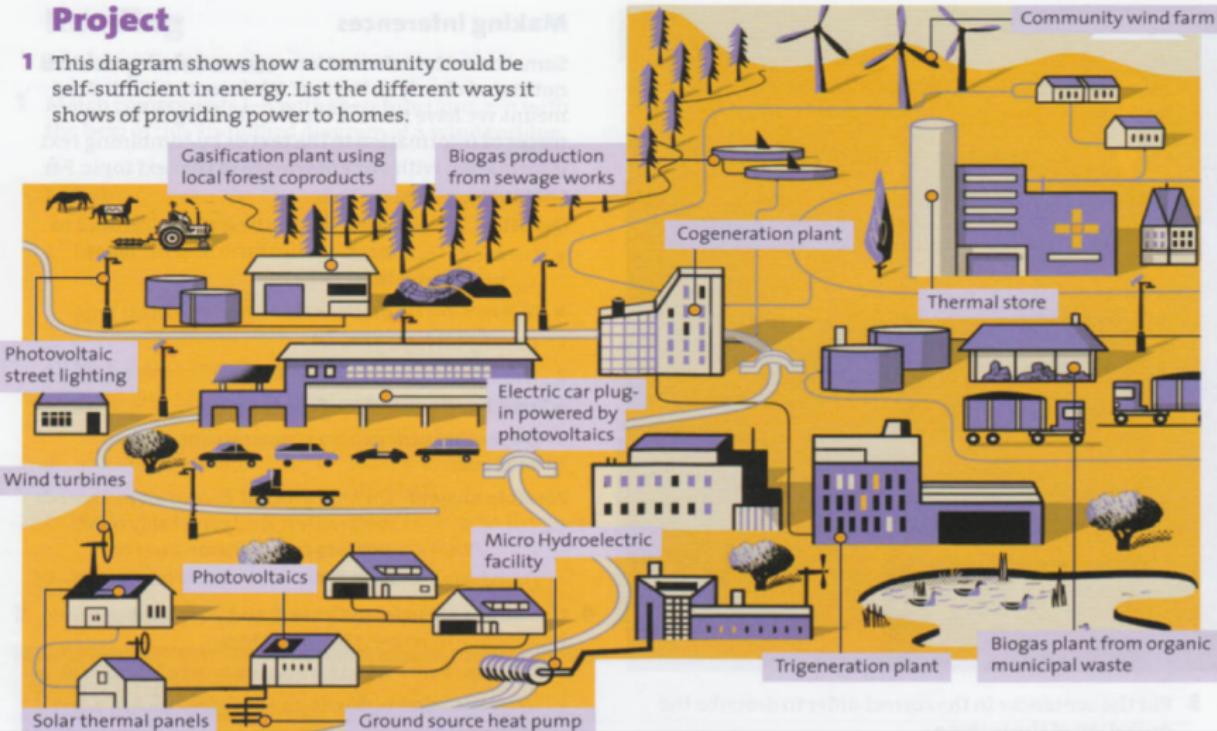
- It produces electricity from heat from the Earth (hot steam, springs).
- Construction in volcanically active areas.
- **Iceland, Italy, New Zealand**



Self sufficient community?

Project

- 1 This diagram shows how a community could be self-sufficient in energy. List the different ways it shows of providing power to homes.



Thank you for your attention!