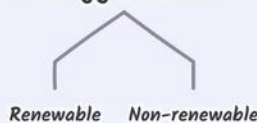


why the fuels we burn cannot last, and what the alternatives cost as well as give

The two kinds of source

- **non-renewable** sources exist in a fixed amount and are used far faster than they form: coal, petroleum, natural gas and nuclear fuel
- **renewable** sources are replenished naturally on a human timescale: solar, wind, water, tidal, geothermal and biomass
- fossil fuels took millions of years to form from buried remains, which is why using them is effectively spending a fixed store
- burning them releases carbon dioxide, the main greenhouse gas, along with oxides of sulphur and nitrogen
- those oxides dissolve in rain to give acid rain, which damages crops, buildings and water life
- so the case for changing is both that the supply runs out and that the burning does harm

Energy sources



the split that organises the whole chapter: one branch is replenished as fast as it is used and the other is drawn from a store that took millions of years to build and is not being refilled

The renewable sources

Solar

photovoltaic cells turn sunlight straight into electricity, and solar cookers and water heaters use the heat. Free and clean, but no output at night and it needs a large area

Wind

moving air turns a turbine. Clean and cheap to run, but needs a steady wind above about 15 km per hour, so only some sites work

Hydroelectric

falling water turns a turbine. Reliable and long lasting, but a dam floods land and displaces people and disturbs river life

Biogas

microbes break down dung and waste without air, giving mostly methane. It burns cleanly and the slurry left over is a good fertiliser

every one of these has a real drawback, and a question asking for advantages usually wants a disadvantage too. Saying a source is simply better than fossil fuel is not a complete answer