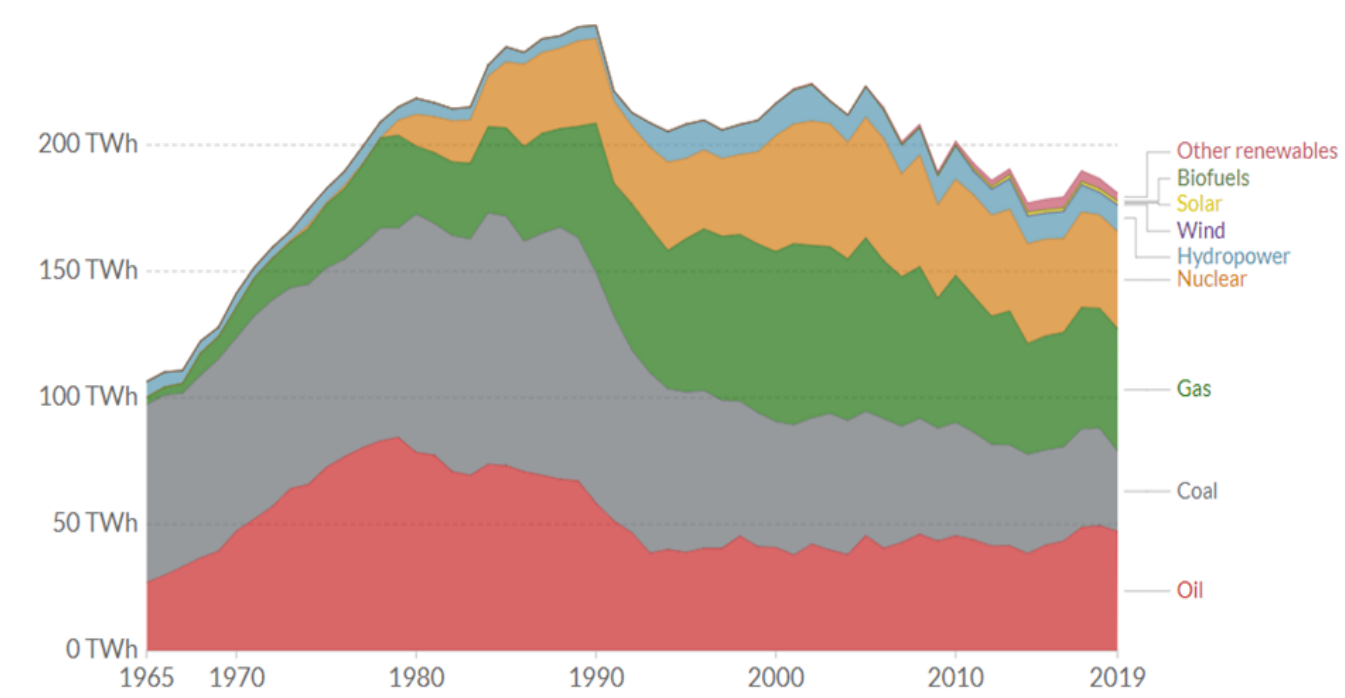




Energy Concepts of Slovakia - 1

Energy consumption by source.

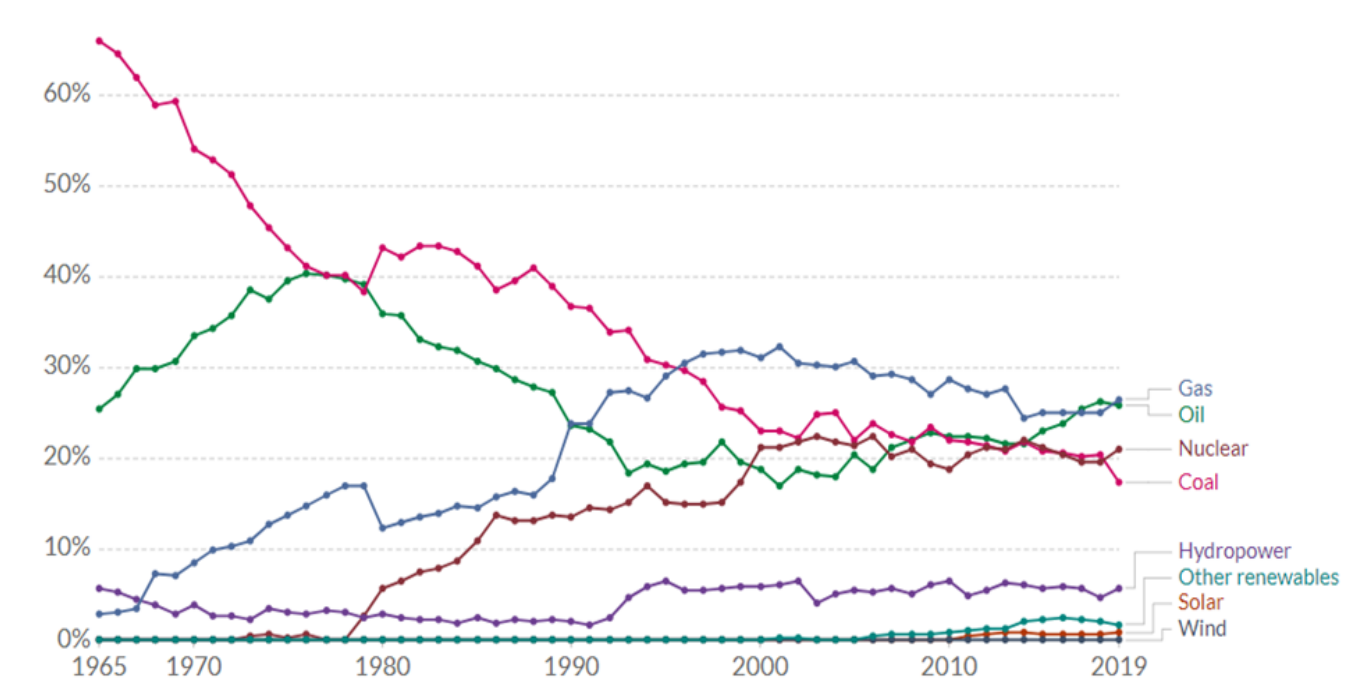
Energy consumption includes electricity, heating, transport. The most important sources are oil, coal, gas and nuclear power.



Source: BP Statistical Review of World Energy
Note: 'Other renewables' includes geothermal, biomass and waste energy.

Share of energy consumption by source

Till 1995 coal had the greatest share among all sources. Nowadays gas and oil, both have about 27% share. However, nuclear energy has become a very important source.



Source: Our World in Data based on BP Statistical Review of World Energy (2020)

Share of primary energy from fossil fuels

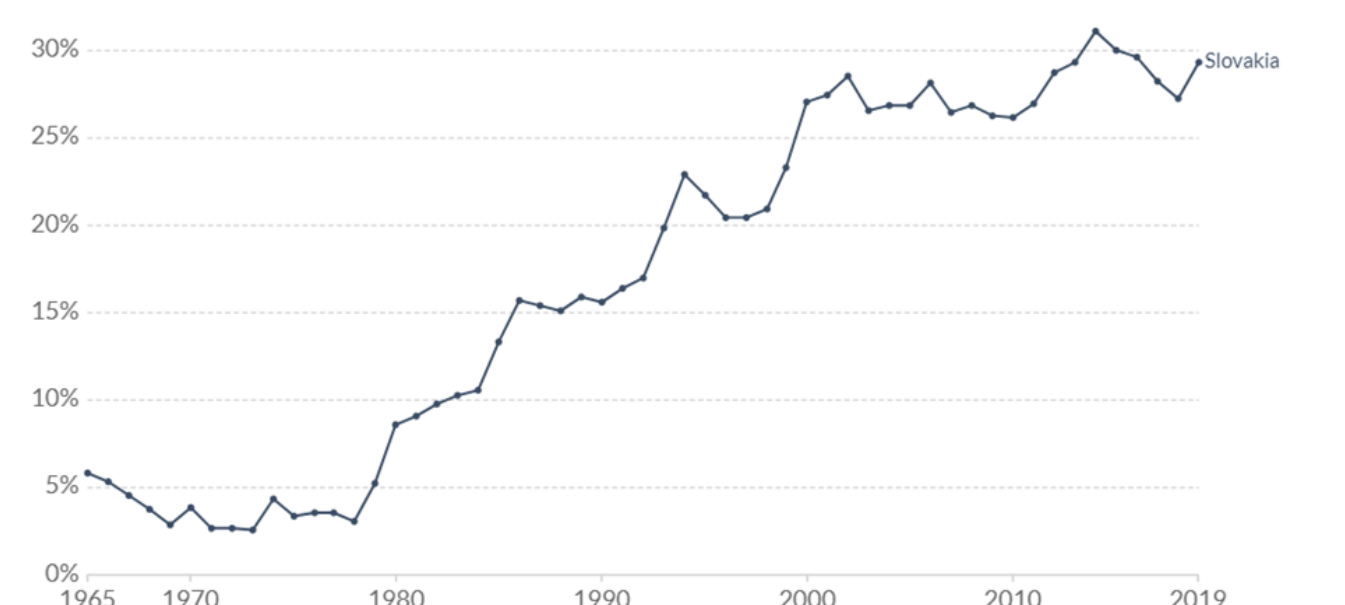
Since the Industrial revolution fossil fuels have become the dominant energy source for most countries across the world. By 1980 they had over 90% share in Slovakia. In 2019 about 70% of energy originated from fossil fuels.

The burning of fossil fuels (coal, oil, and gas) is responsible for around three-quarters of global greenhouse gas emissions. It is also a major source of air pollution.



Share of primary energy from low-carbon sources

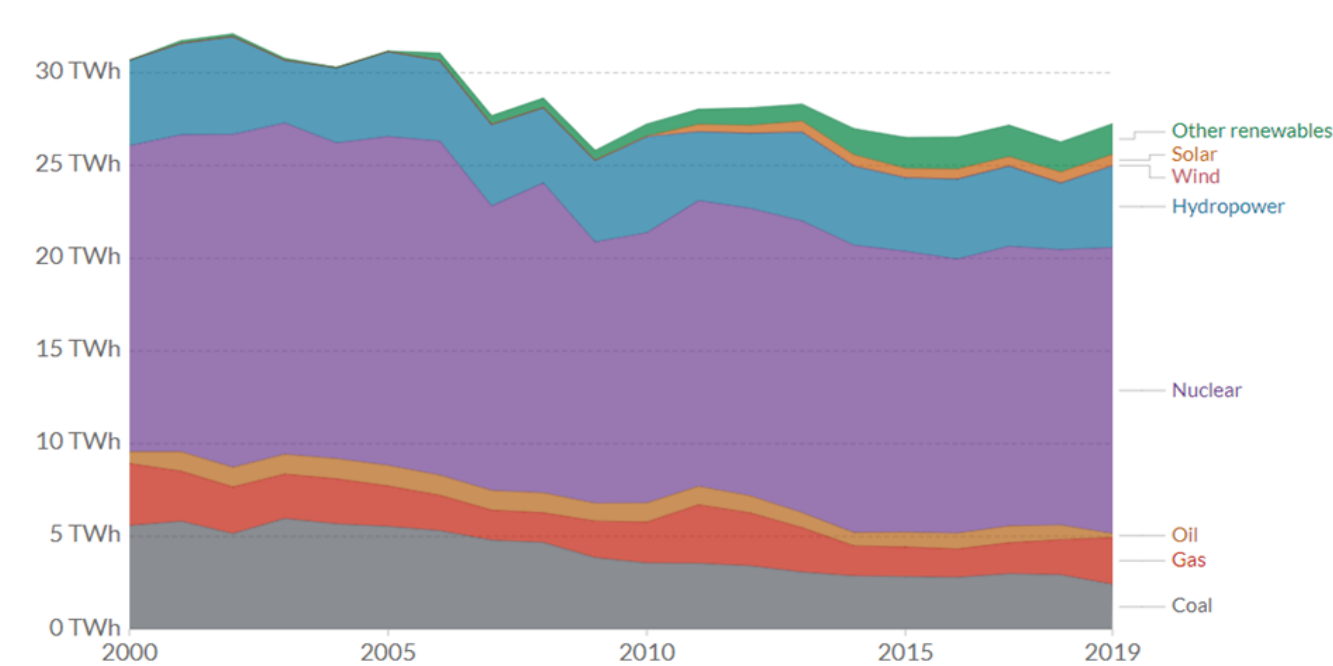
For both, climate change and human health, we need the transition from fossil fuels to low-carbon sources: nuclear power and renewables. They are called low-carbon sources because the amount of CO₂ emitted in the process of burning is very low. In Slovakia their share is almost 30%. If we consider renewable sources, their share is only about 8%.



Source: Our World in Data based on BP Statistical Review of World Energy (2020)
Note: Primary energy is calculated using the 'substitution method' which takes account of the inefficiencies energy production from fossil fuels.

Electricity production by source

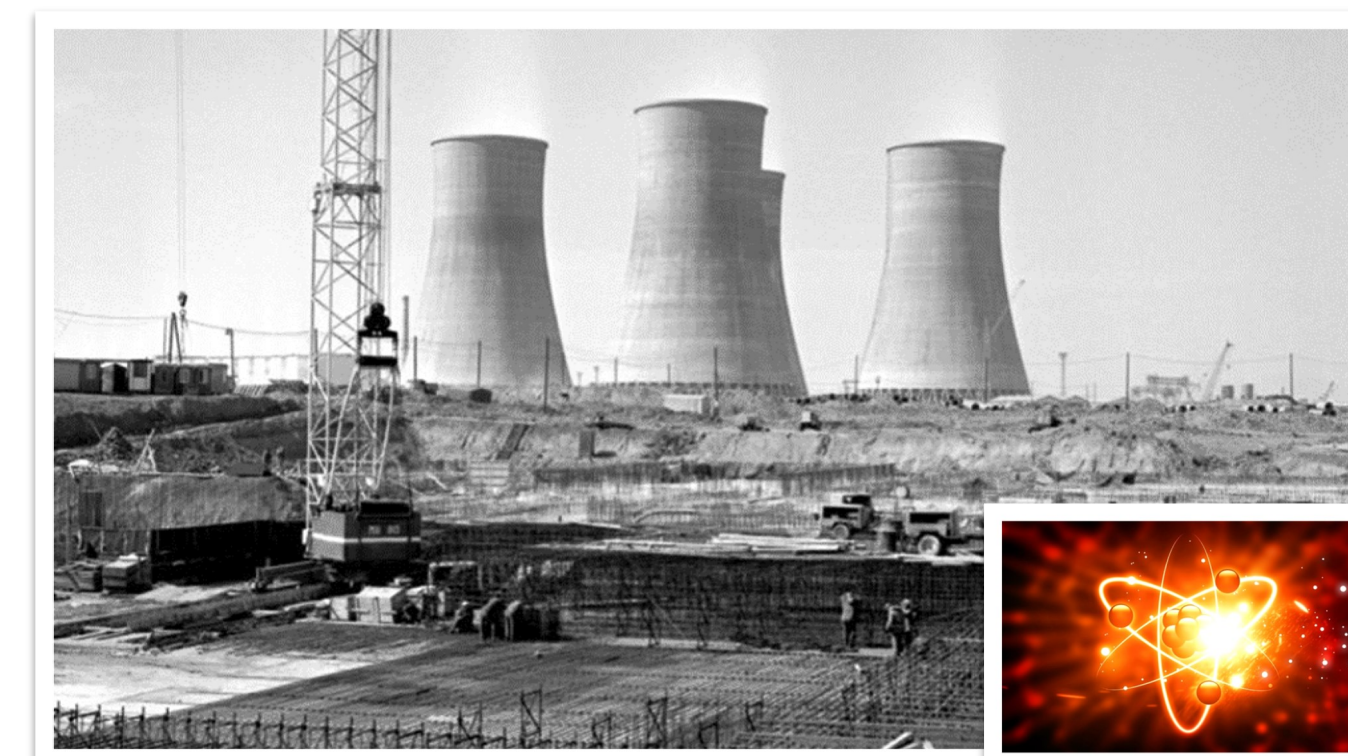
Electricity is just one component of energy consumption. About 54% of electricity is produced from nuclear power. Hydropower has the second highest share, about 16%.



Source: Our World in Data based on BP Statistical Review of World Energy & Ember (2021)
Note: 'Other renewables' includes biomass and waste, geothermal, wave and tidal.

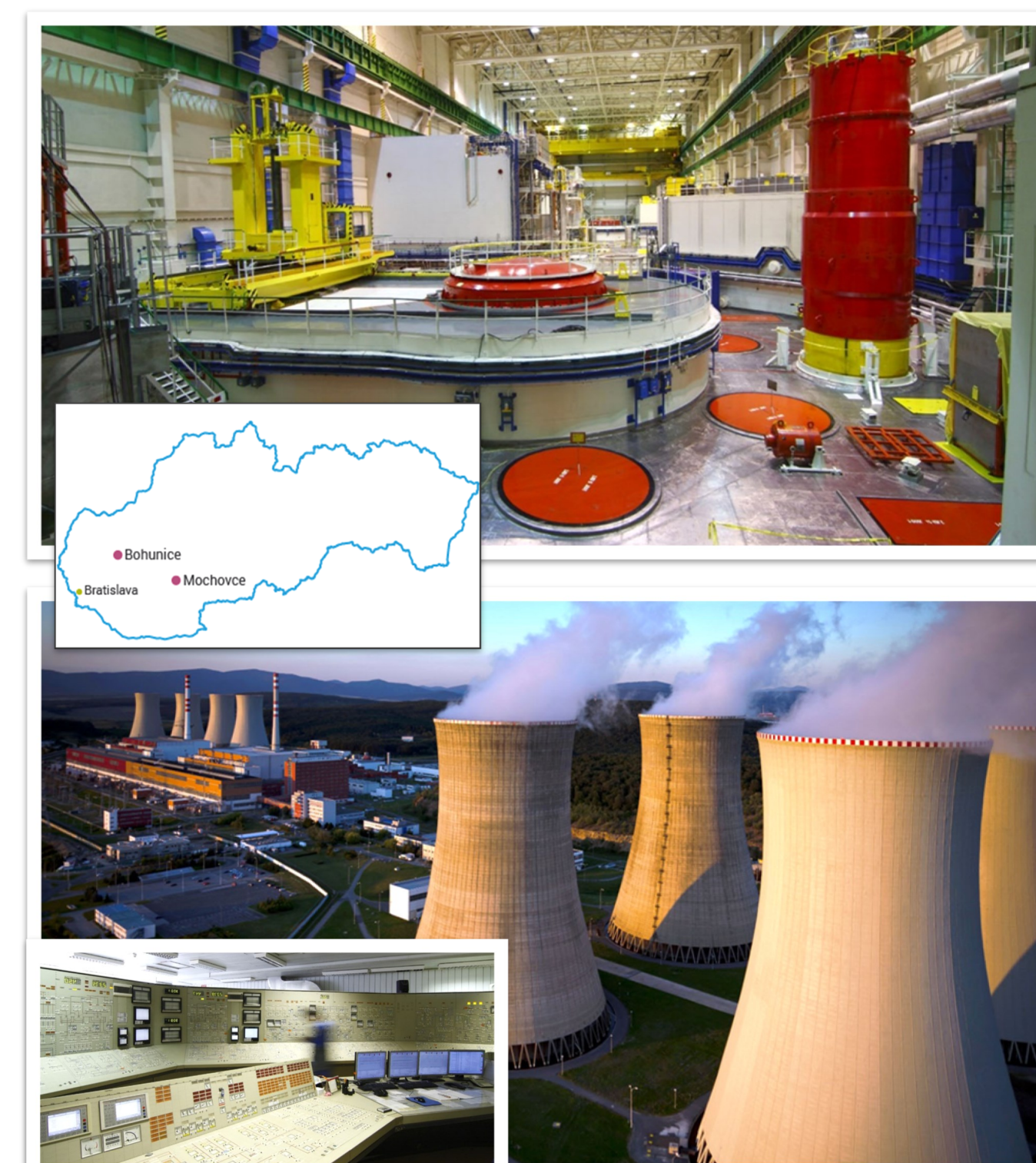
1. Nuclear Power

In 1958 the Czechoslovak government started building its first nuclear power plant, a gas-cooled heavy water pressure-tube reactor at Bohunice (now in Slovakia). This Russian-designed reactor was completed in 1972 and ran only until 1977 due to an accident arising from refuelling.



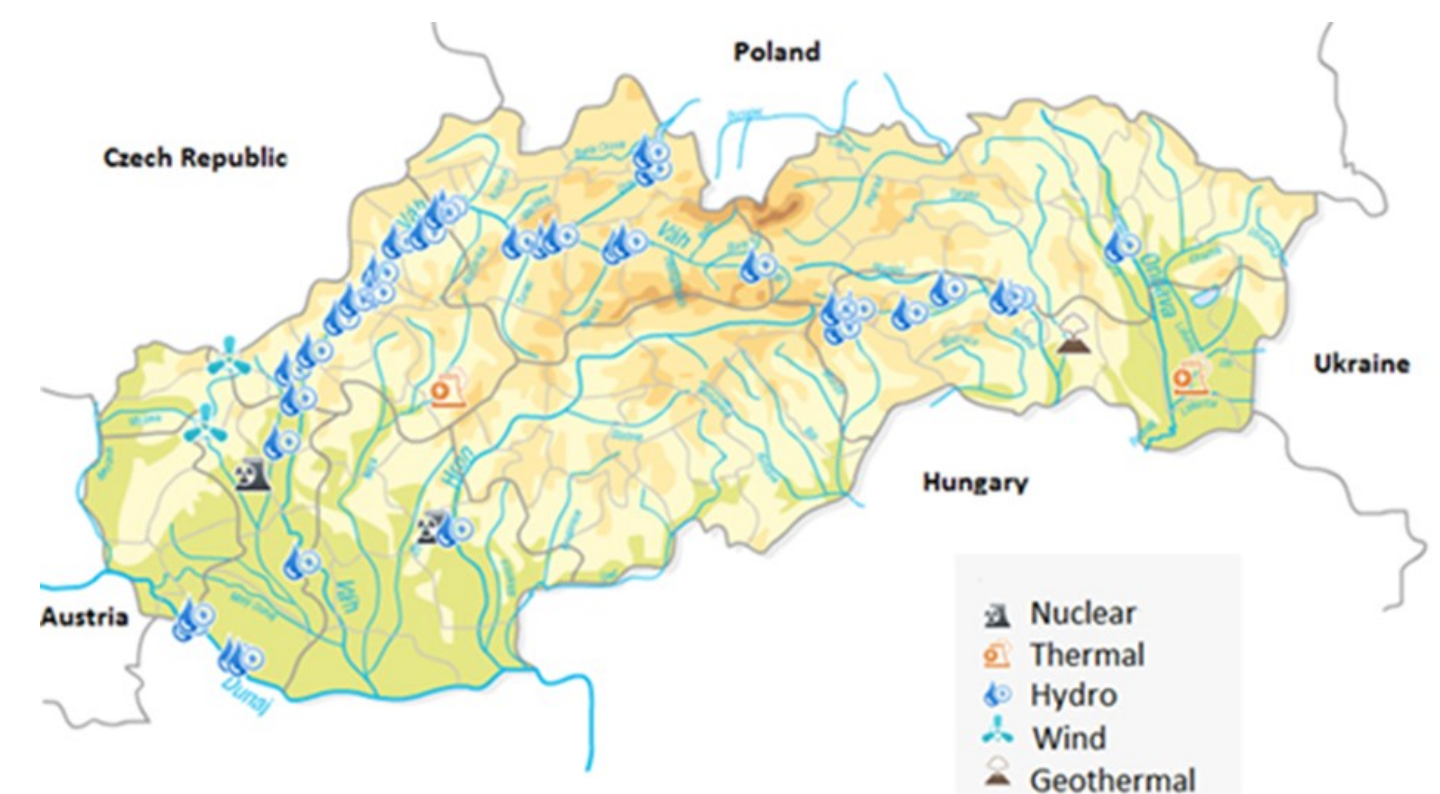
Two more V1 reactors were built and then connected to our energy grid in 1978 and 1980. However, they have already been closed due to safety deficiencies. It was one of the conditions for Slovak entry into the EU in 2004.

Nowadays we have two nuclear power plants with 4 working V2 units in Bohunice and Mochovce. They supply more than half of electricity consumed in our country. In 2019 54.7 % of the total Slovak electricity production of 27,149 GWh was obtained from these nuclear power plants. They meet the most stringent international nuclear safety requirements.



2. Hydropower

Hydropower is the second greatest source of electrical energy, and it is the most used renewable source in Slovakia.



The location of power plants in Slovakia



The most important source of energy from hydropower is called "The System of Water Works Gabčíkovo-Nagymaros". It is located on the Danube river downstream of Bratislava. The water project includes several reservoirs, dams, canals and 3 power plants. It started its operation in 1992 and produces 2,600 GWh of electricity annually, which covers about 8-9% of our electricity consumption.



Gabčíkovo power plant



The benefits of the water project are: sustainable and regular production of clean energy, anti-flood protection, better navigability of the river, enhancement of water-sports, and recreational use of the area.

The points of concerns and continuous discussions are: keeping biodiversity of the region, dealing with sedimentation, keeping the quality of drinking water, and stabilisation of the river bed.