

Iceland
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**TOPIC: GEOTHERMAL POWER PLANTS IN THE CZECH
REPUBLIC AND ICELAND**

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**PROJECT: Comparison of energy potencial of Iceland and
the Czech Republic**

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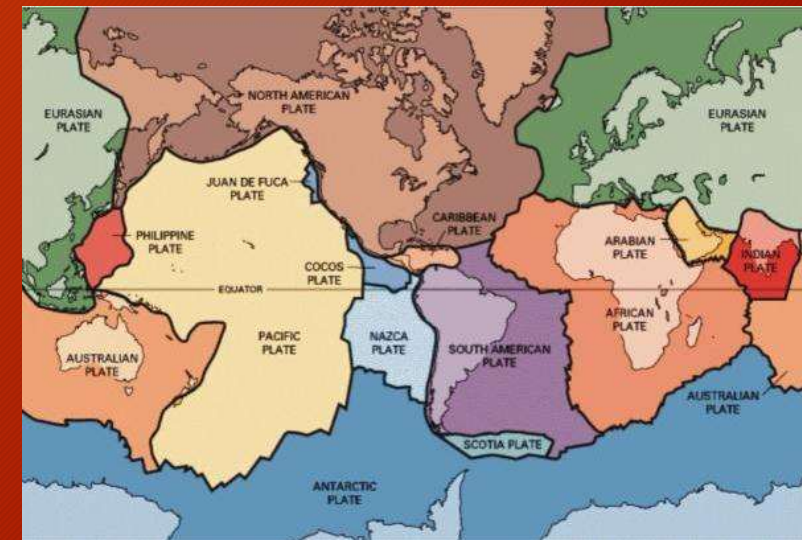
GEOHERMAL ENERGY

- geothermal energy is a manifestation of the thermal energy of the earth's core
- manifestations are eruptions of volcanoes and geysers, hot springs or steam discharges
- it is used in the form of thermal energy (for heating) or for the production of electricity in geothermal power plants



GEOHERMAL ENERGY SOURCES

- it is formed by the decay of radioactive substances and the action of tidal forces
- the use of geothermal resources is greatly influenced by the geological composition
- towards the center of the Earth, the temperature gradually rises to about 5,000° C
- more pronounced temperature gradients are found mainly in the areas of contact of lithospheric plates, where the earth's crust is the thinnest



USE OF GEOTHERMAL ENERGY

FARM

- water from geothermal reservoirs is used for growing flowers and vegetables (by heating)



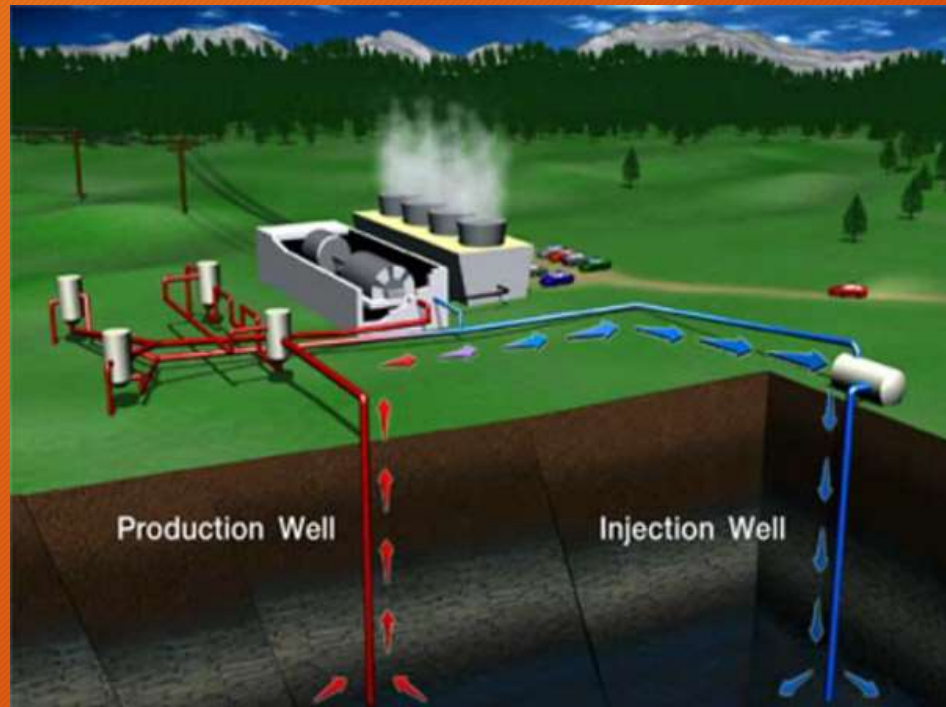
USE OF GEOTHERMAL ENERGY

RECREATION AND SPA



USE OF GEOTHERMAL ENERGY

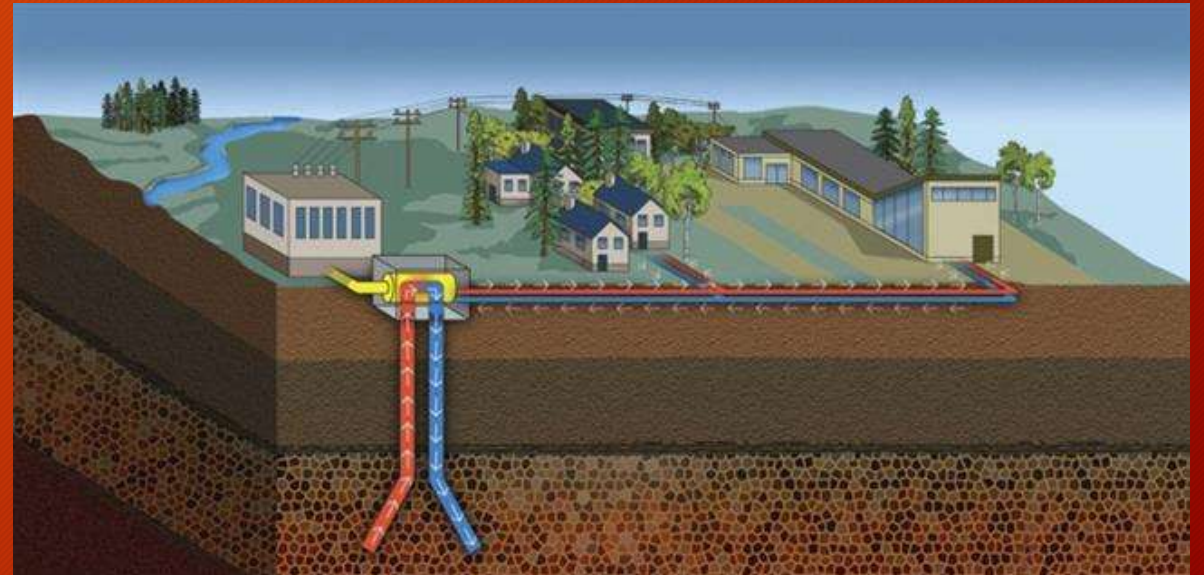
HEATING AND PRODUCTION OF ELECTRICITY.



TYPES OF GEOTHERMAL POWER PLANTS

Dry Steam

- uses directly geothermal steam obtained from the ground to drive the turbine. This technology requires a geothermal source of very high temperatures, mostly in tectonic areas. These power plants are used in Iceland, New Zealand, the USA and Italy.



TYPES OF GEOTHERMAL POWER PLANTS

Flash Steam

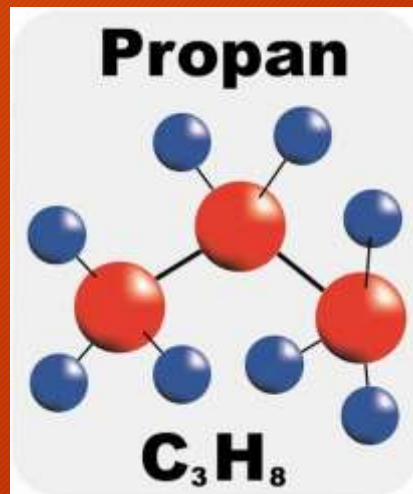
- are the most common type of geothermal power plants. They use water with a temperature higher than 160°C , this water is first brought to a boil by changing the pressure and converted into wet steam, which then enters the separator, where the steam and mineralized water are separated. The separated steam is then used to drive the turbine.



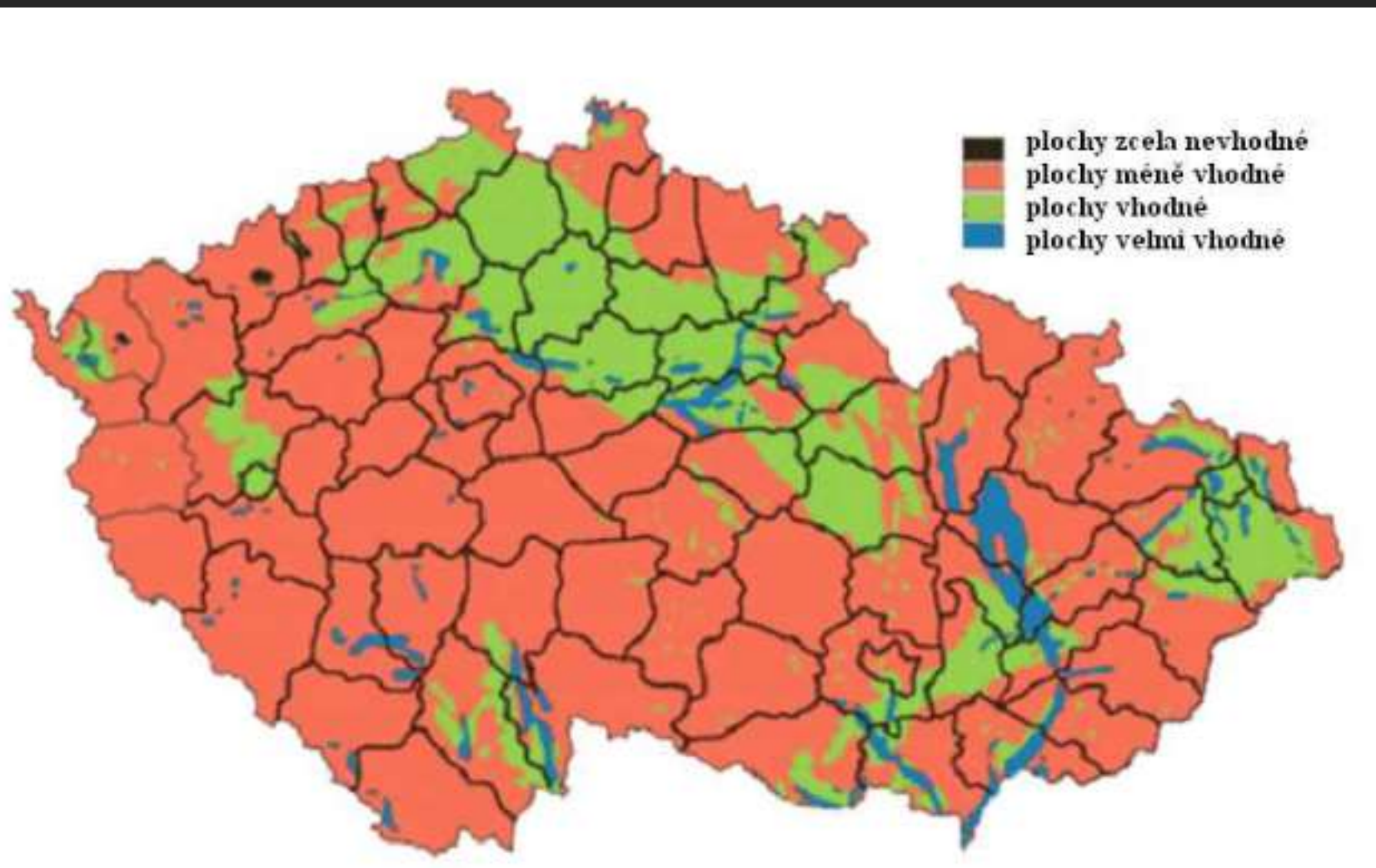
TYPES OF GEOTHERMAL POWER PLANTS

Binary power plants

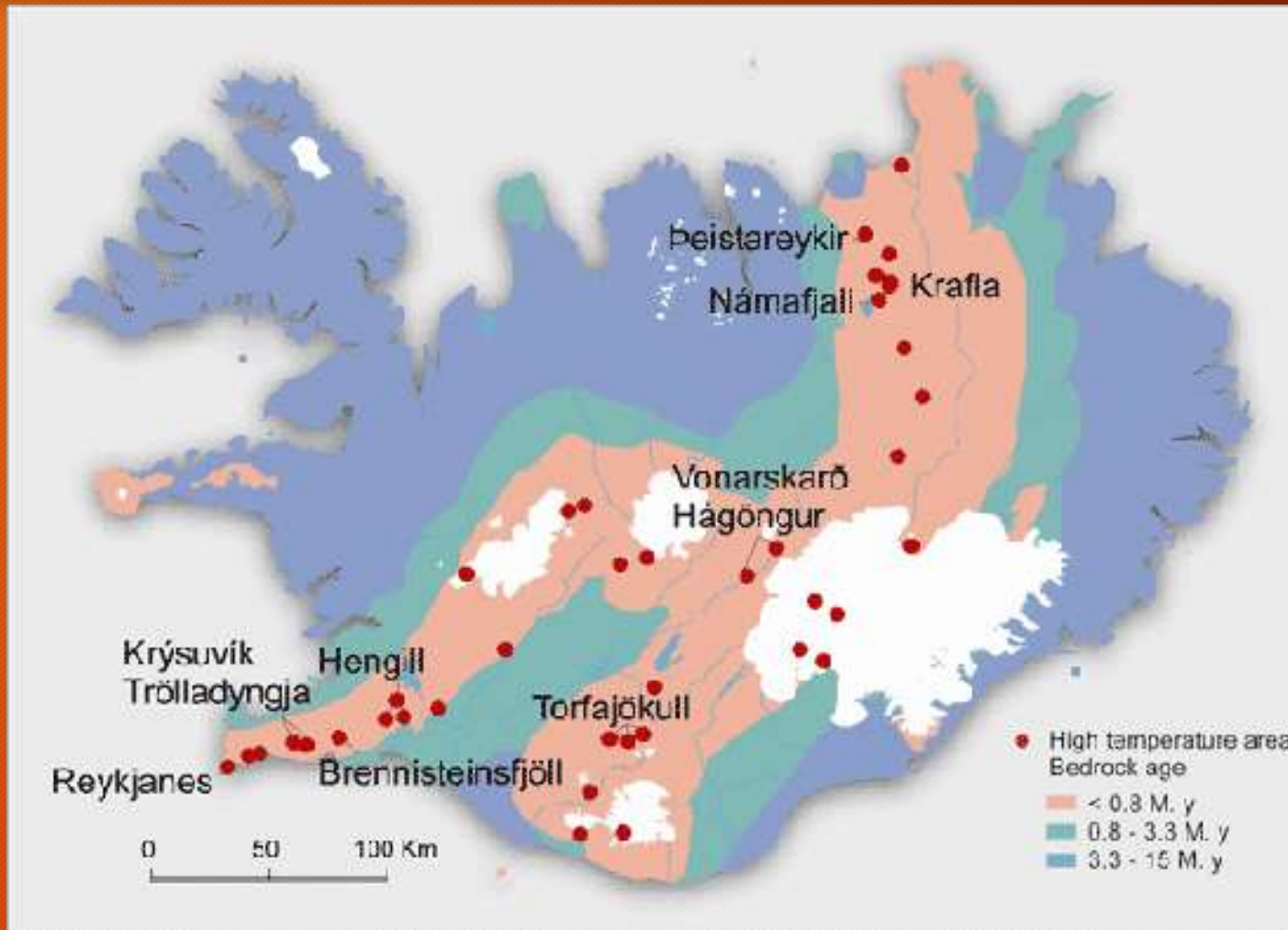
- they use a heat transfer medium with a low boiling point and high vapor pressure at low temperatures - usually organic liquids (eg. propane). The heat transfer medium is heated in the exchanger and thanks to the lower boiling temperature it evaporates even at low temperatures and these vapors subsequently drive the turbine. These power plants are used for low and medium temperature sources.



SUITABLE LOCATION OF POWER PLANTS IN THE CZECH REPUBLIC



SUITABLE LOCATION OF POWER PLANTS IN ICELAND



ADVANTAGES

- very little impact on the environment
- leaves almost no ecological footprint
- independence of supply
- almost unattended operation and, compared to other renewables, performance stability



DISADVANTAGES

- the disadvantages are the uncertainties in the geological conditions - whether a sufficiently large heat exchanger can actually be created



RESOURCES

- <https://oenergetice.cz/nazory/jake-jsou-moznosti-vyuziti-geotermalni-energie-cesku>
- <https://www.sosbn.cz/wp-content/uploads/2016/01/GeotermH.pdf>
- <https://www.on.is/>
- <https://www.svetenergie.cz/>
- <https://publi.cz/books/93/03.html#3-1>
- <https://oenergetice.cz/elektrina/geotermalni-energie>