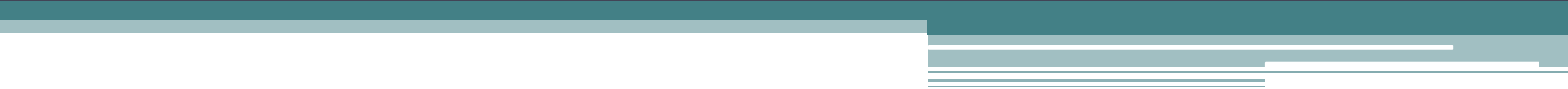


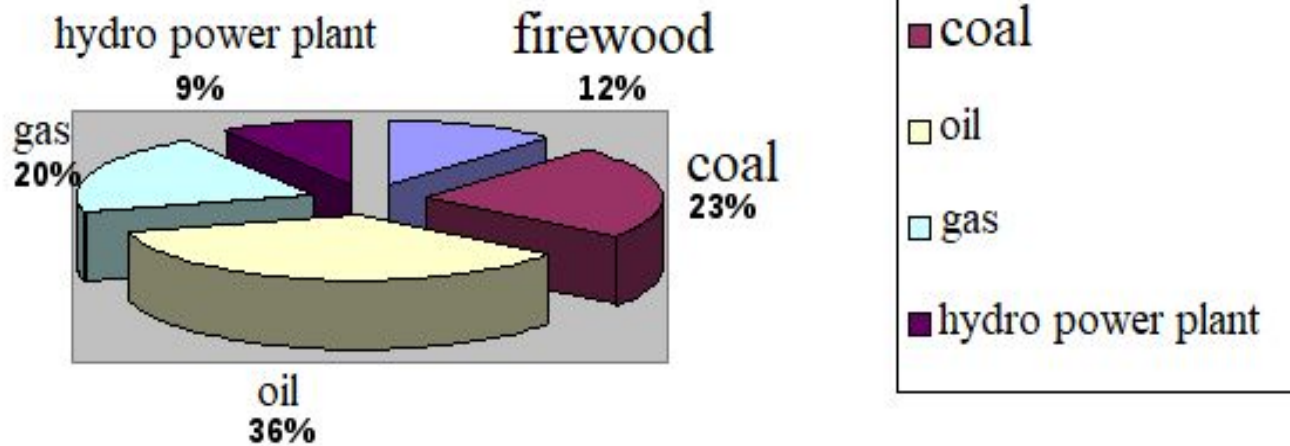
Presentation on the topic "Renewable and non-renewable energy sources"



- Renewable energy sources are sources based on constantly existing or periodically occurring flows of energy in the environment. Renewable energy is present in the environment in the form of energy that is not a consequence of purposeful human activity.
- Renewable energy resources include energy:
 - - the sun;
 - - the world's oceans in the form of ebb and flow energy, wave energy;
 - - rivers;
 - - wind;
 - - sea currents;
 - - produced from biomass;
 - - gutters;
 - - solid household waste;
 - - geothermal sources.
- The disadvantage of renewable energy sources is their low concentration. But this is largely offset by their wide distribution, relatively high ecological frequency and their practical inexhaustibility. It is most rational to use such sources directly near the consumer without transferring energy over a distance. Energy, working on these sources, uses energy flows that already exist in the surrounding space, redistributes, but does not violate their overall balance.

- Non-renewable energy sources are natural reserves of substances and materials that can be used by humans to produce energy.
- The energy of non-renewable sources, in contrast to renewable ones, is in nature in a bound state and is released as a result of purposeful human actions.
- Non-renewable (non-renewable) energy resources include:
 - - coal
 - - oil
 - - natural gas
- It is customary to characterize energy resources by the number of years during which this resource will be enough for energy production at the modern quality level. According to the report of the World Energy Council commission, given the current level of consumption, coal reserves will last for 250 years, gas - for 60 years, oil - for 40 years.
- The share of various types of energy resources in the total world primary energy production is shown in the figure

- The share of various types of energy resources in the global primary energy production



Main energy sources

- There are nine main sources of energy:
- 1. solar radiation;
- 2. movement and attraction of the Sun, Earth and Moon;
- 3. thermal energy of the Earth's core, as well as chemical reactions and radioactive decay in its interior;
- 4. mechanical energy of water movement;
- 5. mechanical energy of air movement;
- 6. biological energy;
- 7. thermal energy of natural fuels (oil, gas, coal, timber, peat, shale, dry vegetation);
- 8. chemical reactions of various substances;
- 9. nuclear reactions.

Fuel, depending on its state of aggregation, is divided into the following four groups:

- **solid**
- **liquid**
- **gaseous**
- **nuclear**

Solid fuels include

- wood and other plant products
- coal
- peat
- oil shale
- combustible products of disposal of various products.



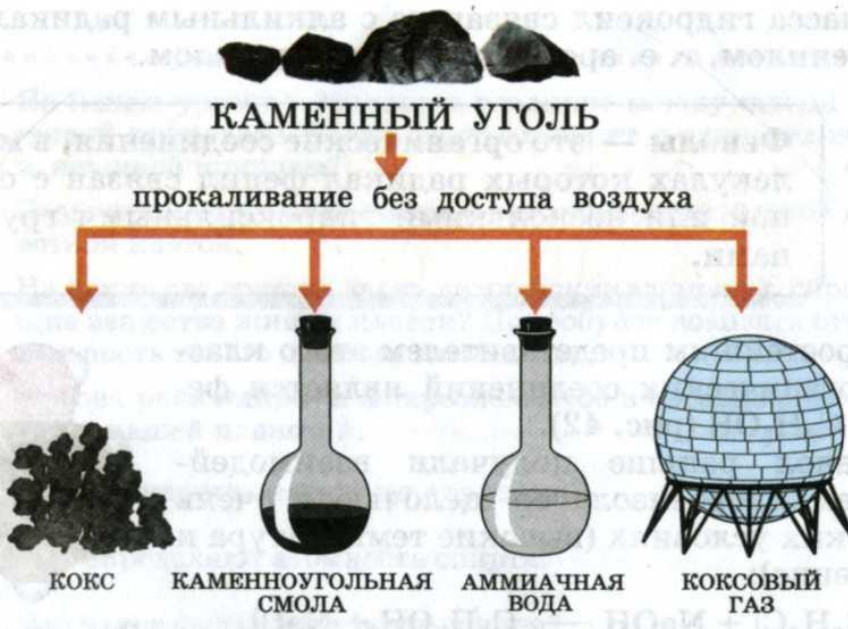
Liquid fuel

- liquefied gas
- gasoline
- kerosene
- diesel



Gaseous

- natural gas
- coke oven and blast furnace gases



Nuclear fuel

- **Thorium-232 (Uran 233)**

Thorium

- Research is currently underway on the use of thorium-232 as a source.
- 1 gram of pure thorium will produce more energy than 28,000 liters of gasoline. However, this element in the decay chain must be converted from Thorium-232 to Uranium-233, which is a highly efficient nuclear fuel.
- There is more thorium on Earth than uranium, it is less toxic and does not form long-lived radioactive isotopes.

- Thanks for attention