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Access the website <http://www.eia.gov/kids/energy.cfm?page=nonrenewable_home-basics>

COAL

1. **How does coal form? Is this considered renewable or nonrenewable?**

Before the dinosaurs, many giant plants died in swamps. Over millions of years, the plants were buried under water and dirt. Heat and pressure turned the dead plants into coal. Nonrenewable.

1. **What are the main types of coal?**

anthracite, bituminous, subbituminous, and lignite

1. **Name the two methods for mining coal.**

Surface mining, and underground mining.

1. **What regions of the United States produce coal?**

Appalachian coal region, Interior coal region, Western coal region

1. **What are some of the uses of coal?**

Electric power, Industry, Converting coal into gas and liquids

1. **Are there environmental concerns when using coal and if there are, what are those concerns?**

 Burning coal produces emissions that adversely affect the environment and human health. The largest impact of underground mining may be the methane gas that must be vented out of mines to make the mines a safe place to work. Landscape is changed, and streams may be covered with rock and dirt. The water draining from these filled valleys may contain pollutants that can harm aquatic wildlife downstream.

1. **How can we help reduce its impact on the environment?**

Reuse and recycling can also reduce coal’s environmental impact. Research is underway to address emissions of carbon dioxide from coal combustion. Power plants use flue gas desulfurization equipment, also known as *scrubbers*, to clean sulfur from the smoke before it leaves their smokestacks. The Clean Air Act and the Clean Water Act require industries to reduce pollutants released into the air and water.

OIL (petroleum)

1. **How does oil form? Is this considered renewable or nonrenewable?**

Crude oil was formed from the remains of animals and plants (diatoms) that lived millions of years ago in a marine environment before the existence of dinosaurs. Nonrenewable.

1. **Where in the United States is it found?**

Texas (37%) North Dakota (13%) California (6%) Alaska (6%) Oklahoma (4%)

1. **What other countries produce oil?**

About 100 countries

1. **Who owns the off shore drilling sites?**

Exclusive Economic Zone (EEZ).

1. **What is made from oil?**

Gasoline, distillates such as diesel fuel and heating oil, jet fuel, petrochemical feedstock’s, waxes, lubricating oils, and asphalt.

1. **What is refining?**

Petroleum refineries convert crude oil and other liquids into many petroleum products that people use every day. Most refineries focus on producing transportation fuels.

1. **What emissions are given off as a byproduct of burning petroleum oil products?**

Greenhouse Gases.

NATURAL GAS

1. **How does natural gas form? Is this considered renewable or nonrenewable?**

Millions of years ago, the remains of plants and animals (diatoms) decayed and built up in thick layers, sometimes mixed with sand and silt. Over time, these layers were buried under sand, silt, and rock. Pressure and heat turned it into natural gases.

1. **How can scientists locate the natural gas underground?**

Geologists, who study the structure and processes of the earth. They locate the types of rock that are likely to contain natural gas deposits. Some of these areas are on land, and some are offshore and deep under the ocean floor.

1. **How is natural gas transported?**

Pipelines from production fields to markets.

1. **How can the gas be turned into a liquid?**

Cooled to about -260°F for shipment and/or storage as a liquid.

1. **What are the uses of natural gas by the people in our world?**

Natural gas is used as a fuel to produce steel, glass, paper, clothing, brick, and electricity. Natural gas is also used as a raw material for many products, including paints, fertilizer, plastics, antifreeze, dyes, photographic film, medicines, and explosives.

1. **Are there any environmental concerns with the usage of natural gas, if so what are they?**

Natural gas is made up mostly of methane, which is a potent greenhouse gas. Some natural gas leaks into the atmosphere from oil and natural gas wells, storage tanks, pipelines, and processing plants. When geologists explore for natural gas deposits on land, they may have to disturb vegetation and soils with their vehicles. New drilling and natural gas recovery technologies have greatly reduced the area that has to be disturbed to produce natural gas.

NUCLEAR

1. **What is the nuclear fuel most widely used?**

Uranium is the fuel most widely used by nuclear plants for nuclear fission.

1. **What nuclear reaction takes place to create nuclear energy?**

Nuclear fusion, in which atoms are combined or fused together to form a larger atom.

1. **What are the steps of the nuclear fuel cycle?**

Exploration, Uranium mining, Uranium milling, Uranium conversion, Uranium enrichment, and Uranium reconversion and nuclear fuel fabrication.

1. **How much energy is generated in the U.S. by Nuclear Power?**

19%

1. **What kind of waste does nuclear energy produce and how is it dealt with?**

Radioactive wastes such as uranium mill tailings. An uncontrolled nuclear reaction in a nuclear reactor can potentially result in widespread contamination of air and water. The risk of this happening at nuclear power plants in the United States is considered to be small.