

Fossil Fuels

How fossil fuels are created!

Fossil Fuels

- Main energy sources that are formed from the remains of ancient plants and animals.
- Energy is released when fossil fuels are burned
 - Runs cars, machinery, and generators.
- Three main types



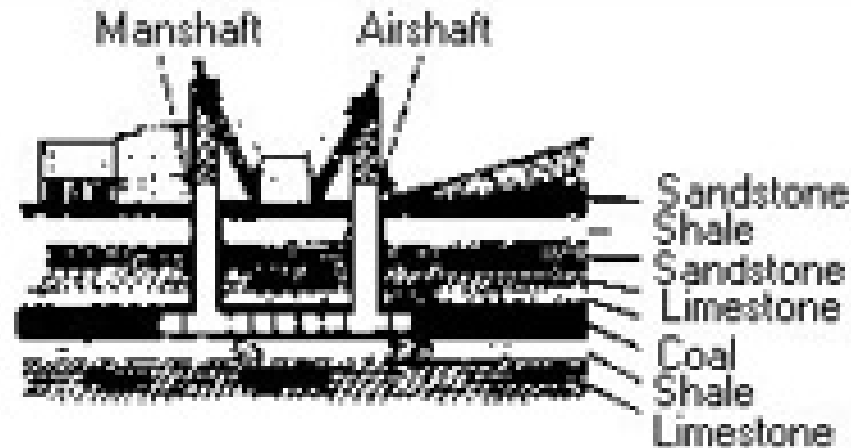
1. Coal – organic sedimentary rock

- Varies in the amount of carbon
 - more carbon = more energy
- Used to run power plants and to make steel
- At the present rate of use it could last hundreds of years...

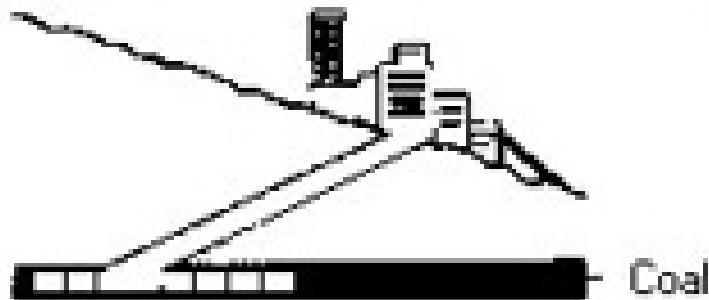


India: Digging Deep for Coal

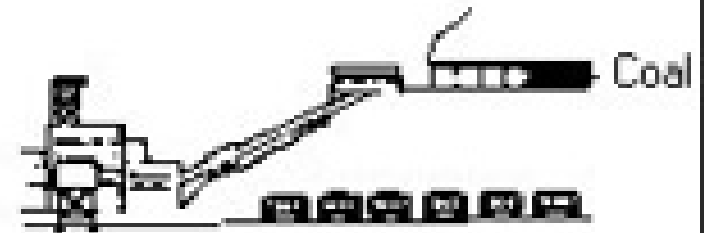
Underground Coal Mines



Shaft Mine



Slope Mine



Drift Mine

What is peat?

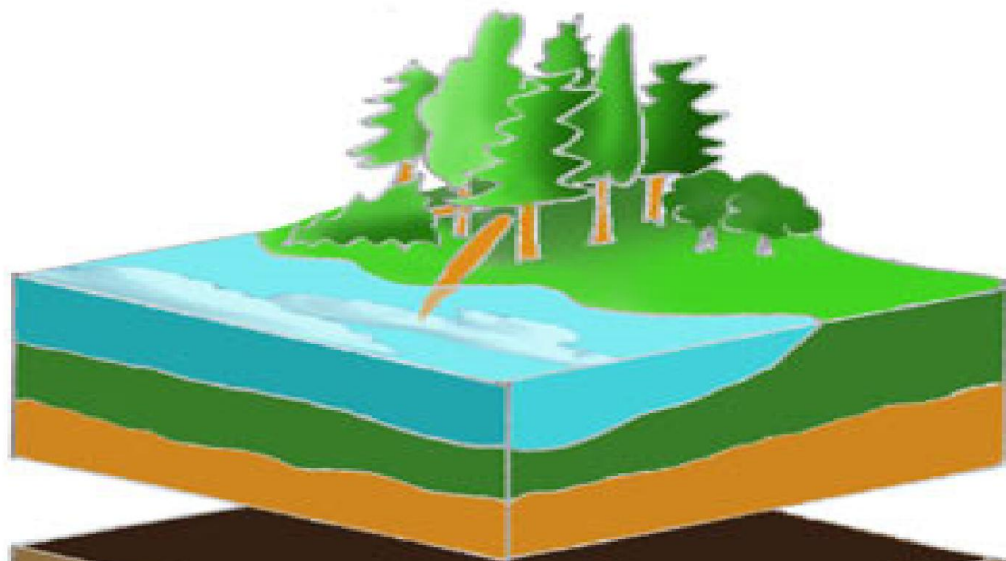
- Peat is a soft organic material consisting of partly decayed plant matter together with deposited minerals.



How we harvest/mine peat?

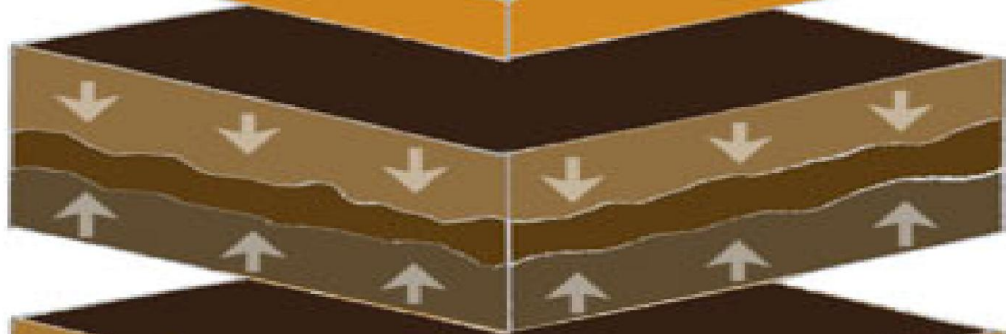
- Following technologies are presently used for peat extraction:
 - Milling method
 - Sod peat extraction



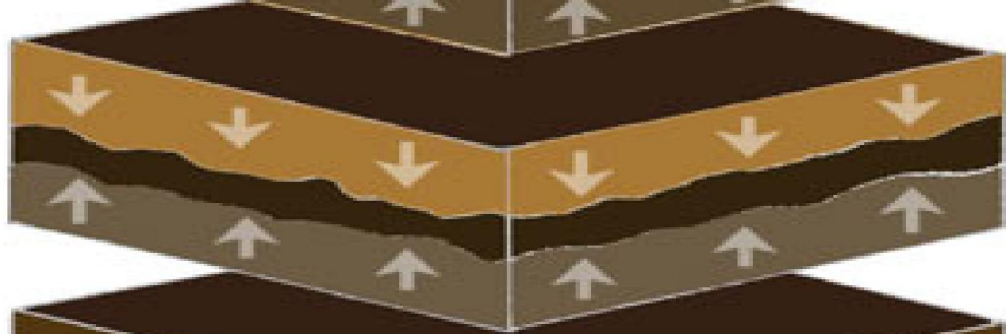


**HUGE FORESTS GREW AROUND
300 MILLION YEARS AGO
COVERING MOST OF THE EARTH**

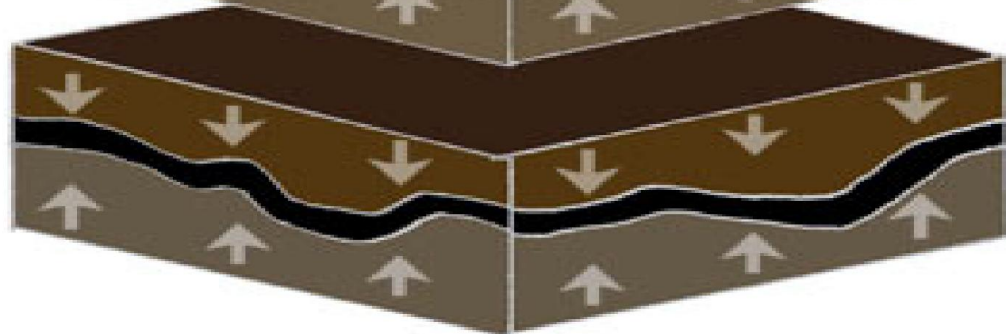
**THE VEGETATION DIES AND
FORMS PEAT**



**THE PEAT IS COMPRESSED BETWEEN
SEDIMENT LAYERS TO FORM LIGNITE**



**FURTHER COMPRESSION
FORMS BITUMINOUS AND
SUBBITUMINOUS COAL**

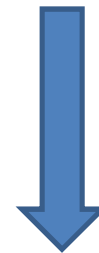


EVENTUALLY ANTHRACITE FORMS

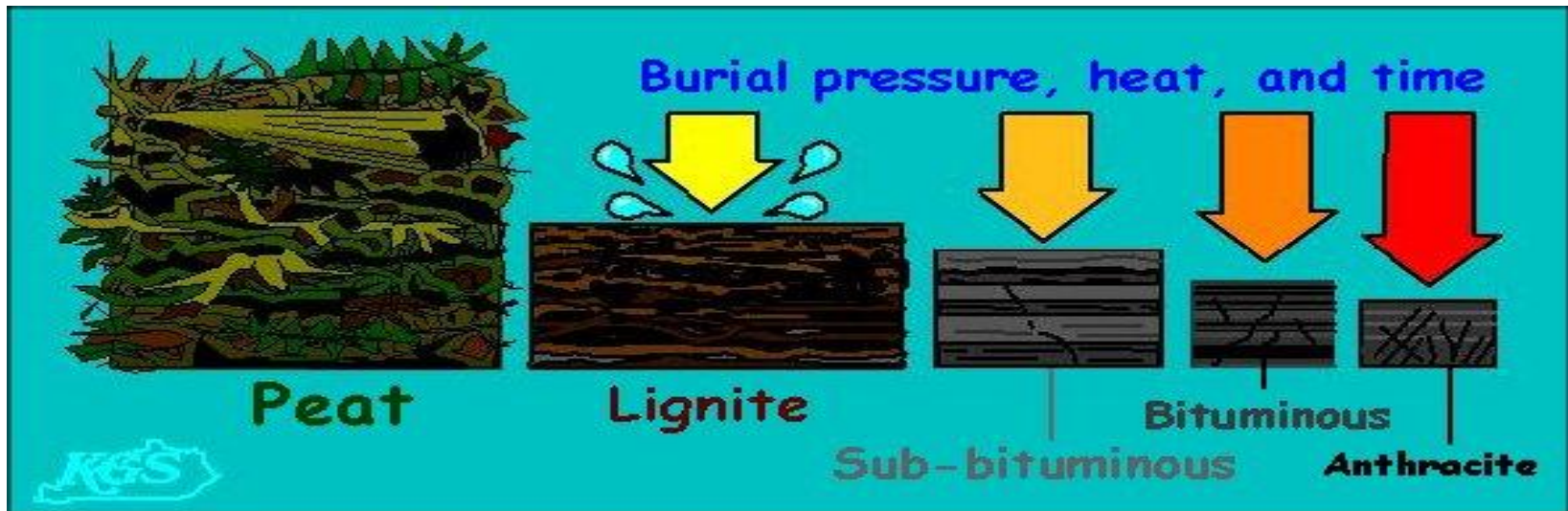
Different types of Coal

1. Peat
2. Lignite
3. Bituminous
4. Anthracite

Low Energy



High Energy

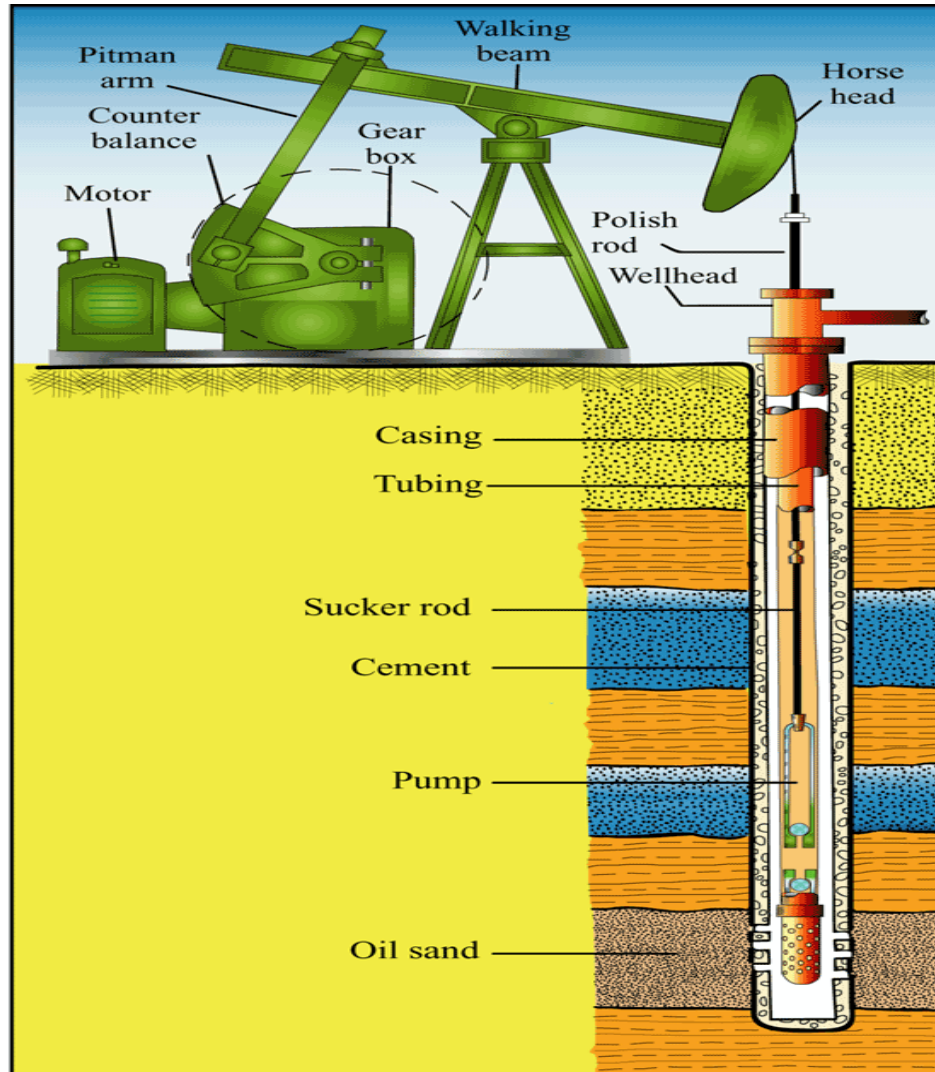


2. Petroleum – organic liquid plant/animal remains

- Contains carbon and hydrogen
- Refined as gasoline, kerosene, lubricants, etc.
- Used to heat homes, run cars, in plastics, fertilizers, dyes, medicines...
- Must drill wells to tap source
- Often found with natural gas



Drilling for Oil



3. Natural Gas

- Chain of hydrocarbons created with petroleum
- Can be used as an energy source

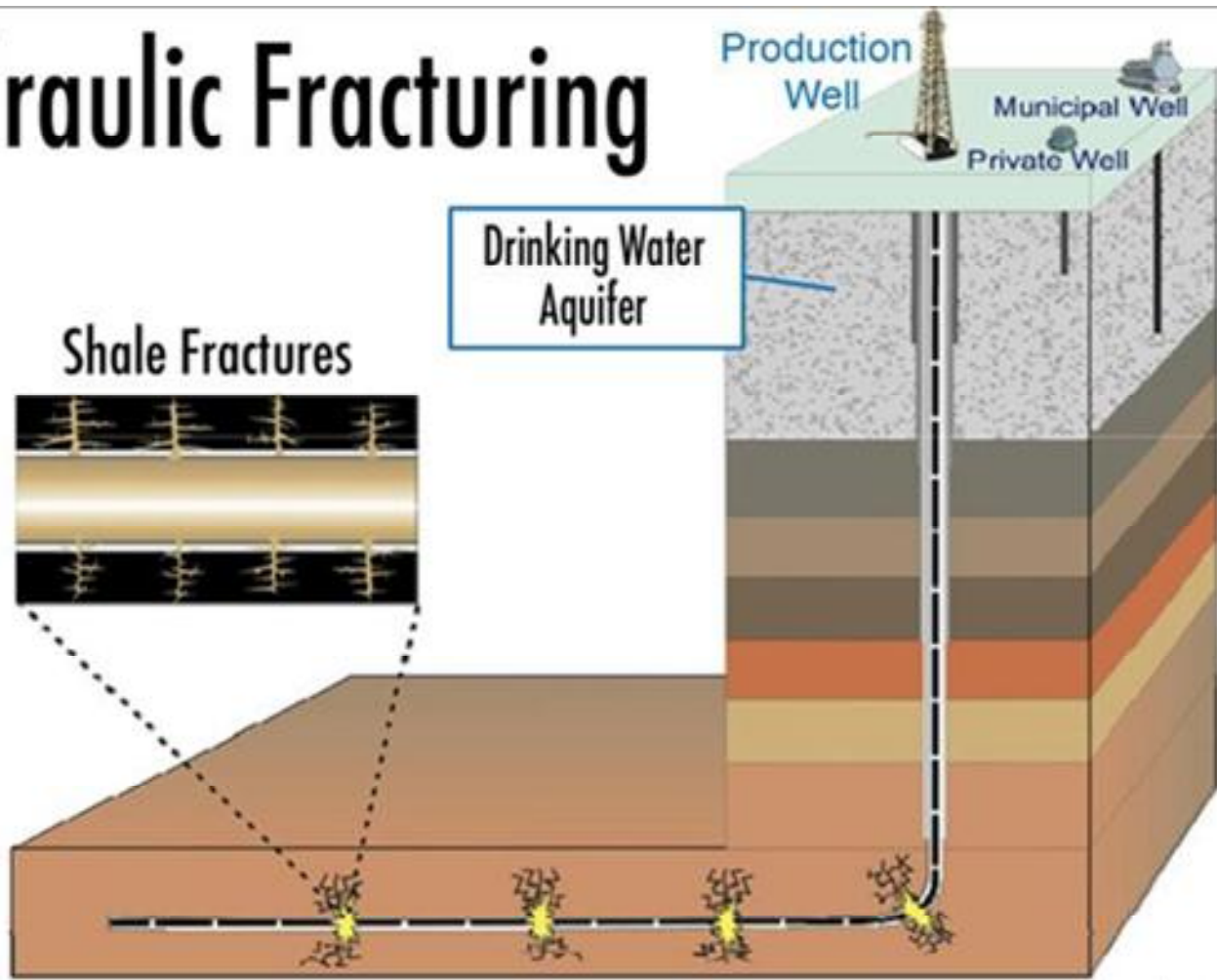


Natural Gas Extraction

(Hydraulic Fracturing AKA “Fracking”)

- Technique for extracting natural gas from “tight” rock(shale) structures **deep below surface**
- Has been used since 1950’ s
- Hydraulic Fracturing involves
 - Drilling a well deep down below earth
 - Turning drill to horizontal
 - Set off small charges to create cracks in the shale
 - Inject 500,000 gallons of fluid to fracture shale
 - Fluid is 99% water plus sand and chemicals
 - Extracting natural gas

Hydraulic Fracturing



Source: EPA

[The Fracking Song](#)
[Opportunity or Danger?!?](#)

Environmental Impact

- Fossil fuels are also the major source of air pollution and therefore, the major contributor to global warming!



True or False

- Renewable resources can be replaced at a rate close to its rate of use or in an unlimited supply.
 - True
- Fossil fuels are energy sources that are formed from the remains of plants and animals.
 - True
- The three main types of fossil fuels are coal and oxygen and natural gas.
 - False: Coal, Petroleum and Natural Gas