

# Energy

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## Slide 2: *Energy*

### Slide 3: *What is Energy?*

- Energy can be defined as the capacity to do work.
- Energy is all around us.
- We can see light energy from the sun.
- Energy cannot be created or destroyed, it can only be transformed.
- Heat energy keeps us warm.
- The chemical energy stored in food sustains life.
- Energy is needed to make cars move, and make music.
- Without energy, the world would be cold and dark.

### Slide 4: *Renewable Energy Sources*

- We are using energy from both renewable and non-renewable resources.
- A renewable energy resource comes from supplies that replenish themselves.
- Most of these energy sources limit environmental impacts:
  - Sun
  - Wind
  - Water
  - Biomass
  - Geothermal

### Slide 5: *Non-Renewable Energy Resources*

- Fossil fuels are called non-renewable energy supplies because they cannot be replenished.
- Fossil fuels contain potential energy.
- Combustion is the most common way of converting the potential energy into work.
- Oil, coal and gas are fossil fuels and are non-renewable.
- Burning fossil fuels releases greenhouse gases.

### Slide 6: *World's Energy Sources*

- Energy drives modern society.
- Currently most of the world's energy is derived from non-renewable resources.

### Slide 7: *The Hot Issue*

- Modern society is totally dependent upon energy in the form of electricity derived from burning fossil fuels.
- Burning fossil fuels releases a gas called CO<sub>2</sub> (carbon dioxide) which increases the greenhouse effect.

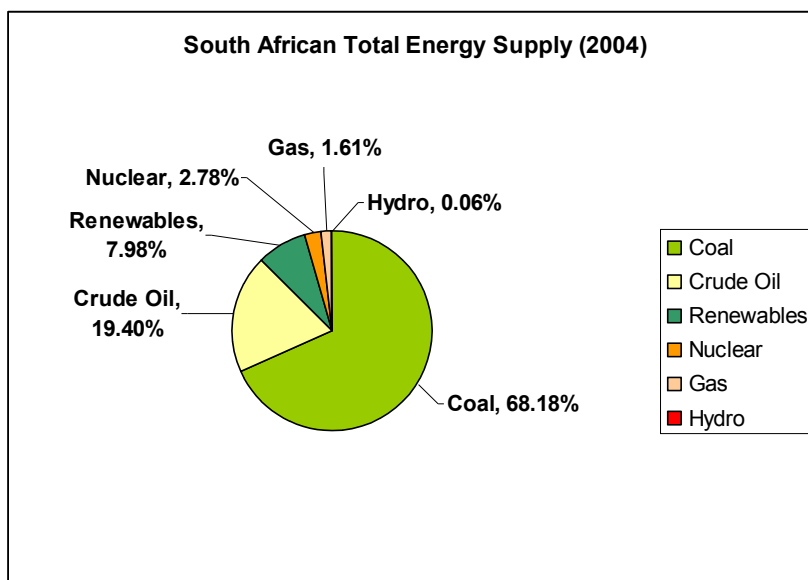
**Slide 8: *Greenhouse Effect***

- When the sun's energy has passed through the earth's atmosphere, some of it escapes back into space.
- Some of this energy is trapped by certain gases in the atmosphere, thus keeping the earth warm enough to sustain living things.
- This is called the greenhouse effect. CO<sub>2</sub> is very good at trapping heat in the atmosphere.
- Burning fossil fuels has increased the amount of CO<sub>2</sub> in the atmosphere, trapping more heat and making the earth warmer than it should be.

**Slide 9: *The Environmental Impact***

- Because of fossil fuels we have increased the levels of CO<sub>2</sub> and other greenhouse gases, thus trapping more of the sun's heat and raising global temperatures.
- This is known as global warming.
- Rising sea and air temperatures are slowly melting the ice in the Arctic and Antarctic.
- In the long term, the effects of global warming may cause climate change.
- This will have far-reaching effects on us, our food supply, and the whole natural world.
- Using renewable energy would mean that very little CO<sub>2</sub> would be released, thus reducing the impact of global warming.

**Slide 10: *Energy Supply in South Africa***



Ref. Eskom 2004