

Introduction - 02

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Hazards of concentrated energy usage pattern

- ◆ Depletion of fossil fuels
- ◆ Environmental hazards
- ◆ Health hazards

A case for environment...

- ◆ Green house effects
- ◆ Climate change
- ◆ Depletion of stratospheric ozone layer

Green house effect

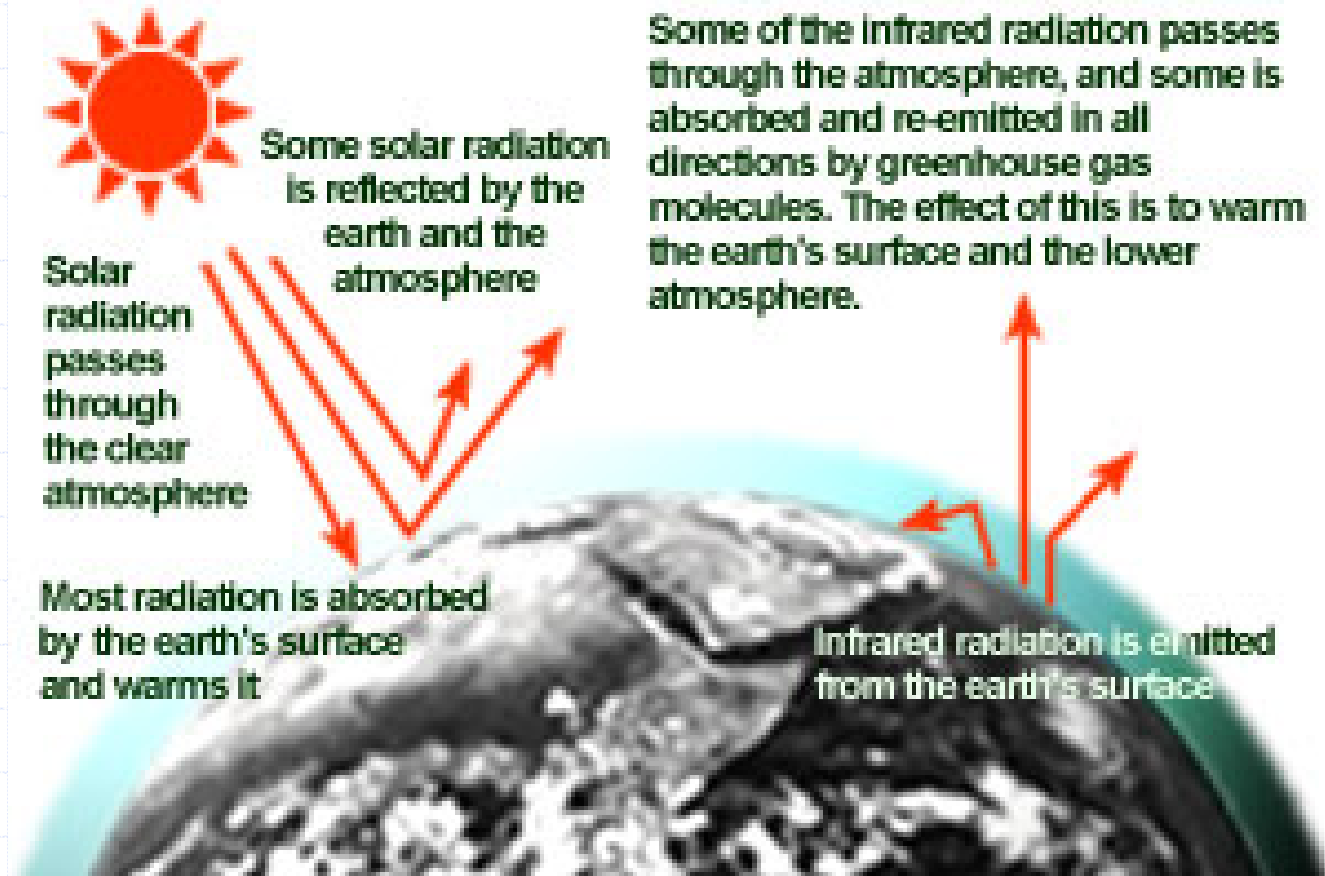
◆ **Green house** gases make the Earth warmer by trapping energy in the atmosphere.

Green house effect

- ◆ Green house gases – carbon dioxide, nitrous oxide, methane, chloro fluoro carbons.
- ◆ Green house gases are the temperature stabilisers of the earth's atmosphere.
- ◆ Temperature stabilisation is by trapping radiated heat from the earth's surface by these green house gases.

Green house effect

The Greenhouse Effect



Climate change

- ◆ Climate is the long-term average of a region's weather. For example, it's possible that a winter day in Bangalore could be sunny and mild, but the average weather – the climate – tells us that Bangalore's winters will mainly be cold and include rain. Climate change represents a change in these long-term weather patterns. They can become warmer or colder. Annual amounts of rainfall or snowfall can increase or decrease.

Global warming

- ◆ Due to emissions from the fossil fuel based systems, the green house gases in the atmosphere increases.
- ◆ As a result, the average temperature of the earth is becoming higher.

Global warming

- ◆ Global warming refers to an average increase in the Earth's temperature, which in turn causes changes in climate. A warmer Earth may lead to changes in rainfall patterns, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans. When scientists talk about the issue of climate change, their concern is about global warming caused by human activities.

Effects of Global warming

- ◆ changes in rainfall patterns
- ◆ rise in sea level
- ◆ impacts on flora and fauna
- ◆ impacts on human health

Health is an issue!

- ◆ CO poisoning.
- ◆ Asthma.
- ◆ Skin diseases and cancer due to depletion of stratospheric ozone.

When Do You Send Greenhouse Gases into the Air?

◆ *Whenever you ...*

· Watch TV · Use the Air Conditioner · Turn on a Light · Use a Hair Dryer · Ride in a Car · Play a Video Game · Listen to a Stereo · Wash or Dry Clothes · Use a Dish Washer · Microwave a Meal
... you are helping to send greenhouse gas into the air.

◆ To perform many of these functions, you need to use electricity. Electricity comes from power plants. Most power plants use coal and oil to make electricity. Burning coal and oil produces greenhouse gases.

Other things we do that send greenhouse gases into the air !

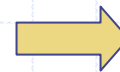
The trash that we send to landfills produces a greenhouse gas called methane. Methane is also produced by the animals we raise for dairy and meat products and when we take coal out of the ground. Whenever we drive or ride in a car, we are adding greenhouse gases to the atmosphere. And, when factories make the things that we buy and use everyday, they too are sending greenhouse gases into the air.

Cost in the long run...

- ◆ Life cycle costing gives more realistic estimates.
- ◆ This gives a much better correlation of cost to energy used.

Scope for alternative energies...

- 75% of energy comes from fossil fuels such as crude oils, coal and natural gas
- 12% from bio fuels such as methane
- 9% from hydro based
- 3% from nuclear
- 1% from windmills and photovoltaic put together



Scope to increase