

CLIMATE CHANGE

Fossil fuels and climate change

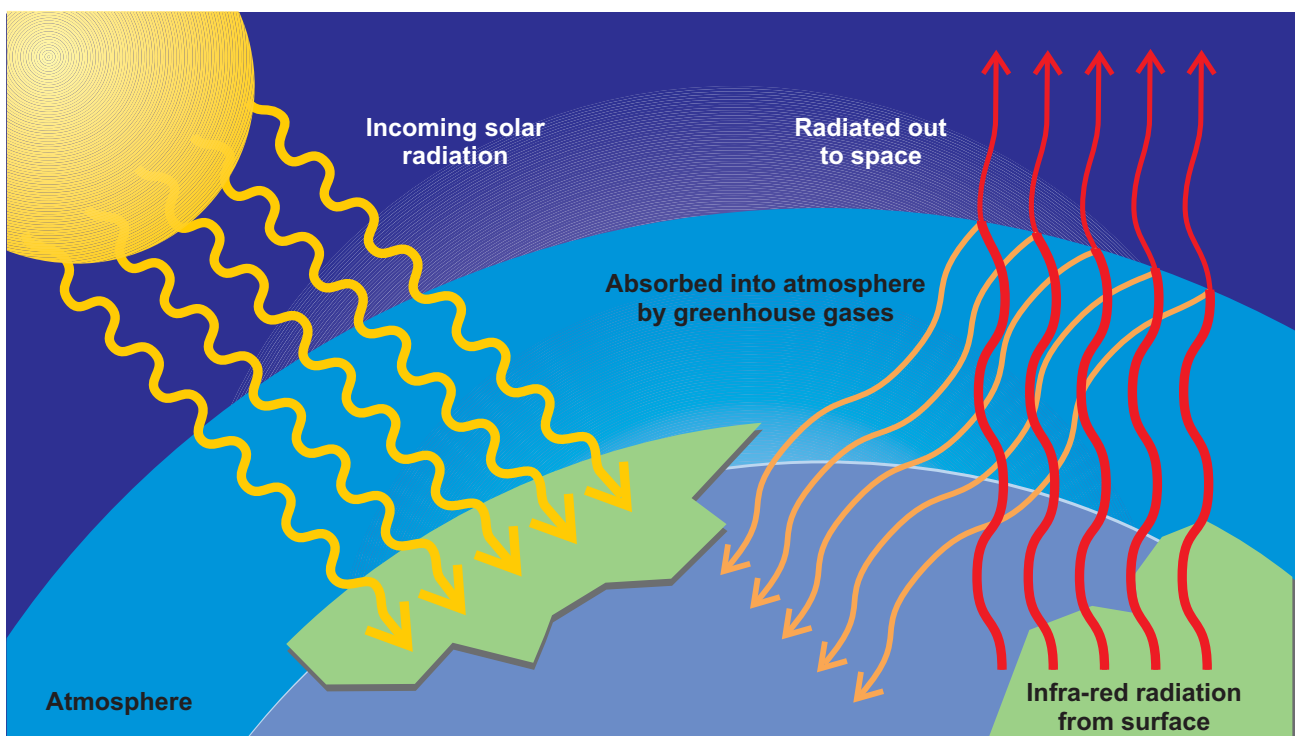
The 'greenhouse effect' is a natural process in which gases that make up the atmosphere help to regulate the Earth's climate by trapping some solar radiation that would otherwise be radiated back out into space. The process is very similar to the effect of a glassed-in greenhouse, which traps heat to help plants to grow. Without this effect, the Earth's temperature would be some 30 degrees centigrade cooler than the current average of 15 degrees.

Atmospheric concentration of carbon dioxide, the major 'greenhouse gas', and the Earth's temperature are known to have varied throughout geological history. The decay of plants and animal material is one of the natural processes which releases carbon dioxide to the atmosphere, while photosynthesis by plants removes it.

The burning of fossil fuels, including coal, oil and natural gas, releases additional greenhouse gases into the atmosphere. This has resulted in a build up of atmospheric concentrations of these gases, in particular carbon dioxide and methane. Many scientists believe that this unnatural build-up is enhancing the natural greenhouse effect, causing global warming and changes to the Earth's climate.

The use of low-cost coal for electricity generation has brought with it many economic and social benefits. It has underpinned economic development since the industrial revolution of the 19th century and is now bringing social progress and raised living standards to developing countries where nearly two billion people still have no access to electricity.

The challenge is to maintain the many benefits society derives from access to low cost coal-based electricity, while at the same time reducing or eliminating greenhouse gas emissions. As the result of a major global research and development effort over the past decade, new and emerging clean coal technologies are promising to revolutionise the way coal is used and are significantly reducing greenhouse gas emissions.



The Greenhouse Effect - without this natural phenomenon the surface temperature of the earth would be some 30 degrees cooler and life would be impossible. The Greenhouse effect is caused by gases in the atmosphere trapping solar heat radiated by the Earth. Courtesy of Australian Coal Association