

# Fact Sheet No. 5

## TRADITIONAL NON-RENEWABLE PRODUCTION METHODS

Energy is obtained in two ways: from non-renewable sources and from renewable sources. This Fact Sheet is about non-renewable energy sources found under the earth's surface.

These are the 'fossil fuels': coal, oil and natural gas.

Millions of years ago some of the energy from the sun was taken up by forest trees, plants and animals as they grew. These died and decayed, and as they were buried under layers of soil and rock, the energy, as carbon, became locked up with them. Sometimes the earth containing this material was subjected to great heat and pressure. These forces broke down the biomass into coal, oil or gas.

### Coal

Coal is mined from the earth in a number of ways. It can be mined underground by cutting shafts or tunnels down into the seam of coal. Trolleys or a conveyor belt are used to bring the coal to the surface. Today much coal is obtained by the

open-cut method, if the overburden is not too deep. The overburden of soil and rock is completely removed, and the coal is cut out in tiers that slope inwards. Huge trucks drive up and down these tiers to take out the coal. A more recent approach is strip mining. This involves cutting a narrow strip and when all the coal is removed from it, a parallel strip is cut and the overburden is used to fill the previous strip. In this way, the mined area can be gradually rehabilitated with soil and plants.

The coal is usually crushed and sent in train wagons to the place where it will be used. Its destination depends on the type of coal it is. Thermal coal goes to power stations to produce electricity. Coking coal goes to factories to provide heat for industry and to make metal such as iron and steel.

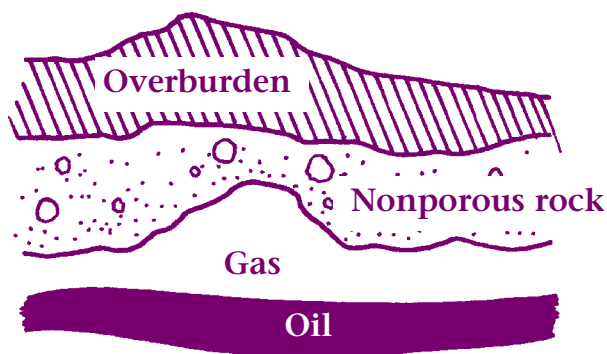
### Oil

Oil and gas are obtained by drilling into the earth's surface, either on land or under the sea bed. Where oil is found under the sea, huge drilling rigs are built where drillers can live and work to extract this resource.

Oil is transported around the world in huge tankers. Occasionally, there are accidents, resulting in oil spillage into the sea. The consequences for coastal environments and bird and animal life are severe, and the clean-up is very costly.

Natural gas is also shipped by tanker, but in a liquefied form, after it has been chilled to -161 degrees Celsius. Both oil and gas are also transported across land by pipeline. They have a lot of uses such as fuel for transport, heating, and making electricity, as well as making chemicals such as plastics and fertilizers.

All these traditional methods of production have social and environmental impacts. Most mining companies are now aware of their responsibilities in negotiating with local indigenous peoples when they are exploring; to rehabilitate the land when they leave; and to promote safe use of their products to minimise air pollution.



### Underground shaft

