



# Supporters of Nuclear Energy

## THE CASE FOR NUCLEAR POWER

- 1 – Nuclear power is safe:** Not a single death reported from a nuclear accident in the UK in more than 50 years' operation. The safety system worked at Three Mile Island in the USA and the community was not affected. The Chernobyl disaster caused the deaths of some 56 people but its reactor had already been widely criticised in the West where it could not have been licensed. New designs of reactor are safer than ever before.
- 2 – Nuclear is reliable:** Britain has been partly running on nuclear power for 54 years. Over that time it has generated up to one third of the nation's electricity. It now generates roughly from 12.5-15%. Nuclear is admirably suited to producing baseload power – namely, basic continuous demand. It is the largest source of electrical power in Europe.
- 3 – Nuclear is clean:** On the government's own figures nuclear power is the cleanest of all ways of generating electricity, taking everything from mining uranium to decommissioning and waste management into account. It emits half the CO<sub>2</sub> from wind power, 100 times less than gas and 200 times less than coal. It is just what the doctor ordered to combat global warming.
- 4 – Nuclear is economic:** In a whole range of studies across the world nuclear is generally the cheapest method of generating electricity, again taking its costs into account from mining uranium to decommissioning and waste management. Nuclear reflects these costs in its current price with an allowance of some four per cent.

In November 2008 Mike O'Brien, UK Energy Minister, gave the following levelised generation costs in £/MWh – nuclear 38; coal 51; gas 52; onshore wind 72; offshore wind 92.

Even in the now vanished era of low gas prices the Royal Academy of Engineering found nuclear only one tenth of a penny dearer than gas - 2.3p/kWh compared with gas 2.2p/kWh, onshore wind 3p/kWh (but 5.4p/kWh with necessary back up for when the wind doesn't blow) and offshore wind 5.5p/kwh (7.2p/kWh with back up). Consumers can end up paying up to five times more for offshore wind than nuclear power.

For 2010 the OECD finds nuclear cheaper than coal or gas on a 5 or 10% discount rate in Finland, France, Germany, Switzerland, Netherlands, Czech Republic, Slovakia, Romania and Canada. Updating a 2004 study to 2007 the World Nuclear Association found nuclear in the UK cheaper than coal, gas and wind by a good margin 4.6cents/kwh to 5.2 coal, 5.9 gas, 7.4 on shore wind and 11cents/kWh offshore wind.

- 5 – **Nuclear has other advantages:** Nuclear is vastly more economical in its use of land than, for example, wind; existing nuclear sites where new nuclear stations are to be built are linked to the National Grid; and the nuclear industry enriches remote communities economically and culturally. It also puts Britain on the leading edge of high technology.
- 6 – **Nuclear has no problems with its waste:** Britain’s nuclear industry has been managing its waste ever since it started commercial power supply operations in the 1950s. Low level wastes are disposed of at a dump in West Cumbria. Higher level wastes are stored to allow them to cool and lose some of their radioactivity over a period of 50 years. It is now desirable to dispose of the earliest high level wastes and Government policy is to put them in a deep repository. New generation nuclear power stations will produce only about 10% of the wastes from current (old fashioned) UK reactors. Currently, nuclear power produces only 0.1% (one tenth of one percent) of all the UK’s hazardous waste production.
- 7 – **Nuclear has no problems with its fuel:** Uranium is about as prevalent as tin in the Earth’s crust and there are plentiful supplies. What is more, by reprocessing “spent fuel” from reactors, about 96% of the uranium and the small amount of plutonium produced can be recycled in reactors. Reprocessing makes available a vast store of cheap power, reduces the amount of waste going for eventual disposal and enables plutonium to be burned up in reactors, thereby minimising proliferation risks. Longer term fast reactors which have been proven and are now being developed can get 60 times the energy out of the same quantity of fuel as existing reactors.
- 8 – **Nuclear has a major fuel price advantage:** While nuclear power stations are more costly to build, they are cheap to run. This is because, unlike coal and gas, nuclear’s fuel costs represent only at most 20% of total costs. Its competitiveness is thus protected from fuel price escalations.
- 9 – **So where is nuclear’s competition?** – It hasn’t any, especially when the cost of carbon is taken into account. And that means it is likely to become increasingly competitive. That is partly why countries across the world, and especially in Asia, are either building new plants on top of the 430 or so nuclear power stations already in operation, proposing to do so or preparing to include nuclear in their energy policies. Renewables – wind, waves, tides, solar, biomass etc – suffer from several major flaws: they are either dilute sources of energy or intermittent or unpredictable, or all three. Eliminating energy waste and increasing the efficiency of its use is important and theoretically has much potential but it is very hard to realise because it requires changes in human behaviour. It has yet to be proved that carbon capture and sequestration (CCS) of CO<sub>2</sub> from gas- and coal-fired power stations can be scaled up but, even if it can, it could double the price of electricity produced by CCS stations.
- 10 – **Nuclear is the poor man’s friend?** Yes, as the cheapest source of electrical power, it can help to hold down prices while at the same time combating global warming. At a time of increasing concern about fuel poverty, nuclear is a must.