

Written in September 2002

Andrew Oswald, Professor of Economics, Warwick University  
[www.oswald.co.uk](http://www.oswald.co.uk)

## **Why Iraq Reminds Us we Need Nuclear Energy**

Iraq is the second most important country in the world. Yes, second.

Why do I say that? The reason is simple: we must always remember black gold, crude oil, and where it lies concealed. Iraq, at 110 billion barrels, has the second biggest petroleum reserves anywhere on the planet. Only Saudi Arabia, at 260 billion barrels, has more.

Oil is the great lubricant of the world economy. Indeed it is the central power source of western civilization itself. Almost everything that moves needs oil: ships, planes, trains, cars. Above all, petroleum is essential to any nation's warlike abilities. With no oil, your fighting machines are just so much immobile metal.

It is not true that Mr Bush thinks Iraq should be invaded so that the US can control its buried black gold. The Saudis would not stand for it. Nevertheless, as we have seen on many occasions in modern history, where there is trouble in the Middle East there is almost always oil, lurking somewhere, below the surface of the ostensible problem. Saddam Hussein's regime depends for its wealth on petrodollars. If he is buying the ability to make bombs and other frightening weapons, we can be sure it is oil that feeds the bank accounts.

Yet every day that goes by, western nations like the US run down their oil reserves a little more. America now imports two thirds of its petroleum. This means that American strength is slowly ebbing away relative to major Middle Eastern nations with big reserves. Probably most of those who live in Minnesota or California are unaware of that fact; but it is still a fact, for all that.

Oil will rule the world throughout our lifetimes. The bad news is that burning it is slowly destroying our children's climate. If you fill a Jumbo jet with people, and fly from the UK to California, you attain a fuel efficiency of 40

mpg per person. So it is about as costly to the climate as everyone on board driving there, alone, in cars. Yet such Jumbos take off in droves.

When burnt, fossil fuels release carbon dioxide which leads to climate change. The only way to stop carbon dioxide's release is to stop burning fossil fuels. What is needed, for the good of our planet as well as our international security, is a fuel that does not produce carbon dioxide.

The only alternatives are nuclear energy and renewable energy.

Renewable energy can be found and harnessed in wind wave, tides, solar or plant life. Any of these can be harvested and managed to provide mankind with useful energy. However, unlike fossil fuel it is not densely packed but spread over large areas, and requires big structures and space to carry out the harvesting. For instance, one fossil fuel power station covering 5 acres of land would have to be replaced by 1500 wind turbines covering hundreds of acres.

These renewable energy sources should be developed but they can not deliver the bulk supply that our citizens demand.

Hence the only plausible future is nuclear. Within the UK we could build 200 nuclear power stations and enough energy would be then available to require almost no other fuel.

With this we can, believe it or not, move to nuclear-powered electric aeroplanes, buses, cars, trucks heating and lighting. The method to do this is the hydrogen economy.

With a plentiful supply of electrical energy, we can, following the engineering textbooks, use energy to break down water molecules into oxygen and hydrogen. The released hydrogen can be collected and stored either as a very cold liquid or trapped in special storage vessels.

Aeroplane and car engines can in principle remain virtually the same, but would burn hydrogen. This burning combines the hydrogen with oxygen to produce water, a harmless and plentiful molecule. There would be no damaging carbon dioxide emissions.

For road transport, hydrogen can be held at petrol stations for refuelling a new breed of cars. Hydrogen could be used either in modified petrol engines or in fuel cells. Automotive engineers are already working on such things.

Two main challenges have to be faced and resolved. One is cost and the other is safety.

The safety challenges are partly true and partly fiction. The nuclear industry got a bad name from the dreadful Chernobyl accident and hydrogen got a bad name when the hydrogen filled airship 'The Hindenberg' accidentally burst into flames and crashed in the early 20th century. Hydrogen can obviously burn in accidents but so can natural gas, and experts have argued that in proper use it can be safer than other gas fuels. Meanwhile, contrary to widespread belief, the safety of nuclear reactors has been good in this country. The industry in 50 years has had no fatalities, unlike the fossil fuel industry. Of course there are risks. But we have all seen that an oil-driven planet is risky too.

The hydrogen economy will be expensive, probably about three times as expensive as current fuel, but it will be worth it for the future peace, safety and health of people of this world.

Western society has to act. It must move away from oil. It must develop the nuclear and hydrogen alternatives. And it must start this today.

The only good thing about Saddam Hussein is that he reminds us how dangerous it is to rely on black gold.