

Nuclear power will bring the energy revolution to UAE

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It is quite a sight, driving down a single-track road cutting between arable fields in the Suffolk countryside, when the shining futuristic dome of Sizewell B nuclear power station jumps out in front of you.

Inside the plant, a deafening whirring noise of steam turbines contrasts with the silence of the power-generation process itself, which involves dipping uranium fuel rods into water, unleashing a phenomenal chain reaction.

When you think about it, the energy industry really has developed remarkably little since prehistoric man burned wood, coal or tar that oozed from the earth's surface.

Oil companies often enjoy demonstrating how much high technology is involved in tapping extra barrels out of the ground using 3D reservoir imaging and deep-sea drilling. Car companies wow us with fuel injection and other technologies.

But the basic science of the energy has not changed: it is about burning oil.

Some alternatives to fossil fuels are equally stone-age. Wind turbines are, after all, just a modification of the age-old windmill. Some of the other alternatives are even less appealing to the technologist.

Biomass is a fancy term for burning waste, while biogas involves tapping vast waste dumps for methane gas generated by decomposing organic matter.

Solar power involves a bit more technology, but still works only half the day and suffers from depressingly low efficiency levels.

These options are all very well for the isolated small energy user, and are undoubtedly part of a global energy transformation which will involve decentralising some power generation and most importantly reducing consumption.

They are all good and necessary steps to reduce our footprint on the world, carbon or otherwise.

But these alternatives cannot replace the power now generated by coal, oil and gas-fired plants for heavily populated areas and heavy industry.

Only nuclear power can do this.

In a nuclear reactor, the energy produced by splitting the atom is so great that much of the process is actually concerned with moderating the pace of the reaction to stop it running out of control.

And nukes are amazingly efficient.

One tonne of natural uranium is capable of generating the same amount of power – 36 million kilowatt hours – as 20,000 tonnes of black coal.

Put another way, one uranium oxide tablet the size of an aspirin can generate the same power as 700 kilos of coal.

In the 1970s, nuclear power was hailed by western governments as a welcome alternative to oil, which became associated with insecurity of supply after the Arab oil embargo.

But in the public's mind, nuclear power was inherently associated with the weapons that killed so many thousands in Hiroshima and Nagasaki in 1945, and then fuelled a terrifying nuclear arms race.

Two accidents at nuclear power plants in the US and eastern Europe – Three Mile Island and Chernobyl – stopped the energy revolution in its tracks, leading to a near moratorium on new nuclear plants for three decades.

But today, even these regions are reconsidering their aversion to the power of the atom, as the threat of a nuclear arms race has subsided and the popular fear of anything nuclear has been relegated in the public mind by the damage done by global warming.

Nuclear's reputation for safety has also been bolstered by decades of successful operation of plants built in Europe and the US before the moratorium, not to mention newly built plants in nations that could not afford the luxury of ignoring this technology such as Japan and South Korea.

Now, opposition is based mostly around the issue of how to deal with the waste, and cost.

Public opinion in the US is still equivocal about nuclear power, with recent polls indicating an even match between those in favour and those against. Meanwhile, the high risk of litigation against anyone who dares propose a new nuclear plant is one reason why the costs have skyrocketed, scaring away many private-sector investors.

In the Emirates, the nuclear industry has an opportunity for a new beginning.

If the Government decides to go ahead with its civilian atomic energy programme, it will be the first in the world, apart from the Nordic countries, to do so without an associated weapons programme.

According to early soundings of public opinion in the Emirates, I hear that two thirds of people in the UAE are in favour of the proposed nuclear plan.

If, as promised, it sets a new “gold standard” for safety, transparency and non-proliferation, it has the potential to fulfil the promise of this technology which so far represents mankind’s greatest leap forward in the energy realm.