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Editorial

Groundhog day

NUCLEAR reactors don't emit carbon dioxide, the main greenhouse gas. That means they should qualify for subsidies under an international scheme for combating global warming.

So says the nuclear industry—and at first glance it seems to have a clear-cut case. The Clean Development Mechanism (CDM), which is due to be finalised this year, will let industrialised countries relax their targets for reducing carbon emissions by paying for „clean“ technologies in developing countries. The capital cost of those technologies will be subsidised by up to 40 per cent.

Nuclear companies in the US, Britain and France want to sell reactors, while China, India and South Korea are interested in buying. But the deals hinge on whether other governments agree to include nuclear power in the CDM.

Britain's Deputy Prime Minister, John Prescott, says denying developing countries the nuclear option would be neo-colonialist. In fact the reverse is true (see p 14). Most industrialised countries have lost faith in nuclear power, so why are they offering it to others?

The US, Britain and France began civil nuclear programmes with subsidies from the military. This has warped the economics of the sector, and left the countries struggling with nuclear waste and a plutonium glut. We mustn't send developing nations down this path.

Power struggle

FOCUS What are the odds that global warming will throw the nuclear industry a lifeline?

THE huge arch of brightly coloured balloons strung over Bonn at last November's international conference on climate change was not the work of the usual activists from Greenpeace. The demonstrators in the former German capital were smart young lobbyists from the nuclear industry.

The youth section of the European Nuclear Society, keen to highlight the fact that nuclear power stations do not emit the greenhouse gas carbon dioxide, has taken a leaf out of the environmental campaigners' handbook. But their photo opportunity may also signal the start of nuclear power's last stand.

The consensus that human production of CO₂ and other gases is altering the Earth's climate has thrown the embattled nuclear industry a lifeline. This November, countries attending the next meeting of the UN Framework Convention on Climate Change at The Hague in the Netherlands, will take a decision that may either guarantee the industry a future or consign it to a lingering death:

The decision is whether or not nuclear power should be listed as one of the technologies under the Clean Development Mechanism. This scheme,

dreamed up at the Kyoto climate summit in Japan in 1997, allows industrialised countries to offset their targets for reducing carbon emissions by paying for non-polluting technologies in developing countries. Agreement on the CDM this year is a vital stage in the international plan to bring carbon reduction targets into force by 2002.

If nuclear power is included in the CDM, the capital cost of new stations in developing countries will be subsidised by up to 40 per cent. The nuclear industry hopes that this could transform the prospects for nuclear power. Since the accident at Chernobyl in 1986, a combination of escalating costs, fears about safety and radioactive waste has led to a dramatic drop in orders for new nuclear stations. None is planned for North America or Western Europe, and 1999 saw the start of construction work on only seven reactors: three in China, two in Japan and two in South Korea.

The CDM is the new battleground between pro and anti-nuclear factions. The nuclear industry says if the power generated by the world's 436 nuclear plants were replaced by fossil fuels, CO₂ emissions would rise by 1.8 billion tonnes a year.

Foratom, which represents the European industry, argues that nuclear power should be included in the CDM because it produces „climate-friendly electricity“.

Greenpeace disagrees, of course. „It would risk a new dawn for this polluting and dangerous industry,“ says Ben Pearson, the group's international nuclear campaigner. He claims it would also „undermine efforts to combat climate change“ by elbowing out the development of renewable energy technologies.

In the run-up to the conference in The Hague—most recently at a ministerial meeting in New York on 28 April—countries have started to take sides. China, India, Canada, France, Britain and the US are in favour of including nuclear power. Those that want it kept out are Germany, Austria, Sweden, Denmark, Saudi Arabia and Indonesia. The European Union is split. Who will win is anyone's guess.

There's no denying that burning uranium in nuclear stations produces substantially less CO₂ than burning coal, oil or gas. „It would be mad to say that nuclear power is not a way of reducing carbon emissions,“ says Gordon MacKerron, a senior fellow in science and technology policy research at the University of Sussex. In the past MacKerron has acted as a consultant for anti-nuclear groups such as Greenpeace and Friends of the Earth, but he argues that nuclear power should be included in the CDM.

Most environmentalists admit that nuclear power meets one of the two criteria for the CDM defined in the 1997 Kyoto Protocol: it could help industrialised nations to achieve an average reduction of 5 per cent in carbon emissions by 2010. But they argue strongly that it fails to fulfil the mechanism's second declared aim, which is to help developing countries achieve sustainable development.

This concern is reflected in a report for the European Union by the London-based consultancy Environmental Resources Management, published in March. It points out that simply maintaining nuclear power's 23 per cent share of the EU's electricity generating capacity would mean building 80 new nuclear stations by 2025 to replace ageing reactors. Getting the public to accept a sudden expansion in the number of nuclear plants could be a public relations headache. The report predicts that they would create 1500 tonnes of

radioactive spent fuel a year, including 20 tonnes of plutonium. Yet building fossil-fuel plants instead would emit an extra 250 million tonnes of CO₂ a year into the atmosphere (see Graphic). Hence the dilemma.

The downside of this dilemma concerns John Hassard, a physicist from Imperial College, London. „It means you have to endorse unbridled nuclear expansion in India and China,“ he says. „And if you sign up to a nuclear future, you are also signing up to a world in which you need to breed plutonium. That’s my biggest worry.“ Plutonium, as well as being highly toxic, is the raw material of nuclear weapons.

Hassard was a member of a working group on nuclear power and climate change assembled by Britain’s Royal Society and Royal Academy of Engineering, which concluded last year that the nuclear option should be kept open. Although Hassard endorses the working group’s conclusion he thinks that nuclear power should not be included in the CDM „if it holds up more cost-effective ways of solving the carbon problem“. He believes it would be better to reduce carbon emissions through increased energy efficiency and energy conservation, combined with the use of renewable energy sources such as water, wind and solar power. Renewables are fast becoming economic, while current designs for nuclear plants are hampered by long lead times, high capital costs and unsolved waste problems, says Hassard.

This inflexibility is why Britain’s Department of Trade and Industry which is normally pro-nuclear, has previously rejected nuclear power as a method of cutting carbon emissions. An internal DTI report from 1995 concluded that a new nuclear programme „is far from being a cost-effective response“ to climate change.

But British ministers now argue that excluding nuclear power from the CDM is diplomatically fraught. „A decision to exclude nuclear may antagonise key developing countries such as India and China,“ says Michael Meacher, the environment minister. He suggests drawing up a list of „prompt start“ technologies that give renewable energy priority, yet still supports the right of developing countries to use nuclear power: „They may wonder why it is acceptable for certain developed countries to use nuclear energy to mitigate climate change, while they cannot.“

This argument is turned on its head by Agus Sari, who was in Bonn as an official Indonesian delegate. „I think it is simple colonialism to push nuclear power onto developing countries, leaving them with all the burdens that come with it,“ he says. Sari, who works at the Pelangi research institute in Jakarta, accuses Britain and other industrialised nations of trying to foist a technology onto developing countries that they cannot sell to their own voters. „If you compare nuclear with solar at today’s prices, I cannot see nuclear power being competitive,“ he claims. „It is just not the right choice to make.“

In the end a fudge may allow countries that are keen on nuclear power to use it to combat climate change. But even MacKerron doesn’t think this will be the lifeline the nuclear industry is hoping for. „As long as the playing field is level on subsidies,“ he says, „it will still be the case for most of the countries most of the time that nuclear power will not be the best way of reducing carbon emissions.“

Rob Edwards