US takes up the issues . . .

The nuclear exporters meet again soon. **Colin Norman** reports on the debate now taking place in the United States

NEXT month, representatives of present and potential nuclear exporting countries are scheduled to meet in London for a second round of secret talks aimed at curbing the proliferation of nuclear weapons. With international trade in nuclear goods now estimated to be well in excess of $1,000 million a year and growing rapidly, and with several particularly risky transactions in the works, the talks are considered by many to be critical for the future stability of the world.

They will take place against a background of growing demands in the United States for extraordinary measures to prevent potentially dangerous nuclear transactions from taking place. Though some of the strongest demands are coming from Capitol Hill, the issue of nuclear proliferation has even been raised in the Presidential election campaign, and some Administration officials are also taking an increasingly hard line in urging the adoption of strict international safeguards to prevent the diversion of peaceful nuclear technology to weapons production.

Two recent developments are, however, likely to be particularly influential in next month's talks. On May 14, the Senate Foreign Relations Committee approved a foreign aid bill containing a little-noticed provision which would cut off all US aid to countries buying or selling uranium enrichment or nuclear reprocessing plants without adequate safeguards. And, in the same week, the Senate Government Operations Committee approved a bill calling on the President to negotiate a "binding agreement" with other nuclear exporting countries to prohibit the sale of enrichment or reprocessing technology to individual countries which do not already possess nuclear weapons. The bill also specifies that the agreement should prohibit the sale of any nuclear facility—including a power reactor—to a country which refuses to place *all* its nuclear activities under international safeguards and inspection.

Moreover, Senator Abraham Ribicoff, the chairman of the Government Operations Committee, has on several occasions called for strict sanctions against West Germany and France if those countries go ahead with plans to sell reprocessing plants to Brazil and Pakistan respectively.

Thus, with Congress breathing heavily down its neck, the Ford Administration is likely to take a tough line in next month's talks. Because some participants in the talks have insisted on strict secrecy—France is said to have threatened to pull out of the first round if the discussions were made public—Administration officials are reluctant to discuss that matter in detail. Nevertheless, it is clear that there is likely to be continuing friction between the United States on the one hand, and France and West Germany on the other.

The first round of the talks, which included representatives from the United States, the USSR, Britain, Canada, France, West Germany and Japan, ended in January with general agreement on principles for international safeguards. According to assorted reports and Administration sources, the agreement would allow nuclear technology to be sold only to those countries which promise not to use it to produce explosives, and it would provide for the adoption of common standards to guard against theft or clandestine diversion of nuclear materials.

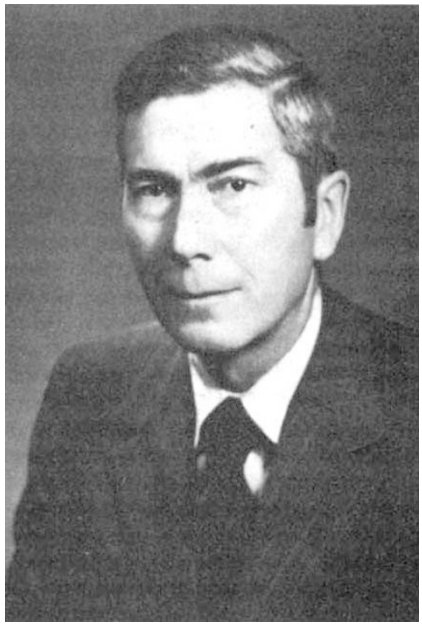
The agreement fell far short, however, of the strict controls urged by the United States. The Secretary of State, Henry Kissinger, for example, said in Congressional testimony on March 9 that the talks had simply ended in a "general understanding about restraint", and he suggested that the United States would press for "something more binding" in the next round. The Ford Administration is particularly concerned that the agreement is weak in dealing with the critical issue of the sale of uranium enrichment and fuel reprocessing plants.

Because enrichment plants are capable of producing weapons-grade uranium, and reprocessing plants separate plutonium—another potential bomb ingredient—from spent reactor fuel, they are the key links in a weapons fabrication process. By themselves, reactors present a smaller proliferation hazard since neither the uranium fuel nor the reactor wastes can be used directly to make explosives. Thus reactor sales to non-nuclear weapons countries are usually made on condition that the fuel going into and coming out of the reactor is closely monitored, and that it is not enriched or reprocessed by the purchaser.

The International Atomic Energy Agency (IAEA), the Vienna-based body established in 1957, is responsible for policing most nuclear transactions to ensure that no diversion of weapons-grade material takes place. IAEA keeps records of fuel passing through reactors under its supervision, and it also has a small corps of inspectors authorised to make spot checks at individual installations. The Nuclear Non-Proliferation Treaty (NPT), which came into force in 1970, binds all signatories to place future nuclear transactions under IAEA supervision.

A number of recent events have, however, shattered hopes that such a loose system of controls can be completely relied upon to prevent the insidious spread of nuclear weapons around the world. The most significant event by far was the detonation in 1974 of an explosive device by India. Using plutonium reprocessed from spent fuel from a Canadian-supplied reactor, India abruptly ended the nuclear hegemony of the United States, the USSR, Britain, France and China. Though Indian officials insisted that they would only use nuclear explosives for peaceful purposes, that piece of semantic juggling does not disguise the fact that India is now a nuclear power.

The other chief unsettling events were the negotiation last year of an agreement between West Germany and Brazil for the sale of an entire nuclear system, including enrichment and reprocessing facilities, followed by a deal between France and Pakistan involving the sale of a reprocessing facility. A third transaction, the sale of a French reprocessing plant to South Korea, was scotched earlier this year when South Korea pulled out under heavy pressure from the United States. (In a press briefing in Washington last



Dr Fred Iklé, Director of the US Arms Control and Disarmament Agency

week, however, the French President, Valery Giscard D'Estaing, said that he had personally vetoed the sale.) West Germany, in addition, is widely believed to be negotiating to supply reactors, and possibly a reprocessing plant, to Iran.

Those deals mark a significant qualitative shift in international nuclear trade, since they would transfer directly the means for producing weapons-grade materials. What makes them particularly worrying is the fact that none of the recipients, except for Iran, is a party to the NPT. They have all been bitterly opposed by the United States, and US officials from Dr Kissinger down tried in vain to dissuade France and Germany from going through with them.

Aside from sales of enrichment and reprocessing technology, there has also been considerable doubt expressed recently about the adequacy of present safeguards on reactor sales. For one thing, many reactors have already been sold without IAEA safeguards—the Canadian sale to India provides a particularly vivid example, and similarly the sale by France of a small research reactor to Israel in the early 1960s is widely believed to have provided Israel with the means to produce weapons. According to a recent CIA analysis, Israel has taken up that option and now possesses between 12 and 20 plutonium bombs.

And the IAEA safeguards themselves do not provide an insurmountable barrier against diversion of fissile material. In a speech on May 13, Dr Fred Iklé, Director of the Arms Control and Disarmament Agency (ACDA) and one of the more outspoken Administration officials on nuclear proliferation, warned that the IAEA is understaffed, relies chiefly on information supplied by the country under safeguards, has no power to impose sanctions against violators and cannot investigate unsafeguarded plants. IAEA safeguards, Iklé said, provide "a burglar alarm, but not a lock", and it is a "fallacy" to believe that we don't have to worry about facilities under IAEA safeguards.

The United States itself, moreover, is not entirely blameless. In 1974, then President Nixon promised to sell nuclear reactors to Israel and Egypt, two antagonists who have not ratified the NPT. (Negotiations concerning those reactors are not yet complete.) And last week it became known that the General Electric Corporation has applied for a licence to sell two 1,000 MW reactors to South Africa, together with 1.4 million pounds of slightly enriched fuel. According to Administration sources, that deal is likely to be officially approved, even though South Africa has not signed the NPT and is believed to be interested in joining the nuclear weapons club.

That is the background against which the talks between the nuclear exporting nations will resume next month. Aside from the seven original participants, they are expected to include representatives from the Netherlands, Sweden, Belgium, East Germany, Italy and Poland. The critical issue is again expected to be the sale of enrichment and reprocessing technology, with the United States arguing against deals which would place such plants in the hands of individual purchasers, whether or not they are placed under IAEA safeguards.

The chief American argument is simply that reprocessing is not necessary at this time, and there is no economic need to sell either enrichment or reprocessing plants. Dr Iklé, for example, noted in his May 13 speech that separating plutonium from spent fuel and recycling it "could replace at most about one third of the fuel required, and far less in a rapidly growing nuclear power system. Hence, recycling would not bring independence from imported fuel". He added: "Before we plunge into a plutonium fuel economy, let us look very closely at the risks and our ability to control them . . . spreading plutonium should be avoided if possible, and with the current generation of reactors it can be avoided at no economic cost".

If it proves impossible to curb the desire for reprocessing plants, the Administration will probably continue to urge that instead of selling such plants to individual countries, nuclear exporters should consider placing such technology under multinational control. Ikle noted that the United States is now studying the feasibility of "multinational fuel centres for storage of fuel, waste management, and other services when needed".

The United States' arguments are, however, likely to fall foul of the desire,

Passage to India?

THE Nuclear Regulatory Commission (NRC) announced last week that it will hold public hearings to decide whether or not the United States should supply slightly enriched uranium to India, for the Tarapur Atomic Reactor located near Bombay. The hearings, the first ever to be held on a nuclear export licence application, graphically underline the fact that because the United States is the world's major supplier of reactor fuel, it is in a strong position to force many countries to accept strong safeguards against the diversion of peaceful nuclear technology to weapons production.

The hearings, set for June 2, will be held in response to a petition from the Natural Resources Defense Council, the Sierra Club and the Union of Concerned Scientists. The United States has supplied India with fuel for that reactor in the past, but the petitioners are essentially suggesting that NRC should use the application to supply another 40,000 pounds of uranium as a way to force India to accept extra safeguards.

The Tarapur reactor and its fuel supplies are all under the supervision of the International Atomic Energy Agency (IAEA), and those facilities were not the source of plutonium for India's nuclear explosives.

But the petitioners have pointed out that India hasn't signed the non-proliferation treaty, that a clash between India and one of its neighbours might disrupt present safeguards at the plant, that the United States has not required India to place all its other nuclear facilities under international safeguards, and that the United States has not required India to accept bilateral safeguards in addition to the IAEA controls. The implication is that the United States should threaten to shut off fuel supplies to India unless it accepts those additional safeguards. The concept could clearly be applied to other countries.

At present, only the United States and the Soviet Union export enriched uranium fuel, and their dominance of the fuel export market is expected to last at least until the mid-1980s. Some observers have therefore raised the possibility of a joint US–USSR agreement that future fuel supplies should carry strict safeguards agreements, in addition to IAEA controls. Senator Abraham Ribicoff, for example, has even suggested that the United States should refuse to supply nuclear fuel to West Germany and France if those countries persist in selling enrichment or reprocessing plants. But Henry Kissinger has forcefully ruled out such "blackmail", suggesting that a pact with the Soviet Union against America's NATO allies would have "the gravest foreign policy consequences".

As for the proposed fuel shipment to India, the NRC has announced that it will decide whether to issue the licence before the end of June, and it has suggested that it might even act on the matter before the conclusion of the hearings "if it finds a need for greater expedition". The hearings would, however, carry on with an examination of the broad policy issues involved in United States' fuel exports.

particularly on the part of France and West Germany, to earn maximum export dollars from nuclear trade, and of deep European suspicions of American motives. According to some observers, there is concern in Europe that American attempts to prevent the German–Brazil deal, in particular, were chiefly designed to protect the United States' commercial interests there.

Such suspicions were given a blast of fertiliser last year by an incident which occurred just as the United States was applying pressure on West Germany not to conclude its fuel technology agreement with Brazil. According to published accounts, a representative of the Bechtel Power Corporation, a major US nuclear manufacturer, met in March last year with Brazilian officials to discuss the possibility of building fuel facilities there, leaving the impression that the US government would sanction such a deal. Though the incident was probably simply a product of poor communications between industry and government in the United States, it clearly left a sour impression in Europe. Moreover, it should be noted that while Dr Iklé has been arguing that there is no economic incentive for recycling plutonium at present, the US nuclear industry has been urging the government to allow plutonium recycling in the United States.

If the provision in the foreign aid bill survives the rest of the Congressional mill intact, however, it would greatly stiffen the administration's policies in trying to dissuade the sale of enrichment and reprocessing technology. Proposed by Senator Stuart Symington, it would cut off nearly all US aid to the buyers and sellers of such technology, unless they have agreed to "place all such equipment, materials, and technology, upon delivery, under multilateral auspices and management when available", and unless the recipient agrees to place all its nuclear facilities under IAEA safeguards. The latter provision is intended to prevent the recipient from either duplicating the reprocessing or enrichment technology, or separating plutonium from an unsafeguarded reactor in the transferred reprocessing plant. The amendment is not, however, included in the House version of the bill, and its prospects are uncertain.

As for safeguards on the sale of power reactors, the Administration's policy is that controls should be applied uniformly among the supplying countries rather than imposed unilaterally, the argument being that if the United States insists on excessively strict safeguards on its own sales, potential purchasers will simply look elsewhere. Key issues in next month's talks are likely to include ways to bring presently unsafeguarded reactors and facilities into the IAEA safeguards system, methods to ensure that promises not to use imported nuclear technology for weapons production are made binding, and strengthening of the IAEA safeguards and inspection system.

Aside from the suppliers' conference, Mr Jimmy Carter, the leading candidate to be the Democratic Party's Presidential nominee, has called for a UN-sponsored World Energy Conference to discuss worldwide energy problems and alternatives to nuclear power. Calling nuclear proliferation a "fearsome prospect", Carter also urged a ban on sales of reprocessing and enrichment technology, and he called for a pact among purchasers of nuclear technology to buy only from suppliers who require proper safeguards. "The hour is too late for business as usual", he said. So far, nobody else has talked about those issues in the campaign.

The outcome of the exporters' conference is clearly going to be of immense importance. As Denis Hayes, a researcher with the Worldwatch Institute noted in a recent study on nuclear power, if a few more nations acquire nuclear weapons, there will come a point at which the "dam will break and the world will go nuclear". And, in Congressional testimony earlier this year, David Lilienthal, the first chairman of the US Atomic Energy Commission called for an immediate, unilateral halt to all US nuclear exports because of the dangers of proliferation. "I'm glad I'm not a young man", he said, and "I'm sorry for my grandchildren". □

. . . Canada makes up its mind

Canada announced last week that further nuclear cooperation with India was impossible. **David Spurgeon** in Ottawa gives the background

THE Canadian government is just emerging from some serious soul-searching about the moral, political and economic questions involved in nuclear assistance and reactor sales abroad — particularly to developing countries. In the Canadian House of Commons last week, where the subject has been under debate for some time, the External Affairs Minister, Mr Allan MacEachen, announced that the government had decided that it will not resume supplies to India of nuclear equipment and technology. The two countries have failed to agree on safeguards against the use of the materials supplied by Canada for nuclear explosions.

The decision marks another step in the development of Canadian nuclear policy. The whole subject—which an MP described in one session as "perhaps the most important ever raised on an opposition day"—originally arose in the House as a result of government negotiations to resume nuclear assistance to India. In March these negotiations were conducted with India in New Delhi by Ivan Head, foreign policy adviser to the Prime Minister, Pierre Trudeau, and Michel Dupuy, an assistant under-secretary in the external affairs department.

This had followed the suspension of assistance after India's explosion of what it called a peaceful nuclear device in May, 1974. The device used plutonium from the Canadian-design CIRUS research reactor, and the suspension had been ordered because, in the words of MacEachen, "the carrying out of that explosion was in clear violation of the understanding that had been reached between Canada and India".

The latest news probably means that the efforts to reach international understandings on nuclear exports have suffered something of a setback. But the Canadian government has meanwhile been pursuing its chosen path in negotiations with other countries. Canada hopes to obtain an agreement with Pakistan not to use plutonium from a Canadian-designed nuclear power plant, and in January concluded agreements to build 600 megawatt power reactors in Argentina and South Korea. An Atomic Energy of Canada Ltd (AECL) spokesman has said there is the prospect of building second units in Argentina and South Korea in future, and preliminary discussions have been undertaken with other countries, including Mexico. Canada is also involved in licensing negotiations with Italy and Romania. Altogether, expected exports of CANDU reactors between 1974 and 1983 have been estimated by the federal department of industry, trade and commerce to amount to $3,000 million.

The debate over the propriety of Canada's selling nuclear reactors and technology when world powers are con-