between now and October 1986, one-third of that from overseas.

The nuclear industry (represented last week by the Edison Electric Institute) objects to the proposed increases of price partly on legal grounds — the amended Atomic Energy Act would have to be amended again — and partly on the grounds that a change in the price structure for enrichment services should be part of a more general review.

The costs of enrichment are already due to increase by 18 per cent from October. The proposed "fair pricing" increase would amount to a further 15 per cent, implying an increase of the cost of electricity generated by nuclear stations of between 1 and 2 per cent. Such an increase would not be decisive, which is why the decision on fair pricing may eventually turn on the competitiveness of US enrichment. Dr Peach quoted last week the latest prices charged by Eurodif as \$127 for a unit of separative work. For the first time, US enrichment is not the world's cheapest.

UK nuclear power

Missed again

The ailing nuclear construction industry in Britain, which suffered a ten-year gap in orders in the 1970s and over-committed itself to the advanced gas-cooled reactor, may now even be denied a quick entry to American pressurized water technology. For orders for key parts of the proposed Sizewell B nuclear power station — to be the first commercial pressurized water reactor (PWR) in the United Kingdom if it survives a public inquiry — may have to be placed abroad.

The reasons are cost and time. British industry is not tooled up to produce PWR components, in contrast with other companies — notably those in France, the United States and Germany — so costs will be higher and delays longer if orders are placed in the United Kingdom. Of the principal possible UK contractors, Babcock and Wilcox has indicated that it would need a government subsidy to compete with foreign suppliers; and Northern Engineering Industries has asked that foreign competition be ruled out.

Neither now seems likely. The "reference design" and safety case for the Sizewell reactor prepared by the National Nuclear Corporation is now with the Nuclear Installations Inspectorate for first scrutiny, and it includes a major extension of safety features compared with its American model, the Westinghouse reactor under construction at Callaway, Missouri. The independent emergency core cooling systems have been multiplied, the containment vessel extended to a double-wall construction and more concrete introduced into the reactor floor area to protect workers from the relatively high radiation levels of PWRs compared with the old Magnox stations.

French hiatus

The French Prime Minister, M. Pierre Mauroy, has confirmed a "freeze" on nuclear power construction in France, and promised a "great debate" in the National Assembly which will question the role and cost of nuclear power in France relative to that of coal and other sources of energy. But the idea of a national referendum on the matter has been pushed to the back of the stage, and the new government has raised no opposition to a major nuclear commitment made by the previous administration.

For in the last few days before the newly elected socialist president took over at the Elysée, the outgoing Prime Minister, M. Raymond Barre, agreed to the doubling of the capacity of the principal French oxide fuel reprocessing plant at Cap de la Hague near Cherbourg, run by the company Cogema.

Cap de la Hague has in recent years been dogged by malfunction and minor accidents. Its existing UP2 400 plant for oxide fuel (as used in pressurized water reactors) was designed to handle 200 tonnes a year; but in five years of operation it has been able to reprocess only 250 tonnes.

M. Barre's decree, if not overturned by the Mitterrand government, will allow Cogema to spend 20,000 million francs (£2,000 million) on upgrading UP2 400 to UP2 800 (to handle 800 tonnes a year of spent oxide) and on building UP3, a completely new plant to handle an equal amount of spent fuel from overseas.

The technology of the new plant will be the same as before, but there will be parallel shearing and dissolution sections to give spare capacity if one part of the plant breaks down — small comfort perhaps for Cogema's six customers, Japan, West Germany, The Netherlands, Belgium, Switzerland and Sweden.

Some in France believe that the proposed national debate over nuclear matters could mean that the Cap de la Hague decision could be reopened, and that the decision to reprocess foreign fuel may be reexamined. **Robert Walgate**

Mr Brian George, who was recently appointed by the Central Electricity Generating Board to direct its interests in the PWR project, said on Monday that the board's approach to ordering for Sizewell might differ if it could clearly be seen to be part of a long programme of orders, for then it would be prudent to build up the UK nuclear industry. On the other hand, the first order might be the last. And Mr Reginald Flint, responsible for the reference design at the National Nuclear Corporation, confirmed that all orders for the PWR would have to be placed on a strictly commercial, competitive basis, with no preference for UK suppliers.

Robert Walgate

Yugoslavian nuclear power

Locals late reacting

The charging of Yugoslavia's first nuclear power station, at Krsko on the River Sava, has provoked a belated burst of opposition. During the construction of the reactor, a 664 MW Westinghouse unit, local feeling was muted. But when charging with uranium fuel was about to begin, the reactor became an issue in the Yugoslav press.

Krsko lies on the border between the republics of Slovenia and Croatia, which jointly built the power station. The commission in charge of reactor safety is likewise an inter-republic body, made up of scientists from the Josef Stefan Physics Institute in Ljubljana and the Rudjer Boskovic Physics Institute in Zagreb.

According to the Yugoslav news agency *Tanjug*, the commission decided in April this year that the trial operation of the station scheduled for July would have to be postponed. The commission is said to have found that measures to protect the environment, the staff and the nearby population had not been implemented, that there was no proper procedure for evacuating the staff in an emergency and no proper fire-fighting equipment. Nor had the problems of storing radioactive waste and treating the coolant water been properly dealt with.

The following day, however, *Tanjug* reported that Dr Maurice Rosen, director of the International Atomic Energy Agency's reactor safety department, had announced that there were no "technological obstacles" to the charging of the station. Nine days later, the Slovenian and Croatian authorities gave permission for charging to go ahead.

According to the Zagreb press, the Yugoslav safety committee tried to insist that certain safety work which Westinghouse and the power station management had planned for after charging, should be done first, but the recommendations were ignored. Significantly, *Vecernji list* of 2 June quotes Dr Marko Brankovic, head of the Croatian Commission for the Human Environment, as saying, "We cannot play around with nuclear reactors as if they were 'political factories'. They must be perfect in every technological respect, or else they must not start". A "political factory", in Yugoslav slang, is a factory erected for prestige reasons, without proper attention to technological details and which proves to be a waste of the usually considerable investment.

Part of the present trouble may be caused by local misunderstanding of the distinction between the charging of a reactor and its start-up. There is also considerable concern about the highly polluted state of the Sava, from Krsko down to its confluence with the Danube. Rumour (downstream in Zagreb) at-

tributes the state of the river to the construction of the power station; in fact, the chief offender is a paper-mill which also happens to be sited at Krsko.

Although naturally concerned with safety and environmental questions, the members of the safety committee remain optimistic that the power station will, in the end, be completed, though probably not by the deadline of October/November.

Meanwhile both sides of the belated nuclear debate can find comfort in the recent news that after years of prospecting, a rich uranium deposit (Yugoslavia's second) has been found near Probitip in Macedonia, while in the middle of May a federal Council for Solar Energy was established in Belgrade.

Vera Rich

London University

More trouble ahead

Some of the smaller colleges of London University may have to close and others amalgamate, but the large colleges with international reputations in many subjects should be kept largely intact. That is the gist of suggestions put forward in the second discussion document of the committee on the reorganization of London University, issued last week.

The problems facing the university have grown since the committee issued its first document last December. Now the university has to contend with an 8 per cent cut in its grant over the next three years in addition to the loss of income from the expected shortfall in overseas students.

The University Grants Committee is expected to tell each university how much money it has for 1981-82 and to allocate student quotas for 1983-84 at the beginning of July. But the London University committee urges that the implications of the expected cut in income are so severe and the timescale so short that discussion of what should be done must start now.

The document says that the university must cater for at least a 10 per cent decrease in the number of students and should reduce the number of buildings it occupies. The suggestion most likely to raise hackles is that Chelsea College, which caters mainly for science and mathematics, be drastically slimmed down or even closed. Chelsea has a good reputation in science education, nursing and the history and philosophy of science, says the committee. But it is not confident that the college's other departments are as good. The good should be sorted out from the bad by peer review, says the committee. Departments surviving the review may be sufficient to form a small college on one site — Chelsea is now widely scattered over several sites. Otherwise they should be incorporated into another college.

The sites that should be kept intact are those supporting colleges with high reputations in a wide range of subjects and, if

consistent, those with low costs. Imperial, University and King's colleges and the London School of Economics are likely to emerge largely intact. They may even gain from closer cooperation with some of the smaller colleges — for example, the committee would like to see Queen Elizabeth College, a small but successful institute of science, increase its links with Imperial College. Poor departments in Bedford and Westfield colleges should be weeded out and the two combined on the Bedford site, with the help of money acquired by the sale of Westfield's valuable Hampstead property.

Judy Redfearn

Research in Poland

Cutting red tape

The Polish production ministries have proved ineffective in coordinating research and development and their role should be phased out, according to Dr Janusz Gorski, Minister of Science, Higher Education and Technology. Writing recently in the weekly *Polityka*, he argued for decentralization and a restoration of decision-making power to the universities and academic institutions.

Academic autonomy, in research as in every other field, has been widely urged in Poland during the last few months by the Academy of Sciences, by the universities, and by the Solidarity "circles" in research and academic institutes. Indeed, Dr Gorski's article was an answer to a swingeing attack, also published in *Polityka*, by Maciej Ilowiecki, one of Poland's leading science writers. According to Ilowiecki, only the restoration of academic autonomy to the scientists could cure the long list of ills of Polish science, including an "absurd" system of financing.

Dr Gorski's article, for the first time, makes some concrete suggestions for improvements. In particular Dr Gorski criticizes the "hierarchy of problems", which has been the basis of Polish science planning since the early 1970s.

According to this scheme, all research funding, with the exception of a small basic research sector, is divided between various "problems" associated with the needs of the national economy. These are classified, in order of importance, as "governmental", "key", "interdepartmental", "departmental" and "branch" problems. Research topics are normally subdivided between a number of institutes and research teams, whose work is co-ordinated, according to the class of problem concerned, by the Academy of Sciences, and/or the relevant ministries.

Not surprisingly, this scheme has produced a mushrooming bureaucracy, and a scramble among research teams to get their own project as high up the ladder as possible. Now, however, Dr Gorski has proposed eliminating the bottom two levels, "departmental" and "branch",

Psychiatrist on trial

Dr Anatolii Koryagin, consultant psychiatrist to the Moscow "Working Group to Investigate the Use of Psychiatry for Political Purposes", went on trial in Moscow last week. Until his arrest last February, Dr Koryagin was the last member of the group still at liberty in Moscow — his fellow psychiatrist, Dr Aleksandr Voloshanovich, emigrated in February 1980 and the remaining members of the group are either in prison or labour camp.

Dr Koryagin practised psychiatry in Soviet hospitals for 17 years. Since the working group was set up in 1977, he has examined a number of patients consigned to psychiatric clinics as a result of their conflict with the Soviet State system, and found no sign of disorder.

Although the Soviet authorities have recently abandoned the confinement on psychiatric grounds of well-known dissidents, according to Dr Koryagin, the practice has become widespread for citizens of no great standing who commit some act construed as anti-Soviet. In an article which he sent to *The Lancet* shortly before his arrest, and which was published in April, Dr Koryagin analysed a number of these cases. In many of the cases he cited, the "patients" were simply confined for some weeks or months and then released without receiving any treatment — proof positive, he concludes, that the reason for containing them was isolation, not therapy.

Dr Koryagin was charged with "anti-Soviet agitation" — a far more serious offence than that of slandering the Soviet state, with which several of his fellow members of the commission were charged. In an appeal to foreign colleagues, which reached the West a few days before his trial, Dr Koryagin stated that the "transformation of psychiatry into an instrument of politics" was an attempt "drastically to distort the nature of this humane science". While praising the efforts of Western psychiatrists to combat these abuses of their profession, he urged them to be even more decisive in the future.

precisely where the role of the production ministries is greatest. In their place, he suggested a system of direct contracts between industry and research institutes, possibly based on competitive tenders.

Whether Dr Gorski's ministry will survive to implement any changes, however, is in doubt. Proposals on rationalizing government spending may lead to the ministry's responsibilities going to enlarged education and industry ministries. In any case some feel that the much-needed reforms cannot be settled while the new legislation on higher education and new statutes for the Academy of Sciences are still only in the discussion stage.

Vera Rich