

answer to the complaint. The court has now extended the deadline for an answer to Feb. 6. Justice Department attorneys stated that for the last six months they have not even considered formulating a strategy to argue the case. "We are just hoping we can postpone any action until the Executive makes a policy decision on the whole question.

The application of NEPA to its loans to finance development projects could spell death for the entire agency, just as the court-developed law surrounding NEPA in nuclear regulatory cases has killed off nuclear reactor construction.

The Council on Environmental Quality, perhaps emboldened by the appointment of former NRDC attorney Gustave Speth to its ranks, is now determined to issue regulations, possibly in the next month, which will bind all federal agencies to apply NEPA and produce environmental impact statements for any activity which might affect the environment anywhere in the world.

As a CEQ attorney noted, "We consider this as similar to the human rights issue. Why should the U.S. have a double standard about the impact of projects on the environment?" Asked if such a ruling might violate the sovereignty of other nations, the attorney pointed out that EIS would be prepared and argued in the United

States, *before* any loans were made. However, he did admit that CEQ's policy would require the Exim Bank to gather the relevant environmental impact information as part of its loan application procedure. "Of course certain agencies are going to resist this," he said. "You can't solve all these problems just by writing regulations. But we are certainly lobbying with the Justice Department for them to adopt our position."

The beleaguered Justice Department attorneys are hoping to find "a middle position." One stated, "In a recent ruling, the Nuclear Regulatory Commission straddled the sovereignty problem. They claimed that NEPA applies within U.S. territorial jurisdiction and in any areas in which another government has not claimed jurisdiction — like the high seas, Antarctica, or outer space — you know, the stratosphere and above. It wouldn't mean every day application, but something like killer satellite testing for example, would require an EIS."

*The environmentalist lawsuit discussed in this article, Natural Resources Defense Council v. Export Import Bank, will be fully reviewed in the next issue of the Executive Intelligence Review.*

## Soviet Scientist Urges Haste In Readying Fusion, Electrotechnologies

*At the recent Worldwide Electrotechnology Congress in Moscow, Academician I.A. Glebov granted an interview to Pravda on the future of electrotechnology. His remarks are important for two reasons. First, he demonstrates an understanding on the part of at least some leading circles in the Soviet Union that the energy needs of the next decades must be planned for now, while there is still lead time to develop the new technologies. He outlines a timetable of when to expect new processes such as magnetohydrodynamics (MHD) electrical generation, and nuclear fusion reactors to come into commercial operation.*

*His remarks are also important for the very reason that Pravda saw fit to publish them. They indicate a factional battle within the Soviet government on the question of scientific development. Such disagreement could be due to the weak start that the Tenth Five-Year Plan made, which could be causing some profound rethinking among top Soviet officials.*

*The kind of technological developments that Glebov envisions over the next decades are in the very areas that are now being starved for basic research funding by the antiscience policies of the Carter Administration. At the present rate of investigation in thermonuclear fusion, MHD, superconducting cables, and other crucial advanced technologies, indications are that the Soviets will soon leave the United States far behind. The article should be read as a signal to the West: the Soviets want to develop these technologies and will, but could do it a lot faster, and better, if the job is done in cooperation with the U.S.*

It is well known that the decrease in cost and increase in efficiency of thermal, atomic, and hydroelectric installations is in proportion to the increase in the size of the electrical power generation units. Using promising materials and existing technologies, it is possible to build turbogenerators rated at 2,500 to 3,000 megawatts. One of these would be sufficient to provide the electrical supply for a large city.

Such generators are supposed to come on line in the last decade of this century. However, further increases in their power is a practical impossibility, as the centrifugal forces increase to such an extent that the metals from which the rotors are made would be torn apart.

Under these conditions, an unconventional, but promising method for directly converting thermal energy to electricity using motionless channels becomes necessary. This is possible using a stream of electrically-conducting gas (plasma) with temperatures in the range of 2,500 to 3,000 degrees Centigrade in a magnetohydrodynamic generator (MHD). The efficiency of such a machine can reach 50 to 60 percent, instead of the 40 to 42 percent of conventional thermal electrical generators. Expenditure for fuel would decrease by 20 to 40 percent, for cooling water by a half.

The largest MHD generator, with a power of 20 thousand kilowatts (U-25), is operating in the Soviet Union. It has operated with different loads for more than 4,000 hours. Commercial MHD generators most likely will be under construction in the last decade of the century...

The question is often posed as to whether mankind has

the fuel for future electrical production. For the present, such a danger does not threaten us. A practically inexhaustible fuel supply can be found in deuterium, heavy hydrogen, which is found in ordinary water. It is for this reason that scientists are preoccupied with the problem of thermonuclear fusion.

There now exist stationary thermonuclear systems using magnetic confinement of the plasma called tokamaks. Scientists are also working on pulsed systems using microexplosions of nuclear targets, caused by laser radiation or by the so-called relativistic electron beam, the speed of which is close to that of light....

Results already achieved allow us to predict that commercial thermonuclear fusion reactors will appear toward the end of the present century...

A new trend in electrical transmission is to use electron beams. The advantages of such a system are small losses and high power....

Important results have been obtained by investigators in the area of superconductivity and its application to electrotechnology. Model generators have been built and

tested, which indicate that it is possible to develop new techniques, based on superconductivity, which will simultaneously reduce the weight and increase the efficiency of the machinery.

One ought to mention the uses of superconducting magnetic systems in power plants based on nuclear fusion and magnetohydrodynamics. In collaboration with Argonne National Laboratory (USA), the world's strongest superconducting magnet, which will have an MHD channel installed in it, has been built and delivered to our country. In a number of countries, prototype plants for cooling cables have been built. This allows us to go to the next stage — commercial testing of lines.

If I were to summarize my remarks, I would say that with the correct use of natural resources and technical achievements, mankind at the threshold of a new century has no reason to fear an energy "famine". The problem is to raise the effectiveness of scientific investigations and applications in the area of electrotechnology, the more rapidly to achieve the desired results.