

Soviet scientist condemns the Harrisburg nuclear scare

In a major political and scientific statement, A. P. Aleksandrov, President of the Soviet Academy of Sciences, condemned the media scare over the Harrisburg Three Mile Island plant as part of "the campaign against atomic power."

In a prominent feature in Izvestia April 11 Aleksandrov described why the Soviet Union is committed to "restructuring" its energy base in favor of nuclear energy. According to Aleksandrov, workable fusion energy reactors could appear within 10 years.

In his article, which presents in great detail the latest developments in nuclear energy, Academician Aleksandrov also explained that solar energy is no solution to the energy crisis.

In the excerpts below, Aleksandrov proves the case that "a reasonable energy policy and the utilization of the achievements of science gives humanity the possibility" to avoid "the unfortunate prospect of a not too far away total energy crisis."

Energetics is essentially the basis of the economy, technology and the lives of people in our time. Leonid Ilich [Brezhnev], speaking at the November (1978) Plenum of the Central Committee of the Soviet Communist Party, said that it is difficult to overestimate the importance of the fuel-energy complex. In the beginning of our century, world energy demand doubled

energy is doubling now approximately every 10 years in the more developed countries.

What explains such swift growth? It would seem that the more technological processes are perfected, the less energy must be used per ton of production. It is also like this in reality: the improvement of technologies increases the output of production per kilowatt hour spent. But the world population grows quite quickly, and this demands an increase in the quantity of production. Now the planet's population is approximately 4.5 billion, but at the end of the century it will be 6-6.5 billion. This already demands an increase in the expenditure of energy resources.

Besides that, there is an industrialization process

going on in the world. This demands additional outlays of materials...

The necessity to increase the fertility of the soil also increases energy expenditures in cultivating the soil and its products, and in the production of fertilizer.

Finally, many natural resources which previously could be easily reached because their deposits were close to the earth's surface, are now exhausted; to reach them one must go deep into the earth or the continental shelf... All this taken as a whole leads to an extraordinarily rapid and inevitable growth of energy demand, far outdistancing population growth. ...

However, world supplies of oil and gas are limited. If you take into account the growth of energy demand, they might be exhausted in 20 or maximum 50 years. It must also be taken into account that oil and gas are not only energy raw materials. It would be extremely important to keep them for a longer period as raw materials for acquiring a whole range of chemical products, plastics, etc. ...

The approaching exhaustion of world oil and gas supplies has now become a very sharp political and economic problem. A number of the major capitalist countries import all or a significant part of their oil, in large part from the Arab countries of the Middle East. The impossibility of acquiring oil means for any of the capitalist countries full economic breakdown within three to five years. In the fight for the remaining oil and gas, the Western countries will try all means of pressure up to using arms against the oil-owning countries. The preparation for this is already underway.

It would seem that humanity faces the unfortunate prospect of a total energy crisis not far off. However, a reasonable energy policy and the utilization of the achievements of science gives humanity the possibility to avoid this crisis. Atomic energy and coal provide the possibility in principle of building energy on new foundations.

It is precisely in this area that fundamental scientific research has shown its exceptional efficiency. As is known, the development of research in the physics of the atomic nucleus makes it possible to avert the threat

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of an energy crisis by using the energy freed by several reactions of the atomic nucleus.

... The thermonuclear synthesis of light atomic nuclei is so far realized in an uncontrolled form in thermonuclear bombs, but thanks to the efforts of scientists it will soon be realized in a controlled form. It is likely that within 10 years, the first experimental thermonuclear power stations will appear.

The necessity of economizing as much as possible on oil and later on gas too, will inevitably lead to increased use of nuclear energy.

... The first nuclear power station was put into operation in our country; other countries followed. The construction of major nuclear plants began and optimistic prognoses of their development were made. But soon abroad, especially in the U.S.A., a braking of this process began. From the U.S.A. the polemic spread to other western countries. What does this mean? Of course, atomic energy has a significant negative side—the radioactive wastes which must be reliably stored for a long time to avoid pollution of the environment. This is an important engineering problem, but it can be reliably resolved for any dimension of energetics. Further, detailed investigations of the damage to the environment by coal-powered electric stations have shown that the harm from them is substantially larger than from nuclear plants. The real state of affairs about the noise around the construction of atomic plants is something totally different. The development of large capacity atomic power stations could threaten the profits of the fuel monopolies.

The reverberations in the Western press on the accident at the atomic reactor in Harrisburg, U.S.A., when some essentially small unpleasant consequences were described in an extraordinarily exaggerated manner, are also a continuation of the campaign against atomic power.

The inconsistent position of the U.S. authorities in questions of energy development is determined by their weakness before the oil monopolies, and on the other

hand, their understanding of the inevitability of the broad development of atomic energy, fission as well as fusion, of the inevitability of guaranteeing energy development through plutonium production.

The broad development of atomic power of all kinds through self-generating nuclear fuel and the increased utilization of coal is the only reasonable way to avoid an energy crisis.

Today it is not too late to move towards the restructuring of energy. The Soviet Union is making confident steps in this direction.

The breeding of the new plutonium fuel is extremely important. We must be capable of breeding this new nuclear fuel with the same speed we need to develop the energy industry. ...

The doubling of the mass of nuclear fuel in the whole power system must occur in substantially less than 10 years, which corresponds to the rate of growth of energy capacities. I think that this task will be solved by Soviet scientists in the next two to three years practical level. ...

What significance will thermonuclear energy have, if nuclear energy already has such excellent prospects? Does it make sense to employ it?

There can only one answer—yes, it makes sense. First, by combining the thermonuclear station with the breeding of plutonium, the problem of the rapid increase of the scale of electric power can be solved. It is not excluded that this might be necessary, for example, to regulate the climate of the planet. Secondly, thermonuclear energy will produce less radioactive waste, and for large-scale energy this can have important economic advantages.

The question remains, why a major stake in atomic types of energy and the use of coal and not on solar energy, thermal energy, wind, etc. ...

... The small average density of solar energy of the earth's surface does not allow for realizing economically justifiable major energy projects. ...