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10 June 1980

Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

(FOUO 7/80)

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WORLDWIDE REPORT

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WORLDWIDE AFFAIRS

CEMA COUNTRIES COOPERATE IN NUCLEAR POWER DEVELOPMENT

Moscow ENERGOMASHINOSTROYENIYE in Russian No 3, Mar 80 pp 46-47

[Article by engineer T.N. Bogatyreva: "Peaceful Atom in the Countries of Socialism"]

[Text] A scientific and technical exhibit on "The Peaceful Atom in Countries of Socialism" was held at the USSR All-Union Exhibit of National Economic Achievements in connection with the 30th anniversary of the Council for Economic Mutual Assistance (CEMA).

Cooperation with respect to the utilization of atomic energy for peaceful purposes is being developed in the field of nuclear power engineering and nuclear instrument building, radiation safety and protective equipment, and the development of nuclides and tagged compounds. Work is being done on the use of radioisotope methods and apparatus in the national economy. The main attention in the show's exposition is given to nuclear power engineering as the most promising and timely aspect of the use of the atom's energy. The reorganization of the fuel and power program in CEMA countries, aimed at increasing the role of nuclear electric power plants (AES) in the production of electric power is an expression of the worldwide tendency in the development of power engineering.

The cooperation of CEMA members is promoting the formation and successful realization of national programs for development of nuclear power engineering. These programs are based on equipping nuclear power plants with VVER-440 [water-moderated, water-cooled power reactors] reactors developed in the USSR. The heating lay-out of the nuclear power plant with a VVER-440 and the basic parameters of the plant are presented in the exhibit's display stands. In the People's Republic of Bulgaria the Kozloduy Nuclear Power Plant is operating, and new power blocks for this plant are under construction. Under construction in the Hungarian People's Republic is the Paks Nuclear Power Plant, the capacity of which will be 1760 megawatts by 1984. The Rheinsberg and Bruno Leushner nuclear power plants in the GDR have a total electrical capacity of 1390 megawatts, and erection of the next blocks of the Bruno Leushner Nuclear Power Plant is continuing. Construction of a atomic plant with a capacity of 880 megawatts is planned in the Republic of Cuba in 1981-1985. Foreseen in the Polish People's Republic in 1984 is the start-up of the first block of the Zarnowecz Nuclear Power Plant, and work is underway to select sites for new atomic power plants. In the Socialist Republic of Romania a decision has been passed about construction of the country's first nuclear power plant with the use of their own resources of uranium and thorium. Started up in the Czechoslovak Socialist Republic at the end of 1978 was the first block of the "V-1" nuclear power plant, and construction is continuing on the next blocks of this nuclear power plant, as well as plants in Dukavany with four VVER-440 reactors. Operating in the USSR are 12 nuclear power plants with reactors of different types.

The total capacity of nuclear electric power plants in CEMA countries during 1971-1978 increased 10-fold and by the end of 1978 it amounted to approximately 12,000 megawatts. Up to 1990 construction of nuclear power plants with a total capacity of 37,00 megawatts will be carried out on the territory of the European CEMA countries and the Republic of Cuba.

Work is being performed in a broad front for further improving the reactors and for increasing the unit capacity of the blocks. Presented in the display stands of one of the exhibit halls was the heating scheme of the VVER-1000 reactor, a set of equipment, and the basic thermodynamic parameters of the cycle and the characteristics of the basic assemblies were shown. It is proposed to build two nuclear power plants with VVER-1000 reactors with a capacity of up to 4000 megawatts on the territory of the USSR with the joint efforts of the CEMA countries.

As is known, a special feature of the development of nuclear power plants in the USSR is the construction of nuclear power plants with reactors of different types. Shown in the exhibit was a mock-up of a plant with a reactor of this type with a capacity of 1000 megawatts, and the basic parameters of the plant were given.

The high rates of growth in nuclear power engineering in CEMA countries are backed up with the technical assistance of the Soviet Union, which transmits to the countries the necessary planning and engineering documentation, supplies the basic technological equipment, and renders technical assistance in erecting the nuclear power plants, in start-up and adjustment operations, and in personnel training. For the purpose of increasing the coordination of work for erection of nuclear power plants, the International Economic Association (MKhO) "Interatomenergo" was formed in 1973 by the CEMA countries and the Socialist Federal Republic of Yugoslavia.

Approved in 1977 at the 31st session of CEMA was a program of maximum development of atomic machine building in CEMA countries, which foresees international specialization and cooperation of production, reciprocal deliveries of equipment for nuclear power plants, the creation of unified norms and specifications for production and operation of power equipment, the conduct of scientific research for the creation of new types of equipment, development of experimental bases, the coordination of purchases and sales of technological equipment, price matters, and so on.

Special scientific research institutes, which, as a rule, are specialized in certain developments and research projects have been created in the CEMA countries for successful realization of the programs for use of nuclear power. Devoted to this question was a whole section of the exhibit where presented on the display stands were structural diagrams of the leading scientific research institutes in the CEMA countries, the work performed by them and the interrelations of different subdivisions of these organizations. The basic directions of the projects of the Institute of Nuclear Research and Nuclear Power Engineering of the Academy of Sciences of the People's Republic of Bulgaria are the theory of the nucleus and elementary particles, high- and low-energy physics, and the use of nuclear methods and nuclear power engineering. The Central Institute of Physical Research and the Institute of Nuclear Research of the Academy of Sciences of the Hungarian People's Republic are the country's leading scientific centers, occupied with problems of the use of atomic energy. The Institute of Nuclear Research in Recice is the largest scientific research center in the Czechoslovak Socialist Republic.

The leading scientific research center for nuclear science and technology in the Soviet Union is the Institute of Atomic Energy imeni I.V. Kurchatov, which is successfully carrying out the role of scientific leader in the physics and technology of reactors, and the creation of new and reconstruction of operating research reactors in atomic centers of the USSR and fraternal socialist countries. Work on accomplishing controlled thermonuclear synthesis occupies an important place among the research on the use of new sources of energy. The greatest successes in solution of this problem have been attained by Soviet scientists on the "Tokamak" toroidal installations created at the Institute of Atomic Energy imeni I.V. Kurchatov. Started up in 1975 was the world's largest thermonuclear installation, the "Tokamak-10," the prototype of a demonstration thermonuclear reactor. The overall view of this unit and the basic characteristics can be seen at the display stands in this section. Also told about here is the conduct of extensive research in the field of fast-neutron reactors, and the use of the heat of nuclear power plants for the purpose of heating supply.

The development of nuclear power engineering in the socialist countries requires that effective measures be taken to insure operating safety of the nuclear power plants. As a result of the cooperation of CEMA countries in this field recommendations and standards and methods documents have been worked out regarding monitoring the state of the environment, the methods and devices for determining the radiation conditions at the nuclear power plants, and also requirements for protecting the environment in the case of an accident.

10908
CSO: 5100

JAPAN

PLUTONIUM FUEL REACTOR 'HAS NO ABNORMALITIES'

OW290647 Tokyo ASAHI EVENING NEWS in English 26 Apr 80

[Text] "Fugen," the first nuclear reactor for the generation of electricity developed with Japanese technology, in Tsuruga City, Fukui Prefecture, was found to have no abnormalities after about one year's full-scale operation, and resumed generation Thursday. The reactor is the first thermal neutron nuclear reactor which uses plutonium as a fuel in the world. It was developed and built jointly by nuclear experts form the public and private sectors.

"Fugen" was developed as the prototype for the development of a larger practical thermal neutron nuclear reactor in the future, and it went fully into operation last March. The operation of the reactor was suspended in February for the first regular check since operations started. In the check, experts found no abnormalities in the reactor and also found out that the reactor's capacity was very close to what was originally intended.

"Fugen," which is operated by the Power Reactor and Nuclear Fuel Development Corporation, registered an annual system operation rate of 72.4 percent, the second highest among the 22 nuclear reactors Japan now operates. The reactor generated and transmitted about 1,100 million kilowatt-hours of electricity since it went into full operation, and earned about 5,300 million-yen. In "Fugen", thermal neutrons are used to induce nuclear fission whose speed is controlled by heavy water. Light water (ordinary water) is used to cool the fuel.

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STATINTEL

FRANCE

SERIOUS ACCIDENT AT SAINT-LAURENT 2 REACTOR CONTAINED

Paris VALEURS ACTUELLES in French 7 Apr 80 pp 29-30

[Article by Francois Lebrette: "Alert at Saint-Laurent 2"]

> [Text] A serious accident had taken place, involving melted uranium and contaminated gas. But it was brought perfectly under control, without panic and without pollution.

The most reassuring thing in a nuclear power plant is the accidents: this paradox has just been illustrated by reactor No 2 at Saint-Laurent-des-Eaux, near Beaugency, which broke down 3 weeks ago. This was first of all an occasion for checking the effectiveness of the safety systems; next, we were able to establish the moderate reaction from a population confronted with the atom. The entire affair went almost unnoticed. It is nevertheless just as serious as the affair involving the "cracks" which caused so much of a stir at the end of last year.

At 1740 on Thursday, 13 March, the engineers present in the reactor control room discovered that the control bars had just fallen, stopping the nuclear reaction several tenths of a second before the screen showed any abnormality in operation.

What had happened? The DRG ("sheathing rupture detection") system had given the alert to the computer which reacted quickly. This system permanently analyzes the radioactivity of carbonic gas (CO_2) which is used in evacuating the heat generated by the uranium. Now, this radioactivity was suddenly multiplied by 1,000.

This means that, due to the action of abnormal temperature, the magnesium sheathing surrounding the fuel broke. The carbonic gas then came into direct contact with the uranium which, in turn, began to melt, releasing into the CO_2 traces of radioactive gas (fission products).

What would have happened if the bars had not fallen automatically, if the engineers had not been able to make them fall manually, if the uranium had continued to melt down?

By multiplying the series of improbabilities, as at the Harrisburg power plant, one can visualize fuel cartridges on fire, melting outside the concrete caisson, the latter cracking, causing an escape of radioactive CO_2, the stopping of the cooling action, the total meltdown of the core and the contamination of all castles along the Loire! A "Saint-Laurent syndrome" which no disaster movie maker has yet attempted.

In the office where he received me, Mr Malhouitre, the plant manager, smiled:

"After all, with a little bit of imagination, you can make up, for Saint-Laurent, a catastrophe as coherent as 'The China Syndrome.'"

But the bars did fall from the very first second onward and the task of the specialists boiled down to repairing everything, in other words, a more concrete problem.

During the hours following the disaster, engineers from EDF [French Electric Power Corporation], experts from the French AEC, and personnel from the radiation protection service analyzed the parameters they had to work with. Conclusion: between 2 and 6 kilograms of uranium must have melted down in the reactor.

But before taking a closer look, it was necessary to "purge" the carbonic gas circuit. Now, the latter at this time contained several hundreds of curies of radioactive iodine which has the awful property of settling in the thyroid gland and that introduces a risk of cancer.

The standards for the expulsion of iodine into the atmosphere are extremely severe: the power plant is "entitled" to 0.2 curie per year. It was thus necessary to wait for the graphite casings contained in the reactor to have absorbed most of the radioactive iodine and then to proceed to what is called progressive "salting" through special filters under constant surveillance.

The reactor could not be returned to atmospheric pressure until 28 March, 15 days after the accident.

"Overall," said Mr Malhouitre, "we released just about 1/1,000 of the authorized dose into the atmosphere."

The investigations in the reactor core could now begin. A camera was inserted. It discovered a piece of sheet metal which partly obstructed one of the carbonic gas circulation ducts, preventing normal cooling.

"I am not going to tell you where that piece of metal came from," Mr Malhouitre told me on 31 March. "I do not know as yet."

That morning, the search was continued; the camera was lowered to the bottom of the reactor. Before the screen, presenting the images recorded on the magnetoscope, an engineer told me something about this unusual inspection:

"Look at the little shiny white dots; these are magnesium leaks in the casing."

The result of this first exploration was rather encouraging; the recovery of the melted fuel should not be too difficult before it would be possible to start the reactor up again.

That left one question which Mr Malhouitre was unable to answer: why did this accident not trigger the same panic as the one in Harrisburg in the United States last year? Why was the area not besieged by several hundred journalists? Why did the antinuclear militants of Plogoff, who had just been demobilized, not quickly hurry to Saint-Laurent in order to protest against the salting of carbonic gas?

One cannot say that the secret was too well guarded; within an hour following the accident, the EDF management, the security service of the Ministry of Industry, and the office of the mayor were informed.

Starting on the next morning, the power plant manager sent an announcement to the local newspapers and to the regional correspondent of AFP [French Press Agency]; the local team from FR-3 [television] also put together a thorough report that same evening. More than that, a departmental commission on the operation of Saint-Laurent-des-Eaux had just been established on 27 February. It opened for business on 19 March with a special session dealing with the accident.

Of course, one might also mention "habit": after all, the Saint-Laurent 1 reactor in 1969 had an accident of an entirely different scope: 50 kilograms of uranium had melted down and it took one year of repair work. But, over a period of 10 years, the ecologist challenge was stepped up considerably.

Are the differences in the "fuel elements" another explanation for this silence? The two reactors in operation at Saint-Laurent are of the "graphite-gas" type with natural uranium, while the Harrisburg power plant (like the reactors now being built in France) is of the "enriched uranium and pressurized water" type.

The risks of fusion are greater in the first type and an accident in the second one is more difficult to bring under control; but that does not justify this kind of disproportion in the anxiety and in the volume of the response.

Finally, it may perhaps be the absence of mystery which might explain this absence of panic: the behavior on the part of the plumber who was annoyed by a water leak which he did not try to conceal.

At Saint-Laurent, inspections continue as if nothing had happened and last Monday I ran into a group of draftees and a delegation of local voters. They were warned that repair work in progress would prevent any access to the loading platform. This by the way was a rather relative prohibition:

"Go on," Mr Malhouitre told me, "but avoid getting up on the handling device used this morning to lower the camera; if you should by accident touch some radioactive dust, I would have to keep your clothing for decontamination."

So, nobody really got all excited over the accident as such. But the situation is different as far as the reactor shutdown is concerned. It is now necessary very quickly to restore the circuits and to get the piece of sheet metal out. But it is also necessary to take steps to prevent a repitition of the accident, in other words, to make technical modifications. Everything depends on the origin of the piece of sheet metal, Mr Malhouitre thinks.

"If it comes from the loading device, the unit of time will be one week; if it comes from the reactor itself, the unit of time will be a month. In that case, the cost deriving from the loss of production will be way out of proportion to the price of the repairs."

It is necessary to make up for the lack of output from Saint-Laurent 2 by using primarily the conventional thermal power plants. Now, for 1979, the statistics show us a per-kilowatt output price of 8.5 centimes at Saint-Laurent, as against 14.5, on the average, for conventional thermal power plants. Mr Malhouitre picked up some figures, checked them out on a calculating machine, and then announced:

"The breakdown at Saint-Laurent 2 is going to cost us 18 millions per month."

The reference figures of course are based on the situation prior to the oil price rise at the end of 1979.

5058
CSO: 5100

ITALY

ENEL'S 10-YEAR PLAN FOR NUCLEAR, COAL PLANTS

Rome ATOMO E INDUSTRIA in Italian 1 Mar 80 p 15

[Text] ENEL's new construction plans for 1980-1990 (10 nuclear plants for 10,000 MW and 14 coal-fired plants for 9,000) points the way out of power shortages for the mid-Eighties. Demand by 1990 between 364 and 404 TWH (against 166 TWH in 1968). Plan's nuclear and coal-fired plants to save 1,050 billion lire per year (in 1979 lire). Planned investments: 1,200 billion lire. Appeal to life freeze on authorizations for new plants.

ENEL this month released its "ENEL's Plans: Electric Power Requirements and How To Meet Them. New Plants Through 1990," a 178-page brochure approved at the 13-15 November meeting of ENEL's board of directors. The new ENEL program, which we reported earlier when it was given partial approval by the interministerial committee for economic planning (CIPE), covers a span of 11 years. It is arranged in four parts: 1. Predicted demand for electric power in Italy; 2. Plans for new generating plants; 3; Transmission and grid systems and distribution plants; 4. Planned investments for new ENEL power plants. Along with the plans proper go two appendices: first, one on the power intensity of the Italian economy and a comparison between its level and those of the other EEC member countries, and second, one on final energy uses in Italy), plus three charts and 48 tables. The following is a summary of the report.

Electricity Demand Forecast

Any analysis of Italy's electric power requirements must start from the assumption that economic growth will be consistent with the targets and guidelines laid down by the government, correlating with that development the requisite supplies of electricity, and arriving at the answers through a survey in depth of specific consumption levels in each sector of the nation's economy. This analysis, particularly with reference to industry, also includes various timely comparisons between the structure of Italian industry and that of other European Community countries to which our own is destined to draw steadily closer.

In ENEL's planning report the analytical forecast of power requirements is based on a "middle" scenario for development, one calling both for gradual emergence from the present recession and for all possible advantage which, for purposes of energy conservation, can be derived from vigorous power-saving policies in all sectors. These policies, under the spur of government incentives and the invreasing difficulty of assuring power supplies, are already beginning to take shape, albeit slowly.

As a consequence, instead of a 1990 consumption scenario based on economic growth untrammelled by any conservation policy (Scenario A), there is a second one which does allow for the effects of such policies (Scenario B). Using Scenario A, the electric power requirement in Italy would be 275 TWH in 1985, and 404 TWH in 1990 (as compared with a demand of 166.7 TWH in 1978). But on the basis of Scenario B, the demand would be 262 and 364 TWH, respectively in 1985 and 1990 (see Table).

If we compare power demand with production capacity of existing plants, including those under construction or authorized (and also allow for efforts already under way and slated to intensify to the utmost to increase productivity in existing plant), we find, around 1984 and 1985, increasingly acute energy shortfalls. Those shortfalls will, by 1990, touch 109 billion KWH, or about 30 percent of available supply. That shortage would break down this way: 46 billion kwh in northern Italy (25 percent below demand); 11 billion kwh in central Italy (17 percent below demand); 38 billion kwh in southern Italy (54 percent below demand); and 14 billion kwh in the islands (31 percent below demand), which adds up to a total of 109 billion kwh.

It is well to bear in mind, as the introduction to the ENEL 10-year program admonishes, that should such a situation actually come about, it would, considering the absolutely vital importance of electric power to economic growth, trigger a total collapse of the economic system and certainly, given the consequent unemployment, to a political crisis in our democratic system.

On the basis of the figures briefly stated here it becomes clear in any case that the prolonged freeze on permits for new plants has made the outlook for coverage of demand extremely iffy for the second half of the eighties. In fact, if building of a considerable number of new basic plants is not undertaken forthwith, it is taken as inevitable that, when those years get here, we shall have not merely a power shortage, but very serious overall energy shortages which would entail drastic cutbacks in consumption over the entire calendar year.

New Generating Plants

The second part of the ENEL program lists all the plants needed to cope with that deficit: both the many already contained in earlier programs but still awaiting authorization, and the new ones for which applications for construction permits have only just been filed.

Included in the program are all the new plants involving the most intensive utilization technically possible of the nation's remaining hydroelectric resources, others which will grow out of discovery of new geothermal resources (in which ENEL is heavily involved in concerted action with ENI), and lastly those designed for cogeneration of electricity and heat for urban heating and industrial uses. Most of the planned installations, however, will be either traditional coal-fired plants or nuclear generators.

Turning to coal and nuclear power is a choice forced upon us, since, over the medium term, it is the only one that can ensure coverage of electric power requirements and, at the same time, allow a gradual, steady cutback in the use of hydrocarbons for specific purposes.

The need to build at least 12,000 MW of nuclear power capacity by 1990, as spelled out in a resolution passed by parliament in 1977, emerges with startling clarity for a country as poor in energy resources as Italy, when one compares that modest target with the expansion and growth of nuclear programs worldwide.

Looked at from a purely economic point of view, furthermore, the comparison among the costs of producing a kilowatt hour of electricity in a nuclear, coal, or oil-burning plant, it becomes evident that both the nuclear- and the coal-generated kwh are cheaper (by 30 and 12 percent, respectively) than the oil-generated kwh. Further calculations based on the impact of the various energy sources on our balance of payments, on fuel prices, etc., bear out the economic soundness of the nuclear option. To forego development of nuclear power, even in proportions much slighter than those in other countries, is clearly unrealistic for a country with a transformation industry, like Italy's.

FORECAST DEMAND FOR ELECTRIC POWER IN ITALY (in TWH)

SECTOR	1975	1978	1985 scenario (A)	1985 scenario (B)	1985 drop %	1990 scenario (A)	1990 scenario (B)	1990 drop %
Industry	79.160	91.82 (60)	139.0	132.8	-4.5	188.0	174.2 (53)	- 7
Transport (1)	4.009	4.41 (3)	5.8	6.2	+7	7.0	7.9 (2)	+ 13
Household Uses	27,878	34.40 (23)	68.0	60.6	-11	110.0	91.0 (27)	- 18
Agriculture	1,646	2.25	3.9	4.2	+8	5.7	6.4	+ 12
Other Civilian Uses	13,967	16.76 (11)	32.0	30.7	-4	50.3	46.7 (14)	- 7
Public Lighting	1.979	2.32 (2)	4.1	3.9	-5	6.0	5.0 (2)	- 17
TOTAL END USE	128.639	151.96 (100)	252.8	238.4		368	331.2 (100	
Transport & distribution losses	12.622	14.82	22.2	23.6		36	32.8	
ENERGY DEMAND	141.261	166.78	275	262	- 5	404	364	- 10

NOTE: Forecasts based on the following assumptions: "medium" growth in GDP (4.1% for 1975-1985, 4.5% for 1985-1990). Scenario (A) posits spontaneous growth under pre-oil crisis conditions. Scenario (B) calls for stringent conservation and alternative energy sources backed by incentives.

(1) Includes state and secondary railroads, trams, trolleybuses, etc; consumption for pumping in oil and gas pipelines (0.634 TWH in 1975), and for ancillary transport activities are included under "other civilian uses."

An economic comparison among the various energy sources also shows that, for our country, resort to a major investment in generating plants burning imported coal is a choice necessitated by the need to cover the shortfalls created by the cumulative delay in starting the nuclear program and to diversify our import sources, while it does not offer the same economic and environmental advantages as does nuclear power.

As for the safety of nuclear power plants, both for man and for the environment, the ENEL document states that all possible action has already been undertaken to reduce any harmful effects during their normal operation; and that all possible steps in plant design and operational procedures have been taken to reduce to extremely low levels the probabilities and the consequences of any possible incidents.

In conclusion, the basic plants fundamental to meeting most of the predicted requirements, in addition to expansion of Italy's hydroelectric and geothermal capacity as already mentioned, are: 14 coal-fired plants rated at 640 MW each, and ten 1000-MW nuclear plants (in addition to the two at Montalto di Castro).

Nuclear Power

The fact is that, for reasons having to do with the very long authorization process as well as with the actual construction and completion of a large number of plants in the 3 years from 1988 through 1990 in an initial phase of development of these plants, it does not seem realistic to predict completion, by the end of 1990, of any nuclear plants other than those ten 1,000-MW units already factored into previous ENEL programs, but as yet unauthorized (five 2,000-MW plants located in Piedmont, Lombardy, Molise, Apulia, and Friuli-Venezia Giulia, plus those at Montalto di Castro). For these reasons another six coal-fired plants of the same rated capacity have been added to the eight 640MW coal-fired plants called for under the April 1978 program.

Barring setbacks in implementation of the program, nuclear power production will rise from 4.4 TWH in 1978 to around 70 TWH in 1990. Of that total, 9 TWH will come from plants already existing today, and the remainder from the 12,000 new MW planned capacity. In calculating the input of the new plants allowances were of course made for the fact that some of the new units will be coming on line in 1990 and that, in the first year after completion utilization of new plants is reduced because of testing and finishing touch requirements. Once all the new plants are on line, however, their combined annual capacity will be at least 72 TWH.

When we add to the 70 nuclear TWH the 60 or so produced by the 14 coal-fired units, once they are all in regular operation, the saving realized (in 1979 lire) by comparison with the cost of equivalent generation by oil-fired plants will come to a total of around 1,050 billion lire per year, 820 billion of it on output from the nuclear plants. That annual saving (which might go much higher in favor of nuclear plants should fuel prices rise faster than inflation) must be set against a total investment in building the plants.

That investment, expressed in 1979 lire and including interest during construction, comes to about 12,000 billion lire, of which around 8,000 billion would go for the 12,000 MW of nuclear power and around 4,000 billion for the coal-fired plants (not including investments required for port construction needed for offloading and grading coal, and those for building a coal terminal).

It should be emphasized that investment expenditures will be spread over the entire time span up to 1990 and that about 84 percent of the contracts awarded will go to Italian industry, with a massive and salutary impact on employment and industry skills.

As for action to be taken for implementation of the nuclear program, aside from making sure that no frivolous opposition prevents full-power operation of the Caorso plant, it is indispensable that, before the end of March at the latest, authorization procedures for the planned plants we have cited be completed and the green light given for construction.

The plants planned for Piedmont, Lombardy, and Molise, along with the Montalto di Castro installation, make up that 8,000-MW capacity parliament has already decided must be built, but whose authorization has been blocked for years by local opposition. The government must therefore take the initiative in siting these plants, according to the differences in procedure required for the Piedmont and Lombardy plants on the one hand, and the Molise plant on the other.

The Apulia and Friuli-Venezia Giulia installations, which parliament has already approved as a possible option, but only with a government commitment to consult parliament when it exercises that option, make up the final 4,000 MW. The government must therefore consult parliament and start the process of finding sites for these two plants, making sure that the procedure takes no longer than the time provided by law.

Finally, as to Sicily, the CIPE, together with the Interregional Commission, must rule on construction of a new coal-fired plant and a nuclear plant, so as to get the siting process under way, as required by law.

Conclusions

To conclude this summary of ENEL's 10-year plan, we quote the final portion of the preface to the program:

"Given the long lead-time for such plants (nuclear and coal-fired) all more than 5 years from the acquisition of an authorized site, the board of directors, in presenting this plan, cannot refrain from once again calling the attention of those in authority at every level (government, region, commune) and responsible for making decisions relative to the authorization for construction of the plants to the fact that any further delay in making such decisions carries with it specific responsibility for the very grave consequences which will inevitably stem from such delay to the detriment of the nation's economic and social development.

"Building the planned installations calls for unusual and significant investment expenditures. It is therefore equally necessary that there be speedy application of the rate increase designed to assure the Agency's budget balance, and approval of the 3,000-billion-lire increase in our endowment fund.

"In confidence that both measures can be adopted in the very near future, thus providing the basis for solution of the financial problem involving planned construction, we should like to emphasize once again that the primary requirement for implementation of the program thus remains that of immediate and urgent issuance of construction permits for all planned installations, without which this nation will surely face economic and consequent social collapse in the years ahead.

6182
CSO: 5100

ITALY

GOVERNMENT'S REPLY TO AGIP'S URANIUM MINING

Rome ATOMO E INDUSTRIA in Italian 1 Mar 80 p 17

[Text] The Italian Uranium Mining Corporation (SIMUR), an AGIP-owned company, has thus far invested 7 billion lire to develop the Novazza uranium mine. Furthermore, on the basis of a feasibility study (proven reserves as of the end of 1978 were 1,200 tons), the EIB has granted SIMUR low-interest financing amounting to 9 billion lire. The announcement came, in the name of the government, from the undersecretary for state participation, Senator Francesco Rebecchini, in reply to a question from socialist Senator Della Briotta, asking what had been done and what was being done to develop the uranium deposits at Novazza and Val Vedello.

Assuming production costs of $80 to $130 per kilogram, the proven reserves in the two zones total 2,000 tons. As for the mining operations, Rebecchini said that the company intends to protect and preserve to the greatest possible degree the integrity of the environment and the health of those working in the mine.

At somewhat higher costs, the reserves could be reckoned at somewhere between 5,000 and 10,000 tons of uranium. Rebecchini went on to explain how the ENI group's activity in the uranium research field, which began back in 1955, had been stepped up sharply in the wake of the 1973 energy crisis. Uranium research is also going on in other parts of the country. There has been a great deal of exploration on the western slopes of the Alps. Research permits to hunt for radioactive minerals have thus far been issued to 49 applicants, Rebecchini said, covering a total of 6,000 square kilometers. Mining operations are going on in these areas under the control of the mining districts. The health and safety of the mine workers and the local populations are well protected, Rebecchini concluded, in strict compliance with the laws.

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CSO: 5100

END