

STA SUBMITTED NUCLEAR BUDGET DEMAND FOR FY1979

- Procurement of Increased Funds: the Greatest Issue -

The Science and Technology Agency submitted its budget plan for atomic energy for fiscal 1979 to the Ministry of Finance at the end of August. The total called for amounts to ¥169.6 billion from the General Account (plus ¥270.18 billion as Government guarantee for appropriations for ensuing years, known as "marusai"). These figures represent an increase of 21.2% on the 1978 budget.

The budget requests made by STA include provision for the development of nuclear fusion, centering on the construction of JT-60 (¥24.6 billion, plus marusai, ¥65.8 billion), the "Monju" project (¥3.8 billion, plus ¥126.7 billion, marusai), ATR development (¥10.5 billion), uranium enrichment (¥19.8 billion, plus 25.2 billion, marusai), and reprocessing (¥10.1 billion, plus marusai, ¥5 billion). But even these figures leave serious limitations in implementing the important projects of "Monju" and JT-60, which constitute the core of the new Long-Term Atomic Energy Research, Development and Utilization Program, compiled on September 12 by the AEC. (See page 5 of this issue). The Ministry of Finance has adopted a "ceiling formula," fixing the upper limit on increases in each Ministry's budget request, which meant 12.7% over the previous year for STA's 1979 budget demand. This made it necessary for STA to considerably reduce its budget plan for these important projects as well. STA was able to increase its budget demand (STA belongs to the Prime Minister's Office) through intra-official negotiations and arrangements, and submitted to the Finance Ministry its budget plan for nuclear energy with a 21.2% increase over the previous year.

AEC Decides on Additional Requests

To meet the possible budget limitation, AEC reconsidered its 1979 expenditure estimates for nuclear-related activities on September 19, asking for an additional ¥18.8 billion (plus ¥30 billion, marusai) for JT-60 and another ¥18.4 billion (plus ¥73.4 billion, marusai) for "Monju", which will be reported to the Prime Minister Fukuda. The budget plan for STA as an administrative branch therefore seeks to incorporate the AEC demand. AEC has not taken such action on budget questions, but fiscal 1979 is a critical year, as the first year of the Long-Term Atomic Energy Research, Development and Utilization Program. There was some apprehension that, if that upper limit were to be applied to the STA nuclear budget, there would be a short-fall of about 2 trillion yen in the new Long-Term Program, which calls for expenditure of 4 trillion yen (based on 1977 figures) over the coming ten years as well as a serious hold-up in the above two projects.

During the first five years of the Long-Term Program, in particular, there are a number of large-scale constructions planned for research and development on safety, advanced power reactors, uranium enrichment, nuclear fusion, etc., all of which inevitably

require great increases in available funds. Unless the present "ceiling formula" is changed, it will be next to impossible to carry out the projects according to plan.

The Finance Ministry reacted rather unfavorably to the AEC decision, saying that additional moneys should be from special sources instead of from the General Account. It seems likely that the decision on revenue for the additional budget will be at the discretion of the Prime Minister.

JAIF Makes Proposal to Prime Minister on Procurement of Nuclear R & D Funds

JAIF, seriously concerned about the situation, arranged for Chairman Arisawa and top executives to meet the Prime Minister on August 23. They offered a JAIF proposal on procurement of the necessary funds for nuclear R & D. Basically, the proposal calls for appropriation in the General Account budget for the entire nuclear research and development program, asking the Prime Minister to make a political decision, based on full recognition of the long-term prospects and the importance of nuclear energy. It also states that nuclear research and development must be treated as national projects, and incorporated in the long-term program; it expresses the hope that such programs as well as the necessary funds should be approved and authorized by the Cabinet as formal programs, and be implemented under Government responsibility. It suggests the possibility of issuing "energy bonds" for public offering, as a special form of the existing construction bond (a national bond based on Finance Law, Article 4) to raise funds for projects, including nuclear fusion, which involve a long preparation period before reaching commercialization. The proposal considers it necessary to consider issuing new forms of bonds to raise revenue for energy research and development, including nuclear energy. As supplementary measures to raise funds necessary for the immediate future, the proposal indicates the need for appropriations from the General Account for some selected projects, in addition to making available fiscal investments, borrowing from commercial banks, etc.

The Finance Ministry's draft for the 1979 national budget will be completed in this December, by which time the issue of funds will become increasingly a major question in the nuclear community of Japan.

Major Programs and Funds Requested for FY1979

The nuclear-related budget plan of STA amounts to ¥169.6 billion (plus ¥270.8 billion, marubai). The programs for which funds are sought for each project are set out below.

1) Safety Research

Total expenditure for safety research will be ¥25.3 billion, including ¥6.2 billion for the Japan Atomic Energy Research Institute (JAERI), a 13.3% increase over the previous year. This breaks down into: a) safety research on nuclear power plants and facilities (¥6.5 billion), b) safety research on advanced power reactors (¥1.2 billion), c) treatment and disposal

of radioactive wastes (¥10 billion), d) research and investigation on prevention of radiation hazards (¥2.0 billion) e) research and investigation on environmental radioactivity (¥1.6 billion)

¥640 million was requested for research on reactivity accidents, including NSRR of JAERI, ¥700 million for research on loss-of-coolant accidents, including ROSA, and ¥1.97 billion for construction of large hot laboratories.

For research on safety of advanced reactors ¥4.69 billion is required for FBR and ¥484 million for ATR.

The expenditure of ¥240 million is required for experimental ocean disposal of low-level radioactive wastes, including the remodelling of solid drum dumping vessels etc. For the development of technology for Krypton elimination in reprocessing plants, ¥849 million is requested.

¥762 million is earmarked for the three-year construction program of the experimental center of the National Institute of Radiological Sciences for the study of internal exposure to radiation, plus ¥5.88 billion marusai. The Institute plans to take up research on the effects of internal exposure to injected alpha-rays on Beagle dogs.

2) Power Reactors

Expenditures for FBR development are expected to be ¥25.15 billion, and ¥10.50 billion for ATR development, a total ¥46.86 billion, plus private investment of ¥3 billion.

The FBR prototype "Monju" is planned to be built at Tsuruga, Fukui Prefecture by PNC. When the local community has decided to accept the project, safety examination on the reactor plan will begin, sometime around next spring, to be followed by site formation and other preparatory works. If everything goes to schedule, construction may begin around the end of 1979. ¥3.3 billion is required for this project, plus a further ¥126.7 billion marusai, as the first-phase of marusai for the total construction expenditure, estimated at three hundred and several tens of billions of yen. Preparation for construction calls for ¥1.3 billion, and ¥2.5 billion for manufacturing the reactor. Since the whole expenditure has to be covered from the General Account, the initial plan for ¥22 billion or more estimated for the first year of the construction period has been greatly reduced.

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PNC intends to promote the study of large scale reactors, following "Fugen" with an eye to the future building a demonstration. ¥10.5 billion sought for ATF development.

3) Nuclear Fusion

A total of ¥25.2 billion has been asked for, of which ¥24.6 billion will be for JAERI. The balance will go to the Electro-technical Laboratory of the Institute of Physical and Chemical Research, mainly for research on plasma physics.

JAERI has acquired a site in Ibaraki Prefecture for construction of JT-60, a critical plasma testing device for which construction of related facilities including power, building, etc., will begin in 1979. The estimated construction cost of JT-60 is ¥22.0 billion (plus ¥61.2 billion, marusai), a 2.4-fold increase over this year's expenditure (¥9.1 billion).

4) Nuclear Fuel

The total sum sought is ¥44.5 billion, of which ¥4.6 billion is sought for PNC for overseas uranium prospecting, including ¥2.5 billion for prospecting in Africa.

For uranium enrichment, ¥1.9 billion is sought for the development of centrifuges, and ¥13 billion for manufacturing the remaining 3,000 centrifuges of the total 7,000 to be installed at Ningyo Toge Pilot Plant, including the facilities to house them. A further, ¥1.90 billion is earmarked for partial operation of the pilot plant, using 1,000 centrifuges. A new request is also for the conceptual design of demonstration plant (¥238 million), the detailed design of which is planned for 1980, with construction to begin in 1981, and operation starting from 1984. The planned enrichment capacity will be 200-300 ton SWU, with a total of between 20,000 and 40,000 centrifuges. Preliminary designing in Australia is also planned, as part of the Japan-Australia joint study on a uranium enrichment plant. Assuming that the two countries agree to continue the second phase of research, ¥60 million has been asked for PNC and ¥15 million for the Atomic Energy Bureau.

For reprocessing of spent fuel, ¥10.2 billion is sought, about the same as this year, (plus borrowing ¥5.0 billion under Government guarantee). The reprocessing plant at Tokai-mura will come into full operation by the end of this year, to reprocess 80 tons of spent fuel in 1979 at an expected return of ¥6 billion. In february, this year, a coprocessing experiment at OTL facilities began, the technical feasibility of which will be determined by the autumn of next year. ¥30 million is requested for this operation in FY 1979.

5) Multi-Purpose HTGR

Since this is the second year of the construction program of a loop for large component demonstration tests (called HENDEL), construction expenditure of ¥1.88 billion is sought for construction of the adapter loop and building the necessary facilities. HENDEL is expected to be completed by the middle of 1983, with test operation of some equipment in 1982.

Moreover, for the detailed design of experimental reactors a further ¥280 million is requested. The complete design of a 2 loop type experimental reactor with 50MW output is to be completed in three years.

6) Safeguards and Physical Protection

A total of ¥2.43 billion is sought for this purpose, which breaks down into ¥536 million for the Atomic Energy Bureau, ¥1.27 billion for PNC, ¥598 million for JAERI, and ¥21 million for research contracts.

In response to the international movement to enforce the standards of nuclear material protection, each nuclear power facility in Japan plans to build protection fences and invasion alarm devices, as one means of tightening the protection of nuclear materials. JAERI is now working on a plan to install a central surveillance system which will immediately provide a total view of all nuclear material stocks in nuclear facilities, spread over the Tokai area. This is to be completed in FY1979.

There are two research contracts planned; a survey on the possibility of a "nuclear-jack" covering each mode of transportation, and R & D on high-performance metal detectors to check people entering and leaving nuclear facilities.

7) Nuclear Ship

For operating costs of the Japan Nuclear Ship Development Agency ¥.35 billion is called for. The Agency is to carry out the repair and overhaul of the nuclear ship "Mutsu" at Sasebo Port, for which ¥2.16 billion is earmarked for FY1979, for the first year of the three-year program. A further ¥.49 billion is sought as marusai.

In addition, the Agency must begin preparation for deciding the new home port of "Mutsu."

8) Organizations and Personnel

Requests concerning STA organizations and personnel related to nuclear activities are made for a) dividing the Research and International Cooperation Division of the Atomic Energy Bureau into a "Research Division" and an "International Cooperation Division," b) setting up an independent Division for Nuclear Safety Research to strengthen the functions of the secretariat for the Nuclear Safety Commission, and c) establishing an "Environmental Safety Division" within the Nuclear Safety Bureau. For all this, an increase of staff is called for; another 6 persons for the Atomic Energy Bureau and another 11 persons for the Nuclear Safety Bureau.

The personnel of related institutions are also seeking an increase of 212 people for JAERI, 252 for PNC, 7 for the Japan Nuclear Ship Development Agency, and 8 for the National Institute of Radiological Sciences.

MITI's Nuclear-Related Budget Plan

MITI has also compiled a budget plan for FY 1979, centering around the implementation of the comprehensive energy policy. The plan calls for a nuclear-related budget in the General Account of ¥.47 billion, down from the previous year by 4%. The decrease is due to the near completion of the first stage of the nuclear steel making project (using high-temperature exhaust gas), but the total expenditure for other projects and program is to increase by 26% over the previous year. A fiscal investment of ¥139.8 billion is also expected, up 56% from the previous year.

Appropriations sought for nuclear-related programs are as follows: Studies on improvement, standardization, etc. (¥240 million), study on establishing technical standards for the reactor decommissioning (¥12 million), study on commercialization of advanced power reactors (¥346 million), measures for promoting the nuclear fuel industry (¥55 million), study on measures for spent nuclear fuel (¥27 million), treatment and disposal of radioactive wastes (¥80 million), development of a system to recover uranium from sea water, (¥201 million), nuclear steel making by high-temperature gas (¥1.62 billion), etc. As to the improvement and standardization program, the plan is to complete the final specification by 1980, and aseismic designs to be finalized next year. For new type reactors the emphasis is on the heavy water reactor and Pu utilization in thermal reactors..

On the nuclear fuel cycle, the final comprehensive assessment on the "nuclear fuel park" concept is to be carried out, and an environmental assessment survey is to be conducted in the particular site where the second reprocessing plant is scheduled to be built around 1979. An additional fiscal investment of ¥2.8 billion is estimated for loans available for utilities for overseas reprocessing. In the field of uranium resources, the construction of a model plant will begin for recovery of uranium from seawater (10 kg/year). A ¥1.6 billion fiscal investment plan is sought for the construction of a uranium stockpiling facility, continuing from last year.

Special Account for Power Development

Set out below are the requests for appropriations from the Special Account for power development for FY1979.

Revenue of the Special Account for power development in FY1979 will total 59.4 billion, including ¥21.5 billion surplus and other sums from tax income for promotion of power plant construction. This is an increase of ¥7.9 billion on the previous year. The expenditures cover; grant for promoting the construction of power plants (¥38.9 billion), research contracts, including safety measures (¥14.8 billion), subsidy for safety measures, etc. (¥4 billion), grant for safety measures (¥1.4 billion), and others.