The original documents are located in Box 18, folder "Uranium Enrichment (2)" of the Robert T. Hartmann Files at the Gerald R. Ford Presidential Library.

THE WHITE HOUSE

WASHINGTON

July 3, 1975

MEMORANDUM FOR: ROBERT T. HARTMANN

FROM: JERRY WARREN

As you know, the President feels that his plan for a competitive nuclear fuels industry carries a very high priority. He would like to see the uranium enrichment legislation enacted quickly, and to do so, he will need your help.

Because of the complexity of the President's proposal, I felt that it would be helpful to put together a package that explains the plan in some detail. I think it is important that the topic be understood by those at the highest level of Government, so that you can adequately convey this message to the public.

Thanks.

Enclosures

INFORMATION ON

THE PRESIDENT'S PLAN FOR A

COMPETITIVE NUCLEAR FUEL INDUSTRY

- The President's Message to the Congress
- Remarks upon Signing the Message
- Summary Fact Sheet
- Detailed Fact Sheet
- Proposed Legislation
- Questions and Answers

EMBARGOED FOR RELEASE
UNTIL 12:00 NOON (EDT)

June 26, 1975

Office of the White House Press Secretary

THE WHITE HOUSE

TO THE CONGRESS OF THE UNITED STATES:

Every so often, a Nation finds itself at a crossroads. Sometimes, it is fortunate and recognizes it has a choice. Sometimes, it does not.

We are at such a crossroads in America today.

The course we select will touch the lives of most of us before the end of this century and surely affect the lives of generations of Americans yet to come.

Today, I am asking the Congress to join me in embarking this Nation on an exciting new course which will help assure the energy independence we seek and a significantly strengthened economy at the same time.

I am referring to the establishment of an entirely new private industry in America to provide the fuel for nuclear power reactors -- the energy resource of the future. I am referring to uranium enrichment which is presently a Federal Government monopoly.

Without question, our energy future will become more reliant on nuclear energy as the supplies of oil and natural gas diminish.

The questions we must answer are (1) whether the major capital requirements for constructing new uranium enrichment facilities will be paid for by the Federal taxpayer or by private enterprise, and (2) whether a major new and expanding segment of our economy will be under the control of the Federal Government or the private sector.

The private sector has already demonstrated its capability to build and operate uranium enrichment facilities under contracts with the Federal Government. Since it is also willing to provide the capital needed to construct new

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uranium enrichment plants, I am asking the Congress to enact legislation to enable American industry -- with all its financial resources, management capability and technical ingenuity -- to provide the enriched uranium needed to fuel nuclear power plants.

I believe this is the proper and correct course for America to take. The alternative is continued Federal monopoly of this service at a cost to the taxpayers of at least $30 billion over the next 15 years.

The enrichment of uranium -- which means, in brief, separating the fissionable U-235 in uranium from non-fissionable parts to provide a more potent mixture to fuel nuclear reactors -- is an essential step in nuclear power production.

For more than twenty years, the United States Government has supplied the enrichment services for every nuclear reactor in America and for many others throughout the world. Our leadership in this important field has enabled other nations to enjoy the benefits of nuclear power under secure and prudent conditions. At the same time, this effort has been helpful in persuading other nations to accept international safeguards and forego development of nuclear weapons. In addition, the sale of our enrichment services in foreign countries has returned hundreds of millions of dollars to the United States.

These enrichment services have been provided by plants -- owned by the Government and operated by private industry -- in Oak Ridge, Tennessee, Portsmouth, Ohio, and Paducah, Kentucky. A $1-billion improvement program is now underway to increase the production capacity of these plants by 60 percent. But this expanded capacity cannot meet the anticipated needs of the next 25 years.

The United States is now committed to supply the fuel needs for several hundred nuclear power plants scheduled to begin operation by the early 1980's. Since mid-1974, we have been unable to accept new orders for enriched uranium because our plant capacity -- including the $1-billion improvement -- is fully committed.

In short, further increases in enrichment capacity depend on construction of additional plants, with seven or eight years required for each plant to become fully operational.

Clearly, decisions must be made and actions taken today if we are to insure an adequate supply of enriched uranium for the nuclear power needs of the future and if we are to retain our position as a major supplier of enriched uranium to the world.

It is my opinion that American private enterprise is best suited to meet those needs. Already, private industry has demonstrated its willingness to pursue the major responsibilities involved in this effort. With proper licensing, safeguards, cooperation and limited assurances from the Federal Government, the private sector can do the job effectively and efficiently -- and at enormous savings to the American taxpayer. In this way, direct public benefits will be provided on a long-term basis by private capital, not by taxpayers.

Accordingly, I am proposing legislation to the Congress to authorize Government assurances necessary for private enterprise to enter into this vital field.

A number of compelling reasons argue for private ownership, as well as operation, of uranium enrichment plants. The market for nuclear fuel is predominantly in the private sector. The process of uranium enrichment is clearly industrial in nature.

The uranium enrichment process has the making of a new industry for the private sector in much the same tradition as the process for synthetic rubber -- with early Government development eventually being replaced by private enterprise.

One of the strengths of America's free enterprise system is its ability to respond to unusual challenges and opportunities with ingenuity, vigor and flexibility. A significant opportunity may be in store for many firms -- old and new -- to participate in the growth of the uranium enrichment industry. Just as coal and fuel oil are supplied to electric utilities by private firms on a competitive basis, enriched uranium should be supplied to them in the same fashion in the future.

The energy consumer also stands to benefit. The production of nuclear power now costs between 25 and 50 percent less than electricity produced from fossil fuels. It is not vulnerable to the supply whims or unwarranted price decrees of foreign energy suppliers. And based on the past fifteen years of experience, commercial nuclear power has an unparalleled record of safe operation.

The key technology of the uranium enrichment process is secret and will remain subject to continued classification, safeguards and export controls.

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But for several years, a number of qualified American companies have been granted access to the Government's technology under carefully controlled conditions to enable them to assess the commercial potential for private enriching plants.

The Government-owned gaseous diffusion enriching plants have run reliably and with ever-improving efficiency for more than a quarter of a century. One private group has chosen this well-demonstrated process as part of its $3.5 billion proposal to build an enrichment plant serving 90 nuclear reactors here and abroad in the 1980's. Others are studying the potential of the newer gas centrifuge process. Though not yet in large-scale operation, the centrifuge process -- which uses much less power than the older process -- is almost ready for commercial application.

I believe we must move forward with both technologies and encourage competitive private entry into the enrichment business with both methods. A private gaseous diffusion plant should be built first to provide the most urgently needed increase in capacity, but we should proceed simultaneously with commercial development of the centrifuge process.

With this comprehensive approach, the United States can reopen its uranium enrichment "order book," reassert its supremacy as the world's major supplier of enriched uranium, and develop a strong private enrichment industry to help bolster the national economy.

For a number of reasons, a certain amount of governmental involvement is necessary to make private entry into the uranium enrichment industry successful.

The initial investment requirements for such massive projects are huge. The technology involved is presently owned by the Government. There are safeguards that must be rigidly enforced. The Government has a responsibility to help ensure that these private ventures perform as expected, providing timely and reliable service to both domestic and foreign customers.

Under the legislation I am proposing today, the Energy Research and Development Administration would be authorized to negotiate and enter into contracts with private groups interested in building, owning and operating a gaseous diffusion uranium enrichment plant.

ERDA would also be authorized to negotiate for construction of several centrifuge enrichment plants when more definitive proposals for such projects are made by the private sector.

Contract authority in the amount of $8 billion will be needed, but we expect almost no actual Government expenditures to be involved. In fact, the creation of a private enrichment industry will generate substantial revenues for the United States Treasury through payment of Federal income taxes and compensation for use of Government-owned technology.

Under the proposed arrangements, there will be an opportunity for foreign investment in these plants, although the plants will remain firmly under U.S. control. There will be no sharing of U.S. technology and, there will be limitations on the amount of capacity each plant can commit to foreign customers.

In addition, all exports of plant products will continue to be made pursuant to Governmental Agreements for Cooperation with other Nations. All will be subject to appropriate safeguards to preclude use for other than agreed peaceful purposes.

Foreign investors and customers would not have access to sensitive classified technology. Proposals from American enrichers to share technology would be evaluated separately, and would be subject to careful Government review and approval.

Finally, the plants proposed will be designed and built to produce low enriched fuel which is suitable only for commercial power reactors -- not for nuclear explosives.

In the remote event that a proposed private venture did not succeed, this legislation would enable the Government to take actions necessary to assure that plants will be brought on line in time to supply domestic and foreign customers when uranium enrichment services are needed.

I have instructed the Energy Research and Development Administration to implement backup contingency measures, including continuation of conceptual design activities, research and development, and technology assistance to the private sector on a cost-recovery basis.

ERDA would also be able to purchase from a private firm design work on components that could be used in a Government plant in the unlikely event that a venture fails.

Finally, I pledge to all customers -- domestic and foreign -- who place orders with our private suppliers that the United States Government will guarantee that these orders

are filled as needed. Those who are first in line with our private sources will be first in line to receive supplies under this assurance. All contracted obligations will be honored.

I also pledge that cooperative agreements made with private firms under the proposed new authority will fully reflect the public interest. In fact, all contracts will be placed before the Congress in advance of their effectiveness. The Congress will have full and complete review of each one.

In sum, the program I am proposing will take maximum advantage of the strength and resourcefulness of industry and Government.

It will reinforce the world leadership we now enjoy in uranium enrichment technology. It will help insure the continued availability of reliable energy for America. It will move America one big step nearer energy independence.

Although the development of a competitive nuclear fuel industry is an important part of our overall energy strategy, we must continue our efforts to conserve the more traditional energy resources on which we have relied for generations. And we must accelerate our exploration of new sources of energy for the future -- including solar power, the harnessing of nuclear fusion and development of nuclear breeder reactors which are safe, environmentally sound and reliable.

I ask the Congress for early authorization of this program.

GERALD R. FORD

THE WHITE HOUSE,

June 26, 1975.

# # # #

PRESIDENT'S REMARKS

FOR IMMEDIATE RELEASE JUNE 26, 1975

OFFICE OF THE WHITE HOUSE PRESS SECRETARY

THE WHITE HOUSE

REMARKS OF THE PRESIDENT
UPON SIGNING
THE URANIUM ENRICHMENT MESSAGE

THE CABINET ROOM

11:23 A.M. EDT

I will read a statement before signing the message or messages that will go to the Congress.

Because our oil and natural gas resources are fast being depleted, we must rely more and more on nuclear power as a major source of energy for the future.

Today, I am asking the Congress to join me in embarking the Nation on an exciting new course of action which will help to assure the energy independence that we need, and significantly strengthen our economy at home, at the same time.

I am referring to the establishment of an entirely new competitive industry to provide uranium enrichment service for nuclear power reactors. The legislation that I am seeking will reinforce the world leadership we now enjoy in uranium enrichment technology.

It will help insure the continued availability of reliable energy for America. It will move America one big step nearer energy independence.

This legislation will insure that the billions of dollars required for the construction of new enrichment plants will be borne by the private sector, not by the American taxpayer.

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But all of us will benefit directly from the service which private enterprise will provide.

I urge the Congress to act swiftly and favorably on this important new energy initiative. With this comprehensive approach, the United States can reopen its uranium enrichment order book, reassert its supremacy as the world's major supplier of enriched uranium, and develop a strong private enrichment industry to help bolster the national economy.

So it is with pleasure and hope that I sign the message to go to both the House and the Senate, and ask the Congress to move as rapidly as possible in order that we can achieve the objectives which are so important.

Thank you very much.

END (AT 11:25 A.M. EDT)

SUMMARY FACT SHEET

EMBARGOED FOR RELEASE
UNTIL 12:00 NOON, EDT

June 26, 1975

Office of the White House Press Secretary

THE WHITE HOUSE

SUMMARY FACT SHEET

THE PRESIDENT'S PLAN FOR A COMPETITIVE NUCLEAR FUEL INDUSTRY

The President's Action

The President today announced administrative actions and a legislative proposal to:

- Increase the United States' capacity to produce enriched uranium to fuel domestic and foreign nuclear power plants.
- Retain U.S. leadership as a world supplier of uranium enrichment services and technology for the peaceful uses of nuclear power.
- Assure the creation, under appropriate controls of a private, competitive uranium enrichment industry in the U.S. -- ending the current Government monopoly.
- Accomplish these objectives with little or no cost to taxpayers and with all necessary controls and safeguards.

Background

- The U.S. capacity for refining or "enriching" uranium to make fuel for nuclear electric generating plants is now fully committed.
- Work on constructing new capacity must begin soon so that plants will be ready to meet domestic and foreign requirements by about 1983.
- Efforts to encourage the creation of a competitive uranium enrichment industry have shown that certain forms of Government cooperation and temporary assurances are necessary to permit private firms to enter the industry.

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(OVER)

- The need for added capacity provides the opportunity for specific actions by the Government to encourage private entry.

Highlights of the Plan

The President's plan includes:

- A legislative proposal, the Nuclear Fuel Assurance Act of 1975, which would authorize the Government to enter into certain cooperative arrangements with private industrial firms that wish to finance, build, own and operate plants to provide uranium enrichment services.

- A pledge by the President to foreign and domestic customers that the Government will assure that orders placed with private producers will be fulfilled as services are needed.

- Opportunities for foreign investment, with control of these plants remaining in U.S. hands.

- All necessary controls and safeguards concerned with (a) preventing the diversion of nuclear materials and the spread of sensitive technology, (b) environmental impact, (c) safety, and (d) antitrust.

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EMBARGOED FOR RELEASE
UNTIL 12:00 NOON (EDT)

June 26, 1975

Office of the White House Press Secretary

THE WHITE HOUSE

FACT SHEET

THE PRESIDENT'S PLAN FOR A COMPETITIVE NUCLEAR FUEL INDUSTRY

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(OVER)

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THE PRESIDENT'S ANNOUNCEMENT

The President today announced administrative actions and a legislative proposal to (a) increase the United States' capacity to produce enriched uranium in order to meet the needs of domestic and foreign nuclear power plants, (b) retain U.S. leadership as a world supplier of uranium enrichment services and nuclear power plants, (c) assure the creation, under appropriate controls of a private, competitive uranium enrichment industry in the U.S. -- ending the current Government monopoly; and (d) accomplish these objectives with little or no cost to taxpayers and with all necessary controls and safeguards.

BACKGROUND

- Natural uranium from U.S. and foreign mines must be refined or "enriched" before it can be used to make fuel for nuclear power plants which are used in the United States and in many foreign nations to generate electricity.

- U.S. capacity for enriching uranium which now supplies all domestic and most foreign needs, consists of three Government-owned plants, located at Oak Ridge, Tennessee; Paducah, Kentucky; and Portsmouth, Ohio.

- Since mid-1974, the entire capacity of the three plants has been fully committed under long-term contracts. New enrichment capacity must be on "on-line" beginning in about 1983 to meet the growing domestic and foreign demand for nuclear fuel.

- The potential U.S. market abroad has begun to erode as some potential foreign customers have started looking to sources such as the U.S.S.R., France and a West European consortium for uranium enrichment.

- Since 1971, the Executive Branch has followed policies and programs directed toward assuring that private industry -- rather than the Federal Government -- builds the next increments of U.S. uranium enrichment capacity.

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- Several industrial firms have sought to enter the uranium enrichment field but all have found that some forms of Government cooperation and temporary assurances are needed to overcome the initial obstacles to private industry involvement.

THE PLAN

Objectives. The plan announced by the President is designed to meet the objectives of assuring that:

- The next increments of U.S. uranium enrichment capacity will be available when needed to meet the growing demand for fuel for nuclear powered generating plants in the U.S. and in other nations.

- The U.S. maintains its leadership role in enrichment technology and its role as a major world supplier of uranium enrichment services and nuclear power plants -- a role that is important to:

  - Our economy and our world trade position.
  - Our efforts to obtain the commitment of additional nations to accept international safeguards and the principle of nuclear non-proliferation.
  - Our cooperation with other major oil consuming nations which are looking to nuclear power to help reduce their dependence on foreign oil imports.
  - Our longer range goal of developing technology and energy resources to supply a significant share of the free world's energy needs.

- All future increments of capacity will be built, financed and operated by private industry -- rather than by the Federal Government -- so that a competitive industry will exist at the earliest possible date.

- There will be little or no cost to the taxpayer and that the Government will receive increased revenue in corporate taxes and compensation for the use of its inventions and discoveries.

- All necessary domestic and international controls over nuclear materials and classified technology will be maintained, as they would be if the Government were to own the new plants.

Principal Elements of the Plan.

. Legislative Authority for Cooperative Arrangements with Private Firms. The President is asking the Congress to enact promptly the Nuclear Fuel Assurance Act to provide the additional legislative authority needed to enable the Energy Research and Development Administration (ERDA) to negotiate and enter into cooperative arrangements with private industrial organizations that wish to build, own and operate uranium enrichment plants.

- Negotiations would be directed toward the arrangements most advantageous to the Government and the public interest and with a degree of risk to the private firm that is consistent with the objective of creating a private, competitive uranium enrichment industry.

- These arrangements would provide for certain forms of Government cooperation and temporary assurances found to be necessary after detailed negotiations with firms submitting proposals. Arrangements could include:

  . Supplying and warranting Government-owned inventions and discoveries in enrichment technology -- for which the Government will be paid.
  . Selling certain materials and supplies on a full cost recovery basis which are available only from the Federal Government.
  . Buying enriching services from private producers or selling enriching services to producers from the Government stockpile to accommodate plant start-up and loading problems.
  . Assuring the delivery of uranium enrichment services to customers which have placed orders with private enrichment firms.
  . Assuming the assets and liabilities (including debt) of a private uranium enrichment project if the venture threatened to fail -- at the call of the private venture or the Government, and with compensation to domestic investors in the private ventures ranging from full reimbursement to total loss of equity interest, depending upon the circumstances leading to the threat of failure.

- The arrangements would be spelled out in a detailed contract, and the basis for arrangements would be subject to Congressional review.

- It is intended that any undertaking by the Government to acquire assets or interest and to assume liabilities of a private venture would end after approximately one full year of commercial operation of a plant. The precise period would be determined in the negotiation of definitive agreements.

- The Government would monitor progress carefully so that it can be sure that the plant will function properly and will be completed on time and within cost estimates.

. Assurances for Customers. The President announced his pledge to domestic and foreign customers who place orders with private U.S. suppliers that the Government will assure that orders will be filled as services are needed. Those first in line with private suppliers will be first in line to receive services from the Government -- if it were necessary for the Government to take over and complete a private project.

. Controls and Safeguards. The President announced that all necessary controls and safeguards will be maintained in all arrangements with private firms. Such controls and safeguards include:

- Preventing the Diversion of Nuclear Materials or Un-Controlled Spread of Sensitive Technology. All necessary measures will be taken to safeguard the use of the products of plants and to protect sensitive classified technology. These measures include:

  . Effective domestic safeguards and physical security measures to the plants and their products.
  . Continued requirements that exports take place pursuant to appropriate international agreements for cooperation and be subjected to safeguards to prevent diversions.

. Continued classification and protection of sensitive enrichment technology.

- Foreign Investment. Foreign investment in private enrichment ventures will be encouraged, but control will remain, as required by law, with U.S. interests. Foreign investors would not require or have access to classified information. Any proposals for sharing technology would be considered separately and would be subject to Governmental review and approval.

- Environmental Impact, Safety and Anti-Trust. Private ventures wishing to build plants will have to obtain from the Nuclear Regulatory Commission (NRC) a construction permit and operating license. As a part of its review, the NRC must evaluate environmental, safety and anti-trust considerations as well as assure that control of the proposed new ventures remain in the U.S. -- as now required by the Atomic Energy Act. NRC also will have responsibility for assuring that the plants are appropriately safeguarded. The Justice Department participates in the review of anti-trust considerations.

IMPLEMENTING ACTIONS

The President announced several administrative actions that are being taken now:

. Negotiations for a Diffusion Plant. ERDA is responding formally to a proposal from the Uranium Enrichment Associates (UEA) offering to enter into negotiations which could lead to the construction by UEA of a $3.5 billion (1976 dollars) plant which would make use of gaseous diffusion technology and which would be on line by about 1983.

. Request for Proposal for Centrifuge Plants. ERDA is issuing today a new request for proposals from industrial firms interested in constructing, owning and operating enrichment facilities making use of centrifuge technology.

. Environmental Impact Statement. ERDA will on June 30 issue for public review and comment a draft environmental impact statement concerned with the expansion of uranium enrichment capacity to be attained through ERDA's implementation of this action.

- Contingency Planning. ERDA will continue with backup contingency measures to assure that capacity will be ready in the unlikely event that industrial efforts falter. These measures include continuation of Government conceptual design activities, research and development on enrichment technologies, and technological assistance to the private sector on a cost recovery basis.

- Diffusion Plant Design Work. ERDA plans to purchase from UEA design work on components for the private diffusion plant that could be used in a Government plant -- if the private venture were unable to proceed.

SPECIFICS OF THE LEGISLATIVE PROPOSAL

Authorizing legislation. The basic enabling legislation proposed today by the President would:

- Authorize Cooperative Agreements.

  - It would permit ERDA to negotiate and enter into cooperative arrangements with firms wishing to build, own and operate uranium enrichment facilities.

  - It would provide authorization for contract authority for amounts up to $8 billion as may be approved in an appropriation act -- which is an estimate of the total potential cost to the Government in the unexpected event that all Government assured diffusion and centrifuge ventures were to fail, and it was then necessary for the Government to assume assets and liabilities of these ventures, take over plants, and compensate domestic investors. The Administration's expectation is that none of these funds would have to be appropriated or expended for the assumption of private ventures, but the authorization is necessary to provide assurance to customers and to potential producers of the Federal Government's commitment to create a competitive industry.

- Provide for Congressional Review. Once contracts were negotiated the Joint Committee on Atomic Energy (JCAE) would be notified and a period of 45 days would have to elapse before a contract would be executed -- to allow an opportunity for Congressional review of the basis for ERDA's arrangements with private firms.

Appropriations Request. The President will later request an appropriation of contract authority which is required by the proposed bill before a contract can be executed, in order to cover the estimated maximum Federal Government exposure for specific projects in the event that it were necessary to assume assets and liabilities. Again, expenditure of these funds for assumption of any private venture is not considered likely.

DEVELOPMENTS LEADING TO THE PRESIDENT'S PLAN

U.S. Leadership in Uranium Enrichment Technology. The United States is the recognized world leader in technology for refining or "enriching" natural uranium to a form that can be used to make fuel for nuclear power reactors. Natural uranium contains only a small amount (approximately .7%) of the fissionable isotope U-235. In order to be useful to make fuel for most nuclear reactors, the concentration of U-235 must be increased to about 2-4% through a process of separating off other isotopes. The technology was developed and is owned by the Federal Government. Certain parts of the technology are classified. Principal U.S. technologies are:

- Gaseous Diffusion. This technology which is now used in the three existing government-owned enrichment plants was developed in the 1940's. Over 30 years of large scale operating experience and process improvement have made the technology the most reliable and economical now available for commercial scale operations. The next increment of capacity must make use of this technology.

- Gas centrifuge. The gas centrifuge process of uranium enrichment provides an alternative to gaseous diffusion. Full operation of a Government pilot plant is scheduled for early 1976. If the projected economics of the process are realized, gas centrifuge technology is expected to be used as subsequent increments of commercial capacity are added.

- Laser Separation. ERDA is conducting a basic research program to determine whether this technology is technically or commercially feasible. Even if successful, the technology will not be available in time to be used for the next several increments of needed enrichment capacity.

Existing U.S. Capacity. The three Government-owned uranium enrichment plants will, when currently authorized expansion is completed, have the capacity to produce enriched uranium needed to fuel about 300 large nuclear-powered electric generating plants in the U.S. and foreign countries.

The Growing Market. Current estimates are that the U.S. will require for domestic needs added enrichment capacity by 2000 equal to 6 to 9 plants the size of any one of the three existing plants and that added capacity for the total market served by the U.S. will equal 9 to 12 similar size plants.

Potential Foreign Suppliers. The principal existing capacity for enriching uranium outside the U.S. is in the Soviet Union. A French-led diffusion plant project (Eurodif) is expected to begin production in 1979 and its capacity is reported to be fully committed. A British-German-Dutch consortium (Urenco) plant will also begin expanded operations in 1979. Plans for additional plants are being discussed by France, Canada, South Africa, Japan, Australia and Brazil.

The Program to Develop a Competitive Industry. The Atomic Energy Act of 1954 provides that "the development, use and control of atomic energy shall be directed so as to ... strengthen free competition in private enterprise". An Executive Branch policy to encourage private industry to build the next increments of uranium enrichment capacity was announced in June 1971. Beginning in 1973, the Atomic Energy Commission (AEC) asked private firms to consider building, owning and operating enrichment plants and granted qualified U.S. firms access to classified aspects of the Government's work, under carefully controlled security conditions, in order that they might make their own assessment of the commercial potential for private enriching plants. A number of firms responded to the invitation from which several consortia have emerged which are interested in pursuing the possibility of building enrichment plants.

- Diffusion Plant. One consortium -- the Uranium Enrichment Associates (UEA) -- is interested in constructing a $3.5 billion gaseous diffusion plant equivalent to the expanded capacity of one of the 3 existing Government-owned plants.

- Centrifuge Plants. Other firms and consortia -- Centar, Exxon Nuclear and Garrett Corporation -- have expressed interest in cooperative arrangements with the Federal Government which would lead to demonstration gas centrifuge plants which could be expanded in the future to commercial scale plants. The AEC (predecessor to ERDA) requested proposals from industry to advance the demonstration of centrifuge technology. A modified request for proposals is being issued today by ERDA.

Obstacles to the Entry of Private Industry. All firms interested in building, owning and operating a private plant have concluded that some form of Government cooperation and temporary assurances are essential to begin the transition to a private competitive industry. Among the factors that have contributed to this conclusion are:

- The complexity of the undertaking, including the Federal ownership and the classification of the technology.
- The large financial commitment required and the difficulty encountered in trying to obtain private financing.
- The inherent difficulties of ending a Government monopoly.
- The recent adverse financial situation of U.S. electrical utilities which are the customers for a plant. (Their long term contracts for uranium enrichment services must provide security for the long term financing required.)
- Some uncertainty as to whether the Government would follow through on its commitment to achieve privatization.

Alternatives to Private Entry. The principal alternatives to an immediate effort to achieve privatization include:

- All future additions to capacity financed, built and owned by the Federal Government, thus continuing indefinitely the existing monopoly.
- Government financing and ownership of one or more additional increments of capacity, followed by another attempt to achieve privatization.

A thorough review indicated that, regardless of the alternative selected:

- The next increment of capacity can be on line when needed (now estimated about 1983).
- Controls and safeguards involving classified technology and non-proliferation of nuclear materials can be maintained.
- Customers for the next increment are expected to be largely foreign.
- Foreign investments in an enrichment plant can be accommodated.

This review led to the conclusion that the task of explaining and implementing the plan for achieving a private industry would be difficult and that a substantial effort would be required by both the Congress and the Executive Branch, but that the benefits of privatization justified the effort. The benefits of privatization include:

- Avoiding a cost to taxpayers of $40 to $50 billion for plants that should be on line by 2000, if the Federal Government were to finance and own the plants. (These funds would not be recovered to the Treasury for many years.) Under the President's plan, revenue of about $90 to $100 million per plant per year would flow to the Federal Treasury from industry, principally from taxes and payments for the use of Government inventions and discoveries.

- An early end to the Government monopoly in a type of commercial activity.

- Avoiding expansion of the public sector when industry is willing and able to do the job.

- Competition which would provide incentives for lower costs and additional improvements in technology.

The Proposal from Uranium Enrichment Associates (UEA). Uranium Enrichment Associates is a consortium currently consisting of Bechtel Corporation and the Goodyear Tire and Rubber Company. On May 30, 1975, UEA submitted a revised proposal to ERDA calling for cooperative arrangements with the Federal Government. The principal features of the UEA proposals are summarized in Attachment #1. A contract containing the details of a cooperative agreement would be negotiated by UEA and ERDA.

Centrifuge Enriching Projects -- Request for Proposals.

- In August of 1974 the Government announced a program expected to lead to several relatively small industry constructed demonstration projects.

- Gas centrifuge technology has not yet been applied on a production scale sufficient to permit full industry commitment to large plants. At least three companies are interested in undertaking private centrifuge enriching projects now which would be scaled up progressively from small demonstration modules to a capacity the economies of scale for centrifuge enriching are expected to be largely realized. These are expected to be 1/3 to 1/2 the capacity of the planned diffusion plant.

- Government-industry cooperative arrangements similar to that required for the UEA diffusion project may be required.

- A Request for Proposals for this program which extends and elaborates upon the earlier program is being issued today:

  - Proposals will be due on October 1, 1975 and it is the Government expectation that several proposals could be accepted to proceed more or less in parallel with each other and with the UEA project.

  - Proposers will describe their proposed project in detail, including plant design, size, location and schedules and specify the type and magnitude of Government support necessary to proceed.

  - Small initial modules, perhaps 200-300 thousand units per year could be in operation in the early 1980's with 2-3 million unit commercial scale plants achieved in the mid-1980's on a time frame consistent with the growth of the market.

- Centrifuge technology permits adding small capacity increments as required to closely follow market needs.

- Proceeding with several centrifuge demonstration projects in the same time frame as the gaseous diffusion plant will further the objective of developing a private, competitive enriching industry and maintaining U.S. world leadership in this field.

OTHER ACTIONS RELATED TO URANIUM ENRICHMENT CAPACITY

Increasing ERDA's Charge for Uranium Enrichment Services.

- The current price charged by ERDA for uranium enrichment is based on a statutory formula which says that ERDA's charge must be established on the basis of the recovery of the Government's costs over a reasonable period of time. Application of the formula has resulted in a present charge of about $42 to $48 per separative work unit, depending on the type of contract a customer has with ERDA. This price will rise by the end of 1975 to about $53 and $60 per unit. These prices reflect the low cost of construction during the 1940's and 1950's for plants built primarily for military purposes. These prices are much lower than the quoted world market prices of enrichment services of between $75 to $100 per unit.

- The President announced in his 1976 Budget his intention to propose legislation to the Congress to permit ERDA to raise the price of enrichment services from its plants. The new price would be established to recover the Government's costs and place the pricing of Government enriching services on a more business-like basis. This step would encourage private sector interest in building enrichment facilities and end an unjustifiable subsidy to both foreign and domestic customers. The new price would include a rate of return on investment more appropriate to the private sector than the Government's rate of return, an allowance equivalent to corporate income taxes and also include other costs typical of private operations On this basis the new price per separative work unit will be approximately $76.

- This legislation has been submitted to the Congress by ERDA.

Contract Relief for Current ERDA Enrichment Customers.

- Present ERDA enrichment contracts require customers to commit to a fixed delivery schedule and to make prepayments amounting to about $3 million per plant several years prior to the first delivery of enriched fuel. Since these contracts were signed, many nuclear power plants whose fuel was covered by these contracts have been postponed or cancelled.

- As a result, many utilities now face the prospect of having to pay for uranium enrichment services well in advance of the revised completion dates for the reactors.

- In order to free both ERDA and the enrichment customers from unrealistic commitment, ERDA, after notifying the Joint Committee on Atomic Energy (JCAE), has announced that it will:

  - Grant customers the right within a 60-day period to serve notice that they wish to terminate their contract with no cancellation fee and with refund of any payments.

  - Permit those wishing to defer deliveries (rather than terminate contracts) to have a one-time adjustment of contract commitments without penalty.

  - Permit a similar one-time adjustment of the rate at which uranium feed should be sent to the enriching plants to coincide in part with the slipped enrichment requirements.

. These actions would:

- Result in a larger U.S. stockpile of enriched uranium for use as an inventory to support the new private uranium enrichment plants with backup supplies of enriched material, should any delays occur in their initial operation.

- Establish a more realistic data base for evaluating future domestic and foreign enrichment requirements.

- Grant needed short-term financial relief to the utility industry.

ERDA Conditional Contracts for Enrichment Services.

. Some customers placing orders with AEC (predecessor to ERDA) in mid-1974 were given conditional contracts; i.e., contracts contingent upon the approval by U.S. regulatory authorities (now the Nuclear Regulatory Commission) of the use of recycled plutonium as a nuclear reactor fuel. These conditional contracts were backed up by announcement that the U.S. would have expanded capacity available that could fulfill requirements, if needed.

. The expanded U.S. capacity that will result from the President's plan will provide sources of supply that can be tapped by the holders of conditional contracts.

ATTACHMENT #1

SUMMARY OF THE URANIUM ENRICHMENT ASSOCIATES (UEA) PLAN AND PROPOSAL TO ERDA FOR A COOPERATIVE ARRANGEMENT

Physical Description of the Project.

- A 9 million separative work unit per year gaseous diffusion plant would be built near Dothan, Alabama on a 1720 acre site on the Chattahoochee River.
- When in full operation the plant could provide enriching services for about 90 large nuclear power reactors.
- The plant will require about 2500 megawatts of electrical power which will be supplied from a dedicated nuclear power facility located nearby.
- Project cost estimate (exclusive of the power project) has been estimated by UEA to be $3.5 billion in 1976 dollars.
- UEA projects continuation of design work now underway on the project during the next several years with construction scheduled to commence in 1977.
- Full production from the plant is projected in 1983 with limited production starting in 1981.
- Nearly 50 million construction manhours are estimated for the project. A peak construction labor force of about 7000 workers will be reached in 1979-80 and the permanent operating staff of the project is expected to be about 1100.
- The plant will be processing and upgrading natural uranium and thus will have essentially no radiation hazard. It will be similar to a large materials handling plant except that the product material will be much more valuable.

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Financial Structure of UEA Project.

- UEA expects that two to six companies in addition to Bechtel and Goodyear will comprise the consortium that will undertake the project. These companies are expected to be identified within the next few months.

- Based upon marketing efforts to date, UEA projects that about 40 percent of plant capacity will be taken by U.S. domestic utilities and the balance by non-U.S. organizations in countries with which the United States has Agreements for Cooperation permitting the transfer or disposition of enriched uranium. (Under the Atomic Energy Act voting control for such a project must remain in the hands of the United States investors at all times and the project is so structured. The secrecy of the process will be protected and foreign customers or investors will not have access to classified technology or information.)

- Project financing using an 85 percent debt, 15 percent equity ratio is contemplated for the project.

- The equity corresponding to the domestic portion of plant output will be supplied by UEA and the debt financing will be raised in the commercial market primarily on the basis of the security of long-term (25 year) non-cancelable enrichment service contracts with domestic utilities.

- Both equity and debt for the foreign share of plant output is to be supplied from the foreign customers' own sources of capital.

- Pricing of product from the plant is based upon the recovery of all operating costs, servicing of debt and an after-tax return of approximately 15 percent on equity.

- A 3 percent payment, based on gross sales would be paid to the Government for use of taxpayer-developed technology.

Customers.

- A number of United States' utilities have executed contingent letters of intent with UEA to purchase uranium enriching services from the new plant and a number of additional utilities are now evaluating their requirement for services.

. UEA has made extensive marketing contacts overseas and anticipates that foreign orders will be forthcoming.

Cooperative Arrangements.

. Due to the unique nature of the project, the very large capital requirements, and long payout periods, UEA has concluded that it would not be possible to move ahead without certain forms of Government backup assistance.

. UEA has proposed that the Government:

- Supply, at cost, essential components presently produced exclusively by the Government.
- Supply the Government's gaseous diffusion technology and warrant its satisfactory operation.
- Buy enriching services from UEA or sell enriching services to UEA from the Government stockpile to accommodate plant start-up and loading problems.

. UEA has also proposed that:

- The Government provide standby financial backup assistance lasting for the critical construction period plus approximately one additional year to offset the current weak credit position of the U.S. utility industry. The Government provide financial backup if UEA cannot complete the plant or bring it into commercial operation. A call on this financial backup is made at the risk of loss to UEA of its equity interest. In this event, the Government has the right to acquire UEA's domestic equity position and the obligation to assume UEA's liabilities and debt.
- The Government may also require UEA to release the project to the Government if the Government's interest so demands. In this event, the Government would be obligated to assume UEA's liabilities and debt.
- The consideration for acquisition of UEA's domestic equity position in either case can range from loss of equity for uncorrected gross mismanagement of UEA to full fair compensation for causative events outside UEA's reasonable control.

All of the above forms of backup assistance would be subject to contract negotiations between ERDA and UEA. UEA believes that the plant can be completed within the private sector with no net expenditure of Government funds.

ATTACHMENT #2

Uranium Enrichment as Part of the Nuclear Fuel Cycle

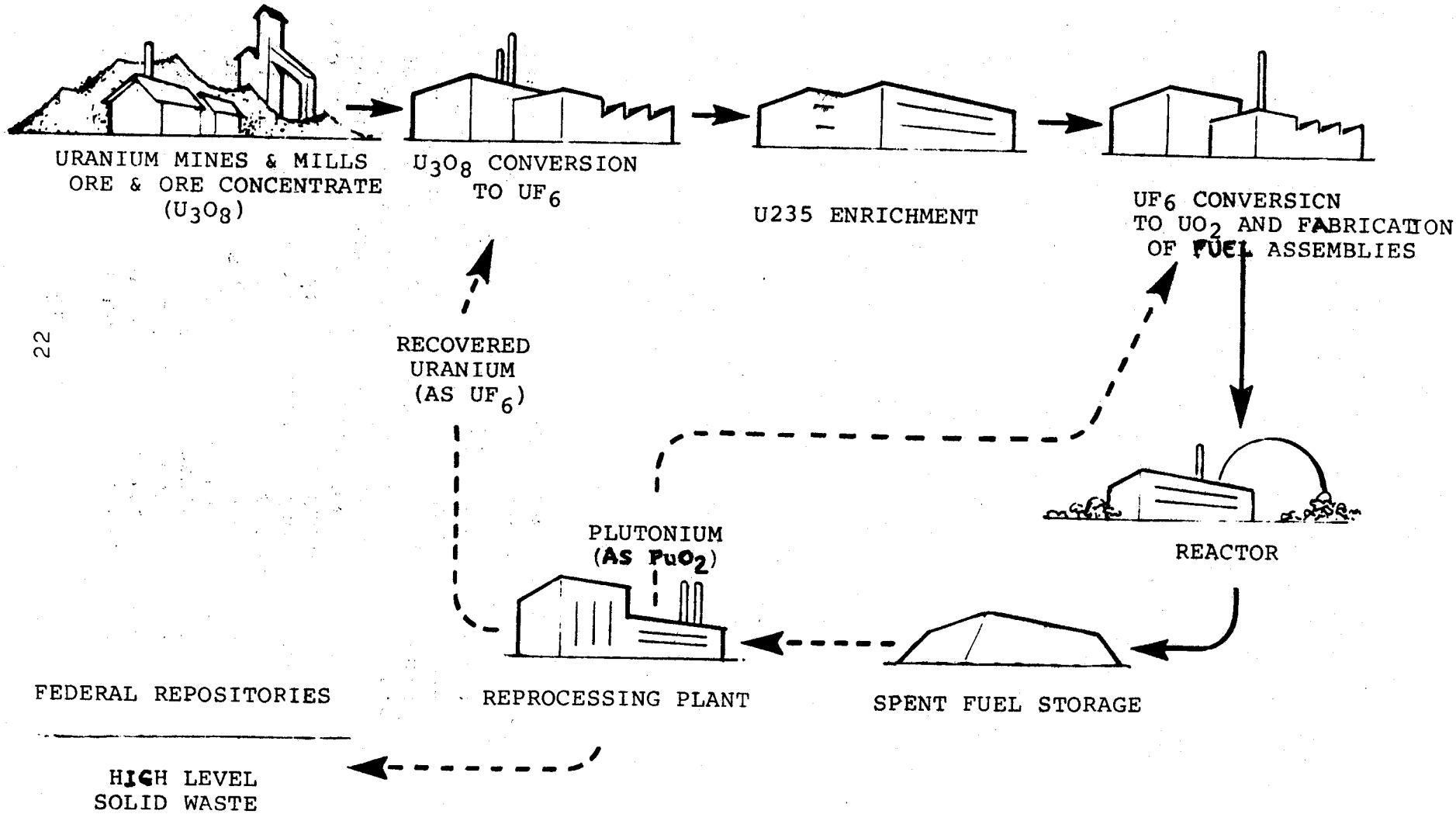
The attached chart depicts the nuclear fuel cycle for Light Water Reactors, (the type of reactors most commonly used in the U.S.). About 97% of the reactors obtaining enrichment services from the ERDA gaseous diffusion plants are Light Water Reactors, a similar fuel cycle exists for the other present reactor type -- the High Temperature Gas Cooled Reactor.

Prior to the enrichment step, uranium ore is mined from the earth's crust and sent to a mill where uranium concentrate is produced. This concentrate is often referred to as yellowcake, or by the chemical symbol, U_3O_8. There are 14 mills presently operating in the U.S. The uranium concentrate is then sent to a converter where it is converted to uranium hexafluoride, or UF_6. This is the only simple form of uranium that can be gaseous at conditions near room temperatures and pressures. There are two UF_6 conversion plants operating in the U.S.

The uranium hexafluoride is then sent to a uranium enrichment plant. There are two processes under consideration for commercial use in the U.S. -- the established gaseous diffusion process, used in the ERDA plants, and the gas centrifuge process. The UEA will use the gaseous diffusion process. In the process, the uranium hexafluoride gas is pumped through a semipermeable membrane. The desirable fissionable isotope, U-235, diffuses through the membrane more readily than the nonfissionable isotope, U-238. A stream depleted in U-235 is collected from the plant and sent to storage. A stream enriched in U-235 is collected from the plant and sent to a fuel fabrication plant. In this plant, the uranium hexafluoride is converted to uranium dioxide UO_2, formed into pellets, and placed in zirconium tubes. The tubes are assembled into bundles and sent to nuclear power plants. Seven U.S. companies are involved in the fabrication of nuclear fuel.

After the fuel is used in the nuclear power plant, it is discharged and allowed to cool in a large water basin at the plant. The spent fuel will then be sent to a chemical reprocessing plant. In this step, the uranium and reactor-produced plutonium will be separated from the highly radioactive fission products generated while the fuel is in the nuclear power plant. The radioactive wastes in proper form will be sent to a repository. The recovered uranium will be converted again to the hexafluoride and reinserted into the enrichment plants for reenrichment. Plutonium is also a fissionable material that can be used as fuel in a nuclear power plant. If use of the plutonium is granted by the Nuclear Regulatory Commission, it would be sent to the fuel fabrication plants; there it would be mixed with the uranium and formed into pellets for nuclear power plant fuel. There are currently no commercial chemical reprocessing plants operating in the U.S.; one plant is shut down for modification and another is under construction.

The Light Water Reactor Nuclear Fuel Cycle



EMBARGOED FOR RELEASE
UNTIL 12:00 NOON (EDT)

June 26, 1975

Office of the White House Press Secretary

THE WHITE HOUSE

TEXT OF LETTERS FROM THE PRESIDENT TO THE
SPEAKER OF THE HOUSE OF REPRESENTATIVES
AND THE PRESIDENT OF THE SENATE

June 26, 1975

Dear Mr. Speaker: (Dear Mr. President:)

I have today sent to the Congress a message describing my plan for securing the construction of additional uranium enrichment plants in the United States by private industry to meet the growing needs of the expanding nuclear power industry.

A critical element of this plan is legislation to authorize the Administrator of the Energy Research and Development Administration to enter into cooperative agreements with private firms to foster, through Government cooperation and temporary assurances, the creation of a competitive private uranium enrichment industry. I am enclosing a proposed bill, the Nuclear Fuel Assurance Act of 1975, which would provide the authority needed to achieve the objectives described in my message. A brief analysis of the bill is also enclosed.

I urge the Congress to pass this legislation at the earliest possible date so that we can take a major step toward our goal of energy independence.

Sincerely,

GERALD R. FORD

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A BILL

To authorize cooperative arrangements with private enterprise for the provision of facilities for the production and enrichment of uranium enriched in the isotope 235, to provide for authorization of contract authority therefor, and for other purposes.

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Nuclear Fuel Assurance Act of 1975."

Sec. 2. Chapter 5. PRODUCTION OF SPECIAL NUCLEAR MATERIAL of the Atomic Energy Act of 1954, as amended, is amended by adding at the end thereof the following Section:

"Sec. 45 Cooperative Arrangements for Private Projects to Provide Uranium Enrichment Services --

"a. The Energy Research and Development Administration is authorized, without regard to the provisions of Section 169 of this Act, to enter into cooperative arrangements with any person or persons for such periods of time as the Administrator of the Energy Research and Development Administration may deem necessary or desirable for the purpose of providing such Government cooperation and assurances as the Administrator may deem appropriate and necessary to encourage the development of a competitive private uranium enrichment industry and to facilitate the design, construction, ownership and operation by private enterprise of facilities for the production and enrichment of uranium enriched in the isotope 235 in such amounts as will contribute to the common defense and security and encourage development and utilization of atomic energy to the maximum extent consistent with the common defense and security and with the health and safety of the public; including, inter alia, in the discretion of the Administrator,

(1) furnishing technical assistance, information, inventions and discoveries, enriching services, materials, and equipment on the basis of recovery of costs and appropriate royalties for the use thereof;

(2) providing warranties for materials and equipment furnished;

(3) providing facility performance assurances;

(4) purchasing enriching services;

(5) undertaking to acquire the assets or interest of such person, or any of such persons, in an enrichment facility, and to assume obligations and liabilities (including debt) of such person, or any of such persons, arising out of the design, construction, ownership, or operation for a defined period of such enrichment facility in the event such person or persons cannot complete that enrichment facility or bring it into commercial operation: Provided that any undertaking, pursuant to this subsection 5, to acquire equity or pay off debt, shall apply only to individuals who are citizens of the United States, or to any corporation of other entity organized for a common business purpose, which is owned or effectively controlled by citizens of the United States; and

(6) determining to modify, complete and operate that enrichment facility as a Government facility or to dispose of the facility at any time, as the interest of the Government may appear, subject to the other provisions of this Act.

"b. Before the Administrator enters into any arrangement or amendment thereto under the authority of this section, or before the Administrator determines to modify, or complete and operate any facility or to dispose thereof, the basis for the proposed arrangement or amendment thereto which the Administrator proposes to execute (including the name of the proposed participating person or persons with whom the arrangement is to be made, a general description of the proposed facility, the estimated amount of cost to be incurred by the participating person or persons, the incentives imposed by the agreement on the person or persons to complete the facility as planned and operate it successfully for a defined period, and the general features of the proposed arrangement or amendment), or the plan for such modification, completion,

operation or disposal by the Administrator, as appropriate, shall be submitted to the Joint Committee on Atomic Energy, and a period of forty-five days shall elapse while Congress is in session (in computing such forty-five days, there shall be excluded the days on which either House is not in session because of adjournment for more than three days) unless the Joint Committee by resolution in writing waives the conditions of, or all or any portion of, such forty-five day period: Provided, however, that any such arrangement or amendment thereto, or such plan, shall be entered into in accordance with the basis for the arrangement or plan, as appropriate, submitted as provided herein."

Sec. 3. The Administrator of the Energy Research and Development Administration is hereby authorized to enter into contracts for cooperative arrangements, without fiscal year limitation, pursuant to Section 45 of the Atomic Energy Act of 1954, as amended, in an amount not to exceed in the aggregate $8,000,000,000 as may be approved in an appropriation Act. In the event that liquidation of part or all of any financial obligations incurred under such cooperative arrangements should become necessary, the Administrator of the Energy Research and Development Administration is authorized to issue to the Secretary of the Treasury notes or other obligations up to the levels of contract authority approved in an appropriation Act pursuant to the first sentence of this section in such form and denomination, bearing such maturity and subject to such terms and conditions as may be prescribed by the Administrator with the approval of the Secretary of the Treasury. Such notes or other obligations shall bear interest at a rate determined by the Secretary of the Treasury, taking into consideration the current average market yield on outstanding marketable obligations of the United States of comparable maturity at the time of issuance of the notes or other obligations. The Secretary of the Treasury shall purchase any notes or other obligations issued hereunder and, for that purpose, he is authorized to use as a public debt transaction the proceeds from the sale of any securities issued under the Second Liberty Bond Act, as amended, and the purposes for which securities may be issued under that Act, as amended, are extended to include any purchase of such notes and obligations. The Secretary of the

Treasury may at any time sell any of the notes or other obligations acquired by him under this section. All redemptions, purchases and sales by the Secretary of the Treasury of such notes or other obligations shall be treated as public debt transactions of the United States. There are authorized to be appropriated to the Administrator such sums as may be necessary to pay the principal and interest on the notes or obligations issued by him to the Secretary of the Treasury.

Section 4. The Administrator of the Energy Research and Development Administration is hereby authorized to initiate construction planning and design activities for expansion of an existing uranium enrichment facility. There is hereby authorized to be appropriated such sums as may be necessary for this purpose.

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Bill Analysis

Section 1 of the proposed bill cites the Act as the "Nuclear Fuel Assurance Act of 1975."

Section 2 of the proposed bill would amend Chapter 5, Production of Special Nuclear Material, of the Atomic Energy Act, as amended, by adding a new Section 45, entitled "Cooperative Arrangements for Private Projects to Provide Uranium Enrichment Services."

Subsection a. of the new Section 45 would authorize the Administrator of the Energy Research and Development Administration (ERDA) to enter into cooperative arrangements with private enterprise to facilitate the development of a competitive private industry for the enrichment of uranium to make fuel for nuclear power plants. This subsection would enable the Administrator to promote private investment in the construction, ownership and operation of uranium enrichment plants by providing such Government cooperation and assurances as are determined to be necessary and in the best interests of the Government after detailed negotiation with selected individual proposers of enrichment services. Such negotiations would be directed toward obtaining arrangements most advantageous to the Government and the public interest and with a degree of risk to the private entrepreneurs consistent with the objective of creating a private competitive uranium enrichment industry.

Cooperative arrangements authorized by Section 45a could include such Government cooperation and assurances as enumerated in the bill, including the specific authority provided in subsection 45a(5), for the Government to acquire the assets or interests and assume the liabilities (including debt) of a private enrichment firm in the event -- which is highly unlikely -- that private industry could not complete a plant or bring it into operation. It is intended that any undertaking by the Government under subsection 45a(5) to acquire assets or interest and to assume liabilities of a private venture would terminate after approximately one year of commercial operation of a plant. The precise period would be defined during the negotiations of defined agreements. Any obligations to pay off debt and to acquire equity interest would be limited to citizens of the United States.

Subsection b. of the new Section 45 would provide for review by the Joint Committee on Atomic Energy of the basis for any cooperative arrangement, or amendment

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thereof, which the Administrator proposes to undertake, including the basis for acquiring assets or interests, or assuming liabilities of any private venture, and any plan the Administrator may have for modifying, completing, operating, or disposing of any plant built under a cooperative agreement.

Section 3 of the proposed Nuclear Fuel Assurance Act would authorize the Administrator of ERDA to enter into contracts, pursuant to the new subsection 45a, in an amount not to exceed $8 billion, as may be provided in appropriation Acts. This amount is an estimate of the total potential cost to the Government in the unexpected event that all private ventures covered by cooperative arrangements were to fail and it was then necessary for the Government to assume assets and liabilities of the ventures, take over plants, and compensate domestic investors. It is not expected that any of these funds would be expended for the assumption of private ventures, but the authorization is necessary to provide assurance, to customers and sources of debt financing for private producers, of the Federal Government's commitment to create a competitive industry.

Section 3 would also provide that, in the event of Government assumption of the debts, interests and liabilities of a private venture, the Administrator is authorized to secure funds through the Secretary of the Treasury to liquidate contract authority, up to the levels previously provided in an appropriations Act.

Section 4 of the proposed bill would authorize the Administrator of ERDA to initiate preliminary engineering design and planning for expansion of a Government-owned uranium enrichment facility for contingency purposes.

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QUESTIONS AND ANSWERS RELATING TO THE PRESIDENT'S PLAN FOR A COMPETITIVE URANIUM ENRICHMENT INDUSTRY

1. Why Privatization?
2. Why Privatization Now?
3. Why Does Industry Need Government Assistance?
4. Cut-Off Date on Attempt to Get Private Entry?
5. What Work Will Continue on a Possible Government-Owned Add-on Diffusion Plant?
6. When Will the U.S. "Order Book" Open?
7. What Happens if a Private Plant Doesn't Work?
8. What Happens if a Private Plant Isn't Licensed?
9. Does UEA Have Customers?
10. Why No Board of Directors With Federal Membership?
11. Payments by Industry for Government-Owned Technology?
12. Unanswered Safety and Environmental Questions?
13. NRC Safeguards and Safety Controls?
14. Nuclear Materials Safeguards Implications?
15. Will Classified Technology Now be More Widely Available to Private Industry?
16. Why Emphasize Uranium Enrichment Sales to Foreigners?
17. Foreign Investment Without Foreign Control?
18. Foreign Purchases Without Investment?
19. Will Investment Requirements Discriminate Against Foreign Customers?
20. Foreign Customer Conditional Contracts with ERDA?
21. U.S. Share of the Foreign Market?
22. Basis for the $8 Billion Authorization Request?
23. Basics of Uranium Enrichment?
    - What does "uranium enrichment" mean? What does it consist of?
    - Why is the process referred to as a "service"?
    - How does the gas centrifuge process differ from the gaseous diffusion process?
    - Why is the enrichment process secret or "classified"?
    - What is a Separative Work Unit (SWU)?

WHY PRIVATIZATION ?

Question:

ERDA (and AEC before it) is doing a good job of supplying uranium enrichment services. Why not simply continue the present arrangements and build new Government facilities rather than set up a complicated new arrangement?

Answer:

There are many important reasons for proceeding with the creation of a competitive nuclear fuel supply industry. The principal reasons are:

(1) The provision of uranium enrichment services is now essentially a commercial/industrial activity. It is not an activity that can be performed well only by the Federal Government.

(2) Private industry is willing and able to enter the uranium enrichment industry.

(3) The uranium enrichment industry must expand rapidly over the next decade. This expansion should occur in the private sector -- rather than in the Federal Government.

(4) Construction of the needed plants to increase uranium enrichment capacity through 2000 would cost $30 billion or more (probably $40 to $50 billion). These demands should not compete in the Federal Budget with other areas which can only be financed by the Government -- such as social services and defense preparedness.

(5) As the Nation's reliance on nuclear power grows, maintaining a Federal monopoly in uranium enrichment would lead to an unprecedented degree of Federal control over the Nation's electrical energy supply.

(6) Private competition will provide incentives - over the long term - for lower costs, improved efficiencies, and technological advancement.

(7) Private ventures will generate substantial revenues to the Treasury through payment of Federal income taxes and compensation for Government-owned discoveries and inventions used by industry. Revenues should be in the neighborhood of $90-100 million per year per plant.

(8) A private undertaking will avoid the delays and uncertainties associated with the Government's budget and appropriations processes to finance new increments of capacity every year or two.

WHY PRIVATIZATION NOW?

Question:

Why not build another Government plant now and bring private industry in for subsequent increments of capacity when the new gas centrifuge technology is ready for use?

Answer:

There are several reasons for moving to private entry immediately:

- In line with the Federal policy of encouraging private entry announced in 1971, several industrial firms have undertaken substantial efforts to prepare for building, owning and operating plants to enrich uranium. This momentum would be lost if policy were reversed and another Government plant built.

- One venture has reached the stage where it has proposed construction of a plant and the taking of orders. It has lined up customers, and made detailed plans to proceed, including options on land and electrical power. This plant would use diffusion technology.

- Other ventures have been organized and are making plans to propose demonstration plants using centrifuge technology to provide the next increments of capacity.

The diffusion plant venture will fulfill immediate needs for a commitment to new capacity, follow through on the Government's commitment to private entry into uranium enrichment, and serve to "break trail" for subsequent ventures using the less proven centrifuge technology.

There are substantial benefits to moving ahead now with private entry and no convincing reasons for a delay. One of the benefits of private entry is being able to bring on new capacity with little or no cost to taxpayers. If we were to build another plant taxpayers would have to advance the money -- from the U.S. Treasury.

WHY DOES INDUSTRY NEED GOVERNMENT ASSISTANCE?

Question:

Why should it be necessary for the Government to provide any assistance to get private industry involved in uranium enrichment if it is really a commercial operation?

Answer:

The principal obstacle preventing private industry from building, owning and operating uranium enrichment plants is the difficulty in obtaining private financing for the plants -- 85% of which, under UEA's plan, would be supplied by the commercial bond market. The difficulty arises from the fact that potential bondholders (including banks, insurance companies, pension funds) have viewed enrichment plants as relatively high risk investments for several reasons:

1. Very large investments are required for individual plants -- $3.5 billion in the case of the proposed UEA plant.

2. There will be a lengthy period of time -- possibly 8 years -- after the initial investments are made before plants begin production and returns on investments are realized.

3. Since the U.S. Government owns all existing plants and must supply technology and key components -- which are classified and must remain so -- potential investors are not able to make their usual full, independent analyses of the performance of components or plant operations. Such an analysis is usually necessary to assure themselves as to the reliability of the planned operation.

4. Finally, the financial community seems to perceive a remote possibility that governmental actions -- for example, relating to licensing of a plant -- might seriously delay or prevent a private firm from completing a plant. Since such governmental actions are viewed as financially catastrophic -- in the unlikely event they were to occur -- potential lenders view this factor as adding to the risk of private entry.

Normally, potential private uranium enrichment service suppliers could rely on their long-term contracts with their utility-customers as security for their long term

debt. But the current financial difficulties of many utilities have mitigated against the use of this source of financial support.

The factors that now contribute to the obstacle outlined above can be overcome through the warranting of technology and key components -- for which the Government will be paid by private industry; and through limited, temporary assurances. Such assurances, which are provided for in the President's plan,would end after a limited period of commercial operation of a plant.

CUT-OFF DATE ON ATTEMPT TO GET PRIVATE ENTRY?

Question:

Is there a specified "cut-off" date when, if the UEA project seemed to falter, the Government would decide to proceed with an add-on diffusion plant?

Answer:

First, the risk of failure is considered very unlikely.

Second, there is no single specified, pre-set date for such a decision.

The approach to privatization selected by the President calls for very close monitoring by the Government at every stage to assure that the Government could step in if the private effort threatened to fail.

If the Government had to step in, the question of which plant would be built -- that is, a large addition to an existing Government plant, or free-standing plant -- would depend on when intervention proved necessary. For example:

- If Congress failed to pass the legislation needed for the private industry approach and instead authorizes a Government plant, it probably would be desirable to proceed with an add-on plant rather than a free standing plant.

- If at some time prior to March 1976 when UEA is expected to complete financial, customer and power supply arrangements, UEA found that it could not proceed, the Government would then need to determine whether to proceed with an add-on plant or with a free-standing plant.

- If at some later time and after construction was underway, the Government had to step in and assume UEA assets and liabilities, it probably would be more advantageous to proceed with the free-standing plant.

WHAT WORK WILL CONTINUE ON A POSSIBLE GOVERNMENT-OWNED ADD-ON DIFFUSION PLANT ?

Question:

You have indicated that work will continue on the planning for a Government add-on diffusion plant as a contingency measure. Precisely what work on the add-on plant alternative do you anticipate will be done in the months ahead?

Answer:

We expect the private industry approach will work, so that an add-on Government-owned plant will not be necessary. But, as the President indicated, ERDA will implement back-up contingency measures so that we can be doubly sure that the U.S. will have additional capacity on line about 1983 to supply domestic and foreign customers.

As to the specific contingency work that will be done, we envision the following:

First, conceptual design activity for an add-on plant has been underway within ERDA for some time and this activity will be continued.

Second, the bill proposed by the President includes a section asking for authorization to begin construction planning and design activities for the possible expansion of an existing uranium enrichment facility if needed.

Third, much of the design activity that UEA will have to undertake in the months immediately ahead will involve work on components that could be used in either a free standing plant or in an add-on facility. ERDA plans to seek arrangements with UEA to purchase such design work so that it could be used for a Government plant if the private venture were unable to go ahead.

ERDA will assure that back-up contingency measures are coordinated with and do not overlap planning for the private venture. ERDA will also assure that work on the contingency measure does not preempt resources that would be needed in order for the UEA plan to proceed. ERDA will not, for example, begin any long lead time procurement for a Government facility.

WHEN WILL THE U.S. "ORDER BOOK" OPEN

Question:

When will customers be able to negotiate fuel contracts with private U.S. enrichers? That is, when will the "order book" open?

Answer:

A number of private U.S. firms, particularly the UEA which is well advanced, have been actively seeking orders for well over a year and will be in a position to accept service contracts and financial participation arrangements immediately, consistent with the thrust of the President's plan. These contracts would be contingent upon legislative approval of the basis for the cooperative arrangements with industry to become firm, but, in any event, they would be covered by the Presidential supply assurances.

In short, the U.S. enrichment "order book" is about to be opened to provide assured and timely nuclear fuel to domestic and foreign customers.

WHAT HAPPENS IF A PRIVATE PLANT DOESN'T WORK?

Question:

What happens if the proposed private diffusion plant doesn't work?

Answer:

The plant will work.

The private diffusion plant will use a process that has been proven and perfected in over a quarter century of large scale Government operation. Government specialists will be involved in the details of the project and the Government will supply on a full cost recovery basis the key components which are available only from the Government. Again, the plant will work.

WHAT HAPPENS IF A PRIVATE PLANT ISN'T LICENSED ?

Question:

What happens if a private plant isn't licensed?

Answer:

There is little reason to believe that the plant would not be licensed. From a health, safety and environmental standpoint the project is expected to be much simpler to license than a nuclear power reactor.

Licensability of projects will, however, be a key consideration from the outset and should any difficulties appear they will be recognized early. Under the proposed terms of the cooperative arrangements, the Government would be able to take over a project if a license were not granted.

DOES UEA HAVE CUSTOMERS?

Question:

Does the proposed private diffusion plant project (UEA) have all the customers it needs to go forward?

Answer:

We understand UEA has letters of intent from domestic utilities covering about 15% of plant output. Several foreign governments have expressed reasonably firm interest in significant amounts of plant output. As the project comes to be accepted as the next United States enriching plant, it is very likely that customers will begin subscribing to the remaining available plant output.

WHY NO BOARD OF DIRECTORS WITH FEDERAL MEMBERSHIP?

Question:

Unlike most other occasions when the Government has developed plans for private industry to enter a field that had previously been a Government monopoly, the President's Nuclear Fuel Assurance Act does not provide for a Board of Directors that would include Federally-appointed members to represent the public interest. Why is this not now being done?

Answer:

There is no particular advantage in this instance in creating a Board of Directors with Federal membership. Unlike COMSAT, this legislation does not establish a single corporation, but instead authorizes the Administrator to contract with private firms which wish to enter the uranium enrichment field. To contractually require Federal membership on the Board of Directors of various private corporations would not only present numerous problems under state incorporation laws, would also be unnecessarily burdensome, as the agreements entered into by ERDA will provide for sufficient Government oversight to protect the public interest. Also, NRC will provide additional oversight as it carries out its regulatory responsibilities.

PAYMENTS BY INDUSTRY FOR GOVERNMENT-OWNED TECHNOLOGY

Question:

Given the heavy investments made by the U.S. taxpayers in the U.S. enrichment program, what compensation is the Government likely to receive for the technology?

Answer:

It is expected that the U.S. Government will charge 3% of the gross revenues of private producers as compensation for the use of its inventions and discoveries. For example, if UEA generates gross revenues of one billion dollars per year, the Government would receive compensation payments of about $30 million per year in license fees and income taxes of about $50 to $70 million per year per plant. Total revenues from these industry payments will increase as other private plants--probably using centrifuge technology--begin production.

UNANSWERED SAFETY AND ENVIRONMENTAL QUESTIONS

Question:

Why is the Ford Administration working to increase the supply of nuclear fuel when there are still significant questions regarding the safety and environmental impact of nuclear power plants?

Answer:

The safety record of commercial nuclear power plants has been excellent. The overwhelming majority of technical experts in the field are satisfied that safety risks from nuclear power plants are minimal and that nuclear plants are less of an environmental burden during operation than oil or coal alternatives.

Both a construction permit and an operating license from the Nuclear Regulatory Commission are required for any commercial nuclear power plant in this country. Before granting a permit, NRC conducts a full review of safety and environmental questions. (The reviews include an opportunity for public participation.) The NRC applies conservative criteria to ensure safe participation.

As added assurance, the Federal Government is pursuing opportunities to improve even further the safety of nuclear power plants and of radioactive waste management. The safety research program of the NRC will amount to over $80 million in FY 1976. ERDA expenditures for development of improved, environmentally sound waste management technology will amount to $36 million in FY 1976.

NRC SAFEGUARDS AND SAFETY CONTROLS

Question:

What types of domestic safeguards and safety controls will NRC apply to the UEA and private centrifuge ventures?

Answer:

NRC is expected to require essentially the same types of safeguards and safety procedures as are now successfully employed in Government-owned facilities.

Also, it is to be noted that the UEA plant will be designed to produce only low enriched uranium and, consequently, the safeguards problems for this plant will be even smaller than for the present Government plants.

NUCLEAR MATERIAL SAFEGUARDS IMPLICATIONS

Question:

What are the international safeguards and non-proliferation implications of the President's proposal?

Answer:

This question should be viewed from two aspects: first, what are the consequences of the increased availability of fuel for overseas distribution. Second, to what extent may the project, including the expected foreign participation, lead to the dissemination abroad of U.S. uranium enrichment technology?

With respect to the first aspect, it should be noted that foreign distribution of material produced by the facilities built under the President's proposal will take place under U.S. Agreements for Cooperation (as provided for in the Atomic Energy Act of 1954, as amended) under the same safeguards arrangements applicable to the distribution of similar material from U.S. Government-owned enrichment facilities. Accordingly, there is no adverse safeguards and non-proliferation effects from private entry. On the contrary, and far more importantly, the renewed ability which the program will create to meet overseas needs for enriched uranium will substantially advance U.S. non-proliferation objectives (a) by reducing the pressure for the construction of independent enrichment capacity in other nations, and (b) by strengthening U.S. ability to influence other nations' nuclear programs in directions favorable to U.S. non-proliferation objectives.

With respect to the dissemination of U.S enrichment technology, foreign participation in the investment and business management aspects of the facility will involve no access by foreigners to classified U.S. enrichment information.

While the United States has expressed a willingness, under appropriate conditions, to consider cooperation with other nations in uranium enrichment technology, any proposal for such cooperation would be considered on its merits as a separate matter by the Government.

WILL CLASSIFIED TECHNOLOGY NOW BE MORE WIDELY AVAILABLE TO PRIVATE INDUSTRY?

Question:

Would privatization mean that sensitive classified nuclear technology would now become available to private firms instead of remaining confined to the Government?

Answer:

Rigid controls are and will continue to be maintained over access to sensitive classified technology.

Access by selected private industry personnel is not new. Existing enrichment plants, though owned by the Government, were constructed and are operated by private contractors.

We expect that rigid classification and safeguards controls will be applied to the privately-owned capacity proposed in this program.

Even if the Government were to build additional plants private contractors would be heavily involved in their design, construction and operation. Privatization would result in no significant additional access to classified nuclear technology than if the Nation's enrichment requirements were to be met by more Government-owned capacity.

WHY EMPHASIZE URANIUM ENRICHMENT SALES TO FOREIGNERS?

Question:

Why does UEA give so much emphasis to uranium enrichment services to foreign customers?

Answer:

UEA's proposal contemplates that 60% of the uranium enrichment services would go to foreign customers. There are several reasons for heavy emphasis on foreign participation.

The extent and nature of foreign participation will be discussed further in negotiations between ERDA and UEA.

Among the reasons for interest in foreign sales are:

1. Supplying foreign needs will substantially advance U.S. non-proliferation objectives by reducing the pressure for the construction of independent enrichment capacity in other nations, and by strengthening U.S. ability to influence other nations' nuclear programs in directions favorable to U.S. non-proliferation objectives.

2. Foreign sources can supply a large fraction of the financing for the UEA plant, thus reducing the drain on U.S. capital markets. Foreign sources might also be interested in helping to finance the subsequent centrifuge plants.

3. Foreign customers presently account for nearly one-third of ERDA's sales of enrichment services. These U.S. sales constitute an important portion of U.S. exports and generate hundreds of millions of dollars worth of foreign exchange needed to pay for purchases of petroleum, etc. and need to be encouraged.

4. The U.S. pioneered development of nuclear power. The U.S. has a responsibility and a strong self interest in continuing to help other nations to meet their own energy needs. This is a central element of our foreign policy in the energy area. Expanded use of nuclear power abroad will help reduce dependence on oil resources.

5. The U.S. has repeatedly made public commitments that it would be a major and reliable source of enrichment services to foreign customers.

FOREIGN INVESTMENT WITHOUT FOREIGN CONTROL

Question:

You have indicated that UEA is proposing substantial foreign investment in its proposed project -- including investment from OPEC nations. What protection do we have to protect us against potential abuses by foreign investors?

Answer:

UEA's proposal to ERDA contemplates 60% foreign investment in the UEA plant, with similar foreign access to the product output of the plant. The foreign investment aspects of the proposal will have to be evaluated during ERDA's negotiations with UEA and would also be evaluated by NRC as a part of its licensing responsibilties.

However, there are several general points that can be made now about protection against any potential for abuses by foreign investors:

1. U.S. control and dominance is specified by law as a necessary condition for obtaining a license from the Nuclear Regulatory Commission.
2. Uranium enrichment services would be made available to foreign customers only under U.S. Government approved Agreements for Cooperation (which are provided for in the Atomic Energy Act, as amended). Agreements for Cooperation will include comprehensive safeguards requirements.
3. Investments by foreign sources in a private uranium enrichment project do not result in access to sensitive classified U.S. technology.

UEA has proposed substantial foreign investment in its project to help ease the impact on U.S. financial markets of the large amount of capital required for the project -- $3.5 billion. This aspect of the proposal appears generally consistent with the U.S. objective, to the extent that OPEC funds are involved, of constructive investment of OPEC money in the U.S.

FOREIGN PURCHASES WITHOUT INVESTMENT?

Question:

Will foreign customers be able to obtain uranium enrichment services without investing in a plant?

Answer:

Foreign investment, subject to U.S. policy regulations, would be welcomed. Foreign investors will be able to purchase fuel in proportion to their investment. It is anticipated that foreign customers who do not invest will be able to contract for uranium enrichment services, within the limits of plant capacity if judged by enrichers to be compatible with their ventures.

WILL INVESTMENT REQUIREMENTS DISCRIMINATE AGAINST FOREIGN CUSTOMERS?

Question:

Isn't it discriminatory for UEA to require foreign customers to invest in the proposed UEA plant in order to obtain guaranteed access to fuel?

Answer:

We understand UEA's concept of requiring plant investments as an entitlement to a proportion of fuel is applicable both to U.S. and foreign users. In the U.S. case, proportional debt and equity will come from domestic lenders and not from the utility customers themselves. Foreign users could also follow this procedure by raising financing from their domestic lending institutions. Thus, there does not appear to be any real difference between the treatment of foreign and domestic users.

FOREIGN CUSTOMER CONDITIONAL CONTRACTS WITH ERDA

Question:

What happens to those foreign customers who have contracts with ERDA that are conditional on plutonium recycle and subject to termination?

Answer:

Conditional contracts were backed by an announcement in August 1974 that the U.S. would have expanded capacity available to fulfill requirements, if needed. A number of foreign customers currently holding conditional contracts are already prospective investors in the proposed diffusion plant project advanced by UEA.

The President's plan will assure that the U.S. will have additional capacity which can be tapped by holders of conditional contracts.

U.S. SHARE OF THE FOREIGN MARKET

Question:

How much of the foreign uranium enrichment market might the U.S. expect to capture?

Answer:

We cannot predict our share of the foreign market for enrichment services at this time. That share will be determined by our ability to compete with other suppliers. Our sophisticated technological leadership developed over the past 30 years and our proven ability to provide enrichment services will make it possible for us to be in a good position to continue serving as a major world supplier.

BASIS FOR $8 BILLION AUTHORIZATION REQUEST

Question:

What is the basis for the $8 billion authorization request?

Answer:

The amount set out in Section 3 of the bill is designed to cover the Government's potential financial exposure for cooperative agreements with private diffusion and centrifuge ventures -- in the unlikely event that all the ventures failed.

The $8 billion dollars comprises the following items:

$1.4 billion represents 40%, i.e., the domestic portion, of the estimated $3.5 billion cost of the 9 million unit gaseous diffusion plant.

3.0 billion for the estimated domestic share of the cost of 3 to 4 future centrifuge plants totaling 6 to 12 million units.

3.6 billion for contingencies to cover uncertainties of estimates of the amount of foreign financial participation and inflation.

If some other unforeseen or unlikely occurences were to result in costs higher than those included in the above estimate, an amendment to increase the $8 billion may be required. Again, the Administration's expectation is that none of these funds will be spent.

BASICS OF URANIUM ENRICHMENT

Question:

What does "uranium enrichment" mean? What does it consist of?

Answer:

Natural uranium contains only 0.7% of the energy-producing form of uranium, U-235, which produces energy when it splits, i.e., fissions. The remainder of the natural uranium, U-238, the non-fissionable uranium, is not capable of producing energy directly. Uranium enrichment is the process by which the natural uranium is converted into a richer mixture of U-235 (2%-4%) which can then be used in nuclear power reactors to produce electricity. The natural uranium must also be changed chemically into a gas called uranium hexafluoride before it can be enriched.

Question:

Why is the process referred to as a "service"?

Answer:

The plant owner does not sell enriched uranium as such; rather, he sells the service of conducting the enrichment process for the customer. The plant owner (now exclusively the Government) merely processes customer-owned uranium in his enrichment plant.

Question:

How does the gas centrifuge process differ from the gaseous diffusion process?

Answer:

In the diffusion process, the uranium gas is pumped through a membrane, which is in effect a fine filter. The lighter U-235 moves through the membrane more readily than the U-238, and the product, therefore, has a higher concentration of U-235. The centrifuge process is based essentially on the principle of the cream separator used in the dairy industry. The gas is whirled in cylinders at a high speed, and the heavier uranium atoms, U-238, tend to move by centrifugal force to the outside of the cylinders. The desired lighter uranium, U-235, is then extracted from the inside of the cylinders where their concentrations are higher.

Question:

Why is the enrichment process secret or "classified"?

Answer:

The technology is classified because similar equipment could be used in a different plant to make atomic bomb material. The classification applies to only sensitive technical features of the process and some of the equipment used.

Question:

What is a Separative Work Unit (SWU)?

Answer:

A separative work unit (SWU) is a measure of the amount of effort required in a uranium enrichment plant to separate the fissionable (U-235) and non-fissionable (U-238) atoms or isotopes of uranium from each other to produce a mixture of uranium which is richer in the desired fissionable isotope. Thus, it is a measure of the capacity of any uranium enrichment plant to deliver uranium enrichment services. The proposed UEA plant is rated at 9 million SWU's per year, and the centrifuge plants are expected to be roughly one-third this size.