The original documents are located in Box 36, folder "Uranium Enrichment (4)" of the James M. Cannon Files at the Gerald R. Ford Presidential Library.

[June 1975]

THE WHITE HOUSE

WASHINGTON

DECISION

MEMORANDUM FOR: THE PRESIDENT

FROM: JIM CANNON

SUBJECT: PROVIDING ADDITIONAL U.S. URANIUM ENRICHMENT CAPACITY

The Issue

The issue for your decision is whether to propose that the plant to provide the next increment of U.S. uranium enrichment capacity be:

1. A privately-owned diffusion plant financed, built and operated by the Uranium Enrichment Associates (UEA), backed up by a Federal commitment to buy out the plant, if necessary and under stated conditions, prior to its commercial operation; or

2. An add-on Government-owned diffusion plant financed by ERDA.

In either case, ERDA would intensify its efforts to commercialize centrifuge technology for future increments to be built by the private sector.

Developments Since Your May 23rd Meeting

During your May 23rd meeting, you directed that discussions be held immediately with the UEA and that alternatives for a firm Administration commitment by June 30 for the next increment of enrichment capacity be presented to you for decision by June 3. This memorandum completes those actions. Since May 23:

. UEA has submitted a substantially modified proposal for back-up Government support for their venture which provides a considerably improved basis for a legislative proposal covering this and future increments of capacity. This proposal (outlined below as Alternative #1) is

generally responsive to the major objectives on which Zarb, Seamans, Connor and your other advisers all agree:

- An early commitment to build additional capacity so that the U.S. will be perceived as a reliable supplier of uranium enrichment services -- so that the Nation can obtain a large share of the world market and retain leadership in the nuclear field.
- Early private commercial involvement in the expanding market for uranium enrichment services -- ending the current Government monopoly.
- Minimum Federal budgetary impact, short and long term.
- Adequate Federal control over the export of uranium enrichment services to satisfy national security and international energy policy objectives.

There are risks connected with the new UEA proposals, involving principally:

- The question of acceptability to Congress.
- Some uncertainty that UEA can complete the necessary arrangements.
- Some Congressional delay, compared to a Government plant.

However, the UEA proposal itself and the additional steps developed by ERDA would minimize these risks.

In view of the risks, there is also presented for your consideration the Alternative (#2, below) of a Government add-on diffusion plant -- which reduces the risks but which also eliminates the chance of immediate private enrichment and increases the Federal budget impact.

Your advisers have also agreed that:

- the Administration should <u>not</u> consider proposing that all future enrichment capacity be provided by the Government or a Government corporation because we must avoid perpetuating a Government monopoly. This alternative needs to be kept in mind because it undoubtedly will be considered by the Congress, and it provides a useful baseline for evaluating the two alternatives presented for your decision.
- the legislative proposal covering the next increment of capacity should also cover future follow-on increments built by industry, probably with Federal backup

arrangements similar to those proposed for UEA. The legislation must not be applicable solely to UEA.

- ERDA's program to establish a competitive industry should be intensified to assure that several firms will be ready to build subsequent plants using centrifuge, and should also be announced on June 30. (ERDA proposes to move promptly under either alternative on this follow-on activity.)
- a legislative proposal authorizing an increase in the price of ERDA's Government subsidized enrichment services to a level more nearly comparable to a commercial rate (from current $53 per unit to approximately $75) should be sent immediately to the Congress.

Considerations Bearing Upon Your Decision

A number of considerations are essentially equal with respect to either alternative and need not be considered further here. These include:

- The date when the next increment of capacity must be on line (now estimated at 1983).
- Nuclear materials safeguards (non-proliferation) in terms of both the physical security of the plant and continued Federal control over exports.
- Impact on the Government's stockpile of enriched uranium.
- Customers for the next increment of capacity which are expected to be predominately foreign.
- Risk of not having the next increment of capacity on line when needed.
- Opposition from nuclear power opponents -- who may try to prevent any new increment of capacity as another way of slowing nuclear power (but who will be vulnerable to the counter argument that failure to build means dependence on foreign sources of uranium enriched services).
- The ability to accommodate foreign investment in an enrichment plant on a non-discriminatory basis.

Alternatives

The principal features of the two alternatives are:

. Alt. #1. UEA would construct a free-standing 9 million unit diffusion plant in Alabama. Both this alternative

and Alt. #2 would be followed by industry construction of succeeding plants, probably using centrifuge technology, and with backup Government arrangements similar to those now proposed by UEA. Details of the alternative, including the new UEA proposal are at Tab A.

Briefly:

- UEA intends to build the plant at a cost of $3.5 billion in 1976 dollars ($2.75 billion in 1974 dollars) with full operation attained in 1983; sell 40% of the output to domestic utilities and 60% to foreign organizations on long term contracts; and finance the venture on an 85%-15% debt-equity ratio. Investment will be 40% domestic and 60% foreign but U.S. owners will have control through 55% of the voting rights.

- The Government would sell to UEA essential components which are produced exclusively by the Government; supply diffusion technology and warrant its operation, and buy from or sell to UEA enriched uranium from the U.S Government stockpile to accommodate a start up date earlier or later than planned. The Government would be paid at cost for components and technical assistance and receive a royalty for the technology.

- UEA proposes that, prior to commercial operation, there be available authority through new legislation for the Government to buy out UEA if the venture threatened to fail -- at the call of UEA or the Government, and with compensation to UEA ranging from full reimbursement to total loss of its equity interest, depending upon circumstances leading to the threat of failure.

- If it became necessary to buy out UEA, control of this multinational project would then rest with the Federal Government, much as it would if the enterprise had been launched as a Federal project.

ERDA has proposed several steps to minimize the risks of delays in UEA's completion of its organizational, financial and design steps, and help assure that the national commitment to new capacity is perceived by potential foreign customers -- because Congress may be slow to approve such a novel approach. ERDA proposes:

- A letter agreement with UEA, under existing authority, to permit UEA to proceed about July 1 with preliminary design and with financial and other arrangements.

- Assurances (perhaps a Presidential statement) to domestic and foreign customers that orders placed with U.S.

suppliers would result in assured U.S. supply -- either through a successful UEA project or through the U.S. Government.

- These steps be implemented only after consultation with the Joint Committee on Atomic Energy.

ERDA will look for additional steps that might be announced on June 30 to help assure industry an adequate market, so that the private centrifuge program moves ahead quickly.

. Alt. #2. ERDA would construct a $1.2 billion diffusion plant with a capacity of up to 5 million units as an add-on to its existing 9 million unit plant at Portsmouth, Ohio. This would be followed by private industry construction of centrifuge plants, starting with competitive proposals from 3 or 4 firms. This alternative would involve a request to Congress for:

- authorization and appropriations (beginning in FY 76) for construction of the add-on diffusion plant.
- authorization for Government back-up arrangements for centrifuge plants similar to those proposed by UEA for the diffusion plant. (This facet would parallel the succeeding centrifuge plant aspects of Alternative #1.)

This alternative is presented in more detail at Tab B.

Arguments

. Alternative #1: (Immediate privatization)

- For

. Explicitly maintains momentum built up over the past 3 years under an Executive Branch policy committed to having industry build the next increments of capacity.
. Takes the major step necessary toward achieving the objective of a private, multi-firm enrichment industry; in effect "breaks trail" for subsequent private plants.
. Minimizes the Federal budget impact in the next few years by avoiding a Government plant -- assuming take-over proves unnecessary. Budgetary impacts of the two alternatives are summarized at Tab C.
. Provides an adequate signal to foreign customers of U.S. commitment to be a reliable supplier, and adequate control over exports to meet national security and international energy goals.
. Constitutes a bold step, demonstrating innovative leadership and shows the Administration's intent of

of relying on private industry rather than Government for the large capital investments that will be needed for U.S. energy independence.

. While the UEA approach is more difficult, your advisers agree that it is basically sound and feasible.

- Against

. If UEA fails, the Government would end up with a free-standing plant that is larger and more expensive than the add-on point that we would start out now without the privatization attempt.

. Congressional approval will be more difficult to obtain than for a Government-owned plant, and will take longer (probably by at least 2 to 3 months).

. We will not know for another 7 to 10 months whether UEA will be successful in putting its deal together (getting foreign and domestic equity partners, debt financing and customers), but

. UEA does not yet have an assured power supply and plans to use nuclear plants which may face uncertainty and delay.

. It will be viewed as favored treatment for one firm.

. UEA would have to obtain licenses that the Government would not have to obtain. If buy-out were required because UEA cannot obtain necessary licenses (e.g., because of environmental or safety problems) -- an event considered unlikely -- it is conceivable that the Government would choose not to override the objections and not proceed to operate the plant.

. Alternative #2 (Government Plant)

- For

. Better chance of early Congressional approval.

. Better chance of being perceived abroad as a firm U.S. commitment to be a reliable supplier, and at an earlier date.

. Smaller diffusion plant will reduce the likelihood of capturing part of the market that would otherwise be available for early starts on centrifuge plants.

. Slightly easier to assure export controls necessary to achieve safeguards and international energy strategies.

- Against

. The major step that must be taken to achieve commercialization would be deferred and the policy of the past three years reversed, leaving doubt in industry as to whether any future Government attempts to privatize would be considered credible.

- Loss of momentum (UEA would fold). The opportunity for immediate private entry would be lost.
- Most obstacles and objections now being raised may reappear when the follow-on emerges. Further, at that time, private entry will be even more difficult because of the need to use new technology (centrifuge).
- There is no assurance that a 5 million unit diffusion plant would be adequate to get us to the stage of centrifuge demonstration plants. If centrifuge commercialization is less successful than hoped, a larger Government plant would be needed.
- Domestic electric utilities have benefited from the existing Government monopoly. Commitment now to another Government plant would strengthen their hopes that the present Government monopoly can be perpetuated.
- Certain to have a significant Federal budget impact, particularly through 1981 (details at Tab C).
- Difficulties are expected in getting clean fuel and meeting environmental standards for the fossil fueled power supply needed for the Government plant.

TAB A

May 30, 1975

SUMMARY: Working Paper re Uranium Enrichment Associates

UEA intends to:

1. Build as a private enterprise venture a 9 million SWU uranium enrichment facility in Alabama, estimated to cost $2,750,000,000 in 1974 dollars with full operation to be attained in 1983. The ~~ultimate~~ actual plant size will be determined by the market. Within economic limits

2. Sell to domestic utilities (40% of the output) and to foreign organizations (60% of the output) on long-term (25 year) contracts, at price sufficient to pay all costs and provide an appropriate return to the investors.

3. Finance the 40% domestic capacity from normal commercial sources in US on an 85% debt - 15% equity ratio. Finance the 60% foreign sources on the credit of the foreign customers and with the same debt equity ratio.

USG has been requested to:

1. Supply, at cost, essential mechanical components, presently produced exclusively by USG.

2. Supply USG's diffusion technology and warrant its satisfactory operation.

3. Provide during first year of operation limited access to and from USG's stockpile of enriched material to balance significant start-up loading problems.

UEA proposes that:

1. Prior to commercial operation a standby USG financial backup lasting for the critical construction period plus one year is proposed to offset the current weak credit position of the U.S. utility industry and give confidence to commercial lenders.

~~By this proposal~~, UEA may require such USG to provide financial backup if UEA cannot complete the plant or bring it into commercial operation, but such a call is at the risk of loss to UEA of its equity interest. USG at such call of UEA, has the right to acquire UEA's domestic equity position and the obligation to assume UEA's liabilities and debt.

2. USG may also require UEA to release the project to USG if the governments interest demands and thereby will be obligated to assume UEA's liabilities and debt.

3. → 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.

P USG will have appropriate rights to approve certain matters to be agreed upon.

URANIUM
ENRICHMENT
ASSOCIATES

Address Replies to:

May 30, 1975

Dear

Uranium Enrichment Associates has for two years been engaged in developing a privately financed, owned and operated uranium enrichment venture in response to the Government's invitation to do so. During that period, a great deal of work has been done and many tentative agreements have been reached. In the attached paper entitled "Working Paper Re Uranium Enrichment Associates" dated May 30, 1975 and in meetings conducted with the USG inter-agency group during the week, we have summarized our present situation and proposed a program of government contingency back-up to the credit worthiness of United States utilities which we believe will enable us to successfully proceed with this undertaking.

The actions proposed anticipate no expenditure of government funds unless our project cannot be completed in the private sector, an eventuality we believe most unlikely. If our project cannot be so completed, provision is made for government possession and ownership of the facility and other assets, so that the national objective of providing enrichment capacity will be preserved. We believe the actions proposed for the Government will lead to provision of the next increment of enrichment capacity at the lowest possible involvement and cost to the government and in a manner most consistent with national policy; and we, therefore, most urgently solicit early favorable decision. . . .

To permit the project to proceed as expeditiously as possible under the general principles outlined in the attached paper, we urge that, in the event the Government favorably considers these

proposals, such action be confirmed in the form of a brief interim agreement to be effective while more definitive agreements are negotiated.

We are most anxious to bring other equity participants into the project, to advance negotiations with the customers who have shown interest and to move on all other of the complex management, financial and marketing undertakings necessary to assure completion of the venture.

We assure you of the interest and dedication of our parent organizations to UEA and to private enterprise and to this project; although in the limited time available and in view of the uncertainties of the Government's position, we have not yet obtained formal approval of the Boards of the participating companies to this specific proposal.

We stand ready to follow-up on this matter in any way we can and will be available to discuss the matter further at your convenience.

Very truly yours,

J. W. Komes

R. A. Jay

WORKING PAPER RE URANIUM ENRICHMENT ASSOCIATES

Uranium Enrichment Associates (UEA) has been formed in response to the expressed policy of the United States Government (USG) to develop the first private enrichment plant in the United States following the CIP/CUP programs of ERDA. UEA is confident this can be accomplished with financing based upon long-term non-cancellable contracts with United States and foreign organizations who require enrichment services. Recent months, however, have demonstrated that the credit of U.S. utilities has deteriorated. To give confidence to investors, back-up assurances will be required from the United States Government. Such assurances would be compatible with the commitment of this country to be a continuing and reliable source of enrichment services.

The general plan for proceeding with a private uranium enrichment venture involves the construction and operation of a large gaseous diffusion enriching plant located on the Chattahoochee River in southeastern Alabama, where a site has been optioned.

A plant of 9 million SWU per year capacity is planned. ~~If actual firm orders fall short of expectations, a first stage of the plant, of a proportionately smaller size, could be built, later increasing the plant to the full 9 million SWU as orders require.~~ A preliminary estimate of the cost of the 9 million SWU plant is $2,750,000,000 in 1974 dollars, with full operation to be attained in 1983. Power in the amount of about 2500 MWe is expected to be supplied from a dedicated nuclear power facility, to be financed differentl

Based on marketing efforts undertaken to date, about 40% of the plant capacity will be taken by domestic utilities, and the balance by non-US organizations. For both domestic and foreign customers, UEA will supply toll enrichment service under long-term (25 year) contract.

Each customer will be charged for its percentage of the total cost of operation of the facility on a "take or pay" basis and will supply and retain title to the required feed material.

Project financing utilizing an 85% debt, 15% equity ratio is contemplated both for the non-US share of the plant and for the domestic share of the plant.

As now foreseen, about 60% of the project will be contracted to foreign reactor needs. In avoidance of the problems of political change, currency modifications, and other possible modifying events, the UEA contracts with foreign customers will require that each such customer provide, on a firm basis, all of the capital investment proportional to each customer's subscription to the output from the enrichment plant. Such capital investments will include equity and debt and must be provided by the customer from its own sources of capital and the obligation of repayment rests with the customer Prospective foreign customers understand these conditions and also understand that voting control (55%) will be in the hands of the United States investors.

The United States portion of the equity will be supplied by US investors who are expected to be a group of substantial industrial concerns. U.S. debt financing during the construction period will be by interim loans from commer banks with final take-out financing from the U.S. commercial bond market. The security for long-term debt will be the firm contracts from the purchasers of the enrichment services.

UEA proposes to use all reasonable commercial back-up arrangements within the private sector in support of the project. A program of insurance has been developed which will provide substantial coverage from the risks of physical damage, business interruption, and general liability. Extended risk coverage to the limit of $1 billion, business interruption with a limit of $100 million and general liability insurance up to $50 million now have been assured.

It is also proposed to establish a contingency reserve fund which will accumulate from an addition to the unit cost of separative work performed for customers of the plant. The reserve fund is intended to provide protection against unforeseen financial requirements during the operation of the enrichmer facility. Amounts unused in the reserve fund for such purpose and collected from U.S. customers will ultimately serve to offset their debt service through the latter years of debt obligation. Sufficient funds are expected to accumulate to permit this reserve fund to pay for debt service during the last 10 to 12 years of the debt obligation. At that point, the customer's cost of separative work would be reduced by elimination of payments to the reserve fund as well as of charges for debt service.

Under the contracts with the customers of the plant, the cost of separative work will provide full recovery of the total costs of owning, financing, operating, and maintaining the project, including provision for an after tax return on equity computed at 15% of initial equity investment with such adjustment as may be necessary to attract quality equity participants.

The above basic terms have been discussed at length with interested U.S. utilities and foreign customers, and they are in general agreement. These terms coupled with the following areas of government assistance will produce conditions which, in our opinion, will allow private entry into uranium enrichment.

It must be recognized that the technology and the key components of the gaseous diffusion process are classified government information not generally accessible to either the private investor or to the utility customer. Accordingly, the UEA plant will be founded on confidence in government supply of key components, government processes and government knowhow. USG will charge a royalty during the first 17 years of operation of the UEA plant.

Consequently, certain government assurances are reasonable to support the transition to private industry. UEA, therefore, requests the following assurances:

1. The supply by USG to UEA, at cost, of essential mechanical components of the plant such as barriers and seals which, for security reasons, are presently produced exclusively by USG;

2. Access to USG's stockpile of enriched material: 9 million SWU equivalent to be available from USG stockpile for lease or sale to UEA during start-up period to cushion against delays or interruption of plant operation and to assist UEA in matching capacity with orders during the first few years; and a commitment that USG will purchase from UEA enriching service up to 6 million SWU during the first 5 years of UEA operation, to balance over-capacity due to scheduling of first core loadings or other significant factors which affect the reasonable balance of production capacity and the then current demand. The quantity of USG material held in stockpile for UEA would be decreased annually after start-up of the UEA plant, so that after 5 years of operation no further requirement would exist.

Specific provisions defining the conditions under which material would be furnished from or to the USG stockpile as well as repayment arrangements, if any, prices, terms and other conditions will be negotiated on a mutually acceptable basis.

In addition to these transactions, UEA and ERDA will work out mutually acceptable arrangements for the exchange of SWU's to permit UEA to serve customers requiring highly enriched HTGR fuel and to assist an economical plant start-up.

3. The supply at cost of technical assistance and knowhow for the installation and operation of USG's diffusion process. USG will guarantee that the manufactured items and process technology will operate as expected and will accept the obligation to complete or cause completion of the plant if UEA is unable to satisfactorily complete because of a breach of USG's warranty. Such obligation shall continue until one year after demonstration of full-scale steady commercial operation.

4. An undertaking by USG to provide back-up support with respect to the financing of the plant and the obligations to complete and operate the plant which is anticipated to be through a "transfer of ownership" from UEA to USG, as outlined below.

This undertaking would provide the needed assurance, from a credit worthy source, that additional capital can be available to provide for completion of the project or that the investors have the opportunity to recover their investment if the project can not reasonably be brought into commercial operation.

"Transfer of ownership" would be the acquisition by USG of the owners' rights of the domestic holders of UEA equity and the control of UEA. USG will also thereby assume the liabilities and obligations, including responsibilities for repayment of the domestic debt, of UEA. Either UEA or USG could require a transfer of ownership; UEA, if in its opinion it were unable, for any reason, to physically complete the plant or otherwise bring it into commercial operatic despite its best efforts; or USG in its opinion for the same reasons; or if UEA has defaulted in meeting specified and agreed conditions. The right to require a transfer and the obligation

to accept would terminate one year after the plant has achieved full-scale steady commercial operation.

The consideration to be paid by USG for the acquisition of the rights of the domestic holders of UEA's equity would be determined by reference to whether the reason for the transfer fell within one of three categories, but the consideration would, in any event, include assumption of liabilities. The three categories are:

FIRST, events caused by USG or otherwise beyond the reasonable control of UEA as listed below. In such cases UEA's domestic equity holders would be entitled to full compensation, that is, return of their original investment and additional compensation, as determined by USG, to reflect the results achieved to the date of transfer.

A. Failure of warranted USG technology to operate so as to permit the plant to achieve commercial operation within the agreed upon time period and costs, despite reasonable efforts of both UEA and USG.

B. Failure of governmental licenses to be obtained in a timely manner or the application of law or regulation so as to prevent the plant from achieving commercial operation within the agreed upon time period and costs, despite reasonable efforts of both UEA and USG.

C. Interposition by USG for reasons of national interest in the matter of contractual relationships between UEA and previously approved customers to a degree which significantly threatens the economic viability of the project.

because of lack of customer credit worthiness

D. The inability of UEA to raise capital for construction or long-term financing despite reasonable efforts of UEA to do so.

E. Such other events as may be mutually agreed upon.

SECOND, events involving A gross mismanagement by UEA, B willful misconduct by UEA, or C gross negligence by UEA which significantly threatens satisfactory completion and capacity of the project and for which UEA, after formal written request from USG, does not take reasonable steps toward correction. In such an event, no cash compensation would be paid for the rights of UEA's equity hol

THIRD, events which do not fall within the first two categories. In such an event the appropriate degree of compensation, if any, would be determined utilizing agreed formulas for the recognition of the efforts of UEA and the degree of fault, if any, in foreseeing and dealing with the particular situation. The preliminary determination of compensation shall be made by USG and the basis thereof reviewed with UEA.

UEA's compliance with its commitments

As noted, UEA's domestic financing obligations would be assumed by USG in the event of a transfer of ownership, which UEA understands will invoke the full faith and credit of the United States. UEA intends to assure that all its domestic debt will be callable, without premium, in case of a transfer of ownership.

UEA has proceeded on the basis that there will be a firm and continuing policy of the United States Government with reference to the participation of foreign investors in enrichment facilities located in the United States and in the sale of enriching services to foreign customers. It has been taken that the policy of the Government has been to encourage such international relationships, and it is expected that the present areas of doubt will be clarified with a strong and positive statement reexpressing the United States policy. UEA will continue to advise prospective foreign customers that their participation in UEA, either as an investor or client for enriching services, would be subject to U.S. laws, regulations and licenses. UEA intends in all respects to operate as a private industry venture using high quality standards of commercial procedure, practice and control.

In recognition of the USG guarantee of equipment, process and the like, UEA will develop the design of the plant in full cooperation with USG and permit USG full opportunity to be aware of, have access to and approval of the manner in which the process is engineered, installed in the plant and operated.

In recognition of USG interests and because of the USG support of the financial position of the project, UEA will arrange to have its procedures, practices and controls reviewed by an independent audit firm of recognized competence and secure and file with the USG their opinion of the adequacy of these elements. UEA will also obtain USG approval of actions and agreements to be undertaken by UEA which could significantly affect the interest of USG. UEA and USG will define the types of such actions and agreements and specify them to the extent possible.

TAB B

Description of the Government Plant Alternative (#2)

Alternative 2 is similar to Alternative 1 insofar as the development of private centrifuge enriching capacity is concerned; it differs only in the method of providing the needed early increment of government diffusion capacity. Under Alternative 2 the Government would proceed promptly to undertake the construction of an add-on increment of capacity to the existing ERDA plant at Portsmouth, Ohio. While the increment would be sized nominally at 5 million-separative work units per year, the firming (within the next year or so) of future demand, and of plans of private centrifuge enrichers to supply enriching services, would permit some adjustment of this capacity target before major construction had begun. The add-on plant would be scheduled for completion by about 1983 assuming project authorization and initial funding in FY 1976. The add-on increment would be designed to be an integral part of the entire Government enriching complex; it could not operate independently to produce a nuclear power reactor grade product. Because of this it would utilize a single size of equipment, thus have a lower per SWU capital cost than would a "full gradient" plant. The total cost of the add-on plant is projected to be $1.2 billion in 1976 dollars.

Under Alternative 2, just as under Alternative 1, ERDA would launch concurrently an intensified program to assure that several firms will be ready to build subsequent private plants using the new centrifuge technology. The private centrifuge program envisages early ERDA issuance of a Request for Proposals (RFP) from the private sector to achieve several centrifuge projects in the 2-3 million SWU/year range in the mid-1980's. While such projects would likely commence with smaller modules, perhaps a tenth that size, the program would contemplate the smooth expansion of these projects to achieve the capacity at which further expansion could occur without Government assistance and in response to the need of the marketplace. Response to the RFP would be expected to identify the Government assistance required. This is likely to include similar provisions to those requested by UEA under Alternative 1 and would therefore require appropriate authorizing legislation. A period of negotiation with individual proposers is anticipated leading to firm contractual commitments to the program by several companies before the end of FY 1976.

Alternative 2 would achieve the objective of early resumption of firm U.S. contracting by ERDA promptly seeking (a) amendment by the Joint Committee on Atomic Energy of the criteria upon which it is now permitted to contract, and (b) formal Congressional authorization of and appropriations for the add-on project. Then firm contracting could resume.

Alternative 2, like Alternative 1, also contemplates the prompt request to the Congress for authority to charge for Government enriching services on a more nearly commerical basis. While this is justifiable in its own right, it has a corollary benefit with respect to stimulation of private enrichment projects and the willingness of utility customers to negotiate with private enrichers.

TAB C

FEDERAL BUDGETARY IMPACT OF THE TWO ALTERNATIVES

The attached table contrasts the budgetary impact of the two proposals over the next 15 years. Briefly,

. Under alternative #1 (UEA plant), there would be net revenue flow to the Government through 1990 of about $625 million -- assuming buy-out is not necessary. This reflects the net effect of:
  - ERDA outlays through 1990 of about $245 million, principally for resalable assets (in the form of uranium enrichment services) with an acquisition cost of $300 which would be sold around 1990.
  - Revenues which would flow to the Government between 1984 and 1990 in the form of:
    . income tax payments by UEA of about $430 million.
    . royalty payments on technology of about $140 million.

  The short-term (through 1981) budget impact would be $19 million in revenues.

  The contingent "buy out" feature might require about $1.4 billion of contract authority (BA) initially, but the outlay projection would be expected to be zero. In addition, a buyout of UEA could involve an additional obligation for two nuclear power plants at a value of $1.2 billion.

. Under alternative #2 (Government plant), net ERDA outlays through FY 1990 would be about $508 million, but net ERDA outlays would be $761 million in the short term (through 1981).

  There would also be an obligation to provide for electric power supplies for the add-on diffusion plant which is not shown on the table

June 2, 1975

Comparative Analysis of Budgetary Impact on ERDA of Uranium Enrichment Capacity Expansion Alternatives
(in millions of FY 1976 dollars)

	FY 1976	TQ	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	Total
A. Alternative 1 (ERDA assistance to the 9 million SWU venture, estimated by UEA to cost $3.5 billion)[1]																	
Obligations																	
1. Performance assurance, net of revenues ..	33	-3	-14	-20	-4	-8	-8	-31									-55
2. Stockpile backup/ load leveling [2][3]									60	60	60	60	60				300
3. Government buyout (contingent)[4] ...	See footnote 4 below																
Total		-3	-14	-20	-4	-8	-8	-31	60	60	60	60	60				245
Outlays																	
1. Performance assurance, net of revenues ..	-1	0	-1	-2	-4	-8	-8	-31									-55
2. Stockpile backup/ load leveling [2][3]									60	60	60	60	60				300
3. Government buyout (contingent)	See footnote 4 below																
Total	-1	0	-1	-2	-4	-8	-8	-31	60	60	60	60	60				245
B. Alternative 2 (Construction and operation of add-on 5 million SWU diffusion plant by ERDA, at estimated capital cost of at least $1.2 billion)																	
Obligations	16	21	109	169	269	289	247	165	158	160	150	150	150	150	150	150	2,503
Outlays	15	6	34	79	229	294	313	247	191	195	150	150	150	150	150	150	2,503
Revenues			-15	-50	-70	-55	-19				-161	-374	-253	-265	-400	-333	- 1,995
Net outlays	15	6	19	29	159	239	294	247	191	195	-11	-224	-103	-115	-250	-183	508
C. Net revenues(-) from 3 existing ERDA plants [5] (for reference only)	164	139	294	-41	-436	-820	-1,107	-1,222	-743	-1,053	-1,137	-1,053	-660	-990	-1,013	-984	-10,662[5]

Footnotes

Note:

a. All figures assume "most likely" case, rather than minimum or maximum estimates.

b. Follow-on increments of capacity in either alternative are expected to be provided by private industry (using centrifuge technology), with Government assistance (at least for the first few plants). The cost of such an assistance program is not yet known but would be essentially the same under both alternatives. However, such an assistance program might well occur a little later under Alt. 1.

1/ Includes about $800 million for certain business costs which would not be incurred in Alternative 2.

2/ Government costs would be recoverable through sale of these excess SWUs, probably in the late 1980's or beyond.

3/ Assumes excess uranium feed (yellow cake) available from ERDA stocks. If such feed must instead be purchased by ERDA at $30/lb. U_3O_8, an additional $500 million would be required. Furthermore, potential maximum obligation proposed by UEA could cost the Government $1.2 billion.

4/ Covers contingent buy-out of domestic share of UEA project by ERDA. Assuming UEA project cost of $3.5 billion (1976 dollars), this feature could cost the Government up to 40% of $3.5 billion, or $1.4 billion for domestic debt and equity. If the Government should be obligated only to buy domestic equity (15% of the domestic share), this feature would cost the Government up to $210 million. It would probably be necessary to seek BA initially unless Congress were willing to approve, and UEA were willing to accept, authorization of appropriation of "such amounts as may be necessary" when and if contingency arises. In any event, the "most likely" outlay projection would be zero.

5/ Assumes commercial-type charge for enrichment services and maintaining current contract schedules.

TAB D

TAB D - Assessment of Congressional attitudes to be provided 6/2/75 by Congressional Relations Staff

TAB II

Background information for review of draft decision paper:

- Tab A - Uranium Enrichment Market
- Tab B - Status of Centrifuge Technology
- Tab C - Extent of Private Industry Interest in Proceeding with Centrifuge Demonstration Plants now.

URANIUM ENRICHMENT MARKET

The enrichment market is highly uncertain in magnitude and timing. The most likely estimate of uncontracted domestic demand (in millions of SWU's) is as follow:

1982	1983	1984	1985	1986	1987	1988
0.2	0.7	3.2	5.0	8.3	11.6	15.6

As to foreign demand, the best estimate for currently unsatisfied annual needs beginning the the early to mid 1980's may be that obtained by UEA during numerous foreign negotiations. In millions of SWU's per years, these are as follows:

Japan	1 to 2
France	1
West Germany	1
Iran	1.8 (including material for resale on stockpile)
Switzerland	0.4
Spain	0.4
Asian	0.4
Conditional contracts with ERDA which will terminate on June 30 (various countries)	1 to 2
Total	7 to 9

UEA plans to capture 5.4 million SWU's from this foreign market and satisfy 3.6 million of domestic demand.

ERDA assumes the same 9 million SWU market and would provide for it on the basis of 5 million from the ERDA add-on diffusion plant and the remaining 4 to be met from several centrifuge plants to be operative at that level in the same mid 1980's time frame and expanding thereafter to meet continuing market growth.

STATUS OF CENTRIFUGE TECHNOLOGY

Question

Compare the status of gas centrifuge technology to gaseous diffusion insofar as its present commercialization potential is concerned.

Answer

With over 30 years of large-scale operating experience and development, the gaseous diffusion process has proved to be a highly reliable and economical method of enriching uranium. The gas centrifuge process which has been under development for 15 years and is now approaching production capability appears to be economically competitive and has been shown to have certain advantages in commercialization potential.

Plant Size

Gas centrifuge plants can be economically built in smaller capacities than gaseous diffusion. This results from a higher degree of separation inherent in individual gas centrifuge equipment and the ability to more readily scale the plant to desired size. Gaseous diffusion, on the other hand, requires many stages to achieve enrichment and is dependent on large equipment to achieve economy. The scaling of gas centrifuge plant size permits consideration of many smaller regional gas centrifuge enrichment plants providing greater flexibility. Provided that a sound centrifuge sub-supplier industry has been established, construction of small increments of capacity may permit "tracking" the enriching service demand.

Power Requirements

The gas centrifuge process is shown to use about 10 percent of the electric power consumed by the same capacity gaseous diffusion enrichment plants. This results from the fact that the gas centrifuge process is inherently more energy efficient. The lower electric power requirement allows locating gas centrifuge enrichment plants without major dependence on large electric power systems and sources. Projections of operating costs indicate that gas centrifuge plant operating costs will be largely under the control of the operator. Because of high power consumption, a large portion of gaseous diffusion plant operating cost will be dependent on utility control.

Technology Potential

The capacity and performance of gas centrifuge equipment is currently limite by materials, fabrication techniques and the understanding of gas centrifuge theory. Further developments are expected to increase the capacity and performance of individual centrifuges. These improvements could be incorporated in operating enrichment plants during normal replacement of centrifu Gaseous diffusion technology, although not exhausted, is more mature and by nature is more difficult and expensive to incorporate into operating plants.

Patent and Proprietary Incentive

Since the gas centrifuge process is new and has large potential for improvements, patent and proprietary opportunities are great. These opportunities are part of the reasons that industry participants are considering gas centrifuge for uranium enriching and serve to encourage further industrial entry into the field of gas centrifuge fabrication. In the gaseous diffusion process, the Government has developed to a highly sophisticated level and is the sole fabricator of key elements of the process. Therefore, the patent and proprietary opportunities in gaseous diffusion enriching are limited.

Reliability and Demonstrated Performance

Adequate reliability and performance of production type gas centrifuges has been demonstrated in test facilities. These tests will continue with current and advanced centrifuges in support of new enrichment plants. The gaseous diffusion process with 30 years of operating experience has demonstrated high reliability and performance. A significant part of the operating cost of gas centrifuge enriching plants is the replacement and repair of the high speed centrifuges, thus the cost of enrichment in these plants is sensitive to the centrifuge operating life. Operation of gas centrifuge enriching plants would assure a manufacturing market for centrifuge component suppliers. The projected gas centrifuge enriching plant economics are based on short operating life centrifuges. If the plant operator can increase the life by reasonable operating changes or improved centrifuges, the economics would improve.

Risk

The overall risks associated with new enrichment plants are higher with the gas centrifuge process since industry has never been called upon to supply large quantities of equipment and materials used in manufacturing gas centrifuges. On-going ERDA programs are providing industry with the technology that has been developed and assisting in promoting the expansion of necessary supporting industries until the market is established. The gas centrifuge process cost projections assume conservative operating life for centrifuges tending to minimize the risk of higher operating costs. More ERDA effort is currently directed toward gas centrifuge manufacture consistent with the development program. For a new, large gaseous diffusion enrichment plant, ERDA assistance would be provided to minimize the risk.

General

Considering the major advantages, it appears that the gas centrifuge process provides a more likely ability to achieve a competitive industry by permitting more entrants, more regional participation, more industrial involvement (including more labor), with reduced electric power constraints. The "spin-off" of new technologies such as high speed rotating components, balancing procedures and special fabrication techniques associated with the gas centrifuge can be of significant benefit to industry. The availability of this technology can serve to encourage industrial entry as a supplier. The use of the technology without compromizing security can serve to upgrade the Nation's overall industrial capability.

Extent of Private Industry Interest in Proceeding with Centrifuge Demonstration Plants now.

Three industry organizations, the Garrett Corporation, Exxon Nuclear and Centar (Atlantic Richfield and Electro-nucleonics, Inc.) are now interested in private centrifuge enriching projects. Each such project, which would require substantial Government assistance, could result in installation of 2-3 million SWU/year capacity in the 1985-86 time frame. It is possible that a fourth organization, Goodyear Aerospace, would also be interested under arrangements to provide the type of Government assistance believed to be necessary.

Preliminary project concepts have been supplied to ERDA by each of the three organizations noted above and there is evidence that each organization is now prepared to move promptly. Since a centrifuge plant can be constructed in relatively small, complete modules the planning of the companies involves immediate commitment to design and installation of the first module of each project (about 0.3 million SWU/year)which might be operational in the 1980-81 period. Subsequent modules would be added, assuming initial success, to reach the 2.3 million SWU capacity figure in the mid-1980's. While the initial module would clearly not be economic because of its small size, the companies have generally agreed that the 2-3 million SWU size should be economic. They therefore project that while government support is required to reach this project, further expansion to meet the demands of the marketplace can be completely accomplished within the private sector.

Since comparatively little R&D in centrifuge enriching has yet been performed by the private sector, all private concepts are founded upon the extensive Government technology base and the anticipation that Government development programs will continue. Inasmuch as the centrifuge process, though highly promising, has not yet been demonstrated on a production scale, nor economic established on that basis, all private concepts anticipate a Government warranty of technology and a Government commitment to guarantee the private financing of the project or to take over the project in the event the private company is unable to continue. These Government obligations would cease after successful operation of the expanded project. The companies also seek, by various means, assistance in reducing the high cost of SWU's from the early uneconomic modules of each project.

In general, companies are willing to assume some equity risk at the outset of a certrifuge enriching program increasing to full equity risk after successful operation of each expanded project.

These is, therefore, reason to believe that 3-4 private organizations would respond positively to a Request for Proposals which recognize the factors discussed above.

[June 1975]

WHY GOVERNMENT ASSISTANCE?

Question:

Why should it be necessary for the Government to provide any assistance to get private industry to get involved in uranium enrichment? Why not just "unleash" industry and let them move ahead?

Answer:

Despite many years of successful operation of Government-owned plants, uranium enrichment has no commercial private-sector history. Many process details must remain classified. Under these present conditions, commercial lenders are unwilling to consider risking the large amounts required for this capital-intensive activity, without credible assurances that the plant will perform.

First, the technology is owned by the Government and a substantial royalty will be paid for its use by the private sector. It is reasonable that the Government should warrant that the technology will work and be prepared to back this warranty up with assistance in the unlikely event that problems are encountered.

Second, the Government would actually supply, on a cost recovery basis for the UEA venture (and may be asked to supply for the expected centrifuge ventures) key pieces of classified equipment upon which the plant performance depends.

Third, foreign governments and domestic and foreign appropriate Government measures are needed to assure electric utility customers that their orders for nuclear fuels will be filled. This in turn is essential to meeting the growing domestic demand for electricity, a substantial part of which must be met from nuclear power if we are to reduce our dependence on foreign oil, and to assuring that the U.S. maintains its leadership role in the supply of enrichments services abroad in the rapidly growing international market.

Fourth, the only present source of back up supplies of enriched uranium large enough to back-stop the initial period of operation of new plants is the existing Government stockpile of this material, produced in the existing Government plants, and in part accumulated to serve exactly this type of contingency support purpose.

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:

First, the provision of uranium enrichment services is now essentially a commercial/industrial activity, not inherently a Government type of activity. There are many activities which only the Government can properly perform, but uranium enrichment is not one of them. We should not continue to expand these Governmental responsibilities within our economic system when private industry is able and willing, under appropriate Government licensing, to provide the service. Indeed, the Atomic Energy Act, which is also applicalbe to ERDA, declares in its statement of policy in Section 1 that

> "The development, use and control of atomic energy shall be directed to ...strengthen free competition in private enterprise."

Second, involving major U.S. firms and based on competition, should display the initiatives which will best meet national goals in terms of assuring innovation, continued growth of the industry to meet domestic needs, and maintaining a dominant position for the U.S. in international supply. Also, the private venture will generate substantial revenues to the Treasury through payment of Federal income taxes and royalties for Government-owned technology.

Third, within the next 15-20 years, the U.S. must quadruple its present enrichment capacity. The new capacity could cost well over $30 billion in capital costs alone. This is without any allowance for inflation (which could raise the cost to $45-60 billion by the end of the period). Even though these costs would be recovered over a period of 30 years, this is an avoidable financial burden which the Government should not be expected to bear when private industry is willing to assume the responsibility.

WHY PRIVATIZATION NOW?

Question:

Private involvement seems like a good idea in the longer term, but 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:

First, private enterprise has already demonstrated its capability to do the job in that the present Government plants were build and are operated by private companies under contract to the Government.

Second, a substantial preparatory effort, funded by private industry, to undertake the job of constructing the next increments of U.S. capacity has been underway for the last several years.

--The UEA venture, based on the diffusion technology, is the first of these to reach the stage of industrial commitment to construction and contracting. UEA has lined up numerous potential customers, both foreign and domestic, and it has made detailed plans to proceed, including options on land and electric power.

--Additional private efforts based on the newer centrifuge technology are being put together by other private companies in concert with interested U.S. utility companies. Substantial momentum has been generated and it is time to get started in order to realize the benefits of this industrial initiative.

Third, the above private activities and financial investments were the result of an invitation to industry at large issued by the Executive Branch, beginning in 1971 and reemphasized in 1973. If the Government does not move now to support the first outcome of this present round of activity, it is likely that future private ventures called for by the Government in the energy field

will be substantially discouraged. The UEA venture will not only fulfill immediate needs but will also serve to "break trail" for subsequent ventures using a less proven technology.

Fourth, support by the Government of subsequent private increments of centrifuge capacity is an essential and integral part of the Administration's plan. When responses to the current Request for Proposals are received on the centrifuge approach in _____ it is expected that a number of such projects would also be selected to proceed, essentially in parallel to UEA. Approval of the UEA approach will, however, provide firm assurance now of future U.S. capacity involving the minimum degree of technological risk and allowing firm contracting with domestic and foreign customers to proceed promptly.

CUT OFF-DATE?

Question:

Is there a specified "cut-off" date when, if the UEA project seemed to falter, the Government would decide to seek authorization and appropriations for an add-on diffusion plant at Portsmouth?

Answer:

First, the risk of UEA failure is considered very small. Second, there is no one specified, pre-set date for such a decision. The approach that has been selected by the President calls for a major committment to assure privatization of the next increment of capacity, and the full efforts of the Executive Branch will be devoted to assure the success of the approach.

The approach contemplates very close monitoring by the Government at all stages to assure that the Government could step in if the privatization effort threatened to fail -- an event that is considered very unlikely. This close monitoring will prevent any significant loss of time, if something were to go wrong, and thus assure that additional capacity can be brought on line by the time it is needed in the 1983-84 time period.

If the Government had to step in, the question of the plant that would be built (5 million unit add-on plant, or a 9 million unit free-standing plant) would depend on when intervention proved necessary. Some examples will illustrate the point:

> If Congress failed to pass the authorizing legislation needed for the private enrichment industry approach and instead, passed authorization and appropriations for a Government plant, it probably would be desirable to proceed with the add-on plant approach.
>
> UEA will be proceeding with all necessary arrangements for its planned plant (including design, power supply, etc.) while the Congress acts on the President's proposal. 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 need to determine whether it would be best to proceed with a 5 million unit add-on plant or with the 9-million unit free-standing plant.

If at some later time, UEA finds its way blocked or the Government finds it necessary to step in and assume UEA assets and liabilities, the Government would have to decide the best step. At some point it be more advantageous for the Government to proceed with the free-standing plant than to revert to an add-on plant.

DID THE PRESIDENT OVERULE KISSINGER AND SEAMANS?

Question:

Was ERDA overruled on its proposal to build an add-on gaseous diffusion plant? Was Kissinger also opposed to the UEA proposal?

Answer:

The views of all key participants were considered by the President. There were no disagreements as to the desirability of supporting the development of a private U.S. enrichment industry, a concensus that this could be done with imperiling considerations of national security, safeguards or safety, or with the basic reasonableness of the UEA proposal. Some of the key judgmental questions which were considered related to the degree of assurance that the project would be completed successfully, that potential customers and the Congress would be satisfied as to the viability of the project, and that, as a result, the U.S. would be able to resume contracting for firm supply of enrichment services on a timely basis.

Following a thorough review of these and other matters, the benefits of early private sector involvement and in the establishment of an industry, together with the steps taken to reduce risks and increase assurances, made the present approach appear as the most desirable course of action.

UNANSWERED SAFETY AND ENVIRONMENTAL QUESTIONS

Question:

Why is the Ford Administration supporting the development of nuclear power in this country and abroad by making the supply of nuclear fuel readily available when there are still significant unanswered questions regarding the safety and environmental impact of nuclear power plants.

Answer:

All commercial nuclear power plants in this country are licensed by the Nuclear Regulatory Commission (NRC) after a full review, including the opportunity for public participation, of safety and environmental questions. While there continue to be issues requiring a greater degree of resolution, the NRC applies conservative criteria to ensure safe performance. The resulting safety record of commercial nuclear power plants has been excellent. There has been no member of the public killed or injured by any accident or occurence at a nuclear power plant in this country. For this reason and because the overwhelming majority of technical experts in the field are satisfied with the level of safety of these plants we conclude that nuclear power plants are adequately safe. However, we are pursuing every opportunity to improve even further the safety of these power plants. Our safety research programs will spend over $80 Million in FY 1976 in the Nuclear Regulatory Commission. Within ERDA our expenditures aimed at assuring environmentally sound fuel waste disposal amounts 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. In the case of the UEA plant, safeguards problems will not be as severe as in Government plants since the UEA plant will be incapable of producing highly enriched U-235. Safety problems, in a nuclear radiation sense, are minimal.

FOREIGN INVESTMENT WITHOUT FOREIGN CONTROL

Question:

You have indicated that htere will be substantial foreign investment in the proposed project -- including investment from OPEC nations. What safeguards do we have to protect us against potential abuses of foreign investors?

Answer:

Let me first address the general issue of the desirability of foreign investment in this type of project. As you know, one of the reasons why private industry has not moved forward faster in the uranium enrichment field has been its inability to obtain needed capital. Substantial foreign participation would not only help ease this problem but would provide an excellent example of international cooperation in developing alternative energy sources. Furthermore, to the extent that funds from OPEC countries are involved, this is precisely the type of constructive use of OPEC money that we would like to encourage.

As a target, the UEA plan contemplates 60% foreign investment, and centrifuge ventures could also involve foreign contributions. These foreign investments result in access, as customers, to an equivalent degree of the product output of the plant. The product is made available under Government Agreements for Cooperation and Government export licenses are required. The investments do not result in access to the classified U.S. technology or in a majority voting right in project management.

With respect to avoiding any potential for abuse resulting from foreign control or dominance, this is required by U.S. law and will be a necessary condition of being able to obtain a license from the Nuclear Regulatory Commission. Foreign participation in the UEA project is designed to assure both that no single foreign investor will have a dominant voice in the project, and also that no group of foreign investors, voting as a bloc, can impose their views on U.S. investors, voting as a bloc.

URANIUM ENRICHMENT

QUESTIONS AND ANSWERS

1. Why Privatization?
2. Why Privatization Now?
3. Why Government Assistance?
4. Cut Off Date?
5. Did the President Overrule Kissinger and Seamans?
6. Unanswered Safety and Environmental Questions
7. NRC Safeguards and Safety Controls
8. Foreign Investment Without Foreign Control
9. Foreign Customer Conditional Contracts with ERDA
10. U.S. Share of the Free World Market
11. Payments by Industry for Government-owned Technology
12. What Happens if a Private Plant Isn't Licensed?
13. What Happens if a Private Plant Doesn't Work?
14. Does UEA have Customers?

DOES UEA HAVE CUSTOMERS?

Question:

Does the project have all the customers it needs to go forward?

Answer:

Letters of intent from domestic utilities cover about 15% of plant output. Several foreign governments have expressed reasonably firm interest in significant amounts of plant output. As the project is accepted as the next United States enriching plant, assuming that the requested authorizing legislation is approved, it is believed that customers will full subscribe to the available plant output.

FOREIGN CUSTOMER CONDITIONAL CONTRACTS WITH ERDA

Question:

What happens to these foreign customers who have contracts with ERDA that are conditional on plutonium recycle and will therefore be terminated on June 30?

Answer:

Holders of such contracts have a Presidential assurance that they will be able to obtain their fuel needs from a U.S. source of supply. The existence of a viable UEA project will afford this opportunity. Indeed, a number of countries currently holding conditional contracts are already prospective investors in UEA.

U.S. SHARE OF THE FREE WORLD MARKET

Question:

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

Answer:

The informal objective set by planning within the U.S. Government is to retain in the long term approximately 50% of the Free World market for uranium enrichment services.

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, as a royalty, the U.S. Government will charge 3% of the gross revenues of private producers for the use of its diffusion and centrifuge technologies. For example, should UEA generate gross revenues of one billion dollars per year , the Government would receive royalties of about $30 million per year. Such a level would, of course, be increased as the centrifuge plants came into being. The Government would also collect taxes and license fees from the private operations.

WHAT HAPPENS IF A PRIVATE PLANT ISN'T LICENSED?

Question:

What happens if the 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 the project will, however, be a key consideration from the outset and should any difficulties appear they will be recognized early. Under proposed terms the Government would take over the project if a license were not granted.

WHAT HAPPENS IF A PRIVATE PLANT DOESN'T WORK?

Question:

What happens if the plant doesn't work?

Answer:

The plant will use a process that has been proven and perfected over a quarter century of large scale Government operation. Governmental specialists will be involved in the details of the project and the Government will supply key components. The project will work.