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FACT SHEET

THE PRESIDENT'S PLAN FOR A
COMPETITIVE NUCLEAR FUEL INDUSTRY

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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.

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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.

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- 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.

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- 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.

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- . 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.

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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.

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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.

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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.

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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.

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- 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.

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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.

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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.

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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.

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- . 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.

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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.

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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.

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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

