

**The original documents are located in Box 42, folder “Uranium Enrichment - General Accounting Office Report” of the John Marsh Files at the Gerald R. Ford Presidential Library.**

### **Copyright Notice**

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material. Gerald R. Ford donated to the United States of America his copyrights in all of his unpublished writings in National Archives collections. Works prepared by U.S. Government employees as part of their official duties are in the public domain. The copyrights to materials written by other individuals or organizations are presumed to remain with them. If you think any of the information displayed in the PDF is subject to a valid copyright claim, please contact the Gerald R. Ford Presidential Library.

OCT 14 1975

## THE WHITE HOUSE

INFORMATION

WASHINGTON

October 13, 1975

MEMORANDUM FOR: JIM CONNOR  
MAX FRIEDERSDORF  
JIM LYNN  
✓ JACK MARSH  
BRENT SCOWCROFT  
FRANK ZARB

FROM: JIM CANNON

SUBJECT: Administration Comments on GAO's  
Draft Report on Uranium Enrichment

BACKGROUND

In mid-July the Joint Committee on Atomic Energy referred the President's June 26 uranium enrichment proposal to GAO for an "exhaustive review." GAO promised to deliver a report to the JCAE by September 30. On October 3, GAO provided its draft report to ERDA and the Domestic Council for Administration review and comment. The report is negative in its conclusions and very poor in quality. Briefly, it recommends that:

- (a) ERDA reject the private industry proposal for building a diffusion plant;
- (b) that ERDA build another government plant; and
- (c) a government corporation should be created to take over the enrichment plants.

RESPONSE TO GAO

The attached letter was prepared over the weekend by ERDA, OMB, FEA, and Domestic Council staff. It consists of a four-page cover letter which summarizes 11 major problems with the report, an attachment which elaborates on each problem, and a second attachment which gives a page-by-page comment on the draft report.

The letter was developed with (a) the hope that GAO would correct and improve its report, and (b) the expectation that the letter may have little impact with GAO but could be made public as a rebuttal to the report.



Our current expectation is that the letter will be signed and delivered to GAO tomorrow (Tuesday). The earliest possible response is important, because (a) further delay on our part could lead to more delay by GAO and the Congress, and (b) the report apparently is already in the hands of JCAE staff.

We should consider early Tuesday whether additional letters should be sent to the Comptroller General by Administration officials, such as Jim Lynn and Frank Zarb.

Attachment

cc: Bob Seamans  
Alan Greenspan  
Bill Seidman



UNITED STATES  
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION  
WASHINGTON, D.C. 20545

The Honorable Elmer B. Staats  
The Comptroller General  
of the United States  
Washington, D.C. 20548

Dear Mr. Staats:

Thank you for the opportunity to review and comment on your draft report on the expansion of uranium enrichment capacity in the United States. As indicated in the President's June 26, 1975, message to Congress, this matter is of great importance to the Nation.

The President's proposal was designed to:

- . Make clear immediately our National commitment to provide the needed increase in U.S. capacity to produce enriched uranium for domestic and foreign nuclear power plants.
- . Retain U.S. leadership as a supplier of services and technology for peaceful uses of nuclear energy.
- . Assure early creation of a private competitive uranium enrichment industry -- ending the Government monopoly.
- . Accomplish the above with little or no cost to taxpayers and with all necessary controls and safeguards.

In contrast to the President's proposal, the GAO draft report concludes that (a) ERDA should reject the proposal received from the private firm that wishes to build a gaseous diffusion plant, (b) the Government should build and own the next increment of needed capacity, and (c) that a Government Corporation should be created to take over existing and the next new capacity.





We believe the most complete, accurate and objective possible analysis and presentation of the problems, issues, and alternatives is necessary to increase public understanding of the President's proposal and to provide the basis for early Congressional action on that proposal. However, as detailed below, the presentation, analysis and evaluation in your draft report is not sufficiently complete, accurate or objective to sustain its conclusions.

We believe the report should be improved substantially because it:

- . Does not address fully the President's proposal.
- . Contains factual inaccuracies or misinterpretations.
- . Omits important considerations which, if taken into account, would lead to different conclusions.
- . Reflects philosophic preferences (e.g., for a Government Corporation) rather than an objective evaluation of the many considerations involved.

Briefly, our major substantive reservations about the report are summarized below. Each of these points is discussed further in Attachment A and detailed page-by-page comments on the draft report are included in Attachment B.

- . The draft report is almost exclusively limited to a discussion of a proposal (still under negotiation) from one industrial group -- Uranium Enrichment Associates -- UEA, almost to the exclusion of an evaluation of the President's total program which would cover a number of cooperative agreements with firms that wish to build plants using diffusion and centrifuge technology in the transition to a private competitive industry.
- . The draft report does not reflect a clear understanding of the remaining uncertainties in centrifuge technology or the role that both technologies can play in sequence in achieving a private competitive industry.
- . The report does not seem to recognize that following its conclusions may prevent ever achieving a private competitive uranium enrichment industry -- even though it professes to support that objective.
- . The report (a) understates the risks to be assumed by private firms that are contemplated in the President's proposal, (b) understates the risks to UEA in its proposal, and (c) overstates the potential risks and costs to the Government.

- . The report does not analyze objectively its strong recommendation that a Government corporation be created to provide uranium enrichment services -- which corporation would have many of the same drawbacks as direct government financing.
- . The discussion of cash flow and Government financing is inaccurate and misleading in that it (a) does not make clear the large budget outlays that would result over the next few years if the Government builds new capacity; (b) incorrectly implies that costs of a new add-on Government plant would be recouped in about 6 years; and (c) confuses revenue from existing plants and eventual revenue from a new add-on Government plant. The revenue from existing plants is largely a repayment to the Treasury for past and current costs to taxpayers for building and operating these plants.
- . The conclusion that a Government-owned capacity could be added at a cost of \$600 million less than that of a similar sized privately-owned plant is open to question and ignores the broader benefits of private financing and ownership of uranium enrichment plants.
- . While an early decision on the approach to expansion of U.S. capacity is essential, ERDA does not believe that a delay of one year or more -- beyond the UEA planned date for having a plant on line -- would present the serious problem assumed in the draft report. Furthermore, a Government-owned add-on plant could not be brought on line until at least 18 months after the date planned by UEA.
- . The criticism in the draft report of private ventures' plans to obtain long-term "take-or-pay" contracts for enrichment services suggests that GAO may not recognize that such contracts are now used by ERDA in selling services from existing plants and are often used in industry -- for example by utilities in purchasing coal.
- . The criticism of private ventures' slowness in signing up foreign customers suggests a lack of understanding of the impact of the uncertainty while Congressional action is awaited, and the positive effect that early Congressional approval would have.

- . The report is correct in concluding that the safeguarding of nuclear materials and protection of classified technology is not an issue in the debate over Government vs. private ownership of a plant. However, we believe the report should emphasize that prompt action toward expanding the Nation's uranium enrichment capacity would be a major contribution to continued U.S. technological leadership and to non-proliferation objectives.

We urge strongly that the General Accounting Office proceed promptly with the correction and completion of its report so that it will not contribute further to delay in Congressional action on the President's proposal. We believe it is essential that a National decision on the means for expanding U.S. capacity to enrich uranium be reached without further delay.

We are prepared to cooperate fully in providing any additional information and assistance that you might need in completing your report.

Sincerely,

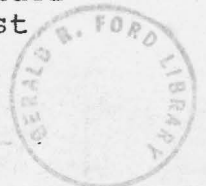
Robert C. Seamans, Jr.  
Administrator

Attachments  
As indicated

ATTACHMENT A

DETAILED DISCUSSION OF PROBLEMS SUMMARIZED  
IN THE LETTER TO MR. STAATS

1. The draft report is almost exclusively limited to a discussion of a proposal -- still under negotiation -- from one industry group, almost to the exclusion of an evaluation of the President's total proposal. Thus, it does not address the main issue which is the appropriateness and adequacy of the President's plan.
  - . The President's legislative proposal provides the basis for negotiating cooperative agreements with a number of private firms that propose to finance, build, own, and operate uranium enrichment plants -- both diffusion and centrifuge -- so that the Nation may move toward a private competitive industry.
  - . The context for this proposal is important:
    - . The Atomic Energy Act requires that "The development, use and control of atomic energy shall be directed so as to . . . strengthen free competition in private enterprise."
  - . A program was undertaken to provide industry with access to enrichment technology so that firms could decide whether to enter the field.
  - . One firm, Uranium Enrichment Associates (UEA), has proposed to build a plant utilizing the proven gaseous diffusion process to satisfy the need for the next increment of capacity. Three firms have now proposed plants using centrifuge technology for succeeding increments.
  - . The draft report focuses narrowly on the proposal submitted by UEA. This proposal is important because it is the only one that deals with the next increment of needed capacity. However, it must be viewed in its proper context, i.e., as the starting point for negotiating a cooperative agreement under the proposed legislation and as a necessary first step in private financing and ownership of all future increments of capacity.



- . Contrary to the implications of the draft report, the terms in the UEA proposal are still under negotiation and have not been accepted by the Government.
2. The draft report does not reflect a clear understanding of the remaining uncertainties in centrifuge technology or the role that both diffusion and centrifuge technology play in sequence in moving toward a private competitive uranium enrichment industry.
- . Misunderstandings are reflected in the report's:
    - . Prompt dismissal of diffusion as being unimportant in moving toward private involvement, and the jump to centrifuge as an easier -- rather than more difficult -- solution without private financing and ownership of a diffusion plant as a first step.
    - . Conclusion that UEA's choice of diffusion technology is one valid reason for rejecting its proposal.
    - . Repeated reference to centrifuge as the "more efficient technology" -- without recognizing the uncertainties associated with it.
    - . Suggestion that centrifuge ventures should accept more risk when centrifuge involves greater risks.
  - . There is general agreement that the next increment of capacity should utilize diffusion technology. There is also substantial agreement that succeeding increments should utilize centrifuge technology -- but this is not assured. Substantial economic uncertainties remain and the diffusion process may still be competitive for future increments.
  - . U.S. centrifuge technology is well ahead of other nations and a pilot production plant is scheduled to be completed in 1976. But, we do not yet know the economics and reliability, for example, of mass production of the required large number of centrifuge units, or the operating, maintenance and replacement costs of such mass produced units.
  - . Because of greater uncertainties, private firms wishing to use the centrifuge process may need more assistance and be able to assume less risk -- directly contrary to the report's conclusions.

- . A successful private diffusion venture would -- contrary to the draft report -- have a direct relationship to the success of private centrifuge ventures. For example, it could demonstrate:
  - . The end of uncertainty -- rather than continued delay -- as to whether the Government is serious about establishing a private competitive industry and ending its monopoly.
  - . That private industry can raise capital for building enrichment plants and establish satisfactory relationships with customers, both domestic and foreign.
  - . That private industry financing and ownership is possible while maintaining all necessary controls and safeguards.
- 3. The draft report does not seem to recognize that following its conclusions may prevent ever achieving a private competitive uranium enrichment industry in the U.S. The report indicates support for the objective of a private uranium enrichment industry but recommends (a) summarily rejecting the private industry proposal for building a diffusion plant -- rather than pursuing negotiations toward a cooperative agreement, (b) building additional Government-owned capacity, and (c) creating a Government Corporation.
  - . Ending a Government monopoly is extremely difficult at best. The current need to commit to major new plants offers an excellent opportunity. The progress that has been made thus far in moving toward a private competitive industry -- including the proposals now before ERDA -- is the result of (a) the statutory requirement cited earlier, (b) a strong policy position taken in 1971, and (c) a vigorous effort by industry to respond to the Government's actions, and (d) a concerted effort by the Government to define conditions under which such involvement can occur with all necessary controls and safeguards.

- . To decide now to build more government-owned capacity (after a period of many years without constructing new plants) could not help but cast doubts -- among potential private industry participants and customers, domestic and foreign -- about current or future assertions that the Government is serious in its efforts to involve industry and end its monopoly.
  - . Contrary to implications in the report, there is no strong reason to suggest that it would be easier or more effective to begin the transition to a competitive industry with centrifuge technology. Not only would the same types of Government cooperation and temporary assurances be required -- and possibly more because of the larger uncertainties -- but the creation of a Government corporation at this time would undercut the whole concept of a private industry in the field.
4. The draft report (a) understates the risks to be assumed by private firms contemplated in the President's proposal, (b) particularly understates the risk to UEA in its proposal, and (c) overstates the potential risk to the Government.
- . The report fails to recognize the risks that private firms would have in dealing with multi-billion dollar projects involving classified technology which has not yet been proven in a commercial setting. Without exception, potential entrants in the enriching industry and representatives of the U.S. financial community viewed this activity as presenting abnormal business risk -- according to their testimony before the JCAE in 1974 hearings.
  - . The report does not recognize adequately that, under the President's proposal, Government assurances would last only for a limited transition period and then terminate automatically, leaving the plant owner with many business risks for at least the 20-25 year period of plant operation.
  - . The report recommends getting "more equitable sharing of risks" when centrifuge technology is ready, but gives no clear indication of what, specifically, would constitute "more equitable sharing of risks" or how this goal might be achieved. There seems no recognition that centrifuge technology, in the near term, involves more risk than diffusion technology.

- . In the case of the UEA proposal, the report (a) erroneously states or implies in several contexts that UEA would receive a guaranteed 15% return on equity, and (b) fails to grasp that, while complete loss of private equity in the project is perhaps remote, there is a substantial risk of partial loss of private equity. Thus, the report gives an erroneous and distorted view of the UEA proposal. It is particularly important that the question of risk be completely and fairly treated since "inadequate risk" is central to the GAO thesis that the proposal be rejected.
  - . The report implies that there are substantial financial risks to the Government, e.g., the implication at the outset that the Government probably would spend \$8 billion to implement its proposed program -- when the plan virtually assures that this will not happen.
  - . The report fails to note that even under the most severe consequences (need for Government to take over a project) -- let alone the more likely circumstances, Government funds would not be at risk. Government funds would all be recovered, normally from the private project but, in any case, from the sale of uranium enrichment services.
  - . The argument that risks would be unduly shifted to the Federal Government overlooks the fact that if the Federal Government finances and owns additional capacity it bears all the risks for the entire life of plants.
5. The draft report does not analyze objectively its strong recommendation that a Government corporation be created to provide uranium enrichment services. For example:
- . The assertion that management by a Government corporation would be "more effective" is not backed up by reasons -- other than freedom from the budget and appropriations process which may be undesirable.
  - . The report seems to conclude that a Government corporation is somehow substantially different from the present ERDA-run operation when, in fact, it still amounts essentially to continuation of a Government monopoly.



- . Many disadvantages of a Government corporation -- which also apply in most cases to the present operations -- are not mentioned, including:
  - . Uranium enrichment is not an activity that can be performed well only by the Federal Government. It is essentially a commercial/industrial activity.
  - . Uranium enrichment service capacity must expand rapidly over the next few years and that expansion could occur in the private sector -- rather than swell the Federal sector.
  - . Borrowing from the Treasury by a Government corporation -- as in the case of ERDA building added capacity -- would add to the total of the national debt and net outlays would add to the Federal budget deficit.
  - . As the Nation's reliance on nuclear power grows, maintaining a Federal monopoly would lead to an unprecedented degree of Federal control over the Nation's electrical energy supply and ending that monopoly could become even more difficult with an entrenched Government corporation.
  - . The Nation would forego the advantages of private competition which can provide incentives over the long run for lower costs, improved efficiencies and technological advancement -- as well as a more diverse base for utilities to obtain their fuel.
- . The argument in the report that UEA may encounter problems in obtaining long-term debt financing because of anticipated shortages of capital in the U.S. would apply equally to borrowing by a Government Corporation.
- . The possibility of setting up a Government Corporation -- to take over existing plants and finance, build and operate new capacity -- in time to meet the U.S. needs for additional capacity is open to serious question.

6. The discussion of cash flow and Government financing is inaccurate and misleading in that it (a) does not make clear the large budget outlays that would result over the next few years if the Government builds new capacity; (b) incorrectly implies that costs of a new add-on Government plant would be recouped in about 6 years; and (c) confuses revenue from existing plants and eventual revenue from a new add-on Government plant.
- . Construction of additional Government enriching facilities would have a significant near term budget impact. The initial increment of a Government add-on plant would involve budget outlays in the period of FY 1976 to FY 1983 of about \$1.6 billion (1976 dollars). A Government-owned plant comparable in size to the UEA plant would require nearly \$2.5 billion (in 1976 dollars) in outlays between FY 1976 and FY 1983.
  - . These outlays represent a significant additional financing requirement from domestic funds, particularly over the next few years. The UEA proposal submitted in May and now the subject of negotiations contemplates using significant amounts of foreign capital -- but with firm U.S. control of the venture -- thus minimizing the impact of financing requirements on domestic capital markets.
  - . An add-on plant would not produce enough revenue to recoup costs until after 1990 rather than in 6 years as the draft report implies.
  - . Revenues from existing uranium enriching plants represent a repayment to the Treasury for costs borne by the taxpayers. These revenues are counted on to offset the costs of existing plants and other Federal programs and, if not available for this purpose, would have to be replaced by higher taxes or deficits. These revenues should not be confused with the eventual revenues from building new Government capacity.

7. The conclusion that a Government-owned capacity could be added at a cost of \$600 million less than that of a similar sized privately-owned plant is open to question and ignores the broader benefits of private financing and ownership of uranium enrichment plants.

- . There undoubtedly would be some savings in building an add-on Government facility -- through use of common support facilities and from tying in with an existing plant's production process.

However, it must be recognized that this differential (a) ignores the substantial advantages of moving toward a private competitive industry, and (b) ignores the expected potential of drawing on foreign sources of financing (but with U.S. control) if private industry is involved. The UEA proposal contemplates attracting some \$2 billion in foreign capital which, if it can be attained, would result in domestic capital financing of some \$1 billion less than for a Government plant.

- . A number of the benefits of private financing and ownership are summarized under point 5, above.

8. While an early decision on the approach to expansion of U.S. capacity is essential to maintain the credibility of the U.S. as a reliable supply source, a delay of a year or more beyond UEA's planned dates for actually having a plant on the line would not present serious problems.

- . The draft report reflects concern about potential slippage in the date when UEA would have a plant on line. UEA's proposal contemplates initial production in 1981 with full production in mid-1983.
- . If the Government were to add on a "half-size" plant to an existing plant, initial production would not begin until 1983, with full production in 1984. If the add-on plant was equivalent in capacity to that of the UEA-proposed plant, initial production would commence in 1983 with full production at the beginning of 1985.

- . In any case, the cancellations in nuclear power plant orders and slippages in plant on-line dates here and abroad -- combined with the ability of the U.S. Government to use its stockpile of enriched uranium -- would allow flexibility to accommodate some slippage in the on-line date proposed by UEA.
  - . Whether or not there would be a delay is still a matter of conjecture. Some believe UEA could not meet its proposed schedule; others point out that privately-managed construction projects could move more quickly than those undertaken for the Government.
9. The criticism of private ventures' plans to obtain long-term "take-or-pay" contracts for enrichment services, and implied criticism for not providing the uranium to be enriched, suggests a lack of understanding of current, widely-accepted practices.
- . Long-term "take-or-pay" contracts are now used by ERDA for enrichment services from Government-owned plants and foreign sources. Also, ERDA contracts require a substantial customer down payment. Moreover, firms planning to employ centrifuge technology will most likely employ long-term "take-or-pay" contracts.
  - . Long-term "take-or-pay" contracts are common in industry, particularly between utilities and firms in the coal industry. Such contracts are used as security for obtaining long-term debt financing when large capital investments are required, as in opening new coal mines.
  - . Uranium feed materials are not conventionally supplied by any uranium enricher.
10. The criticism of private ventures' slowness in signing up foreign customers suggests a lack of understanding of the impact of the uncertainty while Congressional action is awaited.
- . The need for Congressional action on the President's legislative proposal is well recognized by potential domestic and foreign customers and investors.
  - . The preference in some quarters for continuing the Government monopoly through building added capacity by ERDA or a Government Corporation is also well known.
  - . Both factors contribute, quite understandably, to the uncertainty as to U.S. plans and thus to some delay in signing up customers and investors.



11. The report is correct in concluding that the safeguarding of nuclear materials and protection of classified technology is not an issue in the debate over Government vs. private ownership of a plant. However, the report should emphasize that prompt action toward expanding the Nation's uranium enrichment capacity would be a major contribution to continued US technological leadership and to non-proliferation objectives.
- . The fact that foreign customers were not able for many months to sign firm long-term contracts with a US source of uranium enrichment services damaged the credibility of the Nation as a supplier and has increased pressure in other nations for development of enrichment technology and construction of plants.
  - . There is increasing evidence that other nations are turning to potential suppliers outside the US, thus increasing the pressure for construction of more enrichment plants abroad.

ATTACHMENT B

Comments on GAO Report

*Draft -  
Some changes being made.*

Report Reference  
Digest

Comments

Page i, Para. 2	Erroneous implication that Government will expend \$8 billion, when plan virtually assures that this will not happen. Moreover, any Government expenditures will be recovered by Government through UEA reimbursement of cost of assistance or in event of takeover from revenues received from Government sales of enriching services.
Page ii, next to last point	Factually incorrect in that Government purchase of UEA SWU's is <u>not</u> unlimited, rather being specifically limited as to amount, time and circumstance.
Page ii, last point	Factually incorrect in that UEA access to Government SWU's <u>not</u> unlimited, rather being specifically limited as to amount, time, and purpose.
Page iii, first 2 lines	Erroneous implication that the Government will reimburse domestic equity in UEA in all circumstances if UEA plant fails. Depending upon circumstances, UEA domestic equity could be partially or totally forfeited.
Page iii, Para.1	Factually incorrect in that UEA domestic equity will not receive an essentially guaranteed return on their investment. In event of takeover domestic equity may lose part or all of its investment. Further after the transition period, UEA will risk losing not only return on equity, but also the potential of loss of some of its equity if it fails to produce product to meet commitments to their customers.
Page iii, Para.2	While probably correct, this statement does not appear to be relevant to an evaluation of the proposed Nuclear Fuel Assurance Act of 1975. Furthermore, we do not believe that use of gaseous diffusion technology is appropriate as a reason for recommended rejection of the UEA proposal since many of the values produced are independent of the technology employed and it is generally agreed that the next plant should use this process. Additionally, it is not at all clear at this time that plants using gaseous diffusion will not compete with gas centrifuge plants for future increments of capacity.





Report Reference  
Digest

Comments

Page iii, last three  
points under Conclusions

Factually incorrect in that investors are not guaranteed a rate of return. Furthermore, with the exception of the first conclusion (treated above) the observations made could apply equally well to private efforts employing the centrifuge process. Conclusions used as a basis for recommending rejection of the UEA proposal should, in our judgment be considered in the context of the total proposed program and the implications of a proposed action upon that program. Any "financing uncertainties" are largely the result of the uncertainty over the present position of the Government and can be expected to be resolved by passage of the Nuclear Fuel Assurance Act. There is no reason for believing that the UEA plant would be on line any later than a similar sized Government plant. In sum we believe that the basis for GAO conclusions that the UEA project should be rejected are not relevant.

Page iii, next to last  
point

Factually incorrect in that Government add-on plant schedules 4.5 million SWU in 1983, 9 million by 1985, about 1 1/2 years behind UEA proposed schedule for a plant of the same size - so even a substantial slip in UEA schedule would not put it behind the Government schedule. Moreover, Government operations are also, like private efforts, vulnerable to interruptions, uncertainties and delays.

Page iv, middle para.

Erroneous implication that private centrifuge enrichers are likely to be willing to assume more total risk with a less advanced technology when all evidence points in the contrary direction.

Page v, 2nd point

There is no basis for this recommendation which is developed in the report; nothing in the report indicates any basis for concluding that the proposed Nuclear Fuel Assurance Act of 1975 is inadequate or undesirable legislation for assisting private employment of advanced enriching technologies.

Page 7, last sentence,  
first para.

Factually incorrect in that a new plant to operate economically employing (a) gaseous diffusion process requires approximately 9 million SWU or (b) gas centrifuge process capacity somewhere in the range of 1 to 3 million, as yet undetermined.



Report Reference

Comments

Page 9, first sentence	Incomplete, thus misleading. Text should indicate that ERDA officials stressed that the process has not yet been determined to be technically or economically feasible, thus that production plant extrapolations at this time are meaningless.
Page 10, second para.	Misleading and incomplete in that no mention is made of the fact that several years of intensive work and sizeable commitment of resources have been made by a substantial number of private firms in developing their present positions, and, in the case of the four groups cited, in developing extensive plans for participation in private enrichment. Very extensive marketing efforts have been undertaken, particularly by UEA.
Page 11, last para.	Seriously erroneous implication in that needed assistance and assurance to private projects is expected to be on a basis which provides such support <u>at the expense of the private project</u> , whereas the context implies that this would be at Government expense.
Page 14, last sentence	Misleading, implies no efforts underway on hedge plan; approximately \$4,100,000 has been expended to date on conceptual design of an add-on gaseous diffusion plant.
Page 17, 5th sentence	Erroneous implication that participation will be 55% domestic, 45% foreign. Participation contemplated is 40% domestic with 55% of voting right and 60% foreign with 45% voting rights.
Page 22, 2nd sentence under Access to ERDA stockpile	Factually incorrect in that 9 million SWU are not available throughout the 5 year period, but on a declining basis to zero over the five year period.
Page 23, 3rd para. within 3rd sentence	Erroneously implies that the Government would be required to pay return on equity in the cases noted. UEA in such cases proposes (May 30 letter) "return of their original investment and additional compensation, <u>as determined by USG</u> , to reflect





Report Reference

Comments

Page 24, last word at end of first para.	Factually incorrect - should read "gross negligence". This is important because single negligence is cause for partial loss of equity.
Page 25, last para.	Seriously incomplete and potentially misleading; context unclear; may depend upon whether UEA or ERDA complete the project; should be expanded extensively or deleted.
Page 26, last sentence	Factually incorrect - it does not constitute a Government guarantee of this rate of return - see earlier comment on page iii of Digest.
Page 27, first para.	Seriously erroneous implication that the \$1.4 billion maximum "takeover" commitment and \$1.2 billion SWU purchase commitment (which <u>might</u> be required if 6 million SWU were purchased) are additive. In any credible situation SWU purchase would only occur if the plant were operable by UEA in a production sense, hence "takeover" had not occurred or <u>could</u> not then occur.
Page 28, first para. within first sentence	Factually incorrect; should read "gross negligence or willful misconduct."
Page 28, 2nd para. 2nd sentence	Factually incorrect; UEA risks loss of part or all of domestic equity during transition period, thereafter risks loss of revenues and loss of return on equity due to failure to produce product, strikes, etc. Furthermore if the project proceeds satisfactorily as is implied by the term "essentially riskless" then there would be no cost "borne by the Government" except for any SWU purchased which are, of course, resaleable.
Page 29, 3rd sentence	Erroneous implication that "normal business operations" (see page 28) associated with businesses performing services always cover risk of supplying materials being processed (millers do not supply grains being milled). The normal business operations of supplying enriching services does not involve supplying the feed material. Neither ERDA nor foreign enrichers undertake this risk. Therefore the implication that UEA is proposing a novel system is factually incorrect.



Report Reference

Comments

Page 30a, first sentence

Erroneous implication that all "normal" operating risks are hedged - not so - after transition period UEA has risks of strikes, mismanagement, etc., causing loss of revenue and return on equity through failure to produce product, factually incorrect in that the Government does not guarantee equity if plant not completed - UEA may lose all or a portion of equity during the transition period, thereafter it may lose a portion of equity or return on equity due to inability to produce product to meet commitments.

Page 31, 2nd para.

Erroneously implies that long term take or pay contracts with cost pass through pricing are abnormal for enriching services industry. This is the practice of ERDA and may well be the practice of those employing the centrifuge process.

Page 31, 2nd para.  
last sentence

Erroneous implication that industry will not be regulated should the need arise. Moreover, the relevance of the point is questionable if customers have no objection to 15% return, cost-pass-through, long term take or pay contracts. Unless customers do subscribe to the project, it cannot proceed. The industry will be subject to NRC regulation.

Page 31, last para.  
2nd sentence thru  
end of para.

Erroneous implication that advanced technologies do not offer competition to UEA. They will do so with respect to uncommitted portions of UEA's initial plant capacity and to any potential future additions of capacity. The same comment could apply equally well to a Government add-on plant.

Page 32a, 2nd para.  
portion of last line

Factually incorrect; under no circumstances is UEA guaranteed a 15% return on investment equity in a takeover situation.

Page 32b, last sentence  
first para.

Factually incorrect; in the event of takeover during this period for reasons other than gross mismanagement, gross negligence, or willful misconduct UEA risks losing both a return on equity investment and a portion of its equity investment. It could be pointed out that inability of UEA to roll over construction loans at the end of the construction period could trigger a Government takeover but would also presumably permit the Government to be the owner of an operable plant.



Report Reference

Comments

Page 32c, first para. portion of last sentence	Relevance of absence of price regulation is questionable. In fact, price regulation could operate to remove risk of competition.
Page 33, the word negligence in the first and fourth sentence	Factually incorrect and strongly misleading; implies only risk to equity is in extreme conditions cited which would be difficult to prove. In fact equity is at risk <u>up to</u> 100% in all other situations. Report fails to recognize extremely important point potential for partial loss of equity.
Page 33, first sentence under first major heading	Factually incorrect, UEA is <u>not</u> assured of a constant 15% rate of return.
Page 33, first para. end to last sentence	Erroneous implication; while the gaseous diffusion process could be considered as a chemical process, the enriching services industry does not resemble the chemical industry - no single chemical product or service involves a capital investment of \$3.5 billion and long term pay out - a more nearly comparable industry in these respects (but not in degree of business risk) is the electric utility industry. The failure to recognize this distinction is a major flaw.
Page 33, first para. last sentence	Seriously erroneous implication that entry into enrichment industry presents only the normal business risks - overlooks unusual difficulties in licensing nuclear activities, possibilities of nuclear moratoriums in various states and the unprecedented risk of investing 3.5 billion dollars in a single venture as yet unproven commercially based on secret technology. It should be noted that without exception potential entrants into the enrichment industry and the U.S. financial community during hearings before the JCAE view this activity as presenting abnormal business risks.



Report Reference

Comments

Page 44-45

Beginning last  
sentence page 44

Factually incorrect; should read "ERDA's present policy is to permit domestic companies who expect to provide enrichment capacity in the United States to initiate unclassified discussions with foreign entities within the confines of the Atomic Energy Act and the requirements of Title 10 of the Code of Federal Regulations, Part 110 Rules and Procedures."

last sentence,  
first para.

Incomplete. Should add statement that "The Government would have to assure that the proposed arrangement would be beneficial to the U.S." Also should revise next sentence as follows:

"Any arrangement would be subject to an appropriate Agreement for Cooperation between the U.S. and the country or countries of the foreign entity. The Government findings as to the acceptability of such proposals would be judged on the basis of:"

Page 46, 2nd and  
third sentences

Incomplete. Should note ERDA estimates of revenues based on attainment of proposed legislation permitting establishment of commercial charge presently estimated at \$76 per SWU.

Page 61, 1st para.  
first sentence

Incomplete in that the UEA plant, which may be the last of its kind, if more advanced processes prove economical in time, is in fact related to the interests of other potential entrants. Early action by the Government to support UEA would enable other private entrants to secure foreign and domestic customers by virtue of this demonstration of serious intention of the GOVERNMENT to rely on private enterprise to supply needed enrichment capacity.

Page 61, 1st para.  
second sentence

Factually incorrect. See earlier comments in regard to facts of UEA's risks. Moreover, as to competition, UEA is already encountering competition from the centrifuge because several large potential customers (TVA, Consumers Power, two Texas utilities and others) appear to have passed up UEA as a supplier and are already dealing with potential centrifuge enrichment suppliers.





Report Reference

Comments

Page 61, 2nd para.	Incomplete in that borrowing from the Treasury under Government ownership would swell the total of the national debt and in such case net outlays would add to the budget deficit.
Page 61, third para. first sentence	Erroneous implication that this potential difficulty of obtaining long term financing is peculiar to UEA and not equally applicable to other potential entrants. Moreover, all private industry will experience these difficulties if more and more new Government agencies (such as the proposed government enrichment corporation proposed by GAO) are enabled to borrow in the money markets. The more the public sector of the economy is expanded, the greater the difficulties which will be experienced by private firms.
Page 61, third para. 2nd sentence	Erroneous implication that this is an inherent problem when it probably would be overcome immediately (for UEA and other private projects) if the Congress passes the Nuclear Fuel Assurance Act, thus serving clear notice of U.S. Government support for private entry.
Page 61, third para.	Factually incorrect; UEA investors will not receive a guaranteed return.
Page 62, first para. third sentence	Erroneous implication; Government schedule is end of 1983 for 4.5 million SWU and the first part of 1985 for 9 million SWU whereas if UEA schedule slips 1 1/2 years they will have 9 million SWU by the first part of 1985. It should be observed that Government schedules also might slip
Page 62, 2nd para. 2nd sentence	We would disagree. Separate corporate management of enrichment facilities, due to time required to obtain necessary legislation and dispersion of experienced personnel between ERDA and the corporation, might well preclude timely implementation of Government's hedge plan should such action become necessary. Moreover, establishment of such a corporation might reduce confidence in Government's intentions to transfer enrichment to the private sector.



Report Reference

Comments

Page 62, 2nd para. last sentence	Erroneous implication. It is not at all clear that a Government corporation would be freed from budget constraints. This would be contrary to the spirit, if not the letter, of the "Budget Reform Act" of 1974.
Page 63,	Erroneous implication that private centrifuge enrichers are likely to be willing to assume more total risk with a less advanced technology when all evidence points, in a contrary direction.
Page 63, last point	No basis is established in the report for this recommendation, i.e., the report does not indicate where the proposed Nuclear Fuel Assurance Act of 1975 is inadequate, or an undesirable mechanism, for assisting development of a competitive uranium enrichment industry.
Appendix I Page 65, 2nd para. 2nd sentence	Factually erroneous. The statement should read: "The Eurodif consortium, in which France has a 42 percent interest, Italy 24 percent, Spain 12 percent, Belgium 12 percent, and Iran 10 percent,"
Page 66, first para. last sentence	Factually incomplete. The following should be inserted: "Brazil has recently made an agreement with the Federal Republic of Germany under which Germany will not only sell power reactors to Brazil but also establish in Brazil the complete nuclear fuel cycle, including an enrichment plant using the jet nozzle technology."
Page 67, last sentence	Incomplete. In lieu of the last sentence, the following could be used: "Zaire has expressed interest in some type of enrichment plant to utilize excess hydropower but so far no one has come forward to finance, build and operate a plant there."



OCT 17 1975

THE WHITE HOUSE

WASHINGTON

INFORMATION

October 15, 1975

MEMORANDUM FOR:

PHIL BUCHEN  
JIM CONNOR  
MAX FRIEDERSDORF  
ALAN GREENSPAN  
JIM LYNN  
JACK MARSH  
ROGERS C.B. MORTON  
BRENT SCOWCROFT  
BILL SEIDMAN  
FRANK ZARE

FROM:

JIM CANNON *Jm*

SUBJECT:

ADMINISTRATION Comments on GAO's  
Draft Report on Uranium Enrichment

Attached for your information is a copy of the final version of the letter that Dr. Seamans sent to the Comptroller General on October 14.

The final letter incorporates a few changes from the version that I sent to you on October 13. The substance of the letter remains the same.

Attachment





UNITED STATES  
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION  
WASHINGTON, D.C. 20545

OCT 14 1975

The Honorable Elmer B. Staats  
The Comptroller General  
of the United States  
Washington, D.C. 20548

Dear Mr. Staats:

Thank you for the opportunity to review and comment on your draft report on the expansion of uranium enrichment capacity in the United States. As indicated in the President's June 26, 1975, message to Congress, this matter is of great importance to the Nation.

The President's proposal was designed to:

- . Make clear immediately our National commitment to provide the needed increase in U.S. capacity to produce enriched uranium for domestic and foreign nuclear power plants.
- . Retain U.S. leadership as a supplier of services and technology for peaceful uses of nuclear energy.
- . Assure early creation of a private competitive uranium enrichment industry -- ending the Government monopoly.
- . Accomplish the above with little or no cost to taxpayers and with all necessary controls and safeguards.

In contrast to the President's proposal, the GAO draft report concludes that (a) ERDA should reject the proposal received from the private firm that wishes to build a gaseous diffusion plant, (b) the Government should build and own the next increment of needed capacity, and (c) that a Government Corporation should be created to take over existing and the next new capacity.





We believe the most complete, accurate and objective possible analysis and presentation of the problems, issues, and alternatives is necessary to increase public understanding of the President's proposal and to provide the basis for early Congressional action on that proposal. However, as detailed below, the presentation, analysis and evaluation in your draft report is not sufficiently complete, accurate or objective to sustain its conclusions.

We believe the report should be improved substantially because it:

- . Does not address fully the President's proposal.
- . Contains factual inaccuracies or misinterpretations.
- . Omits important considerations which, if taken into account, would lead to different conclusions.
- . Reflects philosophic preferences (e.g., for a Government Corporation) rather than an objective evaluation of the many considerations involved.
- . Does not emphasize the urgency of a decision on expanding the Nation's uranium enrichment capacity -- which is important to our international leadership in nuclear energy and our non-proliferation objectives.

Briefly, our major substantive reservations about the report are summarized below. Each of these points is discussed further in Attachment A and detailed page-by-page comments on the draft report are included in Attachment B.

- . The draft report is almost exclusively limited to a discussion of a proposal (still under negotiation) from one industrial group -- Uranium Enrichment Associates -- UEA, almost to the exclusion of an evaluation of the President's total program which would cover a number of cooperative agreements with firms that wish to build plants using diffusion and centrifuge technology in the transition to a private competitive industry.
- . The draft report does not reflect a clear understanding of the remaining uncertainties in centrifuge technology or the role that both technologies can play in sequence in achieving a private competitive industry.
- . The report does not seem to recognize that following its conclusions may prevent ever achieving a private competitive uranium enrichment industry -- even though it professes to support that objective.
- . The report (a) understates the risks to be assumed by private firms that are contemplated in the President's proposal, (b) understates the risks to UEA in its proposal, and (c) overstates the potential risks and costs to the Government.



- . The report does not analyze objectively its strong recommendation that a Government corporation be created to provide uranium enrichment services -- which corporation would have many of the same drawbacks as direct government financing.
- . The discussion of cash flow and Government financing is inaccurate and misleading in that it (a) does not make clear the large budget outlays that would result over the next few years if the Government builds new capacity; (b) incorrectly implies that costs of a new add-on Government plant would be recouped in about 6 years; and (c) confuses revenue from existing plants and eventual revenue from a new add-on Government plant. The revenue from existing plants is largely a repayment for past and current costs to taxpayers for building and operating these plants.
- . The statement that Government-owned capacity could be added at a cost significantly less than that of a similar sized privately-owned plant ignores the broader benefits of private financing and ownership of uranium enrichment plants including the possibility of attracting some \$2 billion in foreign capital for the UEA plant.
- . While an early decision on the approach to expansion of U.S. capacity is essential to maintain the credibility of the U.S. and a reliable supply source, a delay of one year or two -- beyond the UEA planned date for having a plant on line -- would not present serious problems. Furthermore, although a half-sized, Government-owned add-on plant could be completed by the beginning of 1984, a plant equivalent in capacity to the proposed UEA plant could not be brought on line until at least 18 months after the presently scheduled date for UEA plant completion (mid-1983).
- . The criticism in the draft report of private ventures' plans to obtain long-term "take-or-pay" contracts for enrichment services, and implied criticism of not providing the uranium which is to be enriched, suggests that GAO may not recognize current, widely accepted practices. "Take-or-pay" contracts are now used by ERDA in selling services from existing plants and are often used in industry -- for example by utilities in purchasing coal.
- . The criticism of private ventures' slowness in signing up foreign customers suggests a lack of understanding of the impact of the uncertainty while Congressional action is awaited, and the positive effect that early Congressional approval would have.



- . The report is correct in concluding that the safeguarding of nuclear materials and protection of classified technology is not an issue in the debate over Government vs. private ownership of a plant. However, we believe the report should emphasize that prompt action toward expanding the Nation's uranium enrichment capacity would be a major contribution to continued U.S. technological leadership and to non-proliferation objectives.

We urge strongly that the General Accounting Office proceed promptly with the correction and completion of its report so that it will not contribute further to delay in Congressional action on the President's proposal. We believe it is essential that a National decision on the means for expanding U.S. capacity to enrich uranium be reached without further delay.

We are prepared to cooperate fully in providing any additional information and assistance that you might need in completing your report.

Sincerely,

/s/

Robert C. Seamans, Jr.  
Administrator

Attachments  
As indicated



ATTACHMENT A

DETAILED DISCUSSION OF PROBLEMS SUMMARIZED  
IN THE LETTER TO MR. STAATS

1. The draft report is almost exclusively limited to a discussion of a proposal -- still under negotiation -- from one industry group, almost to the exclusion of an evaluation of the President's total proposal. Thus, it does not address the main issue which is the appropriateness and adequacy of the President's plan.
  - . The President's legislative proposal provides the basis for negotiating cooperative agreements with a number of private firms that propose to finance, build, own, and operate uranium enrichment plants -- both diffusion and centrifuge -- so that the Nation may move toward a private competitive industry.
  - . The context for this proposal is important:
    - . The Atomic Energy Act requires that "The development, use and control of atomic energy shall be directed so as to . . . strengthen free competition in private enterprise."
    - . A program was undertaken to provide industry with access to enrichment technology so that firms could decide whether to enter the field.
    - . One firm, Uranium Enrichment Associates (UEA), has proposed to build a plant utilizing the proven gaseous diffusion process to satisfy the need for the next increment of capacity. Three firms have now proposed plants using centrifuge technology for succeeding increments.
  - . The draft report focuses narrowly on the proposal submitted by UEA. This proposal is important because it is the only one that deals with the next increment of needed capacity. However, it must be viewed in its proper context, i.e., as the starting point for negotiating a cooperative agreement under the proposed legislation and as an important first step in private financing and ownership of all future increments of capacity.





- . Contrary to the implications of the draft report, the terms in the UEA proposal are still under negotiation and have not been accepted by the Government. Work is underway on the draft of a definitive contract.

2. The draft report does not reflect a clear understanding of the remaining uncertainties in centrifuge technology or the role that both diffusion and centrifuge technology play in sequence in moving toward a private competitive uranium enrichment industry.

- . Misunderstandings are reflected in the report's:
  - . Prompt dismissal of diffusion as being unimportant in moving toward private involvement, and the jump to centrifuge as an easier -- rather than more difficult -- solution without private financing and ownership of a diffusion plant as a first step.
  - . Conclusion that UEA's choice of diffusion technology is one valid reason for rejecting its proposal.
  - . Repeated reference to centrifuge as the "more efficient technology" -- without recognizing the uncertainties associated with it.
  - . Suggestion that centrifuge ventures should accept more risk when centrifuge involves greater risks.
- . There is general agreement that the next increment of capacity should utilize diffusion technology. There is also substantial agreement that succeeding increments should utilize centrifuge technology -- but this is not assured. Substantial economic uncertainties remain and the diffusion process may still be competitive for future increments.
- . U.S. centrifuge technology is well ahead of other nations and a pilot production plant is scheduled to be completed in 1976. But, we do not yet know the economics and reliability, for example, of mass production of the required large number of centrifuge units, or the operating, maintenance and replacement costs of such mass produced units.
- . Because of greater uncertainties, private firms wishing to use the centrifuge process may need more assistance and be able to assume less risk -- directly contrary to the report's conclusions.



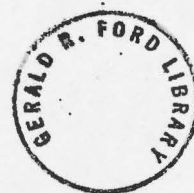
- . A successful private diffusion venture would -- contrary to the draft report -- have a direct relationship to the success of private centrifuge ventures. For example, it could demonstrate:
  - . The end of uncertainty -- rather than continued delay -- as to whether the Government is serious about establishing a private competitive industry and ending its monopoly.
  - . That private industry can raise capital for building enrichment plants and establish satisfactory relationships with customers, both domestic and foreign.
  - . That private industry financing and ownership is possible while maintaining all necessary controls and safeguards.
- 3. The draft report does not seem to recognize that following its conclusions may prevent ever achieving a private competitive uranium enrichment industry in the U.S. The report indicates support for the objective of a private uranium enrichment industry but recommends (a) summarily rejecting the private industry proposal for building a diffusion plant -- rather than pursuing negotiations toward a cooperative agreement, (b) building additional Government-owned capacity, and (c) creating a Government Corporation.
- . Ending a Government monopoly is extremely difficult at best. The current need to commit to major new plants offers an excellent opportunity. The progress that has been made thus far in moving toward a private competitive industry -- including the proposals now before ERDA -- is the result of (a) the statutory requirement cited earlier, (b) a strong policy position taken in 1971, and (c) a vigorous effort by industry to respond to the Government's actions, and (d) a concerted effort by the Government to define conditions under which such involvement can occur with all necessary controls and safeguards.



- . To decide now to build more government-owned capacity (after a period of many years without constructing new plants) could not help but cast doubts -- among potential private industry participants and customers, domestic and foreign -- about current or future assertions that the Government is serious in its efforts to involve industry and end its monopoly.
  - . Contrary to implications in the report, there is no strong reason to suggest that it would be easier or more effective to begin the transition to a competitive industry with centrifuge technology. Not only would the same types of Government cooperation and temporary assurances be required -- and possibly more because of the larger uncertainties -- but the creation of a Government corporation at this time would undercut the whole concept of a private industry in the field.
4. The draft report (a) understates the risks to be assumed by private firms contemplated in the President's proposal, (b) particularly understates the risk to USA in its proposal, and (c) overstates the potential risk to the Government.
- . The report fails to recognize the risks that private firms would have in dealing with multi-billion dollar projects involving classified technology which has not yet been proven in a commercial setting. Without exception, potential entrants in the enriching industry and representatives of the U.S. financial community viewed this activity as presenting abnormal business risk -- according to their testimony before the JCAE in 1974 hearings.
  - . The report does not recognize adequately that, under the President's proposal, Government assurances would last only for a limited transition period and then terminate automatically, leaving the plant owner with many business risks for at least the 20-25 year period of plant operation.
  - . The report recommends getting "more equitable sharing of risks" when centrifuge technology is ready, but gives no clear indication of what, specifically, would constitute "more equitable sharing of risks" or how this goal might be achieved. There seems no recognition that centrifuge technology, in the near term, involves more risk than diffusion technology.

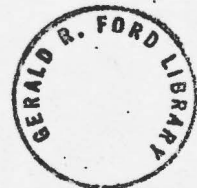


- . In the case of the UEA proposal, the report (a) erroneously states or implies in several contexts that UEA would receive a guaranteed 15% return on equity, and (b) fails to grasp that, while complete loss of private equity in the project is perhaps remote, there is a substantial risk of partial loss of private equity. Thus, the report gives an erroneous and distorted view of the UEA proposal. It is particularly important that the question of risk be completely and fairly treated since "inadequate risk" is central to the GAO thesis that the proposal be rejected.
  - . The report implies that there are substantial financial risks to the Government, e.g., the implication at the outset that the Government probably would spend \$8 billion to implement its proposed program -- when the plan virtually assures that this will not happen.
  - . The report fails to note that even under the most severe consequences (need for Government to take over a project) -- let alone the more likely circumstances, Government funds would not be at risk. Government funds would all be recovered, normally from the private project but, in any case, from the sale of uranium enrichment services.
  - . The argument that risks would be unduly shifted to the Federal Government overlooks the fact that if the Federal Government finances and owns additional capacity it bears all the risks for the entire life of plants.
5. The draft report does not analyze objectively its strong recommendation that a Government corporation be created to provide uranium enrichment services. For example:
- . The assertion that management by a Government corporation would be "more effective" is not backed up by reasons -- other than freedom from the budget and appropriations process which may be undesirable.
  - . The report seems to conclude that a Government corporation is somehow substantially different from the present ERDA-run operation when, in fact, it still amounts essentially to continuation of a Government monopoly.





- . Many disadvantages of a Government corporation -- which also apply in most cases to the present operations -- are not mentioned, including:
  - . Uranium enrichment is not an activity that can be performed well only by the Federal Government. It is essentially a commercial/industrial activity.
  - . Uranium enrichment service capacity must expand rapidly over the next few years and that expansion could occur in the private sector -- rather than swell the Federal sector.
  - . Borrowing from the Treasury by a Government corporation -- as in the case of ERDA building added capacity -- would add to the total of the national debt and net outlays would add to the Federal budget deficit.
  - . As the Nation's reliance on nuclear power grows, maintaining a Federal monopoly would lead to an unprecedented degree of Federal control over the Nation's electrical energy supply and ending that monopoly could become even more difficult with an entrenched Government corporation.
  - . The Nation would forego the advantages of private competition which can provide incentives over the long run for lower costs, improved efficiencies and technological advancement -- as well as a more diverse base for utilities to obtain their fuel.
  - . The argument in the report that UEA may encounter problems in obtaining long-term debt financing because of anticipated shortages of capital in the U.S. would apply equally to borrowing by a Government Corporation.
  - . The possibility of setting up a Government Corporation -- to take over existing plants and finance, build and operate new capacity -- in time to meet the U.S. needs for additional capacity is open to serious question.



6. The discussion of cash flow and Government financing is inaccurate and misleading in that it (a) does not make clear the large budget outlays that would result over the next few years if the Government builds new capacity; (b) incorrectly implies that costs of a new add-on Government plant would be recouped in about 6 years; and (c) confuses revenue from existing plants and eventual revenue from a new add-on Government plant.

- . Construction of additional Government enriching facilities would have a significant near term budget impact. The initial increment of a Government add-on plant would involve budget outlays in the period of FY 1976 to FY 1983 of about \$1.6 billion (1976 dollars). A Government-owned plant comparable in size to the UEA plant would require nearly \$2.5 billion (in 1976 dollars) in outlays between FY 1976 and FY 1983.
- . These outlays could represent a significant additional financing requirement from domestic funds, particularly over the next few years. The UEA proposal submitted in May and now the subject of negotiations contemplates using significant amounts of foreign capital -- but with firm U.S. control of the venture -- thus minimizing the impact of financing requirements on domestic capital markets.
- . An add-on plant would not produce enough revenue to recoup costs until after 1990 rather than in 6 years as the draft report implies.
- . Revenues from existing uranium enriching plants largely represent a repayment for costs borne by the taxpayers. These revenues are counted on to offset the costs of existing plants and other Federal programs and, if not available for this purpose, would have to be replaced by higher taxes or deficits. These revenues should not be confused with the eventual revenues from building new Government capacity.



7. The statement that Government-owned capacity could be added at a cost significantly less than that of a similar sized privately-owned plant ignores the broader benefits of private financing and ownership of uranium enrichment plants.

- . There undoubtedly would be some savings in building an add-on Government facility -- through use of common support facilities and from tying in with an existing plant's production process; but a construction cost differential is unlikely to be as great as GAO's estimate of \$600 million.

However, it must be recognized that this differential (a) ignores the substantial advantages of moving toward a private competitive industry, and (b) ignores the greater potential of drawing on foreign sources of financing (but with U.S. control) if private industry is involved. The UEA proposal contemplates attracting some \$2 billion in foreign capital which, if it can be attained, would result in domestic capital financing of some \$1 billion less than for a Government plant.

- . A number of the benefits of private financing and ownership are summarized under point 5, above.

8. While an early decision on the approach to expansion of U.S. capacity is essential to maintain the credibility of the U.S. as a reliable supply source, a delay of a year or two beyond UEA's planned dates for actually having a plant on the line would not present serious problems.

- . The draft report reflects concern about potential slippage in the date when UEA would have a plant on line. UEA's proposal contemplates initial production in 1981 with full production in mid-1983.
- . If the Government were to add on a "half-size" plant to an existing plant, initial production would not begin until 1983, with full production at the beginning of 1984. If the add-on plant was equivalent in capacity to that of the UEA-proposed plant, initial production would commence in 1983 with full production at the beginning of 1985.

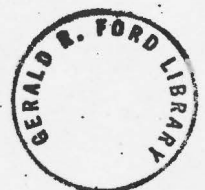


- . In any case, the cancellations in nuclear power plant orders and slippages in plant on-line dates here and abroad -- combined with the ability of the U.S. Government to use its stockpile of enriched uranium -- would allow flexibility to accommodate some slippage in the on-line date proposed by UEA.
  - . Whether or not there would be a delay is still a matter of conjecture. Some believe UEA could not meet its proposed schedule; others point out that privately-managed construction projects could move more quickly than those undertaken for the Government.
9. The criticism of private ventures' plans to obtain long-term "take-or-pay" contracts for enrichment services, and implied criticism for not providing the uranium to be enriched, suggests a lack of understanding of current, widely-accepted practices.
- . Long-term "take-or-pay" contracts are now used by ERDA for enrichment services from Government-owned plants and foreign sources. Also, ERDA contracts require a substantial customer down payment. Moreover, firms planning to employ centrifuge technology will most likely employ long-term "take-or-pay" contracts.
  - . Long-term "take-or-pay" contracts are common in industry, particularly between utilities and firms in the coal industry. Such contracts are used as security for obtaining long-term debt financing when large capital investments are required, as in opening new coal mines.
  - . Uranium feed materials are not conventionally supplied by any uranium enricher.
10. The criticism of private ventures' slowness in signing up foreign customers suggests a lack of understanding of the impact of the uncertainty while Congressional action is awaited.
- . The need for Congressional action on the President's legislative proposal is well recognized by potential domestic and foreign customers and investors.
  - . The preference in some quarters for continuing the Government monopoly through building added capacity by ERDA or a Government Corporation is also well known.
  - . Both factors contribute, quite understandably, to the uncertainty as to U.S. plans and thus to some delay in signing up customers and investors.





11. The report is correct in concluding that the safeguarding of nuclear materials and protection of classified technology is not an issue in the debate over Government vs. private ownership of a plant. However, the report should emphasize that prompt action toward expanding the Nation's uranium enrichment capacity would be a major contribution to continued US technological leadership and to non-proliferation objectives.
- . The fact that foreign customers were not able for many months to sign firm long-term contracts with a US source of uranium enrichment services damaged the credibility of the Nation as a supplier and has increased pressure in other nations for development of enrichment technology and construction of plants.
  - . There is increasing evidence that other nations are turning to potential suppliers outside the US, thus increasing the pressure for construction of more enrichment plants abroad.



COMMENTS ON DRAFT GAO REPORT ON URANIUM ENRICHMENT

<u>Report Reference</u> <u>Digest</u>	<u>Comments</u>
Page i, Para. 2	Erroneous implication that Government will expend \$8 billion, when plan virtually assures that this will not happen. Moreover, any Government expenditures will be recovered by Government through reimbursement of cost of assistance or, in event of takeover, from revenues received from Government sales of enriching services.
Page ii, next to last point	Factually incorrect in that Government purchase of UEA SWU's will <u>not</u> be unlimited, rather specifically limited as to amount, time and circumstance.
Page ii, last point	Factually incorrect in that UEA access to Government SWU's will <u>not</u> be unlimited, rather specifically limited as to amount, time, and purpose.
Page iii, first 2 lines	Erroneous implication that the Government will reimburse domestic equity in UEA in all circumstances if UEA project fails. Depending upon circumstances, UEA domestic equity could be totally or partially forfeited
Page iii, Para. 1	Factually incorrect in that UEA domestic equity will not receive an essentially guaranteed return on their investment. In event of takeover domestic equity may lose part or all of its investment. Further after the transition period, UEA will risk losing return on equity if it fails to produce product to meet commitments to its customers.
Page iii, Para. 2	While probably correct, this statement does not appear to be relevant to an evaluation of the proposed Nuclear Fuel Assurance Act of 1975. Furthermore, we do not believe that use of gaseous diffusion technology is appropriate as a reason for recommended rejection of the UEA proposal since many of the values of private enrichment are independent of the technology employed. It is generally agreed that the next plant should use this process. Additionally, it is not at all clear at this time that plants using gaseous diffusion will not compete with gas centrifuge plants for future increments of capacity.





Report Reference  
Digest

Comments

Page iii, last three  
points under  
Conclusions

Factually incorrect in that investors are not guaranteed a rate of return. Furthermore, with the exception of the first conclusion (treated above) the observations made could apply equally well to private efforts employing the centrifuge process. Any "financing uncertainties" are largely the result of the uncertainty over the present position of the Government and can be expected to be resolved by passage of the Nuclear Fuel Assurance Act. There is no reason for believing that the UEA plant would be on line any later than a similar sized Government plant.

Page iii, next to  
last point

Factually incorrect in that Government add-on plant schedules 4.5 million SWU in 1983, 9 million by 1985, about 1 1/2 years behind UEA proposed schedule for a plant of the same size--so even a substantial slip in UEA schedule would not put it behind the Government schedule. Moreover, Government operations are also, like private efforts, vulnerable to interruptions, uncertainties and delays.

Page iv, middle para.

Erroneous implication that private centrifuge enrichers are likely to be willing to assume more total risk with a less advanced technology when all evidence points in the contrary direction.

Page v, 2nd point

There is no basis developed in the report for this recommendation; nothing in the report indicates any reason for concluding that the proposed Nuclear Fuel Assurance Act of 1975 is inadequate or undesirable legislation for assisting private employment of advanced enriching technologies.

Main Text

Page 7, last sentence,  
first para.

Factually incorrect in that a new plant to operate economically employing the gaseous diffusion process requires approximately 9 million SWU and the gas centrifuge process capacity probably somewhere in the range of 2 to 3 million SWU, as yet undetermined.



Report Reference

Comments

Page 9, first sentence

Incomplete, thus misleading. Text should indicate that ERDA officials stressed that the process has not yet been determined to be technically or economically feasible, thus that production plant extrapolations at this time are meaningless.

Page 10, second para.

Misleading and incomplete in that no mention is made of the fact that several years of intensive work and sizeable commitment of resources have been made by a substantial number of private firms in developing their present positions, and, in the case of the four groups cited, in developing extensive plans for participation in private enrichment. Very extensive marketing efforts have been undertaken, particularly by UEA.

Page 11, last para.

Seriously erroneous implication in that needed assistance and assurance to private projects is expected to be on a basis which provides such support at the expense of the private project, whereas the context implies that this would be at Government expense.

Page 14, last sentence

Misleading, implies no efforts underway on hedge plan; approximately \$4,100,000 has been expended to date on conceptual design of an add-on gaseous diffusion plant.

Page 17, 5th sentence

Erroneous implication that participation will be 55% domestic, 45% foreign. Participation contemplated is 40% domestic with 55% of voting right and 60% foreign with 45% voting rights.

Page 22, 2nd sentence  
under Access to ERDA  
stockpile

Factually incorrect in that 9 million SWU are not available throughout the 5 year period, but on a declining basis to zero over the five year period.

Page 23, 3rd para.  
within 3rd sentence

Erroneously implies that the Government would be required to pay return on equity in the cases noted. UEA in such cases proposes (May 30 letter) "return of their original investment and additional compensation, as determined by USG, to reflect the results achieved to the date of transfer."  
(Underlining added.)



Report Reference

Comments

- Page 24, last word at end of first para. Factually incorrect - should read "gross negligence". This is important because simple negligence is cause for partial loss of equity.
- Page 25, last para. Seriously incomplete and potentially misleading; context unclear; may depend upon whether UEA or ERDA complete the project; should be expanded extensively or deleted.
- Page 26, last sentence Factually incorrect - it does not constitute a Government guarantee of this rate of return - see earlier comment on page iii of Digest.
- Page 27, first para. Seriously erroneous implication that the \$1.4 billion maximum "takeover" commitment and \$1.2 billion SWU purchase commitment (which might be required if 6 million SWU were purchased) are additive. In any credible situation SWU purchase would only occur if the plant were operable by UEA in a production sense, hence "takeover" had not occurred or would not then occur.
- Page 28, first para. within first sentence Factually incorrect; should read "gross negligence or willful misconduct."
- Page 28, 2nd para. 2nd sentence Factually incorrect; UEA risks loss of part or all of domestic equity during transition period, thereafter risks loss of return on equity due to failure to produce product. Furthermore if the project proceeds satisfactorily as is implied by the term "essentially riskless" then there would be no cost "borne by the Government" except for any SWU purchases which are, of course, resaleable.
- Page 29, 3rd sentence Erroneous implication that "normal business operations" (see page 28) associated with businesses performing services always cover risk of supplying materials being processed (millers do not supply grains being milled). The normal business operations of supplying enriching services does not involve supplying the feed material. Neither ERDA nor foreign enrichers undertake this risk. Therefore the implication that UEA is proposing a novel system is factually incorrect.



Report Reference

Comments

Page 30a, first sentence	Erroneous implication that all "normal" operating risks are hedged - not so - after transition period UEA has risks of loss of return on equity through failure to produce product; factually incorrect in that the Government does not guarantee equity if the plant is not completed - UEA may lose all or a portion of equity during the transition period, thereafter it may lose return on equity due to inability to produce product to meet commitments during an exposure period of 20-25 years.
Page 31, 2nd para.	Erroneously implies that long term take or pay contracts with cost pass through pricing are abnormal for enriching services industry. This is the practice of ERDA and may well be the practice of those employing the centrifuge process.
Page 31, 2nd para. last sentence	Erroneous implication that industry will not be regulated should the need arise. Moreover, the relevance of the point is questionable if customers have no objection to 15% return, cost-pass-through, long term take or pay contracts. Unless customers do subscribe to the project, it cannot proceed. The industry will be subject to NRC regulation.
Page 31, last para. 2nd sentence thru end of para.	Erroneous implication that advanced technologies do not offer competition to UEA. They will do so with respect to uncommitted portions of UEA's initial plant capacity and to any potential future additions of capacity. The same comment could apply equally well to a Government add-on plant.
Page 32a, 2nd para. portion of last line	Factually incorrect; under no circumstances is UEA guaranteed a 15% return on investment equity in a takeover situation.
Page 32b, last sentence first para.	Factually incorrect; in the event of takeover during this period for reasons other than gross mismanagement, gross negligence, or willful misconduct UEA risks losing both a return on equity investment <u>and</u> a portion of its equity investment. It could be pointed out that inability of UEA to roll over construction loans at the end of the construction period could trigger a Government takeover but would also presumably permit the Government to be the owner of an operable plant at a cost (considering foreign investment) substantially less than the Government would incur in construction of its own plant.





Report Reference

Comments

Page 32c, first para.  
portion of last  
sentence

Relevance of absence of price regulation is questionable. In fact, price regulation could operate to remove risk of competition.

Page 33, the word  
negligence in the  
first and fourth  
sentence

Factually incorrect (should read "gross negligence") and strongly misleading; implies only risk to equity is in extreme conditions cited which would be "difficult to prove." In fact equity is at risk in many other situations. Report fails to recognize extremely important point of potential for partial loss of equity.

Page 33, first  
sentence under  
first major heading

Factually incorrect, UEA is not assured of a constant 15% rate of return

Page 33, first para.  
end to last  
sentence

Erroneous implication; while the gaseous diffusion process could be considered as a chemical process, the enriching services industry does not resemble the chemical industry - no single chemical product or service involves a capital investment of \$3.5 billion and long term pay out - a more nearly comparable industry in these respects (but not in degree of business risk) is the electric utility industry.

Page 33, first para.  
last sentence

Seriously erroneous implication that entry into enrichment industry presents only the normal business risks - overlooks unusual difficulties in licensing nuclear activities, possibilities of nuclear moratoriums in various states and the unprecedented risk of investing \$3.5 billion in a single venture as yet unproven commercially based on secret technology. It should be noted that without exception, potential entrants into the enrichment industry and representatives of the U.S. financial community during 1974 hearings before the JCAE viewed this activity as presenting abnormal business risks.



Report Reference

Comments

Page 44-45  
Beginning last  
sentence page 44

Factually incorrect; should read "ERDA's present policy is to permit domestic companies who expect to provide enrichment capacity in the United States to initiate unclassified discussions with foreign entities within the confines of the Atomic Energy Act and the requirements of Title 10 of the Code of Federal Regulations, Part 110 Rules and Procedures."

last sentence,  
first para.

Incomplete. Should add statement that "The Government would have to assure that the proposed arrangement would be beneficial to the U.S." Also should revise last sentence as follows:

"Any arrangement would be subject to an appropriate Agreement for Cooperation between the U.S. and the country or countries of the foreign entity. The Government findings as to the acceptability of such proposals would be judged on the basis of:"

Page 46, first para.

Seriously erroneous and misleading implication that cost benefit cited is due to Government construction of "next increment of enrichment capacity" whereas figures cited are due to the existing Government plants and assumes ERDA estimates of revenues based on attainment of proposed legislation permitting establishment of commercial charge, presently estimated at \$76 per SWU..

Page 61, 1st para.  
first sentence

Factually incorrect in that the UEA plant, which may be the last of its kind, if more advanced processes prove economical in time, is in fact related to the interests of other potential entrants. Early action by the Government to support UEA would enable other private entrants to secure foreign and domestic customers by virtue of this demonstration of serious intention of the Government to rely on private enterprise to supply needed enrichment capacity.

Page 61, 1st para.  
second sentence

Factually incorrect. See earlier comments in regard to facts of UEA's risks. Moreover, as to competition, UEA is already encountering competition from the centrifuge because several large potential customers (TVA, Consumers Power, two Texas utilities and others) appear to have passed up UEA as a supplier and are already dealing with potential centrifuge enrichment suppliers.





Report Reference

Comments

Page 61, 2nd para.

Incomplete in that borrowing from the Treasury under Government ownership would swell the total of the national debt and, in such case, net outlays would add to the budget deficit.

Page 61, third para.  
first sentence

Erroneous implication that this potential difficulty of obtaining long term financing is peculiar to UEA and not equally applicable to other potential entrants. Moreover, all private industry will experience these difficulties if more and more new Government agencies (such as the proposed government enrichment corporation proposed by GAO) are enabled to borrow in the money markets.

Page 61, third para.  
2nd sentence

Erroneous implication that this is an inherent problem when it probably would be overcome immediately (for UEA and other private projects) if the Congress passes the Nuclear Fuel Assurance Act, thus serving clear notice of U. S. Government support for private entry.

Page 61, fourth para.

Factually incorrect; UEA investors will not receive a guaranteed return, furthermore Government funds are not at risk.

Page 62, first para.  
third sentence

Erroneous implication; Government schedule is end of 1983 for 4.5 million SWU and the first part of 1985 for 9 million SWU whereas if UEA schedule slips 1 1/2 years they will have 9 million SWU by the first part of 1985. It should be observed that Government schedules also might slip.

Page 62, 2nd para.  
2nd sentence

We would disagree. Separate corporate management of enrichment facilities, due to time required to obtain necessary legislation and dispersion of experienced personnel between ERDA and the corporation, might well preclude timely implementation of Government's hedge plan should such action become necessary. Moreover, establishment of such a corporation would reduce confidence in Government's intentions to transfer responsibilities for future enrichment plants to the private sector.



Report Reference

Comments

- Page 62, 2nd para.  
last sentence      Erroneous implication. It is not at all clear that a Government corporation would be freed from budget constraints. This would be contrary to the spirit, if not the letter, of the "Budget Reform Act" of 1974.
- Page 63,      Erroneous implication that private centrifuge enrichers are likely to be willing to assume more total risk with a less advanced technology when all evidence points in a contrary direction.
- Page 63, last point      No basis is established in the report for this recommendation, i.e., the report does not indicate where the proposed Nuclear Fuel Assurance Act of 1975 is inadequate, or an undesirable mechanism, for assisting development of a competitive uranium enrichment industry.
- Appendix I
- Page 65, 2nd para.  
2nd sentence      Factually erroneous. The statement should read:  
"The Eurodif consortium, in which France has a 42 percent interest, Italy 24 percent, Spain 12 percent, Belgium 12 percent, and Iran 10 percent,"
- Page 66, first para.  
last sentence      Factually incomplete. The following should be inserted:  
"Brazil has recently made an agreement with the Federal Republic of Germany under which Germany will not only sell power reactors to Brazil but also establish in Brazil the complete nuclear fuel cycle, including an enrichment plant using the jet nozzle technology."
- Page 67, last  
sentence      Incomplete. In lieu of the last sentence, the following could be used: "Zaire has expressed interest in some type of enrichment plant to utilize excess hydropower but so far no one has come forward to finance, build and operate a plant there."

Note: Proposed arrangements between UEA and the Government are in the process of negotiation.

