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Shen - This bill was  
on the members  
Desk in JCAE hearing  
room  
May 11 - 1976  
Due

**[FOR COMMITTEE USE ONLY]**

DECEMBER 17, 1975

**[Staff suggested changes for discussion only]**

**Calendar No.**

94TH CONGRESS  
1ST SESSION

**S. 2035**

**[Report No. 94-     ]**

**IN THE SENATE OF THE UNITED STATES**

JUNE 26 (legislative day, JUNE 6), 1975

Mr. PASTORE (for himself and Mr. BAKER) (by request) introduced the following bill; which was read twice and referred to the Joint Committee on Atomic Energy

DECEMBER     , 1975

Reported by Mr. PASTORE, with amendments, and an amendment to the title  
[Omit the part struck through and insert the part printed in *italic*]

**A BILL**

To authorize cooperative arrangements with private enterprise for the provision of facilities for the production and enrichment of uranium enriched in the isotope-235, to provide for authorization of contract authority therefor, *to provide a procedure for prior congressional review and disapproval of proposed arrangements*, and for other purposes. (1)

1     *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

J. 63-057



1 That this Act may be cited as the "Nuclear Fuel Assurance  
2 Act of 1975".

3 SEC. 2. Chapter 5 (production of special nuclear mate-  
4 rial) of the Atomic Energy Act of 1954, as amended, is  
5 amended by adding at the end thereof the following section.

6 "SEC. 45. COOPERATIVE ARRANGEMENTS FOR PRIVATE  
7 PROJECTS TO PROVIDE URANIUM ENRICHMENT SERV-  
8 ICES.—

9 "a. The *Administrator of Energy Research and De-* (2)  
10 *velopment Administration* is authorized, *subject to the prior*  
11 *congressional review procedure set forth in subsection b. of*  
12 *this section* without regard to the provisions of section  
13 169 of this Act, to enter into cooperative arrangements with  
14 any person or persons for such periods of time as the Admin-  
15 istrator ~~of the Energy Research and Development Admin-~~  
16 ~~istration~~ may deem necessary or desirable for the purpose of  
17 providing such Government cooperation and assurances as  
18 the Administrator may deem appropriate and necessary to  
19 encourage the development of a competitive private uranium  
20 enrichment industry and to facilitate the design, construc-  
21 tion, ownership, and operation by private enterprise of  
22 facilities for the production and enrichment of uranium en-  
23 riched in the isotope-235 in such amounts as will contribute  
24 to the common defense and security and encourage develop-



1 ment and utilization of atomic energy to the maximum extent  
 2 consistent with the common defense and security and with  
 3 the health and safety of the public; including, inter alia, in  
 4 the discretion of the Administrator,

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

9       “(2) providing warranties for materials and equip-  
 10 ment furnished;

11       “(3) providing facility performance assurances;

12       “(4) purchasing enriching services;

13       “(5) undertaking to acquire the assets or interest  
 14 of such person, or any of such persons, in an enrichment  
 15 facility, and to assume obligations and liabilities (includ-  
 16 ing debt) of such person, or any of such persons, arising  
 17 out of the design, construction, ownership, or operation  
 18 for a defined period of such enrichment facility in the  
 19 event such person or persons cannot complete that en-  
 20 richment facility or bring it into commercial operation:

21 *Provided*, That any undertaking, pursuant to this sub-  
 22 section (5), to acquire equity or pay off debt, shall apply  
 23 only to ~~individuals~~ *investors or lenders* who are citizens  
 24 of the United States, or ~~to any~~ *are a* corporation or other

(3)


(4)



1       entity organized for a common business purpose, which  
2       is owned or effectively controlled by citizens of the  
3       United States; and

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

9       “b. Before the Administrator enters into any arrange-  
10      ment or amendment thereto under the authority of this sec-  
11      tion, or before the Administrator determines to modify, or  
12      complete and operate any facility or to dispose thereof, the  
13      basis for the proposed arrangement or amendment thereto  
14      which the Administrator proposes to execute (including the  
15      name of the proposed participating person or persons with  
16      whom the arrangement is to be made, a general description  
17      of the proposed facility, the estimated amount of cost to be  
18      incurred by the participating person or persons, the incen-  
19      tives imposed by the agreement on the person or persons  
20      to complete the facility as planned and operate it successfully  
21      for a defined period, and the general features of the proposed  
22      arrangement or amendment), or the plan for such modifica-  
23      tion, completion, operation, or disposal by the Administra-  
24      tor, as appropriate, shall be submitted to the Joint Com-  
25      mittee on Atomic Energy, and a period of forty-five days



1 shall elapse while Congress is in session (in computing such  
 2 forty-five days, there shall be excluded the days on which  
 3 either House is not in session because of adjournment for  
 4 more than three days) unless the Joint Committee by resolu-  
 5 tion in writing waives the conditions of, or all or any portion  
 6 of, such forty-five day period: *Provided, however, That any*  
 7 *such arrangement or amendment thereto, or such plan, shall*  
 8 *be entered into in accordance with the basis for the arrange-*  
 9 *ment or plan, as appropriate, submitted as provided herein."*

10 . "b. The Administrator shall not enter into any arrange- (5)  
 11 ment or amendment thereto under the authority of this section,  
 12 modify, or complete and operate any facility or dispose  
 13 thereof, until the proposed arrangement or amendment thereto  
 14 which the Administrator proposes to execute, or the plan for  
 15 such modification, completion, operation or disposal by the  
 16 Administrator, as appropriate, has been submitted to the  
 17 Joint Committee on Atomic Energy, and a period of sixty  
 18 days has elapsed while Congress is in session <sup>with</sup> ~~without~~ passage  
 19 by the Congress of a concurrent resolution stating in sub-  
 20 stance that it does ~~not~~ favor such proposed arrangement or  
 21 amendment or plan for such modification, completion, opera-  
 22 tion, or disposal (in computing such sixty days, there shall be  
 23 excluded the days on which either House is not in session be-  
 24 cause of adjournment for more than three days).": *Provided,*



1 That prior to the elapse of the first thirty days of any such  
 2 sixty-day period the Joint Committee shall submit a report to  
 3 the Congress of its views and recommendations respecting  
 4 the proposed arrangement, amendment or plan and an accom-  
 5 panying proposed concurrent resolution stating in substance  
 6 that the Congress favors, or does not favor, as the case may  
 7 be, the proposed arrangement, amendment or plan. Any such  
 8 concurrent resolution so reported shall become the pending  
 9 business of the House in question (in the case of the Senate  
 10 the time for debate shall be equally divided between the pro-  
 11 ponents and the opponents) within twenty-five days and  
 12 shall be voted on within five calendar days thereafter, unless  
 13 such House shall otherwise determine.

14 SEC. 3. The Administrator of ~~the~~ Energy Research and  
 15 Development ~~Administration~~ is hereby authorized to enter (6)  
 16 into contracts for cooperative arrangements, without fiscal  
 17 year limitation, pursuant to section 45 of the Atomic Energy  
 18 Act of 1954, as amended, in an amount not to exceed in the  
 19 aggregate \$8,000,000,000 as ~~may be approved in an appro-~~  
 20 ~~priation Act.~~ but in no event to exceed the amount provided (7)  
 21 therefor in a prior appropriation Act: Provided, That the  
 22 timing, interest rate, and other terms and conditions of any  
 23 notes, bonds, or other similar obligations secured by any such  
 24 arrangements shall be subject to the approval of the Admin-



1 *istrator with the concurrence of the Secretary of the Treasury.*

2 In the event that liquidation of part or all of any financial  
3 obligations incurred under such cooperative arrangements  
4 should become necessary, the Administrator ~~of the Energy~~

5 ~~Research and Development Administration~~ is authorized to

(8)

6 issue to the Secretary of the Treasury notes or other obliga-  
7 tions up to the levels of contract authority approved in an  
8 appropriation Act pursuant to the first sentence of this

9 section in such form and denomination, bearing such maturity  
10 and subject to such terms and conditions as may be pre-

11 scribed by the Administrator with the approval of the  
12 Secretary of the Treasury. Such notes or other obligations

13 shall bear interest at a rate determined by the Secretary of  
14 the Treasury, taking into consideration the current average

15 market yield on outstanding marketable obligations of the  
16 United States of comparable maturity at the time of issuance

17 of the notes or other obligations. The Secretary of the Treas-  
18 ury shall purchase any notes or other obligations issued here-

19 under and, for that purpose, he is authorized to use as a  
20 public debt transaction the proceeds from the sale of any

21 securities issued under the Second Liberty Bond Act, as  
22 amended, and the purposes for which securities may be

23 issued under that Act, as amended, are extended to include  
24 any purchase of such notes and obligations. The Secretary



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

10 SEC. 4. The Administrator of the Energy Research and  
 11 Development Administration is hereby <sup>authorized and directed</sup> ~~authorized~~ to initiate  
 12 construction planning and design activities <sup>construction + operation</sup> ~~activities~~ for expansion of  
 13 an existing uranium enrichment facility. There is <sup>is</sup> ~~are~~ hereby <sup>a</sup> ~~authori~~ <sup>authorized</sup>  
 14 ~~authorized to be appropriated such sums as may be necessary~~  
 15 for this purpose.

*The sum not to exceed \$230 M*



#### DRAFTER'S REVISION NOTES

[Proposed revisions are indicated by italic type; proposed deletions are indicated by lined-through type.]

1. Adds a statement of purpose in the Bill's title, namely "to provide a procedure for prior congressional review of proposed arrangements."

2. Places the authority of the Bill in the Administrator of Energy Research and Development, rather than in the Energy Research and Development Administration, and correctly states the Administrator's title ("Administrator of Energy Research and Development") to conform to the provisions of the Energy Reorganization Act of 1974, P.L. 93-438, particularly section 102(a) and 104(c) thereof.

3. Adds parentheses around the numeral "5" for stylistic purposes.

4. Clarifies the intent that any undertaking to acquire equity or pay off debt shall apply only to domestic investors and lenders by removing any implication that such undertaking could apply to foreign investors in or lenders to a domestic enrichment corporation which is owned or effectively controlled by citizens of the United States.

5. Revises congressional review procedure to (a) state positively that the Administrator shall not enter into a cooperative arrangement until the congressional review procedure has been completed; (b) require that the actual contractual documents for the proposed arrangement, not just the "basis for the proposed arrangement," are submitted for congressional review; and (c) provide a congressional review procedure (which is in substance the same as the procedure enacted last year) to enable the Congress to concur in or disapprove proposed contractual arrangements with private enterprise prior to the execution of the arrangements.

6. Correctly states the title of the Administrator (see note 2 above).

7. Clarifies the intent that no arrangement may be entered into before an appropriation Act has provided contract authority therefor; adds a stipulation that the terms and conditions of any money obligations secured by cooperative arrangements are subject to the approval of the Administrator and the concurrence of the Secretary of the Treasury.

8. Correctly states the title of the Administrator (see note 2 above).

9. Correctly states the title of the Administrator (see note 2 above).



CONGRESSIONAL OVERSIGHT OF THE PRESIDENT'S PLAN TO ATTAIN A  
COMPETITIVE PRIVATE ENRICHMENT INDUSTRY

Congressional Oversight of the President's plan to attain a competitive private enrichment industry will occur in the following three consecutive phases:

A. JCAE hearings on the proposed Nuclear Fuel Assurance Act of 1975. During these hearings the JCAE has the opportunity to obtain the views of the Administration, the nuclear industry, and the public concerning the need for the legislation and its intended implementation.

B. Hearings before the Senate and House Appropriation Committees on requests for provision of contract authority authorized by Section 3 of the proposed legislation. In compliance with the Congressional Budget Control Act of 1974, Section 3 of the proposed Act authorizes appropriation Acts providing contract authority in an amount not to exceed in the aggregate \$8,000,000,000, and precludes the Administrator from entering into any cooperative arrangements in excess of such amounts of contract authority as are provided in a prior appropriation Act.

C. Submittal of any proposed contract for a cooperative arrangement to the Congress for congressional review procedures prior to the execution of the contract. The Congress would be enabled to concur in or disapprove the proposed contracts under a congressional review procedure which in substance is identical to the review procedure enacted last year with regard to certain international agreements for peaceful cooperation (P.L. 93-485).

Section 2 of the bill explicitly precludes the Administrator from executing any such proposed cooperative arrangement until the congressional review procedure provided for has been completed.

In the event the JCAE raises serious questions concerning the advisability of any aspects of the proposed cooperative arrangement, the Administrator may withdraw the proposed arrangement and endeavor to modify it and resubmit it under the same procedure.

In the unlikely event of Government takeover of a facility, a similar process is required for any plan of the Administrator to modify, or complete and operate any facility or to dispose thereof.



## BILL ANALYSIS

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

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

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

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

*Subsection b.* of the new Section 45 provides procedures for Congressional review of any proposed contract for a cooperative arrangement for private participation in uranium enrichment. The Administrator of Energy Research and Development would be explicitly precluded from signing any proposed contract or amendment thereto until the Congressional review procedures provided for in this subsection had been completed. The Congressional review procedures would also apply for any plan proposed by the Administrator to modify, complete, operate or dispose of any enrichment facility which the Energy Research and Development Administration may acquire.

The congressional review procedures provided for are in substance identical to the congressional review procedures which the Congress enacted last year in P.L. 93-485 to enable the Congress to concur in or disapprove international agreements for cooperation in regard to certain nuclear technology.



*Section 3* of the proposed Nuclear Fuel Assurance Act would authorize the Administrator of Energy Research and Development to enter into contracts, pursuant to the new subsection 45a., in an amount not to exceed \$8 billion, but in no event to exceed the amount provided therefor in prior appropriation Acts. This amount is an estimate of the total potential cost to the Government in the unexpected event that all private ventures covered by cooperative arrangements were to fail and it was then necessary for the Government to assume assets and liabilities of the ventures, take over plants, and compensate domestic investors. It is not expected that any of these funds would be expended for the assumption of private ventures, but the authorization is necessary to provide assurance, to customers and sources of debt financing for private producers, of the Federal Government's commitment to create a competitive industry.

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

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



**[FOR COMMITTEE USE ONLY]**

DECEMBER 17, 1975

[Staff suggested changes for discussion  
only]

Calendar No.

94TH CONGRESS  
1ST SESSION

**S. 2035**

[Report No. 94- ]

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**A BILL**

To authorize cooperative arrangements with private enterprise for the provision of facilities for the production and enrichment of uranium enriched in the isotope-235, to provide for authorization of contract authority therefor, *to provide a procedure for prior congressional review and disapproval of proposed arrangements*, and for other purposes.

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By Mr. PASTORE and Mr. BAKER

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JUNE 26 (legislative day, JUNE 6), 1975

Read twice and referred to the Joint Committee on  
Atomic Energy

DECEMBER , 1975

Reported with amendments, and an amendment to  
the title



5/11/76  
Bill Report

SUBJECT:            Uranium Enrichment Legislation

The joint Committee on Atomic Energy (JCAE) this afternoon ordered reported the Nuclear Fuel Assurance Act by a vote of 14 to 1 (Tunney).

The Committee made two significant changes in the bill:

- o     a revision in the Congressional review and approval section to provide that ERDA may proceed with contracts with private ventures only if the Congress passes a concurrent resolution of approval within 60 days. Previously the bill would have permitted ERDA to proceed if the Congress did not pass a concurrent resolution of disapproval.
- o     Language authorising work on a contingency plan was revised to direct the Administrator of ERDA to initiate design, construction and operation of a government-owned enrichment plant. The section was also revised to authorize \$230 million for this purpose in FY 1977.

The first change is by far the most significant.



94TH CONGRESS }  
2d Session

SENATE

{ REPORT  
No. 94-23

# [NUCLEAR FUEL ASSURANCE ACT

OF 1976

AUTHORIZING APPROPRIATIONS FOR THE  
ENERGY RESEARCH AND DEVELOPMENT  
ADMINISTRATION FOR FISCAL YEAR 1977

## REPORT

BY THE

JOINT COMMITTEE ON ATOMIC ENERGY

[To accompany S. ~~2235~~]

2035



MAY -

~~April 28~~, 1976.—Ordered to be printed

~~Filed, under authority of the Order of the Senate of April 14, 1976~~

U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1976

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R. WAGLER:  
THE JOINT  
COMMITTEE  
ORDERED APPRE-  
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the numbered  
report.  
Thank you!



Back Title

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*2d Session* *No. 34*  
**NUCLEAR FUEL ASSURANCE ACT OF 1976**  
**AUTHORIZING APPROPRIATIONS FOR THE ENERGY RE-**  
**SEARCH AND DEVELOPMENT ADMINISTRATION FOR**  
**FISCAL YEAR 1977** 3776)

**MAY** ~~1976~~ 29, 1976.—Ordered to be printed  
~~Printed under authority of the order of the Senate of April 24, 1976.~~

Mr. Pastore from the Joint Committee on Atomic Energy  
submitted the following

REPORT

To accompany S. 2035 7

The Joint Committee on Atomic Energy, to whom was referred the bill, S. 2035, to amend the Atomic Energy Act of 1954, as amended, to provide a procedure for prior Congressional review and approval of cooperative arrangements between the Energy Research and Development Administration and private enterprise for the provision of facilities to produce and enrich uranium, and for other purposes, having considered the same report favorably thereon with amendment and recommend that the bill do pass.

COMMITTEE AMENDMENTS *C + sec*

The Joint Committee on Atomic Energy recommends the following amendments to S. 2035.

1. On page 1, after the word "therefor," in the title of the bill add the following: "to provide a procedure for prior congressional review and approval of proposed arrangements,".
2. On page 1, line 4 delete the date "1975" in the enacting clause and substitute therefor the date "1976".



3. On page 2, line 4 insert the words "Administrator of" after the word "The", and on page 2, lines 4 and 5 delete the word "Administration".

4. On page 2, line 5 insert the following after the word "authorized,": "subject to the prior congressional review procedure set forth in subsection b. of this section".

5. On page 2, lines 8 and 9 delete the words "of the Energy Research and Development Administration".

6. On page 3, line 15 delete the word "individuals" and substitute therefor the words "investors or lenders".

7. On page 3, line 16 delete the words "to any" and substitute therefor the words "are a".

8. Delete subsection b which begins on page 3, line 24 and continues through page 4, line 24, and substitute therefor the following: "b. The Administrator shall not enter into any arrangement or amendment thereto under the authority of this section, modify, or complete and operate any facility or dispose thereof, until the proposed arrangement or amendment thereto which the Administrator proposes to execute, or the plan for such modification, completion, operation or disposal by the Administrator, as appropriate, has been submitted to the Joint Committee on Atomic Energy, and a period of sixty days has elapsed while Congress is in session with passage by the Congress of a concurrent resolution stating in



substance that it does favor such proposed arrangement or amendment or plan for such modification, completion, operation, or disposal (in computing such sixty days, there shall be excluded the days on which either House is not in session because of adjournment for more than three days): Provided, That prior to the elapse of the first thirty days of any such sixty-day period the Joint Committee shall submit a report to the Congress of its views and recommendations respecting the proposed arrangement, amendment or plan and an accompanying proposed concurrent resolution stating in substance that the Congress favors, or does not favor, as the case may be, the proposed arrangement, amendment or plan. Any such concurrent resolution so reported shall become the pending business of the House in question (in the case of the Senate the time for debate shall be equally divided between the proponents and the opponents) within twenty-five days and shall be voted on within five calendar days thereafter, unless such House shall otherwise determine."

9. On page 4, line 25 delete the word "the" which appears after the word "of", and on page 5, line 1 delete the word "Administration".

10. On page 5, lines 5 and 6 delete the words "as may be approved in an appropriation Act." and substitute therefor the following: "but in no event to exceed the amount



provided therefor in a prior appropriation Act: Provided, That the timing, interest rate, and other terms and conditions of any notes, bonds, or other similar obligations secured by any such arrangements shall be subject to the approval of the Administrator with the concurrence of the Secretary of the Treasury."

11. On page 5, lines 8 and 9 delete the words "of the Energy Research and Development Administration".

12. On page 6, line 12 delete the word "the" which appears after the word "of", and on page 6, line 13 delete the word "Administration".

13. On page 6, line 13 insert the words "and directed" after the word "authorized".

14. On page 6, line 14 insert the following after the word "design": ", construction and operation".

15. On page 6, line 16 delete the words "such sums as may be necessary" and substitute therefor the figure "\$255,000,000".



SUMMARY OF THE COMMITTEE AMENDMENTS

*E. C. Scott*

Amendment 1 adds a statement of purpose in the bill's title, namely "to provide a procedure for prior congressional review and approval of proposed arrangements."

Amendment 2 corrects the date in the enacting clause of the bill.



Amendments 3, 5, 9, 11 and 12 place the authority of the bill in the Administrator of Energy Research and Development, rather than in the Energy Research and Development Administration, and correctly state the Administrator's title ("Administrator of Energy Research and Development") to conform to the provisions of the Energy Reorganization Act of 1974, P.L. 93-438, particularly section 102(a) and 104(c) thereof.

Amendment 4 makes the authorization to enter into cooperative arrangements subject to the prior congressional review procedure contained in the new subsection 45b.

Amendments 6 and 7 clarify the intent that any undertaking to acquire equity or pay off debt shall apply only to domestic investors and lenders by removing any implication that such undertaking could apply to foreign investors in or lenders to a domestic enrichment corporation which is owned or effectively controlled by citizens of the United States.

Amendment 8 revises the congressional review procedure, described in detail in the text of this report, to require prior approval of proposed contracts by the Congress prior to the execution of any such contract.

Amendment 10 clarifies the intent that no arrangement may be entered into before an appropriation Act has provided contract authority therefor, and adds a stipulation that the terms and conditions of any money obligations secured by



cooperative arrangements are subject to the approval of the Administrator and the concurrence of the Secretary of the Treasury.

Amendments 13 and 14 provide a congressional directive and authorization that the Administrator initiate construction planning and design, construction and operation activities for the expansion of an existing uranium enrichment facility.

Amendment 15 includes an authorization that \$255,000,000 be appropriated for the expansion of an existing uranium enrichment facility.



SUMMARY

Σ C + Sc 25

The bill provides only a framework under which proposed contractual arrangements between the Energy Research and Development Administration and prospective private uranium enrichment firms could be submitted to the Congress of the United States for prior congressional review and approval. Enactment of this bill would not in itself obligate the Government in any way or provide the authority for the consummation of any contractual arrangement. Under the congressional review and approval procedures set forth in the bill, the unexecuted contract would have to be submitted to the Congress of the United States for prior approval. A period of sixty days (excluding the days in which either House is not in session because of adjournment for more than three days) is provided for congressional approval or disapproval. Prior to the elapse of the first thirty days of such sixty-day period, the Joint Committee on Atomic Energy shall submit a report to the Congress of its views and recommendations respecting the proposed arrangement with a proposed concurrent resolution stating in substance that the Congress favors or does not favor the proposed arrangement. Any such concurrent resolution so reported shall become the pending business of the House in question within 25 days and shall be voted on within the five remaining days of the sixty-day review period,



unless such House shall otherwise determine. A favorable passage by the Congress of a concurrent resolution stating in substance that it does favor the proposed arrangement is required before the Energy Research and Development Administration can execute the arrangement. Furthermore, no such arrangement shall be entered into which would impose any contingent liability on the Government in an amount which would exceed the amount provided therefor in a prior appropriation Act.

The bill would authorize the appropriation of contractual authority to commit the Government contractually to contingent liabilities up to \$8 billion. The \$8 billion was arrived at by the Administration as the upper level of contingent liability that the Government could conceivably assume with regard to the domestic assets of up to four proposed private uranium enrichment projects, in the extremely remote possibility that the Government would take over all of the projects at the point of maximum possible liability. The components of the \$8 billion include: the domestic share of one diffusion project--\$1.4 billion; the domestic share of three centrifuge projects--\$3 billion; contingency for the four projects to cover uncertainties of the estimates of the amount of foreign financial participation and inflation--\$3.6 billion. The \$8 billion amount is based on 40% domestic ownership of the diffusion project and 100% domestic ownership of each of the centrifuge projects.



Under the bill, the Government could incur no contractual liability with regard to any foreign investment in any private enrichment project.

The private diffusion project is estimated to cost approximately \$3.5 billion. Of that amount, \$1.4 billion is provided from domestic sources. Of the \$1.4 billion, \$210 million would probably be supplied by the private domestic participants. The remainder of the \$1.4 billion would be financed by debt. The foreign share of the private diffusion plant would amount to \$2.1 billion.

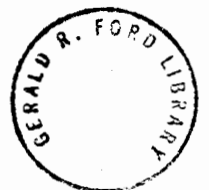


In view of the considerable controversy concerning the scope of the Government guarantees which would be furnished to private participants, the Committee questioned witnesses at great length in that regard. It is the clear understanding of the Committee that: (1) the Government guarantee would be strictly confined and limited solely to the assurance that the technology which the Government supplies will work; (2) even that guarantee at best would expire after one year of operation of the uranium enrichment facility; and (3) the guarantee is solely for the protection of the domestic investment in the facility and not to any extent for the foreign investment.





The bill also authorizes and directs the Administrator of Energy Research and Development to proceed with the expansion of an existing Government-owned uranium enrichment facility. It is the judgment of the Committee that regardless of the construction of private facilities, the expansion of the public facility at the Portsmouth, Ohio, site is necessary.



PURPOSE OF THE BILL

CHSC

The bill would provide a basis under which the Energy Research and Development Administration could seek to encourage private enterprise participation in the needed expansion of United States uranium enrichment capacity. The present enrichment capacity in the United States is supplied by three Government-owned plants which are now operated by contractors for the Energy Research and Development Administration. Additional capacity will be needed by the mid-1980's, at the very latest, in order to meet the Nation's growing need for nuclear fuel. Failure to achieve such expansion by that time would inhibit the Nation's ability to meet its need for electric power by removing nuclear energy as an available component of the basic fuel mix used in this country



to meet the demand for electricity generation. Such removal would place added strain on domestic coal and oil demands and would potentially increase this country's reliance on foreign oil suppliers.

The current estimates are that the United States will require for domestic needs added enrichment capacity by the year 2000 equal to six to nine plants of a size comparable to any of the three existing plants, and that added capacity for the total market, foreign as well as domestic, served by the United States will equal nine to 12 similar size plants. The estimated cost in 1975 dollars of those nine to 12 plants ranges from \$31 billion to \$42 billion.

The bill provides an opportunity for private enterprise to demonstrate to the satisfaction of the Executive Branch and to the Congress of the United States that it is capable of providing this vital energy service. The role of private enterprise must be established for the large additions of enriched capacity which will be required in the future. For the next increment of enrichment capacity which is vitally needed to meet enrichment demands, the bill authorizes the expansion of an existing Government-owned uranium enrichment facility and directs that this project be carried out. The procedures of this Act are, of course, available so that private enterprise can propose an additional increment of uranium enrichment capacity by the diffusion process in addition to, but not in lieu of, the Government-owned project authorized and directed in Section 4 of this Act.



BACKGROUND

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On June 26, 1975, President Ford transmitted to the Congress proposed legislation which was entitled "The Nuclear Fuel Assurance Act of 1975". The President's proposal was introduced by request as S. 2035 and H.R. 8401, identical bills. It was the proposal in these bills which received the Committee's attention in the extensive hearings which were conducted on them in 1975 and 1976.

The Committee's consideration of these bills was, however, only the latest in a long series of continuing efforts by the Joint Committee to stimulate action so that the uranium enrichment capacity needs of this country would be met. At least as early as 1969, hearings were held concerning the need to expand enrichment capacity. By the end of calendar year 1974, the Committee had conducted exhaustive hearings at which testimony was received from many witnesses who were interested in this very important problem.

The hearings on the bills being reported are, therefore, an extension of the intense consideration which the Committee has given over the years to the issue of additional uranium enrichment capacity. In view of the importance of the proposal by the Administration, the Committee conducted nine days of hearings in 1975 and 1976.



Senators John O. Pastore, Chairman of the Joint Committee, and Howard H. Baker, Jr., introduced by request the Administration's proposed legislation, S. 2035. A companion bill, H.R. 8401, was introduced by request in the House of Representatives by Representatives Melvin Price, Vice Chairman of the Joint Committee, and John B. Anderson.

On July 1, 1975, Chairman Pastore asked the Comptroller General of the United States to have the General Accounting Office make an exhaustive, analytical review of the Administration's proposal for Government assistance to private uranium enrichment groups. The Comptroller General's report was completed on October 31, 1975.

Subsequently, the Joint Committee received testimony from Government witnesses on December 2, 3, 4, 9 and 10, 1975, on the proposed legislation. The JCAE print covering these hearings was released by Chairman Pastore on January 28, 1976.

Secretary of State Kissinger presented his views on S. 2035 to the Committee on February 6, 1976. The series of hearings concluded on March 23 and April 6 and 7 when testimony was received from nongovernmental witnesses. The JCAE print on the final four days of hearings is being prepared.



The complete list of witnesses at the uranium enrichment hearings follows:

December 2, 1975

Robert C. Seamans, Jr., Administrator, Energy Research  
and Development Administration  
William A. Anders, Chairman, Nuclear Regulatory Commission

December 3, 1975

Frank G. Zarb, Administrator, Federal Energy Administration  
Russell E. Train, Administrator, Environmental Protection  
Agency U.S.  
Thomas E. Kauper, /Department of Justice

December 4, 1975

U.S.

John T. Dunlop, Secretary of Labor, /Department of Labor  
William H. Harsha, Member, House of Representatives, State  
of Ohio  
Paul W. MacAvoy, Member, Council of Economic Advisors  
Stephen S. Gardner, Deputy Secretary, U.S. Department of the  
Treasury

December 9, 1975

James T. Lynn, Director, Office of Management and Budget

December 10, 1975

Elmer B. Staats, Comptroller General, General Accounting  
Office

February 6, 1976

Henry A. Kissinger, Secretary of State, U.S. Department of State

March 23, 1976

James B. Allen, Member, U.S. Senate, State of Alabama  
Gordon R. Corey, Vice Chairman, Commonwealth Edison  
Jack Gilleland, Assistant Manager of Power, Tennessee Valley  
Authority  
Don G. Allen, Vice President, New England Electric Systems;  
President, Yankee Atomic  
Bradley R. Koch, National Rural Electric Cooperative Association  
Larry Hobart, American Public Power Association  
Carl Walske, Atomic Industrial Forum  
William L. Dickinson, Member, House of Representatives, State  
of Alabama  
Raymond L. Dickeman, President, Exxon Nuclear Company  
Harry Wetzel, President and Chairman, Garrett Corporation  
Vincent V. Abajian, Co-Chairman, CENTAR Associates



April 6, 7, 1976

John Glenn, U.S. Senate, State of Ohio

Jerome K. Komes, Chairman, Uranium Enrichment Associates

The Joint Committee met on May 11, 1976, to consider the bill. At that time, the Committee voted to amend the bill and to report it favorably as amended. The bill as amended was ordered to be reported by a roll call vote of 15-0.

3 COMMITTEE COMMENTS  $\Sigma - C + 50 \rightarrow$

In considering the legislation submitted by the Administration, the Committee was concerned that the proposal did not provide adequate opportunity for participation by the Congress of the United States. To remedy this situation, the Committee's amendments provided explicitly for a congressional review procedure which is set forth in Section 2 of the bill. Any proposed contract for a cooperative arrangement must be submitted to the Congress for congressional review and approval prior to the execution of the contract. Section 2 of the bill, as amended, explicitly precludes the Administrator of ERDA from executing any such proposed cooperative arrangement until the Congress has indicated by concurrent resolution that it favors the arrangement.



It should be clearly understood that in reporting out this bill the Joint Committee does not by that action indicate either its approval or disapproval of any proposal which private industry may have pending before the Energy Research and Development Administration. The details of any such arrangements will, before they are consummated, have to be submitted to the Congress for approval. Nevertheless, passage of this Act should enable the conduct of serious and meaningful negotiations between the Energy Research and Development Administration and the organizations which have already made or may make proposals for the construction and operation of uranium enrichment facilities.

Section 3 of the bill differs from the original Administration proposal in two respects. Section 3 of the bill provides the ERDA with the contractual authority to enter into contracts for cooperative arrangements provided such contracts have been approved by the Congress under the procedures in Section 2 of the bill and provided also that the Congress has enacted a prior appropriation Act which provides for the amount of contingent liabilities which the Government could incur under any such contract.

In regard to contingent liabilities, it should be noted that these liabilities are indeed a very remote contingency. The guarantee of the Government would be only with regard to the technology which the Government supplies. In



view of the long and successful experience of the Government with this technology, there is no reason to believe that the technology will not work. Moreover, ERDA's supervision and inspection of any use of this technology by private participants should reduce even further the minimal possibility that the technology will not work. Nevertheless, in view of the fact that this technology has been the exclusive monopoly of the Government, the testimony before this Committee demonstrates that <sup>a</sup> guarantee that the technology will work would be essential for the domestic debt financing to be received.

The Committee has not yet received the details of any particular arrangement. If such an arrangement is to be proposed, the procedures provided for under this bill would, of course, require the careful examination by this Committee and the Congress of each contractual arrangement and the precise extent of any potential Government liability thereunder. The Committee can now state, however, that under this Act there could be in no instance any guarantee of any foreign investment in a project. It can also now state that any potential Government liability would be a very remote contingency. In view of the Government investment in this technology, reasonable royalties for the private use of the technology will be required. The Committee can also assure, without reservation, that it will insist that such arrangements provide for:



1. Protection against dissemination to foreign investors of classified information.
2. Continued classification and protection of sensitive enrichment technology.
3. Requirements that exports take place pursuant to appropriate international agreements for cooperation and be subjected to safeguards to prevent diversions.
4. Preclusion of control or domination of a private enrichment venture by an alien, a foreign corporation, or a foreign government.
5. Effective domestic safeguards and physical security measures for the plants and their products.

Section 4 of the bill, as submitted by the Administration, has been amended by the Committee. As submitted by the Administration, this Section would have authorized the Administrator of Energy Research and Development to initiate preliminary engineering design and planning for expansion of a Government-owned uranium enrichment facility for contingency purposes. The Joint Committee authorized \$25 million for such expansion (Project 76-8-g) in Public Law 94-187, the ERDA authorization bill for fiscal year 1976 and the transition period. That authorization would be amended by the ERDA



authorization for fiscal year 1977 to authorize a total of \$255 million for an enriched uranium production facility at Portsmouth, Ohio. As revised, Section 4 recognizes that the Committee has authorized a project for an enriched uranium production facility at Portsmouth, Ohio, and directs that this facility be constructed to supply the vitally needed additional enrichment capacity. Thus, the Administration's hedge plan contemplated in the original Section 4 is provided by the authorization and direction that the Government proceed with the project at Portsmouth, Ohio, with the objective of fully constructing it and placing it in operation. The \$255 million funding authorization for the project which is in Section 4 is identical to the same figure which is authorized for the identical project (Project 76-8-g) in subsection 101(b)(8) of Public Law 94-187, and the additional authorization recommended for that project for fiscal year 1977. The total amount authorized for funding of that project, assuming the enactment of the ERDA authorization bill for fiscal year 1977, is \$255 million. It is understood, of course, that although the project itself has been fully authorized, funds in excess of the \$255 million will be needed in succeeding fiscal years to fund the construction and operation of the project.



GENERAL STATEMENT [Ct Sc fr

During the course of the hearings on the Nuclear Fuel Assurance Act, as well as during the lengthy period which has been committed to study of expansion of United States uranium enrichment capacity, this Committee has been impressed by the nearly unanimous opinion of witnesses that such capacity must be expanded. The reasons supporting these opinions are compelling.

Natural uranium must be enriched before it can be used to make fuel for nuclear-fueled electric power generating plants. Present U.S. enrichment capacity, which, as noted earlier, is provided by three plants operated by ERDA, has been fully committed under long-term contracts since mid-1974. Since that date the Government has been unable to accept contracts for additional enrichment services.

Under this set of circumstances, it is evident that an assured domestic fuel supply is not available for domestic nuclear plants beyond those which have previously obtained commitments from ERDA. If this situation is allowed to continue, it will severely inhibit the growth of generation of electricity with nuclear fuel in this country. The magnitude of this domestic problem can be appreciated when it is recognized that it was recently estimated that by the year 2000 the Nation could reasonably expect to have 724,000 megawatts of nuclear-fueled power plants in operation.



The electricity which would be generated by these plants is equivalent to that which would be produced by burning 20.5 million barrels of oil per day or 4.5 million tons of coal per day in conventional power plants. If additional enrichment capacity is not built, the amount of oil and/or coal necessary to replace the nuclear generation either will have to be obtained or the country will have to make severe economic adjustments. Domestic mining of such vast amounts of coal would severely strain or exceed the capacity of the domestic industry, especially when added to a projected increase in coal demand which will occur even if the additional nuclear plants are built. Since domestic oil production is declining, it is apparent that oil necessary to meet a nuclear shortfall would have to be imported, thereby increasing our dependence on foreign sources and adversely affecting the United States' balance of payments.

Failure to expand domestic enrichment capacity would have an additional adverse impact on U.S. trade. U.S. foreign exchange revenues to date from the sale of enriched uranium and enrichment services have reached \$1.1 billion. Moreover, substantial additional revenues have been obtained by U.S. companies through the sale of nuclear reactors overseas which was facilitated by the sale of U.S. enrichment services to provide their fuel. The dollar amount of these sales could reasonably be expected to grow if domestic capacity were



available to supply such services. However, the Government has not been able to execute new foreign sales of enrichment services until new capacity is assured. Current uncertainties concerning the construction of new capacity have encouraged foreign customers to accelerate efforts to expand their own ability to enrich uranium or procure it from non-U.S. sources. Thus, these uncertainties have already injured the potential foreign sales of U.S. nuclear reactors and enrichment services to a significant extent.

The ability of the United States to be an effective force in guarding against the proliferation of nuclear weapons will decrease as its proportion of world enrichment capacity decreases. The ability to supply enrichment services provides an opportunity to influence the manner in which the enriched uranium is used and safeguarded against unauthorized uses. Obviously, a country which has its own source of enriched uranium need not heed American counsel concerning the use of such uranium. Failure to expand U.S. enrichment capacity will turn foreign users to other sources, thereby curtailing U.S. influence on non-proliferation objectives and efforts.



☐ COST OF LEGISLATION ☐ C + SET

In accordance with section 252(a) of the Legislative Reorganization Act of 1970 (Public Law 91-510), the Joint Committee has prepared the following estimate of the costs of carrying out this legislation. In addition, the Committee has received from the Congressional Budget Office a five-year cost estimate of the effect of implementing this legislation. An economic analysis forwarded to the Congress by the Administrator of Energy Research and Development is in Appendix 1 to this report.

The Administrator of Energy Research and Development could provide assistance and temporary contingent assurances to private enterprise for the construction of uranium enrichment capacity. Should the contingencies not occur there will be no cost to the government as a result of these assurances. Should all of the contingencies occur, the potential cost to the government is a maximum of \$8 billion. At this date it is not possible to predict the timing and extent of government costs, if any, as a result of these assurances. The Administration's expectation is that none of these funds would have to be appropriated or expended for the assumption of private ventures, but that the authorization is necessary only to provide assurance to customers and to potential uranium enrichment producers.

In addition, section 4 of the bill authorizes the appropriation of \$255,000,000 for the initiation of construction planning



and design, construction and operation activities for expansion of an existing Government uranium enrichment facility. This authorization is the same as that already approved by the Committee for project 76-8-g in the ERDA fiscal year 1977 authorization bills (H.R. 13350 and S. 3105) and in the ERDA authorization act for fiscal year 1976 (P.L. 94-187). Therefore, this section does not represent any additional authorization for this project.

ESTIMATE AND COMPARISON, CONGRESSIONAL BUDGET OFFICE

E c+sct

Pursuant to section 403 of the Congressional Budget Act of 1974, the following report has been submitted to the Joint Committee by the Congressional Budget Office:



May 13, 1976

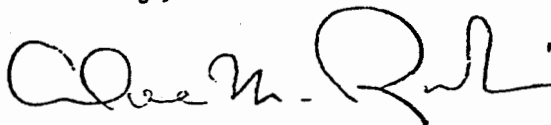
The Honorable John O. Pastore  
Chairman  
Joint Committee on Atomic Energy  
United States Senate  
Washington, D. C. 20510

Dear Mr. Chairman:

Pursuant to Section 403 of the Congressional Budget Act of 1974, the Congressional Budget Office has prepared the attached cost estimate for S. 2035 and H.R. 8401 (identical), Nuclear Fuel Assurance Act of 1976.

Should the Committee so desire, we would be pleased to provide further details on the attached cost estimate.

Sincerely,



Alice M. Rivlin  
Director



## COST ESTIMATE

1. BILL NUMBER: S. 2035 and H.R. 8401 (identical)
2. BILL TITLE: Nuclear Fuel Assurance Act of 1976
3. PURPOSE OF BILL: The main objectives of this bill are to authorize cooperative arrangements with private enterprise for the provision of facilities for the production and enrichment of uranium enriched in the isotope - 235, to provide for the authorization of contract authority for these cooperative arrangements, and to provide for prior congressional review and potential disapproval of proposed arrangements. This bill does not provide new budget authority.
4. COST ESTIMATE: The important budget effects of this bill result from sections 3 and 4. Section 3 authorizes, subject to prior appropriation action, contingent liabilities of up to \$8.0 billion. The question of whether this contingent liability should be considered on or off budget has not yet been resolved. Section 4's budget effects follow:

Budget Effects  
(millions of dollars)

	<u>FY 1977</u>	<u>FY 1978</u>	<u>FY 1979</u>	<u>FY 1980</u>	<u>FY 1981</u>
Authorization Level	255.0	-	-	-	-
Costs	44.6	89.3	89.2	31.9	-

5. BASIS OF ESTIMATE: The cooperative arrangements authorized by Section 2 of this bill, subject to prior congressional review, is estimated to have zero net budget impact. This estimate is based on the provision that assistance is to be furnished on the basis of recovery of costs and appropriate royalties.

The \$8 billion contingent liabilities authorized (subject to prior appropriations action) by Section 3 of this bill would have no outlay effects on the budget. Outlays would not occur in the time-frame considered in this estimate (through fiscal year 1981) because the contingencies are related to the performance of new enrichment plants. These contingencies would be resolved at a later date.

The \$255.0 million authorized in Section 4 of this bill provides for funding already included in the proposed fiscal year 1977 annual authorization legislation for expansion of enrichment capacity at existing facilities. This construction funding is assumed obligated in fiscal year 1977. The spendout pattern for this new construction is assumed to be 17.5 percent in the first fiscal year, 35 percent in the second, 35 percent in the third, and 12.5 percent in the fourth.



This results in the following outlays:

(millions of dollars)

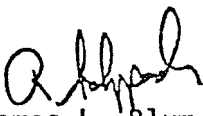
	<u>FY 1977</u>	<u>FY 1978</u>	<u>FY 1979</u>	<u>FY 1980</u>	<u>FY 1981</u>
Authorization Level	255.0	-	-	-	-
Costs	44.6	89.3	89.2	31.9	-

6. ESTIMATE COMPARISON: None

7. PREVIOUS CBO ESTIMATE: None

8. ESTIMATE PREPARED BY: William F. Hederman (225-5275)

9. ESTIMATE APPROVED BY:

  
James L. Blum  
Assistant Director  
for Budget Analysis



*if* ] SECTION-BY-SECTION ANALYSIS [ *c + sectn*

Section 1 of the bill cites the Act as the "Nuclear Fuel Assurance Act of 1976".

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

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

Cooperative arrangements authorized by Section 45a. could include such Government cooperation and assurances as enumerated in the bill, including the specific authority provided in subsection



45a.(5), for the Government to acquire the assets or interests and assume the liabilities (including debt) of a private enrichment firm in the event--which is highly unlikely--that private industry could not complete a plant or bring it into operation. It is intended that any undertaking by the Government under subsection 45a.(5) to acquire assets or interest and to assume liabilities of a private venture would terminate after approximately one year of commercial operation of a plant. The precise period would be defined during the negotiations of definitive agreements. Any obligations to pay off debt and to acquire equity interest would be limited to citizens of the United States. No foreign equity in a plant would be protected by the Government. No contract could be executed under which the Government would be subject to any potential liability until the Congress of the United States has approved the proposed contract under the procedures in subsection 45b. and until the Congress has enacted the necessary prior appropriations.

*italo*  
Subsection b. of the new Section 45 provides procedures for Congressional review and approval of any proposed contract for a cooperative arrangement for private participation in uranium enrichment. The Administrator of Energy Research and Development would be explicitly precluded from signing any proposed contract or amendment thereto until the Congressional review procedures provided for in this subsection had been completed and the Congress has approved the arrangement. The Congressional review procedures



would also apply to any plan proposed by the Administrator to modify, complete, operate or dispose of any enrichment facility which the Energy Research and Development Administration may acquire. Any such plan could, of course, be included as a part of the initial contractual arrangement submitted to the Congress for approval.

*itels*  
Section 3 of the proposed Nuclear Fuel Assurance Act would authorize the Administrator of Energy Research and Development to enter into contracts which the Congress has approved, pursuant to the new Section 45, in an amount not to exceed \$8 billion, but in no event to exceed the amount provided therefor in prior appropriation Acts. This amount is an estimate of the total potential cost to the Government in the unexpected event that all private ventures covered by cooperative arrangements were to fail and it was then necessary for the Government to assume assets and liabilities of the ventures, take over plants, and compensate domestic investors. It is not expected that any of these funds would be expended for the assumption of private ventures, but the authorization is necessary to provide assurance, to customers and sources of debt financing for private producers, of the Federal Government's commitment to create a competitive industry.

The \$8 billion would be the maximum contingent liability on the part of the Government for four private uranium enrichment projects, one of which would use the gaseous diffusion process



and three of which would use the gaseous centrifuge process. The \$8 billion would be allocated to these four projects as follows:

Domestic share of the one diffusion project	\$1.4 billion
Domestic share of the three centrifuge projects	3.0 billion
Contingency to cover uncertainties of estimates of the amount of foreign financial participation and inflation for the four plants	<u>3.6 billion</u>
Total	\$8.0 billion

The dollar levels assume 40% domestic ownership of the diffusion project and 100% domestic ownership of each of the three centrifuge projects.

The private diffusion project is estimated to cost \$3.5 billion. Of that amount, \$1.4 billion would be supplied by domestic shares and \$2.1 billion by foreign financial participation. None of the \$8 billion could be used to protect any of the foreign share in the costs of any plant.

The \$1.4 billion domestic share for the private diffusion plant would probably be furnished by 15% equity contribution (\$210 million) by the private participant with the balance of the \$1.4 billion (\$1.2 billion) debt financed. The total domestic share of \$1.4 billion could be protected under the \$8 billion ceiling, if the Congress approves a contract for the private diffusion plant and if the Congress provides for the incurrence of such contingent liability in an appropriation passed before the contract is executed.



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

<sup>Italy</sup>  
Section 4 of the proposed bill would authorize the Administrator of Energy Research and Development to initiate preliminary engineering design and planning, construction and operation activities for expansion of a Government-owned uranium enrichment facility, and would authorize to be appropriated the sum of \$255,000,000.

The original intent of this section as submitted by the Administration was to provide a "hedge" plan in the event the private diffusion plant effort was not successful. As amended, the Committee has directed and authorized that an additional Government-owned enriched uranium production facility be constructed and placed in operation. The amended language thus is a direction to the Energy Research and Development Administration that regardless of the construction of private facilities, the expansion of the public facility at the Portsmouth, Ohio, site is necessary. The project authorized is the same as "project 76-8-g, enriched uranium facility, Portsmouth, Ohio" as authorized in section 101(b)(8) of Public Law 94-187. Funding in the amount of \$25,000,000 was authorized in Public Law 94-187 for project



76-8-g and that amount would be increased by \$230,000,000 for a total of \$255,000,000 in the recommended fiscal year 1977 authorization for the Energy Research and Development Administration.

It is emphasized that the direction and authorization of the project in section 4, and the \$255,000,000 authorized is for project 76-8-g, enriched uranium facility, Portsmouth, Ohio, and for no other. The direction and authorization, although for that same project, is separate and apart from the same authorization in the authorizing legislation for the Energy Research and Development Administration. The \$255,000,000 funding authorized for project 76-8-g is only for the funding required through fiscal year 1977.

• ] CHANGES IN EXISTING LAW [ — C + Sect

In accordance with subsection (4) of rule XXIX of the Standing Rules of the Senate, changes in existing law recommended by the bill accompanying this report are shown as follows (deleted matter is shown in black brackets and new matter is printed in italic; and existing law in which no change is proposed is shown in roman):

] PUBLIC LAW 83-703 [

An Act to amend the Atomic Energy Act of 1946, as amended, and for other purposes.

\* \* \* \* \*



Sec. 45. COOPERATIVE ARRANGEMENTS FOR PRIVATE PROJECTS TO  
PROVIDE URANIUM ENRICHMENT SERVICES.--

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

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

"(2) providing warranties for materials and equipment furnished;



"(3) providing facility performance assurances;

"(4) purchasing enriching services;

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

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

"b. The Administrator shall not enter into any arrangement or amendment thereto under the authority of this section, modify, or complete and operate any facility or dispose thereof, until



the proposed arrangement or amendment thereto which the Administrator proposes to execute, or the plan for such modification, completion, operation or disposal by the Administrator, as appropriate, has been submitted to the Joint Committee on Atomic Energy, and a period of sixty days has elapsed while Congress is in session with passage by the Congress of a concurrent resolution stating in substance that it does favor such proposed arrangement or amendment or plan for such modification, completion, operation, or disposal (in computing such sixty days, there shall be excluded the days on which either House is not in session because of an adjournment for more than three days): Provided, That prior to the elapse of the first thirty days of any such sixty-day period the Joint Committee shall submit a report to the Congress of its views and recommendations respecting the proposed arrangement, amendment or plan and an accompanying proposed concurrent resolution stating in substance that the Congress favors, or does not favor, as the case may be, the proposed arrangement, amendment or plan. Any such concurrent resolution so reported shall become the pending business of the House in question (in the case of the Senate the time for debate shall be equally divided between the proponents and the opponents) within twenty-five days and shall be voted on within five calendar days thereafter, unless such House shall otherwise determine."





page 2 - APPENDIX I 10 pt. caps  
UNITED STATES  
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION  
WASHINGTON, D.C. 20545

JUN 26 1975

Honorable Nelson A. Rockefeller  
President of the Senate

Dear Mr. President:

Enclosed is an analysis of the inflationary impact of a proposed action to expand U.S. uranium enrichment capacity. The analysis indicates that the plan the President is sending to Congress today for this purpose will reduce domestic inflationary pressures.

Sincerely,

Robert C. Seamans, Jr.  
Administrator

Enclosure  
As stated



ERDA ANALYSIS OF INFLATIONARY IMPACT OF LEGISLATION AUTHORIZING COOPERATIVE  
ARRANGEMENTS WITH PRIVATE ENTERPRISE FOR THE PROVISION OF FACILITIES  
FOR PRODUCTION AND ENRICHMENT OF URANIUM

In accordance with the provisions of (1) Executive Order 11821 requiring an evaluation of the inflationary impact of major proposals for legislation, (2) OMB Circular A-107, which implements Executive Order 11821, and (3) the draft regulations of ERDA, the following analysis and evaluation was made of the inflationary impact of the proposed legislation (to authorize cooperative arrangements with private enterprise for the provision of facilities for the production and enrichment of uranium enriched in the isotope 235).

The sustaining capacity of the Government's gaseous diffusion plants has been fully contracted for by foreign and domestic customers. There is an urgent need for definitive commitments to build and operate new enrichment facilities which will be required to service the rapidly growing nuclear power industries in the United States and abroad.

The purpose of the proposed legislation is to provide necessary Government cooperation and certain temporary assurances to private enterprises to finance, build, own and operate the required plants. Additional uranium enrichment capacity will permit utilities to proceed with long-term plans to expand nuclear electric generating capacity. Failure to provide the facilities for the vital enrichment phase of the nuclear fuel cycle is likely to lead either to an inability to meet future energy demand or to heavier reliance on alternative fuels and power sources that could be more costly, and less secure.

Either case would add much more to inflationary pressures than could be attributed to the nuclear expansion programs. The first case would result in general shortages in the economy and add directly to inflationary pressures from the demand side for a less-than-adequate energy supply. The second would push up energy costs by fostering an unnecessarily large reliance on fossil fuels including high-priced foreign petroleum.

At the present time, the overall cost of electricity from nuclear power is significantly less than fossil-fired plants. Studies projecting future costs for coal, oil, and nuclear power plants indicate that the margin in favor of nuclear is likely to continue or even increase. Utilities with operating nuclear capacity reported sizeable savings in costs following the recent escalation in prices of fossil fuels. Since added fuel costs to utilities have tended to be passed on readily to consumers under fuel adjustment provisions, the benefit of lower costs from nuclear represent real savings to the consumer. ERDA has estimated that the 110 billion kWh of nuclear generated electricity in 1974 represent savings in fuel costs of over \$500 million relative to the cost of fuel for coal-fired plants and over \$1.5 billion relative to the cost of fuel for oil-fired plants. Further, if the nuclear generation had been replaced by oil plants dependent on imported oil, the additional



balance of payments outlays would have been about \$1.8 billion at the average cost of imported oil.

The following sections deal successively with several economic or inflationary aspects of the proposed legislation. The objective is to analyze and evaluate the probable effects of expansion programs fostered by the legislation compared to the consequences if no such programs are implemented.

#### 1. Cost impacts on consumers

If the objectives of the proposed legislation are realized, we foresee the establishment of a competitive private industry providing enrichment services on reasonable terms. This would facilitate the utilization of nuclear power to supplement production from other energy sources and result in a larger domestic energy supply at lower cost to the public.

Utilities planning to proceed with nuclear expansion programs require reliable commitments for the provision of enrichment services. ERDA is no longer in a position to make such commitments with its existing gaseous diffusion capacity, and unless utilities can contract abroad for such services, they will have to postpone plans to construct new light water reactors (LWR's).

This means that domestic nuclear capacity would possibly be limited to plants now under construction and/or already holding commitments for enriching services in the Government's existing gaseous diffusion plants. As indicated in Table I, U.S. nuclear capacity would be limited to a maximum of about 218 million kilowatts which would be reached by 1990. Nuclear electric power generation would peak at about 1.3 trillion kilowatt hours in 1990 and gradually decline thereafter as the older plants were phased out or operated at lower capacity factors.

If the objectives of the legislation are realized and enrichment capacity no longer limits utilities' nuclear expansion, we would assume a growth pattern as estimated in the second section of Table I. In this projection, U.S. nuclear capacity would continue to grow, reaching 800 million kilowatts by the year 2000, and nuclear electrical generation would rise to nearly 2.0 trillion kilowatt hours in 1990 and over 4 1/2 trillion in 2000.

The economic effects, and the potential inflationary consequences, are suggested by the calculations in part 3 of Table I. The direct effects of the enrichment expansion programs are reflected in the need for 10 new plants before the year 2000, each requiring an investment of \$3.5 billion (in estimated 1976 dollars).



Enrichment, like other nuclear power operations, is highly capital-intensive, and there will be associated impacts on the construction industries, on requirements for materials and specialized equipment, and on manpower and employment. The economic impacts of these factors warrant separate analysis, but they must be evaluated in toto relative to the expected benefits of nuclear power as a major domestic energy source.

Table I indicates some of the overall results of the level of nuclear power expansion projected. Foremost is the additional nuclear capacity supported by the enrichment facilities, allowing the generation of some 3.4 trillion kilowatt hours in the year 2000 above the level permitted with existing enrichment plants. This additional domestic energy supply would save the equivalent of some one billion barrels annually of oil in 1990 and over 5 billion barrels annually by the year 2000. In comparison, domestic liquid fuels production was about 3.8 billion barrels in 1974 and oil imports were about 2.2 billion barrels. Given the growing scarcity value attached to domestic oil and the rising extraction costs for coal, it is concluded that the domestic inflationary pressures would be reduced by the projected expansion of nuclear power as shown in Table I.

Further, if all or a significant portion of the fuels needed to generate equivalent power should have to be imported, the balance of payments effects would be extremely serious. On the other hand, proceeding with the expansion of enrichment could improve balance of payments prospects not only by limiting fuel imports but by continued\*export of additional enrichment services.

In absence of the proposed legislation, it is unlikely that enrichment capacity would be provided by private enterprises. Unless the advantages of nuclear power, described above, are to be foregone, the only other feasible alternative would be for the Government to build additional enrichment facilities. The effects of such a course of action would be reflected directly in the Federal budget. It would necessitate appropriations in the billion dollar range almost immediately, and a cumulative expenditure of at least \$35 billion (in constant 1976 dollars) before the year 2000. The potential consequences of adding this burden to the Federal budget could be serious for other urgent national programs, and inflationary effects may be pronounced if budget deficits increased as a result.

If the Government were to expand its enrichment operations to provide the additional enrichment services required, the costs of such services might appear lower if no recognition were given to the taxes, insurance, risk, and other costs normally considered in private business operations. The indicated savings, however, may prove highly illusory from a social standpoint in light of the budgetary influences of Federal financing and potential offsetting advantages of private operations.



TABLE I.

## IMPLICATIONS OF AN ADEQUATE URANIUM ENRICHMENT PLANT EXPANSION

	UNITS					
	1980	1985	1990	1995	2000	
<b>1. Without Expansion Beyond Existing Plants</b>						
Domestic Requirements For Separative Work	10 <sup>6</sup> SWU/Yr.	16.3	14.9	15.1	15.6	
Foreign Requirements (For Contracted Reactors)	10 <sup>6</sup> SWU/Yr.	9.1	9.5	11.0	9.4	
U. S. Nuclear Capacity	10 <sup>6</sup> kW(e)	76	218	218	218	
U. S. Nuclear Power Generation	10 <sup>9</sup> kWh/Yr.	433	1323	1278	1173	
<b>2. With Expansion To Serve U. S. Utilities' Growth and Expected Foreign Requirements</b>						
U. S. SWU Requirements	10 <sup>6</sup> SWU/Yr.	9.5	18.5	31.9	46.4	60.7
Foreign SWU Requirements	10 <sup>6</sup> SWU/Yr.	9.1	13.7	20.4	32.8	53.3
U. S. Nuclear Capacity	10 <sup>6</sup> kW(e)	76	185	340	545	800
U. S. Nuclear Electrical Production	10 <sup>9</sup> kWh/Yr.	433	1085	1977	3173	4597
<b>3. Effects of Expanding Enrichment Capacity</b>						
Enrichment Plants (9 million SWU each)	number	0	1	3	7	10
Cumulative Investment*	10 <sup>9</sup> dollars	0	3.5	10.5	24.5	35.0
Added SWU Exports	10 <sup>6</sup> SWU/Yr.	0	3.7	10.9	21.8	43.9
Added Foreign Revenue (@ \$76/SWU)	10 <sup>9</sup> \$'s/Yr.	0	0.3	0.8	1.7	3.3
Added U. S. Sales of SWU's	10 <sup>6</sup> SWU/Yr.	0	2.2	17.0	31.3	45.1
Added U. S. Nuclear Capacity	10 <sup>6</sup> kW(e)	0	3	122	327	582
Added U. S. Nuclear Electrical Production	10 <sup>9</sup> kWh/Yr.	0	13	654	1895	3421
Fuel Needed to Generate Equivalent Power**	10 <sup>6</sup> bbl**/Yr.	0	21	1040	3010	5430

\*In constant 1976 dollars

\*\*In oil or oil-equivalents to replace the additional nuclear power.

Assuming: (1) 0.30% tails assay

(2) U and Pu Recycled

(3) Breeders Included Late in Campaign Period

(4) U. S. Firms Capture 1/2 of SWU Market Outside of Communist Regions

(5) U. S. Utilities' Nuclear Growth Reflects ERDA's Moderate/Low Case (1975)

NOTES: SWU = Separative Work Units

10<sup>6</sup> kW(e) = Millions of Kilowatts Electrical Capacity

A private uranium enrichment industry would generate substantial revenues to the Federal Treasury in the form of corporate income taxes and other payments. Such revenues could reduce inflationary pressures by reducing deficits and the Government's need to borrow funds to carry on operations. Dividends and interest received by stockholders and investors would also be subject to income taxes.

These matters were extensively discussed in a report to the Council of Economic Advisors of July 1969 prepared by Arthur D. Little, Inc. The report noted:

"Economic welfare theory contends that the cost of capital to the Government should be the same as to private industries for the same project, if mis-allocation of the nation's investment resources is to be avoided."

## 2. Effects on productivity

Inflationary impacts via productivity effects of nuclear expansion need to be carefully defined for meaningful analysis. Shifts toward capital-intensive technologies normally tend to increase the output-per-manhour type of productivity measurement. In relation to conventional energy technologies, nuclear power introduces processes that by their nature involve less demand on bulk resources, less transportation requirement, and less utilization of unskilled manpower. Thus, the nuclear technology, itself, is in the tradition of doing more-and-more with less-and-less which is an essential feature of productivity.

The more important productivity effects are those resulting from continued advances in nuclear technology. The potential for technological improvements in nuclear power is extremely great when one considers the relatively low effectiveness of present converter reactors in utilization of uranium resources. As reactor types are improved, and eventually when an acceptable breeder technology is introduced, the productivity effects will exert a continuing moderating influence on energy and on general price levels. Further, there is scope for continuing improvement in other phases of nuclear industry operations. In the enrichment phase, itself, technological improvements are continuing to improve productivity of the operations.

If the legislation leads to the establishment of an effective private enrichment industry, we would expect productivity gains to continue and hopefully even accelerate. There is a vast potential for improvement through eventual use of the newest centrifuge technology. Under either private or public operation, we can expect to see further improvement in an already highly effective enrichment technology.



### 3. Effects on competition

The most important general effects on competition are likely to be through a meaningful exercise of the nuclear option as a major new energy source. The more diversity that can be built into the energy system by expansion of all meaningful energy alternatives, the greater the potential for competitive energy price results.

Competition within the enrichment phase of the nuclear fuel cycle is highly complicated by the need to move from the existing Government monopoly to a competitive structure. Meaningful competition will not be possible without special efforts to facilitate entry (as proposed in the legislation). As a result of the legislative approach, several firms are expected to enter the industry using centrifuge technology and thus enhancing competition.

### 4. Effects on materials

The addition of large-scale gaseous diffusion plants, probably in increments of 8.75 million Separative Work Units (SWU) yearly would require sizeable amounts of important construction materials and process equipment. The major quantities, however, are for concrete, steel, pipe, etc., that are standard construction items. Specialized equipment, instrumentation, gas diffusers, compressors, etc., have special requirements in terms of materials and manufacturing capability.

The large-scale expansion of capital-intensive technologies as exemplified by both nuclear power plants and their attendant facilities place demands on resources and manufacturing capacity that must be carefully assessed. The ability of the economy to respond without inflationary pressures is dependent upon the general tempo of alternative activities competing for like resources.

The materials problems have been studied extensively. In general, the cost and demands for one large enrichment plant (gaseous diffusion of 9 million SWU) are roughly equivalent to those of four large nuclear power stations. The single enrichment plant, however, would service approximately 100 such nuclear power plants.

If bottlenecks are allowed to develop in specific materials or equipment, adverse inflationary effects may be associated with expansion of the nuclear industry. It is difficult to quantify such potentialities and assess their probabilities of occurring. In the present economic situation, these appear less important, but they require careful continuing analysis. Given the availability of existing capacity and opportunity to expand to meet future needs, we would not expect continued problems of this type.



## 5. Effects on employment

Expansion of nuclear power in general and the design and construction of enrichment plants will create jobs. The need is especially great for highly skilled workers and for technically trained personnel including engineers and scientists. This is, in effect, the counterpart of the productivity effects, discussed previously.

The demand for construction labor is large relative to the continuing work force to operate the plant. It would require some 280,000 man-months of construction labor to build a 9 million SWU plant while some 1100 people would be permanently employed in its operation.

## 6. Effects on energy supply/demand

The crucial issues on energy supply relate to several features of nuclear power as an energy source. These include the advantages, and problems, of continued electrification of the energy economy, and the institutional and social adjustments required to accommodate this change. The public regulation of the energy supply from nuclear utilities also has important implications for energy pricing as electric power becomes a major portion of total energy supply. On the surface, this would tend to assure lower costs than might otherwise occur, but it is by no means obvious that competitive non-regulated alternative sources could not provide even cheaper energy.

There are sizeable energy demands associated with the operation of nuclear enrichment plants. In a gaseous diffusion plant, it requires about 2,500 kilowatt hours to produce one unit of separative work. Consequently, operation of a 9 million SWU plant would require the electrical output of 2 to 3 large nuclear power plants. At the same time, it would be able to provide the enrichment needs of approximately 100 such plants.

The net energy contribution of the nuclear power operations has been well-documented, and the important result of the proposed legislation will be to facilitate continued expansion of the nuclear industry and result in a larger domestic energy supply at lower cost to the public.

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