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ENERGY FISCAL YEAR 1979 BUDGET REQUEST

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HEARINGS

BEFORE THE

COMMITTEE ON

ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

NINETY-FIFTH CONGRESS

SECOND SESSION

ON

S. 2692

A BILL TO AUTHORIZE APPROPRIATIONS FOR THE CIVILIAN
PROGRAMS OF THE DEPARTMENT OF ENERGY FOR FISCAL
YEAR 1979, AND FOR OTHER PURPOSES

S. 2693

A BILL TO AUTHORIZE APPROPRIATIONS FOR THE DEPART-
MENT OF ENERGY FOR NATIONAL SECURITY PROGRAMS FOR
FISCAL YEAR 1979, AND FOR OTHER PURPOSES

MARCH 1 AND MAY 15, 1978

Publication No. 95-142



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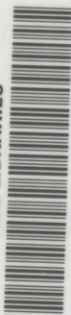
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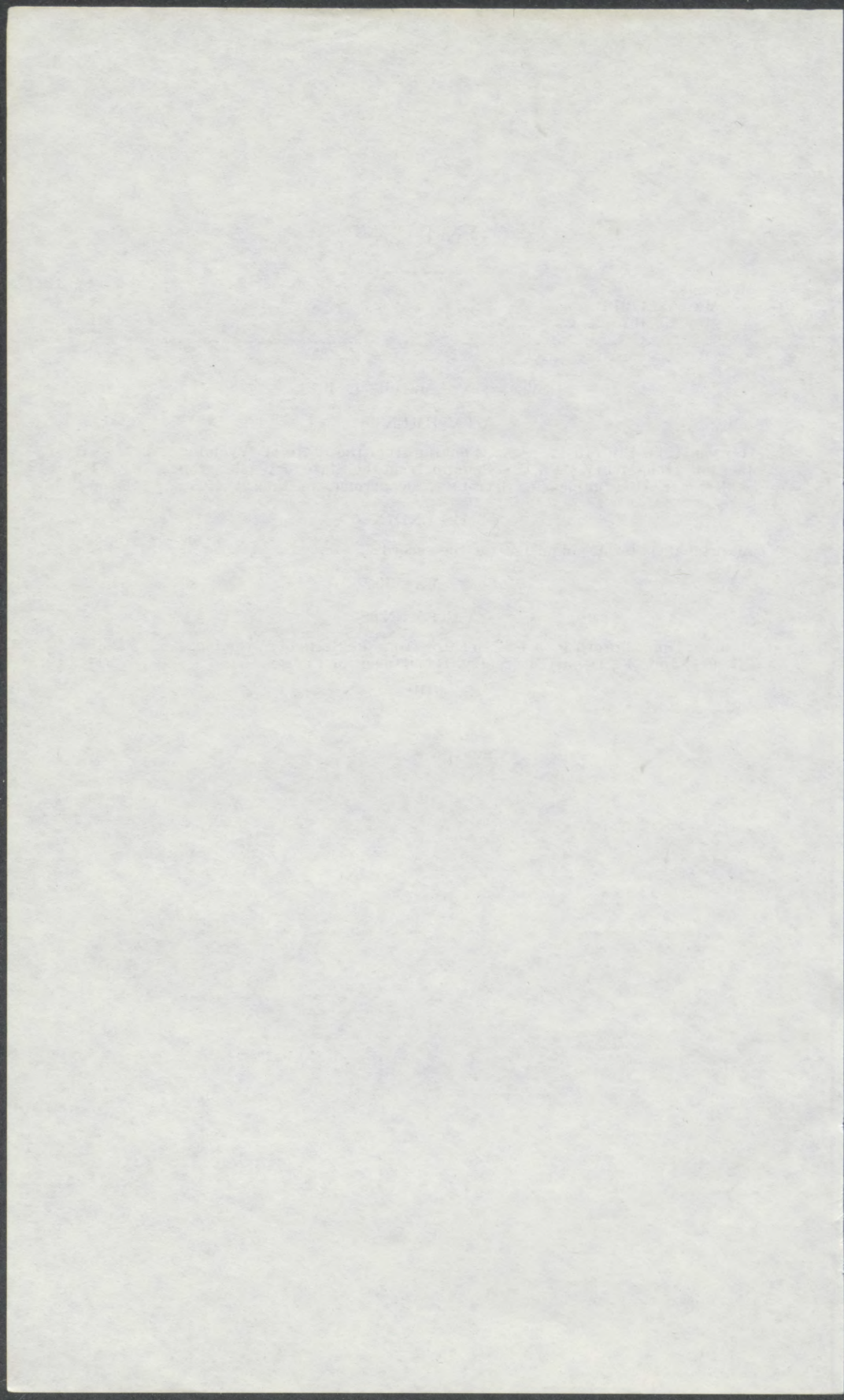
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ENERGY FISCAL YEAR 1979 BUDGET REQUEST

WEDNESDAY, MARCH 1, 1978

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, D.C.

The committee met, pursuant to notice, at 9:30 a.m., in room 3110, Dirksen Office Building, Hon. Henry M. Jackson, chairman, presiding.

Present: Senators Jackson, Church, Johnston, Haskell, Bumpers, Ford, Metzenbaum, Matsunaga, Anderson, Hansen, Hatfield, McClure, Bartlett, Weicker, and Domenici.

Also present: Grenville Garside, staff director and counsel; and Richard D. Grundy, senior professional staff member.

OPENING STATEMENT OF HON. HENRY M. JACKSON, A U.S. SENATOR FROM THE STATE OF WASHINGTON

The CHAIRMAN. The committee will come to order.

The committee authorizes energy programs on an annual basis. The committee scheduled today's hearing to review the program priorities in the administration's proposed 1979 budget for the new Department of Energy. This hearing is in preparation of our March 15 report to the Senate Budget Committee.

For the first time the budget consolidates Federal energy programs. This has been long overdue.

BUDGET SUBMISSION

The administration's proposed budget for the Department of Energy reflects many of the interests and concerns of members of this committee. Many of our individual concerns will be dealt with during subcommittee hearings.

On the plus side, the administration's proposed expansion of the strategic petroleum reserve to 1 billion barrels reflects the intent of Congress. I especially want to compliment the Secretary in that regard. The United States needs a strategic petroleum reserve to protect American consumers in the event of another interdiction of crude oil imports.

Energy conservation also is essential if we are to meet the United States' future energy needs. The proposed 1979 budget for the Department of Energy recognizes the significant potential of energy conservation by authorizing \$1.10 billion. The budget reflects the concerns of members of this committee regarding the weatherization of low-income housing and for energy conservation grants to schools and hospitals.

A lot of that will depend on the tax bill for a lot of write offs.

On the minus side, I am deeply disturbed by the lack of urgency concerning long-term, nonnuclear energy supply options particularly regarding coal.

The overall Department of Energy budget is \$12.6 billion; but this includes atomic energy defense activities, at \$2.8 billion, and emergency preparedness, at \$4.26 billion. The remaining \$5.6 billion includes \$1 billion for conservation and \$3.3 billion for energy supply programs. However, the latter figure includes \$1.2 billion for nuclear power programs.

Coal, with \$621 million, comes out second best to nuclear, but the funds proposed for fiscal year 1979 are lower than requested by the administration for fiscal year 1978. Budget cuts are proposed for research on coal gasification, coal liquefaction, and direct combustion, such as fluidized bed combustion.

Coal conversion, which represents two-thirds of the oil import savings attributed to the national energy plan, is to be cut by \$7 million, from \$10 million to less than \$3 million in 1979. Yet this program is specifically designed to reduce our dependence on foreign oil—a goal endorsed by this administration.

The principal issue before the committee is whether the proposed 1979 budget reflects the needed urgency.

Energy is perhaps the most important domestic and international problem facing our country. The members of the Committee on Energy and Natural Resources—Democratic and Republican alike—are pledged to the formulation of a comprehensive and equitable long-term national energy policy for the United States.

Our witness today, to address these points, is Secretary James R. Schlesinger. Mr. Secretary, we are delighted you could be with us this morning. I am going to ask Senator Johnston to preside for just a moment. I have other things I must attend to. I will be standing by. But I wanted to ask the Secretary if the administration has any second thoughts now of the coal part of this problem. We have all been aware of difficult labor relations within the coal industry. It is nothing new. It has been going on for years and years and years.

IMPACT OF COAL SITUATION ON DOE PROGRAMS

We are in a situation where we have legislation pending in the labor field which some people feel will make labor organizations too strong; now we see a situation where we have a weak labor union, and the press is pointing out the union is not strong, and therefore, an agreement may not mean a lot.

I throw that out without, I hope, opening up any debate on labor reform. It is a rather interesting commentary in light of the discussions going on. The thing that comes to my mind here is whether there will be a need to have an interim reshuffling of interests in terms of the new option. One of the things that has come out in the course of the shortages is that nuclear plants have performed very, very well.

In saying this, the Chair would like to make it abundantly clear that it is not suggesting we abandon coal. I have been pushing strong for the coal option for a long, long time. But I do think we are going through a rough shakedown period in which attention must be given

to the nuclear option while we proceed to try to find some answers in the coal industry.

It is not just the labor problem. That is a tough one. Anyone who has been down to the bottom of a mine, and I speak only for myself on this, cannot give the workers enough credit—I do not mean open-ended credit, but it is a miserable job. It is fraught with all of the health hazards. As time goes on, it is more difficult to get labor. I am talking now about the deep underground mine.

Industry has transportation problems. We have to develop more efficient means of moving coal to market, to modernization of mines to make them more productive, and so on. I would welcome the Secretary's comments. The budget was formulated prior to the occurrence of the longest coal strike in the history of this Nation coming at the worst possible time in our history.

Dr. SCHLESINGER. Thank you, Mr. Chairman. We, of course, do reflect on the implications of the recent coal strike or the continuing coal strike. I do not think we have had second thoughts with regard to our determination to move toward coal. That is indispensable for the Nation's energy future. The Nation's labor relations in the coalfield has historically been acute. It is plain, it seems to me, a new spirit must infuse industrial relations in the coalfields. That cannot be achieved in the course of a negotiation that has been as embittered as this particular negotiation has been. There was an attempt made by the coal operators to use this particular negotiation to solve some long-range problems of the coal industry in the areas of stability and productivity. Given the existing relations between labor and industry, that was probably asking too much of a labor negotiation.

The President has announced he will establish a coal commission to deal with these long-range problems. They must be solved. The question of stability in the mines, the question of arresting and reversing the declining productivity, are issues that must be addressed if the Nation's coal future is to be solved.

The problem you pose, Mr. Chairman, is well taken. We in the Department are engaged in the two ventures. First, we are developing a document which will assist industry to move toward coal. The document will address those technologies which are available or will be available, what the implications are of those technologies, and what the relative costs are. We are planning to have a conference with industry this year with regard to the desirability of moving toward coal.

I must concede, however, Mr. Chairman, that the current situation regarding the labor contract inhibits me somewhat in making my usual pitch about moving toward coal.

The other item, Mr. Chairman, is we are now engaged in developing what we call phase II to follow phase I of the national energy plan. That is oriented toward some of these newer technologies—coal gas, fuel liquids. So that as we look into the future, with the prospect that world oil production will not be able to increase sufficiently to accommodate increasing levels of demand which are necessary for the expansion of the world's economy, we will have the energy resources to provide additional jobs and productivity.

We are, as you know, Mr. Chairman, working industriously on resolving issues on the nuclear licensing bill. We hope to have that bill

to you next week. Nuclear should be a live option, but it is not a substitute for coal.

The CHAIRMAN. I appreciate your comments on that, Mr. Secretary. We have known of this problem in the coal industry. It has come to the fore now, and I think it is clear the problem is a deeper one than some of us have expected. It is going to continue as an ongoing problem. Probably it will be longer than some of us had anticipated. I would hope that it would not deter us from going ahead with the various alternative sources that we need to pursue. This committee will look forward to working with you in connection with the speedup of alternative sources that must be developed.

Might I ask you just one question. Earlier in the week I had a figure that as a result of the coal strike we were burning 250,000 additional barrels of oil a day; do we have any update on that? I think it helps to dramatize the urgency of a resolution to this problem.

Dr. SCHLESINGER. I believe that is probably in the right ballpark, Mr. Chairman, but we do not have an update. We have been burning fairly high cost oil on the eastern seaboard and transporting that power into the affected regions of West Virginia and the Midwest. That will be very high cost power for the ratepayers of that region.

By contrast, the nuclear power that has moved into the region has been relatively low cost.

The CHAIRMAN. The nuclear power has performed very, very well in this period, as I understand it.

Dr. SCHLESINGER. Yes, sir. It has won enthusiastic support in quarters that were previously rather skeptical about it.

The CHAIRMAN. Senator Hansen.

STATEMENT OF HON. CLIFFORD P. HANSEN, A U.S. SENATOR FROM THE STATE OF WYOMING

Senator HANSEN. Mr. Chairman, I know you wanted to get away. Let me make some rather harsh comments, and I make it not to generate debate but simply to say some things I think need to be said.

I am disappointed in the 1979 Department of Energy budget. It is my feeling the budget is actually a nonbudget and something that might be termed a managerial and national disgrace. To the degree an annual Department of Energy budget is a representation of a national strategy for our energy activities and eventual energy independence, it is in effect a nonstrategy with the sole exception of the strategic petroleum reserve which may represent a significant overcommitment for this fiscal year.

DEVELOPMENT OF PLAN FOR PHASE II

There is virtually no overall strategy apparent in this budget. I think the Secretary in response to severe congressional criticism already about the budget has committed the Department to a so-called phase II set of new initiatives for increased energy supply and production efforts by the Department.

Our understanding of the phase II planning, and we had formal testimony yesterday to this effect, is that the energy technology part of the Department is not even included in the phase II planning. Our

witnesses on the fossil energy research and development program were obviously embarrassed by the fact they were unable to report anything other than rumor with regard to the phase II situation.

The phase II planning effort has all of the earmarks of another National Energy Act which, of course, this committee had to virtually rewrite.

In addition to the phase II nonsense, we are going to have to make decisions unilaterally on many vital programs, such as the nuclear spent fuel storage for domestic utilities and uranium for the future because the administration has not made the required decisions and recommendations and does not plan to do so according to the best information I have until after we are required to act.

The phase II plan and many of the important budget-related decisions have been promised for the April-May time-frame or later. Again, at the end of the committee's authorization process or later. The Budget Act did require by May 15 we must give a budget estimate to the Budget Committee, and for the first budget resolution by March 15.

In effect, Congress and most particularly this committee is going to have to make the required decisions without the administration's input and virtually construct an energy strategy and the associated budget. Administration apologists cite the fact that the new Department's organization is responsible for this nonbudget. If that is true, that is another managerial disgrace.

Congress passed the Department of Energy Act in August requiring an annual authorization for the Department. The budget process for fiscal 1979 started in the spring of 1977 and most of the Department's current managers as well as President Carter have been personally involved throughout the past year in the budget's formulation.

The failure to propose a responsible strategy in budget is wholly independent of the organizational aspects of the new Department. I am disappointed. We have not come up with what I think is a program that makes better sense. There were stories on the radio this morning to the effect of the great concern expressed by other countries in noting the further continued drastic drop of the dollar. I think the one kind of program that would make sense to them would be for us to start now on a policy that will not necessarily hold out the promise of lowering prices for Americans tomorrow but will make the best use of the assets we have in this country.

In my opinion the only kind of energy policy in this country that makes any sense at all is one that will give assurance to all Americans there will be more domestically produced energy available in the future than is presently available. We have been going in the other direction. I cannot believe any policy short of one which gives the firm assurance that the laws of supply and demand are going to be permitted to work insofar as the domestic production of energy goals makes any sense.

I cannot expect anyone to believe that we are going to be able to start out on a program that will have spectacular results to point to even a year from now. What I think is important is to understand that it takes a long time from the time money is invested and leases are put together before we can have gas or oil produced from American soil or off American coastlines delivered in the homes of people

in this country. But that is the only kind of program that is worth being called a program. It is the only kind of energy policy that makes any sense.

I regret for reasons I do not understand that we do not yet seem to comprehend in this country that that is what we need. I would hope before we get through with this budget process, before we write the kind of bill that may secure the support of most of the Members of the Congress, or at least a majority, and have the endorsement of the White House, we will come to grips with the fact that the one thing we can do in this country that will assure the Germans, the Japanese and everybody else who is interested, and other countries throughout the world are interested, is to turn the policy around so that this great outflow of dollars which takes on increasing quantitative significance almost daily will be turned around and we will take those actions which will put Americans to work, which bring on-stream all of the oil and gas we now have discovered that could be produced, and will encourage the further development of that kind of supply that I think represents the sort of program that the rest of the world calls for.

This is not a time for trying to engage in any kind of cosmetic legislation. The Germans and the Japanese and everybody else knows the only thing that will work in the longrun is to have a policy which will stop this outflow of dollars, put us to work here making better use of the resources we have. We have a large amount of coal in this country, yet I remember some of the members of this committee and as others have said as well, let's not make use of the Western coal, it will put easterners out of work.

I am not concerned about seeing how much coal we can sell from Wyoming, but I am certain there are many people in this country today, some of whom are out of work now or who will be out of work, who might think it makes better sense to use Western coal if indeed we must. If we cannot get the coal production everyone has been hoping for and has been called for; if we cannot get that going it would make better sense to see that coal can come from other parts of the United States to keep people in Ohio and Pennsylvania working and to keep homes heated and the lights on.

Thank you, Mr. Chairman.

Senator JOHNSTON [presiding]. Thank you, Senator Hansen. If there are no further opening statements, we will recognize Dr. Schlesinger.

[COMMITTEE NOTE: On March 8, 1978, S. 2692 and S. 2693 were introduced by Senator Jackson. The bills will be inserted in the record at this point.]

95TH CONGRESS
2D SESSION

S. 2692

IN THE SENATE OF THE UNITED STATES

MARCH 8 (legislative day, FEBRUARY-6), 1978

Mr. JACKSON (by request) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

A BILL

To authorize appropriations for the civilian programs of the Department of Energy for fiscal year 1979, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That this Act may be cited as "The Department of Energy
4 Civilian Program Authorization Act for Fiscal Year 1979".

5 SEC. 2. In accordance with section 660 of the Depart-
6 ment of Energy Organization Act, there is hereby authorized
7 to be appropriated to the Department of Energy for fiscal
8 year 1979 the following sums, which may be made available
9 until expended, under titles I through IV:

II

TITLE I—ENERGY

SUBTITLE A—ENERGY SUPPLY-RESEARCH AND
TECHNOLOGY DEVELOPMENT

SEC. 101. For the following energy supply-research and technology development programs, a sum of dollars equal to the total of the following:

(a) Coal, \$519,925,000;

(b) Petroleum, \$78,150,000;

(c) Gas, \$25,650,000;

(d) Solar, \$274,800,000;

(e) Geothermal, \$126,700,000, including an additional \$7,500,000 for the 50-megawatt geothermal demonstration plant;

(f) Magnetic confinement fusion, \$225,000,000;

(g) Fission, \$742,851,000;

(h) Hydroelectric, \$8,000,000;

(i) Biomass, \$26,400,000;

(j) Basic energy sciences, \$175,600,000;

(k) Advanced technology and assessments project, \$21,000,000.

SEC. 102. For energy supply-research and technology development capital investment, including: project planning, construction, acquisition, or modification of facilities (including land acquisition), and related activities, and acquisition or

1 fabrication of capital equipment not related to construction,
 2 an additional sum dollars equal to the total of the follow-
 3 ing:

4 (a) Coal:

5 (1) Project 79-1-a, Morgantown Energy Research
 6 Center Warehouse Building, Morgantown, West Vir-
 7 ginia, \$350,000.

8 (b) Fission:

9 (1) Project 79-1-b, Modifications to Reactors,
 10 \$4,000,000.

11 (2) Project 79-1-c, Security Improvements, Rich-
 12 land, Washington, \$12,000,000.

13 (3) Project 79-1-d, Second Power Tieline, Idaho
 14 National Engineering Laboratory, Idaho Falls, Idaho,
 15 \$2,600,000.

16 (4) Project 79-1-e, Fire Safety and Protection
 17 Improvements, Idaho National Engineering Laboratory,
 18 Idaho Falls, Idaho, and Argonne National Laboratory,
 19 Argonne, Illinois, \$3,100,000.

20 (b) For Project 76-1-b, High-Btu Synthetic Pipe-
 21 line Gas Demonstration Plant, an additional sum of
 22 \$191,000,000 (making total project authorization of
 23 \$246,000,000).

24 (c) For Project 76-2-b, Ten-Megawatt Central

1 Receiver Solar Thermal Power Plant, Barstow, Cali-
2 fornia, an additional sum of \$24,250,000 (making a
3 total project authorization of \$71,500,000).

4 (d) For Project 78-5-b, Advanced Fuel Recycle
5 Integrated Equipment Test Facility, Oak Ridge Na-
6 tional Laboratory, Oak Ridge, Tennessee, an additional
7 sum of \$12,400,000 (making a total project authori-
8 zation of \$15,400,000).

9 (e) For Project 78-5-a, Facilities for the National
10 Waste Terminal Storage Program, site undetermined
11 (land acquisition, A-E and long-lead procurement),
12 an additional sum of \$45,000,000 (making a total proj-
13 ect authorization of \$55,000,000).

14 (f) For Project 78-6-e, Liquid Metal Engineering
15 Center Facility Modifications, Liquid Metal Engineering
16 Center, Santa Susana, California (A-E and long-lead
17 procurement only), an additional sum of \$1,600,000
18 (making a total project authorization of \$5,600,000).

19 (5) Project 79-1-f, Radioactive Waste Treatment
20 Facility, Idaho National Engineering Laboratory, Idaho
21 Falls, Idaho, \$2,000,000.

22 (6) Project 79-1-g, Test Area North Radioactive
23 Liquid Waste Storage and Transfer System, Idaho Na-
24 tional Engineering Laboratory, Idaho Falls, Idaho,
25 \$1,000,000.

1 (7) Project 79-1-h, Maintenance and Storage Fa-
 2 cility, Richland, Washington, \$16,700,000.

3 (8) Project 79-1-i, AWBA Test and Examination
 4 Facilities, Bettis Atomic Power Laboratory, West Mif-
 5 flin, Pennsylvania, \$9,000,000.

6 (9) Project 79-1-j, Reactivation of Radioactive
 7 Material Laboratory and Hot Cell Annex, Test Area
 8 North, Idaho National Engineering Laboratory, Idaho
 9 Falls, Idaho, \$3,000,000.

10 (c) Basic Energy Sciences:

11 (1) Project 79-1-k, Intense Pulsed Neutron
 12 Source—I, Argonne National Laboratory, Argonne,
 13 Illinois, \$6,400,000.

14 (d) Capital Equipment Not Related to Construction,
 15 \$110,601,000.

16 SEC. 103. For energy supply-research and technology
 17 development projects previously authorized:

18 (a) For Project 78-2-c, Low-Btu Fuel Gas Small In-
 19 dustrial Demonstration Plant, an additional sum \$19,000,-
 20 000 (making a total project authorization of \$25,000,000).

21 SUBTITLE B—ENERGY SUPPLY-PRODUCTION,

22 DEMONSTRATION AND DISTRIBUTION

23 SEC. 104. For the following energy supply-production,
 24 demonstration and distribution programs, a sum of dollars
 25 equal to the total of the following:

- 1 (a) Coal, \$2,930,000;
- 2 (b) Petroleum and shale reserves, \$199,005,000;
- 3 (c) Solar, \$64,381,000;
- 4 (d) Uranium enrichment activities, \$976,400,000;
- 5 (e) Uranium resource assessment, \$91,200,000;
- 6 and
- 7 (f) Multiple resources, \$1,000,000.

8 SEC. 105. For energy supply-production, demonstration
 9 and distribution capital investment, including: project plan-
 10 ning, construction, acquisition, or modification of facilities
 11 (including land acquisition), and related activities, and acqui-
 12 sition or fabrication of capital equipment not related to con-
 13 struction, an additional sum of dollars equal to the total
 14 of the following:

- 15 (a) Uranium Enrichment Activities:
- 16 (1) Project 79-2-a, UF₆ Tails Cylinders and
- 17 Storage Yards, Gaseous Diffusion Plants, \$11,000,000.
- 18 (2) Project 79-2-b, Coal and Ash Handling Mod-
- 19 ifications, Portsmouth Gaseous Diffusion Plant, Ports-
- 20 mouth, Ohio, \$2,300,000.
- 21 (3) Project 79-2-c, Upgrade Uranium Recovery,
- 22 Portsmouth Gaseous Diffusion Plant, Portsmouth, Ohio,
- 23 \$3,600,000.
- 24 (4) Project 79-2-d, Technology Test Facilities,

1 various locations (A-E and long-lead procurement only),
 2 \$7,000,000.

3 (b) Capital Equipment Not Related to Construction,
 4 \$24,200,000.

5 SEC. 106. For energy supply-production, demonstration,
 6 and distribution projects previously authorized:

7 (a) For Project 78-14-b, Process Control Modifi-
 8 cations, Gaseous Diffusion Plants, an additional sum of
 9 \$1,100,000 (making a total project authorization of
 10 \$18,500,000).

11 (b) For Project 76-8-g, Enriched Uranium Pro-
 12 duction Facilities, Portsmouth, Ohio, an additional sum
 13 of \$220,000,000 (making a total project authorization
 14 of \$582,630,000).

15 (C) For Project 71-1-f, Process Equipment Modi-
 16 fications, Gaseous Diffusion Plants, an additional sum
 17 of \$70,000,000 (making a total project authorization of
 18 \$990,000,000).

19 SUBTITLE C—CONSERVATION

20 SEC. 107. For the following conservation programs a
 21 sum of dollars equal to the total of the following:

22 (a) Utilities, \$52,793,000;

23 (b) Residential and commercial, \$262,000,000;

24 (c) Industrial, \$48,600,000;

1 (d) Transportation, \$96,000,000;

2 (e) Federal, \$10,190,000;

3 (f) State and local, \$368,300,000;

4 (g) Multiple sector, \$163,380,000.

5 SEC. 108. For conservation, for capital equipment not
6 related to construction, \$8,300,000.

7 SUBTITLE D—REGULATION

8 SEC. 109. For the regulation program, \$103,720,000,
9 of which \$43,670,000 is for the Federal Energy Regulatory
10 Commission.

11 SUBTITLE E—EMERGENCY PREPAREDNESS

12 SEC. 110. For the emergency preparedness program,
13 \$4,255,360,000.

14 SUBTITLE F—ENERGY INFORMATION

15 SEC. 111. For the energy information program, \$63,-
16 405,000.

17 SUBTITLE G—ENVIRONMENT

18 SEC. 112. For the environment program, \$183,988,000.

19 SEC. 113. For environment capital investment, includ-
20 ing: project planning, construction, acquisition or modifica-
21 tion of facilities (including land acquisition), and related
22 activities, and acquisition or fabrication of capital equipment
23 not related to construction, a sum of dollars equal to the total
24 of the following:

25 (a) Project 79-3-a, Modifications and Additions to

1 Biomedical and Environmental Research Facilities, vari-
2 ous locations, \$4,000,000.

3 (b) Capital Equipment Not Related to Construc-
4 tion, \$14,600,000.

5 SUBTITLE H—POLICY AND MANAGEMENT

6 SEC. 114. For policy and management programs, a sum
7 of dollars equal to the total of the following:

8 (a) For program direction and management sup-
9 port, \$286,849,000.

10 (b) For supporting activities, \$161,060,000.

11 SEC. 115. For policy and management, capital invest-
12 ment, including: project planning, construction, acquisition
13 or modification of facilities (including land acquisition),
14 and related activities, and acquisition or fabrication of capital
15 equipment not related to construction, a sum of dollars equal
16 to the total of the following:

17 (a) Project 79-4-a, Modifications for Energy Man-
18 agement, various locations, \$25,000,000.

19 (b) Project 79-4-b, Heating, Ventilating, and Air-
20 Conditioning Heat Recovery, Richland, Washington,
21 \$4,000,000.

22 (c) Project 79-5, Plant Engineering and Design,
23 \$10,000,000.

24 (d) Project 79-6, General Plant Projects, \$51,
25 535,000.

1 (e) Capital Equipment Not Related to Construc-
2 tion, \$5,800,000.

3 SEC. 116. For policy and management projects previ-
4 ously authorized:

5 (a) For Project 78-19-a, Program Support Facil-
6 ity, Argonne National Laboratory, Argonne, Illinois, an
7 additional sum of \$10,600,000 (making a total project
8 authorization of \$15,600,000).

9 TITLE II—GENERAL SCIENCE AND RESEARCH

10 SEC. 201. For the general science and research program,
11 \$306,600,000.

12 SEC. 202. For general science and research capital in-
13 vestment, including: project planning, construction, acquisi-
14 tion, or modification of facilities (including land acquisition),
15 and related activities, and acquisition or fabrication of capital
16 equipment not related to construction, an additional sum of
17 dollars equal to the total of the following:

18 (a) Project 79-9-a, Hadron Bubble Chamber Fa-
19 cility, Fermi National Accelerator Laboratory, Batavia,
20 Illinois, \$2,200,000.

21 (b) Project 79-9-b, Energy Saver, Fermi National
22 Accelerator Laboratory, Batavia, Illinois, \$38,900,000.

23 (c) Project 79-9-c, Fire Protection Improvements,
24 Brookhaven National Laboratory, Upton, New York,
25 \$1,300,000.

1 (a) Project 79-9-d, Accelerator Improvements
2 and Modifications, various locations, \$4,500,000.

3 (e) Project 79-9-e, Accelerator Improvements and
4 Modifications, various locations, \$1,500,000.

5 (f) Project 79-6, General Plant Projects, various
6 locations, \$6,700,000.

7 (g) Capital Equipment Not Related to Construc-
8 tion, \$49,800,000.

9 SEC. 203. For general science and research projects pre-
10 viously authorized:

11 (a) For Project 78-10-b, Intersecting Storage Ac-
12 celerator (Isabelle) 400 x 400 Gev, Brookhaven Na-
13 tional Laboratory, Upton, New York, an additional sum
14 of \$264,500,000 (making a total project authorization
15 of \$275,000,000).

16 TITLE III—POWER MARKETING

17 ADMINISTRATIONS

18 Subtitle A—Alaska Power Administration

19 SEC. 301. For the Alaska Power Administration, includ-
20 ing expenses for engineering and economic investigation to
21 promote the development and utilization of the water, power,
22 and related resources of Alaska, \$2,614,000.

23 Subtitle B—Western Area Power Administration

24 SEC. 302. For the Western Area Power Administration,
25 \$101,252,000 for construction, rehabilitation, operation, and

1 maintenance of electric power transmission facilities, and
 2 power marketing activities, of which \$90,007,000 shall be
 3 derived from the reclamation fund.

4 SEC. 303. For the Western Area Power Administration,
 5 \$200,000 for the Emergency Fund established pursuant to
 6 section 502 of title 43, United States Code, to assure continu-
 7 ous operations during unusual or emergency conditions, all of
 8 which shall be derived from the reclamation fund.

9 SEC. 304. For the Western Area Power Administration
 10 for continued work on the transmission system of the Upper
 11 Colorado River storage project, authorized by section 1 (1)
 12 of the Act of April 11, 1956 (Public Law 485 of the Eighty-
 13 fourth Congress; 70 Stat. 105) and legislation supplementary
 14 thereto, including the Act of August 10, 1972 (Public Law
 15 92-370), \$2,286,000.

16 Subtitle C—Southwestern Power Administration

17 SEC. 305. For the Southwestern Power Administration,
 18 \$19,909,000.

19 Subtitle D—Southeastern Power Administration

20 SEC. 306. For the Southeastern Power Administration,
 21 \$1,212,000.

22 TITLE IV—SPECIAL FOREIGN CURRENCY

23 SEC. 401. For international cooperation in nonnuclear
 24 technology, special foreign currency, \$2,000,000.

TITLE V—OTHER PROVISIONS

SEC. 501. (a) In the exercise of authority vested in the Secretary for the performance of research, development, and demonstration activities, facilities or major items of equipment may be constructed or acquired at locations other than installations of the Department.

(b) Agreements, contracts, and grants entered into in furtherance of the authority of subsection (a) may provide for the transfer of title or other interests in property of the United States when the Secretary determines the transfer is in the best interests of the Government.

SEC. 502. Except as otherwise provided in this Act—

(a) no amount appropriated pursuant to this Act may be used for any program in excess of either (1) 120 per centum of the amount authorized for that program by this Act, or (2) \$5,000,000 more than the amount authorized for that program by this Act, whichever is the lesser, and

(b) no amount appropriated pursuant to this Act may be used for any program which has not been presented to, or requested of, the Congress,

unless (1) a period of thirty calendar days (not including any day in which either House of Congress is not in session because of adjournment of more than three calendar days to a

1 day certain) has passed after receipt by the appropriate
2 committees of the House of Representatives and the Senate of
3 notice given by the Secretary containing a full and complete
4 statement of the action proposed to be taken and the facts
5 and circumstances relied upon in support of such proposed
6 action, or (2) each such committee, before the expiration of
7 such period, has transmitted to the Secretary written notice
8 waiving the remainder of such thirty-day notice period.

9 SEC. 503. The Department is authorized to start con-
10 struction of any line item construction project set forth in this
11 Act, only if the currently estimated cost of that project does
12 not exceed by more than 25 per centum, the estimated cost
13 set forth for the project. Further, the total cost of any project
14 undertaken shall not exceed the estimated cost set forth for
15 that project by more than 25 per centum unless and until
16 additional appropriations are authorized: *Provided*, That
17 limitations in this section will not apply to any project with
18 an estimated cost less than \$5,000,000.

19 SEC. 504. The Department is authorized to start any
20 project provided for under the general plant projects author-
21 ity set forth in this Act only if it is in accordance with the
22 following:

23 (a) The then maximum currently estimated cost of
24 any project shall not exceed \$750,000 and the then max-
25 imum currently estimated cost of any building included

1 in such project shall not exceed \$300,000: *Provided,*
2 That the building cost limitation may be exceeded if the
3 Secretary determines that it is necessary in the interest
4 of efficiency and economy.

5 (b) The total cost of all projects undertaken shall
6 not exceed the total amount authorized by this Act for
7 general plant projects by more than 25 per centum.

8 SEC. 505. Amounts appropriated pursuant to this Act for
9 Policy and Management activities, for general plant projects,
10 and for plant engineering and design are available for use,
11 when necessary, in connection with all Department programs.

12 SEC. 506. In addition to construction design services
13 performed with Plant Engineering and Design funds, the
14 Secretary is authorized to perform construction design serv-
15 ices for any Department construction project whenever (a)
16 such construction project has been included in a proposed
17 authorization bill transmitted to the Congress by the Sec-
18 retary, and (b) the Secretary determines that the project is
19 of such urgency in order to meet the needs of national defense
20 or protection of life and property or health and safety that
21 construction of the project should be initiated promptly
22 upon enactment of legislation appropriating funds for its
23 construction.

24 SEC. 507. When so specified in fiscal year 1979 appro-
25 priation Acts, any moneys received by the Department from

1 uranium enrichment and other reimbursable programs may
2 be retained and used, notwithstanding the provisions of sec-
3 tion 3617 of the Revised Statutes (31 U.S.C. 484), and may
4 remain available until expended.

5 SEC. 508. Appropriations authorized by this Act for
6 salary, pay, retirement, or other benefits for Federal em-
7 ployees may be increased by such additional or supplemental
8 amounts as may be necessary for increases authorized by law.

9 TITLE VI—BASIS FOR GOVERNMENT CHARGE
10 FOR URANIUM ENRICHMENT SERVICES

11 SEC. 601. Subsection 161 v. of the Atomic Energy Act
12 of 1954, as amended, is amended as follows:

13 (a) by striking out the word "Commission" each
14 time it appears in the subsection, and inserting in lieu
15 thereof the words "Secretary of Energy" or "Depart-
16 ment of Energy" as appropriate;

17 (b) by deleting from the first proviso in this sub-
18 section the words after "(iii)" of the first proviso to the
19 beginning of the second proviso and inserting in lieu
20 thereof the following: "any prices established under this
21 subsection shall be on such a basis as will assure the
22 recovery of not less than the Government's costs over a
23 reasonable period of time and when combined with a per-
24 centage of such costs will result in the recovery of reve-
25 nues no greater than the sum of all Government costs

1 and the normal and ordinary business expenses, taxes,
 2 and return on equity which would otherwise be reflected
 3 in the prices charged by a private operator providing
 4 similar services:" and

5 (c) by deleting the third proviso in this subsection
 6 and inserting in lieu thereof the following: "*Provided*
 7 *further*, That before the Secretary establishes such cri-
 8 teria, the Secretary shall transmit the criteria to the
 9 Committee on Science and Technology of the House of
 10 Representatives and the Committee on Energy and Natu-
 11 ral Resources of the Senate and wait a period of forty-
 12 five days (not including any day in which either House
 13 of Congress is not in session because of adjournment of
 14 more than three days), unless prior to the expiration of
 15 such period each such committee has transmitted to the
 16 Secretary written notice to the effect that such commit-
 17 tee has no objection to the proposed action."

18 TITLE VII—AMENDMENTS TO THE NATIONAL
 19 ENERGY EXTENSION SERVICE ACT

20 (Title V, Public Law 95-39)

21 SEC. 701. (a) Section 505(b)(9) of the National
 22 Energy Extension Service Act is amended by deleting the
 23 following: "": *Provided*, That there shall be no requirement
 24 for matching State or local funds in the guidelines, unless
 25 such requirement is included in an annual authorization".

1 (b) Section 512 (c) of the National Energy Extension
 2 Service Act is amended by deletion from paragraph (2) (ii)
 3 of the following parenthetical clause: “(determined on the
 4 basis of the most recent decennial census)” and the addition
 5 of a new paragraph (4) as follows:

6 “(4) Obligation of funds allocated under subsection (c)
 7 (2) of this section, including funds for implementation of any
 8 plan developed by the Director, pursuant to section 506 (f)
 9 (1) of this title, shall be conditioned by a requirement for
 10 matching State or local funds equal to Federal funds.”.

11 TITLE VIII—LOAN GUARANTEES FOR ENERGY 12 DEMONSTRATION

13 SEC. 801. (a) Section 7 (a) of the Federal Nonnuclear
 14 Energy Research and Development Act of 1974 (42 U.S.C.
 15 5906) is amended—

16 (1) by striking out “and” after the semicolon at the
 17 end of paragraph (5),

18 (2) by striking out the period at the end of para-
 19 graph (6) and inserting in lieu thereof “; and”, and

20 (3) by adding at the end thereof the following new
 21 paragraph:

22 “(7) Federal loan guarantees and commitments
 23 thereof as provided in subsection (d) of this section.”.

24 (b) Section 7 (d) of the Federal Nonnuclear Energy Re-
 25 search and Development Act of 1974 (42 U.S.C. 5906) is

1 amended by striking “(d)” at the beginning of such section
2 and inserting in lieu thereof “(e)”.

3 (c) Section 7 of the Federal Nonnuclear Energy Re-
4 search and Development Act of 1974 is amended by adding
5 the following new subsection:

6 “(d) Except to the extent that the authority to issue loan
7 guarantees and commitments to guarantee is provided to the
8 Secretary by title II of the Geothermal Energy Research,
9 Development and Demonstration Act of 1974 (Public Law
10 93-410) and section 10 of the Electric and Hybrid Vehicle
11 Research, Development, and Demonstration Act of 1974
12 (Public Law 94-413) guarantees and commitments may be
13 entered into by the Secretary under this subsection subject to
14 the following requirements and limitations:

15 “(1) The Secretary shall determine the types and
16 capacities of the commercial-size facility or other opera-
17 tion which would demonstrate the technical, environ-
18 mental, or economic feasibility of a particular nonnuclear
19 energy technology. In making this determination, the
20 Secretary shall consider the criteria set forth in section
21 8 (b) of this Act.

22 “(2) The Secretary shall, to the maximum extent
23 possible, encourage competition among guarantee appli-
24 cants in a particular technology area.

25 “(3) No guarantee shall be extended unless the

1 Secretary finds that credit is not otherwise available on
2 reasonable terms and conditions.

3 “(4) For any loan guaranteed, the borrower shall
4 have a minimum invested equity in any project equal to
5 at least 10 per centum of the project cost. The guarantee
6 shall not exceed 95 per centum of the total amount of
7 the outstanding obligation of principal and interest; *Pro-*
8 *vided*, That in no case shall the amount guaranteed ex-
9 ceed 80 per centum of the project cost.

10 “(5) No loan shall be guaranteed if the income from
11 such loan is excluded from gross income for the purposes
12 of chapter 1 of the Internal Revenue Code of 1954, or
13 if the guarantee provides significant collateral or security,
14 as determined by the Secretary, for other obligations the
15 income from which is so excluded.

16 “(6) Loans guaranteed shall provide for complete
17 amortization within a period of not to exceed thirty
18 years, or 75 per centum of the useful life of the project
19 to be financed by the loans whichever is less, as deter-
20 mined by the Secretary.

21 “(7) No guarantee or commitment to guarantee
22 under this subsection in an amount exceeding \$50,000,-
23 000 shall be issued by the Secretary except as further
24 authorized by Congress. The total amount of guarantees
25 and commitments to guarantee issued under this subsec-

1 tion shall not exceed such amounts as may be specified
2 by Congress in authorization and appropriation Acts.

3 “(8) The approval of the Secretary of the Treasury
4 shall be required of the interest rate, timing, and other
5 terms and conditions of the financing of any guaranteed
6 obligations, except that the Secretary of the Treasury
7 may waive this requirement with respect to the financing
8 of any guaranteed obligation when he determines that
9 such financing does not have a significant impact on the
10 market for Government and Government-guaranteed
11 securities.

12 “(9) There are hereby authorized to be appropri-
13 ated from time to time such amounts, which shall remain
14 available until expended, as may be necessary to carry
15 out the purposes of this subsection; including, but not
16 limited to, the payments of interest and principal.

17 “(10) The Secretary shall charge and collect fees
18 for guarantees in amounts sufficient in his judgment to
19 cover applicable administrative costs and probable losses
20 on guaranteed obligations: *Provided*, That the Secretary
21 may waive any fee in excess of 1 per centum per annum
22 of outstanding indebtedness covered by each guarantee
23 upon a finding that such waiver is in furtherance of the
24 demonstration program and the interests of the United
25 States.

1 “(11) (A) Any loan guarantee or commitment to
2 guarantee shall be issued by the Secretary only if he de-
3 termines there is reasonable assurance of repayment of
4 the loan by the borrower under the guaranteed obliga-
5 tion. Any guarantee agreement entered into by the Sec-
6 retary shall include such detailed terms and conditions
7 as the Secretary deems appropriate to protect the interest
8 of the United States in the case of default. For purposes
9 of this subsection, any invention made or conceived in the
10 course of or under such guarantee, shall be treated as a
11 project asset in the event of foreclosure by the Secretary
12 for default.

13 “(B) The guarantee agreement may provide for the
14 payment to holders of the obligation, for and on behalf of
15 the borrower, of principal and interest which become due
16 if the Secretary finds that—

17 “(i) the borrower is unable to meet such pay-
18 ments, it is in the public interest to permit the bor-
19 rower to continue to pursue the purposes of such
20 project, and the probable net benefit to the Federal
21 Government in paying such principal and interest
22 will be greater than that which will result in the
23 event of a default; and

24 “(ii) the borrower agrees to reimburse the Sec-
25 retary for such payment on terms and conditions,

1 including interest, which are satisfactory to the Sec-
2 retary.

3 “(C) The guarantee agreement may provide that
4 the Secretary shall, after a period of not less than ten
5 years from issuance of the obligation, taking into
6 consideration whether the Government's needs for in-
7 formation to be derived from the project have been
8 substantially met and whether the project is capable of
9 commercial operation, determine the feasibility and ad-
10 visability of terminating the Federal participation in the
11 project. In the event that such determination is positive,
12 the Secretary shall notify the borrower and provide the
13 borrower with not less than two nor more than three
14 years in which to find alternative financing. At the ex-
15 piration of the designated period of time, if the borrower
16 has been unable to secure alternative financing, the Sec-
17 retary is authorized to collect from the borrower an
18 additional fee of 1 per centum per annum on the re-
19 maining obligation to which the Federal guarantee
20 applies.

21 “(12) To the extent that moneys available to the
22 Secretary for the purposes of this subsection are insuffi-
23 cient to fulfill his authorized obligations pursuant to any
24 loan guarantee issued under this subsection, the Secre-
25 tary shall, to such extent or in such amounts as are pro-

1 vided in appropriations Acts (to be available without
2 fiscal year limitations), issue to the Secretary of the
3 Treasury notes or other obligations in such forms and
4 denominations, bearing such maturities, and subject to
5 such terms and conditions as may be prescribed by the
6 Secretary of the Treasury. Redemptions of such notes or
7 obligations shall be made by the Secretary from appro-
8 priations or other moneys available to him. The Secre-
9 tary of the Treasury shall purchase any notes or other
10 obligations issued hereunder and for that purpose he is
11 authorized to use as a public debt transaction the pro-
12 ceeds from the sale of any securities issued under the
13 second Liberty Bond Act; and the purposes for which
14 securities may be issued under that Act are extended to
15 include any purchase of such note or obligations. All of
16 such transactions by the Secretary of the Treasury of
17 such notes or other obligations shall be treated as public
18 debt transactions of the United States.

19 “(13) (A) If the Secretary makes a payment pur-
20 suant to any loan guarantee made by him pursuant to
21 this subsection, the Secretary shall be subrogated to the
22 rights of the recipient of such payment (and such subro-
23 gation shall be expressly set forth in the guarantee or re-
24 lated agreements), including the authority to complete,
25 maintain, operate, lease, or otherwise dispose of any

1 property acquired pursuant to such guarantee or related
 2 agreements, or to permit the borrower, pursuant to an
 3 agreement with the Secretary to continue to pursue the
 4 purposes of the project for which a loan was guaranteed
 5 if the Secretary determines that this is in the public
 6 interest.

7 “(B) Whenever the Secretary determines it nec-
 8 essary to secure the project assets in the event of default
 9 on any guarantee under this section, the Secretary shall
 10 notify the Attorney General, who shall take action as
 11 may be appropriate to recover the amounts of any pay-
 12 ments made pursuant to the loan guarantee from such
 13 assets of the defaulting borrower as are associated with
 14 the demonstration facility, or from any other security in-
 15 cluded in the terms of the guarantee.”.

16 TITLE IX—AUTHORIZATION OF APPROPRIA-
 17 TIONS FOR FISCAL YEAR 1980

18 SEC. 901. There is hereby authorized to be appropriated
 19 to the Department of Energy to be available no earlier than
 20 October 1, 1979, such sums as may be necessary for Fiscal
 21 Year 1980 for the following:

- 22 (a) Energy.
- 23 (b) General science and research.
- 24 (c) Power marketing administrations.
- 25 (d) Special foreign currency.

1 SEC. 902. All of the provisions of this Act which are
2 applicable to amounts appropriated pursuant to titles I, II,
3 III, and IV shall apply in the same manner to amounts ap-
4 propriated pursuant to subsections 101 (a), (b), (c), and
5 (d), respectively.

95TH CONGRESS
2D SESSION

S. 2693

IN THE SENATE OF THE UNITED STATES

MARCH 8 (legislative day, FEBRUARY 6), 1978

Mr. JACKSON (by request) introduced the following bill; which was read twice and referred to the Committee on Armed Services, and for consideration of title II only, to the Committee on Energy and Natural Resources jointly by unanimous consent

A BILL

To authorize appropriations for the Department of Energy for national security programs for fiscal year 1979, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That this Act may be cited as the "Department of Energy
4 National Security and Military Applications of Nuclear
5 Energy Authorization Act of 1979".

6 TITLE I—NATIONAL SECURITY PROGRAMS

7 OPERATING EXPENSES

8 SEC. 101. Funds are hereby authorized to be appro-
9 priated to the Department of Energy (hereinafter in this

II

1 Act referred to as the "Department") for fiscal year 1979
 2 for operating expenses incurred in carrying out national
 3 security programs, including scientific research and develop-
 4 ment in support of the armed services, strategic and critical
 5 materials necessary for the common defense, and military
 6 applications of nuclear energy as follows:

7 (1) For Weapons Activities, \$1,232,694,000;

8 (2) For Defense Intelligence and Arms Controls,
 9 \$28,400,000;

10 (3) For Special Materials Production, \$501,500,-
 11 000; and

12 (4) For Program Direction and Management
 13 Support Related to National Security Programs,
 14 \$47,151,000.

15 PLANT AND CAPITAL EQUIPMENT

16 SEC. 102. Funds are hereby authorized to be appropri-
 17 ated to the Department for fiscal year 1979, for plant and
 18 capital equipment, including planning, construction, acqui-
 19 sition, or modification of facilities (including land acquisi-
 20 tion), and for acquisition and fabrication of capital
 21 equipment not related to construction, necessary for national
 22 security programs, as follows:

23 (1) For weapons activities:

24 Project 79-7-a Tonopah Test Range upgrade, Phase

1 II, Sandia Laboratories, Albuquerque, New Mexico,
2 \$4,000,000.

3 Project 79-7-b, fire protection improvements, Los
4 Alamos Scientific Laboratory, Los Alamos, New Mexico
5 (A-E and long lead procurement only), \$2,000,000.

6 Project 79-7-c, proton storage ring, Los Alamos
7 Scientific Laboratory, Los Alamos, New Mexico,
8 \$16,700,000.

9 Project 79-7-d, water cooling station upgrade,
10 Lawrence Livermore Laboratory, Livermore, California,
11 \$2,300,000.

12 Project 79-7-e, production and assembly facilities,
13 Pantex Plant, Amarillo, Texas, \$10,000,000.

14 Project 79-7-f, stockpile quality evaluation facility,
15 Y-12 Plant, Oak Ridge, Tennessee, \$2,300,000.

16 Project 79-7-g, facilities for B43 modernization,
17 various locations, \$18,000,000.

18 (2) For special materials production:

19 Project 79-7-h, utilities replacement and expan-
20 sion, Idaho Chemical Processing Plant, Idaho National
21 Engineering Laboratory, Idaho Falls, Idaho, \$10,500,-
22 000.

23 Project 79-7-i, transmission and distribution sys-
24 tems upgrading, Richland, Washington, \$14,000,000.

1 Project 79-7-j, pollutant discharge elimination, Sa-
 2 vannah River, South Carolina, \$9,000,000.

3 (3) For defense waste management:

4 Project 79-7-k, waste management facilities, Sa-
 5 vannah River, South Carolina, \$75,000,000.

6 (4) For project 79-6, general plant projects—

7 (A) for weapons activities, \$21,400,000;

8 (B) for special materials production, \$10,250,000;

9 and

10 (C) for waste management, \$5,950,000.

11 (5) For project 79-8, plant engineering and design—

12 (A) for special materials production, \$12,000,000;

13 (B) for defense waste management, \$1,500,000;

14 and

15 (C) for military application, \$10,000,000.

16 (6) For capital equipment not related to construction—

17 (A) for weapons activities, \$86,400,000;

18 (B) for special materials production, \$32,000,000;

19 (C) for waste management, \$8,000,000; and

20 (D) for program direction and management sup-

21 port, \$300,000.

22 ADDITIONAL AUTHORIZATIONS FOR PREVIOUSLY

23 AUTHORIZED PROJECTS

24 SEC. 103. Funds are hereby authorized to be appro-

1 priated to the Department for fiscal year 1979, for national
2 security projects previously authorized by law, as follows:

3 (1) For project 74-1-b, replacement ventilation
4 air filter, F Chemical Separations Area, Savannah
5 River, South Carolina, \$2,100,000; for a total authori-
6 zation of \$7,300,000.

7 (2) For project 75-7-c, intermediate-level waste
8 management facilities, Oak Ridge National Laboratory,
9 Oak Ridge, Tennessee, \$1,000,000; for a total authori-
10 zation of \$11,500,000.

11 (3) For project 77-13-a, fluorine dissolution
12 process and fuel receiving improvements, Idaho Chemi-
13 cal Processing Plant, Idaho National Engineering Lab-
14 oratory, Idaho Falls, Idaho, \$100,400,000; for a total
15 authorization of \$115,400,000.

16 (4) For project 77-13-f, waste isolation pilot
17 plant, Delaware Basin, southeast New Mexico, \$40,-
18 000,000; for a total authorization of \$68,000,000.

19 (5) For project 78-16-d, weapons safeguards,
20 various locations, \$11,000,000; for a total authorization
21 of \$28,000,000.

22 (6) For project 78-16-g, radioactive liquid waste
23 improvement, Los Alamos Scientific Laboratory, Los
24 Alamos, New Mexico, \$11,900,000; for a total author-
25 ization of \$12,500,000.

1 (7) For project 78-16-i, laboratory support com-
 2 plex, Los Alamos Scientific Laboratory, Los Alamos,
 3 New Mexico, \$14,000,000; for a total authorization of
 4 \$16,000,000.

5 (8) For project 78-17-a, production component
 6 warehouse, Pantex Plant, Amarillo, Texas, \$2,550,000;
 7 for a total authorization of \$2,800,000.

8 (9) For project 78-17-c, core facilities office build-
 9 ing, utilities and roads, Lawrence Livermore Labora-
 10 tory, Livermore, California, \$11,000,000; for a total
 11 authorization of \$12,300,000.

12 (10) For project 78-17-d, steam plant improve-
 13 ments, Y-12 Plant, Oak Ridge, Tennessee, \$7,000,000;
 14 for a total authorization of \$10,000,000.

15 (11) For project 78-18-a, high level waste storage
 16 and waste management facilities, Richland, Washington,
 17 \$9,000,000; for a total authorization of \$27,000,000.

18 (12) For project 78-18-e, environmental, safety
 19 and security improvements to waste management and
 20 materials processing facilities, Richland, Washington,
 21 \$24,500,000; for a total authorization of \$40,000,000.

22 TITLE II—DEFENSE PROGRAMS WITH
 23 POTENTIAL CIVILIAN APPLICATION

24 OPERATING EXPENSES

25 SEC. 201. Funds are hereby authorized to be appro-
 26 priated to the Department of Energy (hereinafter in this

1 Act referred to as the "Department") for fiscal year 1979
 2 for operating expenses incurred in carrying out national
 3 security programs including scientific research and develop-
 4 ment in support of the armed services, strategic and critical
 5 materials necessary for the common defense, and military
 6 applications of nuclear energy, as follows:

7 (1) For Inertial Confinement Fusion, \$91,800,000.

8 (2) For Naval Reactor Development, \$265,600,-
 9 000.

10 (3) For Nuclear Materials Security and Safe-
 11 guards, \$40,089,000.

12 PLANT AND CAPITAL EQUIPMENT

13 SEC. 202. Funds are hereby authorized to be appro-
 14 priated to the Department for fiscal year 1979 for plant
 15 and capital equipment, including planning, construction, ac-
 16 quisition, or modification of facilities (including land acqui-
 17 sition), and for acquisition and fabrication of capital equip-
 18 ment not related to construction, necessary for national secu-
 19 rity programs, as follows:

20 (1) For project 79-6, general plant projects, for
 21 naval reactor development, \$3,000,000.

22 (2) For capital equipment not related to construc-
 23 tion—

24 (A) for laser fusion, \$8,200,000;

25 (B) for naval reactor development, \$22,000,-
 26 000;

1 (C) for nuclear materials security and safe-
 2 guards, \$3,000,000.

3 ADDITIONAL AUTHORIZATIONS FOR PREVIOUSLY
 4 AUTHORIZED PROJECTS

5 SEC. 203. Funds are hereby authorized to be appropri-
 6 ated to the Department for fiscal year 1979 for projects
 7 previously authorized by law, as follows:

8 (1) For project 77-13-g, safeguards and security
 9 upgrading, production facilities, multiple sites, \$3,800,-
 10 000; for a total authorization of \$20,200,000.

11 (2) For project 78-4-a, high energy laser facility
 12 (NOVA), Lawrence Livermore Laboratory, Livermore,
 13 California, \$187,000,000; for a total authorization of
 14 \$195,000,000.

15 TITLE III—GENERAL PROVISIONS

16 REPROGRAMING

17 SEC. 301. Except as otherwise provided in this Act—

18 (1) no amount appropriated pursuant to this Act
 19 may be used for any program in excess of (A) 120 per
 20 centum of the amount authorized for that program by
 21 this Act, or (B) \$5,000,000 more than the amount
 22 authorized for that program by this Act, whichever is the
 23 lesser, and

24 (2) no amount appropriated pursuant to this Act
 25 may be used for any program which has not been pre-

1 sented to, or requested of, the Congress, unless a period
2 of thirty calendar days (not including any day in which
3 either House of Congress is not in session because of
4 adjournment of more than three calendar days to a day
5 certain) has passed after receipt by the appropriate com-
6 mittees of the House of Representatives and the Senate
7 of notice given by the Secretary of Energy containing a
8 full and complete statement of the action proposed to be
9 taken and the facts and circumstances relied upon in
10 support of such proposed action, or unless each such
11 committee, before the expiration of such period, has
12 transmitted to the Secretary written notice waiving the
13 remainder of such thirty-day notice period.

14 PROJECT COST VARIATION PROVISIONS

15 SEC. 302. The Department is authorized to start con-
16 struction of any construction project for which funds are
17 authorized to be appropriated by this Act only if the cur-
18 rently estimated cost of that project does not exceed by
19 more than 25 per centum the estimated cost set forth for
20 the project. Further, the total cost of any project under-
21 taken shall not exceed the estimated cost set forth for that
22 project by more than 25 per centum unless and until addi-
23 tional appropriations are authorized. This section shall not
24 apply to any project with an estimated cost of less than
25 \$5,000,000.

LIMITS ON GENERAL PLANT PROJECTS

SEC. 303. The Secretary of Energy is authorized to start a project set forth under section 102 (4) of this Act only if—

(1) the then maximum currently estimated cost of the project does not exceed \$750,000 and the then maximum currently estimated cost of any building included in the project does not exceed \$300,000 (except that the building cost limitation may be exceeded if the Secretary determines that it is necessary to do so in the interest of efficiency and economy) ; and

(2) the then maximum currently estimated total cost of all projects undertaken under such section does not exceed the total amount authorized by such section for such projects by more than 25 per centum.

AVAILABILITY OF FUNDS

SEC. 304. Subject to the provisions of appropriations Acts, amounts appropriated pursuant to sections 101 and 102 of this Act for policy and management activities, for general plant projects, and for plant engineering and design are available for use, when necessary, in connection with all national security programs of the Department.

1 AUTHORIZATION TO PERFORM CONSTRUCTION DESIGN
2 SERVICES

3 SEC. 305. In addition to construction design services
4 performed with funds authorized under section 102 (5) for
5 plant engineering and design, the Secretary of Energy is au-
6 thorized to perform construction design services for any
7 national security construction project of the Department (in
8 amounts not in excess of the amounts specified in such sec-
9 tion) whenever (1) such construction project has been in-
10 cluded in a proposed authorization bill transmitted to the
11 Congress by the Secretary of Energy, and (2) the Secre-
12 tary determines that the project is of such urgency in order
13 to meet the needs of national defense or protection of life
14 and property or health and safety that construction of the
15 project should be initiated promptly upon enactment of legis-
16 lation appropriating funds for its construction.

17 ADJUSTMENTS FOR PAY INCREASES

18 SEC. 306. Appropriations authorized by this Act for
19 salary, pay, retirement, or other benefits for Federal em-
20 ployees may be increased by such amounts as may be neces-
21 sary for increases in such benefits authorized by law.

**STATEMENT OF HON. JAMES R. SCHLESINGER, SECRETARY,
DEPARTMENT OF ENERGY**

Dr. SCHLESINGER. Mr. Chairman, I will submit and insert into the record my prepared testimony and make a few observations with regard to this year's budget.

NATIONAL ENERGY PROBLEM

First, I underscore what Chairman Jackson has referred to as the need for a sense of urgency. It is almost a year now since the President presented the National Energy Plan to the Hill. The clock continues to tick. We will continue to be in a increasingly more vulnerable position with regard to imports, unless we act. Everybody understands the rudiments of dealing with the national energy problem.

It involves greater fuel efficiency. It involves shifting to more abundant resources and it involves greater efforts in the areas of oil and natural gas production. We must recognize that we will not be able to produce enough oil and natural gas to continue to meet our needs. We will have to become more fuel efficient.

Energy is a fairly simple problem. The basic issue is whether the United States is going to be serious or not about the energy problem. The question continues to be whether or not democracies can face up to what is inherently bad news. I have discussed before with this committee the prospects for world oil supply including American oil supply. Petroleum exporting nations in OPEC will probably have something on the order of 37 to 38 million barrels a day in terms of capacity in 1985. It might go as high as 40 million barrels a day. Presently they are selling about 32 million barrels a day.

So we have a little leeway for growth in terms of demand from the OPEC nations. As Senator Hansen pointed out, the prospects of increasing dependence by the United States on world oil supplies is having an erosive effect on the position of the dollar. If I may say so, the failure to date to enact national energy legislation contributes to that erosive effect.

INCREASES IN 1979 BUDGET

So we have a serious problem which is only going to be solved in small part by the Federal Government and by budgetary proposals of the Federal Government. The budget that lies before you, Mr. Chairman, represents some increase over last year. It is an overstated increase. We have had adjustments such as full funding for Defense facilities, and certain changes in receipts that now go to the general fund of the Treasury. But it is a significant increase in terms of budget authority.

Much of that increase goes to the strategic petroleum reserve to finish funding the first 500 million barrels which is required by law, and to start on the infrastructure for the next 250 million barrels. That is a major effort.

In addition, there are major increases for conservation and defense activities as well as policy and management. Let me deal with the question of R. & D. strategy. There is some increase in R. & D. Basically we have done two things.

SHIFT TO NON-NUCLEAR

We have gun to shift away in terms of total funding, from the nuclear area to the non-nuclear area. That shift continues so that non-nuclear expenditures increase from 42 percent 2 years ago to 57 percent at the present time. For nuclear fission the share of the budget declines in those 2 years from 46 percent to 32 percent and fusion remains stable in terms of the total share.

Under the heading of nuclear fission, the decline is attributable to a considerable extent on the breeder reactor which has shrunk from 28 percent of total expenditures in 1977, to 12 percent of R. & D. expenditures in this budget.

At the same time, the total share of nonnuclear R. & D. has increased. Fossil fuel has increased from 21 to about 25 percent of the total. Conservation has doubled from 7 to about 14 percent. One of the trends in the budget toward non-nuclear R. & D. which reflects a broad strategy, Mr. Chairman. Much of the Government's expenditures on R. & D. has been for new technologies for electric power generation. Electric power generation is not the critical near-term energy problem of the United States. We have sufficient technologies available for the next 30, 40, 50 years.

What we face near term are shortages, prospective shortages, of liquid fuel and natural gas. Our budget strategy and our plans are moving in that direction. We will have sufficient technology to produce electric power for the foreseeable future.

REGULATORY PROGRAM

Given the imminence of our other energy problems, a shift of this sort seems to be desirable. In the regulatory area we are doing a number of things, Mr. Chairman. First, under the Deputy Secretary we have established a task force to simplify regulatory requirements and paperwork, to the greatest extent we can, to minimize the burden on industry and on the producers.

Second, we are asking for a significant increase in manpower in the regulatory area. At the same time, we want to diminish the regulatory burden, we also want to complete the regulatory issues that are under study at the present time. Last year when this Department was set up, it absorbed the Federal Power Commission. The Federal Power Commission typically takes 6 years to decide on a case which is far too long a time. It was taken up to 22 years to decide on cases.

We wish, indeed, we intend to eliminate the backlog of cases. At the same time we are moving to a far more streamlined method of operation so such a backlog cannot reoccur. That is a major purpose in the request for additional regulatory manpower. The third aspect of regulation is the desirability of integrating regulatory techniques with research and development and commercial activities. The regulatory process provides opportunities to introduce new types of production activities. To take one example, it can be used to stimulate industry research and development activities, and indeed, the introduction of commercial sized plants.

We are exploring such considerations in the Department under the auspices of the FERC with regard to the construction of new high-Btu

gas facilities. We have the opportunity through regulation to bring into play synthetics that are not presently used for the production of fuel liquids.

Regulatory and research and development activities should not be regarded as exclusive. Indeed, if they are used effectively, they can reinforce one another in solving the Nation's energy problems. Mr. Chairman, Senator Jackson referred to the reduction in the budget. Senator Hansen spelled out the minus side at some length.

BUDGET REPRESENTS RECOMMENDATIONS OF PREDECESSOR AGENCIES

The Department's budget this year was put together prior to the establishment of the Department. It represents the recommendations of the predecessor agencies. The Department came into existence October 1, somewhat after the requisite time for the budget submission. So there has been some patch-up on proposals made by the predecessor agencies.

Senator Jackson's reference to the minus side, I think, is one that one should be carefully considered. We are engaged, as I mentioned to the chairman, in the review of options under phase II. Phase II has been intended to follow phase I. Unfortunately it may not follow phase I but may come in at the end of congressional consideration of phase I of the national energy plan.

PHASE II

Phase II is oriented toward the substitution of new technologies, particularly in the middle and later 1980's, for oil and natural gas as the available supplies from conventional sources begin to diminish. These proposals have not been examined by the President so I cannot go into any detail at the present time save to stress the fact the supply considerations are ones that are intended to reinforce the pricing and tax rebate framework which was to be established in the national energy plan.

Thank you, Mr. Chairman.

[The prepared statement of Dr. Schlesinger follows:]

STATEMENT OF HON. JAMES R. SCHLESINGER, SECRETARY, DEPARTMENT OF ENERGY

Mr. Chairman and members of the Committee, I am pleased to be present this morning to testify on behalf of the Department of Energy's Fiscal Year 1979 budget request.

We meet to discuss this budget in a period of energy transition for our Nation. The shift away from oil and natural gas as this Nation's primary energy resources is inevitable, and its timing becomes increasingly critical with each estimate of future world oil production. At the present time, world production worldwide is about 60 million barrels per day; although earlier estimates were higher, I doubt that world oil production will reach more than 70 million barrels a day in the future.

In the face of growing demand, these figures underscore the need for adaptation in American society before the early or mid-1980s, when the worldwide shortage in petroleum availability will make itself felt. At that time, the principal oil exporting nations are likely to have severe difficulties in supplying all the increases in demand expected to occur in the U.S. and other countries throughout the 1980s.

When this occurs, if our Nation has not planned wisely and well, it will face difficulties as severe as anything we have experienced since the 1930s. Avoiding this will demand the best of every American.

Our society will need both increased energy supplies and decreased energy demand. Our energy policy must utilize both renewable and nonrenewable energy resources, both decentralized and central station energy sources, "soft" and "hard" path approaches; in short, every energy option that can be pursued prudently. Energy policy for the future, therefore, must recognize the following central principles:

Conservation can improve the efficiency of the capital stock of homes, buildings and transportation systems to achieve a significant reduction in demand growth. Through the incentives and regulatory authorities in the National Energy Plan, coupled with technological improvements, demand growth can be reduced to below 2 percent by 1985.

New pricing policies for oil and gas can increase domestic production without excessive consumer burdens and adverse economic impacts. In particular, incentives should be geared toward new discoveries and development of unconventional sources of energy.

Taxes, regulatory authority, and research development and demonstration are necessary to stimulate conversion from oil and gas to use of more abundant energy sources, such as coal and nuclear energy. And the price mechanism must be used as an integral part of this strategy to ensure that American industry begins this shift now. New technologies need to be perfected to convert coal to synthetic oil and gas products.

Technologies must be developed to tap the inexhaustible resources of the sun, the oceans, and waste products. The development of renewable and inexhaustible sources of energy will be necessary if the world economy is ultimately to survive in the face of dwindling fossil fuel resources.

In developing new technologies, the traditional concept of RD&D alone is not sufficient. The purpose of energy research and development now must be aimed squarely at bringing energy technologies to the state of commercial readiness at their earliest possible point.

Government policy therefore reflects the belief that we are dealing not only with development of those inexhaustible resources that will be of increasing importance as we move into the twenty-first century, but also in assuring that the Nation can arrive at the year 2000 with no fundamental change in the nature of our society or the economic system under which this country has flourished.

Mr. Chairman, this policy also implies a greater stress on the near-term, on the introduction of technologies that can provide alternatives to oil and gas in the near-term, while still permitting our economy to grow. Correspondingly, the Department is deemphasizing some of the longer term programs which were priority items for its predecessor agencies.

Instead, the Department is moving to place more emphasis on those aspects of the supply picture that are of greatest near-term concern—keeping the Nation's natural gas pipelines full, accelerating commercialization of near-term payoffs from solar energy and finding substitutes for liquid fuels as petroleum stocks dwindle. As part of this approach, the National Energy Plan contemplates a massive shift from oil and gas to coal for those stationary sources, such as industry and utilities, capable of burning coal, while preserving a growing proportion of our liquid fuels supply for the transportation sector.

And this growth in production and the substitution of fuel sources must be reached, to the maximum extent possible, from domestic sources. The current difficulties of the American dollar are well known. The U.S. balance of trade deficit last year was close to \$30 billion, much of that caused by the increased importation of foreign oil. Therefore, as we pursue the mix of regulatory requirements, pricing incentives and technology development that must guide national energy policy, each of these elements must be directed toward the greatest possible maximization of domestic production, both of existing and of unconventional sources of energy.

Mr. Chairman, the energy position of the United States will be a test of our political and economic system as the Nation passes through a severe period of transition. During the past year much progress has been made. A Department of Energy is now in operation. The Administration has proposed an Energy Plan, recognizing that there would be differences of opinion on many specifics of that plan, but also recognizing that everyone must work together if the Nation is to successfully come through this period of transition.

In this effort, we must all shed some of the attitudes we may have held in the past. There will be no single solution to our energy problems. It will not be nuclear; or solar; or coal gasification; or biomass energy. Instead, the Nation

will need a set of solutions which will contribute to the totality of the United States' efforts to grapple with our energy problem. Together, we will have to work to allocate available resources to bring to bear a whole range of technologies and regulatory mechanisms and tax and pricing approaches to make this transition as quickly and as painlessly as possible.

1979 REQUEST

Development of the 1979 budget afforded the first real opportunity to allocate Federal energy resources in a manner designed to maximize achievement of the national objectives I have outlined. I believe that the budget before you is a balanced request with augmented programs to meet our priority energy-related needs, as well as our historic national defense and basic science responsibilities.

This request totals \$12.6 billion in budget authority, an increase of \$2.3 billion over 1978. On a budget outlay basis, the request is \$10.0 billion, compared to \$8.8 billion in 1978. This request supports a wide variety of activities, including:

- \$4.2 billion for the Strategic Petroleum Reserve Program;
- \$2.7 billion for technology efforts associated with developing new sources of energy supply or new energy technologies;
- \$2.8 billion to support the Department's defense program functions;
- \$700 million for producing enriched uranium delivering energy from Federal power marketing agencies and operating the Naval Petroleum Reserves;
- \$1 billion for grant programs to assist schools, hospitals and low income citizens and State and local government in implementing energy conservation practices; and
- \$170 million for regulation and information activities.

The programmatic content of this budget is different from the energy-related budgets presented to you in prior years. Whereas previous ERDA budgets emphasized technology development solutions to energy supply and conservation efforts, this DOE budget is built on a mix of technology, regulatory and incentive programs to achieve the same end, and recognizes the tax incentives included in the National Energy Plan.

Within this framework are a series of major policy imperatives that shaped this first DOE budget, including:

Acceleration of construction for additional strategic petroleum storage capacity;

Expanded conservation and grant programs to decrease end-use demand and improve the efficiency of energy utilization;

Aggressive efforts to develop our fossil, solar, geothermal and nuclear energy supply technologies in a manner which supports environmental and non-proliferation objectives;

Development of regulatory and incentive programs which rely on market factors to achieve energy objectives, yet provide basic safeguards to the American consumer;

Identification and allocation of departmental staffing to meet the most important agency objectives; and

Maintenance of a strong research, development and production capability to meet priority defense requirements.

These items are of critical importance to achieving the President's objectives and to understanding the thrust of our budget request. I would like to discuss briefly each item in somewhat greater detail.

STRATEGIC PETROLEUM RESERVE

A major objective of the Department is the preparation of contingency plans for the acquisition and allocation of scarce energy resources in periods of supply curtailment. The President believes that an extended interruption of petroleum imports would have an unacceptably severe impact on the Nation's economy, particularly by the early 1980's when the world demand for petroleum—even at full production—is expected to exceed supply.

Development of an adequate strategic petroleum reserve, therefore, is an essential part of the Nation's energy planning. The budget includes \$4.2 billion for completing the acquisition of oil for the first 500 million barrels previously authorized, and initiating design and construction activities for storage of an additional 250 million barrels oil leading to the goal of one billion barrels

by 1985. We plan to have the first 500 million barrels of oil in storage by the end of 1980. The 1979 request assumes favorable Congressional action on the pending 1978 supplemental and on a second 1978 supplemental request of \$415 million for oil purchases.

CONSERVATION AND GRANT PROGRAMS

Conservation is a cornerstone of the President's energy policy. The program proposed in the National Energy Act and supported in this budget will foster the identification of energy conservation opportunities and help the American consumer to adopt energy conservation practices. The achievement of the conservation goals included in the National Energy Plan requires creation of the proper economic environment to motivate Americans to act in an energy-conserving manner, and the availability of materials, processes and equipment which will permit the consumer to fulfill his conservation needs.

The DOE regulatory and grant programs are an important element in creating the proper climate for motivating energy consumers to act in an energy-conserving manner while our conservation technology programs develop the appropriate means to satisfy our energy-saving needs. Both approaches enhance our conservation opportunities by increasing the efficiency and energy consumption at its point of utilization of reducing the demand for energy-consuming activities. Our budget includes slightly more than \$1 billion for conservation activities in 1979 compared to less than \$700 million in 1978. Funding is increased by \$223 million for grants to State and local governments for technical assistance and for insulation services for schools, hospitals and homes of low income citizens—especially the elderly and handicapped. Specifically, we expect to weatherize more than 850,000 homes with an annual energy savings of about 15 percent for each home. Although total petroleum savings may be small, these savings will be a significant help to individuals in low-income brackets. This is an important step on the road to conservation at the individual homeowner level.

In addition, the Department will actively seek to enhance the average citizen's understanding of conservation by expanding the Energy Extension Service to all 50 states. The remaining \$800 million of our requested increase is for technology-oriented research and development efforts, including cogeneration, automotive propulsion and fuel cells.

The Department is concerned about coordinating and streamlining the administration of its current grant programs. We have embarked on a review of the State energy role and activities with the objective of defining more clearly the best methods of assisting State and local efforts. Once this review is completed, we anticipate submitting legislation to enhance the effectiveness of these programs.

DEVELOPING ENERGY SUPPLIES

Perhaps the most noticeable and most important change in the nature of the research and development sector of the Department's budget is a continuation of a shift from nuclear to non-nuclear research and development. This year, for example, the non-nuclear research will comprise 67 percent of the R&D budget; in fiscal year 1977, by contrast, it amounted to 42. Similarly, the share of nuclear fission R&D has decreased in those years from 46 percent to 32 percent this year.

This shift reflects our belief that a broadening range of strategies and sources must receive more attention. In particular, we must make more extensive use of our fossil fuel reserves if we are to meet future energy requirements and reduce the level of oil imports. While coal comprises 90 percent of this country's fossil fuel reserves, it meets only 18 percent of our energy needs. This imbalance is due, in part, to the previous existence of relatively cheap oil and natural gas, and to the less convenient form of coal and its greater environmental impacts. Our budget includes a wide range of R&D projects and technical demonstrations to convert coal into more convenient gaseous and liquid forms, and to reduce the environmental impacts of direct burning. Demonstrations are underway to verify the reliability and economics of coal gasification, fluidized bed combustion, and production of liquid feedstocks and boiler fuels. DOE has also assumed greater responsibility from the Environmental Protection Agency for development of coal cleanup and advanced flue gas desulphurization techniques to ensure our ability to deal with the entire spectrum of coal mining, burning and cleanup.

Viability of our long-term energy supplies also requires that we continue to develop and utilize nuclear power. The DOE budget includes funds to address two important problems associated with this major energy source: the need to meet nonproliferation objectives and development of terminal storage and disposal technology for radioactive waste. Our breeder reactor research and development programs will emphasize alternate reactor concepts which have enhanced nonproliferation characteristics to permit us to fully exploit the energy content of our uranium and thorium reserves. The Fuel Cycle budget includes major programs for the development of a waste repository for terminal storage by 1985, evaluation of fuel processing alternatives and provision for development of interim storage for domestic spent fuel.

Finally, the Department will continue an intense effort to develop and assist in the commercialization of renewable technologies in such areas as solar, wind energy for use by utilities, and fuel from biomass. We intend to move aggressively in developing these and other renewable technology options through such programs as:

The Department's wood energy program, for which funding has over doubled between fiscal years 1977 and 1979;

Increased emphasis on use of wind energy on megawatt scale systems, primarily by utilities, as well as development of small-scale systems for rural electricity generation; and

Programs to bring down dramatically peak watt costs for photovoltaic arrays over the next decade.

These are but examples that illustrate the Department's belief that renewables must and will be a major factor in moving toward resolution of our Nation's current energy problem.

LEGISLATIVE PROPOSAL

Our energy supply responsibilities also include the sale of services to provide enriched uranium for use in nuclear powered electric generating plants both here and abroad. A legislative proposal will be submitted to change the basis for computing uranium enrichment service charges to allow normal business type expenses to be included.

REGULATION AND INFORMATION ACTIVITIES

The National Energy Plan presented a careful balance of incentives and regulation to create a market environment which would enhance economic, societal and energy objectives. In addition to creating a market environment which encourages fuel switching and conservation practices, DOE regulatory activities protect the American consumer against unwarranted energy price increases and assure the equitable distribution of energy supplies. These activities have taken on increased importance since the rapid escalation in energy prices over the past four years. Increased energy costs have been responsible, in part, for more frequent case filings at DOE's Federal Energy Regulatory Commission, creating an unacceptably large backlog. This backlog has delayed important decisions on applications to increase the Nation's energy supply and improve the deliverability of its energy distribution system, results which we can ill afford. In addition, the FERC backlog has resulted in millions of dollars of potential consumer refunds being held by utility companies because final ratemaking determinations are delayed. Similarly, the recently initiated effort to audit the largest oil refiners to ensure compliance with price and allocation regulations has created a significant increase in our regulatory workload.

I would emphasize, however, that these regulatory activities must be carried out with minimum procedural burden and a reduction of red tape for affected industries. A Department-wide task force, under Deputy Secretary John O'Leary, is examining this problem and will recommend reforms where needed.

We all understand the necessity for a complete and reliable information base to support the Department's policies, especially those concerned with regulatory activities. This information function is also experiencing increased requirements, particularly associated with obtaining reliable data on petroleum reserves, pricing and competition in the larger energy companies, and energy consumption patterns in the residential and commercial sectors of our economy. The DOE budget reflects these needs.

DEPARTMENTAL STAFFING

When DOE was created last October 1, we had a staffing ceiling of 19,100 personnel, the same level as the total authorized for the individual components that made up the new Department. We were faced immediately with the need to pro-

vide additional staffing to meet increased regulatory and information activities. However, the Congress, the President and I expect to achieve staffing economies through the consolidation of similar functions. The immediate regulatory and information needs will be met by a 400 position increase in our 1978 ceiling. During 1979, we will begin to realize staffing economies, and expect to end the year at 19,100—the level authorized prior to establishment of the Department. This will enable us to carry significantly larger programmatic responsibilities with no increase in authorized employment ceiling, thereby beginning to realize a major benefit from last year's reorganization.

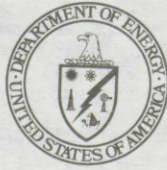
DEFENSE

DOE has a major role in assuring the long-term effectiveness of this Nation's military posture through research, development, testing, and production of nuclear weapons and the development of improved naval reactor power plants. DOE like its predecessor agencies, is faced with establishing the level of scientific, technical and production capability that are necessary to discharge these responsibilities. The budget maintains a strong weapons R&D, testing and production capability to meet current and future weapons needs, including several tactical systems. Our budget also includes about \$350 million for technology development and facilities for the interim and permanent storage of radioactive wastes resulting from our defense activities.

This concludes my overview of the major items affecting the Department's 1979 budget request. This budget request is an integral part of the Administration's strategy to resolve our energy problem. As the President has indicated, energy is probably the most important domestic problem we shall have to address during the next several years. Resolution of the energy problem will test our vision, our creativity and our courage. Future generations will judge our strength of purpose and our resolve in meeting this challenge. They will judge us not by our statements, but by our actions; whether we used the years immediately ahead to provide a safe and secure energy future for our Nation and for all mankind.

I look forward to working with you to ensure that we successfully address this challenge.

**U.S. Department of Energy
FY 1979 Budget to Congress**



Budget Highlights

January, 1978

FY 1979 BUDGET HIGHLIGHTS

The Department of Energy (DOE) was established on October 1, 1977, to bring together the various energy activities dispersed throughout the Federal government and to provide unified leadership to the Nation's energy policies and programs. Principal functions transferred to the Department include those previously undertaken by the Energy Research and Development Administration, the Federal Energy Administration and the Federal Power Commission, as well as selected functions of the Departments of Interior, Navy, and Commerce and the Interstate Commerce Commission. Combined resources total 19,100 personnel and \$10.3 billion in Fiscal Year 1978, excluding supplemental requests.

Ten primary missions were used to consolidate this first DOE budget:

- Energy Supply - Research and Technology Development (R&TD)
- Energy Supply - Production, Demonstration, and Distribution (PD&D)
- Conservation
- Regulation
- Emergency Preparedness
- Energy Information
- Environment
- Basic Sciences
- Atomic Energy Defense Activities
- Policy and Management

Each mission area provided the basis for review and ranking of zero-base budget decision packages. In addition, resources were allocated among the mission areas, consistent with the intent of the National Energy Plan (NEP).

The Department's FY 1979 budget totals \$12.6 billion in budget authority and \$10 billion in outlays. This is a 22 percent increase in budget authority and 14 percent increase in outlays over the FY 1978 funding of DOE's constituent agencies. Increases in the FY 1979 budget center primarily on the Conservation, Emergency Preparedness, Regulation and Energy Information missions. A distribution of the FY 1979 budget request by mission area is reflected in the table below:

	Budget Authority (In Millions)		
	FY 1978	FY 1979	Change
Energy Supply R&TD	\$ 2,696	\$ 2,670	\$ -26
Energy Supply PD&D	908	692	-216
Conservation	692	1,010	+318
Regulation	83	104	+21
Emergency Preparedness	3,595	4,255	+660
Energy Information	48	63	+15
Environment	218	209	-9
Basic Sciences	397	426	+29
Atomic Energy Defense Activities	2,512	2,829	+317
Policy and Management	388	505	+117
Subtotal	11,537	12,763	+1,226
Less: Supplementals/Other Adjustments	-1,254	-170	-
Total DOE Funding	<u>\$ 10,283</u>	<u>\$ 12,593</u>	<u>\$ +2,310</u>

The FY 1979 budget together with the pending National Energy Act legislation will:

- provide significant increases in Conservation, including grants, incentives and technology development.
- continue the purchase and storage of 500 million barrels of oil by the end of 1980 for strategic petroleum reserve and initiate design and construction of storage facilities leading to the President's goal of one billion barrels by 1985.
- recognize the Department's regulatory role in enhancing energy conservation and supply, while providing for a reduction in the administrative burden borne by public and industry.
- continue the aggressive technology development in fossil, solar, geothermal and fusion energy, including resource assessments, R&D and demonstration plants.
- continue development of nuclear waste storage technology directed toward permanent disposition by 1985.
- maintain a strong capability for the production and delivery of new and future weapons systems.

A discussion of the FY 1979 activities to be undertaken in each mission is provided in the sections that follow.

ENERGY SUPPLY
RESEARCH AND TECHNOLOGY DEVELOPMENT

The Research and Technology Development mission is directed toward:

- increasing the supply of energy by developing new technologies.
- improving the efficiency and acceptability of existing technologies.
- assessing the availability of energy resources.

This mission includes basic research, technology and engineering development, and technology demonstrations.

FY 1979 funding totals \$2.670 billion in budget authority. While essentially the FY 1978 level, increases have been provided in several activities including coal, geothermal, nuclear research and applications, and basic energy sciences. These increases are offset by a reduction of \$150 million in the breeder reactor program.

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Coal	\$ 579	\$ 618	\$ +39
Petroleum	74	80	+6
Gas	31	26	-5
Solar	303	309	+6
Geothermal	106	130	+24
Magnetic Fusion	325	334	+9
Fuel Cycle R&D	285	247	-38
Breeder Reactor	517	367	-150
Nuclear Research and Applications ...	227	278	+51
Light Water Reactor Facilities	28	10	-18
International Spent Fuel Storage	5	3	-2
Hydroelectric	10	8	-2
Biomass	21	27	+6
Basic Energy Sciences	177	212	+35
Advanced Technology and Assessment ..	8	21	+13
Total Energy Supply - R&TD	<u>\$ 2,696</u>	<u>\$ 2,670</u>	<u>\$ -26</u>

COAL

Coal offers the greatest potential for achieving less dependence on foreign oil due to the magnitude of domestic reserves. The FY 1979 request for this program is \$618 million, a \$39 million increase over FY 1978.

The budget provides for continued research and development of environmentally acceptable technology to convert coal to liquid and gaseous fuels. Major pilot and demonstration plant activities include:

- final design and initial construction of the Donor Solvent Liquefaction pilot plant.
- design and site selection of a demonstration plant to produce a solvent refined coal.
- design and construction of demonstration plants to convert coal to low-Btu fuel and high-Btu synthetic pipeline gas.

Work will continue to improve methods for direct combustion of coal, investigating both atmospheric and pressurized fluidized beds. The FY 1979 budget includes two test and integration units and a 30 megawatt (MW) atmospheric boiler. Efforts to foster the rapid development of advanced power conversion systems, such as magnetohydrodynamics, will move forward with construction of the Component Development and Integration Facility. A significant increase is provided for advanced concepts and supporting research activities, including development of new coal conversion processes and improved materials and components.

At the front end of the coal fuel cycle, systems are under development to:

- increase the productivity of coal mining operations.
- contribute to the increased utilization of coal through improved coal preparation technologies.

PETROLEUM AND GAS

The Petroleum and Gas programs continue at an aggressive pace in FY 1979. A total of \$68 million is included for enhanced oil and enhanced gas recovery. These activities represent near-term available options to lessen dependence on imports and increase the production of gas from unconventional geologic resources. The FY 1979 request will provide:

- field tests of three major enhanced oil extraction technologies, emphasizing thermal recovery.
- resource characterization and field tests to develop enhanced gas recovery technology in both eastern gas shales and western gas sands.

The budget provides \$35 million to develop technology for economic and environmentally acceptable production of gas and oil from oil shale. Major activities include continuation of four in situ oil shale projects as well as additional tests in the Michigan Antrim Shale project.

SOLAR

The Solar program has been separated into two phases in the FY 1979 budget - technology development and demonstration. The demonstration phase is funded under the Energy Supply - PDandD mission.

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
Thermal Applications	\$ 40	\$ 45
Technical Support & Utilization	9	14
Solar Electric Applications:		
Solar Thermal	104	100
Photovoltaics	77	76
Wind Energy	37	41
Ocean Thermal	<u>36</u>	<u>33</u>
Subtotal	<u>254</u>	<u>250</u>
TOTAL SOLAR	<u>\$ 303</u>	<u>\$ 309</u>

The budget provides for:

- technology development in support of the Solar Heating and Cooling Demonstration program, funded in the Energy Supply - PDandD mission.
- construction of the LOMWe central receiver power plant to test, demonstrate, and produce solar thermal generated electricity. The project will emphasize solar boiler retrofit of conventional gas and oil-fired steam plants of comparable size.
- a major procurement of prototype photovoltaic systems and continued research into novel material and approaches to reduce system cost per peak watt.
- continued development of small wind machines started in FY 1978 with the National Energy Plan and large scale, multi-unit wind energy systems.
- conversion of the Hughes Mining Barge for use as an ocean thermal energy conversion test facility.

GEO THERMAL

The FY 1979 budget request includes \$130 million to stimulate development of the hydrothermal, geopressured, and hot dry rock geothermal resources by utilities and industry. The request represents a 23% increase over the FY 1978 level of \$106 million. Activities will be accelerated to:

- develop technology for effective utilization of geothermal resources.
- undertake resource assessment activities in cooperation with industry.
- determine technical and economic feasibility of gas and electricity production from geopressured resources.
- establish the technical and economic feasibility of hot dry rock resources in varied geologic settings.
- address barriers to geothermal energy commercialization.

Design will be completed and construction initiated on the 50MWe project to demonstrate the readiness of hydrothermal technology for commercial application.

MAGNETIC FUSION

Funding of \$334 million is provided in FY 1979 to continue progress toward the long-term goal of developing and demonstrating fusion central electric power generation while meeting environmental, economic, health, and safety requirements. Recent results indicate tangible assurance that scientific feasibility of the fusion process will be attained. The requested funding will continue to move the program toward achievement of conditions that confirm feasibility.

Activities in the FY 1979 request include:

- upgrading the capability of tokamak experimental devices to verify further plasma physics principles and achieve reactor-like conditions.
- intensified mirror program research to address problems of power balance, enhancement, scaling, and steady state operations.
- efforts to identify, investigate and evaluate alternate approaches to plasma confinement.
- increased theoretical support for both mainline and alternate confinement approaches.

FUEL CYCLE R&D

The FY 1979 budget provides \$247 million for commercial nuclear fuel cycle research and development.

Major program concerns include:

- development and evaluation of fuel processing technology.
- provision of interim storage for domestic spent fuel while geologic facilities are being developed.
- development of acceptable terminal storage technology for commercial radioactive waste.

The budget will permit continued research, development, and evaluation of fuel processing alternatives to facilitate a decision with regard to nuclear non-proliferation policy, and economic and environmental characteristics. Progress will continue toward the development of a National waste repository by 1985 and acceptable waste forms for storage. Interim storage space for spent fuel will be identified and the means to assure availability pursued.

BREEDER REACTOR

The FY 1979 request of \$367 million maintains an aggressive U.S. breeder technology development program, preserving the option for improved uranium/thorium resource utilization through the use of breeder reactors for electricity production. Also maintained is the ability to establish a technical and engineering basis for selection and demonstration of a breeder system consistent with non-proliferation objectives and anticipated energy demand.

Major FY 1979 activities include:

- completion of the Fast Flux Test Facility, achieving criticality in August 1979.
- continuation of the Fuel Storage and the Fuels and Material Examination facilities.
- studies to integrate base program research and development, non-proliferation concerns, and safety characteristics leading to program reorientation in accordance with conclusions reached.

NUCLEAR RESEARCH AND APPLICATIONS

The FY 1979 budget request for this activity is \$278 million, an increase of 22% over the previous year. The program is directed toward the assessment, development and demonstration of a wide range of promising technologies, as detailed in the following table:

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
Water-Cooled Breeder Reactor	\$ 42	\$ 63
Gas-Cooled Thermal Reactor	32	31
Gas-Cooled Fast Breeder Reactor	16	32
Light Water Reactor Technology	19	24
Technology Development and Special Projects	16	5
Space Applications	34	43
Advanced Isotope Separation Technology	52	54
Nuclear Energy Assessments	16	6
Alternative Advanced Reactor Systems	-	20
TOTAL NUCLEAR RESEARCH AND APPLICATIONS	<u>\$ 227</u>	<u>\$ 278</u>

Emphasis in FY 1979 is focused on development of advanced water and gas cooled breeder reactor concepts, the new alternate advanced reactor systems program recommended by the Non-Proliferation Alternative Systems Assessment Program study, and space applications.

HYDROELECTRIC

The FY 1979 budget includes \$8 million to encourage commercial development of low-head hydroelectric power resources at existing and new U.S. dam sites. Efforts will continue to assess economic potential and accelerate development and introduction of small-power technology. Funding is provided for environmental and safety assessments, legal, economic and institutional studies, and small scale demonstrations.

BIOMASS

The request for Biomass in FY 1979 is \$27 million, a 29% increase over FY 1978. The aim is to develop the capability to convert renewable biomass resources into clean fuels, petrochemical substitutes, and other energy products.

The FY 1979 request emphasizes experimental facilities for gasification and direct combustion. Major activities include:

- operation of an experimental facility to convert wood to oil.
- design of systems and facilities to convert wood and agricultural residues into synthetic gas.
- development of 1,000 acre pilot energy farms to study the most efficient methods for growing and harvesting biomass including aquatic species.

BASIC ENERGY SCIENCES

The FY 1979 budget request of \$212 million is an increase of 20% over FY 1978, and breaks down as follows:

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
Nuclear Sciences	\$ 27	\$ 30
Materials Sciences	76	94
Chemical Sciences	57	58
Engineering, Mathematics, and Geosciences	12	24
Advanced Energy Projects	3	4
Other Capital Equipment	2	2
TOTAL BASIC ENERGY SCIENCES	<u>\$ 177</u>	<u>\$ 212</u>

The purpose of these programs is to:

- expand the science and engineering knowledge base underlying all energy supply missions.
- support theoretically sound energy related concepts which require verification.
- operate isotope preparation facilities to produce special research materials for sale or loan.

In FY 1979, emphasis will be placed on applied mathematical sciences, geosciences, and a new category of research, engineering sciences. Research efforts will be initiated or expanded in solar photoconversion, organic characterization of fossil fuels, and advanced investigation of combustion systems. Mechanical properties of materials will be studied using high voltage electron microscopes. Construction will begin on the Intense Pulsed Neutron Source at Argonne National Laboratory.

ADVANCED TECHNOLOGY AND ASSESSMENT PROJECTS

The request of \$21 million will be administered by the Office of Energy Research and will support R&D projects and assessment studies that are not being pursued elsewhere in the Department. These studies will:

- allow independent issue evaluation.
- provide a mechanism for program critique.
- enable the Office of Energy Research to carry out its statutory responsibility for monitoring and oversight of the Department's R&D programs.

ENERGY SUPPLY
PRODUCTION, DEMONSTRATION AND DISTRIBUTION

Also dealing with energy supply, this mission is oriented toward the development, private sector adoption, production, utilization and distribution of currently available energy resources. Specific activities include:

- development and production of oil from the Naval Petroleum and Oil Shale Reserves.
- production and sale of enriched uranium services for use in nuclear powered electrical generating plants.
- distribution and sale of electric power in five power marketing areas.
- demonstrations or other financial incentives to accelerate the introduction of new energy supply sources into the market place.

In the FY 1979 budget, \$692 million is requested for the Production, Demonstration and Distribution mission. However this total reflects offsetting uranium enrichment revenues of \$1.209 billion. Thus, combined mission resources total \$1.901 billion, as shown below:

<u>Budget Authority</u> (In Millions)			
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Coal	\$ 10	\$ 3	\$ -7
Naval Petroleum and Shale Reserves	152	199	+47
Solar	87	64	-23
Uranium Enrichment Activities	1,437	1,411	-26
Uranium Resource Assessment	65	95	+30
Multi-Resource	1	1	-
Geothermal Resources Development Fund	15	-	-15
Power Marketing Administration	107	128	+21
Subtotal	1,874	1,901	+27
Less: Uranium Enrichment Revenues	-966	-1,209	-243
TOTAL ENERGY SUPPLY - PD&D	<u>\$ 908</u>	<u>\$ 692</u>	<u>\$ -216</u>

COAL UTILIZATION

Funding of \$3 million is requested in FY 1979 to continue efforts to:

- encourage utilities and industries using oil and gas to switch to alternate fuels.
- encourage production of low-sulfur underground coal by small producers.

These activities are intended to reduce U.S. dependence on foreign oil through lowering industry consumption of oil and gas.

NAVAL PETROLEUM RESERVES

The FY 1979 budget requests \$199 million to operate, conserve, develop, maintain and produce from the Nation's three petroleum reserves. The estimate provides for routine operation and maintenance, drilling and equipping oil and gas wells for production, and installation of on-site facilities necessary to operate the reserve at the maximum efficient rate of production.

SOLAR

Funding of \$64 million is requested in FY 1979 for programs designed to stimulate the demonstration and early introduction of economically competitive, environmentally acceptable solar energy systems. Programs funded include:

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
Heating and Cooling Demonstration Program	\$ 66	\$ 36
Federal Buildings Program	20	25
Solar Commercialization	<u>1</u>	<u>3</u>
TOTAL SOLAR	<u>\$ 87</u>	<u>\$ 64</u>

The FY 1979 budget provides for:

- a final cycle of solar cooling demonstrations as well as completion, maintenance and evaluation of demonstrations initiated in prior years.
- initiation of 75 to 125 additional Federal Buildings projects.
- selected studies and experiments to identify barriers to commercialization and formulate market incentives and strategies.
- continuation of standards development, certification, training, information gathering and public information activities.

URANIUM ENRICHMENT ACTIVITIES

The FY 1979 budget provides \$202 million to produce enriched uranium for nuclear power reactor fuel, as described below:

	<u>Budget Authority</u> (In Millions)	
	<u>FY 1978</u>	<u>FY 1979</u>
U-235 Production	\$ 1,283	\$ 1,290
Process Development	130	100
All Other U-235	<u>24</u>	<u>21</u>
Subtotal	1,437	1,411
Less: Revenues	<u>-966</u>	<u>-1,209</u>
TOTAL URANIUM ENRICHMENT ACTIVITIES	<u>\$ 471</u>	<u>\$ 202</u>

The requested funding will allow:

- production of 18 million separative work units at DOE's three gaseous diffusion plants.
- process development work on the gaseous diffusion and gas centrifuge enrichment processes.
- continuation of the gas centrifuge enrichment plant project and the cascade improvement program.

URANIUM RESOURCE ASSESSMENT

The budget request for this activity in FY 1979 totals \$95 million, which represents a 46% increase over the FY 1978 level of \$65 million. This increase will allow acceleration of efforts to assess domestic uranium and thorium resources and to resolve uncertainties regarding their availability, extent and economics. A joint government-industry drilling program will be initiated to enhance the reliability of current resource estimates.

GEOHERMAL RESOURCES DEVELOPMENT FUND

The Fund provides for Federally guaranteed loans to exploit new geothermal resources. Although no request is included in FY 1979, funding to support loan guarantee authority up to \$300 million was provided in the FY 1977 and FY 1978 appropriations.

POWER MARKETING ADMINISTRATIONS

The FY 1979 budget for these activities totals \$128 million, an increase of \$21 million over the previous year. No budget authority is included for the Bonneville Power Administration, which operates as a revolving fund.

The Power Marketing Administrations market power produced at certain Federal hydroelectric generating projects in the U.S. utilizing high voltage transmission systems. The five Administrations included in this activity are the Alaska Power Administration; Bonneville Power Administration serving the northwest; and the Southeastern, Southwestern and Western Area Power Administrations.

CONSERVATION

Activities in the Energy Conservation mission are designed to reduce the growth of energy demand by improving energy use efficiency through technology development, grant programs, public education, and certain mandatory requirements.

The FY 1979 budget request for conservation activities is \$1.010 billion, an increase of \$318 million above the FY 1978 funding level. Distribution of that increase is shown in the following table:

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Utilities	\$ 55	\$ 55	\$ 0
Residential and Commercial	125	263	+138
Industrial	30	49	+19
Transportation	65	98	+33
Federal	1	10	+9
State/Local	297	368	+71
Multi-Sector	119	167	+48
TOTAL CONSERVATION	<u>\$ 692</u>	<u>\$ 1,010</u>	<u>\$ +318</u>

Nearly half of this increase is in support of the low income Weatherization Grant Program in the Residential and Commercial sector. Other major increases are directed toward the School and Hospital Grant Program, heat engine highway systems, and improved energy conservation technologies. Discussion of specific conservation activities proposed for FY 1979 is provided below.

UTILITIES

The FY 1979 funding level for the Utilities program is \$55 million, equivalent to the FY 1978 level. Program activities are designed to:

- encourage more efficient load management through technology development and rate reform.
- improve bulk power delivery and systems reliability.
- advise and intervene in local public utility commission hearings to ensure that rate structures reflect National conservation goals.

The major emphasis in the utilities sector in FY 1979 will be:

- to assist state public utility commissions and non-regulated utilities implement utility structures which will further the purposes of the National Energy Act in promoting efficient use of facilities and equity in consumer prices.
- to provide a National perspective at state public utility commission evidentiary hearings.
- to continue grants for state offices of consumer services.

RESIDENTIAL AND COMMERCIAL

The FY 1979 request for this activity totals \$263 million, more than double the previous year's funding of \$125 million.

	<u>Budget Authority</u>	
	<u>(In Millions)</u>	
	<u>FY 1978</u>	<u>FY 1979</u>
Buildings and Community Systems	\$ 55	\$ 59
Weatherization	64	199
Mandatory Appliances	4	4
Utility Insulation Service	<u>2</u>	<u>1</u>
TOTAL RESIDENTIAL AND COMMERCIAL	<u>\$ 125</u>	<u>\$ 263</u>

Most of the increase is for the Weatherization assistance program, which provides assistance to states to weatherize low income homes, especially those owned by elderly and handicapped individuals. The FY 1979 request for this program is \$199 million, which will fund modification of 857,000 homes at an annual energy savings of 2.3 million barrels of oil.

The Buildings and Community Systems program ultimately will have a far reaching effect on energy conservation. Activities are directed toward:

- developing energy efficient designs and standards for application to new and existing residential and commercial buildings.
- community energy and urban waste utilization.

The Mandatory Appliance program is developing minimum efficiency standards for furnaces, central and room air conditioners, water heaters, kitchen ranges, refrigerators, and freezers. Manufacturers' products which do not meet these standards may not be sold in interstate commerce.

INDUSTRIAL

The FY 1979 request provides \$49 million for conservation activities in the industrial sector, an increase of \$19 million over FY 1978. The budget places continued emphasis on:

- utilization of waste heat from industrial processes.
- cost-shared research, development and demonstration of process efficiency improvements in energy intensive industries.

Funding for industrial cogeneration activities is significantly accelerated in FY 1979.

TRANSPORTATION

Funding in FY 1979 totals \$98 million, a \$33 million increase when compared to FY 1978. This program is responsible for developing technologies, operational strategies, and institutional concepts with the potential to significantly reduce the consumption of energy in the transportation sector if implemented. Specific efforts in heat engines, electric and hybrid vehicles and alternate fuels utilization will be accelerated to meet National energy objectives.

STATE/LOCAL

The FY 1979 budget provides \$368 million for State/Local activities. The majority of these funds is requested for the School and Hospital and Local Government Buildings programs. Under this activity, grants are provided to government and non-profit institutions to conduct energy audits. In the case of schools and hospitals, energy efficient capital improvements will be installed where appropriate.

MULTI-SECTOR

In the FY 1979 budget request, \$167 million is provided for conservation programs of a cross-sectoral nature. Included are efforts to develop reliable and inexpensive energy storage systems such as advanced batteries and flywheel regenerative braking systems, develop improved energy conversion technologies, and support energy inventions.

FY 1979 funding will be utilized to:

- develop a prototype thermochemical storage system for use in solar thermal power generation.
- develop a 4.8 MW fuel cell power plant in a utility grid.
- establish a Nationwide Energy Extension Service to provide information to the public.

The Extension Service is intended to encourage adoption of energy conservation measures and increased use of renewable energy sources such as solar heating.

REGULATION

The Regulatory mission is the responsibility of the Federal Energy Regulatory Commission (FERC) and the Economic Regulatory Administration (ERA). The mission is directed toward:

- protecting the consumer against unwarranted energy prices.
- ensuring that energy supplies are available in all regions of the country at an equitable price.
- assuring petroleum industry compliance with pricing, allocation, import and reporting regulations.
- regulation of oil and natural gas pipelines.
- natural gas and electric rate setting.
- licensing and inspection of hydroelectric projects.

The FY 1979 funding requested in support of this mission is \$104 million, an increase of 25% when compared to FY 1978. This increase is distributed as follows:

<u>Budget Authority</u> (In Millions)			
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Petroleum	\$ 3	\$ 5	\$ +2
Gas	13	18	+5
Hydro	7	10	+3
Multi-Resource	60	71	+11
TOTAL REGULATION	<u>\$ 83</u>	<u>\$ 104</u>	<u>\$ +21</u>

The FY 1979 budget will permit continuation of activities initiated in FY 1978 to reduce the FERC backlog of unresolved cases and make necessary procedural and structural modifications to expedite the regulatory process. Enforcement efforts will be accelerated to audit the major oil refiners for conformance with price and allocation regulations. Price controls will be administered for crude oil, while providing the necessary incentives for maximum domestic production. Existing and standby regulations will be reformed to reduce the administrative burden on industry and the public.

EMERGENCY PREPAREDNESS

Activities in the Emergency Preparedness mission area are directed toward:

- providing a Strategic Petroleum Reserve through storage of large quantities of petroleum in underground facilities in order to diminish the vulnerability of the United States to the effects of a severe foreign petroleum supply interruption.
- development of emergency petroleum conservation measures, a standby gasoline and diesel oil rationing system, and contingency plans for natural gas shortages, electricity brownouts and coal supply interruptions.
- development of a real-time information system to respond effectively to National and regional energy emergencies.

FY 1979 funding requested in support of this mission totals \$4.255 billion. The estimate assumes favorable Congressional action on the pending FY 1978 supplemental as well as a second supplemental for \$415 million to be proposed. The FY 1979 budget provides funds to complete the purchase of 500 million barrels of crude oil previously authorized, and initiates design and construction of storage facilities leading to the President's goal of one billion barrels by 1985. It is planned that the first 500 million barrels will be in storage by the end of 1980.

ENERGY INFORMATION

The Energy Information mission is directed toward:

- providing statistical and analytical support for energy decision making by the Executive Branch, Congress, state and local governments, the public and other private sector groups.
- collecting and disseminating information on energy supply and consumption.

Relationships between energy alternatives and the economy are quantified and a centralized, up-to-date source of energy-related information is maintained to identify problems, conduct analyses, and prepare reports and forecasts.

FY 1979 funding requested in support of this mission totals \$63 million, an increase of 31% over the FY 1978 level of \$48 million. As can be seen below, the majority of this increase is for collection and dissemination of energy information.

<u>Budget Authority</u>			
<u>(In Millions)</u>			
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Information Analysis	\$ 17	\$ 18	\$ +1
Collection and Dissemination	20	33	+13
ADP Services to Other Functions	11	12	+1
TOTAL ENERGY INFORMATION	<u>\$ 48</u>	<u>\$ 63</u>	<u>\$ +15</u>

The requested funding in FY 1979 will permit:

- collection of accurate energy consumption data through surveys and special studies.
- implementation of a financial reporting system to assess energy industry performance in resource production and distribution.
- continued validation of Federal energy data systems.
- support of Federal agencies, Congress and the public by the Emergency Management Information System (EMIS), Project Independence Evaluation System (PIES), and operation of the National Energy Information Center (NEIC).

ENVIRONMENT

Activities within the Environment mission focus on the identification and evaluation of environmental impacts associated with the development of energy supply and conservation technologies. Program activities can be seen as two parallel thrusts, namely:

- overview and assessment to identify and analyse environmental health and safety concerns related to DOE programs and activities.
- biomedical and environmental research to investigate uncertainties and conflicts.

FY 1979 funding requested for the Environment mission totals \$209 million, as depicted below:

<u>Budget Authority</u> (In Millions)			
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Overview and Assessment	\$ 52	\$ 51	\$ -1
Biomedical and Environmental Research	<u>166</u>	<u>158</u>	<u>-8</u>
TOTAL ENVIRONMENTAL RESEARCH AND DEVELOPMENT	<u>\$ 218</u>	<u>\$ 209</u>	<u>\$ -9</u>

OVERVIEW AND ASSESSMENT

The purpose of this program is to insure proper emphasis on environmental, health and safety considerations in formulating and executing energy supply and conservation technology programs. In FY 1979, \$51 million will be devoted to this effort. A major thrust will be upgrading the operational and environmental safety program to provide technical assistance and guidance to both nuclear and non-nuclear DOE facilities. Other activities include:

- examination of environmental controls in the coal fuel cycle.
- liquified natural gas safety and control.
- advanced radiation waste disposal.

BIOMEDICAL AND ENVIRONMENTAL RESEARCH

These activities provide the supportive research necessary to address health and environmental problems associated with energy technology development and production. Included are integrated studies of the characterization, measurement and monitoring of energy related effluents and their effects on health and the environment. FY 1979 funding for this activity totals \$158 million.

BASIC SCIENCES

The Basic Sciences mission includes activities which are not related to any specific energy technology, but provide fundamental knowledge in the physical and life sciences. The FY 1979 request is \$426 million, an increase of \$29 million over FY 1978.

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Life Sciences Research and Biomedical			
Applications	\$ 43	\$ 41	\$ -2
High Energy Physics	274	294	+20
Nuclear Physics	80	91	+11
TOTAL BASIC SCIENCES	<u>\$ 397</u>	<u>\$ 426</u>	<u>\$ +29</u>

These activities are directed toward:

- attaining an understanding of how physical and chemical agents interfere with life processes.
- developing probes using radiation to detect subtle pathological changes leading to human disease.
- acquiring a deeper understanding of the structure and properties of atomic nuclei.
- exploring the nature of energy and matter in their most basic forms.

LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS

The FY 1979 request of \$41 million will provide for:

- continued research in general life sciences for better understanding of the risks to human health from energy related pollutants.
- facilitating the transfer of nuclear technology to medicine.
- development of advanced diagnostic and therapeutic methodologies for the medical community.

HIGH ENERGY PHYSICS

The FY 1979 request of \$294 million is an increase of \$20 million over FY 1978. Major activities in FY 1979 include construction work on the following projects:

- the intersecting Storage Accelerator (ISABELLE) at Brookhaven National Laboratory.
- an energy saver project at FERMILAB.
- the joint Lawrence Berkeley Laboratory-Stanford Linear Accelerator Center positron-electron project (PEP).

In addition, existing accelerator facilities will be utilized in FY 1979 to exploit recent major theoretical and experimental advances in the nature of energy and matter.

NUCLEAR PHYSICS

The FY 1979 request of \$91 million will permit important experiments on nuclei at the Clinton Anderson Meson Physics Facility, and a broad-based heavy ion nuclear research effort at the Lawrence Berkeley Laboratory (LBL). Funds are also requested for the high intensity uranium beams project at LBL, which will open new regions of nuclear research with energetic heavy ion projectiles.

ATOMIC ENERGY DEFENSE ACTIVITIES

The Atomic Energy Defense Activities mission is directed toward research, development, and production undertaken to support national security requirements. Activities include:

- development, production, and maintenance of nuclear weapons.
- production of special nuclear materials.
- development of improved naval nuclear propulsion plants and reactor cores.
- research and development in support of arms control verification technologies.
- development of cost effective systems for safeguarding special nuclear materials.
- inertial confinement fusion technology development as a long-term inexhaustible energy source.

The FY 1979 request for this mission totals \$2.829 billion, an increase of \$317 million over the FY 1978 level.

<u>Budget Authority</u> (In Millions)			
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Inertial Confinement Fusion	\$ 129	\$ 126	\$ -3
Naval Reactor Development	247	290	+43
Weapons Activities	1,395	1,461	+66
Intelligence and Arms Control	25	28	+3
Special Materials Production	675	904	+229
Nuclear Materials Security and Safeguards	41	43	+2
Unobligated Balances	0	-23	-23
TOTAL ATOMIC ENERGY DEFENSE ACTIVITIES	<u>\$ 2,512</u>	<u>\$ 2,829</u>	<u>\$ 317</u>

INERTIAL CONFINEMENT FUSION

The objective of this program is to determine the feasibility of laser and electron beam initiated fusion through inertial confinement. The FY 1979 request of \$126 million continues the design of laser components, and initiates construction and procurement for the NOVA high energy laser facility at Lawrence Livermore Laboratory (LLL). This facility is expected to demonstrate scientific feasibility by the mid-1980's. Experiments will be undertaken using the SHIVA laser, completed in November 1977 at LLL. Funds are provided for construction of the high energy laser facility at the Los Alamos Scientific Laboratory.

NAVAL REACTORS DEVELOPMENT

The FY 1979 request of \$290 million will provide for:

- continued improvements to existing submarine and surface ship reactor core and plant technology.
- support to operating fleet submarines and surface ships.
- operation, testing, and training at land-based prototypes.

Also included will be development of advanced reactor concepts and propulsion plants, including the design, development, and testing of a propulsion plant for the Trident ballistic submarine.

WEAPONS ACTIVITIES

The FY 1979 request for Weapons Activities totals \$1.461 billion as follows:

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
Research and Development	\$ 433	\$ 490	\$ +57
Test	246	228	-18
Production and Surveillance	707	734	+27
Other Capital Equipment	9	9	0
TOTAL WEAPONS ACTIVITIES	<u>\$ 1,395</u>	<u>\$ 1,461</u>	<u>\$ 66</u>

The requested funding will allow for:

- delivery to stockpile of new weapons, as well as preproduction costs for delivery of weapons in future years.
- design, development, testing, and production of nuclear weapons for the TRIDENT, MINUTEMAN III, CRUISE MISSILES and several tactical systems.
- continued research, development and testing of advanced weapons concepts.

INTELLIGENCE AND ARMS CONTROL

The FY 1979 request of \$28 million will place emphasis on those capabilities and technologies in support of the proposed comprehensive test ban treaty.

SPECIAL MATERIALS PRODUCTION

This activity provides for the production of special nuclear materials, principally plutonium, and management of defense radioactive wastes. The increased FY 1979 funding level of \$904 million results from:

- full funding of four construction projects, including the fluorinel dissolution process and fuel receiving improvements at the Idaho Chemical Processing Plant.
- continuation of the waste tank transfer program at Savannah River.
- expanded research into advanced technologies for the long-term management of high level radioactive wastes.
- design, procurement and land acquisition for the Waste Isolation Pilot Plant at Albuquerque.

NUCLEAR MATERIALS SECURITY AND SAFEGUARDS

In FY 1979, the safeguards program has been redirected toward support of the non-proliferation policy. The requested funding of \$43 million will provide for:

- development of integrated safeguards systems for nuclear power fuel cycle facilities.
- initiation of international safeguards systems design for gas centrifuge and gaseous diffusion uranium enrichment plants.
- development and testing of generic international safeguards system for nuclear critical test facilities.
- provision of all data required for the IAEA application of safeguards in the U.S. under the Non-Proliferation Treaty.

POLICY AND MANAGEMENT

Activities in this mission include management and administration, institutional relations, public and consumer affairs, international activities, and general legal support.

Also included are:

- studies and analyses concerned with the identification and evaluation of alternative strategies for defining and achieving national energy objectives.
- energy conservation program for in-house facilities.

The FY 1979 funding requested in support of this mission totals \$505 million, an increase of \$117 million over the FY 1978 level. The increase results from:

- the effect of the October 1977 pay raise.
- expansion of the in-house energy management program.
- decontamination and decommissioning activities.
- a reduction in estimated miscellaneous revenues.

Details of the request can be seen below:

	<u>Budget Authority</u> (In Millions)		
	<u>FY 1978</u>	<u>FY 1979</u>	<u>Change</u>
General Systems Studies	\$ 15	\$ 20	\$ +5
Program Direction and Management Support	327	339	+12
Institutional Relations	29	31	+2
Consumer Affairs and Special Impact	1	1	0
In-House Energy Management	2	37	+35
Security Investigations	12	14	+2
Public Awareness	4	4	0
EEO Contractor Compliance	4	4	0
Decontamination and Decommissioning	18	25	+7
International Cooperation Non-Nuclear Technologies	5	5	0
Other Supporting Activities	14	21	+7
Cost of Work for Others	18	23	+5
Miscellaneous Revenues	-101	-54	-47
Changes in Inventories and Working Capital	40	35	-5
TOTAL POLICY AND MANAGEMENT	<u>\$ 388</u>	<u>\$ 505</u>	<u>\$ +117</u>

GENERAL SYSTEMS STUDIES

The FY 1979 funding level of \$20 million will provide for long and short-range planning, evaluation and analysis of alternative energy policy, legislation, and broad technical program issues. These activities will ensure the formulation and implementation of a comprehensive energy program and National Energy Plan.

PROGRAM DIRECTION AND MANAGEMENT SUPPORT

This program provides for the salaries, travel and related personnel expenses associated with program direction and administration of the Department of Energy. The budget request is based on reaching a total employment of 8,261 regular full-time employees paid out of this account by the end of FY 1979, a decrease of 391 positions. Total DOE employment at that time will be 19,100.

INSTITUTIONAL RELATIONS, CONSUMER AFFAIRS AND PUBLIC AWARENESS

The FY 1979 level for these programs is \$36 million. Efforts will be directed toward:

- exchanging energy-related information with business, state and local governments, academia, and individual citizens.
- expansion of the DOE centralized technical and practical information services.
- continued operation of DOE science museums, traveling exhibits, and other public communications.

IN-HOUSE ENERGY MANAGEMENT

The FY 1979 request of \$37 million reflects the initiation of a major effort to reduce DOE energy consumption by 20% in existing facilities. The program consists of:

- surveys to develop retrofit projects for existing DOE buildings.
- studies of central heating plants for fuel conversion.
- possible application of selective energy concepts.

The FY 1979 request includes a \$25 million line item project, Modifications for Energy Management, which is comprised of relatively small retrofit projects selected on the basis of energy saved per investment dollar, total dollar return on investment, and quickness of payback. The average payback for this project is about three years.

DECONTAMINATION AND DECOMMISSIONING

The FY 1979 funding level of \$25 million represents a \$7 million increase over FY 1978. Efforts include the initiation of major disposition projects for the Management of Surplus Radioactively Contaminated DOE Facilities. Remedial action on inactive mill tailings sites will continue to eliminate unacceptable radiological conditions. Funds are provided for:

- preparation of environmental impact assessments.
- evaluation of alternative sites for tailings relocation.
- research and development of stabilization methods.

OTHER SUPPORTING ACTIVITIES

The remaining portion of the Policy and Management mission consists of small, level of effort programs such as EEO-Contract Compliance, Security Investigations, International Cooperation in Non-nuclear Technology, Plant Engineering and Design, and other adjustments. The aggregate FY 1979 funding request for these items is \$102 million.

MISCELLANEOUS REVENUES

The FY 1979 estimate includes \$54 million in miscellaneous revenues as compared to \$101 million in FY 1978. This reduction results from returning a major portion of revenues to the U.S. Treasury instead of using them to offset appropriation requirements.

LEGISLATIVE PROPOSALS

DOE will be submitting two legislative proposals to the Congress:

- Uranium Enrichment

DOE is resubmitting legislation considered as part of the FY 1978 ERDA Authorization Bill to permit DOE to change the basis for computing uranium enrichment services charges. The proposal would allow normal business type expenses such as insurance, taxes, and return on investment to be included. This change will assure that operators of nuclear power plants are paying an equitable price for government furnished services. Passage would increase DOE uranium enrichment revenues by \$163 million, resulting in a corresponding reduction in appropriation requirements.

Decontamination of Former Manhattan Engineering District and Atomic Energy Commission Sites and Inactive Uranium Mill Tailings Sites.

This proposal would provide DOE with the authority to take remedial action to decontaminate former government and government-contractor facilities and private uranium mill tailings sites. Surveys have indicated that 22 mill tailing sites in eight western states, as well as about 80 other locations, have radiation levels above established standards. A five-year program is proposed with FY 1979 budgetary impact of \$5 million.

STATISTICAL APPENDIX

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

SUMMARY BY MISSION

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
ENERGY SUPPLY - RESEARCH AND TECHNOLOGY DEVELOPMENT	\$ 2,696	\$ 2,448	\$ 2,670	\$ 2,628
ENERGY SUPPLY - PRODUCTION, DEMONSTRATION AND DISTRIBUTION	908	800	692	766
CONSERVATION	692	473	1,010	902
REGULATION	83	86	104	101
EMERGENCY PREPAREDNESS	3,595	2,029	4,255	3,285
ENERGY INFORMATION	48	46	63	61
ENVIRONMENT	218	203	209	201
BASIC SCIENCES	397	363	426	415
ATOMIC ENERGY DEFENSE ACTIVITIES	2,512	2,308	2,829	2,536
POLICY AND MANAGEMENT	<u>388</u>	<u>394</u>	<u>505^{1/}</u>	<u>460^{1/}</u>
SUBTOTAL	11,537	9,150	12,763	11,355
PENDING/PROPOSED SUPPLEMENTALS .	-1,126	-110	-	-1,016
LEGISLATIVE PROPOSALS	-	-	-158	-160
OTHER ADJUSTMENTS	<u>-128</u>	<u>-218</u>	<u>-12</u>	<u>-158</u>
TOTAL DEPARTMENT OF ENERGY .	<u>\$ 10,283</u>	<u>\$ 8,822</u>	<u>\$ 12,593</u>	<u>\$ 10,021</u>

^{1/} On a comparable basis, the estimate would be \$439 million budget authority and \$394 million budget outlays.

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: ENERGY SUPPLY + RESEARCH & TECHNOLOGY DEVELOPMENT

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
COAL	\$ 579.1	\$ 520.1	\$ 618.2	\$ 609.4
PETROLEUM	74.1	62.5	79.7	73.7
GAS	31.0	26.5	25.9	30.0
SOLAR	302.7	225.2	309.2	281.4
GEOTHERMAL	106.2	81.9	129.7	118.9
MAGNETIC FUSION	325.4	279.1	334.0	327.0
FUEL CYCLE R&D	284.9	212.8	247.4	227.7
BREEDER REACTOR	517.1	610.6	367.4	445.0
NUCLEAR RESEARCH & APPLICATIONS ..	226.7	206.8	278.5	253.8
LIGHT WATER REACTOR FACILITIES ...	28.1	24.6	10.0	19.0
INTERNATIONAL SPENT FUEL STORAGE .	5.0	5.0	3.0	3.0
HYDROELECTRIC	10.0	7.5	8.0	6.0
BIOMASS	20.7	15.2	26.9	15.3
BASIC ENERGY SCIENCES	177.4	164.1	211.5	201.1
ADVANCED TECHNOLOGY & ASSESSMENT .	7.5	5.7	21.0	17.0
TOTAL ENERGY SUPPLY - R&TD	<u>\$2,695.9</u>	<u>\$2,447.6</u>	<u>\$2,670.4</u>	<u>\$2,628.3</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - R&TD RESOURCE SUMMARIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>COAL</u>				
Mines R&D	\$ 62.8	\$ 63.4	\$ 70.8	\$ 65.8
Liquefaction	110.6	113.2	125.1	116.2
Gasification	212.0	150.3	186.6	197.2
Advanced Power Systems	25.7	24.0	26.9	25.5
Direct Combustion	70.4	68.6	54.9	64.5
Advanced Research & Supporting Technology.	49.9	47.8	67.6	62.3
Magnetohydrodynamics	71.5	52.8	72.3	70.9
Advanced Environmental Control Technology.	-	-	14.0	7.0
Less: General Reduction	-23.8	-	-	-
TOTAL COAL	\$579.1	\$520.1	\$618.2	\$609.4
<u>PETROLEUM</u>				
Enhanced Oil Recovery	\$ 46.2	\$ 40.1	\$ 46.7	\$ 41.2
Oil Shale	24.9	19.0	30.2	29.4
Drilling, Exploration & Offshore Recovery.	1.6	2.0	1.6	1.8
Product Characterization & Utilization ...	1.4	1.4	1.2	1.3
TOTAL PETROLEUM	\$ 74.1	\$ 62.5	\$ 79.7	\$ 73.7
<u>GAS</u>				
Enhanced Gas Recovery	\$ 27.1	\$ 23.5	\$ 21.5	\$ 25.5
Gas from Oil Shale	3.9	3.0	4.4	4.5
TOTAL GAS	\$ 31.0	\$ 26.5	\$ 25.9	\$ 30.0

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - R&TD RESOURCE SUMMARIES - cont.

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>SOLAR</u>				
Thermal Applications	\$ 40.4	\$ 35.7	\$ 45.1	\$ 45.4
Technical Support & Utilization	9.0	6.0	14.1	9.9
Solar Electric Applications:				
Solar Thermal	104.1	78.4	100.0	72.1
Photovoltaics	76.5	54.0	76.1	83.3
Wind Energy	36.7	26.2	40.7	40.8
Ocean Thermal	36.0	24.9	33.2	29.9
Subtotal Solar Electric Applications ...	\$253.3	\$183.5	\$250.0	\$226.1
TOTAL SOLAR	\$302.7	\$225.2	\$309.2	\$281.4
<u>GEOTHERMAL</u>				
Engineering R&D	\$ 16.2	\$ 13.9	\$ 22.5	\$ 21.0
Resource, Exploration & Assessment	18.1	16.2	30.0	26.0
Hydrothermal Technology Applications	28.7	22.1	28.0	27.5
Advanced Technology Applications	23.0	18.1	30.2	27.2
Utilization Experiments	12.0	3.5	7.5	6.5
Environmental Control & Institutional Studies	8.2	7.1	11.5	10.7
Other Capital Equipment	-	1.0	-	-
TOTAL GEOTHERMAL	\$106.2	\$ 81.9	\$129.7	\$118.9
<u>MAGNETIC FUSION</u>				
Confinement Systems	\$120.4	\$ 99.4	\$152.9	\$128.2
Development & Technology	54.1	48.3	61.5	58.5
Applied Plasma Physics	50.9	50.5	57.5	57.9
Reactor Projects	100.0	80.9	62.1	82.4
TOTAL MAGNETIC FUSION	\$325.4	\$279.1	\$334.0	\$327.0

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - R&TD RESOURCE SUMMARIES - cont.

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>FUEL CYCLE R&D</u>				
Domestic Spent Fuel Storage	\$ -	\$ -	\$ 3.0	\$ 3.0
Support of Nuclear Fuel Cycle	104.4	86.7	57.6	61.4
Commercial Waste Management	<u>180.5</u>	<u>126.1</u>	<u>186.8</u>	<u>163.3</u>
TOTAL FUEL CYCLE R&D	\$284.9	\$212.8	\$247.4	\$227.7
<u>BREEDER REACTOR</u>				
Technology Integration Studies	\$ -	\$ -	\$ 15.0	\$ 15.0
Clinch River Breeder Reactor Project	33.0	162.0	13.4	77.8
Fast Flux Test Facility Project	126.9	126.5	70.1	96.3
Breeder Technology	213.6	189.9	127.0	138.9
Test Facilities	134.3	109.4	134.9	112.4
Other Capital Equipment	<u>9.3</u>	<u>22.8</u>	<u>7.0</u>	<u>4.6</u>
TOTAL BREEDER REACTOR	\$517.1	\$610.6	\$367.4	\$445.0
<u>NUCLEAR RESEARCH & APPLICATIONS</u>				
Water Cooled Breeder Reactor	\$ 41.7	\$ 43.5	\$ 63.0	\$ 51.7
Gas Cooled Thermal Reactor	32.0	27.3	31.0	27.1
Gas Cooled Fast Breeder Reactor	16.0	14.0	32.0	28.2
Light Water Reactor Technology	18.8	16.8	23.9	22.8
Technology Development & Special Projects	16.1	14.6	4.9	5.0
Space Applications	34.4	28.6	43.2	40.2
Advanced Isotope Separation Technology ...	52.1	49.0	54.2	53.0
Nuclear Energy Assessments	15.6	13.0	6.3	7.2
Alternative Advanced Reactor Systems	<u>-</u>	<u>-</u>	<u>20.0</u>	<u>18.6</u>
TOTAL NUCLEAR RESEARCH & APPLICATIONS ..	\$226.7	\$206.8	\$278.5	\$253.8
<u>LIGHT WATER REACTOR FACILITIES</u>	\$ 28.1	\$ 24.6	\$ 10.0	\$ 19.0
<u>INTERNATIONAL SPENT FUEL STORAGE</u>	\$ 5.0	\$ 5.0	\$ 3.0	\$ 3.0
<u>HYDROELECTRIC</u>	\$ 10.0	\$ 7.5	\$ 8.0	\$ 6.0

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - R&TD RESOURCE SUMMARIES - cont.

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>FUELS FROM BIOMASS</u>	\$ 20.7	\$ 15.2	\$ 26.9	\$ 15.3
 <u>BASIC ENERGY SCIENCES</u>				
Nuclear Sciences	\$ 27.1	\$ 26.1	\$ 29.7	\$ 28.8
Materials Sciences	76.1	68.4	94.3	81.1
Chemical Sciences	56.6	53.2	57.8	62.3
Engineering, Mathematics, and Geosciences	12.4	11.2	24.0	23.5
Advanced Energy Projects	3.2	3.0	4.0	3.7
Other Capital Equipment	2.0	2.2	1.7	1.7
TOTAL BASIC ENERGY SCIENCES ...	\$ 177.4	\$ 164.1	\$ 211.5	\$ 201.1
 <u>ADVANCED TECHNOLOGY & ASSESSMENT</u>				
<u>PROJECTS</u>	\$ 7.5	\$ 5.7	\$ 21.0	\$ 17.0
 TOTAL ENERGY SUPPLY - R&TD				
RESOURCE SUMMARIES	<u>\$2,695.9</u>	<u>\$2,447.6</u>	<u>\$2,670.4</u>	<u>\$2,628.3</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: ENERGY SUPPLY - PRODUCTION, DEMONSTRATION AND DISTRIBUTION

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
COAL	\$ 10.6	\$ 2.9	\$ 2.9	\$ 3.6
NAVAL PETROLEUM AND SHALE RESERVES	152.1	83.0 ^{1/}	199.0	212.2 ^{1/}
SOLAR	87.2	83.7	64.4	69.4
URANIUM ENRICHMENT ACTIVITIES (NET) ...	471.0	409.3	201.6	233.7
URANIUM RESOURCE ASSESSMENT	64.8	54.7	95.2	78.1
MULTI-RESOURCE	0.5	0.6	1.0	0.6
GEO THERMAL RESOURCES DEVELOPMENT FUND .	15.0	6.6	-	6.0
POWER MARKETING ADMINISTRATION	107.3	159.8	127.5	162.7
TOTAL ENERGY SUPPLY - PRODUCTION, DEMONSTRATION AND DISTRIBUTION	<u>\$908.5</u>	<u>\$800.6</u>	<u>\$691.6</u>	<u>\$766.3</u>

1/ Total program outlays are estimated at \$278.8 million in FY 1978 and \$324.7 million in FY 1979. Of these amounts, \$195.8 million and \$112.5 million respectively are included in the "Petroleum Reserve" account of the Funds Appropriated to the President chapter of the Budget.

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - PD&D RESOURCE SUMMARIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>COAL</u>				
Coal Utilization - Industrial ..	\$ 2.3	\$ 1.5	\$ 2.0	\$ 2.0
Coal Utilization - Utility	1.4	0.9	0.9	1.2
Coal Loan Guarantee Program	6.9	0.5	-	0.4
TOTAL COAL	\$ 10.6	\$ 2.9	\$ 2.9	\$ 3.6
<u>NAVAL PETROLEUM AND SHALE RESERVES</u>				
Petroleum Reserves 1 and 2				
(California)	\$ 126.3	\$ 66.5	\$ 169.6	\$ 190.6
Petroleum Reserve 3 (Wyoming) ..	24.5	15.5	28.1	20.6
Shale Reserves	1.3	1.0	1.3	1.0
TOTAL NAVAL RESERVES	\$ 152.1	\$ 83.0 ^{1/}	\$ 199.0	\$ 212.2 ^{1/}
<u>SOLAR</u>				
Heating and Cooling Demonstration				
Program	\$ 65.8	\$ 62.0	\$ 36.0	\$ 53.0
Federal Buildings Program	20.0	19.8	25.7	15.5
Solar Commercialization	1.4	1.9	2.7	0.9
TOTAL SOLAR	\$ 87.2	\$ 83.7	\$ 64.4	\$ 69.4
<u>URANIUM ENRICHMENT ACTIVITIES</u>				
U-235 Production	\$1,282.5	\$1,252.7	\$1,290.1	\$1,316.1
Process Development	130.4	99.4	100.0	106.0
All Other U-235	23.9	23.0	20.5	20.6
Subtotal	1,436.8	1,375.1	1,410.6	1,442.7
Less: Revenues	-965.8	-965.8	-1,209.0	-1,209.0
TOTAL URANIUM ENRICHMENT				
ACTIVITIES	\$ 471.0	\$ 409.3	\$ 201.6	\$ 233.7

^{1/} Same as previous page.

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ENERGY SUPPLY - PD&D RESOURCE SUMMARIES (CONTINUED)

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>URANIUM RESOURCE ASSESSMENT</u>				
Geologic and Related				
Investigations	\$ 54.3	\$ 45.0	\$ 74.5	\$ 60.6
Technology Development	6.5	5.8	7.9	7.2
Supporting Services	4.0	3.9	12.8	10.3
TOTAL URANIUM RESOURCE				
ASSESSMENT	\$ 64.8	\$ 54.7	\$ 95.2	\$ 78.1
<u>MULTI-RESOURCE</u>				
Electricity	\$ 0.5	\$ 0.6	\$ -	\$ -
Alternate Fuels Demonstration				
Program	-	-	1.0	0.6
Federal Leasing	-	-	-	-
TOTAL MULTI-RESOURCE	\$ 0.5	\$ 0.6	\$ 1.0	\$ 0.6
<u>GEO THERMAL RESOURCES</u>				
<u>DEVELOPMENT FUND</u>	\$ 15.0	\$ 6.6	\$ -	\$ 6.0
<u>POWER MARKETING ADMINISTRATION</u>				
Alaska Power Administration	\$ 2.1	2.2	\$ 2.6	\$ 2.6
Bonneville Power Administration	-	51.5	-	39.8
Southeastern Power Administration	1.1	1.2	1.2	1.2
Southwestern Power Administration	12.5	13.3	19.9	16.9
Western Area Power Administration	91.6	91.6	103.8	102.2
TOTAL POWER MARKETING				
ADMINISTRATION	\$ 107.3	\$ 159.8	\$ 127.5	\$ 162.7
TOTAL ENERGY SUPPLY - PD&D				
RESOURCE SUMMARIES	\$ 908.5	\$ 800.6	\$ 691.6	\$ 766.3

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: CONSERVATION

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
UTILITIES	\$ 54.6	\$ 43.9	\$ 54.7	\$ 52.2
RESIDENTIAL AND COMMERCIAL	125.5	109.6	263.2	184.0
INDUSTRIAL	29.6	21.7	49.1	36.2
TRANSPORTATION	65.0	51.0	97.5	83.8
FEDERAL	0.6	0.7	10.2	10.2
STATE/LOCAL	297.1	147.9	368.3	399.4
MULTI-SECTOR	119.5	98.7	166.5	136.4
TOTAL CONSERVATION	<u>\$ 691.9</u>	<u>\$ 473.5</u>	<u>\$1,009.5</u>	<u>\$ 902.2</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

CONSERVATION - SECTOR SUMMARIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>UTILITIES</u>				
Electric Energy Systems	\$ 40.3	\$ 34.0	\$ 40.0	\$ 38.0
Utilities Demonstration	1.4	1.8	-	0.9
District Heating	-	-	0.6	0.3
Consumer Offices	1.9	2.7	1.9	1.9
Rate Reform	11.0	5.4	12.2	11.1
TOTAL UTILITIES	\$ 54.6	\$ 43.9	\$ 54.7	\$ 52.2
<u>RESIDENTIAL AND COMMERCIAL</u>				
Buildings and Community Systems	\$ 55.2	\$ 44.8	\$ 59.0	\$ 52.0
Weatherization	64.2	58.6	199.0	128.5
Mandatory Appliances	4.3	4.3	3.7	1.9
Utility Insulation Service	1.6	1.8	1.0	1.3
Other Commercial	0.2	0.1	0.5	0.3
TOTAL RESIDENTIAL AND COMMERCIAL	\$ 125.5	\$ 109.6	\$ 263.2	\$ 184.0
<u>INDUSTRIAL</u>				
Waste Energy Reduction	\$ 10.5	\$ 8.4	\$ 14.2	\$ 12.1
Industrial Process Efficiency ..	13.4	9.6	17.8	12.2
Industrial Cogeneration	5.4	3.4	16.5	11.3
Industrial Monitoring and Analysis	0.1	0.1	0.3	0.3
Commercialization and Technology Transfer	0.2	0.2	0.3	0.3
TOTAL INDUSTRIAL	\$ 29.6	\$ 21.7	\$ 49.1	\$ 36.2
<u>TRANSPORTATION</u>	\$ 65.0	\$ 51.0	\$ 97.5	\$ 83.8
<u>FEDERAL</u>				
Federal Energy Management and Program	\$ 0.6	\$ 0.7	\$ 0.5	\$ 0.5
Federal Vanpooling	-	-	9.7	9.7
TOTAL FEDERAL	\$ 0.6	\$ 0.7	\$ 10.2	\$ 10.2

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

CONSERVATION - SECTOR SUMMARIES (CONTINUED)

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>STATE/LOCAL GRANT PROGRAMS</u>				
Energy Policy and Conservation Act	\$ 47.8	\$ 51.3	\$ 47.8	\$ 47.8
Energy Conservation and Production Act	23.7	28.8	10.0	13.6
Hospital and School	<u>225.6</u>	<u>67.8</u>	<u>310.5</u>	<u>338.0</u>
TOTAL STATE/LOCAL	\$ 297.1	\$ 147.9	\$ 368.3	\$ 399.4
<u>MULTI-SECTOR</u>				
Energy Storage Systems	\$ 50.2	\$ 41.1	\$ 58.0	\$ 49.0
Improved Conversion Efficiency .	58.8	48.4	78.0	63.0
Energy Extension Service	7.5	6.0	25.0	20.0
Marketing	-	0.2	0.5	0.4
Inventors Program Support	-	-	2.0	1.0
Appropriate Technology	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>
TOTAL MULTI-SECTOR	\$ 119.5	\$ 98.7	\$ 166.5	\$ 136.4
TOTAL CONSERVATION	<u>\$ 691.9</u>	<u>\$ 473.5</u>	<u>\$ 1,009.5</u>	<u>\$ 902.2</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: REGULATION

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
PETROLEUM	\$ 2.9	\$ 2.9	\$ 4.5	\$ 3.9
GAS	12.9	13.2	18.3	17.6
HYDRO	7.6	7.6	9.6	9.2
MULTI-RESOURCE	<u>59.9</u>	<u>62.1</u>	<u>71.3</u>	<u>70.4</u>
TOTAL REGULATION	<u>\$ 83.3</u>	<u>\$ 85.8</u>	<u>\$103.7</u>	<u>\$101.1</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

REGULATION - RESOURCE SUMMARIES

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
<u>PETROLEUM</u>				
Crude Oil Allocations	\$ 1.4	\$ 1.5	\$ 2.0	\$ 1.6
Curde Oil Pricing	<u>1.5</u>	<u>1.4</u>	<u>2.5</u>	<u>2.3</u>
TOTAL PETROLEUM	\$ 2.9	\$ 2.9	\$ 4.5	\$ 3.9
<u>GAS</u>				
Pipeline Regulation	\$ 8.8	\$ 9.1	\$ 12.4	\$ 11.9
Producer Regulation	<u>4.1</u>	<u>4.1</u>	<u>5.9</u>	<u>5.7</u>
TOTAL GAS	\$ 12.9	\$ 13.2	\$ 18.3	\$ 17.6
<u>HYDRO</u>				
Water Resources Analysis	\$ 2.1	\$ 2.1	\$ 2.2	\$ 2.1
Hydroelectric Project Licenses	<u>5.5</u>	<u>5.5</u>	<u>7.4</u>	<u>7.1</u>
TOTAL HYDRO	\$ 7.6	\$ 7.6	\$ 9.6	\$ 9.2
<u>MULTI-RESOURCE</u>				
Petroleum Products and Natural				
Gas Liquids	\$ 5.1	\$ 5.1	\$ 5.1	\$ 4.6
Compliance	38.8	40.8	47.4	47.4
Private Grievances and Redress	2.4	2.5	3.0	3.0
Electric Utility Regulation	3.2	3.3	4.5	4.3
Compliance and Enforcement	<u>10.4</u>	<u>10.4</u>	<u>11.3</u>	<u>11.1</u>
TOTAL MULTI-RESOURCE	\$ 59.9	\$ 62.1	\$ 71.3	\$ 70.4
TOTAL REGULATION	<u>\$ 83.3</u>	<u>\$ 85.8</u>	<u>\$ 103.7</u>	<u>\$ 101.1</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: EMERGENCY PREPAREDNESS

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
STRATEGIC PETROLEUM RESERVE	\$3,589.6	\$2,024.1 ^{1/}	\$4,244.8	\$3,274.5
MULTI-RESOURCE:				
MATERIALS	0.2	0.1	-	0.1
EMERGENCY PREPAREDNESS	5.7	4.6	10.6	10.0
SUBTOTAL - MULTI-RESOURCE	5.9	4.7	10.6	10.1
TOTAL EMERGENCY PREPAREDNESS	<u>\$3,595.5</u>	<u>\$2,028.8</u>	<u>\$4,255.4</u>	<u>\$3,284.6</u>

^{1/} Total program outlays in FY 1978 are \$2,269.1 billion. Of this amount, \$245 million is included in the "Petroleum Reserves" account of the Funds Appropriated to the President chapter of the Budget.

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: ENERGY INFORMATION

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
INFORMATION ANALYSIS	\$ 17.4	\$ 17.8	\$ 18.5	\$ 19.3
COLLECTION AND DISSEMINATION ...	19.6	17.7	32.6	29.8
ADP SERVICES TO OTHER FUNCTIONS	11.1	11.0	12.3	12.1
TOTAL ENERGY INFORMATION	<u>\$ 48.1</u>	<u>\$ 46.5</u>	<u>\$ 63.4</u>	<u>\$ 61.2</u>

ENERGY INFORMATION - RESOURCE SUMMARIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>INFORMATION AND ANALYSIS</u>				
Modeling and Forecasting	\$ 7.1	\$ 7.6	\$ 8.5	\$ 8.8
Industry Systems Analysis	6.1	6.1	6.7	6.5
Impact Analysis	4.2	4.1	3.3	4.0
TOTAL INFORMATION AND ANALYSIS	\$ 17.4	\$ 17.8	\$ 18.5	\$ 19.3
<u>COLLECTION AND DISSEMINATION</u>				
Data Collection/Validation	\$ 17.6	\$ 15.7	\$ 29.5	\$ 27.1
Information Dissemination	2.0	2.0	3.1	2.7
TOTAL COLLECTION AND DISSEMINATION	\$ 19.6	\$ 17.7	\$ 32.6	\$ 29.8
<u>ADP SERVICES TO OTHER FUNCTIONS</u>	<u>\$ 11.1</u>	<u>\$ 11.0</u>	<u>\$ 12.3</u>	<u>\$ 12.1</u>
TOTAL ENERGY INFORMATION - RESOURCE SUMMARIES	<u>\$ 48.1</u>	<u>\$ 46.5</u>	<u>\$ 63.4</u>	<u>\$ 61.2</u>

DEPARTMENT OF ENERGY
 FY 1979 BUDGET
 (\$ IN MILLIONS)

MISSION: ENVIRONMENT

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
<u>ENVIRONMENTAL RESEARCH AND DEVELOPMENT</u>				
Overview and Assessment	\$ 51.4	\$ 44.8	\$ 51.1	\$ 48.9
Biomedical and Environmental Research	<u>166.4</u>	<u>158.0</u>	<u>157.5</u>	<u>152.1</u>
TOTAL ENVIRONMENTAL RESEARCH AND DEVELOPMENT	<u>\$217.8</u>	<u>\$202.8</u>	<u>\$208.6</u>	<u>\$201.0</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: BASIC SCIENCES

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS	\$ 42.5	\$ 41.0	\$ 40.8	\$ 40.0
HIGH ENERGY PHYSICS	274.2	238.4	294.7	288.1
NUCLEAR PHYSICS	<u>80.4</u>	<u>83.3</u>	<u>90.8</u>	<u>86.7</u>
TOTAL BASIC SCIENCES	\$397.1	\$362.7	\$426.3	\$414.8

BASIC SCIENCES - RESOURCE SUMMARIES

	<u>FY78 ESTIMATE</u>		<u>FY79 ESTIMATE</u>	
	<u>BA</u>	<u>BO</u>	<u>BA</u>	<u>BO</u>
<u>LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS</u>				
General Life Sciences	\$ 26.1	\$ 25.2	\$ 25.6	\$ 25.1
Biomedical Applications	<u>16.4</u>	<u>15.8</u>	<u>15.2</u>	<u>14.9</u>
TOTAL LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS	\$ 42.5	\$ 41.0	\$ 40.8	\$ 40.0

HIGH ENERGY PHYSICS

Fermi National Accelerator	\$ 86.1	\$ 70.6	\$ 81.8	\$ 87.4
Alternating Gradient Synchrotron	44.3	39.4	63.6	50.2
Zero Gradient Synchrotron	17.5	17.4	16.1	16.1
Stanford Linear Accelerator	67.9	55.3	55.1	67.2
General Research and Development	55.9	53.6	75.6	65.0
Other Capital Equipment	<u>2.5</u>	<u>2.1</u>	<u>2.5</u>	<u>2.2</u>
TOTAL HIGH ENERGY PHYSICS	\$274.2	\$238.4	\$294.7	\$288.1

NUCLEAR PHYSICS

Medium Energy Physics	\$ 38.4	\$ 38.3	\$ 41.3	\$ 41.9
Heavy Ion Physics	35.3	38.8	42.9	38.5
Nuclear Theory	5.5	5.2	5.6	5.5
Other Capital Equipment	<u>1.2</u>	<u>1.0</u>	<u>1.0</u>	<u>0.8</u>
TOTAL NUCLEAR PHYSICS	\$ 80.4	\$ 83.3	\$ 90.8	\$ 86.7

TOTAL BASIC SCIENCES - RESOURCE

SUMMARIES	<u>\$397.1</u>	<u>\$362.7</u>	<u>\$426.3</u>	<u>\$414.8</u>
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DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: ATOMIC ENERGY DEFENSE ACTIVITIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
INERTIAL CONFINEMENT FUSION	\$ 129.6	\$ 122.2	\$ 126.0	\$ 122.0
NAVAL REACTOR DEVELOPMENT	247.4	251.8	290.6	262.1
WEAPONS ACTIVITIES	1,395.3	1,270.9	1,460.6	1,386.6
INTELLIGENCE & ARMS CONTROL	24.7	23.3	28.4	27.4
SPECIAL MATERIALS PRODUCTION	674.7	602.9	903.9	699.6
NUCLEAR MATERIALS SECURITY & SAFEGUARDS	40.7	36.7	43.1	38.1
UNOBLIGATED BALANCES	-	-	-23.5	-
TOTAL ATOMIC ENERGY DEFENSE ACTIVITIES	<u>\$2,512.4</u>	<u>\$2,307.8</u>	<u>\$2,829.1</u>	<u>\$2,535.8</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

ATOMIC ENERGY DEFENSE ACTIVITIES - RESOURCE SUMMARIES

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
<u>INERTIAL CONFINEMENT FUSION</u>	\$ 129.6	\$ 122.2	\$ 126.0	\$ 122.0
<u>NAVAL REACTOR DEVELOPMENT</u>				
Submarine Propulsion Reactors	\$ 159.5	\$ 163.1	\$ 191.9	\$ 176.0
Surface Ship Propulsion Reactors .	55.0	54.9	77.0	64.6
Supporting R&D/GPP	<u>32.9</u>	<u>33.8</u>	<u>21.7</u>	<u>21.5</u>
TOTAL NAVAL REACTOR DEVELOPMENT	\$ 247.4	\$ 251.8	\$ 290.6	\$ 262.1
<u>WEAPONS ACTIVITIES</u>				
Research & Development	\$ 432.6	\$ 412.7	\$ 490.2	\$ 443.7
Test	246.5	242.3	227.9	232.4
Production & Surveillance	707.3	607.2	734.1	703.4
Other Capital Equipment	<u>8.9</u>	<u>8.7</u>	<u>8.4</u>	<u>7.1</u>
TOTAL WEAPONS ACTIVITIES	\$1,395.3	\$1,270.9	\$1,460.6	\$1,386.6
<u>INTELLIGENCE & ARMS CONTROL</u>	\$ 24.7	\$ 23.3	\$ 28.4	\$ 27.4
<u>SPECIAL MATERIALS PRODUCTION</u>				
Production	\$ 371.5	\$ 331.0	\$ 539.7	\$ 405.2
Process Development	15.5	14.0	14.2	12.8
Defense Waste Management	<u>287.7</u>	<u>257.9</u>	<u>350.0</u>	<u>281.6</u>
TOTAL SPECIAL MATERIALS PRODUCTION	\$ 674.7	\$ 602.9	\$ 903.9	\$ 699.6
<u>NUCLEAR MATERIALS SECURITY & SAFEGUARDS</u>	\$ 40.7	\$ 36.7	\$ 43.1	\$ 38.1
TOTAL ATOMIC ENERGY DEFENSE ACTIVITIES - RESOURCE SUMMARIES	<u>\$2,512.4</u>	<u>\$2,307.8</u>	<u>\$2,829.1</u>	<u>\$2,535.8</u>

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

MISSION: POLICY AND MANAGEMENT

	FY78 ESTIMATE		FY79 ESTIMATE	
	BA	BO	BA	BO
GENERAL SYSTEMS STUDIES	14.9	15.5	19.9	18.8
PROGRAM DIRECTION AND MANAGEMENT				
SUPPORT	326.9	359.7	339.3	339.3
INSTITUTIONAL RELATIONS	29.4	30.8	30.5	30.5
CONSUMER AFFAIRS AND SPECIAL IMPACT ..	0.6	0.5	1.2	0.5
IN-HOUSE ENERGY MANAGEMENT	1.7	0.8	37.4	10.8
SECURITY INVESTIGATIONS	12.2	12.6	13.9	13.8
PUBLIC AWARENESS	3.8	3.8	3.4	3.4
EEO CONTRACTOR COMPLIANCE	3.8	4.0	4.3	4.3
DECONTAMINATION AND DECOMMISSIONING ..	18.2	16.3	25.2	23.7
INTERNATIONAL COOPERATION NON-NUCLEAR				
TECHNOLOGIES	5.2	5.6	5.3	5.2
OTHER SUPPORTING ACTIVITIES	14.0	7.8	20.6	17.9
COST OF WORK FOR OTHERS	18.3	18.2	22.6	21.4
MISCELLANEOUS REVENUES	-100.7	-100.7	-54.0	-54.0
CHANGES IN INVENTORIES AND WORKING				
CAPITAL	40.0	19.5	35.3	23.9
TOTAL POLICY AND MANAGEMENT	<u>\$388.3</u>	<u>\$394.4</u>	<u>\$504.9</u>	<u>\$459.5</u>

FY 1979 DOE BUDGET TO CONGRESS

Plant and Capital Equipment
(\$ IN THOUSANDS)

<u>Construction Projects</u>		<u>Total Estimated Cost</u>	<u>Authorization</u>	<u>Appropriation</u>
<u>FY 1979 Construction Projects</u>				
79-1-i	AWBA Test and Examination Facilities, Bettis Atomic Power Laboratory, West Mifflin, Pennsylvania	\$ 9,000	\$ 9,000	\$ 9,000
79-4-a	Modifications for energy management, various locations	25,000	25,000	25,000
79-7-c	Protron storage ring, Los Alamos Scientific Laboratory, New Mexico	16,700	16,700	16,700
79-7-g	Facilities for B43 modernization, various locations	18,000	18,000	18,000
79-7-k	Waste management facilities, Savannah River, South Carolina	75,000	75,000	75,000
79-9-b	Energy Saver, Fermi National Accelerator Laboratory, Batavia, Illinois	38,900	38,900	10,000
<u>Prior Year Projects</u> (Authorization increased or appropriation requested for projects previously authorized)				
78-2-c	Low Btu fuel gas small industrial demonstration plant	25,000	19,000	9,000
78-2-d	Solvent refined coal demonstration plant, site undetermined (A-E long lead procurement and limited construction)	30,000	0	20,000
78-3-a	Mirror fusion test facility, Lawrence Livermore Laboratory, California	94,200	0	40,000

FY 1979 DOE BUDGET TO CONGRESS

Plant and Capital Equipment
(\$ IN THOUSANDS)

<u>Construction Projects</u>	<u>Total Estimated Cost</u>	<u>Authorization</u>	<u>Appropriation</u>
<u>Prior Year Projects - Continued</u> (Authorization increased or appropriation requested for projects previously authorized)			
78-4-a High energy laser facility (NOVA), Lawrence Livermore Laboratory, New Mexico	\$ 195,000	\$ 187,000	\$ 20,000
78-5-a Facilities for the National waste terminal storage program, site undetermined (land acquisition, A-E and long- lead procurement)	55,000	45,000	25,000
78-6-f Fuels and materials examination facility, Richland, Washington	117,000	117,000	15,000
78-10-b Intersecting storage accelerator (ISABELLE) 400 X 400 GeV, Brookhaven National Laboratory, Upton, New York	275,000	264,500	23,000
78-13-a National Synchrotron light source, Brookhaven National Laboratory, Upton, New York ..	24,000	0	10,000
78-14-a Centrifuge facilities modifica- tions, various locations	30,000	0	16,000
78-18-b High-level waste storage facilities, Savannah River, South Carolina	42,000	0	26,000
78-18-e Environmental, safety and security improvements to waste management and materials processing facilities, Richland, Washington	40,000	24,500	30,000

FY 1979 DOE BUDGET TO CONGRESS

Plant and Capital Equipment
(\$ IN THOUSANDS)

<u>Construction Projects</u>	<u>Total Estimated Cost</u>	<u>Authorization</u>	<u>Appropriation</u>
<u>Prior Year Projects - Continued</u> (Authorization increased or appropriation requested for projects previously authorized)			
77-13-a Fluorinel dissolution process and fuel receiving improvements, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho	\$ 115,400	\$ 100,400	\$ 100,400
78-13-f Waste isolation pilot plant, Delaware Basin, Southeast, New Mexico	68,000	40,000	40,000
76-1-b High Btu synthetic pipeline gas demonstration plant	246,000	191,000	40,000
76-1-c Low/Medium Btu fuel gas industrial demonstration plant	150,000	0	14,000
76-2-b Ten megawatt central receiver solar thermal power plant, Barstow, California	108,000	24,250	28,000
76-5-a Tokamak fusion test reactor, Princeton Plasma Physics Laboratory, Plainsboro, New Jersey	238,600	0	42,000
76-8-g Enriched uranium production facilities, Portsmouth, Ohio	582,630	220,000	250,000
75-6-c Positron-electron joint project, Lawrence Berkeley Laboratory and Stanford Linear Accelerator Center, Stanford, California	78,000	0	14,700

FY 1979 DOE BUDGET TO CONGRESS

Plant and Capital Equipment
(\$ IN THOUSANDS)

<u>Construction Projects</u>	<u>Total Estimated Cost</u>	<u>Authorization</u>	<u>Appropriation</u>
<u>Prior Year Projects - Continued</u> (Authorization increased or appropriation requested for projects previously authorized)			
71-1-f Process equipment modifications, gaseous diffusion plants	\$ 990,000	\$ 70,000	\$ 97,000

DEPARTMENT OF ENERGY
FY 1979 BUDGET
(\$ IN MILLIONS)

FUNDING SUMMARY

	FY 1977		FY 1978		FY 1979	
	BA	BO	BA	BO	BA	BO
Federal Funds						
Operating expenses						
(Gross).....	\$ 5,954	\$ 5,233	\$ 9,652	\$ 8,552	\$ 12,224	\$ 9,964
Less: Revenues	<u>-738</u>	<u>-748</u>	<u>-1,066</u>	<u>-1,066</u>	<u>-1,263</u>	<u>-1,263</u>
Operating expenses (Net)	5,216	4,485	8,586	7,486	10,961	8,701
Less: Transfer to other agencies	<u>-1</u>	<u>0</u>	<u>-1</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total operating expenses adjusted	<u>5,215</u>	<u>4,485</u>	<u>8,585</u>	<u>7,486</u>	<u>10,961</u>	<u>8,701</u>
Plant and capital equipment :						
Capital equipment	310	234	373	313	373	310
Construction projects	<u>1,338</u>	<u>741</u>	<u>1,325</u>	<u>1,023</u>	<u>1,417</u>	<u>1,169</u>
Total plant and capital equipment	<u>1,648</u>	<u>975</u>	<u>1,598</u>	<u>1,336</u>	<u>1,790</u>	<u>1,479</u>
Total operating expenses and plant and capital equipment	<u>6,863</u>	<u>5,460</u>	<u>10,283</u>	<u>8,822</u>	<u>12,751</u>	<u>10,180</u>
Other Federal Funds						
Legislative Programs						
Uranium enrichment services charges ..	0	0	0	0	-163	-163
Decontamination and decommissioning ...	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>3</u>
Total legislative programs	0	0	0	0	-158	-160
Pending supplemental .	0	0	711	110	0	602
Proposed supplemental	<u>0</u>	<u>0</u>	<u>415</u>	<u>0</u>	<u>0</u>	<u>415</u>
Total Other Federal Funds	<u>0</u>	<u>0</u>	<u>1,126</u>	<u>110</u>	<u>-158</u>	<u>857</u>
Total Federal Funds	<u>6,863</u>	<u>5,460</u>	<u>11,409</u>	<u>8,932</u>	<u>12,593</u>	<u>11,037</u>
Trust Funds						
Advances for cooperative work	14	13	6	6	3	3
Less: Offset receipts	<u>-14</u>	<u>-13</u>	<u>-6</u>	<u>-6</u>	<u>-3</u>	<u>-3</u>
Net Trust Funds	0	0	0	0	0	0
TOTALS	<u>\$ 6,863</u>	<u>\$ 5,460</u>	<u>\$ 11,409</u>	<u>\$ 8,932</u>	<u>\$ 12,593</u>	<u>\$ 11,037</u>

REPORT TO CONGRESS

Senator JOHNSTON. Thank you very much, Dr. Schlesinger. Dr. Schlesinger, as part of EPCA the Department of Energy, or FEA, its successor agency, was required to come up with an assessment of national energy needs, how those needs were to be met, a statement on the alternative methods of meeting those needs, and a statement of what the problems were as far as national security, environment, economic, and so forth, with each one of those options. That was 2 months ago. Does the Department of Energy have any plan to comply with that law?

Dr. SCHLESINGER. Yes, sir. We have an annual report we are supposed to publish. We are due to update the national energy plan, I believe, every 2 years. So those reviews will be presented to this committee.

Senator JOHNSTON. Every 2 years?

Dr. SCHLESINGER. An update of the national energy plan would be every 2 years. The annual report, of course, would be every year.

Senator JOHNSTON. Do you regard the national energy plan as complying with that earlier law?

Dr. SCHLESINGER. It is a partial response; yes, sir.

Senator JOHNSTON. I would hope someone in your shop could re-examine that and determine whether it still does comply. In my view, the national energy plan did not comply with that law. As the author of that amendment, I would like to see it complied with.

Dr. SCHLESINGER. Of course, Mr. Chairman, that FEA statute was reformed in the Department of Energy legislation, and that requirement was provided with other requirements that I have indicated. But, if you have problems with the way in which these matters will be handled under the DOE Organization Act, we would like you to bring those to our attention.

COST OF COAL VERSUS NUCLEAR POWERPLANTS

Senator JOHNSTON. Dr. Schlesinger, yesterday before the Public Works Appropriation Subcommittee, TVA testified, and as you know, they are very heavily into all kinds of electric generation. They are pioneers in nuclear technology. Among other things, they said that to generate a kilowatt-hour of electricity by nuclear, costs about 5 mills, and to produce the same kilowatt-hour of electricity by coal, costs 11 mills.

I then asked them what about the future with rapidly escalating costs and all of the difficulties of licensing. They said that in spite of all of that according to their projections, it still would be 30 percent cheaper to generate a kilowatt-hour of electricity by nuclear than by coal.

First, do you concur with that nationwide?

Dr. SCHLESINGER. Mr. Chairman, I think that differs in accordance with the part of the country. The cost of electricity of coal-fired plants in the Middle West and probably in the Rocky Mountain States is relatively lower than it is elsewhere. If one were to use coal in California, one would have to bear heavy transportation costs. Generally

speaking, I would expect nuclear power should be cheaper nationwide. However, it will differ somewhat by region.

Senator JOHNSTON. Very well, that being so isn't it time for this country through the national energy plan part II to make a decision on where we are going with nuclear? Because it is very clear we have deemphasized nuclear. I understand some of the manufacturers are getting out of the business. No new nuclear plants are coming on line. As a nation we are proceeding as if we had an option and nuclear is not necessary, that somehow we can replace nuclear with coal and do so as cheaply.

Don't we need to make that decision as a country, face up to it, and make that a national plan?

Dr. SCHLESINGER. In my judgment we should make that decision, and to what extent we will tolerate or encourage nuclear power in this country. I think the decision as between the types of capacity should be left to the utilities. We should have a viable nuclear option. But whether or not a utility should go nuclear or coal-fired should be up to the utility.

NUCLEAR LICENSING PROCESS

As you have indicated, we have had very few orders for new nuclear plants in recent years partly because of the uncertainty of the licensing process. I mentioned to the chairman we expect to submit a proposed licensing bill next week.

Senator JOHNSTON. That will not include siting provisions?

Dr. SCHLESINGER. It will include siting provisions. The emphasis will be on a one-step siting provision. We hope that each of the States can also establish a one-step siting provision. The States will decide on environmental issues and the standardized nuclear plants approved by the NRC. The approved site will be married together with the standardized nuclear plant. We believe that should increase the certainty in the licensing process on the one hand dramatically shorten the time involved while reducing the risks.

Senator JOHNSTON. What kind of timelag are you talking about?

Dr. SCHLESINGER. At the present time, from the time a decision is made to build a nuclear plant until the time it starts up takes something on the order of 10 to 12 years. We trust as a result of improvements in the process, future plants will take 6 to 7 years from the decision by the utility until the time it is producing power.

Senator JOHNSTON. If you can do that, you will win a lot of kudos from a lot of people around the country including myself. Dr. Schlesinger, I must mention to you that staff have complained and Senators have complained about the lack of input or lack of responsiveness from the Department of Energy. We are particularly concerned about the national energy plan part II. By the way, if the staff would hand this letter to Dr. Schlesinger, it is from me seeking to get some action on a matter I have not been able to get any action on.

Dr. SCHLESINGER. Would you pass the collection plate please?

[Laughter.]

Senator JOHNSTON. I mention that because we have got many parts to that. I am not talking just about natural gas, or producing-State issue; it is a whole panoply of issues that Congress ought to have some input into.

NEW PROCESS FOR REPROCESSING NUCLEAR FUEL

We hope the Department of Energy will be responsive to those requests. Dr. Schlesinger, in yesterday's Washington Post there was mention of a new process developed by the British that would reform chemically fuel from nuclear reactors, I think it was breeder reactors, to make it nonexplosive.

Can you give us a comment on that? How is that going to change the administration's decision on the breeder reactor?

Dr. SCHLESINGER. I think, Mr. Chairman, we should evaluate that process, to see whether or not it offers sufficient protection. It would continue to have other elements than plutonium in the supply stream. It would be premature to make such an observation at this time.

Senator JOHNSTON. Thank you. I see my 5 minutes are up.

Senator HANSEN. I have put in a lot of time already. I will yield to my friend from Idaho.

Senator McCURE. Thank you, Mr. Chairman. I appreciate the courtesy of the Senator from Wyoming. I will try in 5 minutes to give a brief overview by some questions.

I am not certain, Dr. Schlesinger, whether I will help you more by being nice to you or castigating you.

Dr. SCHLESINGER. Have you decided which option you will take?

Senator McCURE. No; I was seeking guidance from you. I have the feeling if I were to say Dr. Schlesinger, you were making the decisions, I would feel much more confident, but I am also sure you are not making the decisions because I know from looking at this budget it does not reflect your views and I suspect down there in the White House shop there are some other people who have rubbed off some of the sharp expressions of your own views and substituted some expressions of their own. Maybe that will hurt you more than if I said you are responsible for all of the deficiencies in this budget.

I don't mean to put it in that light at all, except to ask these kind of questions.

OIL SAVINGS RESULTING FROM CONSERVATION

How much oil will be saved next year by conservation?

Dr. SCHLESINGER. That is a difficult question to answer. One is not comparing it with last year, one is comparing it with what would have been. I think we probably will reduce consumption of oil and natural gas by 2 percent or something of that order, compared to what it otherwise would have been without these conservation measures. But we will certainly furnish a more precise estimate.

[Subsequent to the hearing Dr. Schlesinger supplied the following:]

ENERGY SAVINGS FROM NEA CONSERVATION PROGRAM IN FISCAL YEAR 1979

Taking into account the rapidity with which the various conservation features in the NEA can reasonably be expected to be implemented, it is estimated that U.S. energy consumption could be cut in fiscal year 1979 by slightly less than one-fourth of a quad or somewhat in excess of 100,000 barrels per day of oil equivalent.

Senator McCURE. How much oil on a daily basis will be saved by 1985 under current plans?

Dr. SCHLESINGER. If one goes beyond EPCA, which mandated greater fuel efficiency for automobiles, and if the national energy plan

were enacted in its entirety, it would save approximately 45. million barrels of oil a day.

Senator McCURE. That is over what it would have been if they had not been instituted rather than 4.5 million barrels a day less than we are using?

Dr. SCHLESINGER. That is correct, sir. We would expect to be consuming approximately the same level of petroleum in 1985 as at the present time. Alternatively, the total consumption would grow to something on the order of 23 million barrels a day without such legislation.

Senator McCURE. So in your plans the growth between now and 1985 will be in the field of coal primarily?

Dr. SCHLESINGER. Yes, sir. There will be little growth of nuclear power because of the long leadtimes required.

GROWTH IN NUCLEAR POWERPLANTS BY 1985

Senator McCURE. How much growth of nuclear power will there be by 1985?

Dr. SCHLESINGER. There are approximately 130 additional plants that should come online, as I recall.

Senator McCURE. There are only 57 now in the licensing process. There are expected to be four applications for seven units in 1979, and even those additional four cannot possibly be online and in use by 1985.

Dr. SCHLESINGER. That is correct. No plants ordered now will be online in 1985. The nuclear licensing legislation should straighten out some of our difficulties, but it will have little impact up to 1985.

I should not have said an additional 130; it will be a total of 130 in 1985, which is approximately 73 plants more than we have today. Those are all in the pipeline and they are coming onstream.

Senator McCURE. In fact, we have 67 in operation now, 63 in some stage of planning. That totals 120. That will be four applications in 1979 for seven units. If all of those are approved and if they should happen to be online by 1985, that would make it 127. I am not going to quibble over 120 or 130.

Dr. SCHLESINGER. I think the point is, those plants in the pipeline now represent the only additional capacity we will have online by 1985.

DELAYS IN FILE OF STRATEGIC OIL RESERVE

Senator McCURE. We have a very large commitment in the budget to the strategic oil reserves. I have heard statements made by some who claim to know that that reserve program is having some difficulty because of very high questions of leakage in the storage.

Dr. SCHLESINGER. No, sir. These sites are very carefully tested in advance. There has been some question raised about the integrity of such perspective sites, but the sites are being tested. The program is in some difficulty in the sense we are not achieving the rate of fill we would like to achieve. We requested funds from the Congress for the maximum possible fill rate.

We believe the fill rate is approximately 6 months behind schedule. So some of these numbers can be slipped in terms of the speed of acquisition of the reserve.

Senator McCURE. There is no truth in the rumors there is leakage in the existing storage?

Dr. SCHLESINGER. Testings and certification to insure cavern integrity occurs prior to the use of the storage site. No leaks have occurred to date at any of the sites.

Senator McCURE. All right. Mr. Secretary, my 5 minutes are up. I do want to share the time with others. But let me simply say not with regard to you personally or DOE in particular, but the administration's efforts which were characterized by the President's clarion call that this was the moral equivalent of war. I am glad it was just an equivalent. We could extend that analogy of a wartime strategy; if this had been Pearl Harbor and the Japanese would have been in Virginia while we were still trying to decide whether they had attacked Pearl Harbor.

Dr. SCHLESINGER. I think that is a good subject for comment. He did not declare war. He called for the moral equivalent of war. He did not suggest our situation was so desperate we had to have wartime measures. What the moral equivalent of war implies is that we achieve that national degree of consensus in facing up to this problem that historically has only been achieved in times of war. Given the divisions we see amongst us at this time, we have not responded to that moral equivalent of war.

NEED FOR URGENCY IN SOLVING ENERGY PROGRAM

Senator McCURE. Let me conclude with one other statement. My concern is we do not have the sense of urgency as a nation that we should have in addressing this problem and I do not see that sense of urgency in the administration's budget proposed to us. The assault on the dollar, the decline in our economic strength, the proposals that somehow we are going to get a viable, growing economy with the number of jobs we have to have, with a growth rate of energy consumption below 2-percent annual rate seems to me to be preposterous and dangerous in the extreme.

We have now been told if we just pass the energy bill, we will have it solved. I think that a great many people assume if this conference does come to some conclusion and the bill is passed, then we have solved the problem. We have not. We have only begun. We are talking about a phase II program which is only now, even though the administration has been in place for over a year, being thought about. It is not even included in the fiscal 1979 budget, which means unless there are additions to the deficit there will be no expenditures for phase II prior to October 1, 1980.

Dr. SCHLESINGER. Senator, no one has suggested the passage of the national energy plan will solve all of our energy problems. We are going to have to continue to work as a nation on these problems, this year, next year, after the passage of such legislation. It will require continuous attention and unremitting effort by all of us. I welcome your comment in that regard. It underscores the need for that.

Anyone who believes the national energy plan is somehow a national panacea that will permit this problem to go away, should be disabused. I would urge upon you, Senator, and Senator Hansen, and others of your colleagues, that solutions to the national energy problem do not

automatically come from Government expenditures. Over the years we have had too much of a habit of simply taking public money and throwing it at a problem and hoping it will go away. I believe that is a position you have taken over the years. What the national energy plan has done is attempt to establish a pricing framework which will induce the private sector to move in the direction of greater fuel efficiency, to shift to more abundant fuels. It is a set of incentives. It does not require throwing public money at issues. Indeed, as I indicated, this budget represents the accumulation of the submissions of predecessor agencies of the Department of Energy. But we may have gone too far in duplicative research and development expenditures.

What we need to solve the energy problem is the use of new technologies in the commercial sector. The continuation of research and development expenditures almost as an end in itself is another way of avoiding the problem and another way of creating in the public mind, that research and development is some kind of public panacea.

Senator McCLEURE. I thank you for that statement. I agree with what you said and I appreciate it. I will allow someone else to go ahead, my time has expired.

Senator JOHNSTON. Senator Church is singlehandedly managing the parapets on the Panama Canal, he has to get back.

Senator CHURCH. It may take us as long to debate these treaties as it took us to build the canal.

REPROCESSING OF SPENT FUEL

I would like to make two observations. This is an opportunity for us to communicate, Mr. Secretary. First of all, I think the chairman made reference to the rather astonishing news that appeared in the papers yesterday that a technique has been developed which is proliferation proof for the reprocessing of spent fuel rods from commercial reactors. I do not know whether the claims are well founded but they come from a source that has great credibility.

If it proves to be the case, I think this is a tremendous breakthrough on the energy front. The President has had a very laudable objective. He has sought to encourage the expansion of the peaceful use of nuclear energy, but to do so in the form that would not complicate or exacerbate the problem of nuclear weapons proliferation. That is a very laudable goal.

This discovery may make it possible for him to seize the prize. You know, I know, members of the committee know, if this discovery enables us to proceed with the breeder reactor, we can increase by 100 or a thousandfold the energy potential in natural uranium supplies. It would be a tremendous breakthrough. I would hope very much you would give this high-priority attention.

Dr. SCHLESINGER. Yes, sir.

Senator CHURCH. It seems to me by delaying, the President may very well have been right, although I took a different position—I felt we had to proceed with the nuclear breeder technology—but this could be the open door that could enable us to achieve that nonproliferation goal we all support and at the same time give us a tremendous breakthrough on the energy problem.

So I commend that to you very highly and hope you may have an opportunity to discuss it with the President.

Dr. SCHLESINGER. Yes, sir. As I indicated to Senator Johnston, we will review these proposals.

RESEARCH AND DEVELOPMENT VERSUS INCENTIVES

Senator CHURCH. Good. The second thing I would like to mention to you before I leave has to do with your mentioning public money thrown at the problem does not necessarily mean that it will go away. I concur with that. Recently, I introduced a bill that avoids the research and development kind of syndrome of pilot projects, demonstration projects, and Federal employees to cultivate the problem as long as their vested interest leads them to perpetuate it. It would simply lay upon the industry—the oil industry in this case—the requirement, within a reasonable time, to start mixing alcohol with gasoline; and give them a chance to tool up and then giving them a schedule to meet.

The other side of the bill is that we would derive the alcohol from replenishable sources. We would not turn from one depletable resource, oil, to another, coal, for the purposes of securing the alcohol but we would start to grow our fuel from sources that will endure as long as the soil lasts and the Sun shines.

The bill has other benefits. It could develop a sizable new market for the farmer whose problems have been chronic surplus production. Once the mix of 10/90 is achieved, it would reduce our import of costly foreign petroleum by 20 percent or more. I would hope your Department would give this kind of approach to the Gasohol idea very careful attention. I don't pretend to know all of the answers. There may be holes in this approach that we need to know about. But if it is as promising as it would appear to be, it could go far toward helping us solve our energy problem and our farm problem at the same time and it would reduce our dependency upon depletable resources. It ought to be long-term objective of the Department.

I commend this to you and I would hope you would have an opportunity to discuss it further. I think it is the way to go.

Dr. SCHLESINGER. We are thinking along similar lines, Senator. Such considerations are a part of the phase II review to which I referred. It is one of the ways in which regulatory devices are associated with new technologies in such a way as to draw them into the commercial sector without the research and development syndrome and without heavy Government expenditures on plants.

Therefore, this type of advice, this kind of approach has a great deal of appeal. I cannot say which way we will ultimately go but I believe it does offer substantial promise and something on the order of a million barrels a day in the 1980's.

GASOHOL

We continue to have an open mind on the question of depletable or nondepletable resources. Alcohol from grain would cost about \$90 a barrel as a fuel substitute, whereas methanol from coal would cost about \$30 a barrel. There is, therefore, an obvious cost advantage in going to coal. In addition, the Mobil Corp. has recently developed what appears to be a promising process to convert directly from methanol to gasoline which means we could avoid the substantial

investment in changes in carburetors and changes in service station requirements, if we can produce gasoline directly.

We have not made any judgments in this area, however. These are the kind of considerations we would address ourselves to. The general advice, the approach, you have referred to is one I think that has great attraction for the country.

Senator CHURCH. Thank you, Mr. Secretary. We will have an opportunity to pursue this further.

Senator JOHNSTON. Senator Bartlett.

Senator BARTLETT. Mr. Chairman, thank you very much. Dr. Schlesinger, I believe EPCA was signed at the end of 1975.

Dr. SCHLESINGER. Yes, sir.

CRUDE OIL PRICE

Senator BARTLETT. Part of the mandate of EPCA was that the DOE would adjust from time to time the prices of various crude oils according to the provisions of this bill. As I understand it now, that would mean increasing the computed composite from approximately \$8.36 to \$8.99 per barrel which would be a 63-cent incremental increase. This could go toward new oil, as I think the category has been called, or used for secondary recovery. It could very definitely enhance our domestic production. Why has this not been used?

I understand this amounts to a little over 4 million barrels a day in October. That would calculate on a yearly basis to approximately \$1.45 billion which would be a sizable increase in the money available to private enterprise for drilling of one kind or another.

Dr. SCHLESINGER. We are sympathetic, indeed in some respects eager to provide these resources for the industry that are allowed under the composite under EPCA. We adjust these numbers quarterly and we are now doing so in relation to the GNP deflator. But you refer to the difference between existing price level and the ceiling price represented by the composite.

We have pointed out to Senator Long and to members of the industry that we are prepared to take administrative action to bring these prices up to the composite. As a matter of fact, I believe I had an extended talk with Senator Hansen on bringing the prices up to the composite in association with the passage of the National Energy Plan. I think that makes it a very intensive process for industry and industrial support. I have said to Senator Hansen we are eager to help industry in this regard if he will help us help them.

Senator BARTLETT. My reaction to that proposal is to call it blackmail. I believe you and the Department very definitely have a mandate from Congress to periodically review and make adjustments in the price, irrespective of any action by Congress with respect to the largest tax increase in the history of the country which Congress will be passing if the full COET tax is passed.

I noticed the difference between the composite price and the OPEC price at the end of 1975 was \$5.34. The purpose of EPCA as given to the general public was to deregulate over a period of time, I believe by 1981, the price of crude oil so that the marketplace powers would be at play on the drilling activity and hence the oil in the fields. That was \$5.34; today the difference is \$6.14; so we have gone backwards.

You could make a very substantial adjustment, currently amounting to almost \$1½ billion. I believe the projected figures for the industry are something like \$8 or \$9 billion, so \$1½ billion on top of that is a very substantial amount of money.

So I don't see why you have to tie it to a tax increase when you have a mandate from Congress to make periodic adjustments in the price.

Dr. SCHLESINGER. We certainly have the permission of the Congress to go up to the composite level. I would hesitate to endorse a word like blackmail. I think this is an inducement to the industry. They recognize they have great advantages in this area and if we can have some effective cooperation among industry, the Congress, and the Administration, the problems to which you refer can be rapidly solved.

Senator BARTLETT. What you are saying to Congress and to people who happen to believe in a deregulated price is going to help solve the energy problem and firm up the dollar; you are telling us we must support and pass a proposal for a huge tax increase which we do not think will add to the domestic supplies of energy and for a program we think would be unfair to the American public. I call it blackmail. I think very definitely that you have the authority, and I say the mandate, to make these adjustments from month to month or quarter to quarter. But you are not doing it.

Dr. SCHLESINGER. We are making the adjustments monthly on the basis of preserving the real value of the barrel of oil. We are adjusting these figures in order to reflect the alteration in the GNP deflator.

Senator JOHNSTON. May we come back for a second round of questioning; we want to give everybody their first 5 minutes.

Senator BARTLETT. I was counting my 5 minutes the way the previous 5 minutes were counted. Let me just point out, and then I will yield, the increase in your budget is \$2.3 billion. If you add, you call it \$1½ billion, which you can increase—is that correct?

Dr. SCHLESINGER. The increase is \$2.3 billion, but as I indicated earlier that was overstated slightly, probably, because of adjustments to fully fund some new facilities that are fully funded now.

INDUSTRIAL PRODUCTION OF MORE ENERGY

Senator BARTLETT. Call it \$2.3 or \$2.2—plus \$1.4 billion—that could be made as an adjustment in the price of crude oil. That comes out to \$3.7 billion. What I am asking you is: do you think the industry could produce more energy than could the Government if the increase in your budget was made available to the industry, rather than made available to the Department of Energy, plus the 1.4 billion that you have available in your authority to make available to industry? Recalling your statement to the Senator from Idaho about the fact that government itself is not a cure-all or a panacea—I am asking you which do you think would produce more energy, the industry with the \$3.4 billion or the Government with the \$3.4 billion?

Dr. SCHLESINGER. The way you put the question, I think the answer is quite plain. The Government is not, aside from nuclear power and hydro and such things, in the energy producing business. Industry is in that business. The budget increase to which you refer is caused by two major items. The first item provides for provision of a strategic petroleum reserve. This is protection for the United States. It is insurance, and it has been recommended to us by the National Petroleum Council which has almost universal support.

The other major item of increase is in defense programs. I do not see why our Trident submarines should go without warheads because industry might be able to invest additional money. If I understand the deliberative process that goes on on the Hill if the budget were to be reduced, I doubt if the beneficiary would be industry. It would be some other Department of the Government.

Senator BARTLETT. I will agree with that.

SUBSTITUTE SEPARATE BILLS FOR THE NEP

Senator HASKELL. Mr. Secretary, one preliminary question. We are talking about the President's energy plan as announced last April. There are three bills agreed upon by the conferees and two that were not; one is natural gas and the other is the tax. It seems to me of the three bills, the conservation, the utility rate reform, and the coal utilization are the guts of your program and stand on their own feet.

I wonder why the administration has not asked that they be enacted separately and sent up to the White House for signing and let the Congress see if it can work out the other two. Have you given that some thought?

Dr. SCHLESINGER. I think the administration has been prepared to follow the request of congressional leadership in this regard. If Senator Byrd and the Speaker were to request that, I think that would occur. On the House side, Senator, they have treated this as comprehensive legislation as opposed to the way it has been handled on the Senate side. It would be a subject for the two bodies.

Senator HASKELL. You say wait for Senator Byrd and Tip O'Neill to act. Why don't you folks? It is a sensible idea. Maybe if you suggested it, people would acquiesce. Have you thought of taking the initiative on this?

Dr. SCHLESINGER. We have refrained from taking the initiative. The House has treated this as a comprehensive bill.

Senator HASKELL. I am aware of all of this.

Dr. SCHLESINGER. The Senate provisions are different. They are not eager at this stage. We do not see the necessity of getting between the two bodies.

OIL-SHALE PRODUCTION

Senator HASKELL. Generally, this committee will act on your budget and take such actions as the majority of the committee feels appropriate. I won't ask you in great detail; however I would like to get your reaction to a couple of things. One is absence of apparent commitment to oil shale. The Subcommittee on Energy Production and Supply of this committee had a hearing, and at that hearing I made the state that the oil in shale, moderate and high grade, was the equivalent of oil in the Middle East. I was corrected by a gentleman who knows much more about it, a Dr. DeCora, who said it is twice that. At that hearing it was apparent industry was going along very slow at that time.

A suggestion was made by myself as chairman of the subcommittee that Federal tests be made on a particular site where you have a lot of environmental information. But Dr. DeCora said the approximate costs would be \$3 billion. Dr. Schlesinger, everybody has figures on the cost of shale and all of those figures differ; everybody has ideas on the environmental effect, and everybody's ideas are different.

You know, it is very popular these days to say you cannot throw Federal money at a problem. But let us not forget we developed the rubber industry by Federal effort. Let us not forget we put a man on the Moon by Federal effort.

I guess my question to you is a problem of as serious a nature as this problem. Senator Hansen talked about the problem of the dollar; I agree, the dollar is down, the stock market is down. Why is there nothing in this budget that I can see that shows a real commitment to finding out about oil shale? Maybe it is not a national asset. But with the gambling odds of what you have got to gain as opposed to the money you spend, why don't we try?

Dr. SCHLESINGER. Once again, Senator, that is a question as to the appropriate role of direct Federal activity as opposed to private industry. There are two comments I would make in this connection.

First, that in the review of the Finance Committee and conference committee examination of a tax credit for shale oil production, we have been more inclined to look at a price guarantee somewhat above the present world price. If one had that, we trust that would induce vigorous activity on the part of the industry to bring in shale oil.

In addition, we have phase II under review. Senator Church has referred to his own proposal. If that proposal were not to be directed toward farm products but toward any type of synthetic or any type of new technology, it could provide the market for inducing the flow of shale oil. We may come to the point where we emulate World War II rubber production, but we do not wish to.

COST UNCERTAINTIES

Senator HASKELL. Let me make a comment for the record. Industry testified at that hearing; they supported this effort and felt it would not interfere with theirs. Secondly, the thing that has been talked about in the Finance Committee is the \$3 tax credit. If you don't know your costs, you have no idea whether at \$3 you are throwing away money from the Government or it is too little. The same thing is true with the price guarantee. You do not know the costs.

My only thought is, let's find the cost and environmental effect. Maybe my viewpoint differs from yours. Maybe I could persuade this committee to go with mine. I don't know. We will find out.

Dr. SCHLESINGER. I am very sympathetic to what you are saying, Senator. I am not sure that there is that much difference with regard to costs. The estimate has been made that \$3 above the world price would do it. But I share your view on the uncertainties. We have been hearing the same story now for 15 or 20 years when the price of oil was \$2 a barrel and they said \$3 or more would do it. So it may be receding over the horizon and we ought to know that.

SOLAR BUDGET

Senator HASKELL. There is one area that does concern me very much. The General Accounting Office recommended a budget for solar of \$550 million or thereabouts. You come in with \$200 million less. I find this very bothersome. For example, in your development of a solar commercialization program you come in with a requested \$2.7 million. Your demonstration requests are way down. Again, I find

this something less than a commitment to what hopefully will be a good source of energy. If I could just have your viewpoint on that, I would appreciate it.

Dr. SCHLESINGER. As I mentioned earlier, the budget reflects the recommendations to the Office of Management and Budget by our predecessor agencies. I share your view with regard to the prospects for solar power. I think the Government's role in this is to bring in new technologies outside of commercial availability. To bring in commercial technologies, we are providing tax credits and we hope to see 2½ million homes equipped with solar features by 1985. Solar hot water heating is here now, if we can bring it into fashion. Solar heating looks now as if it is cost-effective; not solar cooling, but solar heating.

For that reason, the demonstration projects for solar heating have been reduced; when we reach the end of the cycle, while solar cooling continues. There are additional technologies. Photovoltaics look very promising in the long run. We will have to reduce the cost per unit by a factor of 10 to make that applicable and we believe we can do it. But until such time as we have gotten the unit cost down, we do not think large commercial bodies of photovoltaics are appropriate. But I share the point of view you are expressing. Save for those technologies that are not yet developed. We should think about incentive devices, whether they be tax credits, requirements in law, and so on.

Senator HASKELL. I see my 5 minutes are up. I will want to come back, Dr. Schlesinger. But just one comment. Your own internal task force on solar commercialization came up with a series of recommendations. Perhaps on the next go-round we can discuss those. Thank you, Mr. Chairman.

Senator JOHNSTON. Senator Weicker.

FAILURE TO PASS NATIONAL ENERGY LEGISLATION

Senator WEICKER. Dr. Schlesinger, I would like to ask you a question as to whether or not you think the single greatest failure of the administration and of the Congress is the failure to pass energy legislation and to achieve a national energy policy.

Dr. SCHLESINGER. Yes; I think that would be my judgment. But I would say this is a good process; it is a transitional period. Therefore, I am not interested in pointing a finger of blame or anything of that sort. I think it is a difficult period.

Senator WEICKER. The administration's efforts when it came to the coal strike were rather substantial and rather immediate. I am wondering whether or not the same amount of effort has been expended in achieving the passage of energy legislation? I say that because the conference convened on October 18, and now it is March 1. I would like to know what the involvement of the administration has been in trying to gain legislation out of that conference?

You indicated in your reply to Senator Haskell on the subject of division of legislation that there has been no initiative on the part of the administration. I would like to know specifically what efforts the administration has made to achieve a resolution of the difficulties within the conference.

Dr. SCHLESINGER. We will insert in the record a rather lengthy discussion of that matter. My time has been devoted almost continu-

ously to that. As you know, there are two conferences. Senator Long has, in essence, decided the tax conference will not proceed until the natural gas markup has been completed. There was, for an extended period of time, a 9-to-9 division in the conferees on natural gas. We have devoted major efforts in an attempt to break that deadlock.

The President has been involved in that to the extent it seems prudent, given the views of the conferees themselves. The conferees have taken the attitude they must break the deadlock. The House has certainly leaned with regard to the situation on the Senate side.

I have some degree of confidence that the deadlock on natural gas will be broken, and I trust shortly, and consequently that the tax legislation can move forward. But where we have impasses in the Congress, administration involvement is no panacea to handle those impasses.

The administration has performed a wide range of activities over the past year geared toward passage of the NEA. These include:

Testimony by a variety of administration officials while the House and Senate were considering their separate bills. Staff interaction between the administration and the Congress was continuous throughout this period, with a high volume of information flow in response to congressional queries and a substantial number of informal staff meetings. This information flow included special reports on economic and environmental impacts of NEA initiatives, conversion from oil and gas to coal, and oil and gas production estimates to name a few.

Once the bills went to conference, administration activities were restricted to that testimony and information specifically requested by the conferees in order that the conference committee would not be unduly pressured in its decision process.

When the deadlock on natural gas pricing became apparent, Secretary Schlesinger worked closely with the conferees to work toward an acceptable settlement.

The President personally directed that the volume of new legislation be reduced in order to insure that a high volume of conflicting priorities would not interfere with congressional consideration of this most critical area.

Senator WEICKER. I might agree with you in the sense of a close division of authority. On the other hand, aside from the separations that occur in the sense of the executive and legislative branches, there is something that attaches to partisan responsibility. The House conference committee is 17 Democrats, 8 Republicans. The Senate conference, up until the unfortunate death of Senator Metcalf, was 11 Democrats, 7 Republicans.

There were obvious difficulties over the past years where you had a Republican administration and a Democratic Congress. Such is not the case today. The chips are all on one side of the table. As best I can understand, there was little effort on the part of the administration up until the very tail end of the conference, prior to the Christmas recess, to inject themselves in the conference process.

I think there is very little that can be accomplished considering the numbers that confront the Congress unless there is some leadership by the President. I grant you a coal strike in the sense of power supplies being cut off has some very tangible effects.

On the other hand, balance-of-payments deficits, weaknesses in the dollar, downside markets, and a general bad state of the economy

just don't impact as clearly as a coal strike, but they are far more devastating to the health of this Nation.

I would just suggest to you whatever the effort has been in the past, it has not been sufficient considering the bottom line which is a bill.

Dr. SCHLESINGER. We certainly share that thought, Senator Weicker. We have been steadily involved with the conference. I must say on the House side, I am prepared to expiate entirely from responsibility, whatever it is, 12 to 7 Democrats split or what-have-you, they have been eagerly awaiting, they have been panting, for the Senate to come to a position. I must confess the ability of the Senators to resist outside entreaties, whether it be from the House or the administration, has been very impressive.

The difficulty here lies in the Senate and the cure lies in the Senate.

Senator WEICKER. I suggest to you the difficulty lay in fact in the bill, the legislation which was passed by the U.S. Senate is not that which is being pushed in the conference. Again, I repeat to you, the muscle is all on one side here. It ought to be exercised. I think it is clearly a hypocritical performance by the President of the United States to stand before the news media and indicate the reason why we don't have an energy bill is because the Congress has failed to act. Again, I repeat, I ask you my first question and you responded to it, and I think that is where the situation lies. The failure to pass an energy bills stands as the single greatest failure of the Congress and the administration, and we are headed for some pretty difficult times. We are already in those difficult times, unless the problem is resolved.

I would do away with the niceties of whether people's feelings are going to be affected by the intrusion of the executive into the legislative or the legislative into the executive branch. It is the man on the street who is getting clobbered.

Senator JOHNSTON. Senator Durkin.

Senator DURKIN. Thank you, Mr. Chairman. I might add there was no hesitancy toward the natural gas filibuster when they came in with a 5-foot gavel.

Dr. SCHLESINGER. Senator, may I point out the Presiding Officer of the Senate took that particular action. The administration took no position in that particular circumstance.

Senator DURKIN. If you expect me to sit here and say the Vice President came up here on his own hook, then I should starting looking for the Easter bunny.

But in a more serious vein, I think one of the problems is that the national energy plan has asked the American people to draw the wagons in a circle and wait until the problem goes away. I think we have been totally remiss in providing incentives. A third of a quarter of your increase in that budget is for strategic oil reserves. I agree with that. I would like to see a reserve in New England. But that still is a defensive action.

If we are running out of oil, a reserve is not going to solve the short-term or the long-term problem. We have got to have additional incentives for fossil production, additional incentives for other production, and substantial incentives for alternative energy sources.

Senator Haskell did talk about the solar. I underscore my agreement with what Senator Haskell has said. I will not repeat that except to point out that on the demonstration programs in some areas, we put too much money into R. & D., and we have not come up with

demonstration programs. I don't think we are going to get solar on the line until someone drives down the street and sees that someone on the block that they think has generally good sense, has either a solar heater or some sort of solar apparatus on the roof.

Yet this budget cuts the solar demonstration program funding. This appears to be part of the schizophrenic approach we have had since April 20.

Dr. SCHLESINGER. That is absolutely wrong, Senator Durkin.

Senator DURKIN. I would like to hear your explanation.

Dr. SCHLESINGER. The administration sent up a request to the Congress for a 25-percent tax credit for the installation of solar equipment in one's home. That is the way to get the American people, it seems to me, to move in the direction of solar equipment. The fact we have some solar displays someplace that have been funded by the Federal Government is not likely to do it.

To get solar equipment moving, it seems to me we need not only to have tax credits but also to get architects and builders to establish a fashion so that when you have a new development all of the new homes in that development have solar equipment in it.

Senator DURKIN. People are going to be reluctant, I submit, to take advantage of the tax credit until there are enough demonstration programs visible in the neighborhood. I don't see how you can justify a cut in your solar demonstration programs.

Dr. SCHLESINGER. The rate of installation of solar equipment is running at a very high pace now, about 100,000 units a year. It is moving fairly nicely. With the 25-percent tax credit, it should move more rapidly. Once again, that is the way to get a demonstration going. I believe it is very attractive going in that direction for new homes or for retrofit.

Senator DURKIN. I guess you have \$400 million, that is limping along at the same level you have this year. New England has the potential for wood, New England has the potential for water, New England has the potential for wind—wind is \$41 million, about the same as last year—and the low-head hydro, it is \$1 million for fiscal 1979, \$10 million. We put through the conference a \$110 million authorization for low-head hydro which has tremendous potential in New England and many of the other areas of the country.

I might say we did it over the opposition of the administration, yet we find out there is a million dollars, \$10 million. Why is that?

POTENTIAL FOR LOW-HEAD HYDROELECTRIC

Dr. SCHLESINGER. On low-head hydro we are in entire agreement with you. That was one of the things mentioned in the National energy plan. We have the Corps of Engineers at work identifying the sites. Low-head hydro will be a major element of the phase II. There is no difference there except how to get on with the job. When we identify the sites, there will be major emphasis on low-head hydro. It is not a cure-all, but it will be a substantial alternative particularly attractive in New England.

I have discussed this with some of the New England Governors in the last few days. I believe wind also will be featured in the phase II.

Senator DURKIN. We just talked about the urgency, the moral equivalent of war, and so on. I submit our national energy programs and

policies and ideas and so forth are not adequate. It is going to take some money.

My time is up. I would like in the next round to talk about coal, SRC-1, transportation. We cannot burn coal in New England. We now have the most dependence on OPEC oil. We cannot get coal there. The railhead—I would like to bring this up in the next round. You might give it some thought.

I understand you were designated 1 of the 10 most exciting men in America by the secretaries, but my research tells me of all your supervisory positions only 26 or 27 positions are occupied by women. To me, it looks like active discrimination against women. As the Secretary, and 1 of the 10 most exciting men in America——

Senator HASKELL. Don't answer that question.

[Laughter.]

REDUCTION IN OIL IMPORTS

Senator METZENBAUM. Mr. Secretary, the energy plan originally had as its objective savings of 4 million barrels of oil a day. When you testified before the House Science and Technology Committee you indicated that that had been cut back substantially, I think, to about half. What do you now consider to be the national energy plan savings, if and when it is put into effect?

Dr. SCHLESINGER. Our objective is still $4\frac{1}{2}$ million barrels a day. We will continue through the years ahead to press various programs on the Congress to achieve that reduction of import levels by 1985. So our objective has not changed. There have been changes in the legislation as proposed by the administration originally, which would have had the effect of substantially reducing the savings in oil as compared to the original NEP. It would cut it in half to approximately $2\frac{1}{2}$ million barrels in savings.

Senator METZENBAUM. As of now?

PASSAGE OF PART OF NEA

Dr. SCHLESINGER. Given the legislation, yes, sir.

Senator METZENBAUM. Since there appears to be very little savings that could be affected by the well-head tax according to your own estimates and since the natural gas pricing bill will really not have much impact at all according to anybody's estimates with respect to savings, can't we accomplish the objective of saving the approximately $2\frac{1}{2}$ million barrels a day if we were to proceed forward now with enactment of the three bills agreed upon by the conferees and which I might say the administration advised me they were opposed to going forward with prior to the Christmas recess.

I ask that specific question: Would the administration go along? I was told first let me find out. Then I was told the administration would not go along. The administration wants the entire package.

Dr. SCHLESINGER. The administration is not going to get between the House and the Senate on this issue. The strategies of the two bodies are quite different. I think you are familiar with the views of the House leadership in this regard. With regard to the savings, most of the savings continue to come from the tax legislation. The three bills are good legislation. They are useful. However, they do not provide the

bulk of the savings. The well-head tax itself would save something on the order of 250,000 to 300,000 barrels a day.

Incremental pricing under the Natural Gas Act would play a major role in shifting industry to coal as opposed to continuing to use natural gas. That would allow gas to be used for other purposes. You just would not get anything on the order of $2\frac{1}{2}$ million barrels a day in savings if you passed these three bills. They are not the heart of the program. They are useful. They are good legislation.

Senator METZENBAUM. If you pass the three bills and the oil and gas users taxes enacted by the Senate, which, according to Congressional Research Service would save about 85 percent of the oil that would have been saved, you are approaching the objective figure you originally set for the administration.

Dr. SCHLESINGER. The saving of 85 percent of the original proposal is based on the assumption the tax rebates were also included. Since the tax rebates are not included in the Senate legislation, the Senate legislation would not approach that level. But I think the point you are making, Senator, is quite correct.

The most efficacious means of all, the biggest savings, comes from the oil and gas users tax.

Senator METZENBAUM. Let me ask you this, Mr. Secretary. You say you do not want to get between the House and the Senate. Senator Weicker addressed himself a moment ago to the responsibility of the administration assuming the House and the Senate was willing to follow the leadership role of this issue in passing the three bills as is and then continuing the dispute with respect to the others. Would the administration favor the passage of those three bills at the present time?

Dr. SCHLESINGER. You mean the administration does not favor that at this time? We favor the other two bills. The position of the House leadership with regard to comprehensive legislation has been clear at the outset. We have no reason to expect the House leadership is likely to change its views in this regard.

Senator METZENBAUM. Isn't there a loss of energy savings that could be effectuated and could have been effectuated in the past several months and very possibly might go into the future for a number of months of we were to put into effect today the three bills we have agreed upon? Aren't we in a sense guilty of irresponsibility in not going ahead and passing those three?

Dr. SCHLESINGER. I think we would not have saved anything with the passage of those three bills, but prospectively, we would have gotten an early start on energy savings in the future. The legislation is designed to achieve $4\frac{1}{2}$ million barrels a day savings to which you refer.

The legislation is designed to be comprehensive. It was split up in the Senate for reasons the Senate holds dear, but it is not something the House has been prepared to follow.

Senator HASKELL. Senator, we are going to go around again. Everybody else has been given the 5-minute signal. The staff tells me you have had 7 minutes. But we are going around again.

Senator METZENBAUM. Let me ask you, what is the intention of the Chair with reference to further appearance of Dr. Schlesinger?

Senator HASKELL. Senators have not finished; I would suggest the Secretary return for discussion of the budget.

DEALING WITH CANADIAN GOVERNMENT

Senator ANDERSON. If I might ask a couple of questions. In the Midwest, there are a number of States quite dependent on Canada for crude. We were very hopeful the Canadian Government would approve the pipeline project, but apparently it has been turned down. It is very difficult for the individual States to deal with another country. It is our belief there is only one person in the Department assigned to deal with Canadians. I don't know if that is true or not.

We would certainly hope the Department of Energy could provide a little more help in dealing with the Canadians. For example, we would hope they could be encouraged to reconsider the pipeline. There are plans to build pipelines in the United States from the South into the upper Midwest. We need some guidance and help from your Department. I would like to bring that to your attention. I do not think you have to comment on it.

USE OF PEAT AS ENERGY SOURCE

I would like to ask you a question about the subject of peat. We hear a lot of talk about converting coal to natural gas, shale, and all of that. The United States is second only to Russia in its supply of peat in the world at this point. There is not a single pilot peat gasification plant in the world at this point.

In Minnesota, there is an effort to build the first plant. They think they can take peat and convert it to natural gas and do it much more expensively than you could the same with coal. Our problem is there is no attention to it. They have received some funds from the Federal Government, about \$1 million. They are seeking more. I am not suggesting they are deserving of it.

I am saying the subject of peat deserves more attention from the Federal Government, certainly from their agency. I wonder if you could respond in a general way. What is your attitude toward peat? And what hope is there we can do something with it. There are great supplies in the Midwest and in New England that could be converted to natural gas. It would be tremendously helpful.

Dr. SCHLESINGER. Let me take your two observations simultaneously. We have devoted a great deal of attention to the Canadians. Many components of the Department including the FERC are involved. We will continue to be involved, not only with regard to the pipeline issue to which you referred but also with regard to the refineries in the upper Midwest.

The question of peat is one I should explore further, and I will either get back to your office or insert a comment in the record. Generally speaking, it has been our belief that coal provides a lower cost source of conversion to gas, and consequently, the emphasis has been upon the traditional coal conversion process.

However, before going any further, let me say we sympathize with the comment.

[Subsequent to the hearing, Dr. Schlesinger supplied the following:]

PROGRAM IN FISCAL YEAR 1979 TO USE PEAT IN THE PRODUCTION OF NATURAL GAS
AND DOE'S PROGRAM IN FISCAL YEAR 1979 TO USE PEAT IN THE PRODUCTION
OF NATURAL GAS

If peat can be harvested without ecological damage to the harvesting area and its moisture content reduced from over 80% to 35-40% in a cost-effective manner, it could be utilized as a feedstock for the production of synthetic natural gas.

In FY 1979 DOE plans to initiate environmental studies; to engage in preliminary tests of harvesting techniques; to investigate drying techniques; and to continue bench-scale studies on peat gasification.

The studies should provide the data for rough economic estimates of production of synthetic natural gas from peat.

HIGH VOLTAGE TRANSMISSION LINES

Senator ANDERSON. One other question I would like to ask. In Minnesota, an emotional issue right now is where to put high voltage transmission lines. In three or four States it is an issue. I think it is going to be an issue in every State. We are trying to bring in some energy from a neighboring State. The farmers and landowners cannot understand why we have to build these transmission lines across valuable lands.

No. 1, why don't we bury them? No. 2, why don't we build the powerlines down existing rights-of-way, existing freeways, highways, the rest of them? They are also nervous and raise the issue of potential health problems. Is there anything going on in the Department that deals with the health issues, the economical feasibility of burying the lines, or permitting these powerlines to be built along existing rights-of-way? As I understand it, it is not permitted under Federal law at the present time.

Dr. SCHLESINGER. The principal responsibility for the permitting process rests with the States. I certainly believe we should explore the question of the possibility of legislation or recommendation to the States. We are doing some work with regard to more efficient transmission of electric power and with the possibilities of less costly undergrounding. The reason undergrounding does not occur at the present time is the one you mentioned. It is substantially more costly than existing methods.

Senator ANDERSON. My time is up.

Senator MATSUNAGA. First of all, Mr. Secretary, I wish to thank you for the many courtesies your office has extended, particularly yourself. I would also like to commend your acting assistant secretary, Mr. Thorne, who has been extremely cooperative.

LOCATING STRATEGIC PETROLEUM RESERVE IN HAWAII

But in the area of strategic petroleum reserves, we have not been getting the kind of cooperation the other sections of your department have been giving us. You have been courteous enough to inform us, those of us who are very much concerned, about Hawaii's insular position, that we have not included in the 1979 budget. While it was harsh news worded in such a courteous manner, I can understand why you have been voted 1 of the 10 most exciting men.

Energy, of course, is the most or 1 of the 10 most exciting areas of our life today. By your own testimony today you state the President believes an extended interruption of petroleum imports would have a severe impact on the Nation's economy, particularly by the 1980's when the world demand for petroleum, even at full production, is expected to exceed supply. As you all know, Hawaii is dependent on imports for practically all of its necessary goods for living, and particularly with reference to petroleum almost 100 percent of it is imported.

We have had problems during the last boycott and during shipping strikes. We have had to do without so many items, including, at one

time, table salt. And at another time, toilet paper. You take toilet paper away from freedom loving Americans—it creates a problem.

But in all seriousness, you take the total labor problems, the economy of the islands. My question to you is on the \$4.2 billion budgeted for the strategic petroleum reserve program, has every penny now been budgeted for other areas?

Dr. SCHLESINGER. The bulk of the funds, of course, is used for the acquisition of petroleum, Senator. I would like to provide the reassuring note to Hawaii not available to other parts of the country. We currently have a surplus on the West Coast, in the Pacific, and for the near-term at least the availability of excess petroleum coming out of Alaska provides a certainty of supply for Hawaii. We are also prepared to study this problem in connection with the formulation of the 1980 budget. The only regional reserve that is contemplated in the existing budget is the one for New England, sir.

Senator MATSUNAGA. By your answer, I think I can reiterate my earlier charge that your strategic petroleum reserve section has not been on the ball. That is, they have failed to go into the fact that the high-sulfur crude oil available on the west coast would require over \$100 million to be processed by Hawaiian refineries.

We have to convert our plants in order to use the petroleum from the west coast. Heavens, in our small economy, we could not afford to expend \$100 million to convert our two refineries. From information we get from Mr. O'Leary, whatever the surplus which is available on the west coast it will be gone by the end of 1981 or 1982, which would leave us, even though we did spend \$100 million to convert, without any strategic reserves.

You will recall, Mr. Secretary, the Energy Policy and Conservation Act, section 154, lays down the policy for the Department, and I quote: "The strategic reserve plan shall be designed to assure to the maximum extent practicable that each noncontinuous area of the United States which does not have overland access to domestic crude oil production has its component of the strategic petroleum reserve within its respective territory."

Why your strategic petroleum reserve plan recommended Hawaii be excluded from the initial budget request, I do not know. Maybe you did request it. Maybe the OMB struck it out. Maybe you can advise me on that.

Dr. SCHLESINGER. I do not recall whether or not any request was made to the OMB. There was some discussion of this particular problem. The issue on Hawaii, as you will recall, is the relatively high cost of storage. The existence of the surplus in the Pacific coast area provides opportunities for blending. As you indicate, that surplus could disappear, depending upon the relative production in Alaska in the early 1980's, if there is no substantial increase in production. We are prepared to work with you in the formulation of the 1980 budget. This year's budget, however, includes only the strategic reserve for New England.

Senator MATSUNAGA. So the 1980 budget will include definitely a plan for Hawaii.

Dr. SCHLESINGER. Senator, I think you have carried my words a little bit beyond my meaning. I think I said we would be prepared to work with you on the formulation of that budget. Whether or not the ultimate decision is to include that in the budget is something that will

have to be reviewed by the OMB, the President, and so on. But we certainly can examine the merits of the case in connection with a perspective shortage on the west coast as well as in the gulf and east coast areas in connection with blending possibilities, the EPCA referenced to these noncontiguous areas, and the need to move to the maximum extent practicable.

Senator MATSUNAGA. My time is up. We will come back.

Senator HASKELL. There is one question I think Senator Johnston forgot to ask. Perhaps you could supply the response in writing.

Of the positions that require Senate confirmation (a) what positions have not been filled; (b) what is your time schedule for filling them; and (c) who do you have under consideration Maybe that could be answered this afternoon.

[Subsequently the response was provided by phone.]

Senator HASKELL. We have a vote on. I think it would be my intention to return so that at least everybody could have their first ground, Senator Domenici, and then Senator Hansen, and then return another day. I think if you want to go ahead and ask your questions now I will go on over and vote.

Senator DURKIN. Mr. Chairman, how long can we meet this morning?

Senator METZENBAUM. The rules permit only 2 hours.

Senator DOMENICI. Has everybody else had 5 minutes?

Senator HANSEN. No. I took 10.

Senator HASKELL. We might stop the clock.

Senator DOMENICI. I have more than 5 minutes, Mr. Secretary. I will submit in writing, what I am unable to cover. When I leave it is because I have to go vote.

NUCLEAR WASTE MANAGEMENT

Regarding the problem of disposing of the radioactive nuclear waste, it is my recollection that the administration announced last October a new policy regarding storage of spent fuel rods from commercial nuclear power plants. More recently, Dr. Deutsche of your department has headed a task force to review the nuclear waste problem. I understand that the study is now complete and that its recommendations are now in your hands. Is this true?

Dr. SCHLESINGER. I think the study is complete. I am not sure if the recommendations are in my hands or not.

Senator DOMENICI. All right. Would you tell us what progress has been made since last October's announcement regarding the implementation of the administration's spent fuel policy?

Dr. SCHLESINGER. Of course, the study points to certain policy goals. It is conceptual in nature. We do not have as yet an approved and licensed storage site. The gist of the study, with regard to reprocessing and the public concern about the storage or disposal of waste, was that we go ahead with the storage of spent fuel rods to demonstrate to the public that fuel rods can be stored without reprocessing. Not foreclosing the possibility of reprocessing but demonstrating to the public that even without reprocessing, waste management can be effective.

Another feature is the suggestion that any such storage facility be licensed by the NRC and go through the full regulatory process rather than the abbreviated processes of the Federal Government.

Senator DOMENICI. Is it the case that you believe that regardless of the technicalities of the nuclear licensing law any projects such as you have just described should go through the formal licensing process?

Dr. SCHLESINGER. That is our inclination and the suggestion. We have not gone to the President with a detailed plan as yet, but that certainly is our inclination.

Senator DOMENICI. Mr. Secretary, as a matter of fact we do not have a national policy with reference to the disposition of nuclear waste, do we?

Dr. SCHLESINGER. I don't know what you mean by national policy. We put these proposals before the president and he approved them.

Senator DOMENICI. Which proposals?

Dr. SCHLESINGER. The general things I have been describing: The deferral of reprocessing and demonstration that even if there is no reprocessing spent fuel can be handled. This will be done in the way of a demonstration to the public that there is a way of handling fuel today, without inconsistencies on how the fuel should be handled in the future. We intend that this should be done through the full licensing process.

Senator DOMENICI. Beyond that we have not even proven we have a way to do it. If I understand what you are talking about, we are going to prove that first step and that is the extent of the program to this point other than you are contemplating licensing.

Dr. SCHLESINGER. That is correct. We are attempting to demonstrate what can be done. But we do not have an approved facility as yet that has gone through the licensing process.

Senator DOMENICI. Mr. Secretary, I am going to miss the vote. Did we decide whether or not we are going to come back?

Senator Ford [presiding]. I will stay. Senator Hansen is coming back.

COMPARISON OF COAL AND NUCLEAR PLANTS

Mr. Secretary, I have you all to myself. I may get more than 5 minutes and we may have a little fun. Everybody is talking about being parochial today, very much interested in what goes on in their area.

How does the time compare to put comparable coal-fired plants and nuclear plants on line?

Dr. SCHLESINGER. Comparisons are always changing. It depends on the State and the permitting process in the State. Some States take an extended period of time. The general time requirements is on the order of 8 years for a coal-fired plant as opposed to 12 years for a nuclear plant.

Senator Ford. So it would be much in time, in comparable size it would be much less. I guess if you are going to reduce nuclear construction you could reduce coal-fired construction also?

Dr. SCHLESINGER. We have urged the States to simplify their processes with regard to coal-fired plants and hydro facilities at the same time we simplify our own processes.

Senator Ford. What is the cost comparison of the two?

Dr. SCHLESINGER. A coal-fired plant, 1,000 megawatts, costs about \$800 million. The nuclear plant costs on the order of \$1.1 or \$1.2 billion in terms of construction costs. The fuel costs, of course, are much cheaper in the case of the nuclear plant. The characteristics of a nuclear plant are high capital costs initially, lower fuel costs later on.

Senator FORD. So if we are talking about time and capital construction, the time would be less and the capital construction would be less?

Dr. SCHLESINGER. Yes.

Senator FORD. I don't want to argue with your figures but it is about 50 percent more for nuclear construction than coal fired, somewhere in that ball park. What about job creation? Do you have more jobs with one than you do with the other?

Dr. SCHLESINGER. I cannot give you a definitive answer on that. The fact that the capital construction costs for a nuclear plant are higher would suggest greater employment but the average returns in the nuclear industry are also higher so the total number of jobs might not be significant.

Senator FORD. I have information from the Department of Energy that states the jobs created by coal-fired plants are 50 percent greater than jobs created by nuclear plants.

Dr. SCHLESINGER. You mean in operations?

Senator FORD. Operations and peripheral effects.

Dr. SCHLESINGER. I would have to look at those numbers. The construction period, for the reasons mentioned, would create more jobs in the case of a nuclear plant than in a coal-fired plant. The operations would be less for nuclear.

LIQUID VERSUS SOLID PROCESSING DESIGNS

Senator FORD. Is it your understanding the solid process design and the liquid process design are competing for the same funds in the DOE budget?

Dr. SCHLESINGER. No, sir. I do not believe they are competing for the same R. & D. funds. I believe we want to examine both technologies and ultimately to choose the preferable one. We are not in a position at this time to choose which one is preferable. If one technology turns out to be more or less dominant, we would support it. But at this stage, we are not in a position to make that judgment.

Senator FORD. Do you have enough to fund both processes?

Dr. SCHLESINGER. That is our belief, yes, sir.

Senator FORD. You are really saying you are going to take one or the other, and although you have funds for both processes you are just going to fund one of them?

Dr. SCHLESINGER. No, sir. We are going to carry on the R. & D. funding of both processes until such time as we have resolved the technical and other difficulties and are in a position to make a choice. If one of them appears to be substantially better at that stage, then that would be employed commercially. They both have advantages in different locations and there is no reason why both should not be deployed commercially.

SOLVENT REFINED COAL SOLIDS DEMONSTRATION

Senator FORD. I am following up on some of the questions Senator Durkin started with a few moments ago. Does not the ERDA conference report language clearly state that \$30 million is authorized for the construction of SRC solids demonstration plant alone?

Dr. SCHLESINGER. I have no reason to doubt that, Senator.

Senator FORD. I know it does. I read it to Mr. Fumich the other day.

Dr. SCHLESINGER. I would have to check.

Senator FORD. Let me ask you this. If the conference report language clearly states this money be used for that purpose why are we now in competition between solids and liquids?

Dr. SCHLESINGER. That is news to me.

Senator FORD. You just said to me whichever technology turns out to be the best you are going with that one, and you say you are not competing for the same funds; yet the conference report clearly states the \$30 million is authorized for construction of an SRC-solid demonstration plant alone. I could quote you, if you want. Page 84, third paragraph of the conference report.

Dr. SCHLESINGER. I am not sure there is a problem, Senator.

Senator FORD. You indicated and I have got the indication there is a problem because I believe there is competition. The whole fossil field is bothering me some. Let me ask you this then. The conference report language states: "The Secretary will select the plant size of the SRC's solids demonstration plant." Do you understand that to be true?

Dr. SCHLESINGER. Yes, sir.

Senator FORD. What criteria will you use then to determine which size plant is most appropriate to meet the Department of Energy's goals?

Dr. SCHLESINGER. That will be a subject on which I will have technical advice of those in the Energy Technology and Resource Application areas. I do not have that advice at this time, but I will insert in the record some of the criteria that would be employed.

[Subsequent to the hearings Dr. Schlesinger supplied the following:]

CRITERIA BEING USED IN MAKING THE PROCESS AND SIZE SELECTION FOR AN SRC PLANT

Both liquid and solid SRC processes have great potential to mitigate the National energy shortage expected in the 1990's. Parallel preliminary designs and proposals for demonstration of both processes will be assessed independently to determine if one or both or neither will serve the best interests of the Nation.

a. Major criteria for selection of SRC processes include:

Processes which appear to be ready for commercialization;

Converts a major domestic high sulfur coal resource into a clean fuel;

Significant pilot plant data base exists;

Supplies a major fuel market and reduces demand for petroleum in 1990's;

Commercial scale plant is feasible;

Economics of production and marketing are favorable;

Private financing of multiple commercial plants in 1990's is likely.

b. Major criteria for selection of size of SRC demonstration plant include:

One module of a multiple module optimum size commercial plant capable of processing 20,000 to 40,000 tons of coal per day;

No major scale up from demonstration module to commercial module required;

Components of module near the frontier of the state of the art;

Critical components have been identified;

Perceived risk of scaleups prevents private financing under current economic conditions.

Senator FORD. Has DOE asked Southern Services to become a prime contractor in a project to design a 6,000-ton-a-day SRC solids plant?

Dr. SCHLESINGER. I beg your pardon?

Senator FORD. Has the Department of Energy asked Southern Services to become contractor on a project to design a 6,000-ton-per-day SRC solids plant?

Dr. SCHLESINGER. Not to my knowledge, Senator.

Senator FORD. I believe your people who testified last week testified that had already happened in your Department.

Dr. SCHLESINGER. We will check on it.

[Subsequent to the hearings Dr. Schlesinger supplied the following:]

SELECTION OF SOUTHERN SERVICES AS A CONTRACTOR FOR THE SRC SOLID FUEL PLANT

Southern Company Services, Inc. (SCSI) and the Electric Power Research Institute privately financed and built the first solvent refined coal pilot plant at Wilsonville, Ala. Catalytic Inc. (a subsidiary of Air Products and Chemicals, Inc.) is their contractor for the design construction and operation of the plant. Thus SCSI, supported by Air Products and Catalytic represent one of only two organizations that have designed and operated an SRC plant. The other experienced firm, Gulf Mineral Resources Co. is the proponent of the liquid SRC fuel plant. Gulf's subsidiary, Pittsburg and Midway Coal Mining Company is DOE's contractor for operation of the Fort Lewis 50 ton per day SRC pilot plant. A third firm, Wheelabrator-Frye has designed a subscale 2,000 ton per day low-risk solid SRC plant for the State of Kentucky and their subsidiary, Rust Engineering, constructed the SRC pilot plant at Fort Lewis.

Senator FORD. I would like for you to. The testimony of your people who testified last week—I won't get into the names—if you would like to have the names, I have them—the Fossil Energy Section of DOE has not made the commitment to solids, so there seems to be a problem that abounds in the department as it relates from the direction of the conference committee and the money that was appropriated.

Dr. SCHLESINGER. I would have to look at the testimony. But I think what is being said here when one talks about a commitment to solids is whether or not ultimately solids or liquids or both will be commercially exploited. I think your questions are addressed to the R. & D. phase which is quite separate, it seems to me, from the issue of ultimate national commitment to a particular technology.

Senator FORD. I wonder if we are going to get to the point where we get direction from the Congress as to where we should go? We keep being put off by another look-see, somebody comes in with another proposal, delaying and delaying. I asked specifically when your people were here last week for you to be given this information, that I would be asking these questions, so you would be in a position to give me a concrete answer today. I asked yesterday also.

I guess the information is not trickling down to you. Apparently you did not get the information I was going to ask you these questions today and would like to have the answers.

Dr. SCHLESINGER. No, sir.

CONTRACTORS PROPOSAL FOR SOLVENT REFINED COAL

Senator FORD. Are you aware of the meeting yesterday which relates to the department's position on which route you were going to take at which you had three competitors in the field give their pitch as it related to solids and liquids?

Dr. SCHLESINGER. No, sir. Those things are handled by the Under Secretary.

Senator FORD. I made two calls yesterday to your people to see if we could get into this today. Would a combined 6,000 ton-per-day proposal from Southern Services and Wheelabrator Fry be more or less

consistent with DOE's goals in the current proposal for a 2,000 ton-per-day proposal in the solids field, SRC-1?

Dr. SCHLESINGER. We will insert an answer to that in the record, Senator.

[Subsequent to the hearings Dr. Schlesinger supplied the following:]

BENEFITS OF A PROPOSED 6,000 TPD SRC SOLID FUEL PLANT PROPOSED BY SOUTHERN SERVICES AND WHEELABRATOR-FRYE. HOW DOES THIS COMPARE WITH 2,000 TPD PLANT PROPOSED IN THE BUDGET?

Southern Company Services, Inc. (SCSI) supported by Air Products and Chemicals, Inc. (APCI) and Catalytic Inc. (a subsidiary of APCI) have determined that a full-scale module of a commercial SRC solid fuel plant should be capable of processing approximately 6,000 tons of coal per day. In their judgment, the current state of the art will support the design of this module without undue risk. Both SCSI and Gulf Mineral Resources Co. (the major proponent of a SRC liquid plant) have concluded that a 2000 ton-per-day module would not be sufficient to resolve scale-up problems. Thus, construction of a 2000 ton-per-day plant would require substantial further scale-up resulting in increased cost and delay in commercialization it might not be in the material intended.

The SRC demonstration plant in DOE's FY 1979 budget request would be a "first module" plant capable of processing up to approximately 6000 tons per day.

EASTERN VERSUS WESTERN COAL PROJECTS

Senator FORD. In the DOE budget proposal there is a clear deemphasis on coal-related projects and within that category there is additional deemphasis of Eastern coal projects in relation to Western coal projects. If you want me to, or if you will permit me, I will be glad to give you just one example.

Yesterday a member from your department testified here that true in-situ coal gasification is a critical part of the DOE plan for developing and commercializing new techniques. Yet your budgeting indicates the funding in this gasification area for Eastern coal fields project is actually declining and indeed it is declining to zero. One member of your department comes up and says it is a critical thing. It is critical yet when the budget comes forward it is zero, and we see that in 1979.

Now what is happening?

Dr. SCHLESINGER. We will have to check testimony for this particular case to which you are referring, Senator.

Senator FORD. They have just put the gong on me. Now, the only answer I have gotten after my warning last week and after making a telephone call, is you will submit it for the record. I wanted it in the record today so we could get it all out on the table to discuss it.

But apparently it is like all other things. You have too much on your mind and too many other people doing your work for you, apparently—they could have at least briefed you. My problems are specific, not necessarily to my State but to the short and medium run energy problems of this country.

I yield.

Senator HASKELL. Thank you, Senator. The Secretary is coming back. Perhaps you can explore that further in the second round.

Senator FORD. Mr. Secretary, can you bring me the answers when you come back?

Dr. SCHLESINGER. We can bring you answers, but I don't know if they will be definitive answers. There may have been no decisions in

some of these cases. We can provide you with the judgments with regard to the direction we are going, but as to the 2,000-ton plant or a 6,000-ton plant and who the contractors are, it may well be premature to make such judgments.

Senator HASKELL. Could we stop at that and let Senator Hansen go ahead?

Senator FORD. Senator Hansen is enjoying what I am doing.

Senator HASKELL. He can enjoy it more later. We have to stop very quickly.

Senator HANSEN. Mr. Secretary, I am sure I need not remind you of my very personal high regard for you as a dedicated Government employee. I say that because I made some comments earlier, that I do not retract, that I thought reflected concerns I have about the manner in which this budget was prepared. To that extent you clarified the situation when you spoke.

PRICE OF FEDERALLY FUNDED CRUDE OIL

I was not trying in any way at all to make any personal attack on you. I just wanted to say that. I do want to ask you, sir, it is my understanding the federally owned crude such as produced in the Elks Hills and Teapot Dome is presently selling for \$15.50, is that right?

Dr. SCHLESINGER. Somewhere in there. The price of imported oil—

Senator HANSEN. Right next to that, oil in the Salt Creek Field near the Teapot Dome I think is about \$5.40 a barrel at the present moment. What is the rationale for the disparity in that crude other than the ownership which would hardly be indistinguishable?

Dr. SCHLESINGER. The Congress, as you will recall, Senator, made a judgment on these matters in 1975 with regard to the appropriateness of the level of profits that were being obtained by the industry subsequent to the quadrupling of world prices, an equalization of the market price that is enshrined in EPCA. Such consideration as to the level of profits to be attained clearly does not apply to sales from the former naval petroleum reserves.

Senator HANSEN. I didn't catch that last part.

Dr. SCHLESINGER. They do not apply in the sale of oil from the former naval petroleum reserves. Those were the issues that were fought out, as you recall, 2 years ago with regard to the appropriateness of profit levels or the inappropriateness of profit levels. The establishment at that time of the criteria of the pattern of old oil was in the EPCA.

STRIPPER WELLS

Senator HANSEN. It is my further understanding, Mr. Secretary, the producers of oil in the Salt Creek Field by water flood have been shutting down 25 to 50 wells per year, and they estimate absent price relief, they are going to be walking away and leaving about 50 million barrels of crude in the ground.

Does this seem to be in the public interest in your opinion?

Dr. SCHLESINGER. No, sir.

Senator HANSEN. What do you recommend might be done?

Dr. SCHLESINGER. That is what we are currently exploring. I go back to my prior conversations with Senator Long and a similar conversation with you. What we are exploring is moving such high water cut wells to the stripper category.

ENERGY SAVINGS RESULTING FROM ENACTMENT OF NEP

Senator HANSEN. One other question. If I understood you, you testified earlier you did not think in response to a question by Senator Metzenbaum that the enactment of the three previously considered and conferenced bills would necessarily result in any savings of energy. Did I understand you to respond in that fashion to Senator Metzenbaum?

Dr. SCHLESINGER. I think Senator Metzenbaum referred to savings we could obtain now. I said there would not be current savings, but by getting an early start there would be prospective savings down the line at an earlier date.

Senator HANSEN. One of the bills passed was the so-called conservation bill. I took some of the provisions on the legislation that were introduced in the last Congress and offered them, as you recall, early last year, having the feeling this entire package may get bogged down, that there was good reason to move forward with that energy tax conservation package in order that the savings—and I submit there would be savings—from insulation and that sort of activity, and it seemed to me the conservation that bill would have encouraged ought to have been achieved and implemented in 1977.

Do you agree that conservation bill would save energy?

Dr. SCHLESINGER. Yes, sir. That is the intent.

Senator HANSEN. But your point is it would not save energy now?

Dr. SCHLESINGER. The point is there are no immediate savings until one can begin to make the adjustments contemplated in the legislation.

Senator HANSEN. Wouldn't there be savings if we were to give the signal to homeowners and business generally that a tax benefit or whatever the incentives are in that bill, as quickly as people started insulating, wouldn't that effect a savings?

Dr. SCHLESINGER. Absolutely, Senator. That is why we strongly urged the passage of the tax bill and the inclusion in the NEP so the tax incentives will begin—

Senator HANSEN. Some of the provisions in the conservation parts of that bill were not necessarily dependent upon the implementation of the crude oil equalization tax or excise taxes on energy; am I right about that or wrong?

Dr. SCHLESINGER. That is quite correct. No rebates to the homeowners are contemplated in the Finance Committee measure. Those stand by themselves. If that tax legislation is passed without the crude oil equalization tax, it would have immediate impact upon the decisionmaking of households.

Senator HANSEN. I have no further questions. Thank you.

Senator HASKELL. Mr. Secretary, Senator Domenici has not yet asked his questions so we would like you to come back. I imagine our staff and your staff could arrange that. I am going to leave. Senator Domenici, if you would stop at 25 after 12, you would be equal with everybody else.

FUNDING FOR SPENT FUEL STORAGE

Senator DOMENICI. I appreciate that, Mr. Chairman.

Mr. Secretary, I will try to be brief. Getting back to nuclear waste, when will Congress receive recommendations of the administration

for spent fuel storage, and what funding is in the 1979 budget to implement spent fuel policy?

Dr. SCHLESINGER. We will have that number for you, Senator. The recommended program should be available in the near future. I cannot say whether it is 3 weeks or 4 weeks or 6 weeks.

Senator DOMENICI. Can you tell us on the outside?

Dr. SCHLESINGER. We will lay out the complete program by the end of the year.

Senator DOMENICI. As you know, under the new budget cycle, we are being asked during this year to approve the budget for next year. How are we going to have to approve the budget since we will not have the formal recommendations of the administration in this area before the end of this year?

Dr. SCHLESINGER. You will have the recommendation with regard to all budget items, and the recommendation on nuclear waste management will be submitted to the Congress for comment.

Mr. YOUNG. We will provide you with the amount of funds in the budget for spent fuel storage.

Senator DOMENICI. Will you do that, please?

Mr. YOUNG. Yes, sir.

[Subsequent to the hearings, the Department supplied the following:]

FUNDS INCLUDED IN NUCLEAR ENERGY PROGRAM BUDGETS FOR NUCLEAR WASTE MANAGEMENT,
INCLUDING FUNDS FOR STORAGE OF SPENT FUEL RODS

[In millions of dollars]

	Fiscal year—	
	1978	1979
Commercial waste management.....	\$180.5	\$186.8
International spent fuel storage.....	5.0	3.0
Domestic spent fuel storage.....		3.0
Defense waste management.....	287.8	35.0
Total.....	473.3	542.8

Senator DOMENICI. Let me move to two other items quickly. First, on solar energy, I understand the budget has actually been cut from 389 to 376. Why?

Dr. SCHLESINGER. I believe you are referring to the authorization number, the outlays of this year. We laid out that answer a little while ago. There are two aspects—

PRICE FOR PHOTOVOLTAICS

Senator DOMENICI. Don't repeat it if you did, short of time as you are. Let me ask you about photovoltaic cells. We go from one generation of scientists to the next looking at photovoltaic cell research. I want to ask you very specifically if the authorization bill the President signed last Saturday provides for a mechanism to bring photovoltaic cells into commercial production by the Federal Government by making a 3-year buy of photovoltaic cells to be used in remote Government installations of any and all types. There has already been an inventory by the Department of Defense and others indicating there is a place to put photovoltaic cells as a substitute for present generat-

ing facilities that use some kind of petroleum product. You agree one of the main problems with photovoltaic cells is its price, do you not?

Dr. SCHLESINGER. Yes, sir.

Senator DOMENICI. You agree one of the reasons its price remains high is we have not produced a market and thus do not have the productive private sector in mass type production, is that correct?

Dr. SCHLESINGER. It is the principal problem we have with current technology we cannot rely on a learning curve to sufficiently reduce the cost, we are looking at a reduction by a factor of 10 in the cost of producing such cells. That will not be achieved simply by a Federal buy.

Senator DOMENICI. Have you or your people reviewed the Office of Technology Assessment's evaluation as to what a significant buy would do in terms of reducing the price of present technology?

Dr. SCHLESINGER. I assume the staff has; yes, sir.

FEDERAL BUY OF PHOTOVOLTAICS

Senator DOMENICI. Will you support the congressional authorization for a buy that was signed by the President as head of the Department of Energy?

Dr. SCHLESINGER. If such money is appropriated, you are referring to an authorization here, we would support it.

Senator DOMENICI. Will you support it in the appropriations process?

Dr. SCHLESINGER. In general we support the concept of using Federal purchases to create a market. The precise timing is something on which I would like to defer until we have had an opportunity to make an assessment. The question of the optimal timing of the buy is the most difficult part of this general area.

If one buys too soon, one freezes in place technologies that are available. If one delays too long on a buy, one misses the advantage of the creation of this type of market. So optimum timing is the heart of the process.

Senator DOMENICI. Mr. Secretary, far be it for me to criticize, but I think you must have generally heard the displeasure of this committee with research projects that seem to be spread across the horizon, with a little bit here, a little bit there, a whole bunch there, and nothing coming on to the commercial shelves to be used by Americans.

I am only giving you my assessment that somebody has to show in some dramatic way the usefulness of these hundreds of millions of dollars going into these kind of research projects. I want to say I think photovoltaic cell research is the one to make the breakthrough on. I don't need a comment.

BUDGET FOR THE BREEDER PROGRAM

I want to ask you about the breeder program. Am I safe and fair in saying as of this particular moment in time the breeder reactor system is the only proven long-range energy option for producing significant amounts of electrical power in a relatively inexhaustible manner in terms of that which supplies it?

Dr. SCHLESINGER. It depends on what you mean by proven. With qualifications, I would say yes.

Senator DOMENICI. I understand Clinch River, but why does this year's budget for breeder reactor funding once again go from 517 down to 367?

Dr. SCHLESINGER. We have included in that budget the technology related items and have excluded from the budget all items related to the commercialization of the breeder. We have many years in front of us before we need to take a step on the actual deployment of commercial breeders. We want the technology to be alive. So we have a nuclear fission option for the reason that you mentioned, that this is the only relatively assured technology.

We want to maintain the nuclear fission option. On the other hand, it is plain we are not going to have to make use of the next generation of nuclear technology if we are not making use of the present generation of nuclear technology in the form of light water plants.

Senator DOMENICI. Are you not also in some form counting on increased estimates of the availability of uranium?

Dr. SCHLESINGER. The estimates of the availability of uranium, which has been a much debated issue, indicates the desirable time of introducing commercial breeders. If one takes the old ERDA estimate of 3.7 million tons, it would not need to be available until approximately the year 2020. If one takes the so-called conservative estimate of approximately 1.8 million tons, then a breeder technology might have to be introduced in about 1995. We are certainly including in this budget expanded efforts in order to be better able to assess our uranium resources.

Senator DOMENICI. Let me see if I understand. You are telling us to kill the breeder option entirely. Do I read you correctly?

Dr. SCHLESINGER. Let me assert that affirmatively. We must maintain the nuclear fission option until we are sure or have evidence there is something better. Therefore, we are making these investments in the technology.

Senator DOMENICI. We have some concern about the drastic nature of the cuts. Even if I was to agree with your philosophy of noncommercialization in terms of any of the expenditures, I would personally request you have your staff take a look at what is going to happen to the teams of scientists that are put together, because I think in some instances what we are doing is for 3 or 4 years we will get rid of them, then it will be more expensive and almost impossible to bring them back on line.

I think you are familiar with that phenomenon.

Dr. SCHLESINGER. Yes, sir. We will take an additional look at that and provide your office with the information. Let me underscore the fact that we are attempting to maintain the teams of scientist in our technology base program.

[Subsequent to the hearings Dr. Schlesinger supplied the following:]

ESTIMATES OF PROFESSIONAL MANPOWER REQUIREMENTS FOR BREEDER REACTOR PROGRAM IN FISCAL YEARS 1978 AND 1979

	Fiscal years—		Change
	1978	1979	
Agronne National Laboratory.....	885	825	-60
Brookhaven National Laboratory.....	10	10	0
Los Alamos Scientific Laboratory.....	168	154	-14
Oak Ridge National Laboratory.....	152	137	-15
Pacific Northwest Laboratory.....	9	8	-1
Savannah River Plant/Laboratory.....	6	4	-2
Hanford Engineering Development Laboratory.....	1,463	1,373	-90
Liquid Metal Engineering Center.....	429	447	+18
Sandia Laboratories.....	11	5	-6
Atomic International.....	60	75	+15
Babcock and Wilcox.....	30	60	+30
Combustion Engineering.....	7	5	-2
General Electric.....	129	124	-5
Westinghouse.....	167	160	-7
Total.....	3,526	3,387	-139

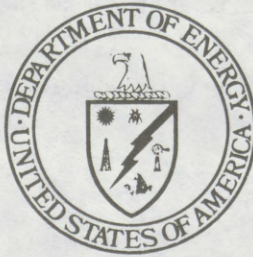
Senator DOMENICI. The reason I brought it up, it is obvious if your goal is accepted by Congress, the thing that is absolutely mandatory for preservation are those teams of scientists who may have had mixed roles but who are absolutely essential to the technology evaluation and moving ahead, even if you are trying to get rid of the commercial aspects of the Federal Government's involvement. I would appreciate an assessment of that from your staff. I have reason to believe it might work to the contrary with reference to the size of the cuts.

I have no further questions. We are adjourned subject to the call of the Chair.

[Whereupon, at 12:27 p.m., the committee adjourned, subject to the call of the Chair.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD



DEPARTMENT OF ENERGY BUDGET FOR FY 1979



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

	1977	1978	1979	INCREASE 1978 TO 1979	
		(\$ in Millions)		\$	%
TOTAL BUDGET AUTHORITY	\$6,863	\$10,283	\$12,593	\$2,310	23
TOTAL OUTLAYS	\$5,460	\$ 8,822	\$10,021	\$1,199	14



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

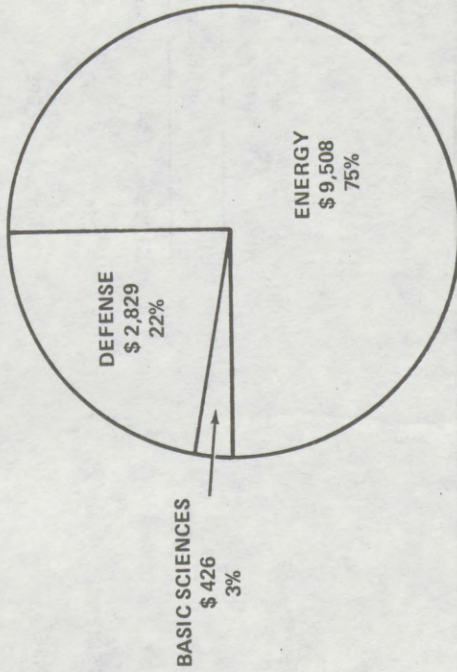
BUDGET AUTHORITY

	1977	1978	1979	INCREASE 1978 TO 1979	
		(\$ in Millions)		\$	%
ENERGY	\$4,511	\$ 8,628	\$ 9,508	\$ 880	10
BASIC SCIENCES	351	397	426	29	7
DEFENSE	2,089	2,512	2,829	317	13
PENDING AND PROPOSED 1978 SUPPLEMENTALS, 1979 LEGISLATIVE PROGRAMS AND OTHER ADJUSTMENTS	-88	-1,254	-170	1,084	86
TOTAL BUDGET AUTHORITY	\$6,863	\$10,283	\$12,593	\$2,310	23



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

BUDGET AUTHORITY



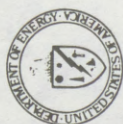
TOTAL \$ 12,763 MILLION BEFORE
SUPPLEMENTALS, LEGISLATIVE
PROGRAMS & OTHER ADJUSTMENTS



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

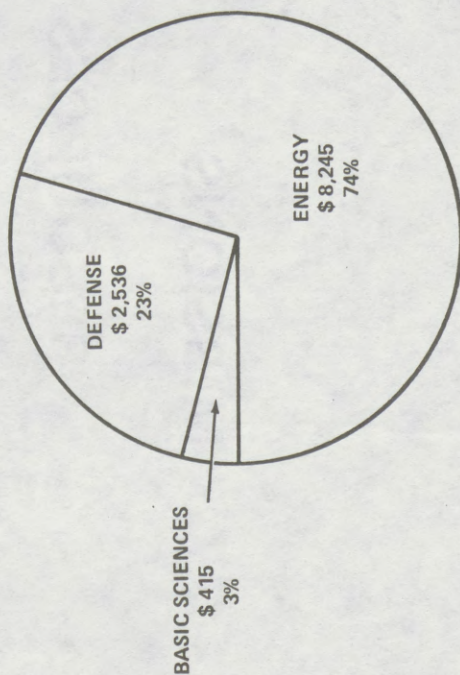
OUTLAYS

	1977	1978	1979	INCREASE 1978 TO 1979	
		(\$ in Millions)		\$	%
ENERGY	\$3,285	\$6,480	\$ 8,405	\$1,925	30
BASIC SCIENCES	324	363	415	52	14
DEFENSE	1,936	2,308	2,536	228	10
PENDING AND PROPOSED 1978 SUPPLEMENTALS, 1979 LEGISLATIVE PROGRAMS AND OTHER ADJUSTMENTS	- 85	- 329	- 1,335	- 1,006	306
TOTAL OUTLAYS	\$5,460	\$8,822	\$10,021	\$1,199	14



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

OUTLAYS



TOTAL \$ 11,196 MILLION BEFORE
SUPPLEMENTALS, LEGISLATIVE
PROGRAMS & OTHER ADJUSTMENTS



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

MISSIONS

RESOURCES



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

— ENERGY —

	BUDGET AUTHORITY (\$ in Millions)		
	1977	1978	1979
MISSIONS			
ENERGY SUPPLY — RESEARCH AND TECHNOLOGY DEVELOPMENT	\$2,361	\$2,696	\$2,670
— PRODUCTION, DEMONSTRATION & DISTRIBUTION	1,185	908	692
CONSERVATION	242	692	1,010
REGULATION	82	83	104
EMERGENCY PREPAREDNESS	78	3,595	4,255
ENERGY INFORMATION	40	48	63
ENVIRONMENTAL	184	218	209
POLICY AND MANAGEMENT	339	388	505
TOTAL ENERGY MISSIONS	\$4,511	\$8,628	\$9,508



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

— ENERGY —

MISSIONS

	OUTLAYS (\$ in Millions)		
	1977	1978	1979
ENERGY SUPPLY — RESEARCH AND TECHNOLOGY DEVELOPMENT	\$1,908	\$2,448	\$2,628
— PRODUCTION, DEMONSTRATION & DISTRIBUTION	624	800	766
CONSERVATION	143	473	902
REGULATION	85	86	101
EMERGENCY PREPAREDNESS	1	2,029	3,285
ENERGY INFORMATION	37	47	61
ENVIRONMENTAL	176	203	201
POLICY AND MANAGEMENT	311	394	461
TOTAL ENERGY MISSIONS	\$3,285	\$6,480	\$8,405



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

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ENERGY SUPPLY - RESEARCH AND TECHNOLOGY DEVELOPMENT MISSION - ENERGY -

RESOURCE	BUDGET AUTHORITY (\$ in Millions)		
	1977	1978	1979
FOSSIL			
	COAL	\$ 469	\$ 579
	PETROLEUM	47	74
	GAS	19	31
GEOTHERMAL	SOLAR	221	303
	MAGNETIC FUSION	53	106
	FUEL CYCLE RESEARCH AND DEVELOPMENT	316	325
	NUCLEAR RESEARCH AND APPLICATIONS	147	285
FISSION	LIGHT WATER REACTOR SAFETY FACILITIES	181	227
	INTERNATIONAL SPENT FUEL STORAGE	29	28
	BREEDER REACTOR	-	5
	HYDROELECTRIC	708	517
OTHER	BIOMASS	2	10
	BASIC ENERGY SCIENCES	13	21
	ADVANCED TECHNOLOGY AND ASSESSMENT PROJECTS	155	177
		1	8
TOTAL ENERGY SUPPLY -			
RESEARCH & TECHNOLOGY DEVELOPMENT			
	\$2,361	\$2,696	\$2,670



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

- ENERGY -

ENERGY SUPPLY - RESEARCH AND TECHNOLOGY DEVELOPMENT MISSION

FOSSIL RESOURCES

	1977	1978	1979	INCREASE 1978 TO 1979	
	(\$ in Millions)			\$	%
BUDGET AUTHORITY	\$535	\$684	\$724	\$ 40	6
OUTLAYS	\$460	\$609	\$713	\$104	17

- FINAL DESIGN AND INITIAL CONSTRUCTION OF THE DONOR COAL SOLVENT PILOT PLANT AND DESIGN AND SITE SELECTION OF A SOLVENT REFINED COAL DEMO PLANT
- DESIGN AND CONSTRUCTION OF LOW BTU COAL FUEL AND SYNTHETIC PIPELINE GAS DEMO PLANTS
- CONTINUED FIELD TESTING OF THREE MAJOR TYPES OF ENHANCED OIL EXTRACTION TECHNOLOGIES EMPHASIZING THERMAL RECOVERY AND CONTINUATION OF FOUR IN-SITU OIL SHALE PROJECTS
- CONTINUED CHARACTERIZATION AND FIELD TESTS TO DEVELOP ENHANCED GAS RECOVERY TECHNOLOGY



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

- ENERGY -				
ENERGY SUPPLY - RESEARCH AND TECHNOLOGY DEVELOPMENT MISSION				
SOLAR AND GEOTHERMAL RESOURCES				
	1977	1978	1979	INCREASE 1978 TO 1979
	(\$ in Millions)			\$ %
BUDGET AUTHORITY	\$274	\$409	\$439	\$30 7
OUTLAYS	\$195	\$307	\$400	\$93 30
• CONSTRUCTION OF TEN MEGAWATT CENTRAL RECEIVER POWER PLANT				
• MAJOR PROCUREMENT EFFORTS IN PHOTOVOLTAICS AND CONTINUED RESEARCH ON NOVEL APPROACHES TO LOWER COST OF PRODUCTION				
• CONVERSION OF THE HUGHES MINING BARGE TO A TEST FACILITY FOR CONVERSION OF OCEAN TEMPERATURE EXTREMES INTO ELECTRIC ENERGY				
• COMPLETE DESIGN AND BEGIN CONSTRUCTION ON A FIFTY MEGAWATT ELECTRIC HYDRO-THERMAL DEMO PROJECT				
• NEW EXPERIMENTS OF HOT DRY ROCK IN DIFFERENT GEOLOGIC SETTINGS TO DETERMINE TECHNICAL AND ECONOMIC FEASIBILITY				



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

- ENERGY -

ENERGY SUPPLY - RESEARCH AND TECHNOLOGY DEVELOPMENT MISSION

MAGNETIC FUSION RESOURCE

	1977	1978	1979	INCREASE 1978 TO 1979	
	(\$ in Millions)			\$	%
BUDGET AUTHORITY	\$316	\$325	\$334	\$ 9	3
OUTLAYS	\$211	\$279	\$327	\$48	17

- CONTINUED PROGRESS TOWARD THE LONG-TERM GOAL TO DEVELOPE CENTRAL ELECTRIC POWER GENERATION
- CONTINUED MAINLINE TOKAMAK AND MIRROR EXPERIMENTAL PROGRAMS
- CONTINUE TOKAMAK FUSION TEST FACILITY CONSTRUCTION



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

— ENERGY — ENERGY SUPPLY — RESEARCH AND TECHNOLOGY DEVELOPMENT MISSION FISSION RESOURCES

	1977	1978	1979	INCREASE 1978 TO 1979	
	(\$ in Millions)			\$	%
BUDGET AUTHORITY	\$1,065	\$1,062	\$906	-\$156	-15
OUTLAYS	\$ 898	\$1,060	\$948	-\$112	-11

- DEVELOPEMENT AND EVALUATION OF FUEL PROCESSING TECHNOLOGY
- CONTINUATION OF PROGRESS TOWARD AN OPERATING RETRIEVABLE TERMINAL STORAGE REPOSITORY IN 1985
- DEVELOPMENT OF PROVISIONS FOR INTERIM STORAGE OF DOMESTIC SPENT FUEL
- COMPLETION OF FAST FLUX TEST FACILITY AND ACHIEVE CRITICALITY IN AUGUST 1978
- CONDUCT BREEDER REACTOR TECHNOLOGY INTEGRATION STUDIES
- MAINTENANCE OF A STRONG BREEDER REACTOR BASE RESEARCH AND DEVELOPMENT PROGRAM



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

— ENERGY —
ENERGY SUPPLY — RESEARCH AND TECHNOLOGY DEVELOPMENT MISSION
FISSION RESOURCES — (Cont'd)

- COMPLETE THE LIGHT WATER REACTOR SAFETY FACILITIES AND TURN OVER TO NRC IN APRIL 1979
- CONTINUE TECHNOLOGY INVESTIGATIONS AND DEVELOPMENT FOR WATER COOLED BREEDER, GAS COOLED FAST, AND LIGHT WATER REACTORS
- CONTINUE DEVELOPMENT OF ISOTOPIC GENERATOR TECHNOLOGY IN SUPPORT OF NASA AND DOD SPACE MISSIONS
- CONTINUE EFFORTS IN THE ADVANCED ISOTOPE SEPARATION TECHNOLOGY
- COMPLETE THE NON PROLIFERATION ALTERNATIVE SYSTEMS ASSESSMENT PROGRAM (NASAP)



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

-- ENERGY --

ENERGY SUPPLY -- RESEARCH AND TECHNOLOGY DEVELOPMENT MISSION

OTHER RESOURCES

	1977	1978	1979	INCREASE 1978 TO 1979
				\$
BUDGET AUTHORITY	\$171	\$216	\$267	\$51
OUTLAYS	\$144	\$193	\$240	\$47
				%
				24
				24

- TECHNOLOGY TO CONVERT RENEWABLE BIOMASS RESOURCES INTO CLEAN FUEL, PETRO-CHEMICAL SUBSTITUTES, AND OTHER ENERGY PRODUCTS
- OPERATION OF AN EXPERIMENTAL FACILITY TO CONVERT WOOD TO OIL
- EXPAND RESEARCH ON SOLAR PHOTOCONVERSION AND CHARACTERIZATION OF FOSSIL FUELS AND ADVANCED INVESTIGATION OF COMBUSTION
- CONSTRUCTION OF AN INTENSE PULSED NEUTRON SOURCE



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

— ENERGY —

ENERGY SUPPLY — PRODUCTION, DEMONSTRATION AND DISTRIBUTION MISSION

	1977	1978	1979	INCREASE 1978 TO 1979
	(\$ in Millions)			
BUDGET AUTHORITY	\$1,185	\$908	\$692	-\$216
OUTLAYS	\$ 624	\$800	\$766	- 34
				%
				-24
				- 4

- OPERATION OF THREE NAVAL PETROLEUM RESERVES AND THREE OIL SHALE RESERVES
- INITIATE 75 TO 125 ADDITIONAL FEDERAL SOLAR BUILDING PROJECTS
- OPERATION OF URANIUM ENRICHMENT ACTIVITIES
- ACCELERATION OF URANIUM RESOURCE ASSESSMENT PROGRAM
- OPERATION OF THE FIVE POWER MARKETING ADMINISTRATIONS
- CONTINUATION OF GAS CENTRIFUGE ENRICHMENT PLANT CONSTRUCTION



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

- ENERGY -

CONSERVATION MISSION

	1977	1978	1979	INCREASE 1978 TO 1979	
	(\$ in Millions)			\$	%
BUDGET AUTHORITY	\$242	\$692	\$1,010	\$318	46
OUTLAYS	\$143	\$473	\$ 902	\$429	91

- PARTICIPATION IN PUBLIC UTILITY COMMISSION HEARINGS TO ENSURE RATE STRUCTURES WHICH REFLECT CONSERVATION GOALS
- WEATHERIZATION ASSISTANCE PROGRAM TO MODIFY HOMES OF LOW INCOME INDIVIDUALS
- DEVELOP ENERGY EFFICIENT DESIGN, CONSTRUCTION, AND OPERATION METHODS FOR RESIDENTIAL AND COMMERCIAL BUILDINGS
- R&D TO IMPROVE EFFICIENCY OF ENERGY INTENSIVE INDUSTRIAL PROCESSES
- EMPHASIS ON HEAT ENGINES AND ELECTRIC HYBRID VEHICLES



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

- ENERGY -

CONSERVATION MISSION - CON'T

- GRANTS TO GOVERNMENTS OR NON-PROFIT INSTITUTIONS TO CONDUCT PRELIMINARY ENERGY AUDITS
- INSTALLATION OF ENERGY EFFICIENT CAPITAL IMPROVEMENTS WHERE APPROPRIATE IN SCHOOLS AND HOSPITALS
- DEVELOP ENERGY STORAGE SYSTEMS
- DEVELOPMENT OF THERMOCHEMICAL STORAGE SYSTEM
- ESTABLISH A COST SHARED NATIONWIDE ENERGY EXTENSION SERVICE



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

- ENERGY -

REGULATION MISSION

	1977	1978	1979	INCREASE 1978 TO 1979	
	(\$ in Millions)			\$	%
BUDGET AUTHORITY	\$82	\$83	\$104	\$21	25
OUTLAYS	\$85	\$86	\$101	\$15	17

- REDUCE BACKLOG OF UNRESOLVED CASES FOR FERC
- PROCEDURAL AND STRUCTURAL MODIFICATIONS TO EXPEDITE THE REGULATORY PROCESS
- CONVERSION FROM OIL AND GAS TO COAL BY UTILITIES AND INDUSTRY
- ADMINISTER CRUDE OIL PRICE CONTROLS



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

— ENERGY — EMERGENCY PREPAREDNESS MISSION

	1977	1978	1979	INCREASE 1978 TO 1979
		(\$ in Millions)		
				\$
BUDGET AUTHORITY	\$78	\$3,595	\$4,255	\$ 660
OUTLAYS	\$ 1	\$2,029	\$3,285	\$1,256
				%
				18
				62

- COMPLETE THE PURCHASE OF 500 MILLION BARRELS OF OIL BY THE END OF 1980
- INITIATE DESIGN AND CONSTRUCTION OF STORAGE FACILITIES LEADING TO THE PRESIDENTS GOAL OF ONE BILLION BARRELS BY 1985



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

— ENERGY — ENERGY INFORMATION MISSION

	1977	1978	1979	INCREASE 1978 TO 1979	
	(\$ in Millions)			\$	%
BUDGET AUTHORITY	\$40	\$48	\$63	\$15	31
OUTLAYS	\$37	\$47	\$61	\$14	30

- COLLECTION OF ACCURATE AND COMPREHENSIVE ENERGY DATA.
- IMPLEMENT A FINANCIAL REPORTING SYSTEM TO ASSESS RESOURCE PRODUCTION AND DISTRIBUTION.



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

— ENERGY — ENVIRONMENT MISSION

	1977	1978	1979	INCREASE 1978 TO 1979	
	(\$ in Millions)			\$	%
BUDGET AUTHORITY	\$184	\$218	\$209	-\$9	-4
OUTLAYS	\$176	\$203	\$201	-\$2	-1

- EMPHASIS ON EXAMINATION OF ENVIRONMENTAL CONTROLS IN THE COAL FUEL CYCLE
- CONDUCT STUDIES ON LIQUIFIED NATURAL GAS SAFETY AND CONTROL
- RESEARCH ON HEALTH AND ENVIRONMENTAL ASPECTS OF ENERGY TECHNOLOGY DEVELOPMENT AND PRODUCTION
- TRANSFER OF HEALTH STUDIES SUPPORTING REGULATORY STANDARDS FOR FOSSIL ENERGY TO EPA



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

- ENERGY - POLICY AND MANAGEMENT MISSION

INCREASE 1978
TO 1979

1977 1978 1979

(\$ in Millions)

BUDGET AUTHORITY

\$339

\$388

\$505

\$117

30

OUTLAYS

\$311

\$394

\$461

\$ 67

17

- SALARIES, TRAVEL AND RELATED PERSONNEL EXPENSES OF PROGRAM MANAGEMENT AND ADMINISTRATION OF DOE
- LONG AND SHORT-RANGE PLANNING, EVALUATION AND ANALYSIS OF ALTERNATIVE ENERGY POLICY, LEGISLATION AND BROAD TECHNICAL AREAS
- BROADENING AND STRENGTHENING DOE OUTREACH PROGRAMS TO MEET THE OBJECTIVES OF THE NATIONAL ENERGY PLAN
- INITIATE A MAJOR EFFORT TO REDUCE DOE ENERGY CONSUMPTION BY 20% IN EXISTING FACILITIES
- INITIATE MAJOR DECONTAMINATION AND DECOMMISSIONING OF INACTIVE AEC/MED AND DOE FACILITIES AND CLEAN UP OF INACTIVE MILL TAILING SITES



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

- DEFENSE - ATOMIC ENERGY DEFENSE ACTIVITY MISSION

	1977	1978	1979	INCREASE 1978 TO 1979	
	(\$ in Millions)			\$	%
BUDGET AUTHORITY	\$2,089	\$2,512	\$2,829	\$317	13
OUTLAYS	\$1,936	\$2,308	\$2,536	\$228	10

- BEGIN CONSTRUCTION OF NOVA HIGH ENERGY LASER FACILITY
- CONDUCT EXPERIMENTS USING SHIVA LASER FACILITY
- DEVELOP NEW NAVAL REACTOR CONCEPTS AND PROPULSION PLANTS INCLUDING TRIDENT SUBMARINE
- DESIGN, DEVELOPMENT, AND DELIVERY OF NEW WEAPONS SYSTEMS INCLUDING TRIDENT MINUTEMAN III CRUISE MISSILES
- MANAGEMENT OF DEFENSE RADIOACTIVE WASTE INCLUDING DESIGN AND LAND ACQUISITION FOR THE WASTE ISOLATION PILOT PLANT (WIPP)
- DEVELOP INTEGRATED SAFEGUARDS SYSTEMS FOR NUCLEAR FUEL CYCLE FACILITIES AND INITIATE INTERNATIONAL SAFEGUARDS SYSTEMS DESIGN FOR ENRICHMENT PLANTS



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

— BASIC SCIENCES — BASIC SCIENCES MISSION

	1977	1978	1979	INCREASE 1978 TO 1979	
	(\$ in Millions)			\$	%
BUDGET AUTHORITY	\$351	\$397	\$426	\$29	7
OUTLAYS	\$324	\$363	\$415	\$52	14

- CONTINUE LONG-TERM RESEARCH ON HUMAN RISK FROM ENERGY RELATED POLLUTANTS
- TRANSFER NUCLEAR TECHNOLOGY TO MEDICAL DIAGNOSTIC & THERAPEUTIC METHODS
- CONTINUE CONSTRUCTION OF INTERSECTING STORAGE ACCELERATOR AND POSITRON-ELECTRON PROJECTS
- CONSTRUCTION OF HIGH INTENSITY URANIUM BEAM PROJECT
- EXPLOIT RECENT THEORETICAL AND EXPERIMENTAL ADVANCES



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

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PENDING AND PROPOSED SUPPLEMENTALS

	BUDGET AUTHORITY (\$ in Millions)		
	1977	1978	1979
ENERGY SUPPLY - RESEARCH AND TECHNOLOGY DEVELOPMENT			
SOLAR		-21	
COAL		-1	
BREEDER REACTOR		-33	
ENERGY SUPPLY - PRODUCTION, DEMONSTRATION AND DISTRIBUTION			
SOLAR		-20	
COAL		-10	
STATE AND LOCAL UTILITIES		-226	
RESIDENTIAL AND COMMERCIAL		-7	
REGULATION		-2	
MULTI-RESOURCE		-5	
EMERGENCY PREPAREDNESS		-798	
STRATEGIC PETROLEUM RESERVE			
ENERGY INFORMATION			
INFORMATION ANALYSIS		-1	
COLLECTION AND DISSEMINATION		-2	
TOTAL PENDING AND PROPOSED SUPPLEMENTALS	0	-1,126	0



DEPARTMENT OF ENERGY BUDGET FOR FY 1979

LEGISLATIVE PROGRAMS AND OTHER ADJUSTMENTS

	BUDGET AUTHORITY (\$ in Millions)		
	1977	1978	1979
ENERGY SUPPLY – RESEARCH AND TECHNOLOGY DEVELOPMENT			5
POLICY AND MANAGEMENT			
ENERGY SUPPLY – PRODUCTION, DEMONSTRATION AND DISTRIBUTION			
URANIUM ENRICHMENT ACTIVITIES			-163
TOTAL LEGISLATIVE PROGRAMS	0	0	-158
ENERGY SUPPLY – RESEARCH AND TECHNOLOGY DEVELOPMENT			
OTHER ADJUSTMENTS	-88	-128	-12

DEPARTMENT OF ENERGY AUTHORIZATION BILL

FOR FISCAL YEAR 1979

AND FISCAL YEAR 1980

A BILL

To authorize appropriations to the Department of Energy in accordance with section 660 of the Department of Energy Organization Act, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled.

In accordance with section 660 of the Department of Energy Organization Act, there is hereby authorized to be appropriated to the Department of Energy for fiscal year 1979 the following sums, which may be made available until expended, under Titles I through V:

TITLE I -- ENERGY

SUBTITLE A -- ENERGY SUPPLY - RESEARCH AND TECHNOLOGY DEVELOPMENT

Sec. 101. For the following energy supply-research and technology development programs, a sum of dollars equal to the total of the following:

- (a) Coal, \$519,925,000;
- (b) Petroleum, \$78,150,000;
- (c) Gas, \$25,650,000;
- (d) Solar, \$274,800,000;
- (e) Geothermal, \$126,700,000, including an additional \$7,500,000 for the 50 megawatt geothermal demonstration plant;

- (f) Magnetic confinement fusion, \$225,000,000;
- (g) Fission, \$742,851,000;
- (h) Hydroelectric, \$8,000,000;
- (i) Biomass, \$26,400,000;
- (j) Basic energy sciences, \$175,600,000;
- (k) Advanced technology and assessments project, \$21,000,000.

Sec. 102. For energy supply-research and technology development capital investment, including: project planning, construction, acquisition, or modification of facilities (including land acquisition), and related activities, and acquisition or fabrication of capital equipment not related to construction, an additional sum of dollars equal to the total of the following:

(a) Coal

- (1) Project 79-1-a, Morgantown Energy Research Center
Warehouse Building, Morgantown, West Virginia, \$350,000.

(b) Fission

- (1) Project 79-1-b, Modifications to Reactors, \$4,000,000.
- (2) Project 79-1-c, Security Improvements, Richland,
Washington, \$12,000,000.
- (3) Project 79-1-d, Second Power Tieline, Idaho National
Engineering Laboratory, Idaho Falls, Idaho, \$2,600,000.
- (4) Project 79-1-e, Fire Safety and Protection Improvements,
Idaho National Engineering Laboratory, Idaho Falls,
Idaho, and Argonne National Laboratory, Argonne, Illinois,
\$3,100,000.

- (5) Project 79-1-f, Radioactive Waste Treatment Facility,
Idaho National Engineering Laboratory, Idaho Falls, Idaho,
\$2,000,000.
 - (6) Project 79-1-g, Test Area North Radioactive Liquid Waste
Storage and Transfer System, Idaho National Engineering
Laboratory, Idaho Falls, Idaho, \$1,000,000.
 - (7) Project 79-1-h, Maintenance and Storage Facility,
Richland, Washington, \$16,700,000.
 - (8) Project 79-1-i, AWBA Test and Examination Facilities,
Bettis Atomic Power Laboratory, West Mifflin, Pennsylvania,
\$9,000,000.
 - (9) Project 79-1-j, Reactivation of Radioactive Material
Laboratory and Hot Cell Annex, Test Area North, Idaho
National Engineering Laboratory, Idaho Falls, Idaho,
\$3,000,000.
 - (c) Basic Energy Sciences
 - (1) Project 79-1-k, Intense Pulsed Neutron Source - I, Argonne
National Laboratory, Argonne, Illinois, \$6,400,000.
 - (d) Capital Equipment Not Related to Construction, \$110,601,000.
- Sec. 103. For energy supply-research and technology development projects
previously authorized:
- (a) For Project 78-2-c, Low-Btu Fuel Gas Small Industrial Demon-
stration Plant, an additional sum of \$19,000,000 (making a
total project authorization of \$25,000,000).

- (b) For Project 76-1-b, High-Btu Synthetic Pipeline Gas Demonstration Plant, an additional sum of \$191,000,000 (making a total project authorization of \$246,000,000).
- (c) For Project 76-2-b, Ten Megawatt Central Receiver Solar Thermal Power Plant, Barstow, California, an additional sum of \$24,250,000 (making a total project authorization of \$71,500,000).
- (d) For Project 78-5-b, Advanced Fuel Recycle Integrated Equipment Test Facility, Oak Ridge National Laboratory, Oak Ridge, Tennessee, an additional sum of \$12,400,000 (making a total project authorization of \$15,400,000).
- (e) For Project 78-5-a, Facilities for the National Waste Terminal Storage Program, site undetermined (land acquisition, A-E and long-lead procurement), an additional sum of \$45,000,000 (making a total project authorization of \$55,000,000).
- (f) For Project 78-6-e, Liquid Metal Engineering Center Facility Modifications, Liquid Metal Engineering Center, Santa Susana, California (A-E and long-lead procurement only), an additional sum of \$1,600,000 (making a total project authorization of \$5,600,000).

SUBTITLE B -- ENERGY SUPPLY - PRODUCTION,
DEMONSTRATION AND DISTRIBUTION

Sec. 104. For the following energy supply-production, demonstration and distribution programs, a sum of dollars equal to the total of the following:

- (a) Coal, \$2,930,000;
- (b) Petroleum and shale reserves, \$199,005,000;
- (c) Solar, \$64,381,000;
- (d) Uranium enrichment activities, \$976,400,000;
- (e) Uranium resource assessment, \$91,200,000;
- (f) Multiple resources, \$1,000,000.

Sec. 105. For energy supply-production, demonstration and distribution capital investment, including: project planning, construction, acquisition, or modification of facilities (including land acquisition), and related activities, and acquisition or fabrication of capital equipment not related to construction, an additional sum of dollars equal to the total of the following:

(a) Uranium Enrichment Activities

- (1) Project 79-2-a, UF₆ Tails Cylinders and Storage Yards, Gaseous Diffusion Plants, \$11,000,000.
- (2) Project 79-2-b, Coal and Ash Handling Modifications, Portsmouth Gaseous Diffusion Plant, Portsmouth, Ohio, \$2,300,000.

- (3) Project 79-2-c, Upgrade Uranium Recovery, Portsmouth Gaseous Diffusion Plant, Portsmouth, Ohio, \$3,600,000.
- (4) Project 79-2-d, Technology Test Facilities, various locations (A-E and long-lead procurement only), \$7,000,000.

(b) Capital Equipment Not Related to Construction, \$24,200,000.

Sec. 106. For energy supply-production, demonstration and distribution projects previously authorized:

- (a) For Project 78-14-b, Process Control Modifications, Gaseous Diffusion Plants, an additional sum of \$1,100,000 (making a total project authorization of \$18,500,000).
- (b) For Project 76-8-g, Enriched Uranium Production Facilities, Portsmouth, Ohio, an additional sum of \$220,000,000 (making a total project authorization of \$582,630,000).
- (c) For Project 71-1-f, Process Equipment Modifications, Gaseous Diffusion Plants, an additional sum of \$70,000,000 (making a total project authorization of \$990,000,000).

SUBTITLE C -- CONSERVATION

Sec. 107. For the following conservation programs, a sum of dollars equal to the total of the following:

- (a) Utilities, \$52,793,000;
- (b) Residential and commercial, \$262,000,000;
- (c) Industrial, \$48,600,000;
- (d) Transportation, \$96,000,000;
- (e) Federal, \$10,190,000;
- (f) State and local, \$368,300,000;
- (g) Multiple sector, \$163,380,000.

Sec. 108. For conservation, for capital equipment not related to construction, \$8,300,000.

SUBTITLE D -- REGULATION

Sec. 109. For the regulation program, \$103,720,000, of which \$43,670,000 is for the Federal Energy Regulatory Commission.

SUBTITLE E -- EMERGENCY PREPAREDNESS

Sec. 110. For the emergency preparedness program, \$4,255,360,000.

SUBTITLE F -- ENERGY INFORMATION

Sec. 111. For the energy information program, \$63,405,000.

SUBTITLE G -- ENVIRONMENT

Sec. 112. For the environment program, \$183,988,000.

Sec. 113. For environment capital investment, including: project planning, construction, acquisition or modification of facilities (including land acquisition), and related activities, and acquisition or fabrication of capital equipment not related to construction, a sum of dollars equal to the total of the following:

- (a) Project 79-3-a, Modifications and Additions to Biomedical and Environmental Research Facilities, various locations, \$4,000,000.
- (b) Capital Equipment Not Related to Construction, \$14,600,000.

SUBTITLE H -- POLICY AND MANAGEMENT

Sec. 114. For policy and management programs, a sum of dollars equal to the total of the following:

- (a) For program direction and management support, \$334,300,000.
- (b) For supporting activities, \$161,060,000.

Sec. 115. For policy and management, capital investment, including: project planning, construction, acquisition or modification of facilities (including land acquisition), and related activities, and acquisition or fabrication of capital equipment not related to construction, a sum of dollars equal to the total of the following:

- (a) Project 79-4-a, Modifications for Energy Management, various locations, \$25,000,000.
- (b) Project 79-4-b, Heating, Ventilating, and Air Conditioning Heat Recovery, Richland, Washington, \$4,000,000.

(c) Project 79-5, Plant Engineering and Design, \$10,000,000.

(d) Project 79-6, General Plant Projects, \$51,535,000.

(e) Capital Equipment Not Related to Construction, \$6,100,000.

Sec. 116. For policy and management projects previously authorized:

(a) For Project 78-19-a, Program Support Facility, Argonne National Laboratory, Argonne, Illinois, an additional sum of \$10,600,000 (making a total project authorization of \$15,600,000).

TITLE II -- GENERAL SCIENCE AND RESEARCH

Sec. 201. For the general science and research program, \$306,600,000.

Sec. 202. For general science and research capital investment, including: project planning, construction, acquisition, or modification of facilities (including land acquisition), and related activities, and acquisition or fabrication of capital equipment not related to construction, an additional sum of dollars equal to the total of the following:

(a) Project 79-9-a, Hadron Bubble Chamber Facility, Fermi National Accelerator Laboratory, Batavia, Illinois, \$2,200,000.

- (b) Project 79-9-b, Energy Saver, Fermi National Accelerator Laboratory, Batavia, Illinois, \$38,900,000.
- (c) Project 79-9-c, Fire Protection Improvements, Brookhaven National Laboratory, Upton, New York, \$1,300,000.
- (d) Project 79-9-d, Accelerator Improvements and Modifications, various locations, \$4,500,000.
- (e) Project 79-9-e, Accelerator Improvements and Modifications, various locations, \$1,500,000.
- (f) Project 79-6, General Plant Projects, various locations, \$6,700,000.
- (g) Capital Equipment Not Related to Construction, \$49,800,000.

Sec. 203. For general science and research projects previously authorized:

- (a) For Project 78-10-b, Intersecting Storage Accelerator (ISABELLE) 400 x 400 Gev, Brookhaven National Laboratory, Upton, New York, an additional sum of \$264,500,000 (making a total project authorization of \$275,000,000).

TITLE III -- ATOMIC ENERGY DEFENSE ACTIVITIES

Sec. 301. For the following atomic energy defense activities programs, a sum of dollars equal to the total of the following:

- (a) Inertial confinement fusion, \$91,800,000;
- (b) Naval reactor development, \$265,600,000;
- (c) Weapons activities, \$1,232,694,000;
- (d) Defense intelligence and arms control, \$28,400,000;
- (e) Special materials production, \$501,500,000;
- (f) Nuclear materials security and safeguards, \$40,089,000.

Sec. 302. For atomic energy defense activities capital investment, including: project planning, construction, acquisition, or modification of facilities (including land acquisition), and related activities, and acquisition or fabrication of capital equipment not related to construction, an additional sum of dollars equal to the total of the following:

(a) Weapons Activities

- (1) Project 79-7-a, Tonopah Test Range Upgrade, Phase II, Sandia Laboratories, Albuquerque, New Mexico, \$4,000,000.
- (2) Project 79-7-b, Fire Protection Improvements, Los Alamos Scientific Laboratory, Los Alamos, New Mexico (A-E and long-lead procurement only), \$2,000,000.

- (3) Project 79-7-c, Proton Storage Ring, Los Alamos Scientific Laboratory, Los Alamos, New Mexico, \$16,700,000.
- (4) Project 79-7-d, Water Cooling Station Upgrade, Lawrence Livermore Laboratory, Livermore, California, \$2,300,000.
- (5) Project 79-7-e, Production and Assembly Facilities, Pantex Plant, Amarillo, Texas, \$10,000,000.
- (6) Project 79-7-f, Stockpile Quality Evaluation Facility, Y-12 Plant, Oak Ridge, Tennessee, \$2,300,000.
- (7) Project 79-7-g, Facilities for B43 modernization, various locations, \$18,000,000.
- (b) Special Materials Production
 - (1) Project 79-7-h, Utilities Replacement and Expansion, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho Falls, Idaho, \$10,500,000.
 - (2) Project 79-7-i, Transmission and Distribution Systems Upgrading, Richland, Washington, \$14,000,000.

- (3) Project 79-7-j, Pollutant Discharge Elimination, Savannah River, South Carolina, \$9,000,000.
- (4) Project 79-7-k, Waste Management Facilities, Savannah River, South Carolina, \$75,000,000.
- (c) Project 79-6, General plant projects, \$40,600,000.
- (d) Project 79-8, Plant engineering and design, \$23,500,000.
- (e) Capital Equipment Not Related to Construction, \$159,600,000.

Sec. 303. For atomic energy defense activities projects previously authorized:

- (a) For Project 74-1-b, Replacement Ventilation Air Filter, F Chemical Separations Area, Savannah River, South Carolina, an additional sum of \$2,100,000, for a total project authorization of \$7,300,000.
- (b) For Project 75-7-c, Intermediate-Level Waste Management Facilities, Oak Ridge National Laboratory, Oak Ridge, Tennessee, an additional sum of \$1,000,000, for a total project authorization of \$11,500,000.

- (c) For Project 77-13-a, Flourinel Dissolution Process and Fuel Receiving Improvements, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho Falls, Idaho, an additional sum of \$100,400,000, for a total project authorization of \$115,400,000.
- (d) For Project 77-13-f, Waste Isolation Pilot Plant, Delaware Basin, southeast New Mexico, an additional sum of \$40,000,000, for a total project authorization of \$68,000,000.
- (e) For Project 77-13-g, Safeguards and Security Upgrading, Production Facilities, multiple sites, an additional sum of \$3,800,000, for a total project authorization of \$20,200,000.
- (f) For Project 78-4-a, High Energy Laser Facility (NOVA), Lawrence Livermore Laboratory, Livermore, California, an additional sum of \$187,000,000, for a total project authorization of \$195,000,000.
- (g) For Project 78-16-d, Weapons Safeguards, various locations, an additional sum of \$11,000,000, for a total project authorization of \$28,000,000.
- (h) For Project 78-16-g, Radioactive Liquid Waste Improvement, Los Alamos Scientific Laboratory, Los Alamos, New Mexico, an additional sum of \$11,900,000, for a total project authorization of \$12,500,000.

- (i) For Project 78-16-i, Laboratory Support Complex, Los Alamos Scientific Laboratory, Los Alamos, New Mexico, an additional sum of \$14,000,000, for a total project authorization of \$16,000,000.
- (j) For Project 78-17-a, Production Component Warehouse, Pantex Plant, Amarillo, Texas, an additional sum of \$2,550,000, for a total project authorization of \$2,800,000.
- (k) For Project 78-17-c, Core Facilities Office Building, Utilities, and Roads, Lawrence Livermore Laboratory, Livermore, California, an additional sum of \$11,000,000, for a total project authorization of \$12,300,000.
- (l) For Project 78-17-d, Steam Plant Improvements, Y-12 Plant, Oak Ridge, Tennessee, an additional sum of \$7,000,000, for a total project authorization of \$10,000,000.
- (m) For Project 78-18-a, High-Level Waste Storage and Waste Management Facilities, Richland, Washington, an additional sum of \$9,000,000, for a total project authorization of \$27,000,000.
- (n) For Project 78-18-e, Environmental, Safety and Security Improvements to Waste Management and Materials Processing Facilities, Richland, Washington, an additional sum of \$24,500,000, for a total project authorization of \$40,000,000.

TITLE IV -- POWER MARKETING ADMINISTRATIONS

SUBTITLE A -- ALASKA POWER ADMINISTRATION

Sec. 401. For the Alaska Power Administration, including expenses for engineering and economic investigation to promote the development and utilization of the water, power, and related resources of Alaska, \$2,614,000.

SUBTITLE B -- WESTERN AREA POWER ADMINISTRATION

Sec. 402. For the Western Area Power Administration, \$101,252,000 for construction, rehabilitation, operation and maintenance of electric power transmission facilities, and power marketing activities, of which \$90,007,000 shall be derived from the reclamation fund.

Sec. 403. For the Western Area Power Administration, \$200,000 for the Emergency Fund established pursuant to 43 U.S.C. 502 to assure continuous operations during unusual or emergency conditions, all of which shall be derived from the reclamation fund.

Sec. 404. For the Western Area Power Administration for continued work on the transmission system of the Upper Colorado River Storage Project, authorized by Section 1 (1) of the Act of April 11, 1956 (Public Law 485 of the Eighty-Fourth Congress; 70 Stat. 105) and legislation supplementary thereto, including the Act of August 10, 1972 (Public Law 92-370), \$2,286,000.

SUBTITLE C -- SOUTHWESTERN POWER ADMINISTRATION

Sec. 405. For the Southwestern Power Administration, \$19,909,000.

SUBTITLE D -- SOUTHEASTERN POWER ADMINISTRATION

Sec. 406. For the Southeastern Power Administration, \$1,212,000.

TITLE V -- SPECIAL FOREIGN CURRENCY

Sec. 501. For international cooperation in nonnuclear technology, special foreign currency, \$2,000,000.

TITLE VI -- OTHER PROVISIONS

Sec. 601.

- (a) In the exercise of authority vested in the Secretary for the performance of research, development, and demonstration activities, facilities or major items of equipment may be constructed or acquired at locations other than installations of the Department.
- (b) Agreements, contracts and grants entered into in furtherance of the authority of subsection (a) may provide for the transfer of title or other interests in property of the United States when the Secretary determines the transfer is in the best interests of the Government.

Sec. 602. Except as otherwise provided in this Act --

- (a) no amount appropriated pursuant to this Act may be used for any program in excess of either (1) 120 per centum of the amount authorized for that program by this Act, or (2) five million dollars more than the amount authorized for that program by this Act, whichever is the lesser, and
- (b) no amount appropriated pursuant to this Act may be used for any program which has not been presented to, or requested of, the Congress,

unless (1) a period of thirty calendar days (not including any day in which either House of Congress is not in session because of adjournment of more than three calendar days to a day certain) has passed after receipt by the appropriate committees of the House of Representatives and the Senate of notice given by the Secretary containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of such proposed action, or (2) each such committee, before the expiration of such period, has transmitted to the Secretary written notice waiving the remainder of such 30-day notice period.

Sec. 603. The Department is authorized to start construction of any line item construction project set forth in this Act, only if the currently estimated cost of that project does not exceed by more than 25 per centum, the estimated cost set forth for the project. Further, the total cost of any project undertaken shall not exceed the estimated cost set forth for that project by more than 25 per centum unless and until additional appropriations are authorized; Provided, that limitations in this section will not apply to any project with an estimated cost less than \$5,000,000.

Sec. 604. The Department is authorized to start any project provided for under the general plant projects authority set forth in this Act only if it is in accordance with the following:

- (a) The then maximum currently estimated cost of any project shall not exceed \$750,000 and the then maximum currently estimated cost of any building included in such project shall not exceed \$300,000; Provided, that the building cost limitation may be exceeded if the Secretary determines that it is necessary in the interest of efficiency and economy.
- (b) The total cost of all projects undertaken shall not exceed the total amount authorized by this Act for general plant projects by more than 25 per centum.

Sec. 605. Amounts appropriated pursuant to this Act for Policy and Management activities, for general plant projects, and for plant engineering and design are available for use, when necessary, in connection with all Department programs.

Sec. 606. In addition to construction design services performed with Plant Engineering and Design funds, the Secretary is authorized to perform construction design services for any Department construction project whenever (a) such construction project has been included in a proposed authorization bill transmitted to the Congress by the Secretary, and (b) the Secretary determines that the project is of such urgency in order to meet the needs of national defense or protection of life and property or health and safety that construction of the project should be initiated promptly upon enactment of legislation appropriating funds for its construction.

Sec. 607. When so specified in fiscal year 1979 appropriation Acts, any moneys received by the Department from uranium enrichment and other reimbursable programs may be retained and used, notwithstanding the provisions of Section 3617 of the Revised Statutes (31 U.S.C. 484), and may remain available until expended.

Sec. 608. Appropriations authorized by this Act for salary, pay, retirement or other benefits for Federal employees may be increased by such additional or supplemental amounts as may be necessary for increases authorized by law.

TITLE VII -- BASIS FOR GOVERNMENT CHARGE FOR
URANIUM ENRICHMENT SERVICES

Sec. 701. Subsection 161v. of the Atomic Energy Act of 1954, as amended, is amended as follows:

- (a) by striking out the word "Commission" each time it appears in the subsection, and inserting in lieu thereof the words "Secretary of Energy" or "Department of Energy" as appropriate;
- (b) by deleting from the first proviso in this subsection the words after "(iii)" of the first proviso to the beginning of the second proviso and inserting in lieu thereof the following:

"any prices established under this subsection shall be on such a basis as will assure the recovery of not less than the Government's costs over a reasonable period of time and when combined with a percentage of such costs will result in the recovery of revenues no greater than the sum of all Government costs and the normal and ordinary business expenses, taxes, and return on equity which would otherwise be reflected in the prices charged by a private operator providing similar services:" and

- (c) by deleting the third proviso in this subsection and inserting in lieu thereof the following:

"Provided further, That before the Secretary establishes such criteria, the Secretary shall transmit the criteria to the Committee on Science and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate and wait a period of forty-five days (not including any day in which either House of Congress is not in session because of adjournment of more than three days), unless prior to the expiration of such period each such committee has transmitted to the Secretary written notice to the effect that such committee has no objection to the proposed action."

TITLE VIII -- AMENDMENTS TO
THE NATIONAL ENERGY EXTENSION SERVICE ACT
(Title V, P.L. 95-39)

Sec. 801.

- (a) Section 505(b)(9) of the National Energy Extension Service Act is amended by deleting the following:

" : Provided, that there shall be no requirement for matching State or local funds in the guidelines, unless such requirement is included in an annual authorization".

- (b) Section 512(c) of the National Energy Extension Service Act is amended by deletion from paragraph (2) (11) of the following parenthetical clause:

"(determined on the basis of the most recent decennial census)"

and the addition of a new paragraph (4) as follows:

"(4) Obligation of funds allocated under subsection (c)(2) of this section, including funds for implementation of any plan developed by the Director, pursuant to section 506 (f)(1) of this Title, shall be conditioned by a requirement for matching State or local funds equal to Federal funds."

TITLE IX -- LOAN GUARANTEES FOR ENERGY DEMONSTRATION

Sec. 901.(a) Section 7(a) of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5906) is amended--

- (1) by striking out "and" after the semicolon at the end of paragraph (5),
- (2) by striking out the period at the end of paragraph (6) and inserting in lieu thereof "; and", and
- (3) by adding at the end thereof the following new paragraph:
 "(7) Federal loan guarantees and commitments thereof as provided in subsection (d) of this section."

(b) Section 7(d) of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5906) is amended by striking "(d)" at the beginning of such section and inserting in lieu thereof "(e)".

(c) Section 7 of the Federal Nonnuclear Energy Research and Development Act of 1974 is amended by adding the following new subsection:

"(d) Except to the extent that the authority to issue loan guarantees and commitments to guarantee is provided to the Secretary by Title II of the Geothermal Energy Research, Development and Demonstration Act of 1974, P.L. 93-410, and Section 10 of the Electric and Hybrid Vehicle Research, Development and Demonstration Act of 1974, P.L. 94-413, guarantees and commitments may be entered into by the Secretary under this subsection subject to the following requirements and limitations:

- (1) The Secretary shall determine the types and capacities of the commercial-size facility or other operation which would demonstrate the technical, environmental or economic feasibility of a particular nonnuclear energy technology. In making this determination, the Secretary shall consider the criteria set forth in Section 8(b) of this Act.

- (2) The Secretary shall, to the maximum extent possible, encourage competition among guarantee applicants in a particular technology area.
- (3) No guarantee shall be extended unless the Secretary finds that credit is not otherwise available on reasonable terms and conditions.
- (4) For any loan guaranteed, the borrower shall have a minimum invested equity in any project equal to at least 10 per centum of the project cost. The guarantee shall not exceed 95 per centum of the total amount of the outstanding obligation of principal and interest; Provided, that in no case shall the amount guaranteed exceed 80 per centum of the project cost.
- (5) No loan shall be guaranteed if the income from such loan is excluded from gross income for the purposes of Chapter 1 of the Internal Revenue Code of 1954, or if the guarantee provides significant collateral or security, as determined by the Secretary, for other obligations the income from which is so excluded.

- (6) Loans guaranteed shall provide for complete amortization within a period of not to exceed 30 years, or 75 per centum of the useful life of the project to be financed by the loans whichever is less, as determined by the Secretary.
- (7) No guarantee or commitment to guarantee under this subsection in an amount exceeding \$50,000,000 shall be issued by the Secretary except as further authorized by Congress. The total amount of guarantees and commitments to guarantee issued under this subsection shall not exceed such amounts as may be specified by Congress in authorization and appropriation acts.
- (8) The approval of the Secretary of the Treasury shall be required of the interest rate, timing, and other terms and conditions of the financing of any guaranteed obligations, except that the Secretary of the Treasury may waive this requirement with respect to the financing of any guaranteed obligation when he determines that such financing does not have a significant impact on the market for Government and Government-guaranteed securities.

- (9) There are hereby authorized to be appropriated from time to time such amounts, which shall remain available until expended, as may be necessary to carry out the purposes of this subsection; including, but not limited to, the payments of interest and principal.
- (10) The Secretary shall charge and collect fees for guarantees in amounts sufficient in his judgment to cover applicable administrative costs and probable losses on guaranteed obligations; Provided, that the Secretary may waive any fee in excess of 1 per centum per annum of outstanding indebtedness covered by each guarantee upon a finding that such waiver is in furtherance of the demonstration program and the interests of the United States.
- (11)(a) Any loan guarantee or commitment to guarantee shall be issued by the Secretary only if he determines there is reasonable assurance of repayment of the loan by the borrower under

the guaranteed obligation. Any guarantee agreement entered into by the Secretary shall include such detailed terms and conditions as the Secretary deems appropriate to protect the interest of the United States in the case of default. For purposes of this subsection, any invention made or conceived in the course of or under such guarantee, shall be treated as a project asset in the event of foreclosure by the Secretary for default.

- (b) The guarantee agreement may provide for the payment to holders of the obligation, for and on behalf of the borrower, of principal and interest which become due if the Secretary finds that --

- (1) the borrower is unable to meet such payments, it is in the public interest to permit the borrower to continue to pursue the purposes of such project, and the probable net benefit to the Federal Government in paying such principal and interest will be greater than that which will result in the event of a default; and

- (2) the borrower agrees to reimburse the Secretary for such payment on terms and conditions, including interest, which are satisfactory to the Secretary.
- (c) The guarantee agreement may provide that the Secretary shall, after a period of not less than ten years from issuance of the obligation, taking into consideration whether the Government's needs for information to be derived from the project have been substantially met and whether the project is capable of commercial operation, determine the feasibility and advisability of terminating the Federal participation in the project. In the event that such determination is positive, the Secretary shall notify the borrower and provide the borrower with not less than two nor more than three years in which to find alternative financing. At the expiration of the designated period of time, if the borrower has been unable to secure alternative financing, the Secretary is authorized to collect from the borrower an additional fee of 1 per centum per annum on the remaining obligation to which the Federal guarantee applies.

- (12) To the extent that moneys available to the Secretary for the purposes of this subsection are insufficient to fulfill his authorized obligations pursuant to any loan guarantee issued under this subsection, the Secretary shall, to such extent or in such amounts as are provided in appropriations acts (to be available without fiscal year limitations), issue to the Secretary of the Treasury notes or other obligations in such forms and denominations, bearing such maturities, and subject to such terms and conditions as may be prescribed by the Secretary of the Treasury. Redemptions of such notes or obligations shall be made by the Secretary from appropriations or other moneys available to him. The Secretary of the Treasury shall purchase any notes or other obligations issued hereunder and for that purpose he is authorized to use as a public debt transaction the proceeds from the sale of any securities issued under the second Liberty Bond Act; and the purposes for which securities may be issued under that Act are extended to include any purchase of such note or

obligations. All of such transactions by the Secretary of the Treasury of such notes or other obligations shall be treated as public debt transactions of the United States.

(13)(a) If the Secretary makes a payment pursuant to any loan guarantee made by him pursuant to this subsection, the Secretary shall be subrogated to the rights of the recipient of such payment (and such subrogation shall be expressly set forth in the guarantee or related agreements), including the authority to complete, maintain, operate, lease, or otherwise dispose of any property acquired pursuant to such guarantee or related agreements, or to permit the borrower, pursuant to an agreement with the Secretary to continue to pursue the purposes of the project for which a loan was guaranteed if the Secretary determines that this is in the public interest.

(b) Whenever the Secretary determines it necessary to secure the project assets in the event of default on any guarantee under this section, the Secretary shall notify the Attorney General, who shall take action as may be appropriate to

recover the amounts of any payments made pursuant to the loan guarantee from such assets of the defaulting borrower as are associated with the demonstration facility, or from any other security included in the terms of the guarantee.

TITLE X -- AUTHORIZATION OF APPROPRIATIONS
FOR FISCAL YEAR 1980

Sec. 1001. There is hereby authorized to be appropriated to the Department of Energy to be available no earlier than October 1, 1979, such sums as may be necessary for Fiscal Year 1980 for the following:.

- (a) Energy
- (b) General science and research
- (c) Atomic energy defense activities
- (d) Power marketing administrations
- (e) Special foreign currency

Sec. 1002. All of the provisions of this Act which are applicable to amounts appropriated pursuant to Titles I, II, III, IV and V shall apply in the same manner to amounts appropriated pursuant to subsections 1001(a), (b), (c), (d), and (e), respectively.

FY 1979 DOE AUTHORIZATION BILL
SECTION-BY-SECTION ANALYSIS
TITLES I-V

Sections 101 through 501. These sections comprise the first five Titles of the bill. They authorize the appropriations necessary to support Departmental activities during fiscal year 1979. The respective Titles relate to separate appropriation accounts: Title I - Energy; Title II - General Science and Research; Title III - Atomic Energy Defense Activities; Title IV - Power Marketing Administrations; Title V - Special Foreign Currency. Taken together, these sections comply with the requirements of section 660 of the Department of Energy Organization Act. Detailed justifications of the amounts to be authorized are contained in the Department of Energy FY 1979 Budget Justifications.

TITLE VI

Section 601. Authorizes DOE to construct or acquire facilities or major items of equipment at non-DOE locations which are needed to carry out DOE research, development, and demonstration activities by profit and nonprofit organizations, including educational institutions. Title to any such facilities or equipment is to be vested in the United States, unless

the Secretary determines that the vesting of title to particular facilities or equipment in a non-Federal entity would further authorized programs.

Section 602. This section defines and delimits the authority of the Department to use funds appropriated pursuant to the authorizations of this bill for programs in excess of certain stated amounts or for programs not yet considered by the Congress. In such cases, a detailed reprogramming request is to be submitted to the Congress and the appropriate Committees have up to 30 days to comment on such requests.

Section 603. This provision permits construction projects to be initiated and continued only so long as the estimated cost does not exceed 125 per centum of the total estimated cost presented to the Congress in support of authorization. This 125 per centum limitation does not apply to projects under \$5 million.

Section 604. (a) Sets forth limitations on the initiation of general plant projects, authorized by the bill, limiting the then current estimated cost for any project to \$750,000 and the then current estimated cost for any building to \$300,000. However, the building cost limitation can be exceeded if the Secretary determines it is necessary in the interest of efficiency

and economy. (b) Requires that the total cost of all general plant projects shall not exceed the total amount authorized for such projects by more than 25 per centum.

Section 605. Provides that funds appropriated pursuant to this bill for policy and management, for general plant projects, and for plant engineering and design are available for all DOE programs.

Section 606. Provides authority for the use of funds (in addition to those authorized for "Plant Engineering and Design") to undertake engineering design of construction projects which have been included in a proposed authorization bill transmitted to the Congress. This work would be undertaken to expedite projects which the Department deems are of such urgency to meet the needs of national defense or protection of life and property or health and safety that physical construction should be initiated as soon as appropriations are available.

Section 607. This section specifies that DOE may retain and use for its operations funds received for uranium enrichment services and for reimbursable programs. Such funds are available until expended.

Section 608. This section provides authorization for such additional or supplemental appropriations as may be necessary

to fund increases authorized by law in salary, pay, retirement, or other benefits for Federal employees.

TITLE VII

Section 701 amends the Atomic Energy Act of 1954, as amended, by revising one of the bases for establishing prices for uranium enrichment services provided by the Department of Energy. Under existing law the Secretary of Energy is directed to establish such prices on such basis as will recover the Government's costs over a reasonable period of time.

This section establishes a floor on the prices to be charged equal to recovery of the Government's costs over a reasonable period and allows the Secretary to establish prices up to a ceiling equivalent to the normal and ordinary business expenses, taxes, and return on equity which would be reflected in the prices charged by a private operator providing similar services.

The phrase "otherwise be reflected" contained in the first proviso of the proposed section is used to assure that in computing the ceiling no expense is counted twice.

TITLE VIII

Section 801 amends the National Energy Extension Act to require matching state or local funds.

This section also removes the requirement for use of the most recent decennial census in applying the formula for allocating funding. This will permit the use of more current population estimates prepared by the Bureau of Census.

TITLE IX

This title amends the Federal Nonnuclear Energy Research and Development Act of 1974, as amended, to add Federal loan guarantees, and commitments to guarantee; to those forms of Federal assistance enumerated in section 7(a) of the Act. The guarantees and commitments are described and limited in a new section 7(d). The new authority would not be available in instances where guarantee authority is provided by Title II of the Geothermal Energy Research, Development, and Demonstration Act of 1974 or by Section 10 of the Electric and Hybrid Vehicle Research, Development, and Demonstration Act of 1976. The chief features of the new section 7(d) of the Nonnuclear Act are:

7(d)(1) - The Secretary must determine, using the criteria of section 8(b) of the Nonnuclear Act, the characteristics of the proposed operation which would demonstrate the feasibility of a particular nonnuclear energy technology.

7(d)(2) - Competition is to be encouraged among applicants in a particular technology area.

7(d)(3) - A guarantee may be made available only on a finding that at least reasonable credit is not otherwise available.

7(d)(4) - The borrower must have invested equity of at least 10% of the project costs. The guaranteed amount cannot exceed 95% of the loan; nor can the guaranteed amount exceed 80% of project costs.

7(d)(5) - If the income from a loan, or from other obligations for which a guarantee would provide significant collateral or security, is excluded from gross income for the purposes of Chapter 1 (normal taxes and surtaxes on income), of the Internal Revenue Code, the loan cannot be guaranteed.

7(d)(6) - The maturity date of loans guaranteed cannot exceed the lesser of 30 years or 75% of the useful life of the project. The determination of useful life is left to the Secretary.

7(d)(7) - Any guarantee or commitment exceeding \$50 million must be further authorized by Congress in order to be issued. In addition, Congress may specify in authorization and appropriation acts a total amount of guarantees and commitments not to be exceeded.

7(d)(8) - The Secretary of the Treasury must approve the terms and conditions of the financing of guaranteed obligations, unless he waives the requirement on the basis of no significant impact on the Government securities market.

7(d)(9) - This paragraph authorizes appropriations, to remain available until expended, for carrying out the purposes of the legislation.

7(d)(10) - The Secretary would be required to collect fees to cover administrative costs and probable losses, however, such fees may be limited to 1% per annum of the outstanding indebtedness covered by the guarantee, if the Secretary finds that such limit is in furtherance of the demonstration program and the interests of the United States.

7(d)(11)(a) - A guarantee or commitment is permitted only if there is reasonable assurance of repayment. Inventions made in the course of a project guaranteed are to be project assets.

7(d)(11)(b) - Provision may be made in an agreement for payment of principal and interest to the lender by the Secretary if found to be in the public interest and the borrower agrees to satisfactory terms for reimbursing the Secretary.

7(d)(11)(c) - This paragraph allows the Secretary to include provisions in the guarantee which will require the Secretary to consider terminating the guarantee 10 years after issuance if the project is then capable of commercial operation and the program needs have been met. In such cases, the borrower would have up to 3 years to find alternative funding. If the borrower is unable to do so, the guarantee will continue but the annual Government fee would increase by 1%.

7(d)(12) - This paragraph allows the Secretary, in the event available moneys are insufficient to carry out undertakings under a loan guarantee, to borrow the necessary funds. The funds are obtained by issuing obligations to the Secretary of the Treasury, who will purchase the obligations with authority to use proceeds from the sale of securities issued under the second Liberty Bond Act.

7(d)(13)(a) - In the event of a payment under a loan guarantee, the Secretary is subrogated to the rights of the recipient. These rights include the right to complete, maintain, operate, lease or dispose of property thereby acquired, or to permit the borrower to continue the project if determined to be in the public interest.

7(d)(13)(b) - If the Secretary finds it necessary to secure project assets after a default, he will notify the Attorney General, who will take appropriate action to recover from project assets or other security the amounts of payments made by the Secretary.

TITLE X

Public Law 93-344, Congressional Budget and Impoundment Control Act of 1974, TITLE VI, Section 607, states that "... any request for the enactment of legislation authorizing the enactment of new budget authority to continue a program or activity for a fiscal year (beginning with the fiscal year commencing October 1, 1976) shall be submitted to the Congress not later than May 15 of the year preceding the year in which such fiscal year begins ..." Accordingly, Sections 1001 and 1002 request authorization of appropriations for FY 1980, and provide that applicable provisions of earlier Titles pertain.

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS

TITLE I - ENERGY
(Dollars in Thousands)

OPERATING EXPENSES	FY 1979	
	Budget Authority/ Appropriation	Authorization
Subtitle A -- Energy Supply - Research and Technology Development (Sec. 101)		
Coal	\$ 519,925	\$ 519,925
Petroleum	78,150	78,150
Gas	25,650	25,650
Solar	274,800	274,800
Geothermal	126,700	126,700
Magnetic Confinement Fusion	225,000	225,000
Fission	742,851	742,851
Hydroelectric	8,000	8,000
Biomass	26,400	26,400
Basic Energy Sciences	175,600	175,600
Advanced Technology and Assessments Projects	21,000	21,000
Total Energy Supply - Research and Technology Development	\$ 2,224,076	\$ 2,224,076
Subtitle B -- Energy Supply - Production, Demonstration and Distribution (Sec. 104)		
Coal	\$ 2,930	\$ 2,930
Petroleum and Shale Reserves	199,005	199,005
Solar	64,381	64,381
Uranium Enrichment Activities	976,400	976,400
Uranium Resource Assessment	91,200	91,200
Multiple Resources	1,000	1,000
Total Energy Supply - Production, Demonstration and Distribution	\$ 1,334,916	\$ 1,334,916
Subtitle C -- Conservation (Sec. 107)		
Utilities	\$ 52,793	\$ 52,793
Residential and Commercial	262,000	262,000
Industrial	48,600	48,600
Transportation	96,000	96,000
Federal	10,190	10,190
State and Local	368,300	368,300
Multiple Sector	163,380	163,380
Total Conservation	\$ 1,001,263	\$ 1,001,263

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS

TITLE I - ENERGY
(Dollars in Thousands)
Continued

OPERATING EXPENSES (continued)	FY 1979	
	Budget Authority/ Appropriation	Authorization
Subtitle D -- Regulation (Sec. 109)	\$ 103,720	\$ 103,720
Subtitle E -- Emergency Preparedness (Sec. 110)	\$ 4,255,360	\$ 4,255,360
Subtitle F -- Energy Information (Sec. 111)	\$ 63,405	\$ 63,405
Subtitle G -- Environment (Sec. 112)	\$ 183,988	\$ 183,988
Subtitle H -- Policy and Management (Sec. 114)		
Program Direction and Management		
Support	\$ 334,300	\$ 334,300
Supporting Activities	162,060	160,560
Total Policy and Management	<u>\$ 496,360</u>	<u>\$ 494,860</u>
Transfers to Other Agencies	500	500 ^{1/}
Total obligations and budget authority	\$ 9,663,588	\$ 9,662,088
Grand Junction Remedial Action	\$ -	\$ 1,500 ^{2/}
Less: Uranium Enrichment Revenues	\$ -1,209,000	-
Miscellaneous Revenues	-54,000	-
Unobligated Balance Brought Forward	<u>-12,300</u>	<u>-</u>
Total Net Obligations and Budget Authority - Operating Expenses Title I	<u>\$ 8,388,288</u>	<u>\$ 9,663,588</u>

^{1/} Authorization reflected under Policy and Management.^{2/} Authorization of funds included in pending legislation (S. 266).

Appropriation request included under Policy and Management.

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE I - ENERGY
(Dollars in Thousands)
Continued

		FY 1979	
		Budget Authority/ Appropriation	Authorization
<u>CAPITAL EQUIPMENT NOT RELATED TO CONSTRUCTION</u>			
Subtitle A -- Energy Supply - R&TD			
Coal	\$	2,920	\$ 2,920
Petroleum		1,575	1,575
Gas		225	225
Solar		6,400	6,400
Geothermal		3,000	3,000
Magnetic Confinement Fusion		25,600	25,600
Fission		57,181	57,181
Biomass		500	500
Basic Energy Sciences		13,200	13,200
Total Energy Supply - R&TD		110,601	110,601
Subtitle B -- Energy Supply - PD&D			
Uranium Enrichment Activities		21,700	21,700
Uranium Resource Development		2,500	2,500
Total Energy Supply - PD&D		24,200	24,200
Subtitle C -- Conservation			
Utilities		2,000	2,000
Residential and Commercial		1,200	1,200
Industrial		500	500
Transportation		1,500	1,500
Multiple Sector		3,100	3,100
Total Conservation		8,300	8,300
Subtitle D -- Environment			
Overview and Assessment		2,400	2,400
Biomedical and Environmental Research		12,200	12,200
Total Environment		14,600	14,600
Subtitle H -- Policy and Management			
		6,100	6,100
Total Capital Equipment - Title I	\$	163,801	\$ 163,801

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
 TITLE I - ENERGY
 (Dollars in Thousands)
 Continued

Project Number	Item	Total Estimated Cost	FY 1979	
			Budget Authority/ Appropriation	Authorization
<u>FY 1979 CONSTRUCTION PROJECTS</u>				
79-1-a	Morgantown Energy Research Center Warehouse Building, Morgantown, West Virginia	\$ 350	\$ 350	\$ 350
79-1-b	Modifications to Reactors	4,000	4,000	4,000
79-1-c	Security Improvements, Richland, Washington	12,000	4,500	12,000
79-1-d	Second Power Tieline, Idaho National Engineering Laboratory, Idaho Falls, Idaho	2,600	2,600	2,600
79-1-e	Fire Safety and Protection Improvements, Idaho National Engineering Laboratory, Idaho Falls, Idaho and Argonne National Laboratory, Argonne, Illinois	3,100	3,100	3,100
79-1-f	Radioactive Waste Treatment Facility, Idaho National Engineering Laboatory, Idaho Falls, Idaho	2,000	2,000	2,000
79-1-g	Test Area North Radio- active Liquid Waste Storage and Transfer System, Idaho National Engineering Laboatory, Idaho Falls, Idaho	1,000	1,000	1,000
79-1-h	Maintenance and Storage Facility, Richland, Washington	16,700	3,000	16,700

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE I - ENERGY
(Dollars in Thousands)
Continued

Project Number	Item	Total Estimated Cost	FY 1979	
			Budget Authority/ Appropriation	Authorization
<u>FY 1979 CONSTRUCTION PROJECTS (Continued)</u>				
79-1-i	AWBA Test and Examination Facilities, Bettis Atomic Power Laboratory, West Mifflin, Pennsylvania	\$ 9,000	\$ 9,000	\$ 9,000
79-1-j	Reactivation of Radioactive Material Laboratory and Hot Cell Annex, Test Area North, Idaho National Engineering Laboratory, Idaho	3,000	3,000	3,000
79-1-k	Intense Pulsed Neutron Source-I, Argonne National Laboratory, Argonne, Illinois	6,400	6,400	6,400
79-2-a	UF ₆ Tails Cylinders and Storage Yards, Gaseous Diffusion Plants	11,000	11,000	11,000
79-2-b	Coal and Ash Handling Modifica- tions, Portsmouth Gaseous Diffusion Plant, Portsmouth, Ohio	2,300	2,300	2,300
79-2-c	Upgrade Uranium Recovery, Portsmouth Gaseous Diffusion Plant, Portsmouth, Ohio	3,600	3,600	3,600
79-2-d	Technology Test Facilities, various locations (A-E and long-lead procurement only) .	7,000	7,000	7,000
79-3-a	Modifications and Additions to Biomedical and Environmental Research Facilities, various locations.....	4,000	4,000	4,000
79-4-a	Modifications for Energy Management, various locations	25,000	25,000	25,000

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE I - ENERGY
(Dollars in Thousands)
Continued

		FY 1979		
Project Number	Item	Total Estimated Cost	Budget Authority/ Appropriation	Authorization
<u>FY 1979 CONSTRUCTION PROJECTS (Continued)</u>				
79-4-b	Heating, Ventilating, and Air Conditioning Heat Recovery, Richland, Washington	\$ 4,000	\$ 4,000	\$ 4,000
79-5	Plant Engineering and Design .	10,000	10,000	10,000
79-6	General Plant Projects	51,535	<u>51,535</u>	<u>51,535</u>
Total FY 1979 Construction Projects - Title I			\$ 157,385	\$ 178,585
<u>AMENDMENTS TO PREVIOUS AUTHORIZATIONS</u>				
71-1-f	Process Equipment Modifications, Gaseous Diffusion Plants	990,000	97,000	70,000
76-1-b	High-Btu Synthetic Pipeline Gas Demonstration Plant	246,000	40,000	191,000
76-2-b	Ten Megawatt Central Receiver Solar Thermal Power Plant, Barstow, California	108,000	28,000	24,250
76-8-g	Enriched Uranium Production Facilities, Portsmouth, Ohio .	582,630	250,000	220,000
78-2-c	Low-Btu Fuel Gas Small Industrial Demonstration Plant (Formerly Titled Low-Btu Fuel Gas Small Industrial Demonstra- tion Plants, sites undetermined (A-E and long-lead procurement only))	25,000	9,000	19,000
78-5-a	Facilities for the National Waste Terminal Storage Program, site undetermined (Land Acquisition, A-E and Long- Lead Procurement)	55,000	25,000	45,000

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE I - ENERGY
(Dollars in Thousands)
Continued

Project Number	Item	Total Estimated Cost	FY 1979	
			Budget Authority/ Appropriation	Authorization
<u>AMENDMENTS TO PREVIOUS AUTHORIZATIONS (Continued)</u>				
78-5-b	Advanced Fuel Recycle Integrated Equipment Test Facility, Oak Ridge, Tennessee (Formerly Titled Advanced Fuel Recycle Integrated Equipment Test Facility, Oak Ridge National Laboratory, Oak Ridge, Tennessee (A-E and Long-Lead Procurement only))	\$ 15,400	\$ 6,000	\$ 12,400
76-6-e	Liquid Metal Engineering Center Facility Modifications, Liquid Metal Engineering Center, Santa Susana, California (A-E and Long-Lead Procurement Only) (Formerly Titled Modifications to Facilities, Liquid Metal Engineering Center, Santa Susana, California))	5,600	4,000	1,600
78-14-b	Process Control Modifications, Gaseous Diffusion Plants	18,500	5,600	1,100
78-19-a	Program Support Facility, Argonne National Laboratory, Argonne, Illinois (Formerly Titled Program Support Facility, Argonne National Laboratory, Illinois (A-E and Long-Lead Procurement Only))	15,600	10,600	10,600
Total Amendments to Previous Authorizations - Title I			\$ 475,200	\$ 594,950

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE I - ENERGY
(Dollars in Thousands)
Continued

		FY 1979		
Project Number	Item	Total	Budget	
		Estimated	Authority/ Appropriation	Authorization
		Cost		
<u>APPROPRIATIONS FOR PROJECTS PREVIOUSLY AUTHORIZED</u>				
76-1-c	Low/Medium-Btu Fuel Gas Industrial Demonstration Plant (Formerly Titled Low Btu Fuel Gas Demonstration Plant)	\$ 150,000	\$ 14,000	\$ -
76-5-a	Tokamak Fusion Test Reactor, Princeton Plasma Physics Laboratory, Plainsboro, New Jersey	238,600	42,000	-
77-1-d	MHD Component Development and Integration Facility, Butte, Montana (Formerly Titled MHD Component Development and Integration Facility)	12,200	3,000	-
77-4-d	Fuel Storage Facility, Richland, Washington	30,000	6,800	-
77-9-a	Expansion of Feed Vaporization and Sampling Facilities, Gaseous Diffusion Plants (Formerly Titled Expansion of Feed Vaporization and Sampling Facilities, Gaseous Diffusion Plants, Multiple Sites).....	30,000	3,000	-
78-1-c	Process Waste Heat Utilization, Gaseous Diffusion Plant, Paducah, Kentucky	5,700	4,800	-
78-2-d	Solvent Refined Coal Demonstration Plant, Site Undetermined (A-E and Long- Lead Procurement and Limited Construction) (Formerly Titled Solvent Refined Coal Demonstra- tion Plant, site undetermined)	30,000	20,000	-

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE I - ENERGY
(Dollars in Thousands)
Continued

		FY 1979		
Project Number	Item	Total	Budget	
		Estimated	Authority/ Appropriation	Authorization
		Cost		
<u>APPROPRIATIONS FOR PROJECTS PREVIOUSLY AUTHORIZED (Continued)</u>				
78-3-a	Mirror Fusion Test Facility, Lawrence Livermore Laboratory, California	\$ 94,200	\$ 40,000	\$ -
78-6-f	Fuels and Materials Examination Facility, Richland, Washington, (Fuels and Materials Examination Facility, Hanford Engineering Development Laboratory, Washington)	117,000	15,000	-
78-7-a	Modifications to Utility System, 300 Area, Richland, Washington (Formerly Titled Modifications to Utility System 300 Area, Hanford Engineering Development Laboratory, Washington	3,600	900	-
78-7-b	Test Reactor Area Steam Distri- bution System Upgrade, Idaho National Engineering Laboratory, Idaho	1,100	600	-
78-13-a	National Synchrotron Light Source, Brookhaven National Laboratory, Upton, New York (Formerly Titled National Synchrotron Light Source, Brookhaven National Laboratory, New York)	24,000	10,000	-
78-13-b	Combustion Research Facility, Sandia Laboratories, Livermore, California (SLL) (Formerly Titled Combustion Research Facility, Sandia Laboratories, Livermore, California)	9,400	3,400	-

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE I - ENERGY
(Dollars in Thousands)
Continued

Project Number	Item	Total Estimated Cost	FY 1979	
			Budget Authority/ Appropriation	Authorization
<u>APPROPRIATIONS FOR PROJECTS PREVIOUSLY AUTHORIZED (Continued)</u>				
78-14-a	Centrifuge Facilities Modifications, various locations	\$ 30,000	\$ 16,000	\$ -
78-15-a	Water System Improvements, Gaseous Diffusion Plant, Paducah, Kentucky	4,500	<u>2,000</u>	<u>-</u>
Total Appropriations for Projects Previously Authorized - Title I			<u>\$ 181,500</u>	<u>\$ -</u>
Total Construction - Title I			<u>\$ 814,085</u>	<u>\$ 773,535</u>

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS

TITLE II - GENERAL SCIENCE AND RESEARCH
(Dollars in Thousands)

	FY 1979	
	Budget Authority/ Appropriation	Authorization
<u>OPERATING EXPENSES Sec. 201.</u>		
<u>Sec. 201.</u>		
Life Sciences Research and Biomedical Applications	\$ 39,700	\$ 39,700
High Energy Physics	194,000	194,000
Nuclear Physics	<u>72,900</u>	<u>72,900</u>
Total Operating Expenses - Title II...	<u>\$ 306,600</u>	<u>\$ 306,600</u>

CAPITAL EQUIPMENT NOT RELATED TO CONSTRUCTION

Life Sciences Research and Biomedical Applications	\$ 1,100	\$ 1,100
High Energy Physics	41,200	41,200
Nuclear Physics	<u>7,500</u>	<u>7,500</u>
Total Capital Equipment - Title II	<u>\$ 49,800</u>	<u>\$ 49,800</u>

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE II - GENERAL SCIENCE AND RESEARCH
(Dollars in Thousands)
Continued

		FY 1979		
Project Number	Item	Total Estimated Cost	Budget Authority/ Appropriation	Authorization
FY 1979 CONSTRUCTION PROJECTS				
79-9-a	Hadron Bubble Chamber Facility, Fermi National Accelerator Laboratory, Batavia, Illinois .	\$ 2,200	\$ 2,200	\$ 2,200
79-9-b	Energy Saver, Fermi National Accelerator Laboratory, Batavia, Illinois	38,900	10,000	38,900
79-9-c	Fire Protection Improvements, Brookhaven National Laboratory, Upton, New York	1,300	1,300	1,300
79-9-d	Accelerator Improvements and Modifications, various locations	4,500	4,500	4,500
79-9-e	Accelerator Improvements and Modifications, various locations	1,500	1,500	1,500
79-6	General Plant Projects	6,700	<u>6,700</u>	<u>6,700</u>
Total FY 1979 Construction Projects - Title II			<u>\$ 26,200</u>	<u>\$ 55,100</u>
AMENDMENTS TO PREVIOUS AUTHORIZATIONS				
78-10-b	Intersecting Storage Accelerator (ISABELLE) 400 X 400 Gev, Brookhaven National Laboratory, Upton, New York (Formerly Titled Proton-Proton Intersecting Storage Accelerator Facility, Brookhaven National Laboratory)	275,000	<u>23,000</u>	<u>264,500</u>
Total Amendments to Previous Authorizations - Title II			<u>\$ 23,000</u>	<u>\$ 264,500</u>

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
 TITLE II - GENERAL SCIENCE AND RESEARCH
 (Dollars in Thousands)
 Continued

Project Number	Item	Total Estimated Cost	FY 1979	
			Budget Authority/ Appropriation	Authorization
<u>APPROPRIATIONS FOR PROJECTS PREVIOUSLY AUTHORIZED</u>				
75-6-c	Positron-Electron Joint Project, Lawrence Berkeley Laboratory and Stanford Linear Accelerator Center, Stanford, California (Formerly Titled Positron- Electron Joint Project, Lawrence Berkeley Laboratory and Stanford Linear Accelerator Center)	\$ 78,000	\$ 14,700	\$ -
78-12-b	High Intensity Uranium Beams, Lawrence Berkeley Laboratory, Berkeley, California	6,000	<u>6,000</u>	<u>-</u>
Total Appropriation for Projects Previously Authorized - Title II			<u>20,700</u>	<u>-</u>
Total Construction - Title II			<u>\$ 69,900</u>	<u>\$ 319,600</u>

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS

TITLE III - ATOMIC ENERGY DEFENSE ACTIVITIES
(Dollars in Thousands)

	FY 1979	
	Budget Authority/ Appropriation	Authorization
<u>OPERATING EXPENSES Sec. 301</u>		
Inertial Confinement Fusion	\$ 91,800	\$ 91,800
Naval Reactor Development	265,600	265,600
Weapons Activities	1,232,694	1,232,694
Defense Intelligence and Arms Control ...	28,400	28,400
Special Materials Production	501,500	501,500
Nuclear Materials Security and Safeguards	40,089	40,089
Total Obligations and Budget Authority	\$ 2,160,083	\$ 2,160,083
Less: Unobligated Balance Brought Forward	-23,500	-
Total Net Obligations and Budget Authority-Operating Expenses -- Title III	\$ 2,136,583	\$ 2,160,083

CAPITAL EQUIPMENT NOT RELATED TO CONSTRUCTION

Inertial Confinement Fusion	\$ 8,200	\$ 8,200
Naval Reactor Development	22,000	22,000
Weapons Activities	86,400	86,400
Special Materials Production	40,000	40,000
Nuclear Materials Security and Safeguards	3,000	3,000
Total Capital Equipment - Title III ...	\$ 159,600	\$ 159,600

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
 TITLE III - ATOMIC ENERGY DEFENSE ACTIVITIES
 (Dollars in Thousands)
 Continued

Project Number	Item	Total Estimated Cost	FY 1979	
			Budget Authority/ Appropriation	Authorization
<u>FY 1979 CONSTRUCTION PROJECTS</u>				
79-7-a	Tonopah Test Range Upgrade, Phase II, Sandia Laboratories, Albuquerque, New Mexico	\$ 4,000	\$ 4,000	\$ 4,000
79-7-b	Fire Protection Improvements, Los Alamos Scientific Laboratory, New Mexico (A-E and Long-Lead Procurement Only)	2,000	2,000	2,000
79-7-c	Proton Storage Ring, Los Alamos Scientific Laboratory, New Mexico.....	16,700	16,700	16,700
79-7-d	Water Cooling Station Upgrade, Lawrence Livermore Laboratory, California	2,300	2,300	2,300
79-7-e	Production and Assembly Facilities, Pantex Plant, Amarillo, Texas	10,000	10,000	10,000
79-7-f	Stockpile Quality Evaluation Facility, Y-12 Plant, Oak Ridge, Tennessee	2,300	2,300	2,300
79-7-g	Facilities for B43 Moderniza- tion, Various Locations	18,000	18,000	18,000
79-7-h	Utilities Replacement and Expansion, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory Idaho Falls, Idaho	10,500	10,500	10,500

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE III - ATOMIC ENERGY DEFENSE ACTIVITIES
(Dollars in Thousands)
Continued

		FY 1979		
Project Number	Item	Total Estimated Cost	Budget	
			Authority/ Appropriation	Authorization
FY 1979 CONSTRUCTION PROJECTS (Continued)				
79-7-i	Transmission and Distribution Systems Upgrading, Richland, Washington	\$ 14,000	\$ 14,000	\$ 14,000
79-7-j	Pollutant Discharge Elimination, Savannah River, South Carolina	9,000	9,000	9,000
79-7-k	Waste Management Facilities, Savannah River, South Carolina	75,000	75,000	75,000
79-6	General Plant Projects	40,600	40,600	40,600
79-8	Plant, Engineering and Design	23,500	23,500	23,500
Total FY 1979 Construction Projects - Title III			\$ 227,900	\$ 227,900

AMENDMENTS TO PREVIOUS AUTHORIZATIONS

74-1-b	Replacement Ventilation Air Filter, F Chemical Separations Area, Savannah River, South Carolina	7,300	-	2,100
75-7-c	Intermediate-Level Waste Manage- ment Facilities, Oak Ridge National Laboratory, Tennessee	14,000	1,000	1,000
77-13-a	Flourinel Dissolution Process and Fuel Receiving Improvements, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho (Formerly Titled Flourinel Dissolution Process and Fuel Receiving Improvements, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho (A-E and Long- Lead Procurement))	115,400	100,400	100,400

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
 TITLE III - ATOMIC ENERGY DEFENSE ACTIVITIES
 (Dollars in Thousands)
 Continued

Project Number	Item	Total Estimated Cost	FY 1979	
			Budget Authority/ Appropriation	Authorization
<u>AMENDMENTS TO PREVIOUS AUTHORIZATIONS (Continued)</u>				
77-13-f	Waste Isolation Pilot Plant, Delaware Basin, Southeast New Mexico, (Formerly Titled Waste Isolation Pilot Plant (A-E, Land Acquisition and Long-Lead Procurement) Delaware Basin, Southeast New Mexico).	\$ 68,000	\$ 40,000	\$ 40,000
77-13-g	Safeguards and Security Upgrading, Production Facilities, Multiple Sites ..	20,200	3,800	3,800
78-4-a	High Energy Laser Facility (NOVA), Lawrence Livermore Laboratory, California	195,000	20,000	187,000
78-16-d	Weapons Safeguards, Various Locations	28,000	11,000	11,000
78-16-g	Radioactive Liquid Waste Improvement, Los Alamos Scientific Laboratory, New Mexico (Formerly Titled Radioactive Liquid Waste Improvement, Los Alamos Scientific Laboratory, New Mexico (A-E Only))	12,500	9,700	11,900
78-16-i	Laboratory Support Complex, Los Alamos Scientific Laboratory, New Mexico (Formerly Titled Laboratory Support Complex, Los Alamos Scientific Laboratory, New Mexico (A-E Only))	16,000	14,000	14,000

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE III - ATOMIC ENERGY DEFENSE ACTIVITIES
(Dollars in Thousands)
Continued

		FY 1979			
Project Number	Item	Total Estimated Cost	Budget Authority/		
			Appropriation	Authorization	
<u>AMENDMENTS TO PREVIOUS AUTHORIZATIONS (Continued)</u>					
78-17-a	Production Component Warehouse, Pantex Plant, Amarillo, Texas (Formerly Titled Production Component Warehouse, Pantex Plant, Amarillo, Texas (A-E Only))	\$ 2,800	\$ 800	\$ 2,550	
78-17-c	Core Facilities Office Building, Utilities, and Roads, Lawrence Livermore Laboratory, California (Formerly Titled Core Facilities Office Building, Utilities and Roads, Lawrence Livermore Laboratory, California (A-E Only))	\$ 12,300	\$ 9,300	\$ 11,000	
78-17-d	Steam Plant Improvements, Y-12 Plant, Oak Ridge, Tennessee (Formerly Titled Steam Plant Improvements, Y-12 Plant, Oak Ridge, Tennessee (A-E and Long- Lead Procurement Only))	10,000	5,000	7,000	
78-18-a	High-Level Waste Storage and Waste Management Facilities, Richland, Washington	27,000	9,000	9,000	
78-19-e	Environmental, Safety and Security Improvements to Waste Management and Materials Processing Facilities, Richland	40,000	<u>30,000</u>	<u>24,500</u>	
Total Amendments to Previous Authorizations - Title III			\$ 254,000	\$ 425,250	

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS
TITLE III - ATOMIC ENERGY DEFENSE ACTIVITIES
(Dollars in Thousands)
Continued

		FY 1979		
Project Number	Item	Total Estimated Cost	Budget Authority/ Appropriation	Authorization
<u>APPROPRIATIONS FOR PROJECTS PREVIOUSLY AUTHORIZED</u>				
71-9	Fire, Safety and Adequacy of Operating Conditions Projects, Various Locations	\$ 280,000	\$ 5,000	\$ -
75-1-c	New Waste Calcining Facility, Idaho Chemical Processing Plant, Idaho National Engineer- ing Laboratory, Idaho (Formerly Titled New Waste Calcining Facility, Idaho Chemical Processing Plant, National Reactor Testing Station, Idaho)	65,000	10,000	-
75-3-b	High Energy Laser Facility, Los Alamos Scientific Laboratory, New Mexico	54,500	6,000	-
77-13-d	High-Level Waste Storage and Waste Management Facilities, Savannah River, South Carolina	56,000	4,000	-
78-18-b	High-Level Waste Storage Facilities, Savannah River, South Carolina	42,000	<u>26,000</u>	<u>-</u>
Total Appropriations for Projects Previously Authorized - Title III			<u>51,000</u>	<u>-</u>
Total Construction - Title III			<u>\$ 532,900</u>	<u>\$ 653,150</u>

RECONCILIATION OF AUTHORIZATION TO APPROPRIATIONS

TITLE IV - POWER MARKETING ADMINISTRATIONS
(Dollars in Thousands)

	FY 1979	
<u>OPERATING EXPENSES</u>	<u>Budget Authority/ Appropriation</u>	<u>Authorization</u>
Alaska Power Administration (Sec. 401.) .	\$ 2,614	\$ 2,614
Southeastern Power Administration (Sec. 406.)	1,212	1,212
Southwestern Power Administration (Sec. 405.)	19,909	19,909
Western Area Power Administration (Sec. 402. 403. and 404.)	103,738	103,738
TOTAL TITLE IV	<u>\$ 127,473</u>	<u>\$ 127,473</u>

TITLE V - SPECIAL FOREIGN CURRENCY
(Dollars in Thousands)

	FY 1979	
	<u>Budget Authority/ Appropriation</u>	<u>Authorization</u>
<u>Sec. 501.</u> - Operating Expenses	\$ 2,000	\$ 2,000

ENERGY FISCAL YEAR 1979 BUDGET REQUEST

MONDAY, MAY 15, 1978

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, D.C.

The committee met, pursuant to notice, at 8:05 a.m., in room 3110, Dirksen Office Building, Hon. Henry M. Jackson, chairman, presiding.

Present: Senators Jackson, Ford, Durkin, Metzenbaum, Melcher, Hansen, Hatfield, McClure, Bartlett, and Domenici.

Also present: Richard D. Grundy, senior professional staff member.

The CHAIRMAN. Good morning, gentlemen. The committee will come to order.

I think the easiest way would be for the Chair to yield at this time to our distinguished colleague, Senator Hansen, for a statement and then we'll go from there.

STATEMENT OF HON. CLIFFORD P. HANSEN, A U.S. SENATOR FROM THE STATE OF WYOMING

Senator HANSEN. Thank you, Mr. Chairman. I apologize for the length of my statement, but I thought it might be helpful all the way around if I could go through the concerns we have in order better to explain the dilemma we're in and hopefully to give the sort of background that might help our friends at the witness table in responding to the question that we have.

Mr. Chairman, I would like to make some brief remarks about the reason for this hearing.

Last Wednesday, I formally requested, on behalf of the minority, that the chairman schedule another hearing on the energy budget with Secretary Schlesinger before we complete action later today on the budget.

I requested the hearing because we have been unable to get straight and responsive answers to a series of critical questions involving literally billions of dollars in this budget. One issue alone, the Strategic Petroleum Reserve, could involve a difference of up to \$2 billion in next year's budget.

These multibillion dollar questions have arisen in the past 2 weeks as a result of administration actions during our consideration of this budget. The specific issues include the following items:

(1) The "phase two" energy supply initiatives. On March 1, Secretary Schlesinger testified here in presenting the budget that he recognized the need for additional supply initiatives in this budget, and that he would propose them by May 1. Phase two has been discussed a great deal since then and we now know it could involve up to \$500

million in the pending budget. And, in fact, Deputy Secretary O'Leary briefed several of us about it on April 25.

Also, Senator Church and Senator Hatfield formally requested, for the committee, that the Department provide details on the phase 2 status to support markup.

During the week of May 1, it was widely reported that the President disapproved phase 2 on his Western trip, despite Dr. Schlesinger's personal plea. We have received no responsive answer on the reported disapproval, other than an exercise in semantics, noting evasively that the President has not finally disapproved phase 2.

Of course, it is no secret that the committee is under intensive pressure to fund some of these phase 2 projects, such as the \$150 million, S.R.C. Two, coal conversion plan, which I understand we may consider later today.

Also, just last Friday, the Department finalized a new regulation to give all liquid synthetic fuels a special entitlements treatment, with a benefit equivalent to \$2 a barrel, and which we had understood was part of phase 2.

If, in fact, the entitlements action Friday is part of phase 2, that will require some further inquiries to sort out the situation, and its impact on this budget, as well as hundreds of millions in indirect funding.

Item 2. \$100 million solar reprogramming.

During the President's trip to the West on May 3, he announced a \$100 million reprogramming in this budget for solar energy projects.

We have been unable to get any answer on the details of the new solar projects, or equally as important, what programs and projects in this budget are to be cut to fund the solar ones? We didn't even get an answer after suggesting that the absence of this information would render the President's announcement as purely political.

Item 3. \$675 million in direct funds and \$1.5 billion in loan guarantees for energy impact assistance to States. Instead of going into these, I'll just read the topic.

Item 4. \$115 million reduction in funding for the centrifuge enrichment facility.

Item 5. Use of \$800 million in uranium enrichment revenues.

I sent Secretary Schlesinger a letter on May 5 asking for details on all of the mentioned items. An answer last Monday was not responsive at all on phase 2, solar reprogramming, and the enrichment revenues, and raised additional questions on the other items.

I sent a second letter on Tuesday reasking the original questions and following up on the Monday answers. I also sent the letter to the chairman on Wednesday asking for this hearing on these specific issues and the strategic petroleum reserve, which has just developed as another major budget issue.

Item 6. Strategic petroleum reserve issue.

During the last 2 weeks the committee has focused increasingly on the Department's request for a \$4.2 billion for the strategic petroleum reserves. The issue surfaced in the consideration of the latest amendment to the reserve plan, which this committee and the Senate disapproved last month.

Because of the questions during the markups in the Research and Development Subcommittee, and later in full committee, the staff was directed to review thoroughly the budget request of \$4.2 billion.

A May 1 letter from Deputy Secretary O'Leary stated that the full amount was needed, but new details in a May 9 letter from Assistant Secretary McIsaac indicated that as much as \$1.5 to \$2 billion could be cut from the request.

The staff will be providing details to the committee on this new information and analysis, but suffice it to say that this is a very significant budget matter and a truly strategic policy matter for the United States.

Because of my very serious concern about this matter, I had our staff notify the Department last Friday, and again on Saturday, about our review of the McIsaac letter, so that they could be prepared to discuss it fully this morning, and would not be caught unprepared.

This committee simply must know what the facts are in making a decision later today on the budget for the strategic reserve.

I ask that all of these letters referred to be placed in the record.

Senator METZENBAUM [presiding]. Without objection, the letters will be included.

Senator HANSEN. Mr. Chairman, I believe that all of the issues I have mentioned, with their immediate and direct impact on the Department's budget, and the literally billions of dollars in direct funding, as well as hundreds of millions, if not billions, in indirect funding, are indicative of the fully responsible and very serious and as yet unanswered questions about this budget that I have raised.

This committee deserves factual and responsive answers from the Department before we finally approve the Department's budget.

Now I am quite disturbed that some have suggested that my questions and my request for this hearing are purely political in nature. I would hope that this discussion also demonstrates clearly the responsible, and not purely political nature, of my request. In fact, the latest letter from the Department last Friday night indicated their expectation to be able to deal finally with these unanswered questions today. I certainly hope so.

Finally, Mr. Chairman, before we turn to the testimony and questions, I would like to make one further observation.

I asked that Secretary Schlesinger appear at this hearing to give us straight answers on several critical budget issues. I am told he refuses to testify. My response is simple and straightforward. Where is the Secretary of Energy? I repeat, where is the Secretary of Energy?

Mr. Chairman, at his confirmation hearing on August 3, 1977, Secretary Schlesinger was asked by the chairman, "Will you be available to appear before this committee and other congressional committees to represent Departmental positions and respond to issues of concern to the Congress?"

Dr. Schlesinger answers, "Absolutely." Repeat, "Absolutely."

Again, where is the Secretary of Energy when the issue of concern to this committee is literally billions of dollars and major policy and program issues in this budget? Does he have no interest in \$2 billion for the strategic petroleum reserve? A billion dollars of enrichment revenues? A billion dollars in energy research and development funding?

The Department of Energy Organization Act requires the Secretary to keep us both fully and currently informed on the budget, policies and programs in the Department.

Again, where is the Secretary to provide answers to these very questions about the new Department's first budget?

Deputy Secretary O'Leary, in his May 1 letter defended full funding for the strategic petroleum reserve, and we now find from the McIsaac letter that there may be a factual difference. Also, Deputy Secretary O'Leary signed the letters to me last week claiming that the President did not turn down Secretary Schlesinger on phase 2, and refusing to provide any details on the status of phase 2, the solar re-programming and the use of enrichment revenues.

Again, where is the Secretary of Energy to provide answers on the President's decision and other budget issues in dispute?

Secretary Schlesinger is scheduled to appear tomorrow before the Senate Appropriations Interior Subcommittee to present the Department's budget.

Where is the Secretary of Energy today to defend that budget before this committee, which must authorize those appropriations in the face of these billions of dollars in unanswered questions?

Must I initiate formal subpoena action to get the Secretary here? Despite the fact that he knows of my request, neither the Secretary nor the Department has offered any excuse for his refusal to testify this morning. I honestly cannot remember any time in my service in the Senate when a Secretary of a Department would refuse to testify on such critical issues in his budget and programs.

The Secretary's refusal to testify necessarily raises speculation about the reasons for his refusal. Is he embarrassed that the Presidentially announced solar reprogramming, in fact, was purely political, and there actually is no source of these funds?

Is he embarrassed that the Department of Commerce has been given responsibility for energy impact assistance to the States, despite his own statutory authorities?

Is he embarrassed because the President, in fact, did disapprove the bulk of the phase 2 program or direct him to take it out of the other programs?

Is he embarrassed that commitments on certain projects like S.R.C. 1 and 2, cannot be kept?

Is he embarrassed that the Portsmouth facility effectively is being deferred, with major policy and budget ramifications?

Is he embarrassed that the Department now is unable to defend fully the one-third of its \$12 billion budget for the strategic petroleum reserve?

Again, where is the Secretary of Energy to deal with these issues?

His refusal also necessarily raises other speculations regarding the Energy Conference. He has been all over Capitol Hill in recent months, negotiating, cajoling, pleading and promising. We hear daily about new deals associated with the natural gas compromise, such as the Northeast entitlements deal. And we are aware of actions underway now or planned in the Department and FERC which otherwise appear to be intended to garner support for the gas compromise.

Perhaps the Secretary feels he has to avoid close questioning by the committee on these reported actions, and the many apparent contradictions they involve. Perhaps the Secretary is afraid his answers to such questions could unravel the gas compromise. For instance, the relation of new subsidies and guarantees for coal gas and uncon-

ventional gas to the great production gains supposedly produced by the gas compromise.

Mr. Chairman, it is a sad day when the Secretary of Energy refuses to testify and intentionally avoids this committee.

As I stated before, such a refusal on such major issues is unprecedented in my service in the Senate. This is the second time in 4 weeks when I must say that I am sadly disappointed in the actions of the top leaders of this new Department.

Of course, I refer to our review of the unfortunate conduct of FERC Chairman, Charles Curtis, in the natural gas conference and in other meetings, and his self-assumed role as a policymaker, as well as an independent regulator.

Now, 4 weeks later, we have the Secretary refusing to testify, possibly because of fears related to the conference or his effectiveness. I sincerely hope that these two serious and unprecedented situations are not indicative of an incurable cancer in the management of this critical new Department.

I hope the Secretary and Chairman Curtis can get their situations and the Department back on an even keel, before the Department loses all credibility with this committee, the Congress, and ultimately the American people and the rest of the world.

Thank you, Mr. Chairman.

Our witnesses have waited patiently and I hope they will be able to deliver on the promises for information in last Friday's letter, even though the Secretary is not here.

[The letters submitted by Senator Hansen follow:]

HENRY M. JACKSON, WASH., CHAIRMAN
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 FLOYD R. DADELL, COLO.
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 PAUL LARALT, NEV.

United States Senate

COMMITTEE ON
 ENERGY AND NATURAL RESOURCES

WASHINGTON, D.C. 20510

GRENVILLE GARSIDE, STAFF DIRECTOR AND COUNSEL
 DANIEL A. GREYFUS, DEPUTY STAFF DIRECTOR FOR LEGISLATION
 D. MICHAEL HARVEY, CHIEF COUNSEL
 W. D. CRAFT, JR., MINORITY COUNSEL

May 5, 1978

The Honorable James R. Schlesinger
 Secretary of Energy
 Department of Energy
 Washington, D. C. 20545

Dear Mr. Secretary:

As you know, the Committee is in the process of marking up the Department's F.Y. 1979 authorization, with a deadline under the Budget Act of May 15th for final action. We will spend much of next week in that markup. Consequently, we would appreciate your immediate responses to the following questions on behalf of the Minority Senators, which are directly relevant to the authorization.

The President on Wednesday announced an energy impact aid assistance program, which reportedly will provide \$675 million in grants to states and \$1.5 billion in loan guarantees for state and local impacts arising from energy development.

1. When will the enabling legislation for this new program be proposed, or are existing statutory authorities intended to be used?
2. Does this program have any intended budgetary impact in F.Y. 1979, for either administrative expenses or grants and loan guarantee contingencies? If so, what amounts, with what supporting rationale and justification?
3. How is this program related to the community impact assistance programs under the synfuels loan guarantee program and the geothermal loan guarantee program added to permanent law by the F.Y. 1978 Department of Energy R&D Authorization, P.L. 95-238?
4. How is this program related to the existing state grant programs already in the F.Y. 1979 budget which already total several hundred million dollars, e.g. EPCA, ECPA, National Energy Extension Service, National Energy Act (Coal Conversion, Conservation and Utility Rate Reform), and particularly the coal development impact assistance of \$60 million?

5. Will any of the existing state assistance programs be repealed or materially modified by this new program?
6. Should any of the existing state assistance funding in the F.Y. 1979 budget be deferred or reduced, as a result of this new program?

The President also announced on Wednesday a \$100 million "re-programming" for solar energy in the F.Y. 1979 budget.

1. What specific program(s) will be reduced, with what changed budget justification, to provide the \$100 million? Please relate your answer to specific pages in the budget books.
2. What specific solar programs or projects, with what changed budget justification, will be increased within the \$100 million total. Again, please relate your answer to specific pages in the budget books.
3. What specific budget impact, if any, will there be in F.Y. 1978 to support these decreases and increases in the various impacted programs, and with what specific justification.

We were advised that the President yesterday disapproved the Department's so-called Phase II energy supply initiatives, thereby supporting the opposition of OMB to the Department's proposals.

1. What now is the Administration's position on the general need for any increased emphasis on the energy production and supply incentives and initiatives? Does the President's disapproval of the Department's proposals indicate that the Administration believes these primarily supplemental fossil fuel and synthetic fuel programs and projects are premature at this time? Is the Administration in essence deferring to commercial market forces to provide an eventual incentive for these supplemental and alternative fuel initiatives? What are the ramifications of the President's decision with regard to existing and pending regulatory policies governing the pricing of the primary, supplemental and alternative fuels? Does the President's decision represent an Administration position of opposition to direct Federal funding or indirect tax or other subsidy incentives for these supplemental and alternative fuels? What, therefore, is the Administration's overall strategy for bringing these alternative and supplemental fuels on line, and based on what projected and intended supply/demand scenario(s)?
2. Will there be any form of phase two to the National Energy Plan (and Act) forthcoming in this Congress and budget cycle, or in the next Congress or budget?

3. Was this decision in any way related, directly or indirectly, to the pending natural gas legislation in the National Energy bill conference?
4. Now that the Presidential decision has been made, i.e. Executive action is complete, please provide copies of (a) the draft Budget Amendment and other proposal descriptions submitted to OMB, with any backup discussion or justification, (b) the comments of OMB and other offices in the Executive Office of the President, e.g. CEQ and the Domestic Council regarding the proposal and Budget Amendment, and (c) any relevant decision memoranda.
5. In light of the President's position, what is the Administration's formal position on the following individual programs or projects, and which, if any, does the Administration now support for new increased funding over the requested budget in F.Y. 1979--
 - (a) Oil shale demonstrations, e.g. S.419.
 - (b) Enhanced gas and oil recovery.
 - (c) SRC-II commercial-scale demonstration.
 - (d) Commercial-scale high-Btu coal gasification plants.
 - (e) SRC-I commercial-scale demonstration.
 - (f) Atmospheric fluidized bed combustion demonstrations.
 - (g) Low-and medium-Btu coal gasification demonstrations.

Undersecretary Myers in testimony before the House Energy and Power Subcommittee indicated that the Department was approximately halving its F.Y. 1979 budget request for the Portsmouth Centrifuge Facility, Project 76-8-g. The reduction of over \$100 million apparently reflects an Administration decision to delay initial operations by two years to 1988 and to commit now only to the first 2.2 million SWU's of capacity, deferring a commitment on the additional 6.6 million SWU's in the original 8.8 million SWU authorization request. As you know, this facility involves an estimated cost of about \$5 billion in current dollars and up to \$8 billion in as spent dollars. The proposed modification, therefore, could involve substantial budgetary impact. Also, the many complex domestic and international policy issues related to U.S. enrichment capacity commitments and requirements deserve serious attention in the review of any such proposed modification.

1. Has this significant program change and substantial reduction in the F.Y. 1979 request been formally submitted to Congress as a budget amendment? If not, why not, or when will that occur?
2. Does this have OMB concurrence and does it represent Administration policy?

3. Please provide a fully revised and updated budget book justification and project data sheet, approved by OMB, for the uranium enrichment program and project 76-8-g to replace the existing budget book discussions.
4. Please provide a detailed discussion of the rationale for this program change, including the reported LWR projections and enrichment demand estimates, and its relation to relevant domestic and international policies, including nuclear nonproliferation. Specifically, please indicate how this modification is consistent with Title I of the Nuclear Nonproliferation Act of 1978. Also, it appears that the modification is a direct contradiction of the testimony by Department witnesses in March before the Energy Research and Development Subcommittee. Please explain the contradictions and inconsistencies.
5. Is this reduction in funding for the Portsmouth facility related in any way to the \$100 million solar "reprogramming"?
6. In light of the proposed schedule slippage and possible reduction in project size, is there any major reason(s) why the centrifuge facility cannot now be located at Oak Ridge, Tennessee, and thereby take advantage of the significant cost savings (\$400 million), management and technical advantages reported by GAO in its March 7, 1978, report for co-location of the full size centrifuge enrichment facility with the main U.S. existing centrifuge R&D program and facilities. The only significant disadvantage noted in the GAO report for relocating the facility at Oak Ridge was potential slippage in the previous 1986 operational schedule, which now should be mooted by this change.
7. Please provide any changes to the answers recently given by the Department to questions from Senator McClure and Congressman Dingell regarding enrichment contracting, pricing and operations to reflect the revised centrifuge program and Project 76-8-g plans and schedules.
8. Are there any related budget or schedule impacts in the centrifuge R&D program as a result of these changes, e.g. slow the R&D pace, or in the CIP/CUP program, accelerate it to increase preproduction for the stockpile? If so, please provide details.

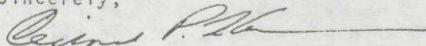
In response to one of Senator McClure's questions on uranium enrichment, the Department in a letter of April 26, 1978, indicated that it is not offsetting uranium enrichment revenues against enrichment service costs in F.Y. 1978, as required by Section 111(h)(2) of P.L. 95-238, the Department of Energy R&D Authorization Act for F.Y. 1978. We consider the statutory language and the legislative history for Section 111(h)(2).

to be clear in requiring such an offsetting of costs. Accordingly, by separate correspondence, we have requested the Comptroller General to review immediately the Department's potentially unauthorized and illegal use of those revenues.

1. Apart from the legalities associated with the use of the revenues, we request that you provide a detailed accounting of the use of the enrichment revenues in F.Y. 1978 (estimated to be approximately \$600 million), and a summary of the uses in past fiscal years (keyed to the relevant answers to Congressman Dingell's questions).
2. How would the Department propose to use enrichment revenues in F.Y. 1979, in the absence of a legally binding and enforced requirement in the authorization and/or appropriation acts to offset costs for (a) anticipated revenues under cost recovery, with and without the slip in the centrifuge project, or (b) anticipated revenues under fair value pricing, with and without the slip in the centrifuge project?
3. Does the Department still intend to propose revolving fund legislation for uranium enrichment operations in this Congress?
4. What reprogramming procedures, if any, does the Department apply pursuant to P.L. 95-238, in light of your legal opinion on use of the funds?

We would appreciate it if you could have at least an initial response to each of these questions by close of business on Monday, May 8, 1978, since we are intending to complete our mark up of the Department's authorization next week. More detailed answers, as requested, should be available as soon as possible thereafter to support our thorough consideration of these issues as they impact on the F.Y. 1979 budget. As you know, we must complete our formal action no later than May 15 or seek a waiver from the Budget Committee. We do recognize the hard work by the Department which these latest announcements and resulting questions have precipitated at this late date in the budget cycle, and we appreciate the Department's continued assistance.

Sincerely,



Clifford P. Hansen
Ranking Minority Member

cc: Members of the Committee
Honorable James McIntyre
Honorable Frank Moore
Honorable Elmer B. Staats



Department of Energy
Washington, D.C. 20585

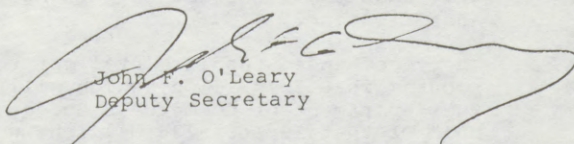
May 8, 1978

Dear Senator Hansen:

This letter is in response to your letter of May 5 in which, on behalf of Minority Senators on the Committee on Energy and Natural Resources, you asked questions about energy impact assistance, the President's \$100 million solar and renewables initiative, other energy supply initiatives, uranium enrichment capacity, and uranium enrichment revenues.

To the maximum extent possible within the deadline you suggested, we have answered each of these questions in the attachments. In a number of cases, more detailed responses are necessary and will be provided to you as soon as possible. We appreciate your interest in and concern for these important energy issues.

Sincerely,



John F. O'Leary
Deputy Secretary

The Honorable Clifford P. Hansen
United States Senate
Washington, D.C. 20510

Attachments

cc: All Members of Committee

ATTACHMENT AENERGY IMPACT ASSISTANCE

(These questions are found on pages
1 & 2 of Senator Hansen's letter)

- Q. 1. When will the enabling legislation for this new program be proposed, or are existing statutory authorities intended to be used?
- A. 1. The Administration expects to submit legislation to the Congress to implement the impact assistance program during the week of May 8, 1978. Most of the basic authorities required to implement the program are contained in the existing Title IX of the Public Works and Economic Development Act of 1965 as amended. However, numerous programs have been added to that Title in recent years, and the original intent of that statute is being overwhelmed. In addition, there is significant interest in the Senate that the intended structure of the impact assistance program be specifically spelled out in the statute more precisely than would be the case if the program were implemented through a simple amendment to Title IX.
- Q. 2. Does this program have any intended budgetary impact in FY 1979, for either administrative expenses or grants and loan guarantee contingencies? If so, what amounts, with what supporting rationale and justification?
- A. 2. The recommended funding level for the President's program is \$150 million, which will be included in the Department of Commerce's Budget Amendment. The bulk of that, up to \$135 million, would be for grants to the States and Indian Tribes for planning and growth management and for the financing of a community infrastructure required to support new population resulting from energy resource development. The remainder of the requested authorization -- \$15 million -- would be used to provide Federal loan guarantees to finance community infrastructure, with an interest rate subsidy to assure an effective interest rate on the guaranteed loans of that equivalent to the average municipal borrowing rate.

While the Administration believes that the program recommended by the President would better meet the wide variety of needs experienced by energy impacted communities, it would not oppose a decision by the Congress to fund the tentatively agreed-upon program under Section 306 of the Coal Conversion Act. However, any appropriations for the Section 306 program would be subtracted from the funding levels recommended for this new program.

The Administration believes that community infrastructure costs should be shared by those who will benefit directly from the public facilities and services, by the industry which is creating the impact, and by the Federal Government. Hence, the President's program is designed to provide Federal funds to assist in developing the capability at the State, tribal, and local levels to plan for and manage the growth resulting from energy development, and to leverage other public and private funds to finance community infrastructure. The States will be required to provide matching shares, ranging from zero percent in the first year, to 50 percent in the fifth year. These funds, as well as the loan guarantees provided by the Federal Government, will provide leverage to finance community infrastructure needs.

A study of socioeconomic impacts resulting from energy resource development was conducted by DOE and representatives from other interested Federal and State agencies and public interest groups. The Report to The President outlines the estimated magnitude of energy related impacts and existing Federal assistance programs available to mitigate the impacts. The Report concludes that costs for meeting community infrastructure caused by rapid energy development vary significantly and that gaps presently exist in Federal impact programs. These gaps are caused by inadequate funding levels, eligibility requirements, and lack of an energy emphasis.

Q. 3. How is this program related to community impact assistance programs under the synfuels loan guarantee programs and the geothermal loan guarantee program added to permanent law by the FY 1978 Department of Energy R&D Authorization, P.L. 95-238?

A. 3. The program proposed by the President is intended to meet those community infrastructure needs resulting from rapid energy development which cannot be met by existing programs and sources of funds. Those community infrastructure needs for which Federal loan guarantees or other Federal financial assistance is available under existing programs would not qualify for funding under this program. These funds will not replace other reasonably available public or private financial assistance.

Q. 4. How does this program relate to the existing State grant program already in the FY 1979 budget which already totals several hundred million dollars, and particularly, the coal development impact assistance of \$60 million?

A. 4. The State grant programs which are requested as part of the DOE FY 1979 budget principally include conservation, educational and awareness, and resource management programs. None of these grant programs include impact assistance measures which can be used by States to either plan for or mitigate energy related impacts.

As indicated in the answer to your second question, the Report to the President on Energy Impact Assistance identifies the existing Federal programs which are available for energy related impact planning and mitigation. The Report identifies gaps existing in these Federal programs and recommends various alternative approaches to filling the gaps. The Report does not identify any existing DOE program addressing the issue of impact assistance.

Also, as previously stated, the Administration would not oppose a decision by Congress to fund Section 306 of the Coal Conversion Act. If, however, this program were funded, under the Administration's proposal that amount would be subtracted from the funding level recommended for this program.

- Q. 5. Will any of the existing State assistance programs be repealed or materially modified by this new program?
- Q. 6. Should any of the existing State assistance funding in the FY 79 budget be deferred or reduced as a result of this new program?
- A. The President's proposed energy impact assistance program will not affect existing State grant programs.

ATTACHMENT B\$100 MILLION SOLAR AND RENEWABLES
BUDGET AMENDMENT

(These questions are found on page 2 of
Senator Hansen's letter)

- Q. 1. What specific program(s) will be reduced, with what changed budget justification, to provide the \$100 million? Please relate your answer to specific pages in the budget books.
- Q. 2. What specific solar programs or projects, with what changed budget justification, will be increased within the \$100 million total? Again, please relate your answer to specific pages in the budget books.
- Q. 3. What specific budget impact, if any, will there be in FY 1978 to support these decreases and increases in the various impacted programs, and with what specific justification.
- A. We will provide the complete details of the President's proposed additions and deletions to the FY 1979 budget and any other impacts when the Budget Amendment is transmitted to the Congress.

ATTACHMENT COTHER ENERGY SUPPLY INITIATIVES

(These questions are found on pages 1 & 2
of Senator Hansen's letter)

- Q. 1. What now is the Administration's position on the general need for any increased emphasis on the energy production and supply incentives and initiatives? Does the President's disapproval of the Department's proposals indicate that the Administration believes these primarily supplemental fossil fuel and synthetic fuel programs are premature at this time? Is the Administration in essence deferring to commercial market forces to provide an eventual incentive for these supplemental and alternative fuel initiatives? What are the ramifications of the President's decision with regard to existing and pending regulatory policies governing the pricing of the primary, supplemental and alternative fuels? Does the President's decision represent an Administration position of opposition to direct Federal funding or indirect tax or other subsidy incentives for these supplemental and alternative fuels? What, therefore, is the Administration's overall strategy for bringing these alternative and supplemental fuels on line, and based on what projected and intended supply/demand scenario(s)?
- Q. 2. Will there be any form of phase two to the National Energy Plan (and Act) forthcoming in this Congress and budget cycle, or in the next Congress or budget?
- Q. 3. Was this decision in any way related, directly or indirectly, to the pending natural gas legislation in the National Energy bill conference?
- Q. 4. Now that the Presidential decision has been made, i.e. Executive action is complete, please provide copies of (a) the draft Budget Amendment and other proposal descriptions submitted to OMB, with any backup discussion or justification, (b) the comments of OMB and other offices in the Executive Office of the President, e.g. CEQ and the Domestic Council regarding the proposal and Budget Amendment, and (c) any relevant decision memoranda.

Q. 5. In light of the President's position, what is the Administration's formal position on the following individual programs or projects, and which, if any, does the Administration now support for new increased funding over the requested budget in FY 1979 --

- (a) Oil shale demonstration, e.g. S. 419.
- (b) Enhanced gas and oil recovery.
- (c) SRC-II commercial-scale demonstration.
- (d) Commercial-scale high-Btu coal gasification plants.
- (e) SRC-I commercial-scale demonstration.
- (f) Atmospheric fluidized bed combustion demonstrations.

A. The so-called "Phase Two" initiatives which the Department of Energy has been developing over the past several months are still in the latter stages of the Presidential review process. No final decision has been made by the President on major portions of these proposed supply initiatives. However, the President announced last Wednesday in Golden, Colorado, that the Department will reprogram \$100 million out of the Departmental budget request submitted to the Congress in January to provide funds for an additional \$100 million in solar and renewables programs. The allocation of this \$100 million in new programs and the budgetary cuts proposed within the Department's previous base request will be made available to the Committee at the earliest possible date.

The Administration is committed to a vigorous program of encouraging increased domestic energy supplies through a variety of mechanisms, and the precise mix of these incentive mechanisms will be addressed by the President's final decisions on the supply initiatives developed by the Department.

We will communicate with the Committee regarding any future proposed supply initiatives as early as possible, and are convinced that you share with the Administration the desire to move toward a balanced package of supply incentives that underscores the importance of developing new domestic energy supplies while at the same time employing prudent budgetary principles.

ATTACHMENT DURANIUM ENRICHMENT CAPACITY

(Questions found on pages 3 and 4 of
Senator Hansen's letter)

- Q. 1. Has this significant program change and substantial reduction in the FY 1979 request been formally submitted to Congress as a budget amendment? If not, why not, or when will that occur?
- A. 1. The Secretary of Energy has written to key Congressional authorization and appropriation committees notifying them that DOE has revised its estimate of the FY 1979 Authorization and Appropriations. DOE is working with the Administration on a formal budget amendment and we expect that it will be submitted soon.
- Q. 2. Does this have OMB concurrence and does it represent Administration policy?
- A. 2. Yes. The recent changes made in the centrifuge development program, the schedule and FY 1979 funding estimates for the Portsmouth centrifuge plant were approved by the OMB, and represent official Administration policy.
- Q. 3. Please provide a fully revised and updated budget book justification and project data sheet, approved by OMB, for the uranium enrichment program and project 76-8-g to replace the existing budget book discussions.
- A. 3. This information will be formally submitted to the Congress in DOE's budget amendment as explained in the answer to question (1) above.
- Q. 4. Please provide a detailed discussion of the rationale for this program change, including the reported LWR projections and enrichment demand estimates, and its relation to relevant domestic and international policies, including nuclear nonproliferation. Specifically, please indicate how this modification is consistent with Title I of the Nuclear Nonproliferation Act of 1978. Also, it appears that the modification is a direct contradiction of the testimony by Department witnesses in March before the Energy Research and Development Subcommittee. Please explain the contradictions and inconsistencies.

A. 4. Basic planning for the U.S. enrichment program is founded upon two main premises:

- a. New enrichment customers are permitted to contract with the U.S., to the extent that sufficient authorized enrichment capacity is available to meet these needs as well as to permit serving existing customers, in a manner which appropriately conserves natural uranium resources (enrichment plant tails assay no higher than 0.25% U-235). The proposed new contracts will require six years notice, which is longer than the time required to bring additional enrichment capacity on line.
- b. Actual production from authorized capacity will be available to customers in accordance with the actual operational needs of their nuclear power reactors, so that an excessive amount is not preproduced in advance of need.

Thus, although it is necessary to have a certain amount of authorized capacity to permit signing of new contracts well in advance of actual need for new enrichment services (since commitments to nuclear power projects may take place some 6-12 years before such actual need), the rate at which new capacity needs to be brought into operation should be related to the time when production is actually required.

Department of Energy enrichment planning must necessarily be highly flexible since we are in a period in which actual needs for enriched fuel are changing markedly from earlier projections. For example, a year ago preliminary estimates of the rate of installed nuclear power capacity permitted the Administration to project about a 2-year delay for the rate of installation of new enrichment capacity (and allowed a change from gaseous diffusion to gas centrifuge technology) without, however, changing the ultimate production capacity of the project.

Since that time the forecast installation rate for nuclear power has been refined. During the last several months the Administration has been reviewing the situation intensively to determine whether responsible measures could be taken to recognize this situation and its relationship to domestic and international policies. During the latter part of April the decision was reached that the rate of installation of the Portsmouth Centrifuge Facility could be delayed in light of the above factors.

Because this review had not then been completed, Department of Energy witnesses in testimony before the Committee in March, 1978, described the then-current planning based upon contractual requirements. However, it was noted that some customers were, in fact, contractually overcommitted for enrichment services because of slippages in reactor schedules or reduction in generating capacity requirements. The intent of the Administration to provide contract relief through conversion opportunity to the new adjustable fixed-commitment contract was described. It has now been decided that this opportunity will be offered to both domestic and foreign customers who hold long term fixed commitment contracts.

The previous and current forecasts for installed domestic nuclear power for 1985 and 1990 are compared below:

Previous Estimate - GWE				Current Estimate - GWE			
<u>Year</u>	<u>Domestic</u>	<u>Foreign</u>	<u>Total</u>	<u>Year</u>	<u>Domestic</u>	<u>Foreign</u>	<u>Total</u>
1980	78	50	128	1980	60	41	101
1985	163	101	264	1985	115	65	180
1990	205	112	317	1990	185	100	285

In considering the delayed schedule in the Portsmouth Centrifuge Facility, the Administration has been acutely aware of Title I of the Nuclear Non-Proliferation Act of 1978. We recognize that the need to ensure that the role of the United States as a supplier of enrichment services meets our nonproliferation objective. We are convinced that our proposed reduction in the rate of installation of new capacity is not in contradiction to policies or options contemplated under the Act. It is a responsible action based on real world slippages in need. We intend to maintain sufficient material in stockpile to permit U.S. participation in an international nuclear fuel authority and/or in interim stockpiles, as contemplated in Section 104 of the Act, should further investigation indicate that to be desirable.

The final authorized capacity of the Portsmouth Centrifuge Facility (8.8 million SWU's per year) will permit the United States to reopen the order books for new enrichment contracting for a significant number of new contracts (perhaps equivalent to 20-40 large power reactors depending upon the number of terminations of existing contracts). However, the rate at which capacity is added should be consonant with demonstrated need. Finally, the availability of the new adjustable fixed commitment contract for new customers should permit the U.S. to be competitive with other enrichment suppliers in competing for new orders.

In sum, the proposed program change, we believe, fully meets domestic and foreign policy considerations. It should be stressed that the modular nature of the centrifuge process permits adjustment in production installation schedules to match actual future needs in the very late 1980's and early 1990's as these become better known.

- Q. 5. Is this reduction in funding for the Portsmouth facility related in any way to the \$100 million solar "reprogramming?"

- A. 5. The decision on the Portsmouth facility funding was made independent of considerations of solar program needs.
- Q. 6. In light of the proposed schedule slippage and possible reduction in possible size, is there any major reason(s) why the centrifuge facility cannot now be located at Oak Ridge, Tennessee, and thereby take advantage of the significant cost savings (\$400 million), management and technical advantages reported by GAO in its March 7, 1978, report for co-location of the full size centrifuge enrichment facility with the main U.S. existing centrifuge R&D program and facilities? The only significant disadvantage noted in the GAO report for relocating the facility at Oak Ridge was potential slippage in the previous 1986 operational schedule, which now should be mooted by this change.
- A. 6. The recently revised GCEP schedule maintains the previous schedule for completion of the first commercial production train (about 150 thousand SWU/year) in order to assure an orderly development and installation process. The lower estimate of demand for enrichment services allowed a slip in the installation of subsequent units to achieve a more realistic centrifuge machine installation rate from the standpoint of program development and centrifuge manufacturing. Maintenance of the early schedule for completion of the first commercial unit preserves the Department's flexibility to respond to whatever actually materializes in the way of domestic and/or foreign orders. Any delay in this schedule for the initial units would sacrifice some of this flexibility.

Since ten months of planning and preparations have already been invested in the Portsmouth site, valuable time would be lost by shift to Oak Ridge now or in the future. The GAO in its March 7, 1978, report concluded that a \$200 million cost advantage for building the GCEP at Oak Ridge could be realized by shifting from Portsmouth to Oak Ridge. However, the shift would be expected to delay the time at which the first production train would be in operation and thereby reduce our flexibility in scheduling new capacity to meet enrichment demand.

- Q. 7. Please provide any changes to the answers recently given by the Department to questions from Senator McClure and Congressman Dingell regarding enrichment contracting, pricing and operations to reflect the revised centrifuge program and Project 76-8-g plans and schedules.
- A. 7. The answer furnished to Senator McClure by DOE on April 28, 1978, reflect the revised DOE schedule, i.e., the first two buildings (annual capacity of 2.2 million SWU) will be completed in 1988 and follow on capacity will be added in increments of 1.1 million SWU sequentially at a rate to match future demand. Congressman Dingell had been furnished earlier answers on March 10 and April 14, 1978, related to the earlier Portsmouth Gas Centrifuge plant schedule which did not then reflect the decision to modify the schedule of the plant to incorporate the latest forecast of domestic and foreign nuclear power growth through 1990. The answers to Congressman Dingell's questions are being revised and will be provided to him shortly.
- Q. 8. Are there any related budget or schedule impacts in the centrifuge R&D program as a result of these changes, e.g., slow the R&D pace, or in the CIP/CUP program, accelerate it to increase preproduction for the stockpile? If so, please provide details.
- A. 8. The program changes being planned do not affect the timing of or the budget and schedule for the needed centrifuge technology and the technology transfer to industry from the R&D work going on at Oak Ridge, Tennessee.

There are no changes being planned in the CIP/CUP program.

ATTACHMENT E

URANIUM ENRICHMENT REVENUES

(Questions found on page 5 of Senator Hansen's letter)

- Q. 1. Apart from the legalities associated with the use of the revenues, we request that you provide a detailed accounting of the use of the enrichment revenues in FY 1978 (estimated to be approximately \$600 million), and a summary of the uses in past fiscal years (keyed to the relevant answers to Congressman Dingell's questions).
- Q. 2. How would the Department propose to use enrichment revenues in FY 1979, in the absence of a legally binding and enforced requirement in the authorization and/or appropriation acts to offset costs for (a) anticipated revenues under cost recovery, with and without the slip in the centrifuge project, or (b) anticipated revenues under fair value pricing, with and without the slip in the centrifuge project?
- A. Uranium enrichment revenues, when appropriations so specify, are retained by the Department and utilized to reduce the overall appropriation requirements of the Department. This is accomplished by subtracting estimated revenues from the gross amount of the Department's funding requirements. In such event, these revenues will be used to satisfy a portion of the total funding requirements of the entire Department. They would not be devoted only to the uranium enrichment program, unless appropriation Acts so specified. However, the cumulative revenues from the sale of enriching services over the near term (mid to late 1980's) are not sufficient to offset the cumulative costs of the uranium enrichment program.

The paragraph at the bottom of page 4 and the top of page 5 suggests that current Department of Energy practice with regard to uranium enrichment revenues may be illegal. Our response is as follows:

Section 111(h) of the Energy Reorganization Act of 1974, as amended, was enacted on February 25, 1978. It provides, in pertinent part,

"(h) When so specified in appropriation Acts, any moneys received by the Administration may be retained and used for operating expenses ... except that - ...

"(2) revenues received by the Administration from the enrichment of uranium shall (when so specified) be retained and used for the specific purpose of offsetting costs incurred by the Administration in providing enrichment service activities."

It would appear that the provisions of 111(h)(2) would apply only when an appropriation Act so provided. This conclusion is reached because the meaning of the phrase "when so specified" is interpreted to be the same as the longer phrase "When so specified in appropriation Acts" which appears at the beginning of section 111(h).

The appropriation Act covering DOE's 1978 enrichment services activities, P.L. 95-96, became law on August 7, 1977. As to reappropriation of revenues it provided, in pertinent part:

"... That the following sums are appropriated ... For necessary operating expenses of the Administration ... the sum of ... and any moneys received by the Energy Research and Development Administration ..."

The provisions of the 1978 authorization Act quoted above, when read in conjunction with section 111(h) of the Energy Reorganization Act allow DOE to use its 1978 uranium enrichment revenues to offset total DOE operating expenses. Therefore, DOE's use of these revenues in 1978 is in full compliance with applicable law.

- Q. 3. Does the Department still intend to propose revolving fund legislation for uranium enrichment operations in this Congress?
- A. 3. Yes, we expect that such legislation will be submitted during this session of Congress.
- Q. 4. What reprogramming procedures, if any, does the Department apply pursuant to P.L. 95-238, in light of your legal opinion on use of the funds?
- A. 4. No reprogramming would be contemplated under P.L. 95-238, in view of the legal opinion expressed above.

HENRY M. JACKSON, WASH. CHAIRMAN

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United States Senate

COMMITTEE ON
 ENERGY AND NATURAL RESOURCES
 WASHINGTON, D.C. 20510

May 9, 1978

The Honorable James R. Schlesinger
 Secretary of Energy
 Department of Energy
 Washington, D. C. 20545

Dear Mr. Secretary:

Thank you for Deputy Secretary O'Leary's letter of May 8, 1978 in response to my questions on several pending Departmental budget items. I appreciate the efforts of the Department to respond in the short time imposed by the Congressional budget process. I have reviewed closely the responses included in the May 8 letter and, as a result, I have several additional questions and requests, on behalf of Minority Senators on the Committee, which are relevant to our pending legislation.

Regarding energy impact assistance (Attachment A):

1. Answers 2 and 4 indicate that a Congressional decision "to fund" the \$60 million impact aid assistance in Section 306 of the conference version of the coal conversion bill would result in subtraction of the same amount from the funding in the forthcoming Administration energy impact assistance bill.
 - (a) Would that reduction be mandated by the statutory language in the bill?
 - (b) If not, will the Administration support an amendment at the appropriate time to that effect?
2. Answers 1 and 2 make clear the intended use of the Department of Commerce program under Title IX of the Public Works and Economics Development Act for this energy impact assistance.
 - (a) What is the intended specific role of the Energy Department in this program? Which is the "lead

agency" for (1) policy, (2) interagency coordination and (3) implementation?

(b) Since the Energy Department, in fact, does have statutory authority for impact assistance under P.L. 95-238 for synfuels loan guarantee projects and geothermal loan guarantee projects, what is the intended impact on the Energy Department's exercise of those authorities? Does the Department intend to use those authorities for such assistance with those programs, e.g., ongoing and active geothermal loan guarantee programs and possibly forthcoming high-BTU gasification loan guarantee projects.

3. Answer 3 indicates the new program is intended to supplement any existing programs, such as those authorized by P.L. 95-238. How would that be accomplished in the statutory language?

4. Please provide a copy of the "Report to the President on Energy Impact Assistance".

Regarding the \$100 million solar budget amendment (Attachment B), my questions remain completely unanswered, pending transmission of a formal Budget Amendment to the Congress.

1. What are the Department's recommendations for the changes included in the Budget Amendment? Why can't the Department provide any details?

2. When will the Budget Amendment be submitted? What is the nature of the delay, e.g., OMB?

3. In light of the Budget Act deadlines, and in the continued absence of the referenced Budget Amendment, it could be reasonably alleged that the President's announcement of a \$100 million solar reprogramming at the Solar Energy Research Institute in Golden, Colorado was more political, than policy-related or programmatic, in nature. This is particularly true in the continued absence of any indication of the source of the \$100 million, i.e., what programs or projects would be curtailed or terminated? How would the Department respond to such an allegation of playing politics with the solar program?

Regarding the so-called Phase II energy supply initiatives (Attachment C), the response is completely at variance and in direct contradiction of all the information available to the Committee. In effect, Mr. O'Leary's response is that

the President has not made any "final decision" "on major portions of these proposed supply initiatives", and, therefore, there are no answers to my questions. Candidly, the response appears to be an exercise in semantics, which begs the immediate policy and program issues raised by my questions.

1. Please provide a detailed, step by step, chronology of the energy supply initiatives Budget Amendment, e.g., Dr. Schlesinger originally raised it in the House Science and Technology Committee; he testified about it in the March 1, 1978 hearing in this Committee; the Budget Amendment was approved by the Secretary on such and such a date and submitted to OMB; OMB and other Executive Office comments with a Decision Memorandum went to the President on such and such a date; the President made the following decisions on such and such a date. You should be aware that Mr. O'Leary did brief Senator Bartlett, me and our staff on April 25, 1978 regarding the then status and schedule of the Budget Amendment consideration.
2. Did or did not the President disapprove any part of the Budget Amendment, or decide not to approve any part at this time, or defer decisions now, at any time during the week of April 24, 1978 or any other time? How does the Department explain the pervasive Administration, Congressional and press reports that the President, in fact, during last week's West Coast trip had disapproved the Secretary's personal request for the energy supply initiatives?
3. What is the Administration's position now, apart from any pending decisions and the Budget Amendment, on the policies, programs and projects included in my original Questions 1 through 5 on the energy supply initiatives, e.g., SRC-I and SRC-II demonstrations?
4. Additionally, what is the Administration's position now, apart from any pending decisions and the Budget Amendment on --
 - (a) Tax incentives and selective use of entitlements to stimulate domestic shale oil production (e.g., modified Talmadge amendment to the energy tax bill)?

- (b) Temporary tax subsidies for advanced coal technologies -- atmospheric fluidized bed combustion and low and medium BTU coal gasification?
 - (c) Accelerated construction of several commercial-scale, high-BTU coal gasification facilities through regulatory changes and loan guarantees? Does the Department intend to press FERC to allow the capital cost of coal gas plants to be placed in the rate base of sponsoring pipelines? To allow rolled-in pricing on the sale of such gas? Has the Department taken any steps toward accomplishing those or related regulatory treatments for such plants?
 - (d) What are the relationships of the aforementioned positions to the pending energy tax bill in conference, particularly COET, and the reported administrative proposals for modifications in the entitlement program?
5. Is the apparent claim that the President has not made a final decision in any way motivated or otherwise intended to support a continued claim of executive privilege for the documents requested by my original Question 4?

Regarding uranium enrichment capacity, your answers were quite responsive to my questions, and I will defer to Senator McClure and others to follow up, as necessary, on the details. Your answers taken together imply that the Department intends to use the Portsmouth Centrifuge Facility to match demand in the future, at a rate to be determined by the Department, beyond the initial 2.2 million SWU capacity that will become operational in 1988 under the revised schedule.

- 1. What is the Department's position on the amount of capacity (total SWU, total number of modules) now authorized for Project 76-8-g.
- 2. If the Department position is that all 8.8 million SWU and eight modules are now authorized, what will be the authorization role (not appropriations role) of the Congress, if any, in decisions related to the demand matching and associated commitment of funds?
- 3. What will be the authorization role of the Congress, if any, in decisions related to the inventory and stockpile management?

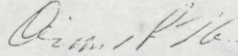
4. Is there any major reason why Congress should not be in the position of authorizing additional modules and SWU capacity, beyond the initial two modules and 2.2 million SWU, to match demand, in light of the increased flexibility advertised for this new approach (and, in fact, has not the decision point and schedule time for affirmative Congressional authorization been built in as an integral part of this scheme)?
5. Would the Department agree that this new approach of adding facility and SWU capacity to match demand, based on AFC contracting and "authorized" but not yet available capacity, represents a major change in the fundamental enrichment services policy of the United States, with significant ramifications for the enrichment operations, financing and related policy issues, e.g., commercialization of future enrichment capacity? Has the major nature of this change been fully considered and documented in the Budget Amendment and related discussions? For example, what are the overall outyear cost impacts of these changes?
6. Please provide a single discussion with the current Administration position on all of the aforementioned issues and relationships, in terms of how this new approach to United States uranium enrichment services, including Congressional authorization and non-proliferation, is intended to work.

Regarding the uranium enrichment revenues (Attachment E), the legal issue associated with the Department's use of these revenues has been referred to the Comptroller General, as you know. I would refer you to the Conference Report for S. 1811, Senate Report No. 95-482, page 92, paragraph 2, which is relevant legislative history for the disputed section and states, "The Conferees accepted House language which requires that the revenues received by the Administration from the enrichment of uranium be used to offset the costs which are incurred in providing existing and future uranium enrichment service activities. . . ." (emphasis added) Please provide the detailed answers originally requested for Questions 1 and 2, regarding the specific use(s) of the enrichment revenues.

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Thank you again for your speed in responding to my questions of May 5. I would appreciate similar speed in providing initial answers to these additional and repeated questions by the end of the week, and expanded answers as soon as possible thereafter. Also, we would appreciate any acceleration of the Budget Amendment process and clearance to advise the Committee on the details as soon as possible. I anticipate final action on your authorization on Monday, May 15, 1978 and your assistance would be timely to support that action.

Sincerely,



Clifford P. Hansen
Ranking Minority Member

cc Members of the Committee
Honorable Frank Moore
Honorable James McIntyre
Honorable Elmer B. Staats

HENRY M. JACKSON, WASH., CHAIRMAN
 FRANK CHURCH, IDAHO
 J. BENNETT JOHNSTON, LA.
 J. A. ABOUREZK, S. DAK.
 FLOYD R. HASKELL, COLO.
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 PETE V. DOMENICI, N. MEX.
 PAUL LAXALT, NEV.

United States Senate

COMMITTEE ON
 ENERGY AND NATURAL RESOURCES
 WASHINGTON, D.C. 20510

GRENVILLE GARSIDE, STAFF DIRECTOR AND COUNSEL
 DANIEL A. DREYFUS, DEPUTY STAFF DIRECTOR FOR LEGISLATION
 D. MICHAEL HARVEY, CHIEF COUNSEL
 W. D. CRAFT, JR., MINORITY COUNSEL

May 10, 1978

The Honorable Henry M. Jackson
 Chairman
 Committee on Energy and Natural Resources
 United States Senate
 Washington, D. C.

Dear Scoop:

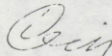
As you probably know, I have been exchanging correspondence with Secretary Schlesinger for the past six days dealing with a series of recent, controversial issues in the Department of Energy budget. Copies of the various letters to and from the Secretary have been sent to you.

As the correspondence indicates, I unfortunately have been unable thus far to get any reasonable answers regarding the President's announced \$100 million reprogramming for solar energy, and particularly the source of those funds from other programs, or any straight answers regarding the status of the so-called Phase II energy supply initiatives, about which Secretary Schlesinger testified on March 1, and Deputy Secretary O'Leary reported to Senator Bartlett and me on April 22. In fact, I received a letter yesterday from Mr. O'Leary which attempted to deny the President's widely reported disapproval of Phase II last week. I felt strongly that the attempted denial was an exercise in semantics, and I sent another request for the information yesterday.

Also, we are having difficulty in getting reasonable answers on the strategic petroleum reserve budget, the uranium enrichment revenues, and the uranium enrichment project at Portsmouth. These various uncertainties in the DoE budget before us could total between \$500 million and \$1 billion, and they have already been the subject of considerable interest already in the mark-ups. I also am aware of the overall budgetary concerns which have been expressed by many Members in the markup, particularly regarding the SPR program.

Consequently, on behalf of the Minority Members of the Committee, I formally repeat the request I made in markup today that Secretary Schlesinger be called to testify, regarding these issues in the DoE budget at one final hearing before we complete action on the authorization bill. Hopefully, we could obtain responsive answers at the hearing on these important budget issues. I personally will be available to help with such a hearing at any time, morning, afternoon or evening. Thank you for your consideration.

Sincerely,



Clifford P. Hansen
 Ranking Minority Member

cc: Members of the Committee



Department of Energy
Washington, D.C. 20585

May 12, 1978

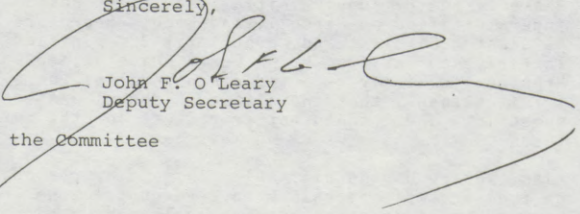
The Honorable Clifford P. Hansen
United States Senate
Washington, D.C. 20510

Dear Senator Hansen:

This letter further responds to your letter of May 5 and your follow-up letter of May 9 concerning a number of issues pertaining to the Department's FY 1979 budget and several potential amendments to that budget. We have again provided the most comprehensive answers possible to your specific questions in the attachments. In some cases the absence of final decisions make it difficult to be as precise or informative as we would like.

Your continuing interest is, of course, most welcome. We would be glad to meet with you or your staff personally to discuss these issues if you desire.

Sincerely,



John F. O'Leary
Deputy Secretary

cc: All Members of the Committee

ATTACHMENT AENERGY IMPACT ASSISTANCE

- Q. 1. Answers 2 and 4 indicate that a Congressional decision "to fund" the \$60 million impact aid assistance in Section 306 of the conference version of the coal conversion bill would result in subtraction of the same amount from the funding in the forthcoming Administration energy impact assistance bill.
- (a) Would that reduction be mandated by the statutory language in the bill?
 - (b) If not, will the Administration support an amendment at the appropriate time to that effect?
- A. 1. We support the authorization language of the Hart-Randolph energy impact bill which calls for an annual authorization of \$150 million over five years for the new inland impact program. That bill does not reference authorizations for the Section 306 program.
- The Administration has taken the position that any appropriations made for the 306 program would result in reduced funding available under the new inland energy impact assistance program.
- Q. 2. Answers 1 and 2 make clear the intended use of the Department of Commerce program under Title IX of the Public Works and Economic Development Act for this energy impact assistance.
- (a) What is the intended specific role of the Energy Department in this program? Which is the "lead agency" for (1) policy, (2) interagency coordination and (3) implementation?
 - (b) Since the Energy Department, in fact, does have statutory authority for impact assistance under P.L. 95-238 for synfuels loan guarantee projects and geothermal loan guarantee projects, what is the intended impact on the Energy Department's exercise of those authorities? Does the Department intend to use those authorities for such assistance with those programs, e.g., ongoing and active geothermal loan guarantee programs and possibly forthcoming high-BTU gasification loan guarantee projects.

- A. 2. The Department of Commerce will have the lead role for implementing the new inland energy impact assistance program under a new Title XI of the Public Works and Economic Development Act. The Department of Energy and Commerce have been working jointly to formulate the Administration's impact assistance policy. The Department of Energy will be consulted in the development of regulations to implement that policy, and will review the impact assistance plans submitted by the States to the Department of Commerce on an annual basis. The Department of Commerce will have the responsibility for coordinating the delivery of Federal assistance to energy impacted areas. The Department of Energy will be responsible for, in consultation with the Department of the Interior, establishing an information system to assure the timely delivery of energy development information, in a form useable to impacted jurisdictions, to improve their capability to anticipate energy development related growth and plan for it.

The proposed new program to provide assistance to communities impacted by energy resource development would in no way affect the Department of Energy's statutory responsibility for or method of implementing the loan guarantee programs under P.L. 95-238. There are a variety of existing Federal programs which are capable of providing assistance to communities impacted by energy development. These programs were reviewed in the Report to the President: Energy Impact Assessment. In conducting that review, the Energy Impact Assistance Steering Group found that Federal assistance frequently was not available to some communities due to funding levels or to eligibility requirements (low income, high unemployment, etc.) which restricted participation by energy impact communities. Therefore, the new impact assistance program was designed to make available flexible financial assistance to fill the gaps in existing Federal programs.

Those community needs for which Federal assistance is already available, e.g., through the synfuels and geothermal loan guarantee programs, would not be eligible for assistance under the new program. Given the myriad of existing Federal assistance programs

and the varying eligibility requirements, coordination of Federal assistance is a crucial component of the President's impact assistance policy. The Department of Commerce will be working closely with the other Federal agencies in determining what assistance is already available to communities. At the request of a Governor, impact assessment teams, composed of Federal, State and local officials, will be established to assess the needs of a given impact area and assist the local officials in obtaining funding for required facilities and services. Assistance under existing programs will be tapped before assistance under the new program will be utilized.

Q. 3. Answer 3 indicates the new program is intended to supplement any existing programs, such as those authorized by P.L. 95-238. How would that be accomplished in the statutory language?

A. 3. In order to insure that assistance under the new impact assistance program does not duplicate Federal assistance available under existing Federal programs, we would suggest explicit language to that effect in the statute. In addition, a maintenance of current impact assistance efforts on the part of States and local governments would be expected. Suggested statutory language is:

"No financial assistance under this title shall replace other reasonably available public or private assistance on terms that, in the opinion of the Secretary, would permit the accomplishment of the project or program."

Q. 4. Please provide a copy of the "Report to the President on Energy Impact Assistance".

A. 4. The report is attached.

ATTACHMENT B\$100 MILLION SOLAR BUDGET AMENDMENT

- Q. 1. What are the Department's recommendations for the changes included in the Budget Amendment? Why can't the Department provide any details?
- Q. 2. When will the Budget Amendment be submitted? What is the nature of the delay, e.g., OMB?

We expect to be able to discuss the details of the additional \$100 million FY 1979 budget amendment for solar and renewable energy research with you and the Committee during the hearing on Monday, May 15.

- Q. 3. In light of the Budget Act deadlines, and in the continued absence of the referenced Budget Amendment, it could be reasonably alleged that the President's announcement of a \$100 million solar reprogramming at The Solar Energy Research Institute in Golden, Colorado, was more political, than policy-related or programmatic, in nature. This is particularly true in the continued absence of any indication of the source of the \$100 million, e.g., what programs or projects would be curtailed or terminated? How would the Department respond to such an allegation of playing politics with the solar program?

- A. The President's decision to add \$100 million to the solar and renewable energy research budget comes as a result of a 3-month analysis by the Department of Energy of the FY 1979 budget.

This program represents a reasonable and balanced acceleration of an energy supply area of critical and growing importance.

ATTACHMENT COTHER ENERGY SUPPLY INITIATIVES

- Q. 1. Please provide a detailed, step by step, chronology of the energy supply initiatives Budget Amendment, e.g., Dr. Schlesinger originally raised it in the House Science and Technology Committee; he testified about it in the March 1, 1978 hearing in this Committee; the Budget Amendment was approved by the Secretary on such and such a date and submitted to OMB; OMB and other Executive Office comments with a Decision Memorandum went to the President on such and such a date; the President made the following decisions on such and such a date. You should be aware that Mr. O'Leary did brief Senator Bartlett, me and our staff on April 25, 1978 regarding the then status and schedule of the Budget Amendment consideration.
- Q. 2. Did or did not the President disapprove any part of the Budget Amendment, or decide not to approve any part at this time, or defer decisions now, at any time during the week of April 24, 1978 or any other time? How does the Department explain the pervasive Administration, Congressional and press reports that the President, in fact, during last week's West Coast trip had disapproved the Secretary's personal request for the energy supply initiatives?
- A. We have attempted to provide the members and staff of your committee frequent updates on the progress of our effort to reexamine the FY 78 budget. We do not feel it would be appropriate to provide the precise details of conferences between the President and the Secretary of Energy.
- Q. 3. What is the Administration's position now, apart from any pending decisions and the Budget Amendment, on the policies, programs and projects included in my original Questions 1 through 5 on the energy supply initiatives, e.g., SRC-I and SRC-II demonstrations?

- Q.4. Additionally, what is the Administration's position now, apart from any pending decisions and the Budget Amendment on --
- (a) Tax incentives and selective use of entitlements to stimulate domestic shale oil production (e.g., modified Talmadge amendment to the energy tax bill)?
 - (b) Temporary tax subsidies for advanced coal technologies--atmospheric fluidized bed combustion and low and medium Btu coal gasification?
 - (c) Accelerated construction of several commercial-scale, high Btu coal gasification facilities through regulatory changes and loan guarantees? Does the Department intend to press FERC to allow the capital cost of coal gas plants to be placed in the rate base of sponsoring pipelines? To allow rolled-in pricing on the sale of such gas? Has the Department taken any steps toward accomplishing those or related regulatory treatments for such plants?
 - (d) What are the relationships of the aforementioned positions to the pending energy tax bill in conference, particularly COET, and the reported administrative proposals for modifications in the entitlement program?
- A. We will discuss with you on Monday the Administration's position on the energy supply programs and projects mentioned in your questions.
- Q.5. Is the apparent claim that the President has not made a final decision in any way motivated or otherwise intended to support a continued claim of executive privilege for the documents requested by my original Question 4?
- A.5. As you know, materials put together in developing the President's budget are not made available until the budget is submitted. When the budget amendment is forwarded to the Congress, we will be happy to make available appropriate supporting documents.

ATTACHMENT DURANIUM ENRICHMENT CAPACITY

1. What is the Department's position on the amount of capacity (total SWU, total number of modules) now authorized for Project 76-8-g?

The Department's position is that a total of 8.8 million SWU's per year is the now authorized capacity for Project 76-8-g. The FY 1978 data sheet for Project 76-8-g submitted to the Congress in May, 1977 established the scope of the Portsmouth Centrifuge Facility to provide for "...approximately 8.8 million separative work units (SWU) per year of additional enrichment capacity through construction of new facilities... New facilities will consist of eight process buildings, necessary auxiliaries, and other administrative support, test and service facilities as required." Project 76-8-g was authorized by the Congress in FY 1978 and it is DOE's position that the scope outlined in the FY 1978 data sheet establishes Congressional authorization of 8.8 million SWU per year.

2. If the Department position is that all 8.8 million SWU and eight modules are now authorized, what will be the authorization role (not appropriation role) of the Congress, if any, in decisions related to the demand matching and associated commitment of funds?

The role of Congressional authorization for this project will be similar to that established in relation to the DOE Cascade Improvement and Upgrading (CIP/CUP) programs. The Uranium Enrichment Services Criteria gave the AEC authority to contract for enrichment services up to the available capability of the three diffusion plants as fully improved and upgraded in advance of the actual completion of the improvement and upgrading programs, as well as power procurements. By 1974, the AEC had entered into contracts for the total amount of this capacity and thus ceased contracting. Authorization and appropriation of the funds for the CIP and CUP were requested and approved in annual phases to provide Congressional oversight of the installation of these capacity additions.

Under DOE's forthcoming revision to the Uranium Enrichment Services Criteria, DOE will be able to contract for enrichment services from authorized as well as existing enrichment plants. Thus, upon resumption of enrichment services contracting, DOE will be able to enter into contracts for the full capacity of the Portsmouth Centrifuge plant (8.8 million SWU) in advance of full completion of this facility. Authorization of appropriations for the plant will also be requested in phases, thus providing for Congressional oversight of the installation of the centrifuge production modules.

DOE will enter into contracts in advance of the time additional enrichment capacity will be completed. However, the installation of such capacity at the rate required to meet actual needs will be consistent with the contracts for enrichment services to be supplied from the total DOE enrichment complex, including the Portsmouth GCEP. Adequate lead times for firm-up of delivery commitments are provided in the contracts to insure that all necessary steps can be taken to bring production on-line in a timely fashion.

3. What will be the authorization role of the Congress, if any, in decisions related to the inventory and stockpile management?

The primary authorization role of the Congress with respect to DOE enrichment inventories will continue to be a consideration of annual DOE budget requests for enrichment operations, including funding for power and capacity additions.

4. Is there any major reason why Congress should not be in the position of authorizing additional modules and SWU capacity, beyond the initial two modules and 2.2 million SWU, to match demand, in light of the increased flexibility advertised for this new approach

(and, in fact, has not the decision point and schedule time for affirmative Congressional authorization been built in as an integral part of this scheme)?

- A. Recognizing that the full 8.8 MSWU per year enrichment capacity from the GCEP has been authorized and that the Portsmouth add-on project will be phase funded, Congress will be involved in the establishment of the timing for completion of each centrifuge production through Congressional action on the annual budget authorizations and appropriations for the GCEP.
5. Would the Department agree that this new approach of adding facility and SWU capacity to match demand, based on AFC contracting and "authorized" but not yet available capacity, represents a major change in the fundamental enrichment services policy of the United States, with significant ramifications for the enrichment operations, financing and related policy issues, e.g. commercialization of future enrichment capacity? Has the major nature of this change been fully considered and documented in the Budget Amendment and related discussions? For example, what are the overall cost impacts of these changes?

The Department would not characterize the approach described in the questions as representing a major change in fundamental U.S. enrichment policy. As discussed in the answer to question 2 above, the AEC had the authority to enter into contracts for the authorized capacity of the CIP/CUP programs in advance of the time that full authorization and appropriation of funds was made for these programs. Contracting for enrichment services for the authorized 8.8 million SWU per year capacity of the Portsmouth centrifuge plant, with installation of such capacity at the rate required to meet actual needs, is consistent with our previous approach.

The ability to add SWU capacity with short lead times in small increments to track demand is a result of using the more flexible gas centrifuge technology rather than the gaseous diffusion technology for capacity additions. With the use of centrifuge technology, the forecasting uncertainties at the time a decision is made to expand capacity are reduced. DOE does not consider this improvement to be inconsistent with U.S. enrichment policy objectives.

Also, because of the reduction in the time needed to bring on new capacity using centrifuge technology, DOE is able to offer more flexibility to enrichment customers in terms of product scheduling and firm-up. Such flexibilities will be offered in the AFC contract. DOE testified before the Subcommittee on Energy, Research, Development and Demonstration on the terms of the AFC contract in February of this year and provided extensive detailed information to Senator McClure on the new contracting approach subsequent to these hearings. DOE concludes that the new contract does not constitute a major departure from previous contracting approaches since the fixed-commitment nature of the current DOE long-term, fixed-commitment contract has been retained in the AFC contract. Moreover, the AFC contract lead times for firm-up and delivery scheduling are consistent with DOE's ability to bring on centrifuge capacity.

The data sheets accompanying the Budget Amendment for Project 76-8-g will include the overall outyear impacts of the revised schedule for the Portsmouth plant.

6. Please provide a single discussion with the current Administration position on all of the aforementioned issues and relationships, in terms of how this new approach to United States uranium enrichment services, including Congressional authorization and non-proliferation, is intended to work.

DOE provided lengthy answers to extensive questions on these issues and relationships to Senator McClure on April 28, 1978. The revised schedule for the Portsmouth Centrifuge Plant, the AFC contract, DOE's estimated demand for enrichment services, applicability of U.S. non-proliferation legislation, and the interrelationships of these issues to the budget process were discussed in great detail in DOE's answers. In brief, the Administration's position is that this program will assist in both meeting domestic and foreign needs, be entirely consistent with non-proliferation and national energy policies, and will be authorized as described in the answers above.

Q. Regarding the uranium enrichment revenues, the legal issue associated with the Department's use of these revenues has been referred to the Comptroller General, as you know. I would refer you to the Conference Report for S. 1811, Senate Report No. 95-482, page 92, paragraph 2, which is relevant legislative history for the disputed section and states, "The Conferees accepted House language which requires that the revenues received by the Administration from the enrichment of uranium be used to offset the costs which are incurred in providing existing and future uranium enrichment service activities..." (emphasis added). Please provide the detailed answers originally requested for Questions 1 and 2, regarding the specific use(s) of the enrichment revenues.

A. DOE is cognizant of the section in Conference Report referenced above. However, as pointed out in our previous answers on this question, we interpret Section 111(h) of the Energy Reorganization Act of 1974 to provide what when so specified in appropriation Acts, enrichment revenues shall be used to offset enrichment costs. To date, no such specification has been included in an appropriation Act. Whereas the referenced section of the Conference Report is relevant legislative history for S. 1811, in view of the anomaly created by the difference in the report's position and that enacted in the Energy Reorganization Act, DOE's legal opinion is that meaning must be given to the words used in the statute. Thus, our previously supplied answers to Questions 1 and 2 remain unchanged.



Department of Energy
Washington, D.C. 20461

May 15, 1978

Honorable Clifford P. Hansen
United States Senate
Washington, D.C. 20510

Dear Senator Hansen:

As I stated at the hearing this morning, the decisions reached over the weekend now permit more detailed responses to your questions pertaining to the Department's FY 1979 budget. The formal budget amendment detailing the proposed initiatives has not yet been completed but will be submitted this week.

Your staff has indicated that my previous responses to your questions on energy impact assistance and uranium enrichment capacity were adequate. These additional replies will, therefore, be limited to your questions on the substance of the proposed changes to the FY 1979 budget. A brief explanation of all of the proposed increases and decreases in FY 1979 is also enclosed.

Sincerely,

John F. O'Leary
Deputy Secretary

Enclosure

ATTACHMENT

\$100 MILLION SOLAR BUDGET AMENDMENT

Attachment B of my May 12 reply provided limited answers to questions 1, 2, and 3. The following additional information is supplied:

- Q. 1. What are the Department's recommendations for the changes included in the Budget Amendment? Why can't the Department provide any details?

The specific proposals are:

PHOTOVOLTAICS

The current focus on flat plate silicon cell technology would be expanded to explore new technologies, including: amorphous materials, photochemical conversion and advanced concentrator concepts. The initiative would increase FY 1979 funding of the four major research competitions initiated in FY 1978, and fund unsolicited proposals in advanced concentrator performance and cost reduction concepts and electrolyte semiconductor cells. It would also increase funding of advanced thin film materials, initiate an R&D program to provide starter grants for novel high risk conversion concepts, and initiate a program to improve the stability and reliability of thin film devices (\$30 million in FY 1979).

WIND

For large (1-3 mw) utility-scale machines, this initiative help would reduce costs and improve reliability by introducing into the current program a significant amount of competition, market testing and user acceptance. Two competing manufacturers, instead of the presently planned one, will be selected to design, fabricate and field test a prototype of the next generation wind machine. If these machines meet performance expectations, the Government would purchase six more units to obtain manufacturing and operating experience. The proposed amendment would foster competition in the production of large scale wind systems while providing test machines for the government and the utility partners

to evaluate in terms of economic, environmental, systems integration and other considerations. If the evaluations of the prototypes to be developed under this amendment proves favorable, consideration will be given to further Federal efforts to stimulate their widespread use.

This initiative would also provide for the purchase and installation of at least 50 small (8-40 kw) wind machines per year for two years for a test program. The installation and use of these machines by many electric utilities will lead to early resolution of rate schedule and operational problems with electric utilities and with State and local governments. Efforts would also be initiated to accelerate design and development of more advanced small systems aimed at single family and rural applications.

The total cost of this initiative would be \$20 million in FY 1979. Of that amount, \$13 million would be for the large wind machines and \$7 million for small machines.

GAS & LIQUID FUELS FROM BIOMASS

This initiative would accelerate research and foster innovative approaches to convert wood and other forms of biomass directly into methane or liquid fuels. Initial emphasis will be placed on basic thermochemical processes for the de-oxygenation of cellulose. This is expected to open up new approaches for the synthesis and extraction of hydrocarbons from biomass feedstocks. These direct conversion processes would be aimed at producing fuel oils, residual oil, gases, and other products that closely resemble products now derived from petroleum refining and petrochemical processing. The suitability of a variety of plant materials will be evaluated (\$10 million in FY 1979).

LOW HEAD HYDRO

These additional funds will provide loans for feasibility studies to determine the technical, economic and environmental merit of about 100 existing dam sites (loans

would be forgiven if a project at that site proves to be infeasible). Several facilities will be constructed under various topographic, water level, and institutional conditions to demonstrate broad applicability of low head hydro. This request will also accelerate the commercialization of small hydro turbines by the domestic turbine industry through funding at least two manufacturers to develop packaged turbogenerators. Total funding is allocated: \$10 million for feasibility studies, \$5 million for turbogenerator development, and \$5 million for utilization experiments (\$20 million in FY 1979).

APPROPRIATE TECHNOLOGY

This initiative would provide sufficient funds to expand the appropriate technology program to all ten Federal regions. The program is designed to encourage individuals and small businesses to develop and prove the feasibility of a variety of small-scale technologies that rely on low-cost, locally available materials. Emphasis is placed on technologies that may not be universally applicable, but which are appropriate to markets characterized by unique regional, institutional and end-use conditions. Grants are limited to \$50,000 each (\$5 million in FY 1979).

DISPERSED ENERGY SYSTEMS

This initiative would build upon both the appropriate technology small grants program and the existing buildings and community systems program, providing for widespread demonstration and evaluation of decentralized technologies utilizing dispersed energy sources. Emphasis would be placed on systems that satisfy the needs of the communities they serve by minimizing energy waste and systems that utilize innovative combinations of known technologies. The demonstrations could range from self-sufficient, neighborhood-scale solar heating/storage systems to integrated renewable energy systems for business or industrial use. Examples of technologies that might be included are anerobic digestion, electrical and thermal storage and waste heat recovery. The demonstrations would be designed to encourage adoption of such techniques for applications as diverse as industrial parks, commercial/residential neighborhoods or entire communities (\$5 million in FY 1979).

PASSIVE SOLAR HEATING AND COOLING

This initiative will stimulate and publicize innovative, practical passive solar designs through financial awards to architects and builders. Competitions will be held first nationally, then regionally; they will be structured to involve key elements of the architectural and building community and State and local governments. Projects will be judged according to their architectural innovation, marketability and energy savings (\$5 million FY 1979).

SOLAR TRAINING AND EDUCATION

This initiative would establish training programs which will be operated by labor unions, community colleges, trade associations and other qualified groups. Funds will be used to purchase learning aids and materials necessary to acquire knowledge and hands-on skills, and to train instructors who will thereafter include solar skills and/or designer training in their regular curriculum. The trades affected include plumbing, sheet metal work and other occupations connected with conventional heating, ventilating and air conditioning systems (\$5 million in FY 1979).

- Q. 2. When will the Budget Amendment be submitted? What is the nature of the delay, e.g., OMB?
- A. 2. The budget amendment will be formally transmitted this week.
- Q. 3. In light of the Budget Act deadlines, and in the continued absence of the referenced Budget Amendment, it could be reasonably alleged that the President's announcement of a \$100 million solar reprogramming at The Solar Energy Research Institute in Golden, Colorado, was more political, than policy-related or programmatic, in nature. This is particularly true in the continued absence of any indication of the source of the \$100 million, e.g., what programs or projects would be curtailed or terminated? How would the Department respond to such an allegation of playing politics with the solar program?

- A. 3. The programs or projects to be curtailed or terminated are:

Light Water Reactor Technology - \$10 million

The purpose of this program is to improve the productivity and safety of existing light water reactors. The reduction would allow continuation of work on safety, and programs primarily directed toward nonproliferation objectives. Work on improving plant availability by shortening refueling outages and flow-induced vibrations, as well as construction modularization, would be eliminated. Negotiations are underway with EPRI to increase its program in these areas.

Waste Management Facilities - \$51 million

This project provides for the construction of tanks and associated facilities for storage of defense waste at Savannah River. Updated production requirements and several new process changes have resulted in a forecast of reduced defense nuclear waste at Savannah River through the late 1980's, allowing for the reduced scope of this project.

Advanced Technology and Assessment Projects - \$ 5 million

The purpose of this activity is to provide the capability to identify promising advanced technology and assessments projects. Actual projects to be undertaken will be determined in part by the evolving character of the DOE R&D program. The revised request will provide a satisfactory level of funding to initiate the required analysis.

National Uranium Resource Evaluation - \$10 million

The purpose of this program is to evaluate domestic uranium and thorium resources. Current assessments indicate that the \$30 million increase requested for FY 1979 can be reduced without a significant negative impact on this important work.

Vanpooling

-\$ 9 million

These funds would have been used for purchase of commuter vans for the Federal Employee Vanpool Program. The Congressional Conference action on the National Energy Act prohibits such purchase.

Clean Boiler Fuel Demonstration
(Coalcon)

-\$45 million

Unobligated balances available as a result of the technical infeasibility of this coal conversion project will be applied against FY 1979 appropriation requirements.

TOTAL REDUCTION

-\$130

OTHER ENERGY SUPPLY INITIATIVES

- Q. 3. What is the Administration's position now, apart from any pending decisions and the Budget Amendment, on the policies, programs and projects included in my original Questions 1 through 5 on the energy supply initiatives, e.g., SRC-I and SRC-II demonstrations?
- Q. 4. Additionally, what is the Administration's position now, apart from any pending decisions and the Budget Amendment on --
- (a) Tax incentives and selective use of entitlements to stimulate domestic shale oil production (e.g., modified Talmadge amendment to the energy tax bill)?
 - (b) Temporary tax subsidies for advanced coal technologies -- atmospheric fluidized bed combustion and low and medium Btu coal gasification?
 - (c) Accelerated construction of several commercial-scale, high-Btu coal gasification facilities through regulatory changes and loan guarantees? Does the Department intend to press FERC to allow the capital cost of coal gas plants to be placed in the rate base of sponsoring pipelines? To allow rolled-in pricing on the sale of such gas? Has the Department taken any steps toward accomplishing those or related regulatory treatments for such plants?
 - (d) What are the relationships of the aforementioned positions to the pending energy tax bill in conference, particularly COET, and the reported administrative proposals for modifications in the entitlement program?

A. 3. Oil Shale

& 4.

We propose a 2-part program to accelerate shale oil development.

- o The Administration will work with the Conferees to modify the shale oil tax credit currently in the NEA tax conference. The Administration could support a credit limited to the first 10 thousand barrels per day of production from commercial plants placed in service by 1987. The credit would continue throughout the life of qualifying plants or 20 years, whichever is shorter. A provision to phase out the credit when world oil prices exceed the cost of shale oil to refiners will be explored with the conferees.

- o New DOE regulations will provide shale oil (and other synthetic liquids) the same entitlements treatment as imported crude oil.

In view of these initiatives which look to the private sector to deploy shale oil technology we do not favor the construction of government-owned demonstration facilities. This position will be reviewed after action on the proposed initiatives is completed.

Enhanced Oil Recovery

Enhanced oil recovery technology offers the potential of expanding the production and reserves from known oil fields. The Department is presently supporting research and development in this area. We are reviewing this program to determine whether incentives beyond R&D are needed to encourage use of the technology. This review will be conducted in the context of the national energy supply strategy study.

Unconventional Gas Production

We propose a budget increase of \$10 million in FY 1979 to accelerate the current Federal R&D program in geopressurized methane. The increase would be expended as follows:

- o Increase the number of geopressurized wells drilled in FY 1979 by two (from two to four) to reduce the time required to complete the planned 3-year feasibility study of this resource.
- o Initiate further supporting work on geopressurized methane resource to provide the information base for eventual commercial development

The existing DOE R&D program for other forms of unconventional natural gas will be reviewed during the preparation of the FY 1980 budget request.

Solvent Refined Coal

We propose the following steps to develop, as rapidly as technically feasible, a capability to produce alternative synthetic liquids and solids from coal:

- o Process design studies will be initiated for four or five bonafide coal liquid and coal solid demonstration plants. The studies will cost

approximately \$6 to \$8 million each and will be started in FY 1978 and completed in mid FY 1979.

- o At this point, the SRC processes are at a more advanced stage of development than other processes currently under development in the United States. If the process studies and parallel negotiations on cost sharing are successful on the SRC processes, DOE would proceed to detailed design for two plants using the funds currently in the President's FY 1979 budget (\$23 million) and in FY 1980 would move into the procurement and construction phases on one or two plants. If the above conditions are not met by either one or both of the SRC technologies, DOE would be in a position to finance one or more of the other proposals in FY 1980. This approach will assure expeditious development of synthetic coal technology within the levels provided in the FY 1979 budget.

Commercial Scale Hi-Btu Coal Gasification

We propose to review commercial scale hi-Btu coal gasification projects on a case-by-case basis to determine the need for:

- o Intervention before FERC to argue for tariff protection against non-completion, or
- o Federal loan guarantees (\$20 million in FY 1979; total to be determined).

The DOE will develop criteria and procedures for the case-by-case review; develop regulations and request simplification of existing authority in order to guarantee loans promptly; and develop a strategy for intervening before FERC. These steps are intended to supplement a future FERC ruling on the question of allowing rolled-in pricing for these projects.

Atmospheric Fluidized Bed Combustion, Low- and Medium-Btu Gasification Demonstrations

These technologies provide the means for using coal to replace oil and gas in a number of industrial applications. Atmospheric fluidized bed combustion provides an attractive alternative to direct coal combustion with flue gas desulfurization in boiler applications. Low-Btu gasification provides an option for process and non-boiler uses in new plants.

Medium-Btu gas technologies can produce fuel and feedstock for new and existing facilities. Their large size makes them applicable to large individual users or multi-plant applications. Last year the Administration proposed that these technologies be eligible for the additional 10 percent investment tax credit and rebate under the oil and gas users tax. Both conference versions of the energy bill contain different tax incentives for this technology. We anticipate that appropriate tax incentives will be agreed to by the Conference.

With respect to COET and modifications to the entitlements program, we remain strongly supportive of our original proposal and hopeful for its passage this session. We need to have firm answers on this question before we can analyze and decide on additional modifications to the entitlements system.

SUPPLY INITIATIVES

FY 1979 Budget Amendment
(Budget Authority in Millions)

PROPOSED INCREASES

	FY 1979	
	Previous Request	Revised Request
	\$ 18	\$ 28

Unconventional Natural Gas

Funds requested will provide for the drilling of two geopressurized wells. This initiative accelerates the on-going program to demonstrate the feasibility of developing geopressurized gas resources sooner and will provide the technical and economic information to aid energy planning and private development.

High-Btu Coal Gas Loan Guarantee

	\$ 0	\$ 20	\$ 20
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The loan guarantee program for high-Btu coal gas would indemnify lenders against the institutional and technical uncertainties of the first few plants built. Loan guarantees for the first few plants could enable industry to gain technical, financial, and institutional experience. As a result, industry would be in a better position to expand high-Btu gas as an alternate fuel to natural gas and to decrease our oil imports.

FY 1979			
Previous Request	Amendment	Revised Request	

\$ 76	\$ 30	\$106
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Photovoltaics

The current focus on flat plate silicon cell technology will be expanded to explore new technologies, including: amorphous materials, photochemical conversion, and advanced concentrator concepts. Efforts to develop new materials, designs, and fabrication technologies will be doubted under this request in order to lower the cost of photovoltaics by the mid-1980's.

Wind

\$ 41	\$ 20	\$ 61
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This request will provide funds for a significant number (i.e., 50) of small wind machines (8-40 kw) and will develop two new small-scale machines for use with or without a utility grid. The installation and use of these machines will lead to early resolution of rate schedule and operational problems with electric utilities and with State and local governments.

This request will also fund the competitive development by two companies of prototype utility-scale machines (1-3MW). If these machines meet performance expectations, the Government would purchase six more units to obtain manufacturing and operating experience. The program is targeted to reduce costs to 3 cents per kwh, which would open up a commercial market for wind generated electricity.

FY 1979	
Previous Request	Amendment
Revised Request	

Biomass

This request will identify and develop processes for converting wood and other forms of biomass into methane or liquid fuels. The range of options for producing gas and liquid fuels from biomass will expand significantly.

\$ 27 \$ 10 \$ 37

Low Head Hydro

These additional funds will provide loans for feasibility studies at about 100 existing dams. If a site proves to be unfeasible, the loan would be forgiven. Several facilities will be constructed under various topographic, water level, and institutional conditions to demonstrate broad applicability of low-head hydro. This request will also accelerate the commercialization of small hydro turbines by the domestic turbine industry by funding at least two manufacturers to develop prepackaged turbogenerators. Total funding is allocated: \$10M for feasibility studies, \$5M for turbogenerator development, and \$5M for utilization experiments.

\$ 8 \$ 20 \$ 28

Appropriate Technology

This initiative expands the existing pilot program to all 10 Federal regions. The program encourages individuals and small businesses to prove the feasibility of new, small-scale technologies. The pilot program received 1,100 proposals. Grants are limited to \$50,000.

\$ 3 \$ 5 \$ 8

The expanded program would accelerate commercialization of labor-intensive, simple technologies which rely on low-cost, locally available materials and which conserve depletable resources or utilize renewable resources.

FY 1979

	Previous Request	Amendment	Revised Request
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Dispersed Energy Systems Demonstrations

\$ 0	\$ 5	\$ 5
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This initiative would provide for demonstration and evaluation of decentralized technologies utilizing dispersed energy sources. Emphasis would be placed on systems that satisfy the needs of the communities they serve by minimizing energy waste and utilizing innovative combinations of known technologies, such as waste heat utilization or anaerobic conversion.

Passive Solar Heating and Cooling

\$ 2	\$ 5	\$ 7
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This request will stimulate and publicize innovative, practical passive solar designs through financial awards to architects and builders. Competitions will be implemented first nationally, and then regionally. Projects will be judged according to their market-ability and energy savings.

Solar Education and Training

\$ 1	\$ 5	\$ 6
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Rapid development of a solar heating industry is being inhibited by a lack of skilled installation and maintenance personnel. This request will establish training programs which will be operated by labor unions, community colleges and schools, trade associations and other qualified organizations.

TOTAL INCREASES

\$130

PROPOSED REDUCTIONS

	FY 1979	
	Previous Request	Amendment Revised Request

Vanpooling

These funds would have been used for purchase of commuter vans for the Federal Employee Vanpool Program. The Congressional Conference action on the National Energy Act prohibits such purchase.

\$ 10	\$ -9	\$ 1
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Light Water Reactor Technology

The purpose of this program is to improve the productivity and safety of existing light water reactors. The reduction would allow continuation of work on safety, generic reliability technologies and programs primarily directed toward nonproliferation objectives. Work on improved plant availability by shortening refueling outages and flow induced vibrations, as well as construction modularization, will be eliminated. Negotiations are underway with EPRI to increase their program in these areas.

\$ 24	\$ -10	\$ 14
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Waste Management Facilities

This project provided for the construction of tanks and associated facilities for storage of defense waste at Savannah River. Updated production requirements and several new process changes have resulted in a forecast of reduced defense nuclear waste at Savannah River through the late 1980's, allowing for the reduced scope of this project.

\$ 75	\$ -51	\$ 24
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PROPOSED REDUCTIONS

	FY 1979		
	<u>Previous Request</u>	<u>Amendment</u>	<u>Revised Request</u>

	\$ 21	\$ -5	\$ 16
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Advanced Technology and Assessment Projects

The purpose of this activity is to provide the capability to identify promising new programs or project areas. Actual projects to be undertaken will be determined in part by the evolving character of the DOE R&D program. The revised request will provide a satisfactory level of funding to initiate the required analysis.

National Uranium Resource Evaluation

	\$ 95	\$ -10	\$ 85
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The purpose of this program is to evaluate domestic uranium and thorium resources. Current assessments indicate that the \$30 million increase requested for FY 1979 can be reduced without a significant negative impact on this important work.

Clean Boiler Fuel Demonstration (Coalcon)

	\$ 0	\$ -45	\$ -45
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Unobligated balances available as a result of the technical infeasibility of this coal conversion project will be applied against FY 1979 appropriation requirements.

TOTAL REDUCTION

	\$-130
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Senator FORD. Would the Senator have a copy of his statement?

Senator HANSEN. Yes.

Senator METZENBAUM. Thank you very much, Senator Hansen.

Senator HANSEN. Thank you, Mr. Chairman.

Senator METZENBAUM. Senator Ford, do you have any opening statement?

Senator FORD. No, sir.

Senator METZENBAUM. Mr. O'Leary, I have some questions and some comments of my own, but I think in fairness, we'd be very happy to hear from you first, and I will withhold those comments.

STATEMENT OF JOHN F. O'LEARY, DEPUTY SECRETARY, DEPARTMENT OF ENERGY

Mr. O'LEARY. Thank you very much, Mr. Chairman. My understanding of the ground rules this morning is that I am to be here to answer questions. I do not have a prepared statement and I would defer to the committee on how they would like to proceed.

Senator METZENBAUM. That being the case, the Chair does have a few questions.

On April 28, Dr. William Voit, Jr., Director of the Division of Uranium Resources and Enrichment, Department of Energy, testified before the Committee on Interior and Insular Affairs, Subcommittee on Energy and Environment in the House of Representatives. At that time, the statement was made that the Department of Energy and its predecessors, the Energy Research and Development Administration and the Atomic Energy Commission, have not been able to accept new orders on enrichment services since mid-1974 because the total plant capacity was under contract. Yet the supply and demand figures in Dr. Voit's testimony—and another point—also indicate that in 1981 production capacity will exceed projected demand by roughly 16 million SWO's.

Why are not foreign orders being taken now so that excess capacity could be utilized between 1980 and 1988 and production capability at Portsmouth could be kept on schedule?

Put another way, if we're going to have this excess capacity, if we're concerned about control of the whole question of uranium enrichment and its use throughout the world, and we're also concerned about our balance of payments because there are other sources available, why have we closed our books and not taken any orders during this period?

Mr. O'LEARY. Mr. Chairman, the Atomic Energy Commission had a precedent in its contracting, that it had to have sufficient capacity to run SWN's to the extent of its full contractual obligation.

We found that many of the utilities that contracted back in the late sixties and early seventies, in fact, do not have a requirement approaching the contracted amount.

So we're doing two things. First of all, we're opening the renegotiation of the existing contracts so we can get things on a more even keel there.

Senator METZENBAUM. You're opening what?

Mr. O'LEARY. We're opening negotiations for the existing contracts so that we can bring the contracted volume down to a more realistic amount that more closely tracks the actual requirements of the utilities involved, both domestic and foreign, Mr. Chairman.

And, secondly, either this week or next week we will open the order books so that we can receive additional orders and do exactly what you're saying, use that otherwise unused capacity to generate, among others, additional foreign exchange earnings.

So we are anticipating your point, Mr. Chairman, with the policies that we're developing now.

Senator METZENBAUM. So that the policy will be changed from its present policy, from being closed it will be reopened?

Mr. O'LEARY. Yes. We will reopen and our objective will be to match actual contracts with our separative work capacity.

Senator METZENBAUM. I don't have a specific quote, but my recollection is that in advocating this stretch-out position, the Department has indicated that there wasn't sufficient demand.

Now my question to you is, isn't that a contradiction? If your books are closed and you can't take any orders, then you don't know how much the demand is because people don't come to your store to buy. My question is, how do you know there isn't that demand, and why are you advocating a stretch-out policy at this moment since you aren't going to be reopening the books for orders until sometime in the immediate future?

Mr. O'LEARY. Well, we have a very good handle on demand, Mr. Chairman. We know, first of all, the construction and online rate in the United States for new reactors and the rates of burnup. So we can get a very, very good projection of their requirement for separative work. And, of course, we keep very close tabs on progress internationally, both with regard to construction of reactors and with the placement of orders for separative work.

So I think that we have a fairly precise idea.

There have been some misconceptions that have been carried in our program. For example, up until Mr. McIsaac made a recent review, we were estimating 1985 requirements at about 127,000 megawatts of installed electric capacity.

We now have revised that number of downward to 115,000, which I think is a much more realistic number.

So I think that we're on sound ground in saying that we can perform this stretch out.

Now in addition to that, there is a fail-safe mechanism in our contracting requirements. We concluded some time ago that we could certainly add capacity within 6 years. And, consequently, we're putting a contractual requirement on the potential and actual purchasers of separative work that they provide us with 6 years' notice of their requirements, and this will permit I believe a very close fit between Government investments aimed at expansion of our capacity to perform separative work and the actual requirements of industry, both domestic and foreign.

George McIsaac, the Assistant Secretary for, among others, this aspect of the Department's work, may wish to comment further on this question.

Senator METZENBAUM. I would be very happy to hear from Mr. McIsaac, but I still am not clear. It's one thing to know who's building the facilities that can use the enriched uranium. It's another thing to know in a competitive market who's going to want to buy your enriched uranium. And I have difficulty in comprehending why a store—

and that's what I consider you to be, is a store in this instance—why a store decides that it's going to stretch out its program, which is moving forward, for a product when—how many years has it been now that the books have been closed? Since 1974?

Mr. O'LEARY. Seventy-four, Mr. Chairman.

Senator METZENBAUM. So that for 4 years there's been no orders taken. Purchasers or users throughout the world would have a right to believe that there weren't going to be any orders taken next week or next months or 2 years from now. You're now talking about changing your policy. And, therefore, I say to you, how do you know? How do you know enough to come to the Congress and ask for a change in policy with respect to an ongoing program without having, or what exhaustive research have you done that makes you know for certain that in 6 years, by 1985, that demand—actually I think that Mr. Voit, in his figures, indicated projected demand for 1985 would be 29.5 SWU's as compared to the production capacity of 28 SWU's, and that by 1990, demand would be 36.1 SWU's as compared to 31 projected capacity.

The real question comes down to, it's obvious that you now have determined you're going to reopen your books. Therefore, somebody in the Department has concluded that there is some demand there.

How can you sit before this congressional body and say to us, well we know that the demand isn't there? And I really would like to know what your backup evidence is for that.

Mr. McISAAC. Senator, to be responsive to your last question, first, our backup evidence consists of a series of projections based on the latest reactor-by-reactor data on when reactors currently under construction, under order, and those that have been announced, both domestically and internationally, are expected to start up. And, quite simply, the reason for the stretch out of the construction of the gas centrifuge program is based on the fact that our customers both domestic and international, have either canceled or delayed significantly their plans to construct nuclear reactors. We are just following what our customers are doing and stretching out this program to supply enriched uranium for those customers.

Senator METZENBAUM. Mr. McIsaac, do you compete with other suppliers in the world?

Mr. McISAAC. Internationally, yes, sir.

Senator METZENBAUM. Then how do you know that India is going to buy from you or not?

Mr. McISAAC. We don't know from whom they're going to buy, but we do know when they have plans to initiate and construct a new nuclear reactor. And we assumed that we're going to be supplying the majority of the enrichment services. We want to be in a position of having capacity to supply every nuclear reactor in the free world if they were to come to us and give us an order for enriched uranium. We think we're in that position.

Senator METZENBAUM. And it's obvious that you now think that there is some demand there that you haven't been sopping up, you haven't been accepting.

Mr. McISAAC. Senator Metzenbaum, I think that there isn't much demand there that we haven't been sopping up, but we don't know for sure until we reopen the order book. I believe President Carter last April announced that we would be taking new orders as soon as we

found ourselves in a situation to do so. We're finding ourselves in that situation, we believe, very shortly. So we intend to reopen the order books, as Secretary O'Leary has explained.

I don't believe, sir, that we're going to get a whole rush of new orders because of the stretch outs and the cancellations and reactor programs.

Mr. O'LEARY. Senator, can I give a little background of what's happened here?

In 1974, when we last had an open order period for separative work services, the official projection for domestic capacity for the nuclear industry was 285,000 megawatts.

As I've just testified, our current projection is 115,000 megawatts. This means that we're slipping something over 100 plants—actually closer to 160 plants—over that very short period of time below the projections that were officially believed to be accurate as recently as 1974.

Now you go around the world and you find very much the same sort of thing. You'll find company A was projecting 40 reactors, now it's 30 for 1985. Company B was projecting 18, and now it's 12. Company C was projecting 28, now, it's 20.

So, really, there has been a great failure to realize the expectations of only 3 or 4 years ago in this business.

In addition to simply opening the books, I think over the next few few months, Mr. Chairman, we're going to have to go out and aggressively attempt to get new orders, not simply sit back and be passive.

Part of the President's program here is to have a valid offer to the rest of the world, not only for our own reactors, for enrichment services. And I think that we want to see to it that that is regarded as credible.

And, further, I think that if we find that there is a surprising rush of orders, we would have to revise our view of the future.

But I can assure the committee that we did not arrive at the \$115 million reduction lightly. It was looked at very, very carefully. It did not arise from any pressures to save money. This was purely a management decision that went before the Secretary after extremely careful staff work, and it represents our best view of this future world as of today.

Senator METZENBAUM. Senator Glenn who is, as you know, the Chairman of the Subcommittee on Energy Nuclear Proliferation and Federal Services of the Committee on Governmental Affairs, has sent a letter to the chairman of the committee. I won't read it in its entirety, but I'll put all of it into the record.

[Senator Glenn's letter follows:]

U.S. SENATE, COMMITTEE ON GOVERNMENTAL AFFAIRS,
SUBCOMMITTEE ON ENERGY, NUCLEAR PROLIFERATION, AND FEDERAL SERVICES,
Washington, D.C., May 15, 1978.

HON. HENRY M. JACKSON,
*Chairman, Senate Committee on Energy and Natural Resources, Dirksen Senate
Office Building, Washington, D.C.*

DEAR MR. CHAIRMAN: I wish to advise you and the Committee on Energy and Natural Resources of my great concern arising from the recent decision by the Administration to delay the construction schedule and to reduce by approximately half its authorization and appropriation requests for the Portsmouth Gas Centrifuge Enrichment Plant (GCEP).

I have been given an informal briefing by DOE on the reasons that have prompted their decision. Certainly the notion of better matching and smoothing of component production and plant construction schedules and the desire of more closely matching SWU supply to demand are considerations to which one must pay attention on the basis of good management practice.

However, the addition of new enrichment capacity is so vital to our economic health, our foreign policy, and our national security, that we must ensure that the proposed schedule slippage is not detrimental to the best interests of the United States.

We have already observed the severe adverse effect upon the cause of non-proliferation as well as on our balance of payments resulting from the decision in 1974 to close the order books for new enrichment services, a decision which still has not been reversed as of this writing. If we are to enhance our non-proliferation policy, improve our balance of payments, and create an appropriate climate of confidence within which our domestic nuclear industry and utilities can flourish, there must be no question about the ability of the United States to maintain a strong position as a reliable supplier of enrichment services. To that end, the Nuclear Non-Proliferation Act of 1978 provided in Title I that:

(a) The United States, as a matter of national policy, shall take such actions and institute such measures as may be necessary and feasible to assure that it will provide a reliable supply of nuclear fuel to recipients that adhere to policies designed to prevent proliferation;

(b) The United States shall ensure that it will have available the capacity on a long-term basis to enter into new fuel supply commitments consistent with its non-proliferation policies and domestic energy needs;

(c) The Secretary of Energy shall initiate construction planning and design, construction and operation activities for expansion of uranium enrichment capacity;

(d) The President shall study and report to the Congress on the need for additional United States enrichment capacity to meet domestic and foreign needs and to promote United States non-proliferation objectives abroad; and

(e) The President shall submit proposals to the Congress for creation of a stockpile of low enriched uranium for fuel assurances with the intermediate aim of creating an international fuel bank and with the ultimate aim of creating an International Nuclear Fuel Authority to deal with all aspects of the fuel cycle.

In the absence of the study of U.S. enrichment needs called for in the Non-Proliferation Act or other detailed substantive report by the Administration to justify the proposed reduction in FY 79 authorization for the Portsmouth GCEP, I find it difficult to support the reduction and the associated extension of the construction schedule.

Accordingly, unless the Administration provides convincing documentation that the proposed schedule stretchout will cause no substantial risk to our non-proliferation policy, to our domestic nuclear fuel position, to the creation of a fuel bank, or to our ability to open wide our order book for new contracts, I recommend to the Energy and Natural Resources Committee that it vote the full FY 79 authorization of \$220 million for the Portsmouth GCEP.

Sincerely,

JOHN GLENN.

Senator METZENBAUM. However, I do think it raises questions relative to your actions, vis-a-vis our nonproliferation policy.

Senator Glenn writes as follows:

I wish to advise you and the Committee on Energy and Natural Resources of my great concern arising from the recent decision by the Administration to delay the construction schedule and to reduce by approximately half its authorization and appropriation request for the Portsmouth Gas Centrifuge Enrichment Plan, G.C.E.P.

It goes on to say:

If we are to enhance our nonproliferation policy, improve our balance of payment and create an appropriate climate confidence within which our domestic nuclear industry and utilities can flourish, there must be no question about the availability to the United States to maintain a strong position as a reliable supplier of enrichment services.

To that end, the Nuclear Nonproliferation Act of 1978 provided, * * *

and then he goes on to quote five sections of that.

It concludes by saying:

In the absence of the study of U.S. enrichment needs called for in the Non-proliferation Act, or other detailed substantive report by the Administration to justify the proposed reduction in fiscal year 79 authorization for the Portsmouth G.C.E.P., I find it difficult to support the reduction and the associated extension of the construction schedule.

He goes on to indicate that he opposes any reduction in the fiscal 1979 authorization of \$220 million for the Portsmouth plant, which he and I have both addressed ourselves to in recent days. And neither of us understand why a decision to extend the Portsmouth construction schedule should be made before the exact international demand is known. And in spite of your comment that you think you know what the story is, the fact is that you are so uncertain about it or at least the fact is you're changing your policy and opening your order book, which has been closed for 4 years. And, therefore, the question seems obvious that your action would appear to be premature, at least until you've had a minimum of 1 year to go out and see what orders are available and whether or not you can take some from the international market that at this moment other foreign nations are obtaining and, obviously, thus helping their balance of payments position.

Mr. O'LEARY. Senator, if we were, in fact, to in any way cast doubt over the credibility of the President's program aimed at nonproliferation by this action, we wouldn't have taken these steps. We made a very, very careful calculation of the anticipated demand and we're trying to run this in as businesslike a manner as possible, avoiding paying for excessive capacity.

Senator METZENBAUM. Why is it taking you so long to change your policy with respect to reopening the order book? You've been studying the subject. You knew that you were going to. Why?

Mr. O'LEARY. It hasn't taken long, Mr. Chairman, when you think that we have been in business now only since October 1.

Senator METZENBAUM. Since when?

Mr. O'LEARY. The people who are now the managers of this particular activity have only been associated with it for the last few months.

Senator METZENBAUM. Well I guess my question is, you know that today it ought to be reopened. Why aren't your order books reopened today or yesterday or 4 months ago?

Mr. O'LEARY. Well I don't think that we were sufficiently far along in the other side of the equation. That is the treatment of over-ordering on existing contracts to have permitted that 4 months ago.

We have been addressing this as a matter of priority for the last 3 or 4 months, virtually since the inception of the Department. We have gotten it up to the point now where a decision has been made, (a) to renegotiate the old contracts and, (b) to accept new orders. That will result in reopening the order book in the near future. I think that that's a fairly good way to progress, Mr. Chairman.

Senator METZENBAUM. When will it actually be reopened?

Mr. O'LEARY. Mr. McIsaac, next week?

Mr. McISAAC. As soon as we can complete getting in comments on this advanced commitment contract, the new contractual form.

Mr. Chairman, in order for us to take orders, we have to have a contractual form that's been approved and agreed upon. And we are in the final stage of deciding precisely what that contractual form should be as a result of responses that we've been receiving to a notice of intent to change that contractual form that appeared about 6 weeks ago in the Federal Register.

So I anticipate all of this will be completed, and we'll be accepting any orders available to us under the new contractual form within the next six weeks.

Senator METZENBAUM. Six weeks?

Mr. McISAAC. Yes.

Senator METZENBAUM. I thought you just said next week. You put it as a question.

Mr. McISAAC. I'm being legalistic, sir. We can reopen the orders books today and announce it, but we have to have a contractual form.

Senator METZENBAUM. Precisely. I can see you really have to have a contractual form. I mean, many people do business. They enter into an understanding that somebody wants to buy something. And then they let their lawyers worry about it for the next 6 weeks.

Mr. O'LEARY. Mr. Chairman, I think in this particular case the terms of the contract, the time terms, and the amounts of money involved, and the responsibilities upon the Department for, among other things, constructing a facility at some point in time in order to meet these requirements make us want to be very careful.

We want to have certain undertakings on the part of the buyer, and we, of course, want to provide certain undertakings on our part. And I think the way to do this is the proper way.

I misspoke, Mr. Chairman. I thought that the notice of proposed rule making was concluded and we would be in a position to go forward next week with new orders.

Mr. McISAAC. I think the notice of proposed rule making is concluded, Jack, but I'm afraid that it takes us a little time to get the actual instrument completed.

Senator METZENBAUM. Mr. McIsaac, you've taken orders in the past before you closed the book.

Mr. McISSAC. We had a contractual form set and approved at that time, sir.

Senator METZENBAUM. Pardon.

Mr. McISAAC. We had an existing contractual arrangement which could be followed very closely.

I can't take orders on a hand shake. I wish I could, but people tell me I just can't do that. I think, in all intents and purposes though, Jack's statement is correct. We will be out soliciting orders within a week or so.

Senator METZENBAUM. Senator Hansen.

Senator HANSEN. Your letter of Friday said, and I quote from that letter, in response to one I had written on May 5, Secretary O'Leary. I had a number of questions. "What are the Department's recommendations for the changes included in the budget amendment? Why can't the Department provide any details?"

The second question was, "When will that budget amendment be submitted? What is the nature of the delay," that is, "to OMB?"

And you said "We expect to be able to discuss details of the additional \$100 million 1979 budget amendment for solar and renewable energy research with you and the committee during the hearing on Monday, May 15."

It is your intention today to fulfill that assurance?

Mr. O'LEARY. Indeed it is. I have handed out to the members of the Committee a skeleton outline of the initiatives, both positive and negative, in the 1979 budget. And I think you should have it before you know, Senator Hansen.

Senator HANSEN. Yes. Your Friday letter said with respect to phase 2, and again I quote, "We will discuss with you on Monday the administration's position on the energy supply programs and projects mentioned in your questions."

Mr. O'LEARY. And I am perfectly prepared to do that. We have a final position of the administration on those matters and I can discuss that with you this morning, Senator Hansen.

Senator HANSEN. Yes. Well the only reason I'm reading your letter back to you, Mr. O'Leary, is that I was somewhat surprised when you said you were only here to answer questions. I sent you a list of a number of very detailed questions.

Mr. O'LEARY. Indeed.

Senator HANSEN. And did you want me to repeat them again to you or are you prepared to respond?

Mr. O'LEARY. No. Senator, if you'd like, I'll go through the points that I understand are of concern to you, beginning with the energy supply initiatives, if that meets your schedule.

Senator HANSEN. Well if I could, just let me observe further for the record that the staff understood that you were going to present a statement to us on solar reprogramming, on phase 2, and on uranium enrichment revenue. You did not provide a statement. And now we are being handed I guess, I'll just refer to this two-page list of a budget amendment. Is that what this is?

Mr. O'LEARY. This is the antecedent for a budget amendment. This will be backed up later in the day by detailed line amplification of each of those, Senator Hansen.

Senator HANSEN. What is the status of this piece of paper?

Mr. O'LEARY. This is a summary of the reprogramming and initiatives in the energy supply area that the administration is now prepared to support.

Senator FORD. Are these figures in addition to the congressional add-ons or to the first budget request?

Mr. O'LEARY. No.

Senator FORD. Or are these shifting the funds within the Agency?

Mr. O'LEARY. These relate to shifting of funds in the 1979 request, Senator Ford.

Senator FORD. So basically your budget request will remain the same?

Mr. O'LEARY. That's right. You'll find adds-ons to the extent of—

Senator FORD. \$315 million?

Mr. O'LEARY. \$315 million.

Senator FORD. And a subtraction of \$130 million?

Mr. O'LEARY. And \$130 off, yes.

Senator FORD. Where are you going to get the balance then? I mean, if you take \$130 from \$315, even a boy from Yellow Creek knows you come out short.

Mr. O'LEARY. The \$130 negative is all of the reprograming that we intend to do within the 1979 projection, Senator Ford.

Senator HANSEN. Just to make one further observation. I don't mean to wear everyone out with my repeated questioning. But it does seem to me as though, given the responses that the Secretary made at the time of his confirmation, and given the fact that we're talking about not millions but literally billions of dollars, I should think that, barring some unforeseen circumstance, that the Secretary himself, and I don't mean it all to demean you, Mr. Under Secretary—

Mr. O'LEARY. I understand, sir.

Senator HANSEN [continuing]. But I'm just surprised really that questions that have been asked, detailed questions that have been asked, would not evoke sufficient interest on the part of the Secretary to be here. I really must say that it surprises the heck out of me.

Mr. O'LEARY. Senator, I want to tell you that my appearance here rather than the Secretary's does not in any sense of the word imply his lack of interest in this. He is attempting to be as responsive as he can to the committee. I've done most of the work on the supply initiatives, and it was his conclusion that probably it was best if I came up and explained what I had been doing to the committee.

Most of the supply initiatives have been handled directly by my office. And I understand that most of the concern this morning has to do with the add-ons and reprogramings.

In that area, we have Mr. McIsaac, who is very thoroughly familiar with the nuclear side, the enrichment side of both the fund and the timing. And I believe that we are prepared to give you fully responsive answers on any question you wish to make. I'm here speaking for the Department in every sense of the word, and I believe at the end of the hearing that you'll find that your questions have been answered, Senator Hansen.

Senator HANSEN. Well I hope they'll be answered better than they appear to be at this moment.

I just have to say this. The Secretary of Energy has been speaking to any number of people, including congressional committees or representatives from various congressional committees, including conference committee members. He's been giving assurances to people, to industry as well. He's been saying what would be done. He's talked about the entitlements program and how it would be helpful in the Northeast.

At the same time, the President of the United States has been going around the country, or at least in parts of the country, blandly assuring people that changes will be made. He spoke in Colorado about reprograming of \$100 million in solar energy outlays. And I called specific attention in a detailed letter to the inconsistencies in the position as I understand it that the Secretary was taking, on the one hand, and the President on the other. And I don't doubt at all the expertise of the witnesses here at the table. I'm just surprised though that that given the kind of confrontation that inevitably arises in my mind, the Secretary himself had earlier assured us he would be here. He responded specifically and directly to a question by Chairman Jackson, saying that

he would absolutely be here, I think were his words, whenever he was summoned to Capital Hill. And now, after we've been exchanging letters back and forth, and after the President's been saying one thing and the Secretary another, he's not here. And I must say that it leaves me in a rather perplexed frame of mind. And I'm inclined to think that if I were confronted with the sort of evidence that I believe I have supplied to him in the numerous letters I've written, that it may be I, too, would not want to appear. I'm reluctant to reach that conclusion. But I must say his absence here inclines me to give precedence to it.

Let me ask you. Does the Secretary intend to appear before the Appropriations Committee tomorrow?

Mr. O'LEARY. I'm sorry, Senator Hansen, I have no idea with regard to his future schedule.

Senator HANSEN. He has not apprised you of whether you might expect him to appear tomorrow?

Mr. O'LEARY. No. I've had no word, yes or no, on that particular hearing.

Senator HANSEN. Thank you, Mr. Chairmna.

I think that the schedule we have indicates that he will be appearing before the Appropriations Committee tomorrow. That's on this same budget, mind you. And I just think that the function of this committee at this time in considering the authorizations for energy, I believe other officeholders might consider to be important enough that the head man would be here.

Mr. O'LEARY. Senator, Let me tell you that I am pleased to be able to respond to any question that you have. I'll be speaking for the Department.

Senator HANSEN. Well now I did ask a whole lot of questions, Mr. O'Leary.

Mr. O'LEARY. Right.

Senator HANSEN. However you want to proceed is fine. But I just wanted to say that when you said you had no statement to make, I thought I had provided you with enough questions that you would have had a statement to make. And you were almost implying you wanted me to read them again. If you want me to I'll sure be happy to do that.

Mr. O'LEARY. No, Senator.

Senator FORD. Let's don't get into that. We have another meeting at 10.

Senator HANSEN. All right.

Mr. O'LEARY. Senator, if you'd like, I would like to fill you in on the supply initiatives.

Senator HANSEN. Well I'd like to have you fill the entire committee in. I'll be interested, too, but I think that's the purpose, to have this on record so that we can tell whether the Secretary of Energy was right and on track and had the support of the White House when he says one thing or whether the head man, the President of the United States, is right in assuring people in other parts of the country that something else is going to happen. That I think is the issue. And I'll be very keenly interested.

Now you're speaking for the Secretary of Energy.

Mr. O'LEARY. Right. I am.

Senator HANSEN. All right. Do you speak also for the President?

Mr. O'LEARY. The observations that I will make in this context represent the position of this administration, Mr. Hansen.

Senator HANSEN. Now when you say "of this administration," I've had assurances in times past from not only the present Democratic administration but from Republican ones as well. But you are prepared now and you do speak from the Secretary of Energy and the President of the United States. I wish you luck.

Mr. O'LEARY. Thank you very much, Senator.

Let me go back a little bit in time to the days immediately following the formation of the Department, when for the first time as we began to assemble the team of managers around, we began to look beyond the initiatives that came to the Congress last April 20, in specifics.

We began to look at those short-term initiatives that could bear upon the supply of energy in the United States during the 1980's. We began a series of discussions with the staff and with outside groups that isolated a number of useful initiatives in the solar area and in the fossil fuel area. Those are outlined before you.

We found, for example, that with regard to the oil shale business, we were at the point of virtually a crossover in the economics. The price of oil had risen in the world market to a point where it was nip and tuck as to whether or not you could go out and have an economic oil shale operation.

We discussed this with some of the members of the industry and we found that a tax credit, a limited tax credit, probably would be enough to drive that system over the economic boundary. And so we chopped that up as one of the things that we ought to be thinking about.

Senator HANSEN. Let me interrupt right there, Mr. Secretary, to make this observation.

Mr. O'LEARY. Sure.

Senator HANSEN. You think that this program was just about at a crossover because of the price of oil on the world market.

Mr. O'LEARY. That's exactly right.

Senator HANSEN. We are approaching the point where an oil shale program would be economically viable in the United States?

Mr. O'LEARY. Right.

Senator HANSEN. Do you recognize, or would it be your opinion that a much lower controlled price of oil produced in the United States would have a bearing upon that situation?

Mr. O'LEARY. Well it is not much lower, of course.

Senator HANSEN. How much lower?

Mr. O'LEARY. The world market now is about \$13.50. The analogous price for new crude in the United States is about \$12.08. So there's about \$1.40 difference. Not a great deal. Right on the order of 10 percent.

It seems to me that looking ahead several years, as any entrepreneur would have to, that he would begin to gage his capacity to make a profit on this sort of a transaction against the world market. And in this particular case we found that one company, Union, came forward with a proposal. If they had a limited tax credit, \$3 a barrel on a 10,000-barrel prototypical plant, that would be enough for them to construct. And if that were successful, they intend to add addi-

tional lines to that plant, and those additional lines would not require the tax subsidy.

Senator McCLURE. It is your intention by that that there will be a direct barrel-for-barrel tax credit in our proposal?

Mr. O'LEARY. The tax credit will run at \$3 per barrel for up to 10,000 barrels for an individual taxpayer.

Senator McCLURE. You recognize, I'm sure, that even though it may not have the direct budgetary impact in the President's budget, that as soon as the expenditures are taken and oil is marketed, and I assume it's not until it's marketed that they get any tax credit.

Mr. O'LEARY. That's exactly right.

Senator McCLURE. That it simply defers the budget impact until the later budgets.

Mr. O'LEARY. That's quite right. And that's why it's shown here as part of the budget amendments. Although it isn't on budget, it certainly has a budgetary impact. You're quite right, Senator.

Senator HANSEN. If I could interrupt just one more time, Mr. O'Leary. I have in my hand the Monthly Energy Review from the Department of Energy, dated April 1978. On page 74 I note on 4 January of this year, which I assume are the most recent figures you have, or at least that's indicated in this report here. You show the imported price of crude to be \$14.52 and the composite price of crude to be \$12.15. Do those figures support the statement you made just a few moments earlier?

Mr. O'LEARY. Senator Hansen, I think that what I should have implied is that there's, in addition to \$13.50 world price, about a dollar of transportation to bring it here.

Senator HANSEN. That does make a difference.

Mr. O'LEARY. That would take it to \$14.50.

Senator HANSEN. Yes. And people have to pay that, do they not?

Mr. O'LEARY. Yes.

Senator HANSEN. So you're really talking about a \$13.50 price that's a fiction. It doesn't apply here because we have to transport the oil here. Is that right?

Mr. O'LEARY. Senator, we import some oil that costs a good deal more than \$13.50. We import, for example, Indonesia sweet into the west coast probably at \$15 or maybe \$15.50. Some of the heavier oil that comes into the country probably comes in for something in the range of \$13 to \$13.50 after all the transportation is paid for. You have an average price.

Senator HANSEN. Well, let me ask you, are these figures right?

Mr. O'LEARY. Yes, I assume that's right, Senator.

Senator HANSEN. Well then are you trying to justify your earlier statement to cast questionable doubt on these?

Mr. O'LEARY. Not at all, sir. I answered earlier that the world price for crude is about \$13.50. That's about right.

Senator HANSEN. Well now it may be, but f.o.b. the Persian Gulf. But if you're talking about the validity and the facts as far as a shale oil program goes, it's a fiction to talk about what oil sells for in the Persian Gulf, is it not?

Mr. O'LEARY. Well, you understand that the import price there reflects the price with transportation and the \$12.15 reflects the price, for example, from a U.S. Gulf well 60 or 40 miles offshore without transportation.

Senator HANSEN. Yes. Well I understood that. I wasn't sure you did.

Mr. O'LEARY. Yes, I understood it.

Senator HANSEN. Because you were talking about \$13.50 and your own figures state \$14.52.

Mr. O'LEARY. No. My own figures say \$14.52 with about a dollar for transportation.

Senator HANSEN. But you did say \$13.50, didn't you?

Mr. O'LEARY. Senator, let's put them all both on a par. The \$14.50 has transportation in it; the \$12.15 does not. A lot of the transportation will run 30 cents, a lot of it 60 cents, to get it into the, ultimately into the refinery.

Senator HANSEN. Well now let me ask you further because of what you just now said. Would not this \$12.15 reflect refiner acquisition cost?

Mr. O'LEARY. I don't think so, Senator, but I'd be pleased to go over that with you.

Senator HANSEN. And if I may, let me just say that on the top of page 74 it does say—and I wouldn't expect you to remember—it does say "Refiner acquisition cost of crude petroleum."

Mr. O'LEARY. May I see the column?

Senator HANSEN. You sure may.

Mr. O'LEARY. I think we've got apples and oranges there, Senator.

Senator HANSEN. Yes, All right.

Well I don't want to get too deeply involved and I'm happy to have you see it. But I did want to point out that maybe in light of our discussion, would you want to still leave an "NA" after "crude oil costs"?

Mr. O'LEARY. Yes. I know, Senator, really there is a misunderstanding. That \$12.15 is a composite of both the domestic, which is \$10.15, and the imported, which is \$14.52. Now what I was talking about is simply not—

Senator HANSEN. Then this makes it even worse, does it not?

Mr. O'LEARY. No.

Senator HANSEN. Well the weight that you're talking about, adding the price of domestic crude and maxing it with the imported crude to come up with this—

Mr. O'LEARY. Senator, the number that I was referencing, which is the new crude number, is simply not on this page. Let me tell you what it is.

Senator HANSEN. I agree with you. I couldn't find it.

Mr. O'LEARY. Yes, it's not here. This is the three numbers for getting into refineries. One, the rolled in price of all of their domestic, which, as you know, comprises itself of three classes of crude: stripper, new crude, and old crude. The stripper is released oil; the new crude gets \$12.08; the old crude gets \$5.50 or thereabouts. And that's what goes into this number, plus transportation of \$10.14 a barrel. Then when they roll that in, average it with about 50/50, \$14.52 imported crude, that's a lot of \$15 crude and a lot of \$13 crude. You come up to an average acquisition price for all the crude to U.S. refineries at \$12.15.

That was not the point that I was making, Senator. The point that I was making is the world price of crude now is around, the reference price, is around \$13.50, and the price in the United States for new crude, ex-transportation, is \$12.08. It's getting to the point where they're fairly close together.

Senator HANSEN. Thank you, Mr. O'Leary.

Senator FORD. Is the Senator through or just getting started?
[Laughter.]

Senator FORD. Mr. O'Leary, I have two or three questions I'd like to ask.

In your summary of supply initiatives that you submitted to the committee, most of it is 1979 DOE budget amendment. But down to the last line before you get to your \$3.15 total, you show a 1978 reprogramming for synthetic liquid and solid plants of \$35 million.

What does that mean?

Mr. O'LEARY. You recall that we have a substantial unobligated balance that was associated with the Coalcon initiative of 1974, as I recall it, Senator Ford.

Senator FORD. Except that Coalcon didn't fly.

Mr. O'LEARY. Yes, Coalcon didn't fly. So what we intend to do is to take \$35 million of that. There's a total of \$78 million remaining in that account.

Senator FORD. In addition to the \$35?

Mr. O'LEARY. No.

Senator FORD. Or you took the \$35?

Mr. O'LEARY. The gross account—

Senator FORD. Is \$78 million?

Mr. O'LEARY. It is \$78 million. We intend to take \$35 million of that and do several phase 1 studies of liquifaction and solid plants. For example, we would use some of that to finance the phase 1 for S.R.C. I, some for S.R.C. II. If the H-coal people make a proposal, we would fund some studies for them with this. And if the E.D.S., the Exxon Donor Solvent people, were to do the same, we'd fund that. We understand there's a proposal.

Senator FORD. Can you do all that out of \$35 million?

Mr. O'LEARY. Yes, we can do all that. The S.R.C. I and II aggregate around 11.5 million. And looking at that \$5 to \$6 million average, that permits us plenty of funds to do all the studies that are reasonably possible to do in 1978.

Senator FORD. I've been told informally that OMB says they will permit a maximum of \$70 million for S.R.C. for fiscal 1979. Can more than one S.R.C. demonstration plant—and I underscore "demonstration plant"—be considered with the amount of money as small as this?

Mr. O'LEARY. Yes. You have to take a look at the timing, Senator Ford. Actually I don't think your number is right. What we're going to attempt to do in 1979—

Senator FORD. I said informally. And, you know, you can refute my figures.

Mr. O'LEARY. Sure.

What we're going to try to do in 1979, beginning right now at this late date in 1978, is begin to do some studies that will take a minimum of 6 to 8 months, and they will tell us, in the case of S.R.C. 1, 6 to 8 months from now whether or not we do have a feasible project. Then we have to do the detailed engineering studies, and I imagine that that will not be accomplished in much less than about the same amount of time, another 6 to 8 months. There may be a hiatus in between phase 1, that is to say, the limited engineering studies that we're about to em-

bark on, and phase 2, the detailed engineering studies that will run through a definitive description of a plant of a month or two while people are making assessments.

I would suspect that that can be accomplished pretty much by the end of fiscal year 1979. We would look then toward substantial funding for S.R.C. 1 in the event that it appears to be both technically and economically within the feasibility range that we're looking for. We would thoroughly expect substantial funding for that, not in 1979 but in 1980.

So I think that we can proceed with two phase 2 studies in 1979 within the limits of the administration's appropriation request for this purpose that appeared in the original 1979 submission. I feel quite comfortable with that, Senator.

Senator FORD. You may feel comfortable. Is this a 2,000-ton or a 6,000-ton study?

Mr. O'LEARY. My understanding is that the group of people who we're working with have now centered on a 6,000-ton plant.

Senator FORD. Is it true that the 2,000 ton could go forward today if you would release it?

Mr. O'LEARY. Well, it might go forward; however, I'm not sure what you'd have when you were finished, Senator.

Senator FORD. What do we know about anything?

Mr. O'LEARY. Well, we know that if you do go forward with a 2,000-ton plant you'll have something that will be just inherently suboptimal by the time it's up and running. It seems to me that it's worthwhile to go after full-train economics here.

Initially, the proponents of a 2,000-ton train appeared to be under the assumption—and I had this from Mr. Dingman, who is the President of Wheelabrator Frye, Inc.—and he was the strong proponent of the 2,000-ton train. But you simply couldn't go to that scale because you would be over and above the current state of the art on pressure vessels and valves.

We took a look at that and found that that was not so. We're well within the state of the art at the 6,000-ton single train on both pressure vessels and valves. Furthermore, we find that there's an inherent 30 percent saving in the overall economics of the process by going to the higher scale.

It seems to me that in light of those two facts that any rationale for a 2,000-ton demo just goes out the window.

Senator FORD. Well you know I'm not a technician and I'm not a researcher and I'm not as smart as you fellows. But it seems to me that everytime you get something that looks reasonably good you begin to push on it a little bit. Somebody else comes in with something that may look a little better, so this one is shelved. And you look at this one. And then about the time you get this going, well something else pops up, so you shelve that. The first thing you know you've got the shelf stacked with a good deal of money invested and nothing going forward.

It appears to me that somewhere along the way you ought to make a decision and try it. If it works, fine; if it doesn't, try something else. But it seems like you're always studying, and you've got another group coming in with a good idea, and today the thing is to go to

fossil fuel with all kinds of new designs and new directions, and nobody's really trying anything much.

Mr. O'LEARY. Senator, I have said the same thing many times, and that's why I've spent so much of my time, and my associate here, Mr. Hanfling, has spent so much of his time, virtually all of it, in the last 4 or 5 months trying to bring some of these things to a head.

Now I have to tell you candidly that I don't see any point in going to a 2,000-ton a day line. It's never going to be picked up. You wouldn't replicate it. What you're doing is you're building a large pilot plant.

I think that there's great point in going ahead to a 6,000-ton-a-day line. And if we can do it in both S.R.C. 1 and 2, that is to say, if we can find both the technology and the economics, we intend to do it as fast as we can.

Senator FORD. Have you read the EPRI study?

Mr. O'LEARY. I've read the EPRI study.

Senator FORD. What does it recommend, or what does it favor?

Mr. O'LEARY. It recommends that we do everything just as fast as we can.

Senator FORD. Doesn't it also favor the 2,000 ton?

Mr. O'LEARY. Yes, it does.

Senator FORD. OK. Who is EPRI?

Mr. O'LEARY. It is a research organization composed very largely of ex-Federal officials that is funded by the Electric Power Research Institute.

Senator FORD. Do you lean on their recommendations at all?

Mr. O'LEARY. I think that they have a certain expertise, and we're glad to have their view. But they don't have a monopoly on smarts in this particular arena.

Senator FORD. No, I don't guess anybody has a corner on that.

I'm a little bit frustrated, as you know.

Mr. O'LEARY. I think you have reason today to be a great deal less frustrated than you might have had at any time in the past on this, Senator. I am greatly encouraged by the word that I'm able to bring you this morning that we're going to go ahead with both. And that if both succeed, that is to say, make the technical performance that we think they will, that we'll go ahead on full scale with both.

Senator FORD. Well, Mr. O'Leary, aren't you being placed in a position by OMB and some of the other people that if you go to the studies on the 6,000, they're going to limit your funds, and you're going to be placed in a position of making a decision whether you go with 1 or 2?

Mr. O'LEARY. No, sir.

Senator FORD. You don't think so?

Mr. O'LEARY. No, sir. I'm here to tell you that if we find both have merit, both S.R.C. 1 and 2, we're prepared to fund both.

Senator FORD. I think I'm going to get Mr. MacIntyre up here and have him testify.

Mr. O'LEARY. That's fine.

Senator FORD. I think that, you know, we can't get you fellows together, and I understand your problem, and I understand what you're trying to do, I think. But if OMB won't let you do both at 6,000, which is the indication that I get, and say the economics are good doesn't mean very much, you know.

Tell me about your last meeting with OMB.

Mr. O'LEARY. Well the last meeting with OMB came out with the formulation that I laid before this committee his morning, that we'll go ahead with the phase 1 studies as a result of the Coalcon reprogramming just as soon as we can negotiate a contract. As I say, that's going to take 6 to 8 months to conclude. When we conclude those, if they're affirmative, we'll go ahead with the phase 2 studies. If they're affirmative, we'll go ahead—and this is probably in fiscal 1980—with construction of either or both, Senator Ford.

Senator FORD. Yes. But didn't they indicate at that meeting that they wouldn't do both?

Mr. O'LEARY. No, sir.

Senator FORD. Did they even say they preferred not to do so?

Mr. O'LEARY. No. If so, then I'm prompting a hoax on the Congress and I don't do that.

Senator FORD. Well, I'm going to stop asking questions. But let me ask one thing about Friday.

Mr. O'LEARY. Let me just say a little bit more about that.

Senator FORD. You know, I'm going to OMB, and I'm talking to the majority leader, and I'm talking to the Secretary, and I'm talking to you, and things are never stable, you know.

Mr. O'LEARY. Yes.

Senator FORD. We've been to 2 and 6, we've been with two 6's, then we're going to fund enough for the studies and see if both are economically feasible, and if they are, the Department will make a decision. If there's a limit of funds, you can't do both of them. It just keeps everybody up here, and as we say down home, in a state of flux.

Mr. O'LEARY. Senator, as far as I'm concerned, my view of this world has been from the very beginning that I began discussions of S.R.C. 1 and 2, that if both have quality, if both are useful, we should go with both.

Now I've been asked why. Secretary Schlesinger asked me that just as recently as last week. I said, first of all, you have a very large solids market in this country. You have very doubtful technology to handle it from the standpoint of air quality. And, consequently, if we can get this one up and running, it will serve a very useful economic purpose.

Second, so far as liquids are concerned, we have an enormous and growing liquids market in this country. And if we can find a technology that will satisfy some portion of that, we will have made a major contribution. They are not in any sense of the word competitive. We should, in consequence, go ahead and fund both if they meet these technical and economic tests.

I think that's a sensible position. It's one that I've held from the very outset of these discussions. Others within the administration felt less sure that we should fund both.

The culmination of these discussions is as I have reported it to you this morning. We are prepared to go ahead with phase 1 for both now, phase 2 for both, if both make this cut, and phase 3, construction, for both if they make the cut.

Senator FORD. Well, you know, Jack, we have to depend on some people. And I found that the congressional liaison from the White House occasionally is on track, and they are working pretty hard to come up with accurate information. I was told, and will not single out

any individual, that OMB says they won't go both. Now that's what I get from the White House. And you tell me you're going forward if they meet the cut, we're going to do certain things.

Mr. O'LEARY. I think if you go back to that same source they will tell you that as of this morning OMB will go both.

Senator FORD. Well, you know, last week they wouldn't go either one.

Now let me ask you one quick question and I'm going to stop.

Mr. O'LEARY. Senator, let me just comment on that. This is not surprising. What we're looking at here is a commitment for \$11½ billion with these two plants anyway, maybe more by the time we get the inflationary input ground into them. A very substantial commitment. It is proper that the administration have a debate on commitments of this magnitude and we've been having that debate. That doesn't surprise me in the slightest. And because of the extremely high level of interest in the outcome of that debate, there has been a rumor factory at work here over the last 2 or 3 months.

Senator FORD. I took it direct from the source, Jack. I didn't go out to the rumor mill. I can get that every day. I can stand on the corner down here and get the right damned rumor. Then I'll quit and come back inside and start repeating that.

Mr. O'LEARY. Right.

Senator FORD. Now I don't go for rumors.

Mr. O'LEARY. Right. Senator, I think that the fact of the matter is there was not a decision on this until over the weekend. There is a decision now. I've relayed that decision to you. It's firm.

Senator HANSEN. You're speaking for the President, for the Secretary of Energy, and now for OMB as well. Is that right?

Mr. O'LEARY. I'm speaking for the administration, Senator Hansen.

Senator HANSEN. Does that include the three entities I've just inquired about?

Mr. O'LEARY. It really is presumptuous of me to say that I'm speaking for the President.

Senator HANSEN. But we thought maybe that that's a presumption the Secretary himself might undertake. But he chooses not to, so I have to ask you.

Mr. O'LEARY. No.

Senator HANSEN. And I don't mean to embarrass you. But I think it's still important to know, because that's exactly the thrust of my letters to the Secretary. And so I want to know if you are speaking for OMB. Just a moment ago I thought you assured Senator Ford that indeed you were, that that had been cleared with OMB.

Mr. O'LEARY. Indeed I am representing Federal administration policy, and OMB has agreed to that policy.

Senator HANSEN. When was it last settled.

Mr. O'LEARY. It was settled over the weekend.

Senator HANSEN. I see.

Senator METZENBAUM. Would you restate it categorically for the record, please?

Mr. O'LEARY. Sure. Let me give you the precise language that will be in our submission on this, Senator.

"At this point, the S.R.C. processes are at a more advanced stage of development than other processes currently under development in the United States.

"If the process studies and parallel negotiations on cost sharing are successful on the S.R.C. processes, DOE would proceed to detailed design for two plants, using the funds currently in the President's fiscal year 1979 budget, \$23 million, and in fiscal year 1980 would move into the procurement and construction phases on one or two plants."

Senator METZENBAUM. Is that it?

Mr. O'LEARY. If the above conditions are not met by either one or both of the S.R.C. technologies, DOE would be in a position to finance one or more of the other proposals in fiscal year 1980. That would be H-coal donor solvent or the conicoal process in the event that they made the cut.

This approach will assure expeditious development of synthetic coal technology within the levels provided in the fiscal year 1979 budget. That is it.

Senator METZENBAUM. Could we have a copy of that? I don't know what you're reading from, but if that's settled administration policy, it certainly would be very much of interest to the Senator from Wyoming.

Mr. O'LEARY. Senator, I will have a copy of this in your hands a few minutes after this hearing terminates.

Senator MATZENBAUM. All right. Thank you.

Mr. O'LEARY. And I'll submit it for the record if I may at that time.

Senator METZENBAUM. Yes. I believe that it would be of interest to all of us gathered here.

Mr. O'LEARY. All right.

Senator FORD. It might be helpful to us if we had it before the hearing terminates.

Mr. O'LEARY. I'll give it to you right now.

Senator METZENBAUM. Will one of the staff members take it and make us Xerox copies, please?

Senator HANSEN. You've torn off a couple of pages. I don't mean to be presumptuous. Is this the only part that represents the administration policy what you tore off here?

Mr. O'LEARY. Senator, these are crib sheets that I have before me here.

Senator HANSEN. Those are what?

Mr. O'LEARY. These are crib sheets to help me in answering your questions.

Senator METZENBAUM. Is that what you use when you're taking an examination in college?

Mr. O'LEARY. No, no.

Senator FORD. You'd have to write it on a cuff from a sleeve.

Senator METZENBAUM. I've got one more question I'd like to ask.

Mr. O'LEARY. Yes.

Senator METZENBAUM. Now I have this document about synthetic liquid and solid commercial demonstration, and it talks about the problem, it talks about the proposal, and then it goes into a matter called the discussion.

Who prepared this and whose document is it? Would you be good enough just to tell me?

Mr. O'LEARY. It was prepared by the Department of Energy and it represents administration policy on this particular aspect of our program.

Senator METZENBAUM. I would like to ask you, since it's just two white pieces of paper with typing on it, to put some kind of identification on it so that when it goes in the record we know what its source is and for which agency it speaks, because as it now stands it has no identification at all on it.

Mr. O'LEARY. Good. I think that the heading could properly read "Submitted by the Department of Energy," and today's date, and that should do it.

Senator METZENBAUM. Now it refers to matters as being proposed. But now that which is called "proposals" there, that is now accepted administration policy. Is that true?

Mr. O'LEARY. What I have relayed to you this morning is accepted administration policy, Mr. Chairman.

Senator METZENBAUM. All right.

[The document follows:]

SYNTHETIC LIQUID AND SOLID COMMERCIAL DEMONSTRATION

Problem: Domestic coal potentially can provide a large supply of liquid and clean solid fuels, which will be needed in the late 1980's and the 1990's. Synthetic liquid and solid technology has not been demonstrated on a commercial scale in the U.S. In South Africa, however, advanced versions of processes used in Germany during World War II now produce synthetic gasoline from coal, but at high costs.

New processes to produce lower-cost synthetic products are under development in the U.S. The most advanced include solvent defined coal (SCR I, a solid, and SRC-II, a liquid), H-Coal and Donor Solvent. Each process differs in the way coal is treated, the products produced, and the status of the pilot plants.

Coal liquids from commercial-scale versions of these new processes are estimated to cost from \$20 to \$35 per barrel (SRC-I solid products would cost slightly less but would be of lower value). Since these costs substantially exceed current world oil prices, government assistance is required at this juncture to advance synthetic coal liquid and solid processes to the point of commercial readiness.

Proposal: We propose the following steps to develop, as rapidly as technically feasible, a capability to produce alternative synthetic liquids and solids from coal:

Process design studies will be initiated for four or five bona fide coal liquid and coal solid demonstration plants. The studies will cost approximately \$6 to \$8 million each and will be started in FY 1978 and completed in mid FY 1979.

At this point, the SRC processes are at a more advanced stage of development than other processes currently under development in the United States. If the process studies and parallel negotiations on cost sharing are successful on the SRC processes, DOE would proceed to detailed design for two plants using the funds currently in the President's FY 1979 budget (\$23 million) and in FY 1980 would move into the procurement and construction phases on one or two plants. If the above conditions are not met by either one or both of the SRC technologies, DOE would be in a position to finance one or more of the other proposals in FY 1980. This approach will assure expeditious development of synthetic coal technology within the levels provided in the FY 1979 budget.

Discussion: This program is designed to demonstrate the economic and technical viability of synthetic liquids and solids from coal. If the program meets its scheduled goals, the first demonstration modules would be on line by 1983 and commercial-scale plants could be on line by 1987. The preliminary process design studies will assess whether proceeding to detailed design and construction make technical and economic sense. A decision to proceed will not be made until the process design studies are completed.

Electric and gas utilities are discussing the possibility of purchasing a portion of the output from the SRC I and SRC II plants during the early years of their operation.

Demonstrating the ability to produce synthetic fuels from coal provides major benefits. In the event that world oil prices rise moderately to levels at which

synthetic fuels are competitive, production could be initiated rapidly, many years sooner than without such a program. This would reduce oil imports through direct displacement and it would exert a downward pressure on world oil prices by reducing the demand for OPEC exports. The coal solids technology also provides a promising cost effective means for meeting environmental standards.

Senator FORD. Could I finish? Everybody is getting into my act here. [Laughter.]

Senator McCLURE. Wendell, would you yield for just one suggestion?

Senator FORD. Sure.

Senator McCLURE. Our difficulty is this, and the administration knows that as well as we, the Budget Act requires us to have submitted a budget proposal by May the 15th. This is May 15. We are in the midst of the markup, on a very long, detailed, technical, and arduous task of marking up that legislation. We've been trying to find out what the administration was going to propose with respect to the 1979 budget. There have been changes rumored. You say there are some changes.

There have been changes rumored. You say there are some

We are looking forward to the Secretary's testimony this morning to detail what those changes would be. The Secretary did not come but he sent you. You come with a generalized statement, no prepared statement, but you do have some crib sheets.

I just wonder if you would be willing to submit all the crib sheets in lieu of a statement because that would help us during the balance of this day when we're trying our best to come up with some kind of a budget for you.

Mr. O'LEARY. Senator, right now these so-called crib sheets are being revised. They were hastily put together over the weekend. I took my first look at them this morning prior to this hearing. I found two areas in which revision is going to be required. They will be revised as rapidly as the Department people can do it and we'll have them up to you late this morning in final form. And that will represent the fully flushed out budget changes that we're suggesting here.

I'd be glad to discuss those item by item with you now. I know the content.

Senator McCLURE. You've got it in your head if they're not in the crib sheet.

Mr. O'LEARY. I've got it here and I'll be glad to get it into the record so that you'll have it before you.

Senator McCLURE. All right.

Senator HANSEN. Well at the risk of offending my very good friend from Kentucky—

Senator FORD. You can't offend me.

Senator HANSEN. OK.

You say they're being revised.

Mr. O'LEARY. They are being revised.

Senator HANSEN. And by you. Is that right?

Mr. O'LEARY. They're being revised in accordance with my instructions, yes.

Senator HANSEN. And I suppose that accords with the Secretary's firm unilateral decision. Is that right?

Mr. O'LEARY. Yes, sir, that's right.

Senator HANSEN. And it also accords with the President's decision?

Mr. O'LEARY. Everything that I will state this morning and that will be submitted to you later today is consistent with the administration's policy.

Senator HANSEN. And it has the endorsement of OMB.

Mr. O'LEARY. It has the endorsement of OMB.

Senator HANSEN. And it includes the solvent refined coal program that satisfies Senator Byrd. Is that right?

Mr. O'LEARY. I don't know who it satisfies or dissatisfies. It has both SRC 1 and 2 in it.

Senator HANSEN. I thank my friend for interrupting.

Senator FORD. Jack, I'm reading from 95-238, on page 49, "Prior year authorizations." I wonder if you'd look into this. The sum of \$40 million, which represents the portion of the appropriations heretofore made in total amounts of \$56 million for projection 76-1(a). That's the clean boiler fuel demonstration plant and so forth. And I'll skip on down. "No longer needed is hereby authorized to be made available instead in addition to any amounts appropriated for the purposes involved pursuant to this act for low Btu gasification program."

Now do you have the authority to transfer the \$35 million when we already have transferred \$40 million of the \$56?

Mr. O'LEARY. No, sir. We have to go through a formal reprogramming in order to accomplish the objective that I've set out here. And the documentation on that should be coming up to you in the next few days.

Senator FORD. So really the moneys that were available for coalcon we transferred last year to low Btu, which is sitting there, and you're now saying that you want to take \$35 million of that \$40 million and put it into SRC 1 and 2.

Mr. O'LEARY. Yes. My recollection doesn't quite square with your numbers.

Senator FORD. I'm just reading from, you know, something didn't strike me right about the coalcon business.

Mr. O'LEARY. Yes.

Senator FORD. And I can't remember everything like you do.

Mr. O'LEARY. Yes. My recollection is that we had an unallocated balance of at least \$18 million on that account out of the initial 78.

Senator FORD. Sixteen, according to this. It would be 40 and 56.

Mr. O'LEARY. Perhaps.

Senator FORD. All right.

Mr. O'LEARY. And that the initial proposal was to handle SRC 1 and 2, phase 1, with \$11.5 of that. I'm going ask Mr. Hanfling to look into the question that you've raised.

Senator FORD. He's been very helpful and he communicates very well. I want to compliment you on his effort to give us all the facts and work with us very closely.

Mr. O'LEARY. I want to tell you he's done a marvelous job in putting this together.

Senator FORD. My office is very pleased with him, by the way. I don't know whether that helps you any today or not, but at least that's the first complimentary remark you've had since 8 o'clock.

Mr. O'LEARY. Actually since about 10 after.

Senator FORD. Ten after. [Laughter.]

OK. Would you check on that now for me, please?

Mr. O'LEARY. Yes, sir.

Senator FORD. On Friday, the Department adopted a rule for entitlement, about \$2 a barrel for domestic synthetic fuel. When will this program have any actual effect?

Mr. O'LEARY. Well it's really hard to say. It may be that there will be some small projects. There is, for example, a gasohol project operating now in one of the western States that could immediately benefit from it.

I think what we're doing here is really saying quite affirmatively that we shouldn't penalize these synthetic potentials relative to imported crude. And this is more in earnest of our intent, I think, to treat them in a forthcoming manner than something that's going to have immediate impact.

Senator FORD. Well if this is long range, there's an effort to involve some of us to look not too kindly on entitlements in the entitlement game.

Mr. O'LEARY. Well, I'll tell you I don't look very kindly on entitlements. I hope that you fellows in your wisdom will pass the crude oil equalization tax and take us out of that business by 1980. But there is always a possibility that we will continue to struggle with entitlements for some time. And if so, this will be the applicable process.

Senator FORD. I'm not sure how much wisdom we have, but I'm not sure that we're going to get into the taxing arena this year.

Mr. O'LEARY. I hope you do. I'd like to see that accomplished.

Senator FORD. I understand. But I'm glad you said in our wisdom.

Senator METZENBAUM. Mr. O'Leary, three of us have had the privilege of inquiring of you, and I must say I thought that I didn't criticize you once this morning. So I don't want to be included.

Senator FORD. Well there wasn't anything unkind said about him.

Senator METZENBAUM. However, I see two Senators on my left and one on my right who have not had an opportunity to inquire. Since the executive meeting starts at 10 o'clock, I think we ought to move along with some limitations on time. I apologize for that. But I'd like to give each one of you an opportunity to ask questions.

Senator McClure.

Senator McCLURE. Thank you, Mr. Chairman. It's very difficult for me to know where to start in the limited time that we have. As I indicated earlier, we're trying very hard to get a DOE budget authorization out in spite of all of our efforts with very little guidance from the Department as to the shifts that may occur.

Mr. O'LEARY. We have that guidance now about ready to come to you in full, Senator. I'm sorry that it hasn't been more rapid. This has been a very difficult passage for us. And we were very much aware of the imperatives on this and the other committees that are dealing with this matter. And all I can say is I'm sorry we weren't able to do it sooner.

On the other hand, I have to say that these are very, very useful initiatives. And from my standpoint, even had I known the very tough course and the timing problems that are presented, I think that I would have still have initiated this course of action back in October, even if I knew all the pebbles over which we were going to stumble.

Senator McCCLURE. Well, of course, if we had it back in October, we could have looked at it in a little more detail than we will in the few minutes we'll have in the spending of billions of dollars they're committing us on multibillion-dollar programs. And the committee will have had the advice of the administration only for a few minutes before we make those decisions.

So I hope you will be tolerant of the fact that we may disagree with you.

Mr. O'LEARY. Senator, the portions of this budget that we're affecting are not in the billion-dollar range. They are 130 million up for some very well known projects, and 130 million down on things that I think are well known to you.

Senator McCCLURE. I can't really understand that they are such small matters. Many of them are indeed very, very large matters.

You've got down on the first page of this sheet a summary of supply initiatives one item, high-BTU coal gas loan guarantee, \$20 million increase in budget authority.

Mr. O'LEARY. Yes.

Senator McCCLURE. I would assume from the prior information that we've gotten that this means two gasification plants at \$1.5 billion each.

Mr. O'LEARY. And, further, under the procedures that are required by the Congress, that won't have to go a full authorization route. You'll get ample time to look at it before anything is really done with this. This is in earnest. This puts us in a position where if a gas company wants to come in and negotiate, they may.

Senator McCCLURE. But instead of just being a little \$20-million item, it's a \$3-billion item.

Mr. O'LEARY. Senator, it is a \$20 million item because the \$3 billion item comes when this committee authorizes that sort of a project on a case-by-case basis.

Senator McCCLURE. I understand that. But you're asking us to adopt a policy on the basis of a little \$20-million item that looks like it's going to be a \$3 billion item.

Mr. O'LEARY. Senator, again you adopted that policy in the course of consideration of the ERDA Authorization Act of 1978. We are simply now saying to you that it can put us in a position to implement it if you like the project when it's put before you. So I would regard this as just what it states, a \$20 million proposition that will not result in outlays.

Senator McCCLURE. I understand what you're saying. I hope you understand what I'm saying.

Mr. O'LEARY. I do.

Senator McCCLURE. The fact that we have authorized and moved it in that direction in the past and have to take some further action in the future cannot change the fact that the \$20 million inclusion in this is at least that much of a step towards a \$3 billion expenditure in regard to high BTU coal gas. That doesn't indicate I'm opposed to it. It's just that I don't think we ought to kid ourselves about what the \$20 million means.

Certainly Congress can change its mind later and say no, we're not going to go ahead. But it looks to me like right now the administration is saying you have decided it ought to go forward.

Mr. O'LEARY. That's why we strongly supported that.

Senator McCCLURE. Isn't that correct?

Mr. O'LEARY. Senator, we strongly supported the generic loan guarantee authority in the ERDA authorization bill of last year, and that was the signal of the administration's policy in this area.

Senator McCCLURE. And you're still——

Mr. O'LEARY. Still in support of it.

Senator McCCLURE. And this is another signal that you're still there.

Mr. O'LEARY. We're going down that road, yes.

Senator McCCLURE. Yes. And I don't mean to beat a dead horse, but certainly we've had so many shifts in direction that every little sign we get we grasp for, and we hold to it because finally we've got something concrete from the administration as to which direction we're going.

So don't say it's just a little old \$20 million item because that indicates that you haven't changed your mind about that one, unlike many others.

Mr. O'LEARY. Senator——

Senator McCCLURE. Is that a fair characterization then that you're still committed to the high BTU gas?

Mr. O'LEARY. It is a fair characterization, Senator.

Senator McCCLURE. And as I say, we welcome those, when we get clear signals. There are some other clear signals we don't welcome so well.

I looked at the second page. Where are you going to get all of this money? You don't get all of it. You only get a part of it, \$130 million of the \$315 million by cutting other things. Light water reactor technology down \$10 million. Waste management facilities down \$51 million. Advanced technology and assessment projects down \$5 million. National uranium resource evaluation down \$10 million.

Mr. O'LEARY. That's the new reach program, Senator.

Senator McCCLURE. I read that minus \$76 million in the nuclear areas primarily as a clearer sign than the \$20 million item in favor of high gas that the administration is again moving away from nuclear.

Mr. O'LEARY. Senator, that is not accurate. The fact of the matter is that——

Senator McCCLURE. All I can find for the truth is the signals I get and those signals don't look very good.

Mr. O'LEARY. Well, let me tell you item by item what these are.

The light water reactor technology is a portion of a \$27-million program that looks at reliability. Mr. Thorne and I have taken a very careful look at that and we have concluded that it isn't a very strong program. So we decided we'll step out of it slowly, not because we're against light water reactors or nuclear energy, but because it isn't a very strong program.

Senator McCCLURE. Does it have anything to do with the waste management facilities from reactor storage or the long-term storage programs that are under way now?

Mr. O'LEARY. No, sir. As you know, I have a personal, and the Department has a deep, commitment to the moving away from reactor storage and moving on with waste disposal.

Senator Domenici, for example, is well aware of our view in this matter because we've had many discussions of it. And this cut simply

runs to storage tanks for military high-level waste that we can defer for some little period.

Senator McCCLURE. Dr. Deutch came in and indicated in his statements to us that in the waste management area they were not going to be able to meet schedules either for AFR or advance storage projects. And I pressed very hard on those questions at the time he was in because the AFR or expanded storage has an absolute time limit on it.

We're going to be shutting down reactors if we haven't done something by 1983. There's not enough money in the budget now for 1979 to make sure we meet the 1983 target date.

Mr. O'LEARY. The problem with 1983, as Mr. Deutch has explained to you, Senator, is not one of money. It's one of all the process that one must go through before one can end up with—

Senator McCCLURE. Dr. Deutch did not explain that.

Mr. O'LEARY. Oh, he should have. The reasons that we're not going to be able to make the earlier date are largely ones of process, not budgetary restrictions.

Senator McCCLURE. How do you plan then to meet the needs for reactor spent fuel storage by 1983? You're going to expand at site storage?

Mr. O'LEARY. We may have to do that. We're looking at the range of alternatives now.

Senator McCCLURE. If you don't get AFR you're going to have to do that. You don't have to look at a range of alternatives. Good heavens, we've been looking at a range of alternatives for years and we know that much right now.

Mr. O'LEARY. Senator, I think that your comment is fair, but for the first time an administration has come forward with a concrete plan for handling all phases of this waste disposal problem.

This is the March 15 document that Dr. Deutch offered. By the end of this year that will result for the first time in a comprehensive administration policy with regard to this very complex matter. I think that shows enormous progress in this area.

Senator McCCLURE. Well, I think it sets us back rather than sets us forward.

Mr. O'LEARY. Well, I tell you on the course in which we were launched prior to the Deutch reviews of this, I don't think we ever would have arrived at a point of having AFR's.

Senator McCCLURE. Well, as a matter of fact you know and I know that there is a time limit, that there is a capacity limit, that there are deadlines that must be met. And now you're telling me by the end of this year you may have a policy that you'll be willing to move forward on?

Mr. O'LEARY. At least for the first time there will be a policy. The problem here has been one of rift and the absence of policy. That's why these things never vest.

Senator McCCLURE. I don't mean to belabor the point, but you're not going to meet it by studying it for another year.

Mr. O'LEARY. We're not studying it now. We've done the studies.

Senator McCCLURE. Writing a policy or whatever you want to call it. There will be reactors closed down in 1983 or—

Mr. O'LEARY. Senator—

Senator McCCLURE. Don't shake your head, let me finish my statement first.

Mr. O'LEARY. OK.

Senator McCURE. There either will be reactors closed down in 1983 or you're going to do short-term, makeshift, patchwork solutions to that problem.

If, as a matter of fact, you're going to do makeshift patchwork solutions to the problem in 1983, you could be starting it now. You don't have to wait a year to start on that. You know that right now. You're nodding your head.

Mr. O'LEARY. Senator, we know some of the patchwork, makeshift things that we're going to have to do in the event that we're not on line with an AFR by 1983.

Senator McCURE. You know you're not going to be on line by 1983. You just said that.

Mr. O'LEARY. Yes, we have a very strong suspicion that we won't be.

Senator McCURE. You know you won't be. You know you won't. Dr. Deutch testified that you won't. You don't have enough money in the budget to do it. You've said you're not even going to have policy in place until the end of this year.

Now don't tell me you might not when you know you're not going to.

Mr. O'LEARY. Senator, I said we're going to have a comprehensive policy in place by the end of this year. The policy with regard to AFR's was announced on October 18th of last year and remained stable. We favor it. We're determined to go in that route, but I want to point out again that our difficulty here is not financial, it's not the funding, it's permitting.

Senator McCURE. Well, it isn't just that. I recognize of course, that the mechanical and political and administrative processes through which you must go make it very time consuming and difficult. That's one of the things that we have to address ourselves to is how we get these decisions made and then expedited, followed, done.

We still don't have that and we're still not getting that. But it appears to me that the President's commitment to lightwater reactor technology is not being followed in practice as fully as it was promised in rhetoric.

Senator METZENBAUM. I'd like to interrupt.

Senator McCURE. I understand and I'm about to terminate this only for one reason and that's because I've run out of time. The President has promised support for the lightwater reactor in exchange for the so-called compromise on Clinch River. And it seems to me, like is so often the case, we hold forth a compromise until we gain the position that's desired and then we withdraw the promise.

Mr. O'LEARY. No. Senator. I'm just at a loss to account for that.

Senator McCURE. So am I.

Mr. O'LEARY. This Administration has set up, within the last 2 months, a comprehensive reform legislation that will permit the nuclear option to be sustained. It has embarked aggressively on a program aimed at overcoming the host of problems associated with proliferation.

And finally last October we moved towards the establishment of a solid policy with regard to AFR's and with regard to the single fee disposition on the part of the utility industry relative to spent fuel rods. We are now developing the rest of this comprehensive program for waste disposal that never existed before.

It seems to me that in contrast to what has gone on—and you know, I've been associated with this for some years—over the last 6 or 8 years, Senator, there has been an enormous amount of progress in the last 12 months.

Senator McCURE. I understand the necessity for your feeling of optimism.

Mr. O'LEARY. It isn't a necessity.

Senator McCURE. I wish I had it, although I understand the necessity.

Mr. O'LEARY. This is a matter in which I've been intimately involved in the last 6 months and I think that we're making good progress.

Senator MELCHER. Jack, turning to a different subject, the statement you have given to us says that the Department of Energy must certify to the Defense Fuel Supply Center that funds are available for the request of petroleum acquisition and transportation at least 6 months in advance. Now is that a 6 months advance predicated on law or is it predicated on practice and policy within the executive branch?

Mr. O'LEARY. Senator Melcher, George McIssac is much better equipped to handle that than I am.

Mr. McISSAC. It's predicated on practice, administrative necessity.

Senator MELCHER. Not necessarily law?

Mr. McISSAC. No.

Senator MELCHER. Thank you. Now the assumption is made that the outlength schedule in the administration's table—I which is a table we have before us and it's identified table I, Strategic Petroleum Reserves—should be accommodated and that the equalization tax will be enacted and paid by the Federal Government.

Now I use that set of the table because that's the most optimistic schedule and the most costly case. As shown on table II, the fiscal year 1981 outlays of \$300,749,00 are requested to be authorized in this act.

Clearly these outlays can be authorized in the fiscal year 1980 act with abundant lead time. Table II also shows outlays three billion, 94,000 for fiscal year 1980 which are requested to be authorized in this act.

In referring to table I, of this amount \$918 million would be obligated in the fourth quarter of fiscal year 1980 authorization act which would be enacted before or during the first quarter of fiscal year 1980, there would be more than 6 months lead time between the authorization and the outlays.

It appears evident therefore, that even if the committee accepts the most optimistic schedule for orders and deliveries postulated by the administration and if it comfortably accommodates a minimum lead time of 6 months advance authority for outlays, the budget authority in this bill we're working on right now can be decreased by \$1,218,749,000.

To the extent that the program schedule slips, or to the extent that a portion of this amount is left in the bill, there would be an even greater opportunity to place longer lead time orders. Now perhaps the reason for this is that the whole strategic petroleum reserve program has slipped quite a bit, that it hasn't moved forward as optimistically as was projected earlier. Is that correct, Mr. McIsaac?

Mr. McISAAC. No, sir, Senator. We came in with, as I'm sure you're aware, an authorization request for approximately \$4.2 billion as the administration's budget. It continues to be the departmental request for authorization by this committee. We would like to have this authorized amount available to us so that we can continue a long-term purchase program that would be able to procure a great majority of the crude oil that we plan to have in storage by the end of fiscal year 1980 according to our original schedule.

Now what has slipped is the storage of the first half of the 500 million barrels we planned to have in the ground by the end of calendar year 1980. We originally had planned to have that first half, 250 million barrels, in storage by the end of calendar year 1978.

Completion of that program has slipped 6 months. We're still planning to adhere to the original schedule for the second 250 million barrels and have 500 million barrels total in storage by the end of calendar year 1980.

Now, in order to procure the majority of the crude oil needed for that 500 million, we're requesting authorization of appropriations of \$4.2 billion in fiscal year 1979. As I noted when you were asking questions, that enables us to adhere to a long lead time procurement program.

You indicated that the minimum lead time necessary was 6 months, and indeed, that's true. That's the minimum lead time. However, we're hoping that with this authorization we could procure a lead time up to a year or 18 months. We are considering a number of procurement alternatives including government to government procurement that can only be undertaken if we do have a lengthy lead time for oil procurement.

We need the fiscal flexibility in our authorized budget in order to pursue some of these alternatives.

Senator MELCHER. First of all, I haven't indicated that the 6 months lead time is essential.

Mr. McISAAC. You indicated, sir, in your question about minimum lead time.

Senator MELCHER. I didn't indicate that it was a minimum lead time. I don't even know that it is essential. I asked whether it was a matter of law or a matter of policy. And the answer is it's a matter of policy.

Mr. McISAAC. Yes, sir.

Senator MELCHER. Now I don't know whether it would be wise to have 2 years lead time, but that might prove to be wise or unwise. I'm not sure. But it gets us into what we're doing with the budget obligation and budget authority. And that's a separate matter all in itself.

None of us on this committee are antagonistic towards the strategic petroleum reserve and perhaps none of us in Congress, the whole Congress, are. We're in favor of it.

Senator DURKIN. Would the Senator yield for a point here? We're all enthusiastic as long as it has enormous reserve.

Senator MELCHER. Well, we've yet to receive the reworked amendment to the SPR plan for the third 250 million barrel increment, after this committee and the Senate disapproved the original amendment

submitted earlier this year. And that goes to the very point of what the regional concept is for New England.

But every indication we've got aside from the Department of Energy's projection is that the program just isn't moving and there is concern with the operation viability of the strategic petroleum reserve in the event of actual use.

The management, the contracting and engineering thus far is something that hasn't come through to us yet. We've reviewed and approved the SPR plan, but we're not just sure where you're at. If \$1,218,749,000 would provide for delivery of 395 million barrels through the third quarter in fiscal year 1980, does that jibe with your figures?

Mr. McISAAC. I'm at a loss as to which table you're reading from. I have to find it, Senator.

Senator MELCHER. I'm taking into consideration what is already available and what hasn't been spent. And in looking at it, \$1,218,749,000 would provide for delivery of 395 million barrels through the third quarter of 19—

Mr. McISAAC. Senator, I have no way of dealing with those figures or anything like them.

Senator MELCHER. Well, if you look at your Table I and add up your figures I think you'll come to that taking right down through the third quarter, that first column third quarter of 1980. That totals 395 million barrels.

Mr. McISAAC. What was the purchase price again, Senator?

Senator MELCHER. \$1,218,749,000. Pardon me, that's a reduction of your figures off of your total. That's what would be saved.

Mr. O'LEARY. So that would say, Senator, that if we didn't provide in 1979 for these purchases for the first three quarters of 1980, that would be the savings. Is that the assertion? Let me reflect on that with you, Senator.

Senator METZENBAUM. Let me just say that I would like to give the Senator from New Mexico, the Senator of New Hampshire and the Senator from Oklahoma a chance to inquire so I'd like to just terminate this as promptly as possible.

Senator MELCHER. Just to finish this so Jack knows where we are and Mr. McIsaac knows where we are. If we went down through the third quarter of fiscal year 1980, we'd reach 395 million barrels and that would reduce the requested \$4.2 billion budget authority by \$1,218,749,000?

Mr. O'LEARY. And Senator, probably preclude our buying a substantial amount of that oil.

Senator MELCHER. Well, unless we have something to demonstrate that you've got the storage capacity by that time we're just giving budget authorization which will be available for reprogramming, I assume, without actually getting into the strategic petroleum reserve program.

Mr. O'LEARY. I think you're setting up a conundrum that we can't resolve. You're saying we have to have the storage at hand before we can justify the budget authority.

Senator MELCHER. You have to have a plan, Jack.

Mr. O'LEARY. I think we have a plan in hand that will—

Senator MELCHER. We don't have it in hand.

Mr. O'LEARY. OK.

Senator METZENBAUM. Thank you very much. The Senator from New Mexico.

Senator DOMENICI. First I wanted to ask Mr. Thorne which is worse, waiting around to be confirmed or this morning? [Laughter.]

Mr. THORNE. Thank you.

Senator DOMENICI. Let me just pursue these strategic reserves for a moment and then I want to ask about waste management, Mr. O'Leary, and then I'll yield.

Is the strategic reserve and whether it's working properly, your responsibility, Mr. O'Leary?

Mr. O'LEARY. No, that is not, only in the sense of general oversight. That falls under the outlay program, Dale Meyers at the secretarial level and George McIsaac, the assistant secretary level.

Mr. McISAAC. Senator, I feel very personally, almost weekly, the interest of the Secretary in this program. It is substantial, and it is detailed.

Senator DOMENICI. Let me ask you, Mr. McIsaac, after hearing so much about this program being dangerous from the standpoint of vulnerability for those who administer it, do you have any concern about the way it's being operated?

Mr. McISAAC. Yes, sir, I have concern every day of the week as does my acting program director, Mr. Hystad, who is sitting behind me and the deputy assistant secretary in charge of this program area, Mr. Langenkamp who I believe is also in the room.

Mr. Langenkamp has spent most of last week in the Southeast. I have made personal inspection trips there visiting each of the sites. We're doing everything that we can to make sure that this program is managed wisely and well, applying the best management techniques that we can.

I might add, Senator, that this is a program which is being operated on virtually a crash basis. It's a great strategic problem for this country to be without adequate reserves of crude oil for reasons with which we're all familiar. We are trying to move this program as rapidly as we possibly can.

Senator DOMENICI. How does the domestic entitlement program apply to this strategic reserve? Am I correct in saying that domestic refiners are bringing down the cost of this strategic reserve to the Federal Government by entitlement deposits on the disparity price?

Mr. O'LEARY. Well, I think that that's one way to put it. The other, I think more accurate way to put it is we're requiring a certain amount of it to be paid by consumers in the United States through the device of the entitlements program.

Yes, the budgetary guidance on this is that we pay in outlay terms the composite, the U.S. composite, and we make the difference between the U.S. deposit and the actual acquisition price through the entitlement program.

Senator DOMENICI. Well, you're saying that you're having the consumers pay for it and that you're causing the price of domestic crude to go up some in order to defer some of the costs of acquiring this reserve?

Mr. O'LEARY. The price of domestic products, Senator.

Senator DOMENICI. All right. Now let me ask one further question. Now that you're into this program, are there any changes concentrated in the way you're purchasing? For example, do you thoroughly understand this market and do you know how to buy this at the right price and at the right time for the American people, or are you learning something?

Mr. McISAAC. I'm still learning a great deal, Senator, but I'm confident that we have people involved in this who understand the market and can do a great deal toward minimizing our cost. One of the reasons for requesting this authorization of over \$4 billion in fiscal year 1979 is to give us the flexibility in procurement for long leadtime purchases that we think can be beneficial and to structure contracts to assure our long-range supply within a certain price level.

Senator DOMENICI. This is a simple question. Has any major cartel supplier been approached by the U.S. Government through your organization to give a commitment to sell all its oil at a price less than the world market?

Mr. McISAAC. No, sir, I don't believe so.

Senator DOMENICI. Doesn't it make sense to go over and see if one of these countries would sell you this whole strategic reserve over the next 3 or 4 years at less than the present world market price?

Mr. McISAAC. We think it would make a great deal of sense, but according to our current authorization we can't do it because we can't provide for future purchases. We can't purchase longer than 6 months out. Hopefully, this appropriation request will give us that freedom.

Senator DOMENICI. Is any bidding being used?

Mr. McISAAC. Yes, we ask the competitive bidders to offer his best price, and we're always in a competitive business.

Senator DOMENICI. Are these sealed bids?

Mr. McISAAC. Yes, sir.

Senator DOMENICI. Mr. O'Leary what about phase 2? I wasn't here the first 10 or 15 minutes. Are these few changes that you summarized all there is to phase 2 as far as this budget that we're trying to put together?

Mr. O'LEARY. The phase 2 is outlined in skeletal detail on a handout that I've called to be passed out to the committee early on. It has a number of new initiatives on the first sheet that add up to \$130 million plus the—

Senator DOMENICI. I saw that.

Mr. O'LEARY. I'm sorry.

Senator DOMENICI. I saw that and I reviewed it.

Mr. O'LEARY. OK.

Senator DOMENICI. I'm asking you is that the extent of phase 2 for production for 1979 as you understand it?

Mr. O'LEARY. That is the extent of phase 2. There was considerable discussion about an item that does not appear on this budget except in the 1978 reprogramming that is the S.C.R. I and II initiatives; the liquifaction and clean solids initiatives that will be going forward, Senator. That gives me a great deal of pleasure.

All in all this is, I think, an extremely useful package. This will bring probably 3 or 4 years earlier than might otherwise be the case a synthetic fuels capability in this country that also both in oil shale and in coal. It also will begin to move a lot of the solar technology out to the

point of application rather than keeping it in the laboratory as has been the case to date.

Senator DOMENICI. Well, I don't want to argue with you. It seems less dramatic to me than the much heralded phase 2, but I just wanted to clarify that basically whatever initiatives are in this they comprise phase 2 as far as you know it.

Mr. O'LEARY. That is it.

Senator DOMENICI. Now with reference to waste management, you've explained what minus 51 is. Now there are no other changes in the administration's policy concerning waste management at this point?

Mr. O'LEARY. None.

Senator DOMENICI. And all of those that have been stated by Dr. Deutch here and in the Environment and Public Works Committee are still intact?

Mr. O'LEARY. That's right.

Senator DOMENICI. I have no further questions.

Senator HANSEN. Mr. Chairman, if I could, let me observe that we have only 2 minutes to go before this particular hearing is recessed and another one is to be convened. I'm aware, as you are, that at least two Senators present have not yet had a chance to ask any questions.

I hope we might continue on with this until they've had a chance to at least to ask some questions. I apologize because I've taken more time than I should, but I have been disappointed as you know since we haven't gotten answers to our letters.

Senator DURKIN. I'll be very brief, Mr. Chairman.

Senator METZENBAUM. Senator Domenici.

Senator DOMENICI. I yield. Thank you very much.

Senator METZENBAUM. Senator Durkin.

Senator DURKIN. Thank you, Mr. Chairman. I'll be as brief as possible. It does disturb me. We know all during Mr. Thorne's hearing we were talking to the wrong person. We weren't talking to the Secretary. Where is he this morning? Did his car break down again or what?

Mr. O'LEARY. Senator, I have no idea what his schedule is this morning.

Senator DURKIN. I'd like to join in the remarks of Senator Hansen because it seems to me we went through a period of stonewalling. The Nixon administration will go down in history for stonewalling and it appears to me that the Secretary is stonewalling.

Mr. O'LEARY. I believe I have answered responsively every question that has come before me at this point. And while not the words, certainly the sense that the Secretary would have brought to this hearing. So I can't accept your characterization here as really depicting this hearing.

Senator DURKIN. Well, I tried to indicate at the outset that I'm not concerned with you and appreciate the fact that you and Mr. Thorne and Mr. McIsaac and others are here this morning. But there's only one Secretary of Energy and I think the American public has the right to ask and the right to know where is he hiding this morning. What is he afraid of?

A man his size, is he afraid of this committee? Is he afraid that Senator Metzenbaum, Senator Abourezk or Senator Bartlett or Senator Hansen, is he afraid of our questions?

Mr O'LEARY. Senator, as I indicated earlier, the Secretary felt that the focus of this committee would be on the new supply initiatives and I'm the secretarial officer that has been responsible for development of those and he thought that you would get the best responses by my being here.

There's no intent at all to evade or to stonewall, but rather to provide the best information that he could to the committee.

Senator DURKIN. Well, you know, I appreciate your defending your boss to the extent he can be defended. I think his conduct in not coming today is indefensible, even as eloquent as you are, and as dedicated as you are. You know, what's he afraid of, we're going to put him under oath and ask him about all the deals and natural gas bill that was concocted behind closed doors?

I think the President has an obligation. The President's the one that brought the meetings into the White House. I think the President has an obligation to either order Mr. Schlesinger to appear before this committee or ask for his resignation. Personally, I think the country would be better off with his resignation, but I don't think that comes as any surprise to anyone in the room.

You know, again, I have to ask the question where is he hiding? What's he afraid of? It appears to me the same old Nixon type stonewalling. Senator Hansen has been very explicit. Senator Hansen's statement is very clear. When he was up here with a tin cup trying to get confirmed, he said that he would appear anytime we wanted him. Well, where is he this morning? I think the American public has a right to know, and I think the American public has the right to know what deals were concocted in trying to fashion the natural gas compromise.

I think the American public has the right to know whether the President had in his speech when he was flying out to Colorado any mention of reprograming for solar or whether that was a last minute item cranked into the President's speech at the insistence of Senator Haskell and Senator Hart.

These are some of the things that, you know, is phase 2 going to be done with mirrors? Or is it going to be rejuvenated, reworked campaign promises or campaign drops or throw away items as the see America program continues? These are some of the things that the people in New England and I think all across the country are vitally concerned with because I think it goes right to the fundamental question, does this administration have an energy policy?

Does it have any energy policy? And if it does have an energy policy does it have a plan to back up that policy or is it just a schizophrenic, ad hoc approach to whatever the press is asking that particular day?

I don't expect you to answer those questions. Those questions are for our missing guest.

Mr. O'LEARY. I'd like to comment on them, Senator Durkin.

Senator DURKIN. All right.

Mr. O'LEARY. This administration is doing its best to work out in very, very difficult era in energy policy which it cannot work alone. It has to do it with a Congress.

Last April 20 we set before the Congress a series of initiatives that were the first step along that line and we haven't heard from them yet. So you see, I think we're trying to work out an energy policy as responsibly as we can. It's a difficult business, difficult for you, difficult for us.

Senator DURKIN. You say the administration is trying to work with the Congress but where is the Secretary this morning? It's a little wet to be out looking for birds. And I don't know, I'm not an ornithologist or maybe there are only certain species that only appear in downpours. I don't know.

I hope he could pass that on to us and let us know. It would be interesting. But if you're trying to work with the Congress, you're trying to work with the Senate, where is he hiding this morning? And I submit for the record and I'd say it if he was here, I think he's afraid we'd put him under oath and ask him embarrassing questions.

Mr. O'LEARY. Well, I'll say again that I think that he thought that the course that he chose of having me come up to represent him this morning to provide more responsive answers to this committee on what was the principal focus of this hearing, that is the national supply strategy, than any other course available to him.

Senator DURKIN. Mr. Chairman, if I can have one more minute and then I'll yield.

Senator METZENBAUM. All right, one more minute.

Senator DURKIN. We've been hearing about entitlements now for New England for quite some time. When can we see that entitlements program in effect?

Mr. O'LEARY. Senator, that is a part of a very, very complicated equation that has to do with the treatment that finally comes out of this Congress with regard to pricing of petroleum products.

We wouldn't want to do it in a vacuum. I think we're going to have to wait and find out what the final disposition of the crude oil equalization tax is before we'll understand how to do it and how to make it fit.

Senator DURKIN. That thing's as dead as yesterday's newspaper.

Mr. O'LEARY. I'm sorry.

Senator DURKIN. The crude oil equalization tax is as dead as yesterday's newspaper right now.

Mr. O'LEARY. I disagree, Senator. I think it's very much alive and has an excellent chance of passing.

Senator DURKIN. Well, I'd like to see a vote tally. I'd like to see a crib sheet. In other words, you're saying that the New England is left swinging in the cold breeze until the crude oil equalization tax is passed?

Mr. O'LEARY. Not at all. We put some very, very complicated measures before the Congress better than a year ago. We expect to have an ultimate answer out of that within the next few months. We should not act on any element of this in a vacuum. We should put it together in a way that makes the best fit.

Senator DURKIN. So that story in the Post and the Wall Street Journal, that was just a trial blow. That was just to placate New England. It wasn't really a serious proposal?

Mr. O'LEARY. I can't comment on that. I had nothing to do with the stories that appeared either in the Post or in the Journal.

Senator DURKIN. What about SRC-1?

Mr. O'LEARY. I have gone to considerable lengths this morning to point out that my pleasure at being able to say that we will now proceed down a course that, if it makes the technical and economic hoops, we'll make SRC-1 a possibility. I regard that as a very significant statement this morning and one that shows, I think, that we're working hard on problems with which you are very much aware.

Senator DURKIN. Right. But the statement this morning, as I understand—I apologize for not being here during all of it—is still backing off from what appeared to be a much stronger commitment to moving much faster just a few short months ago.

Mr. O'LEARY. Well, there was a commitment a few months ago. There were some discussions of speed and what I have outlined before you seems to me as about as fast as industry can respond realistically. Let me just lay that out again for you, Senator, so you'll understand the time.

Senator METZENBAUM. I think I'm going to interrupt because time is moving on and I'd like to give the Senator from Oklahoma an opportunity to ask some questions.

Senator DURKIN. Could I just make one comment and then I'll yield? The strategic petroleum reserve, I hope the next one is going to realize that New England is still part of this country. And I'll yield. Thank you, Mr. Chairman.

Senator METZENBAUM. The Senator from Oklahoma.

Senator BARTLETT. Thank you, Mr. Chairman.

Mr. O'Leary, do I understand correctly that the entitlements program is used in the purchase of crude oil for the strategic petroleum reserve?

Mr. O'LEARY. It is.

Senator BARTLETT. Why is that?

Mr. O'LEARY. It's in a sort of rough justice, to have current consumers of petroleum pick up some portion of the burden rather than the taxpayer at large. You know that the entitlements program really runs to what price the consumers pay for the products and to the degree that the entitlements program is used for this purpose, it provides for a very slight increase in the product cost for every gallon of product used by consumers in the country.

And incidentally, it keeps it out of the budget to that extent. Now you understand that there's enormous flexibility here. We could have had the thing entirely financed on budget. We could have taken a course that required industry to do its own stocking and to pay for it. We chose the middle course where most of the money is on budget paid by the taxpayer at large and the small contribution about \$2 per barrel is paid by the today's consumers of petroleum products in the United States.

Senator BARTLETT. In other words, one of the reasons is because it keeps down the budget, at least in part. But shouldn't it be rightfully the responsibility of all the taxpayers, not of some consumers more than other consumers? What's the justification that people from one part of the country should pay a larger share of this cost, as if they were more responsible for the shortage than people in the other part of the country.

Mr. O'LEARY. Senator, we do find significant regional differences in the use of petroleum versus other fuels. For example, in your part of the country historically, not so much now but historically, there's been more gas used for industrial purposes than, for example, in Mr. Durkin's part of the country.

And so I don't think it's inappropriate to have a portion of the cost allocated on the basis of actual use of these products.

Senator BARTLETT. Go back to the history of the use of gas and oil, and you find that originally the price of imported oil was much less

than the domestic price and there wasn't any kind of rebate then paid to the people out in my part of the country, nor was there a subsidy paid to them when people in the East were purchasing their crude oil imported at much less than the domestic price and the domestic market was kept down so that there would be that advantage.

Mr. O'LEARY. Let's reflect just a minute on the reason for that price differential between foreign and domestic crude. You recall that that was a function of the oil import control program that was designed to assist, among others, people in your part of the country. So there's a rough justice here.

Senator BARTLETT. Well, it was designed for that purpose but it was used, as you well know, by two administrations of different parties to keep the domestic price down.

Mr. O'LEARY. Well, during that period of time, Senator, you recall that I ran the program for about 4 years. The price of crude in the United States was about \$3 and the price of crude on the world market was about a buck. And that differential was maintained by the fact that we had an oil import control program.

Senator BARTLETT. I know but it was during that period that the drilling dropped continually off. And the incentive to find more oil and gas decreased and we went on the path of becoming dependent on foreign imports.

Mr. O'LEARY. Think how much worse it would have been without that oil import control program.

Senator BARTLETT. Oh, I was all for the quota program, but the problem was it was used as a club rather than support as it was originally designed.

But I don't think that we can necessarily go back into history and only cover part of it and try to justify this program. I think the responsibility for the shortage, I would like to say it's not as much in my part of the country because the attitudes there are the solution, but on the other hand I don't see any reason for using entitlements in order to purchase crude oil for reserve purposes because we are short.

Mr. McIsaac said it's a crash program and it is. I recognize that. When you have a crash program, you aren't always able to spend the money quite as carefully or as wisely as you might otherwise.

You do have some \$1.4 billion available at the present time which could be added to the composite price for domestic oil but you have failed to do that. And this, I think, would increase incentives in the programs that Mr. McIsaac and Mr. Langenkamp have a responsibility for in newly discovered oil, in marginal oil, enhanced recovery. Those things have been talked about but they haven't been developed.

The nearest thing to it has been actions by the Secretary which I consider blackmail. He's talking about providing those funds from a program that I think intended to have those funds periodically available to the industry, but he would do so only if the Congress sees fit to vote the COET tax. This to me is an arm's length position on his part.

So my question in this whole area of marginal production and "new-new" oil and enhanced recovery: What are your plans? Why haven't you made available the moneys that are available, the \$1.4 billion which I think would be about 50 cents a barrel? That would make a big difference in incentives.

So what are your plans, and why haven't you——

Mr. O'LEARY. Senator, we have been looking at this problem of incentives now for the last 6 or 7 months. Right at the moment there is clearly no lack of incentive, as you and I have discussed in the past, to drive the system wide open.

Every rig that can drill in this country, with apparently some recent exceptions in the State of California, is wide open running.

Senator BARTLETT. I don't buy that and I'll tell you why. If you have more incentive you're going to build more rigs. They're expensive, as you know.

Mr. O'LEARY. They're building at a rapid rate, too, Senator.

Senator BARTLETT. Oh, they are building them but I don't think you can blame it on that. Unless you provide a replacement price, you're not going to have the full incentive in the market place, and you don't have that. So why is it that you don't have it and what are your plans to institute a program to utilize this money that was clearly, I think, intended by Congress to be utilized for incentives. What do you plan to do?

Mr. O'LEARY. Senator, we put forward, as you know—this relates also to Senator Durkin's question. We put forward a series of comprehensive proposals designed to deal with, among other things, the issue that you're raising, the crude oil equalization tax, user tax and those others.

As yet, we don't have a context in order to place the——

Senator BARTLETT. Would you withhold? Mr. Chairman, could we have order? I can't hear the witness.

Senator METZENBAUM. Thank you very much, Senator Bartlett.

Senator BARTLETT. No, I wish you would continue. I just couldn't hear him. I'd like him to continue. He was not being properly respected by the committee in my opinion.

Senator METZENBAUM. I think your point was well taken but having said that I would like to wind up in another minute because Senator Jackson has been standing by patiently waiting.

Senator BARTLETT. Well, I hope I could have just a couple of minutes because I asked him two or three questions in one fell swoop.

Mr. O'LEARY. Senator, I think that, as I was saying to Senator Durkin, we're going to have to see what the Congress comes out with and then put in context the things that we can do administratively. And I don't think that we want to weld those things in until we have a fairly good idea of what the Congress itself is going to do on the national energy policy initiative.

Though the timing, I believe, will depend to some better feeling of how the Congress is going to come out than we have at the moment.

Senator BARTLETT. Are you saying in essence that what you do depends on whether we the Congress do your bidding——

Mr. O'LEARY. Not at all.

Senator BARTLETT [continuing]. On the COET tax?

Mr. O'LEARY. Not at all. It would seem to me that the presence of COET would dictate one course of action as just a technical judgment on how you handle these problems and the absence of COET, the absence of a new gas definition for example, would dictate quite a different course of action.

I think in this particular case we'll simply have to wait for your initiatives before we can proceed with ours and have a useful hold. And

this is an observation on how you get the best possible program, not on how you leverage anyone.

Senator BARTLETT. Mr. O'Leary, why haven't you and DOE established incentives for enhanced crude oil recovery? In secondary recovery, waterflooding, you have an opportunity of producing reserves that are known that otherwise are going to be abandoned, not produced—wasted. Why is it that you don't have a program here?

I don't think that any of your arguments require you to wait on the Congress in this area. Some of us in Congress have been wanting for a long time to have additional incentives in this very important area where we're wasting much crude oil that we know exists and all we have to do is provide enough incentive and we can produce it at the price that we're paying for oil from foreign countries.

Mr. O'LEARY. Well, all I can say on that, Senator, is we've been looking at it very carefully. You know we put out a notice of proposed rulemaking. We have a raft of comments on it. We learn something new on this virtually every day.

For example, I was absolutely amazed at the number of enhanced recovery clubs that there are in this country as enumerated in the Oil and Gas Journal about a month and a half ago. And we are in constant touch with producers on what it takes. Do they need loan guarantees? Do they need some sort of tax treatment that is not now available?

And I think when we know enough about this to act sensibly, we will be acting.

Senator BARTLETT. Well, I think you should hire those who do. I think that there is adequate information available and that with the proper incentive of price you're going to increase tremendously the amount of activity in enhanced recovery.

But I don't think the way to do it is with a blackmail effort to try to get Congress to do something before you'll do anything. I don't think that kind of quid pro quo is just or fair.

Thank you, Mr. Chairman.

Senator METZENBAUM. Senator.

Mr. McISAAC. Mr. Chairman, might I just add one comment?

Senator METZENBAUM. Very briefly.

Mr. McISAAC. With regard to Senator Bartlett's question about the crash effort of the SPR, I respectfully suggest that one of the trade-offs you must consider in thinking about this \$1.2 billion is that all of us in the Department of Energy feel very strongly at some point in the future, perhaps nearer than further out, the world oil prices are going to go up.

Part of the reason for this being a crash effort is to try to purchase and put in the ground as much oil as we possibly can before oil prices move higher. If we're talking about increases in the range of 50 cents a barrel, anything to be gained from improved management which result in slowing down the pace of the SPR is in our judgment highly likely to be lost by buying crude at a higher rate.

Senator METZENBAUM. Senator Domenici.

Senator DOMENICI. Mr. Chairman, I was wondering if I could ask Senator Metzenbaum, who was presiding, if I might make a request for submission to the committee of some information regarding the strategic reserves?

Senator METZENBAUM. Of course.

Senator DOMENICI. Mr. Chairman, I believe that we ought to get the current status on this strategic reserve. I would also ask that we ask Mr. O'Leary and the Department of Energy to furnish us current information as to how much they're paying per barrel, and what their sources of supply might be.

How does the price we're paying compare with the prices being paid by others buying this foreign crude in the marketplace, and how does the entitlements program relate to the strategic reserve? Also, how does the entitlements program work, who is paying the entitlement portion and where is this coming from—the \$2.00 a barrel? Detailed information about how they are going about acquiring this strategic reserve in the marketplace is essential to have before us.

Senator METZENBAUM. All right.

[Subsequent to the hearings Mr. McIsaac supplied the following:]

MAY 15, 1978.

HON. HENRY M. JACKSON,
Chairman, Committee on Energy and Natural Resources,
U.S. Senate,
Washington, D.C.

DEAR MR. CHAIRMAN: This is in response to the request by Senator Domenici during the hearings this morning on the 1979 Budget request for the Department of Energy (DOE). Attached are answers to the specific questions raised by the Senator regarding oil purchases for the Strategic Petroleum Reserve (SPR).

Attachment 1 shows the per barrel price for SPR oil in the initial procurements. It also shows the type of oil purchased, and how the price compares with the contemporary private sector market price for such oil.

Attachment 2 lists the sellers of oil for the SPR, the amount sold by each, and the source country of the oil.

Attachment 3 explains the SPR participation in the domestic crude oil allocation (entitlements) program and provides a list of the buyers and sellers of entitlements under the SPR program. It shows the users of domestic oil who purchased entitlements from firms which sold imported oil to DOE for the SPR.

Attachment 4 provides a description of the process for buying SPR oil, including a listing of time required for each major step in the process.

Sincerely,

GEORGE S. McISAAC,
Assistant Secretary, Resource Applications.

COMPARATIVE PRICES OF SPR CRUDE PURCHASES

[Dollars per barrel as of December 1977]

Type oil	DOE contract price	Market price on award date	Current market price	Recent spot price
Ekofisk.....	¹ 14.3	14.30 -14.35	14.03 -14.30	13.70-13.90
United Kingdom forties.....	¹ 14.06	14.30 -14.35	13.80 -14.00	13.80-14.00
Iranian/Arabian light.....	¹ 13.65	13.28 -14.36	13.549-14.344	13.45
Mexican Isthmus.....	¹ 13.40	13.32 -13.54	13.31 -13.40	(²)
Venezuelan Iago medio.....	¹ 13.54	13.218-14.36	13.549-14.344	(²)

¹ Origin.

² Destination.

³ No spot transactions.

STRATEGIC PETROLEUM RESERVE—SUPPLIERS OF CRUDE OIL

Contractor	Contract number	Quantity (MB)	Price per barrel	Source country	Crude type	Remarks
Amoco Texas Refining Co.	DSA 600-77-C-5001	350	\$13.65	Mexico	Sour	Price includes transportation.
Derby & Co., Inc.	DSA 600-77-C-5002	425	13.615	Saudi Arabia	do	Do.
Coastal States Trading Co.	DSA 600-77-C-5003	4,000	13.52	Mexico	do	Transportation provided by DOE.
U.S. & South American Enterprises, Inc.	DSA 600-77-C-5005	5,000	12.705	Iran	do	Transportation provided by DOE from Persian Gulf.
		1,300	13.622	do	do	Transportation provided by DOE from Bahamas.
		1,300	13.395	Mexico	do	Transportation provided by DOE.
		3,700	13.70	Iran	do	Price includes transportation.
Derby & Co., Inc.	DSA 600-77-C-5004	700	13.70	Mexico	do	Do.
Do.	DSA 600-77-C-5007	550	14.26	United Kingdom	Sweet	Transportation provided by DOE.
BP Trading Co.	DSA 600-77-C-5006	550	14.36	do	do	Do.
		9,120	14.10	do	do	Do.
			14.31	do	do	Do.
			14.32	do	do	Do.
			13.60	do	do	Do.
Do.	DSA 600-78-D-5008	7,600	13.5875	Libya	do	Do.
Derby & Co., Inc.	DSA 600-78-D-5009	1,800	13.5875	do	do	Price includes transportation.
Hess Oil Co.	DSA 600-78-D-5010	1,800	14.49	do	do	Transportation provided by DOE.
Derby & Co., Inc.	DSA 600-78-C-5012	280	13.24	Saudi Arabia	Sour	Do.

ENTITLEMENTS PROGRAM—SPR

[July 1977—January 1978]

Payers of entitlements	Seller	Amount
Kerr-McGee Oil Co.....	Derby & Co.....	\$5,571,129
Morrison Oil Co.....	do.....	20,702
Phillips Petroleum.....	BP Trading.....	4,950,508
Union Oil Co.....	Derby & Co.....	1,462,444
Exxon.....	do.....	4,174,322
Gulf Oil.....	BP Trading.....	3,252,538
Tosco.....	do.....	854,724
Total.....		20,286,367

ENTITLEMENTS PROGRAM—SPR

[February 1978]

Earners of entitlements	Amount
Amoco.....	\$772,964
BO Trading Co., Ltd.....	12,377,762
Coastal States Trading Co.....	6,959,324
U.S. & South American Enterprises, Inc.....	523,195
Derby & Co.....	13,837,565
Total.....	34,470,810

ATTACHMENT 3

SPR PARTICIPATION IN THE ENTITLEMENTS PROGRAM

The Department of Energy (DOE) is participating in the domestic crude oil allocation (entitlements) program to allow the Government to obtain the benefit of domestic price controls for imported crude oil for the Strategic Petroleum Reserve (SPR) to the same extent that those benefits accrue to domestic refiners that process imported crude oil. Sellers of imported oil for the SPR receive a portion of the selling price in the form of authority to sell "entitlements" to lower priced domestic oil. Refiners that have more than the national average of low priced domestic oil are required to purchase rights to use that amount in excess of the national average. Some of these refiners purchase such rights from sellers of oil to the SPR, as shown in the attached table.

The remainder of the selling price for the SPR oil is paid directly by the DOE. The effect of this participation in the entitlements program has been to reduce the budget cost of SPR oil by about \$2.00 per barrel.

ATTACHMENT 4

STRATEGIC PETROLEUM RESERVE, PETROLEUM ACQUISITION PROCESS

Crude oil is procured for DOE by the Defense Fuel Supply Center (DFSC), an agency of the Department of Defense (DOD), pursuant to an Interagency Agreement. Procurements are accomplished in accordance with the Armed Services Procurement Regulation (ASPR). The Oil Acquisition Order (OAO) is the vehicle employed by DOE to initiate procurement action by the DFSC.

DFSC issues formal solicitations to industry using a Request For Proposal (RFP). Industry responses to the RFPs are evaluated and negotiations are conducted between DFSC and responsive offerors.

The crude may be purchased for delivery at point of origin, at foreign transshipment terminals, or at the U.S. Gulf Coast ports of entry. When oil is procured on a "destination delivered" basis the supply contractor provides the shipping. For FOB purchases at other locations, the DOD's Military Sealift Command (MSC) charters tankers. The tankers are chartered subject to DOE's environmental requirements and the Cargo Preference Act. The MSC has chartered on a voyage basis, one Very Large Crude Carrier (VLCC) and 15 smaller tankers for movement of SPR crude for the period ending December 31, 1977.

The following procurement schedule is the basis for the requirement for budget authority six months prior to oil delivery for the Strategic Petroleum Reserve.

Department of Energy (DOE) places oil acquisition order with Defense Fuel Supply Center (DFSC) ; Certifies funds availability.

	<i>Duration (days)</i>
DFSC determines purchase strategy and prepares solicitations.....	15-30
DFSC advertises and accepts bids.....	30-45
DFSC evaluates bids.....	20-30
DFSC conducts negotiations with bidders.....	20-30
DFSC conducts final evaluation of bidders.....	20
Final Review.....	20
Notification of Award.....	7
Tanker loading and unloading, ocean transportation and transshipment of oil.....	60

Total time from placement of order, to delivery of oil..... 192-242

Budget authority is required when an oil order is placed with DFSC since DOE must certify that funds are available for the requested petroleum acquisition and transportation. Without such certification, oil and transportation solicitations can only be issued subject to funds becoming available some time in the future. This type of solicitation could reduce the number of bidders, and limits competition, as well as reducing the Government's credibility in the world petroleum market.

Senator HANSEN. Mr. Chairman, in addition may I respectfully request that we have answers in writing to the questions that I wrote to the Secretary. I think it would save our time here very much if I could have specific detailed answers to each of those questions before we have our next meeting.

Senator METZENBAUM. Mr. O'Leary, I think you understand the requests of both Senator Domenici as well as Senator Hansen. I think the one from Senator Domenici asks for forthwith. If you can't give us 100 percent, I think the committee would like to have 90 percent, then follow with its balance.

Mr. O'LEARY. What is your timing on that? When?

Senator METZENBAUM. Well, I guess forthwith means this afternoon.

Mr. O'LEARY. OK.

Senator DOMENICI. Thank you, Jack.

The CHAIRMAN. Before our next meeting. Thank you gentlemen. We appreciate your early morning help.

[Whereupon, at 10:25 a.m., the hearing was adjourned.]

[Additional material submitted for the record by the Department of Energy:]



Department of Energy
Washington, D.C. 20585

May 15, 1978

RECEIVED
MAY 16 1978
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C. 20585

Dear Mr. Chairman:

Since January, the Department of Energy has been developing options to improve the potential energy supply situation beyond the mid-1980's. This work has been completed, and a summary of these supply initiatives is attached.

These initiatives are part of an ongoing effort within the Department to create the potential for improvement of long term national energy supply in relation to prospective demand. The National Energy Plan published last year presented a pricing and fiscal framework within which individuals and corporations could make decisions with certainty. The supply initiatives I am forwarding today address the need to build a capacity which will enable alternative fossil and renewable energy sources to make an increasing contribution to national energy supply in the decades ahead. And the National Energy Supply Strategy, to be completed this winter, will examine the long term energy supply situation and make comprehensive recommendations building upon today's initiatives.

As you will note, the package forwarded today also contains reductions in the Department's base budget equivalent to the additions proposed for the supply initiatives.

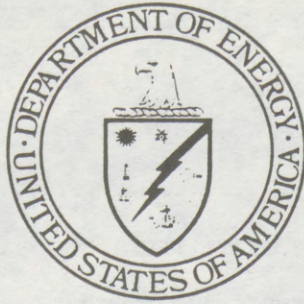
The President is concerned about maintenance of a fiscally responsible budget across the Federal Government, and believes that additions such as the ones proposed should not add to the overall budget deficit.

Although we recognize that it is late in the Congressional budgetary process, consideration of these initiatives is important in moving toward our shared goal of improved energy supply. I urge your consideration of this package and would be happy to discuss it with you further.

Sincerely,

James R. Schlesinger
James R. Schlesinger
Secretary

The Honorable Henry M. Jackson
Chairman, Committee on Energy and
Natural Resources
United States Senate
Washington, D. C. 20510



Energy Supply Initiatives

May 15, 1978

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May 15, 1978

INTRODUCTION

This document presents a set of supply initiatives designed to improve the Nation's capability to commercialize new energy supply technologies. These initiatives will be funded from offsetting adjustments within the Department's budget and will build upon the National Energy Plan to ensure a balanced supply picture beyond the mid-1980's.

The National Energy Plan set forth a pricing and fiscal framework under which industry and individuals could make investment decisions aimed at substantially reducing the demand for U.S. oil imports through conservation and fuel substitution. These demand restraint initiatives, however, cannot permanently maintain imports at a satisfactorily low level. The U.S. must also begin efforts now to develop a wide range of commercially-viable new technologies which can help increase production of the Nation's abundant domestic resources in the 1980's and beyond.

Inherent in the National Energy Plan's program for reducing energy demand and imports was the need for a set of initiatives to increase domestic energy supply. To this end, a comprehensive energy supply strategy is currently under development. This study, known as the National Energy Supply Strategy (NESS), should be ready next winter. To ensure public involvement and participation in the NESS study, the Department of Energy will undertake a major outreach program to include state and local governments, the Congress, special interest groups and the public at large. The NESS will serve as the basis for the second National Energy Plan, which will be presented to Congress in early 1979.

Although there is currently a small and temporary excess of world oil productive capacity, the U.S. is still importing at great expense nearly half of its oil -- far more than during the 1973-74 embargo. As world oil consumption approaches world oil production limits, it is almost certain that oil will become even more scarce and expensive during the 1980's. Despite the high likelihood of oil price increases during the 1980's, the U.S. can influence the path of these price increases through its national energy policy. The non-OPEC countries can moderate future oil price rises through an increase in the production of oil or oil substitutes, as well as through a reduction of oil consumption. Any such reduction in the demand for OPEC exports not only displaces expensive imported oil, but also increases the likelihood of relatively lower oil prices in the future. Such reductions could yield multi-billion dollar savings in foreign energy payments and thus represent a major contribution to the economic health and national security posture of the United States.

In their current state of technical advance, many new energy technologies are not economic at today's oil prices, but will become cost effective at the oil prices that are likely to accompany a worldwide limitation in crude oil production capacity. The initiatives described below will develop the capability to deploy a number of supply technologies if world oil prices rise rapidly in the future. While it is impossible to determine the exact timing and magnitude of any future oil shortage, these initiatives will serve as an insurance policy against rapid oil price increases. Even if oil prices stay low, the investments in these measures have a relatively small cost for the critical insurance they provide.

The proposed supply initiatives fall under four categories: synthetic liquids and solids, new sources of natural gas, renewables, and the removal of institutional barriers.

For synthetic liquids and solids that can be substituted for petroleum, three initiatives are proposed:

- a tax incentive to stimulate demonstrations of domestic oil shale production;
- regulations that provide oil shale and other synthetic liquids the same entitlements treatment as imported crude oil;
- initiation of design studies leading to the construction of one or two plants for the production of synthetic fuels from coal in FY 1980.

For increased natural gas supply and more efficient distribution of supply, two initiatives are proposed:

- an accelerated technology development program to stimulate earlier and more extensive production of unconventional natural gas from geopressurized zones;
- accelerated construction of several commercial-scale, high-Btu coal gasification facilities achieved through regulatory changes and/or loan guarantees.

To accelerate commercialization of renewable technologies which can pay off in the near term, nine individual initiatives are proposed:

- increased research on photovoltaic solar energy;

- commercial scale demonstrations of wind machines;
- production of gas and liquid fuels from biomass;
- prepackaged small hydropower plants, demonstration of low-head hydro systems, and feasibility studies for hydropower at existing dams;
- grants to individuals for innovative, small technology systems;
- a dispersed energy systems demonstration program;
- design awards for passive solar heating and cooling;
- a solar training and education program;
- a requirement that Federal purchases of solar heating and cooling systems be matched by sales in the private sector.

Finally, new initiatives are needed to help overcome institutional barriers to the expansion of domestic supply. In the past, legal, institutional and regulatory barriers, as well as the problems associated with public acceptance of new technologies, have been given insufficient attention. A concerted effort is required by the Federal government, State and local authorities, private industry and environmental and other public interest groups to define these problems and to help resolve them. This effort must be harmonized as fully as possible with the interests of local communities in public health and safety and environmental protection.

Therefore, to address institutional supply barriers, two initiatives are proposed:

- a program to provide financial assistance to States, Indian tribes and communities for mitigating the adverse social and economic impacts resulting from energy resource development;
- the establishment of a system within DOE to overcome institutional barriers and speed regulatory decisions.

The tax and budget initiatives described above are recommended for immediate adoption. Pending energy tax legislation can be amended to accommodate the tax action, and the FY 1979 Departmental budget proposal now before the Congress can be modified to accommodate the expanded

technology programs. Increasing FY 1979 funds required for these initiatives would be covered by decreases in the DOE budget. The Administration has already presented its impact assistance proposal. The regulatory initiative on synthetic liquids is being promulgated in the Federal Register.

All of these supply initiatives require extensive lead times -- for both technical advances and institutional adjustments -- to develop the capability for widespread commercialization and then build the productive capacity to make a meaningful contribution to supply. These initiatives, therefore, are an important step toward meeting the energy challenges of the 1980's as well as the development of a comprehensive National Energy Supply Strategy.

SUMMARY OF SUPPLY INITIATIVES
(Dollars in Millions)

	Increases in <u>Budget Authority</u>
FY 1979 DOE Budget Amendment:	
o Oil shale tax credit	N/A
o Regulations to provide oil shale and other synthetic liquids entitlements treatment	N/A
o Unconventional natural gas	\$ 10
o High Btu coal gas loan guarantees	20
o Photovoltaic research	30
o Wind machine demonstrations	20
o Gas and liquid fuels from biomass	10
o Low-head hydro power program	20
o Appropriate technology grants	5
o Dispersed energy systems demonstration	5
o Passive solar heating and cooling	5
o Leveraging Federal purchases of solar	N/A
o Solar training and education	<u>5</u>
TOTAL	\$130

33
NOTE: In addition to the above FY 1979 increases, a FY 1978 reprogramming of ~~\$25~~ million for design studies of synthetic liquid and solid demonstration plants will be made available to support the synthetic liquid and solid initiative.

SUMMARY OF PROPOSED REDUCTIONS
(Dollars in Millions)

	<u>Reductions in Budget Authority</u>
o Light water reactor technology	\$ -10
o Waste management facilities	-51
o Advanced technology and assessments projects . . .	- 5
o National uranium resource evaluation	-10
o Vanpooling	- 9
o Clean boiler fuel demonstration (Coalcon).	<u>-45</u>
TOTAL	<u>\$-130</u>

SHALE OIL PRODUCTION

BACKGROUND: In Colorado and Utah, there are major deposits of high quality oil shale. Although "nearly ready" for many years, Western oil shale is not being produced commercially because of unfavorable economics and environmental uncertainties. Currently, the most probable range of raw shale oil production costs is from \$15 to \$25 per barrel depending on the technology, financing terms and environmental controls.

Shale oil capital requirements are high: approximately \$1.0 to \$1.25 billion for a 50 thousand barrel per day plant. Commercial production of shale oil also faces other constraints from stringent air quality requirements, water effluent limits, and limited water availability in the Colorado/Utah area. Stringent environmental controls could add substantially to the costs of production.

PROPOSAL: To accelerate shale oil development, two initiatives are proposed:

- o The Administration will work with the energy conferees to modify the shale oil tax credit currently pending in the NEA tax conference. The Administration proposes to limit the credit to the first 10 thousand barrels per day of production from commercial plants placed in service by 1987. The credit will then continue throughout the life of qualifying plants or 20 years, whichever is shorter. The Administration will also discuss with the conferees a provision to phase out the credit when world oil prices exceed the cost of shale oil to U.S. refiners.
- o DOE will issue regulations to provide shale oil (and other synthetic liquids) with the same entitlements treatment as imported crude oil.

DISCUSSION: Both initiatives will facilitate commercial production by placing shale oil in a competitive price range with fuel oil, particularly in mixtures with conventional residual fuel oil. Together, the limited tax credit and the new entitlements treatment will reduce the effective costs of oil-shale production by \$7 to \$8 per barrel for initial plant

production. As a result, firms which are actively developing technologies will have powerful incentives to proceed with the initial modules (10 thousand barrels per day) of commercial-scale plants. These smaller plants will result in substantially higher production costs than later commercial-scale plants. Five producer groups currently seem capable of initial plant construction (three using surface-retorting and two using in situ methods). If all five groups respond to the tax credit, shale oil production would be 50 thousand barrels per day or more by 1987. The total capacity of the five full-scale plants would be on the order of 250 thousand barrels per day.

Although these initiatives will reduce the expected prices for shale oil produced from these demonstration plants to levels approximating the cost of imported oil, the production economics of shale oil and the ultimate potential for domestic production are difficult to predict. Variations in the quality of the shale, performance of the extraction technology, financing terms, and environmental controls can alter the required price of individual projects by several dollars per barrel. Shale oil, however, will become more competitive in commercial-scale plants.

The cost of the tax credit in reduced revenues to the Treasury would be approximately \$1 billion through 2000. If the world price were to exceed the cost of shale oil, the proposal to phase out the tax credit under that condition would reduce the ultimate Treasury loss.

The limited credit will encourage controlled development of shale oil production. DOE environmental research and assessment activities (pollution characterization, monitoring and identification of health effects) will expand to keep pace with increased oil shale development. These efforts will attempt to mitigate any adverse environmental impacts at the one-module plant scale before full-scale plants are built.

SYNTHETIC LIQUID AND SOLID COMMERCIAL DEMONSTRATION

BACKGROUND: Domestic coal can provide a potentially large supply of the liquid and clean solid fuels which will be needed in the late 1980's and the 1990's. Synthetic liquid and solid technologies have not yet emerged on a commercial scale in the U.S. In South Africa, however, advanced versions of processes used in Germany during World War II now produce high-cost synthetic gasoline from coal.

Several new processes are under development in the U.S. for production of lower-cost synthetic fuels. The most advanced include solvent refined coal (SRC I, a solid, and SRC-II, a liquid), H-Coal and Donor Solvent.

On a commercial scale, the liquids made from these new processes would cost an estimated \$20 to \$35 per barrel. Since these costs clearly exceed current world oil prices, government assistance is essential to advance synthetic coal liquid and solid processes to the point of commercial readiness.

PROPOSAL: To develop the capability to produce synthetic liquids and solids from coal as rapidly as technically feasible, the following initiatives are proposed:

- o Process design studies will begin for four or five bonafide coal liquid and coal solid demonstration plants. The studies will cost approximately \$6 to \$8 million each, and will start in FY 1978 and conclude by mid FY 1979.
- o At this point, the SRC processes are at a more advanced stage of development than other processes currently under development in the United States. If the process studies and parallel negotiations on cost sharing are successful on the SRC processes, DOE would proceed to detailed design for two plants using the funds currently in the President's FY 1979 budget (\$23 million) and in FY 1980 would move into the procurement and construction phases on one or two plants. If the above conditions are not met by either one or both of the SRC technologies, DOE would be in a position to finance one or more of the other proposals in FY 1980. This approach will assure expeditious development of synthetic coal technology within the funding levels provided in the FY 1979 budget.

DISCUSSION: These initiatives will demonstrate the economic and technical viability of producing synthetic liquids and solids from coal. If the program meets its scheduled goals, the first demonstration modules will be on line by 1983 and commercial-scale plants could be on line by 1987. The preliminary process design studies will assess whether proceeding to detailed design and construction makes technical and economic sense. The decision to proceed will await completion of the process design studies.

Electric and gas utilities are discussing the possibility of purchasing a portion of the output from the SRC I and SRC II plants during the early years of their operation.

Major benefits will accrue from demonstrations of synthetic fuels production technology. If world oil prices rise moderately to the point at which synthetic fuels are competitive, production could be initiated rapidly -- many years sooner than without such a program. This would reduce oil imports through direct displacement and place a downward pressure on world oil prices by reducing the demand for OPEC exports. In addition the coal solids technology offers a promising, cost effective means for meeting environmental standards.

UNCONVENTIONAL NATURAL GAS

BACKGROUND: Natural gas from geopressurized zones has great but uncertain potential. However, it is not now produced commercially because of technical and environmental problems, unfavorable economics, and the uncertain nature of the resource base. The private sector is not expected to develop geopressurized methane resources in the near future because of these uncertainties.

PROPOSAL: The potential commercial application of geopressurized methane will be accelerated by expanding the current Federal R&D program (\$10 million in FY 1979) as follows:

- o Increase the number of geopressurized wells drilled in FY 1979 by two (from two to four) to reduce the time required to complete the planned 3-year feasibility study of this resource.
- o Initiate further supporting work on the geopressurized methane resource to provide the information base for eventual commercial development.

DISCUSSION: The accelerated drilling program will demonstrate the feasibility of developing geopressurized gas resources sooner and will provide technical and economic information to aid energy planning and private development. If this initial feasibility drilling program proves successful, subsequent demonstrations would provide critical data on reservoir productivity, both rates and lifetimes, as well as information about environmental issues, including brine disposal and surface subsidence.

An expanded technology program will accelerate development of the resources and could have a large payoff for a relatively small level of Federal involvement. Even if optimistic estimates are too high, the program will provide better information concerning the resource base and production costs that is essential to energy planning.

HIGH-BTU COAL GAS

BACKGROUND: High-Btu coal gas could become an important domestic source of energy. Several commercial projects have been promoted actively, but no plants are actually being constructed. Slow progress is attributed primarily to siting delays and a lack of private financing as opposed to any specific problems with the basic technology.

A commercial-scale, high-Btu coal gas project represents a large investment (\$1.6 billion for a 250 million cubic foot per day plant). If unforeseen technical or other obstacles prevent completion of a plant, the debt repayment burden could seriously erode the corporate net worth of project sponsors. In addition, rolled-in pricing is necessary to assure the marketability of the relatively high cost gas from these plants.

The capability to accelerate commercialization of high-Btu coal gas provides a hedge against scarce, expensive oil. To develop the capability well in advance of higher-priced oil, however, requires that the government modify the marketability and non-completion risks and remove some institutional barriers confronting the first commercial plants.

PROPOSAL: On a case-by-case basis, DOE will review commercial-scale high-Btu coal gas projects to determine the need for:

- o Intervention before FERC to argue for tariff protection against non-completion, or
- o Federal loan guarantees (\$20 million in FY 79, total to be determined).

DOE will develop criteria and procedures for this case-by-case review; issue regulations and request simplification of existing authority to guarantee loans promptly; and develop a strategy for intervening before FERC. Such efforts would supplement a favorable FERC action on rolled-in pricing for these projects.

DISCUSSION: This initiative will ensure that risks currently associated with high Btu coal gasification are modified selectively (for several commercial-scale plants). Market risks, caused by the high cost of high-Btu gas, will be addressed by support for a favorable FERC ruling on rolled-in pricing. The risks of noncompletion will be addressed through loan guarantees or by tariffs that will insure that

investors are adequately protected. For example, FERC could modify conventional tariffs to include a non-completion guarantee; alternatively it could treat, on a contingent basis, the costs of the first few plants as research and development expenditures (an extension of FPC Order No. 566). Under a selective approach, tariff modifications can be made to fit the special risks of each project and its sponsors.

In particular, case-by-case determinations shall be made whether and how the ratepayers of a particular pipeline or utility consortium should bear the cost of any project failure. In some circumstances, loan guarantees may be the most effective and equitable method of insuring against project risk. This initiative demonstrates that the Federal Government would be willing to provide that insurance when appropriate.

The cost of insuring against the risk of noncompletion is expected to be moderate. Noncompletion is highly improbable and there are likely to be assets to offset noncompletion costs. In addition, many of the potential reasons for noncompletion would probably stop the project before substantial project costs were incurred.

High-Btu coal gas can be an important cost-effective source of future supply. In the residential sector, for example, high-Btu coal gas already competes favorably with electricity. For other sectors, this initiative can insure that the U.S. will obtain the technical and institutional capability to build additional capacity rapidly. With higher oil prices, additional capacity would save the U.S. economy as much in reduced imports as it would cost in the near term to build several plants.

PHOTOVOLTAICS

BACKGROUND:

Photovoltaic (solar-electric) cells convert sunlight directly into electricity. They have a wide range of potential applications, since electricity can be used to meet all types of energy demands. Moreover, photovoltaics can be used either for dispersed or central power generation. However, costs must be reduced substantially before photovoltaics are competitive for residential applications with electricity from conventional sources.

PROPOSAL:

DOE will expand the current focus on flat plate silicon cell technology to include new technologies -- such as those utilizing amorphous materials, photochemical conversion and advanced concentrator concepts. This proposal will increase FY 1979 funding of the four major research competitions initiated in FY 1978, and fund unsolicited proposals in advanced concentrator performance, cost reduction concepts and electrolyte semiconductor cells. It will also increase funding of advanced thin film materials, initiate an R&D program to provide starter grants for novel high risk conversion concepts, and initiate a program to improve the stability and reliability of thin film devices (\$30 million in FY 1979).

DISCUSSION:

Together with the current program, these efforts are designed to reduce the costs of photovoltaic arrays to \$.50 per peak watt by 1986, or \$1.50 to \$2.00 per peak watt for total systems costs. By comparison, total systems costs today are \$20 per peak watt. These reductions in array costs, plus expected reductions in the cost of associated storage, structural and power conditioning equipment, should make solar competitive with residential electricity at approximately 7 cents per kwh in 1986 in regions with generally sunny weather.

WIND

BACKGROUND:

Wind energy conversion systems have the potential to produce electricity for utilities and central power stations, as well as for dispersed applications. For utilities, a fourfold cost reduction is needed; for small machines and other dispersed applications, a twofold cost reduction may be adequate.

PROPOSAL:

For large (1-2 mw) utility-scale machines, this initiative will introduce a significant amount of market competition, market testing and user acceptance into the current program. Two competing manufacturers (rather than one as presently planned) will be selected to design, fabricate and field test a prototype of the next generation of wind machines. If these machines meet performance expectations, the Federal government will purchase six more units for the purpose of obtaining manufacturing and operating experience. The proposed initiative will also provide increased funds for test machines which the Government and the utility partners will evaluate in terms of economic, environmental, systems integration and other perspectives. If the evaluations of the prototypes to be developed under this amendment prove favorable, DOE will consider efforts to stimulate their widespread use.

This initiative will also provide for the purchase and installation of at least 50 small (1-15 kw) wind machines for a test program that would lead to early resolution of rate schedule and operational problems with electric utilities and with State and local governments. Efforts will also begin to accelerate design and development of more advanced small systems aimed at single family and rural applications.

The total cost of this initiative would be \$20 million in FY 1979. Of that amount, \$13 million would be for the large wind machines and \$7 million for small machines.

DISCUSSION:

Together with the current program, this initiative is aimed at reducing costs for large utility-scale machines to about 3 cents per kwh by 1985, at which point a sizeable commercial market should be realized. The costs of these large wind systems may ultimately be reduced below 2 cents per kwh. The development of a new generation of small wind machines, together with the proposed NEA tax credit, should speed commercialization in the utility, agricultural and dispersed residential markets.

GAS AND LIQUID FUELS FROM BIOMASS

BACKGROUND:

Direct combustion of biomass is already economic and substantial quantities are consumed now in the forest products industry. Technologies for converting biomass to alcohol fuels are relatively well known and some States are already experimenting with gasohol programs. However, biomass also offers the potential for the production of other gas and liquid fuels, using processes that are likely to pose fewer environmental hazards than those for producing synthetic fuels from coal.

PROPOSAL:

This initiative will accelerate research and foster innovative approaches to convert wood and other forms of biomass directly into methane or liquid fuels. It will place initial emphasis on basic thermochemical processes for the de-oxygenation of cellulose. This effort should open up new approaches for the synthesis and extraction of hydrocarbons from biomass feedstocks. These direct conversion processes will primarily produce fuel oils, residual oil, gases, and other products that closely resemble products now derived from petroleum refining and petrochemical processing (\$10 million in FY 1979).

DISCUSSION:

Since these processes are not well understood at the present time, the economics are uncertain. However, some of the more promising thermochemical approaches may result in costs that are equal to or lower than other comparable synfuels processes. Biomass technologies could become economic at an earlier time in regions of the country where low-cost waste products would be used. The potential cleanliness of these processes should reduce the possibility of encountering siting problems. The initiative will include active participation by USDA in both planning and implementation.

LOW-HEAD HYDRO

BACKGROUND:

During the last several decades, many small hydropower plants in New England and elsewhere have been retired from service because they were unable to compete with lower priced electricity generated by other means. Now that energy prices are increasing, it is frequently

cost-effective and desirable to rebuild these and other dam sites and install modern, efficient turbo-generators. Due to their small size, these sites have not attracted widespread interest on the part of utilities. Pending provisions of the NEA, however, require utilities to purchase power at fair rates from small producers. Since the sites are likely to be developed under disparate conditions, a variety of institutional barriers must be overcome. In addition, power generation costs must be reduced to ensure viability.

PROPOSAL:

This initiative will accelerate the commercialization of small hydro turbines by the domestic turbine industry through funding at least two manufacturers to develop packaged turbogenerators. Additional funds will provide loans for feasibility studies to determine the technical, economic and environmental merit of about 100 existing dam sites (loans would be forgiven if a project at that site proves to be infeasible). Also, utilization experiments will be conducted to demonstrate project viability under alternative technical and institutional conditions. Total funding would be \$10 million for feasibility studies, \$5 million for turbogenerator development, and \$5 million for utilization experiments (\$20 million in FY 1979).

DISCUSSION:

Together with the existing program, this initiative is aimed at reducing the cost of retrofitting existing dams by about 20 percent. Electricity from small hydro projects could economically meet peak demands at some sites, and hence reduce conventional capacity requirements. On streams that are intermittent, the hydropower would simply save fuel for the utility system rather than displace capacity. By 1990, up to 4000 mw could be installed.

APPROPRIATE TECHNOLOGY

BACKGROUND:

This program is aimed at developing new ideas for small-scale systems that conserve energy or produce energy from renewable resources. A pilot program to tap this innovative potential was developed in 1978 and implemented in several western states. The first set of proposals under this pilot program were analyzed recently, and expansion of the program is warranted.

PROPOSAL:

This initiative will provide sufficient funds to expand the appropriate technology program to all ten Federal regions. The program will encourage individuals and small businesses to develop and prove the feasibility of a variety of small-scale technologies that rely on low-cost, locally available materials. Emphasis will be placed on technologies that may not be universally applicable, but which are appropriate to markets characterized by unique regional, institutional and end-use conditions. Grants are limited to \$50,000 each (\$5 million in FY 1979).

DISCUSSION:

This initiative will allow development of several hundred innovative ideas in all parts of the Nation. Some will be suitable for direct use; others may require follow up or evaluation through other DOE programs.

DISPERSED ENERGY SYSTEMS DEMONSTRATION

BACKGROUND:

There are many technologies and small-to-intermediate scale energy systems that do not fall into traditional DOE program categories. For example, more flexibility is needed to demonstrate concepts developed under the appropriate technology grants program, and to fund proposals for energy systems on a neighborhood or sub-municipal scale.

PROPOSAL:

Building upon the appropriate technology small grants program and the existing buildings and community systems program, this initiative will provide for demonstrations and evaluations of decentralized technologies utilizing dispersed energy sources. Emphasis will be placed on systems that minimize energy waste and that utilize innovative combinations of known technologies. Possible demonstrations may range from self-sufficient, neighborhood-scale solar heating/storage systems to integrated renewable energy systems for business or industrial use. Examples of technologies that might be demonstrated are aerobic digestion, electrical and thermal storage and waste heat recovery. The demonstrations program will attempt to encourage adoption of such technologies for applications as diverse as industrial parks, commercial/residential neighborhoods or entire communities. Funding would be \$5 million in FY 1979.

DISCUSSION:

By evaluating the suitability of these technologies under a variety of geographic, institutional and socioeconomic conditions, this initiative will speed commercialization of innovative, decentralized energy systems.

PASSIVE SOLAR HEATING AND COOLING

BACKGROUND:

Passive solar buildings capture solar heat with devices such as greenhouses or south-facing windows with overhangs, and store the heat in masonry walls or floors, rocks, or roof ponds. These devices are intended to capture and radiate solar energy into the building for heating or to remove heat from the building for cooling. The potential energy savings are considerable. Since passive solar devices are often integral to the building structure, they are difficult to define for tax credit purposes. Active solar equipment, however, will be eligible for substantial tax credits under the NEA.

PROPOSAL:

This initiative will stimulate and publicize innovative, practical passive solar designs through financial awards to architects and builders. Competitions will be held nationally and regionally; they will be structured to include members of the architectural and building communities as well as local government authorities. Projects will be judged on the basis of architectural innovation, marketability and energy savings. Funding for this program would be \$5 million in FY 1979.

DISCUSSION:

Combined with conservation, passive solar designs can cut energy demands 50 to 80 percent compared to today's designs. The high visibility of the awards competition will not only increase general awareness of passive solar techniques, but should accelerate their adoption by the building industry in all geographic regions of the country.

SOLAR TRAINING AND EDUCATION

BACKGROUND:

The solar heating industry has grown from almost nothing five years ago to a level of annual sales exceeding \$200 million. The growth of the solar industry could be constrained over the long term by a lack of skilled installation and maintenance personnel.

PROPOSAL:

This initiative will establish training programs which will be operated by labor unions, community colleges, trade associations and other qualified groups. Funds will be used to purchase learning aids and materials necessary to acquire knowledge and hands-on skills, and to train instructors who will thereafter include solar skills and/or designer training in their regular curriculum. The trades affected include plumbing, sheet metal work and other occupations connected with conventional heating, ventilating and air conditioning systems (\$5 million in FY 1979).

DISCUSSION:

This short-lived program is designed to "teach the teachers." When Federal support is terminated, these activities should be self-sustaining. The program should help remove a significant barrier to the solar industry's rapid growth.

LEVERAGING FEDERAL SOLAR EXPENDITURES

BACKGROUND:

The Federal government intends to provide a significant impetus to the solar energy industry by making large purchases of solar equipment. It is important that this program not only provide a Government market for solar equipment, but also encourage a private market.

PROPOSAL

The NEA is expected to authorize \$100 million over three years for the Federal government to purchase solar heating and cooling systems for Federal buildings. DOE is reviewing the possibility of restricting these purchases to vendors whose sales to the government are matched by a specified percentage of sales to the private sector.

DISCUSSION:

DOE will begin discussions immediately with representatives of solar industries, Federal agencies, and other interested parties to determine the feasibility of leveraged purchasing. In developing such a program, special care will be taken to promote competition. No budget increment is required for this program.

ENERGY IMPACT ASSISTANCE

BACKGROUND: The President announced on May 4 a new program of assistance to States, Indian tribes, and local governments to meet needs for public services arising from large-scale energy development. Although not part of this initiative package, this program will aid in reducing institutional difficulties arising from development of new energy supplies.

A large share of new energy development will occur in isolated areas of the West and rural portions of Appalachia. As development is initiated, demands for new public services increase. In contrast, public revenues typically do not increase until development is well-advanced and production commences. This budget deficit, as well as the needs for planning for expansion, can overwhelm the financial and human resources of the small communities now located in these undeveloped areas.

Existing Federal programs do not address the financing needs of these communities, while State and private efforts have proved inadequate. With the exception of assistance programs to communities impacted by development in the coastal areas, existing Federal programs have eligibility requirements which often restrict participation by communities impacted by energy growth. The lack of Federal program coordination requires communities to sort through a bewildering array of requirements in order to obtain assistance. Lack of information on projected resource development restricts communities' ability to influence and respond to energy development decisions. State and private industry efforts to address energy development impacts have been only partially successful.

PROPOSAL: New legislation will provide:

- o Annual grants over 5 years to States and Indian tribes to be used to plan for orderly development, and to establish revolving funds to meet front-end financing needs for public facilities, services and housing (\$135 million for FY 1979; \$725 million in total). The total funding level includes both this initiative and funding under Section 306 of the National Energy Act.

- o A total of \$15 million annually for 5 years to support Federal loan guarantees, with an interest rate subsidy to assure a borrowing rate equivalent to the average municipal borrowing rate.
- o States and tribes will be responsible for projecting local energy development, assessing expected impacts and developing financial plans for meeting community needs.
- o States and tribes will be required to provide matching funds and will be expected to encourage private involvement.

In addition, the Federal government will consult States, local governments, and Indian tribes before major Federal energy development decisions are made and will make data on public and private development plans available. The Department of Commerce will coordinate all Federal assistance programs to impacted communities.

DISCUSSION: The impact assistance program is designed to provide flexible Federal financial assistance to the States and tribes which can be used to meet the diverse needs of impacted communities for planning and front-end financing. To encourage the development of institutional capacity, the States and tribes would be responsible for projecting development, identifying and prioritizing related impacts, and developing financial strategies for impact avoidance and mitigation. The matching grants, the planning requirements and allocation formula would provide incentives to the States to institute mechanisms such as severance taxes and facility siting laws to encourage industry participation in addressing such impacts.

A loan guarantee program would be provided at the Federal level to assist communities in financing public service needs. Funding for the program would be used for interest rate subsidies to reduce the effective borrowing rate to the average municipal rate.

To improve the planning and management process, State, tribal and local officials will be given a greater opportunity to influence Federal energy development decisions. Timely and consistent information will be provided on projected energy development. The initiative will also substantially increase coordination of impact assistance from existing Federal programs.

EXPEDITING THE REGULATORY PROCESS

BACKGROUND: Timely development of domestic energy resources already has been delayed by barriers created in public and private institutions. Uncertainty, confusion and delay encountered in siting, constructing and operating new energy facilities has been increased by the growing complexity of regulatory processes at the Federal, State and local levels. Poor coordination among regulatory bodies produces conflicting and duplicative requirements, schedules and information. Frequently, time-consuming and expensive delays (which contribute to inflation) occur in bringing needed energy projects on line.

PROPOSAL: DOE will establish a central point of contact for assisting in the resolution of institutional impediments to specific energy projects.

DISCUSSION: DOE would work with the public and private sectors to anticipate, identify and find solutions to regulatory barriers, which unnecessarily impede the development or operation of energy projects. In this trouble-shooting role, DOE would address procedural or administrative problems which reside between and among Federal or State agencies and between government agencies and the private sector. DOE would act as a coordinator and as a communications channel to mediate disputes, propose alternative solutions and assist participants in focusing on substantive issues. DOE would not usurp or influence legally established regulatory authorities or processes. In general, this DOE participation would be based on requests for assistance.

PROPOSED REDUCTIONS

The supply initiatives which impact on the FY 1979 budget will be financed by reductions of \$130 million in the Department of Energy's FY 1979 budget request. A brief summary of these reductions follows:

Light Water Reactor Technology - \$10 million

The purpose of this program is to improve the productivity and safety of existing light water reactors. The reduction would allow continuation of work on safety, generic reliability technologies and programs primarily directed toward nonproliferation objectives. Work on improved plant availability by shortening fueling outages and flow-induced vibrations, as well as construction modularization, will be eliminated. Negotiations are underway with EPRI to increase its program in these areas.

Waste Management Facilities - \$51 million

This project provides for the construction of tanks and associated facilities for storage of defense waste at Savannah River. Updated production requirements and several new process changes have resulted in a forecast of reduced defense nuclear waste at Savannah River through the late 1980's, allowing for the reduced scope of this project.

Advanced Technology and Assessment Projects - \$ 5 million

The purpose of this activity is to provide the capability to identify promising advanced technology and assessments projects. Actual projects to be undertaken will be determined in part by the evolving character of the DOE R&D program. The revised request will provide a satisfactory level of funding to initiate the required analysis.

National Uranium Resource Evaluation - \$10 million

The purpose of this program is to evaluate domestic uranium and thorium resources. Current assessments indicate that the \$30 million increase requested for FY 1979 can be reduced without a significant negative impact on this important work.

Vanpooling - \$ 9 million

These funds would have been used for purchase of commuter vans for the Federal Employee Vanpool Program. The Congressional Conference action on the National Energy Act prohibits such purchase.

Clean Boiler Fuel Demonstration (Coalcon) - \$45 million

Unobligated balances available as a result of the technical infeasibility of this coal conversion project will be applied against FY 1979 appropriation requirements.

TOTAL REDUCTION - \$130