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APPROVED

OCT 26 1974

**EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503**

OCT 23 1974

MEMORANDUM FOR THE PRESIDENT

**Subject: Enrolled Bill S. 3234 - Solar Energy Research,
Development and Demonstration
Sponsors - Sen. Humphrey (D) Minnesota and 11 others**

*Postal
10/28*

Last Day for Action

October 29, 1974 - Tuesday

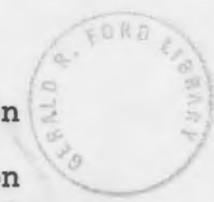
*To Wash DC
10/29*

Purpose

S. 3234 establishes a Solar Energy Coordination and Management Project to conduct research, and to demonstrate the commercial use of several solar energy technologies.

Agency Recommendations

Office of Management and Budget	Approval
Federal Power Commission	Approval
Atomic Energy Commission	Approval
Federal Energy Administration	Approval
National Science Foundation	No objection
Department of Housing and Urban Development	No objection
Department of the Interior	No objection
Department of Commerce	No objection
National Aeronautics and Space Administration	No objection



Discussion

Solar energy is broadly defined in the bill as energy recently originating from the sun including: direct and indirect solar radiation and intermediate forms of energy such as wind, sea thermal gradients (differentials in ocean temperatures), photosynthetic processes (converting light to other forms of

energy), and conversion of organic wastes to synthetic fuels. In the findings portion of the bill, it states that research, demonstration and development of clean, renewable, and economically feasible energy alternatives are particularly important in this period of depleting supplies of conventional energy resources. The findings portion of the bill further states that the Federal investment in developing clean and renewable energy alternatives may reach or exceed \$1 billion.

Recognition of the growing interest in solar energy research and development was reflected in the recent enactment of the Solar Heating and Cooling Demonstration Act of 1974, which authorized a coordinated program to develop and demonstrate economically feasible solar heating and cooling systems.

S. 3234 would go beyond heating and cooling to much broader applications. To carry out its broad purposes, the enrolled bill would establish a Solar Energy Coordination and Management Project (Project) -- whose functions would be transferred to the Energy Research and Development Administration (ERDA) within 60 days of the effective date of the Act establishing that agency. The bill would also authorize the Project to conduct demonstrations of new categories of solar or solar-related energy.

The Project would be comprised of six members -- one at the assistant secretary or comparable level from each of five agencies plus one member appointed by the President. The President would be authorized to designate any member to serve as Chairman. The Project -- and ultimately ERDA -- would have the authority to determine the extent of resources available, to conduct research, and to develop and demonstrate new technologies.

The enrolled bill provides that the Project shall establish overall management and coordination for a national solar energy research and development and demonstration program, and that in carrying out the program the Project shall cooperate with other Federal agencies which shall specialize in particular areas including:

- NSF - research
- NASA - management and development of technologies
- AEC - development of technologies

- HUD - heating and cooling of buildings
- FPC - generation of electricity and production of synthetic fuels

More specifically, the bill would provide that the Chairman shall, acting in cooperation with or acting through other agencies:

- prepare a comprehensive program definition of an integrated effort for developing solar energy. \$2 million is authorized to be appropriated to NSF to be made available during fiscal year 1975 for this purpose
- initiate a program to assess the state of solar energy resources on both a national and a regional basis. This would include developing advanced instruments for collecting, evaluating, and disseminating data as well as predicting future resource availability. A part of the program would involve developing an inventory of as many forms of solar energy resources as possible
- initiate a research and development program designed to make commercial use of various forms of solar energy technically feasible in the United States. The problems and the forms of technology shall include:
 - (1) direct solar heating for industrial use
 - (2) thermal energy conversion to electricity
 - (3) cellulose and organic waste conversion to electricity
 - (4) photovoltaic energy and other direct conversion processes
 - (5) windpower energy
 - (6) energy storage



- initiate a target program to design, construct, and demonstrate solar energy facilities or power plants to produce both electricity (on the order of one to ten megawatts each) in each technological area and commercial quantities of synthetic fuels. The bill would authorize the Chairman to either contract through appropriate Federal agencies or to act alone to develop, construct, and operate demonstration plants under certain specified criteria. The bill would further authorize the respective agencies to dispose by sale or lease of their financial interests in such plants at the conclusion of the demonstration phases of the projects
- establish and operate a Solar Energy Information Data Bank. A less extensive bank was established under the Solar Heating and Cooling Demonstration Act in HUD, but the transfer of this responsibility under that Act to ERDA was unclear and this bill will assure transfer of that function to ERDA
- support programs of science and engineering education in the solar technology area through fellowships, technical training programs, and summer institute programs
- establish a Solar Energy Research Institute to perform research and development functions related to this Act. Such institute could be part of existing Federal laboratories and
- encourage international agreements for scientific cooperation by cooperating or participating jointly with other nations in research, information exchange, and other such related activities.

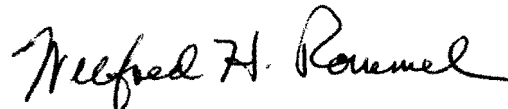
The bill would authorize appropriations of \$75 million for fiscal year 1976. Whether or not this authorization will be utilized will necessarily depend on the budgetary planning for all ERDA programs.

While individual agencies would be responsible operationally for particular projects, the enrolled bill would establish an overall coordinating and managing body for a national solar energy research, development, and demonstration program with the objective of initiating an aggressive and comprehensive program to develop economically and technically feasible applications of solar energy.

The enactment of law on October 11, 1974 establishing ERDA makes much of this bill moot although there are specific program responsibilities which would be created by this bill and would be taken into account as the ERDA structure is developed. The ERDA law takes effect within 120 days of enactment, and the functions vested in Federal agencies under this bill are to be transferred to ERDA not later than 60 days after that.

Although this bill is effective when signed, with one exception, all of the funds for the Project are authorized for fiscal year 1976. The exception is NSF which would be authorized \$2 million for the comprehensive program definition referred to above. The effect of the timing of the appropriation would be to have the transfer to ERDA effected before any funds are authorized for the Project beyond the NSF research funds.

The enrolled bill had been intended to focus attention on and increase efforts directed toward the solar energy field in anticipation of the establishment of the more comprehensive energy program contemplated by ERDA. With the enactment of ERDA, this bill has only marginal effect on already existing authority combined with the ERDA authority.



Assistant Director for
Legislative Reference

Enclosures

THE WHITE HOUSE

WASHINGTON

ACTION

Last Day - October 29

October 25, 1974

MEMORANDUM FOR:

THE PRESIDENT

FROM:

KEN COLE

SUBJECT:

Enrolled Bill S. 3234
Solar Energy Research, De-
velopment and Demonstration

Attached for your consideration is Senate bill, S. 3234, sponsored by Senator Humphrey, which establishes a Solar Energy Coordination and Management Project to conduct research, and to demonstrate the commercial use of several solar energy technologies.

Roy Ash recommends approval and provides you with additional background information in his enrolled bill report (Tab A).

The Counsel's office (Chapman), Bill Timmons and Domestic Council all recommend approval.

RECOMMENDATION

That you sign Senate bill, S. 3234 (Tab B).

FEDERAL POWER COMMISSION
WASHINGTON, D.C. 20426

OCT 18 1974

ENROLLED BILL
S. 3234 - 93d Congress

Honorable Roy L. Ash
Director, Office of Management and Budget
Executive Office of the President
Washington, D. C. 20503

Attention: Mrs. Louise Garziglia
Legislative Reference Division
Room 7201, New Executive Office Building

Dear Mr. Ash:

This is in response to Mr. Rommel's request of October 15, 1974, for this Commission's views on S. 3234, an Enrolled Bill, the "Solar Energy Research, Development, and Demonstration Act of 1974".

The Commission is in agreement with the basic goals and the structural framework for the management of solar research and development provided in this bill. In light of its assessment of the shortages which exist in gas and electric supplies, the Commission has long advocated the need for development and utilization of solar energy as one of the new environmentally acceptable energy forms, for the coordination of solar research within the Energy Research and Development Administration (ERDA), and for the commercial utilization of the results of solar research.

On July 30, 1974, before the Subcommittee on Energy, of the House Committee on Science and Astronautics, I commented more specifically on a similar proposal, H.R. 15612 (statement enclosed).

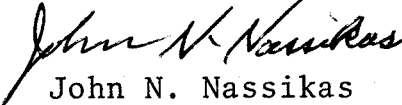


Section 17 of the Enrolled Bill limits the amount of expenditures to be appropriated through the fiscal year ending June 30, 1976, after which subsequent sums are to be authorized by Congress. This provision allows the priorities for solar research to be defined so that before extremely large financial outlays are appropriated, government expenditures can be concentrated in areas which will warrant eventual private involvement.

The Commission has no objection to having one of its members serve on the Solar Energy Project or in any other similar capacity to assist the Project in carrying out its responsibilities as long as the participation of FPC personnel is within the Commission's discretion. This Commission is small and our workload is intense. It is essential that the use of our vital manpower be consistent with the Commission's statutory responsibilities.

Accordingly, the Commission supports the enactment of the Enrolled Bill.

Sincerely,


John N. Nassikas
Chairman

Enclosure:
Statement before the
Subcommittee on Energy,
House Committee on Science and
Astronautics, July 30, 1974

STATEMENT OF JOHN N. NASSIKAS
CHAIRMAN, FEDERAL POWER COMMISSION

BEFORE THE
SUBCOMMITTEE ON ENERGY
COMMITTEE ON SCIENCE AND ASTRONAUTICS
UNITED STATES HOUSE OF REPRESENTATIVES

JULY 30, 1974

Mr. Chairman, I am pleased to present my comments on your pending proposal, H. R. 15612, the "Solar Energy Research, Development and Demonstration Act of 1974." As noted in your letter of July 18, 1974, the objective of the program this bill would establish is "to bring to commercial demonstration as soon as possible a broad spectrum of solar energy technologies." I share your view of the importance and the urgency of this proposal.

Our current reliance on non-renewable fossil fuel resources must be displaced by new, inexhaustible, environmentally acceptable energy forms and technologies. Solar energy is among the most promising of these new energy forms and I support this legislation's emphasis on its expedited development and

commercial utilization.

Your letter of invitation to appear at this hearing specifically requested my views on (1) the administrative structure provided for in the bill to implement solar R&D efforts; (2) the adequacy of the bill's approach to the funding of solar R&D; and (3) the steps necessary to achieve the bill's emphasis on commercial utilization of the results of solar research. I will, therefore, concentrate on these aspects of the bill.

Administrative Structure

H. R. 15612 would establish a Solar Energy Coordination and Management Project, composed of the Administrator of the Federal Energy Administration (who would act as Chairman of the Project), an Assistant Director of the National Science Foundation, an Assistant Secretary of Housing and Urban Development, a member of the Federal

Power Commission, an Associate Administrator of the National Aeronautics and Space Administration, and the General Manager of the Atomic Energy Commission. The purpose of the Project would be to carry out the Congressional policy of a "vigorous and adequately funded program of resource assessment, research and development, and demonstrations, with the objective of utilizing solar energy as a major source for our national energy needs." (§3) The Project would have the exclusive authority to establish programs or projects under the Act, but the programs would be carried out by the National Science Foundation, NASA and the AEC. Upon establishment of the Energy Research and Development Administration, or an equivalent agency, the National Science Foundation, NASA and AEC functions would be transferred to it.

I am in basic agreement with the bill's framework for the management of solar research and development,

especially the placing of ultimate management responsibility in the Energy Research and Development Administration (ERDA) if and when it is created. In testimony before this Committee in May of 1973 1/ and again in my February 6, 1974 statement to this Committee on geothermal legislation, 2/ I emphasized that it is essential that we unify the presently fragmented energy related activities of the Federal government. In the area of energy research and development, I believe the Administration's proposal to establish ERDA should be enacted and that that agency should manage and coordinate all energy R&D programs.

In the interim, however, pending the creation of ERDA I share your belief, Mr. Chairman, that action on essential R&D programs, such as your geothermal and solar

1/ Hearings before the Subcommittee on Energy, Committee on Science and Astronautics, House of Representatives on the Assessment of the Energy Problem and Implications for Energy R&D, May 17, 1973.

2/ Hearing before the Subcommittee on Energy Committee on Science and Astronautics, House of Representatives on HR 11212 "Geothermal Energy Research, Development and Commercial Demonstration Act of 1973," February 6, 1974.

R&D bills, should go forward on an expedited basis. Therefore, I endorse your proposal to create without further delay a Solar Energy Coordination and Management Project under the leadership of a policy group of Federal officials intimately familiar with the energy and energy research needs of the Nation. I also support the bill's selection of the National Science Foundation, NASA and the AEC as the agencies best equipped to move forward on solar R&D projects under the management leadership of the Federal officials designated as the members of the Project. These agencies have the facilities, the experience, and the staff expertise to devise and implement necessary solar R&D programs.

In effect, the bill provides for management by a committee of officials with full time responsibilities in other agencies of Government. Were it not for the interim nature of this management arrangement (pending

creation of ERDA) I would not endorse this aspect of the bill because I do not believe that effective policy can be formulated and administered in this manner on a permanent basis. A matter as important as energy R&D requires full time administration such as ERDA will provide.

While the bill expressly states in §16 that the functions of the National Science Foundation and NASA will be transferred to ERDA within sixty days of the date on which ERDA is established, it is silent with respect to the continued existence of the management group, the Solar Energy Coordination and Management Project. I believe it should be expressly provided that the Project will be terminated upon ERDA's assumption of the solar R&D responsibilities of the National Science Foundation, NASA and the AEC. It would, in my view, be inconsistent with the fundamental purpose of centralizing energy R&D authority in ERDA to retain the Project and its management oversight responsibilities. 3/

3/ Similarly, while I support the provision in §13 for the creation of a Solar Energy Information Data Bank I think it should be clearly provided that if a centralized Energy Data Bank is established as now proposed the Solar Data Bank would be incorporated within it.

Also, during the period when the Project is exercising the management responsibilities under the bill it should be clear on the face of the legislation that the collective management responsibilities specified in §5 are in fact being exercised on a collective basis. Sections 12, 13, 14, 15, 17 and 18 depart from the earlier provisions of the bill in that they appear to delegate extensive individual responsibilities to the Chairman of the Project independent of the collective membership of the Project. Since presumably these sections are not intended to depart from the explicit designation of a management committee in §5, they should be clarified to indicate that the functions and responsibilities prescribed in those sections are the collective responsibility of the Project membership.

I would like to offer one final point with respect to the bill's administrative structure. Section 5(d)(1) specifies that the Project shall discharge its responsibilities in cooperation with five specific agencies,

including the Federal Power Commission. Subsection 5(d)(2) states that "[u]pon request of the Project, the head of any such agency [including the FPC] shall detail or assign, on a reimbursable basis or otherwise, any of the personnel of such agency to the Project to assist it in carrying out its responsibilities under this Act." This provision could be construed to deny the head of an affected agency such as the FPC of the right to exercise discretion in the assignment of personnel to the Project. It should be made clear in the bill that the assignment of personnel is within the discretion of the agency involved. The workload on our Commission, for example, is intense and I believe I must have the discretion to decide when and on what terms we can spare our staff members for other activities. I hasten to add that I would cooperate with the Project to the fullest extent possible in all respects, including the delegation of FPC personnel to assist in the Project's work, but it is essential to my responsibilities as

Chairman of the FPC to determine when such delegation of staff is consistent with our statutory responsibilities and priorities.

Funding Solar R&D

It is well recognized that the cost of solar energy R&D, particularly its adaptation to the commercial production of electric power, will require extremely large financial outlays. Dr. Dixy Lee Ray's R&D report recommends a Federal expenditure of \$200 million for solar R&D for FY 1975-1979, ^{4/} and the National Science Foundation budget for FY 1975 provides \$50 million for solar research.

The Technical Advisory Committee on R&D of the FPC's current National Power Survey has recommended the expenditure of \$885 million for solar energy R&D over the next ten years. Table 1 contains the Advisory Committee's specific solar R&D funding recommendations by program priorities, funding sources, total program costs, duration

^{4/} The Nation's Energy Future, A Report to Richard M. Nixon, President of the United States, submitted by Dr. Dixy Lee Ray, Chairman AEC, 1 December 1973.

and end product.

In addition, as you noted in your June 27, 1974 statement to the Senate Interior Committee on S.3234, the Solar Energy Research Act of 1974, the \$600 million figure for an initial six-year solar R&D effort provided for in that bill is also a reasonable estimate of the level of funding required.

Ultimately, I believe hundreds of millions will be well invested in solar R&D programs. For the moment, however, I support your concept in H.R. 15612 to provide for an initial \$2 million appropriation for the preparation of a comprehensive solar R&D program definition in fiscal 1975 with future funding levels contingent on the results of that evaluation.

An evaluation of necessary funding levels for solar R&D should include an assessment of the contribution that should be made by the private sector. In general, it is my belief that Federal R&D expenditures should

be concentrated in those areas where the amount of required investment is so large or the risks of commercial success are so speculative so as not to warrant substantial private investment as a matter of management responsibility. For example, there are areas of solar R&D that are long-range in scope, such as central-station solar power generation. Therefore, the Electric Power Research Institute (EPRI), the electric utility industry's R&D organization, has thus far not concentrated its efforts in this area. On the other hand, the application of solar energy to space heating and cooling is a fairly well-proven technology and because commercial utilization is a strong near-term possibility private enterprise can and should be expected to provide a substantial portion of the funds necessary to bring the technology to the market place.

Therefore, in order to resolve the appropriate source and level of solar R&D funding I support your concept in H.R. 15612 in defining our goals and priorities.

before specifying the level of Federal commitment.

Commercial Utilization

I concur in H.R. 15612's emphasis on "resolving the major technical problems inhibiting commercial utilization of solar energy in the United States." (§9(a)) We are most in need of practical, workable energy alternatives to our current unavoidable preoccupation with the supply of fossil fuel resources. Therefore, I also agree with the directive in §10(B)(5) of the bill that "[i]n selecting solar energy technologies for demonstration under this section, preference shall be given to those with the best opportunity for commercial success and environmental acceptability."

In this regard, I would like to suggest, Mr. Chairman, that the mandatory language of §10(a) to the effect that the Project shall initiate a demonstration project for each specific solar energy technology listed in §9 may be

too inflexible. It would appear to me that in keeping with the bill's emphasis on expediting those solar technologies most likely to achieve commercial success and environmental acceptability that the language of §10(a) should be discretionary in order to allow those charged with management responsibilities to concentrate more of the Project's talent and funds in areas most likely to result in successful commercial applications in the near future.

In fact, the prospect of successful commercial development of some aspects of solar research is so promising that I would recommend that a priority for these projects be included in the bill itself. Specifically, the use of solar energy for space heating, hot water heating and air conditioning of buildings is technologically feasible and, in most areas of the country, economically justifiable. There are no major technical problems precluding the adoption of solar energy for these

purposes. Moreover, the quantity of primary fuel which could be saved by applying solar energy to these services is immense. For example, hot water heating in residences and commercial buildings uses more than four times as much fuel as all the aluminum refining done in the U. S., and it may be feasible to provide 50 percent or so of our national hot water requirement through solar energy. I would, therefore, recommend that the application of solar energy to space heating, hot water heating and air conditioning receive especially strong emphasis in this legislation.

I would like to stress another point in this respect. One of the essential prerequisites to commercial success of a technological innovation is public acceptance. I would suggest, therefore, that this legislation provide for a public information program to promote market

acceptance of solar energy systems, especially for heating and cooling systems for homes, where drastic changes in architectural design will almost certainly be required.

This concludes my formal comments, Mr. Chairman. I will be pleased to respond to any questions.

TABLE 1 *

TAC-R&D RECOMMENDATIONS FOR SOLAR ENERGY, 1975-1984
(Millions of 1973 Dollars)

	<u>Priority</u>	<u>Funding Sources</u>	<u>1975-79</u>	<u>1980-84</u>	<u>Total Program Cost, Duration, and End Product</u>
IMPROVEMENT OF PRESENT TECHNOLOGY					
Solar Space Heating and Cooling	A	1	50	—	Commercial introduction in 1979
DEVELOPMENT OF FUTURE ENERGY SOURCES					
Solar Thermal Electric Conversion	B	1	41	183	Central station pilot plant, 1989; \$1150 M/15 yrs.
Photovoltaic Conversion	B	1	47	130	Central station pilot plant, 1989; \$315 M/15 yrs.
Photosynthesis of Organics and Hydrogen	C	1	89	176	Pilot plant, 1989; \$370 M/15 yrs.
Effluent Control	C	1,2,3	24	20	
Wind Power Generator	D	1	25	—	Exp. development
Ocean Delta T	D	1	25	75	Pilot plant; \$100 M/10 yrs.
TOTALS			301	584	
Allocation:					
U. S. Government			285	571	
Elec. Util. Industry			6	5	
Other Industry			10	8	
GRAND TOTAL:				885	

KEYPriority:

- A - Potentially high impact on the energy system if successful and most worthy of R&D support.
 B - Potentially lower impact but should be included in a balanced R&D program.
 C - Could contribute to the achievement of R&D goals and merits R&D support if funds are available.
 D - Marginal worth for R&D support.

Funding Sources:

- 1 - U. S. Government
 2 - Electric Utility Industry
 3 - Other Industry

* Research and Development for the Electric Utility Industry,
 Final Draft of the Report to the Federal Power Commission of the TAC on R&D, April 1974, page 2.6.

FEDERAL POWER COMMISSION

Biographical Release of John N. Nassikas, Chairman Federal Power Commission

February 1974

John N. Nassikas, Republican, of New Hampshire

Took Office: First term, August 1, 1969; Second term, May 21, 1970

Term Expires: June 22, 1975

John N. Nassikas was born in Manchester, New Hampshire on April 29, 1917. He attended public schools in Manchester, and received his A. B. degree (with distinction in his major subject of sociology) from Dartmouth College in 1938. He then attended the Harvard Graduate School of Business Administration where he received his M. B. A. degree in 1940.

He entered the U. S. Naval Reserve in June 1942 as an Ensign and served until January of 1946. He held the rank of Lt. senior grade, when he returned to inactive duty. Mr. Nassikas then entered Harvard Law School in 1946, receiving his J. D. degree in 1948. He received an Honorary Doctor of Laws degree from Notre Dame College in Manchester, New Hampshire, in June 1972.

He entered private law practice in 1948, and from July of 1950 to September of 1953 served as Assistant and Deputy Attorney General of the State of New Hampshire. He was a senior partner of Wiggin, Nourie, Sundeen, Nassikas & Pingree from 1953 to 1969. Mr. Nassikas served as chief counsel for the Republican Minority of the U. S. Senate Committee on Commerce from March 1968 to February 1, 1969.

Mr. Nassikas' specialized public utility experience includes: State's Counsel in litigated rate cases before New Hampshire Public Utilities Commission and New Hampshire Supreme Court, 1950-53; special counsel to the New Hampshire Public Utilities Commission in 1961 and 1962 on telephone rates; and special counsel for the State of New Hampshire in 1958 and 1959 on electric power rates; trial and appellate practice, State and Federal Regulatory Agencies and Courts.

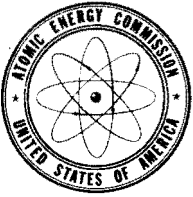
He is admitted to practice in New Hampshire, Massachusetts, Supreme Court of the U. S., U. S. District Courts of New Hampshire, Vermont, and the U. S. District Court for the District of Columbia, First Circuit Court of Appeals.

He is a member of the New Hampshire, Massachusetts and American Bar Associations. He also is a member of the Newcomen Society in North America, Ahepa, Bald Peak Colony Club, Congressional Country Club, and the Prouts Neck Country Club.

A Republican, Mr. Nassikas' nomination as a member and Chairman of the Federal Power Commission was announced by President Nixon on May 19, 1969. The nomination was sent to the Senate on May 20 where it was confirmed on June 17. He took office on August 1, 1969, for the term expiring June 22, 1970. President Nixon nominated Chairman Nassikas for reappointment to a full five-year term on March 23, 1970. The nomination was confirmed by the Senate on April 30, and he took the oath of office on May 21, 1970.

Chairman Nassikas is a member of the Water Resources Council (serving as Vice Chairman from July 1, 1970 to June 30, 1971); member of the Board of Directors, U.S. National Committee of the World Energy Conference; member of the Administrative Conference of the United States and also serves on its Rulemaking Committee; and a member of the Executive Committee of the National Association of Regulatory Utility Commissioners. He served on the President's Cabinet Task Force on Oil Import Control (1969-1970); is a member of the Energy Subcommittee of the Domestic Council; a member of the President's Joint Board on Fuel Supply and Fuel Transport; Member of the Energy-Related Regulatory Agency Study Committee; a member of the Council of the Greek Orthodox Archdiocese of North and South America (1970-1972); and serves as a member of the Executive Advisory Council of Junior Achievement of Metropolitan Washington. He also is a member of the Council of the National Harvard Law School Association, and a member of the Board of Directors of The Madeira School.

Mr. Nassikas is married to the former Constantina Andreson of Worcester, Massachusetts. They have four children: Constance (Mrs. John J. Hohenadel, Jr.) of Woodside, California; Mary (Mrs. Robert C. Hall) of McLean, Virginia; and Elizabeth, age 20, and John N. III, age 15, of the home address. Mr. Nassikas is currently a resident of McLean, Virginia.



UNITED STATES
ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

OCT 17 1974

Mr. Wilfred H. Rommel
Assistant Director for
Legislative Reference
ATTN: Mrs. Louise Garziglia
Legislative Reference Division
Office of Management and Budget

Dear Mr. Rommel:

The Atomic Energy Commission is pleased to respond to your request for our views on Enrolled Bill S. 3234, the "Solar Energy Research, Development, and Demonstration Act of 1974."

The AEC recommends approval of S. 3234. While the bill is not essential to initiation of a broad solar program in view of the enactment of H.R. 11510 establishing the Energy Research and Development Administration, the solar project contemplated by S. 3234 would in essence be taken over by ERDA in the near future and would provide a base for going forward effectively with a program.

The bill (Section 4) would establish the Solar Energy Coordination and Management Project, composed of six members, five of whom would be high officials of Federal agencies. The President would appoint the remaining member, and would designate a member as Project Chairman.

The Project would be responsible for the management and coordination of a national solar energy research, development, and demonstration program, in cooperation with the National Science Foundation, the National Aeronautics and Space Administration, the Atomic Energy Commission, the Department of Housing and Urban Development, and the Federal Power Commission. The Project would have exclusive authority respecting the establishment or approval of programs or projects initiated under the Act, while the agency involved would operate and administer the particular project.

Section 5 of the bill would require initiation by the Project Chairman of a solar energy resource determination and assessment program, utilizing such agencies as the National Aeronautics and Space Administration and the National Oceanographic and Atmospheric Administration.

Section 6 would mandate a solar energy research and development program, under which the Project Chairman would conduct scientific, economic,

social, and environmental studies. Eight specified solar energy technologies would have to be addressed in the research and development program. Other technologies, however, would not be precluded.

Under Section 7 of S. 3234, the Project Chairman would be authorized to initiate a program to demonstrate specific solar energy technologies. Demonstration projects would be carried out through appropriate Federal agencies, and could involve cooperative agreements with either Federal agencies or non-Federal organizations.

Section 8 would require the establishment of a Solar Energy Information Data Bank, for use by interested Federal and other governmental agencies, educational institutions, and the private sector.

Section 9 deals with the support, through the National Science Foundation, of relevant educational programs in the sciences and engineering.

A Solar Energy Research Institute would be established by Section 10, to carry out research, development, and other functions under the bill, as determined by the Project Chairman.

Section 11 would authorize the Chairman to cooperate with other nations in both solar energy projects and information exchange. The National Science Foundation would encourage international participation in the educational programs authorized under Section 9.

Sections 12, 13, and 14 deal, respectively, with the issuance of implementing regulations, annual reports to Congress, and the furnishing of information to the appropriate committees of the House and the Senate.

Section 15 would require the Project Chairman to prepare a comprehensive program definition of an integrated effort and commitment for effectively developing solar energy resources. An interim report on the program definition would have to be sent to the President and to each House of Congress by March 1, 1975, with the program definition to follow no later than June 30, 1975.

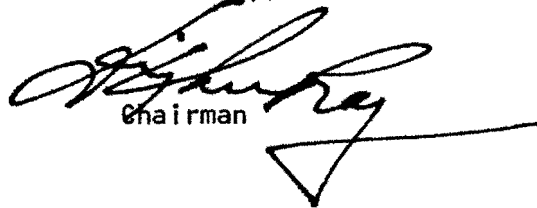
Section 16 of S. 3234 provides for the transfer of authorities and functions to the permanent Federal agency for energy research and development, within sixty days after the effective date of the law creating that agency. (By virtue of the President's approval of H.R. 11510 on October 11, 1974, the described agency will come into being no later than February 8, 1975, as the Energy Research and Development Administration.) All of the authorities of the Project,

all of the research and development functions, and other functions except those related to scientific and technical education, to be vested in Federal agencies under S. 3234, along with related records, documents, personnel, obligations, and other items, to the extent necessary or appropriate, would under regulations prescribed by the Office of Management and Budget be transferred to and vested in ERDA.

Finally, Section 17 of S. 3234 would authorize appropriations to carry out the bill's purposes. Specific amounts authorized are \$75,000,000 for FY 1976, and not to exceed \$2,000,000 to the National Science Foundation for FY 1975 for use in the preparation of the comprehensive program definition under Section 15.

The Atomic Energy Commission recommends approval of S. 3234. It is much more comprehensive in scope than the recently approved Solar Heating and Cooling Demonstration Act of 1974 (P.L. 93-409). There is no question as to the desirability of the broad objectives of S. 3234. While its enactment is not essential to the initiation of a broadly based, meaningful solar energy program, in view of the treatment of that subject in the ERDA legislation, the various aspects of the solar program dealt with in S. 3234 present a base on which ERDA, soon after coming into being, can go forward effectively.

Sincerely,



Chairman

FEDERAL ENERGY ADMINISTRATION

WASHINGTON, D. C. 20461

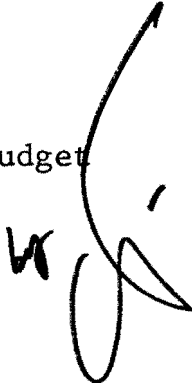
October 17, 1974

MEMORANDUM TO: Wilfred H. Rommel
Assistant Director
for Legislative Reference
Office of Management and Budget
Washington, D.C. 20503

ATTN: William V. Skidmore

FROM: Robert E. Montgomery, Jr.
General Counsel

SUBJECT: Enrolled Bill S. 3234 "To authorize a vigorous Federal program of research, development, and demonstration to assure the utilization of solar energy as a viable source for our national energy needs, and for other purposes."



This responds to your request for the views of the Federal Energy Administration on the subject enrolled bill.

S. 3234 would establish a Solar Energy Coordination and Management Project to exercise central responsibility for managing and coordinating a national solar energy research, development, and demonstration program. In carrying out its general functions, the project would utilize the services of NASA, NSF, AEC, HUD, FPC, and other cognizant Federal agencies. Sixty days after the effective date of the Energy Reorganization Act of 1974, all authorities, functions, and duties of the project would be transferred to the Energy Research and Development Administration.

FEA recommends that the President sign S. 3234 into law.

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550



OFFICE OF THE
DIRECTOR

October 17, 1974

Mr. Wilfred H. Rommel
Assistant Director for
Legislative Reference
Office of Management and Budget
Washington, D. C. 20503

Dear Mr. Rommel:

This is in reply to your communication of October 15, 1974,
requesting the views of the National Science Foundation on Enrolled
Bill S. 3234, the Solar Energy Research, Development, and
Demonstration Act of 1974.

The Foundation has no objection to approval by the President of
Enrolled Bill S. 3234.

Sincerely yours,

A handwritten signature in cursive script, appearing to read 'H. Guyford Stever'.

H. Guyford Stever
Director



RECEIVED
OCT 22 1974
MILWAUKEE



THE GENERAL COUNSEL OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, D. C. 20410

OCT 22 1974

Mr. Wilfred H. Rommel
Assistant Director
Legislative Reference
Office of Management and Budget
Washington, D. C. 20503

Attention: Mrs. Garziglia

Dear Mr. Rommel:

Subject: S. 3234, 93d Congress, Enrolled Enactment

This is in response to your request for our views on the enrolled enactment of S. 3234, the proposed "Solar Energy Research, Development, and Demonstration Act of 1974".

The enrolled enactment would establish a Solar Energy Coordination and Management Project composed of representatives of NSF, HUD, The Federal Power Commission, NASA, AEC and a member designated by the President. The Project would be responsible under the enactment for providing effective management and coordination of a national solar energy research development and demonstration program in cooperation with the Federal agencies whose members constitute the Project. It would have exclusive authority for establishment or approval of programs or projects initiated under the enactment, but the agency involved in any particular program or project would be responsible for its operation or administration.

In this connection, the enactment would require initiation of programs for (1) determining, inventorying, and assessing solar energy resources -- emphasizing identification of promising areas for commercial exploration and development -- and (2) research and development to resolve major inhibitions of a technical nature to commercial utilization of solar

energy. It would authorize the design, construction and operation of demonstration facilities in specific solar energy technologies.

The enactment would require establishment of a Solar Energy Information and Data Bank and a Solar Energy Research Institute, and the preparation of a comprehensive program definition for effectively developing solar energy resources to be transmitted to the President and Congress by June 30, 1975, with an interim report to be transmitted by March 1.

Significantly, the Project's authority and the research and development functions vested in other Federal agencies under the enactment would, "to the extent necessary or appropriate", be transferred within three months to the new Energy Research and Development Administration created under the recently enacted "Energy Reorganization Act of 1974" (H. R. 11510). The transfer would be accomplished in accordance with OMB regulations.

HUD's potential contribution under the enactment represents only a single aspect of the total research and development effort to be undertaken under the bill. We would defer to other Federal agencies specified in the bill as to the desirability of those provisions which directly affect them or involve matters within their larger expertise and jurisdiction.

As to those provisions affecting this Department, Section 4(c) of the enactment specifically includes "fostering the utilization of solar energy for the heating and cooling of buildings, pursuant to the Solar Heating and Cooling Demonstration Act of 1974 (P. L. 93-409)" as part of HUD's responsibilities under the enactment. While we are unclear as to what is actually intended by this provision, we would not, in any event, interpret the enactment as providing for the transfer of these functions to the Energy Research and Development Administration, since they are vested in HUD under the P. L. 93-409 rather than under the enactment.

Also of interest to this Department is the Solar Energy Information Data Bank discussed above. Under P. L. 93-409,

this Department is directed to undertake a program to disseminate information concerning solar heating and cooling of buildings, including the establishment and operation of a Solar Heating and Cooling Information Data Bank. We feel, however, that any potential duplication of efforts in this regard under P. L. 93-409 and the enactment could be avoided. Section 8(a)(4) of the enactment requires utilization of the existing data base of information in Federal agencies, and coordination or merging of the data bank under the enactment with other Federal energy information data banks as necessary to insure efficient and effective operation.

In view of the above, the Department has no objection to the approval of S. 3234 by the President.

Sincerely,


Robert R. Elliott





United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

OCT 1 1974

Dear Mr. Ash:

This responds to your request for our views concerning S. 3234, an enrolled bill "To authorize a vigorous Federal program of research, development, and demonstration to assure the utilization of solar energy as a viable source for our national energy needs, and for other purposes", which is before the President for approval.

We do not object to Presidential approval of the bill.

S. 3234 would provide for a program of solar energy research, development and demonstration. By virtue of the enactment of H.R. 11510, the Energy Reorganization Act of 1974, on October 11, 1974, the Energy Research and Development Administration would be responsible for the Solar Energy Coordination and Management Project which the bill would establish. Among other matters, the bill would require the development of a "comprehensive program definition", with an interim report to the President and Congress being due March 1, 1975 and the final definition being prepared not later than June 30, 1974. It would also require ERDA to develop a solar energy data bank and to establish a solar energy research institute. The bill authorizes \$2 million for the National Science Foundation to prepare the definition. In addition, \$75 million is authorized to carry out provisions of the Act for FY 1976, and the bill specifically reserves for later authorization amounts for subsequent fiscal years and for major demonstration projects.

In view of the consolidation of the bill's solar energy program with other ERDA programs, we would anticipate that several problems of coordination and efficient use of resources which might otherwise arise in the implementation of S. 3234 can be satisfactorily dealt with. Thus, we would expect that the bill's directive in section 5(b) that the Project undertake solar resource assessment and, specifically, that it make recommendations for legislation to

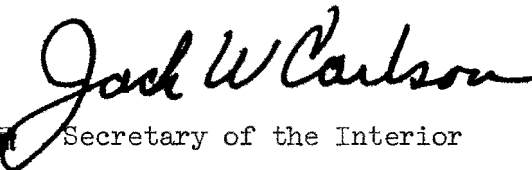


Save Energy and You Serve America!

establish policies for solar resources involving Federal lands and waters would be implemented through and in coordination with this Department, particularly the Geological Survey, the Bureau of Land Management and the Bureau of Mines. Similarly, the Department of the Interior's synthetic fuels, conversion of organic materials for energy uses, and metallurgical research programs should be utilized in solar energy programs and should not be duplicated by ERDA.

Notwithstanding the long-range potential of solar energy, the funding and scope of the bill's program are greater than is currently desirable. Current energy priorities preclude appropriation of the \$75 million FY 1976 appropriation provided by the bill or current planning for a possible \$1 billion solar energy program called for by section 2 of the bill. Despite the breadth of the program envisaged by the bill and the fact that the Energy Reorganization Act of 1974 appears to provide adequate authority to carry out needed solar research, we believe that S. 3234 is sufficiently flexible so that its enactment would not have seriously objectionable results from the standpoint of this Department's direct responsibility or with respect to overall energy policy.

Sincerely yours,


Assistant Secretary of the Interior

Honorable Roy L. Ash
Director
Office of Management and Budget
Washington, D. C. 20503





**GENERAL COUNSEL OF THE
DEPARTMENT OF COMMERCE**
Washington, D.C. 20230

OCT 21 1974

Honorable Roy L. Ash
Director, Office of Management
and Budget
Washington, D. C. 20503

Attention: Assistant Director for Legislative Reference

Dear Mr. Ash;

This is in reply to your request for the views of this Department concerning S. 3234, an enrolled enactment

"To authorize a vigorous Federal program of research, development, and demonstration to assure the utilization of solar energy as a viable source for our national energy needs, and for other purposes,"

to be cited as the "Solar Energy Research, Development, and Demonstration Act of 1974."

Subject to the comments below concerning sections 4 and 16, this Department would have no objection to approval by the President of S. 3234.

Section 4 establishes a Solar Energy Coordination and Management Project. The Management Project is composed of six members: an Assistant Director of NSF; an Assistant Secretary of HUD; a member of the FPC; an Associate Administrator of NASA; a General Manager of AEC; and a member to be designated by the President. It is our opinion that this section creates an unwieldy organizational structure and would be difficult to administer effectively.

Section 16 requires that all authorities of the Management Project and of the research and development functions vested in Federal agencies under this Act, along with related records, documents, personnel, obligations, and other items, to the extent necessary or appropriate in accordance with regulations prescribed by OMB, be transferred to and vested in ERDA.

It is our opinion that section 16 is unclear in its impact on the Management Project set out in section 4.

2.

If section 16 is interpreted so as to abolish the Management Project and place its functions in the Administrator of ERDA, we have no objection. Under such an interpretation, in effect throughout S. 3234, the words "Administrator of ERDA" would be substituted for the words "Solar Energy Coordination Management Project" and "Chairman of the Project."

However, if section 16 is not so interpreted and the Management Project remains in existence as an independent organization, it would be incompatible with the responsibilities of the Administrator of ERDA and present an unworkable situation. Accordingly, if this is the effect of section 16, we believe a veto of S. 3234 would be warranted.

Finally, we interpret section 16 as only providing for the transfer of functions which are specifically vested in Federal agencies pursuant to the Act and that functions and authorities of agencies preexisting by virtue of other authorities would not be transferred. The authorities and functions of this Department, for example, those relating to meteorological and oceanographic survey work referred to in section 5(b) which we have traditionally carried out, would not be transferred but would continue to be performed by this Department. If section 16 is not so interpreted, we would urge this as warranting a veto since, if interpreted otherwise, it would foster fragmentation and dispersal of agencies' preexisting authorities and functions with attendant inefficiencies.

Section 8 of the Act directs the Chairman of the Management Project to utilize the capabilities of this Department to establish and operate a Solar Energy Information Data Bank for the purpose of collecting, reviewing, processing, and disseminating information and data in all of the solar energy technologies referred to in the Act. In view of the fact that the Chairman is also directed to utilize other Federal agencies, we are unable to determine the extent of the responsibilities to be placed upon this Department and, therefore, cannot estimate the cost of such a program to this Department.

Sincerely,

Karl E. Bakke

General Counsel



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

OCT 17 1974

Director
Office of Management and Budget
Executive Office of the President
Washington, DC 20503

Attention: Assistant Director
for Legislative Reference

Subject: Enrolled Enactment Report on S. 3234, 93rd Congress.

This is an Enrolled Enactment report on S. 3234, "To authorize a vigorous Federal program of research, development, and demonstration to assure the utilization of solar energy as a viable source for our national energy needs, and for other purposes." It is submitted pursuant to Mr. Wilfred H. Rommel's memorandum of October 15, 1974.

The Enrolled Bill would establish the Solar Energy Coordination and Management Project. The Project would be composed of six members: the Assistant Director of the National Science Foundation (NSF); an Assistant Secretary of Housing and Urban Development (HUD); a member of the Federal Power Commission (FPC); an Associate Administrator of the National Aeronautics and Space Administration (NASA); the General Manager of the Atomic Energy Commission (AEC); and a sixth appointed by the President. The President would also designate one member to serve as Chairman.

The functions of the Project would be to manage and coordinate the nation's research, development, and demonstration program in solar energy. This program would include a determination and evaluation of the resource base in solar energy, research and development in eight listed technologies, and demonstrations of those technologies as they are appropriate. In addition, the Project is to cooperate and participate jointly with other nations in solar energy research and to facilitate information exchange on solar energy resources and technologies.

The Enrolled Bill would establish the Solar Energy Research Institute to perform such research, development and related functions as the Project may determine are necessary. The Institute may be located at any new or existing Federal or Federally-contracted laboratory as designated by the Project.

The Project would accomplish its objectives by assigning various management, research, development and demonstration roles in the program to NASA, HUD, AEC, NSF and FPC. The agencies themselves would be responsible for the operation and administration of programs and projects assigned to them by the Project.

To get the program underway, the Project is first directed to prepare a comprehensive program definition of an integrated effort for effectively developing solar energy resources. The conferees on the Bill said that, "the Project member agencies as well as the Federal Energy Administration, the National Oceanic and Atmospheric Administration, and any other appropriate agencies, should cooperate in the comprehensive program definition." The Project would be required to submit this program plan to the President and to the Congress no later than June 30, 1975.

The Enrolled Bill contains provisions requiring the transfer of R&D functions vested in Federal agencies under the Bill (excluding the education programs) to the Energy Research and Development Administration (ERDA) within sixty days after the "effective date" of the law creating that Administration, and as provided for by regulations prescribed by the Office of Management and Budget. The President approved the ERDA legislation on October 11, 1974, and that law provides that it "shall take effect one hundred and twenty days after the date of its enactment" unless the President prescribes an earlier date. It therefore appears that legally the transfer of functions of the Project to ERDA would have to take place at the latest within one hundred and eighty days from the date the ERDA legislation was approved, although as a practical matter, we assume that the specific functions of the Bill (e.g., the establishment of a Solar Energy Information Data Bank) would be taken into account in the initial organization of ERDA.

Assigning NASA the responsibility to provide management capability and to participate in the development of technologies, as the Enrolled Bill provides, would draw upon NASA's experience and capabilities. During the past year or more, NASA has

actively supported National energy planning, with such efforts as last year's initial Solar Energy Report, jointly supported by NSF and NASA. Last fall, NASA provided technical support to the formulation of the President's Five-Year Energy R&D Plan prepared under the leadership of Chairman Ray of the Atomic Energy Commission. In addition, NASA has been working for some time in cooperation with NSF to assist them in broad areas of their solar energy programs. Using funds transferred from NSF, NASA already has initiated work in the conversion of wind energy to power. We also are working actively with the NSF to define appropriate NASA project responsibilities in the areas of low cost solar cell systems and solar heating and cooling technology. An additional number of project proposals have been submitted to NSF for inclusion in the President's Five-Year Program Plans for the solar energy program area.

In a related area, NASA, in cooperation with the AEC, has been defining possible energy storage research projects as part of the President's Five-Year Program Plan in Energy Storage. Energy storage is a very critical element in the eventual success and commercial viability of most solar energy-use concepts.

NASA and HUD, in consultation with other agencies, are now in the process of formulating a comprehensive program plan to demonstrate the use of solar energy for the heating and cooling of residential buildings under the Solar Heating and Cooling Demonstration Act of 1974. Under section 7 of that Act such a plan must be transmitted to the Congress by January 1, 1975. NASA, in consultation with other agencies, is also developing a program plan under that Act for the heating and cooling of commercial buildings.

Finally, NASA, on its own, has several active projects related to solar energy. This work includes both the terrestrial applications of our technology base in energy conversion and environmental control and the examination of critical technologies related to satellite power systems.

The Enrolled Bill would authorize to be appropriated to NSF \$2,000,000 for FY 1975 to be used by the Project for the specific purpose of preparing the comprehensive program definition; \$75,000,000 has been authorized for FY 1976 without specific direction for its use.

As you know, no funds for the NASA functions under this Enrolled Bill are provided in either the Special Energy Research and Development Appropriations Act of 1974 (PL 93-322) or in the FY 1975, HUD, Space, Science, Veterans Appropriations Bill (PL 93-414). Thus, if the Enrolled Bill is approved and NASA were assigned responsibilities under the Bill, NASA would require additional funding and manpower to accomplish the tasks assigned to it.

The Enrolled Bill was under consideration by the Congress concurrently with its consideration of the ERDA legislation, and many of the functions authorized in the Bill could be carried out under the broad authority conferred upon ERDA. From NASA's viewpoint, both the Enrolled Bill and the ERDA legislation contemplate that NASA's R&D capabilities will be employed in the National energy R&D program. For example, the Senate Report accompanying the ERDA bill, in explaining the intent of what is now section 104(i) of the Act, specifically mentioned NASA's capabilities in solar energy. We believe that these capabilities can and should be effectively utilized by ERDA in carrying out the functions which would be transferred to it under the Enrolled Bill.

The National Aeronautics and Space Administration has no objection to approval of the Enrolled Bill S. 3234.

Sincerely,

George W. Low

for James C. Fletcher
Administrator



Last Day - October 29

October 25, 1974

MEMORANDUM FOR: THE PRESIDENT
FROM: KEN COLE
SUBJECT: Enrolled Bill S. 3234
Solar Energy Research, De-
velopment and Demonstration

Attached for your consideration is Senate bill, S. 3234, sponsored by Senator Humphrey, which establishes a Solar Energy Coordination and Management Project to conduct research, and to demonstrate the commercial use of several solar energy technologies.

Ray Ash recommends approval and provides you with additional background information in his enrolled bill report (Tab A).

The Counsel's office (Chapman), Bill Timmons and Domestic Council all recommend approval.

RECOMMENDATION

That you sign Senate bill, S. 3234 (Tab B).



THE WHITE HOUSE
WASHINGTON

October 24, 1974

MEMORANDUM FOR: MR. WARREN HENDRIKS
FROM: WILLIAM E. TIMMONS *W.E. Timmons* ✓
SUBJECT: Action Memorandum - Log No. 698
Enrolled Bill S. 3234 - Solar Energy Research,
Development and Demonstration

The Office of Legislative Affairs concurs in the attached proposal and has no additional recommendations.

Attachment



Date: October 23, 1974

Time: 6:00 p.m.

FOR ACTION: Michael Duval
Phil Buchen
Bill Timmonscc (for information): Warren K. Hendriks
Jerry Jones
Paul Theis
Glenn Schleede

FROM THE STAFF SECRETARY

DUE: Date: Friday, October 25, 1974

Time: 2:00 p.m.

SUBJECT: Enrolled Bill S. 3234 - Solar Energy Research,
Development and Demonstration

ACTION REQUESTED:

 For Necessary Action For Your Recommendations Prepare Agenda and Brief Draft Reply For Your Comments Draft Remarks

REMARKS:

Please return to Kathy Tindle - West Wing

PLEASE ATTACH THIS COPY TO MATERIAL SUBMITTED.

If you have any questions or if you anticipate a delay in submitting the required material, please telephone the Staff Secretary immediately.

Warren K. Hendriks
For the President

THE WHITE HOUSE

ACTION MEMORANDUM

WASHINGTON

LOG NO.: 698

Date: October 23, 1974

Time: 6:00 p.m.

FOR ACTION: ✓ Michael Duval
Phil Buchen
Bill Timmons

cc (for information): Warren K. Hendriks
Jerry Jones
Paul Theis
Glenn Schleede

FROM THE STAFF SECRETARY

DUE: Date: Friday, October 25, 1974

Time: 2:00 p.m.

SUBJECT: Enrolled Bill S. 3234 - Solar Energy Research,
Development and Demonstration

ACTION REQUESTED:

_____ For Necessary Action

XX For Your Recommendations

_____ Prepare Agenda and Brief

_____ Draft Reply

_____ For Your Comments

_____ Draft Remarks

REMARKS:

OK
Mike Duval 10/24

Please return to Kathy Tindle - West Wing

PLEASE ATTACH THIS COPY TO MATERIAL SUBMITTED.

If you have any questions or if you anticipate a delay in submitting the required material, please telephone the Staff Secretary immediately.

Warren K. Hendriks
For the President

Date: October 23, 1974

Time: 6:00 p.m.

FOR ACTION: Michael Duval
✓ Phil Buchen
Bill Timmonscc (for information): Warren K. Hendriks
Jerry Jones
Paul Theis
Glenn Schleede

FROM THE STAFF SECRETARY

DUE: Date: Friday, October 25, 1974 Time: 2:00 p.m.

SUBJECT: Enrolled Bill S. 3234 - Solar Energy Research,
Development and Demonstration

ACTION REQUESTED:

 For Necessary Action For Your Recommendations Prepare Agenda and Brief Draft Reply For Your Comments Draft Remarks

REMARKS:

Please return to Kathy Tindle - West Wing

No objection
*D.C.*PLEASE ATTACH THIS COPY TO MATERIAL SUBMITTED.

If you have any questions or if you anticipate a delay in submitting the required material, please telephone the Staff Secretary immediately.

Warren K. Hendriks
For the President

MEMORANDUM

THE WHITE HOUSE

WASHINGTON

ACTION

Last Day - October 29

MEMORANDUM FOR: THE PRESIDENT
FROM: KEN COLE
SUBJECT: Enrolled Bill S. 3234
Solar Energy Research,
Development and Demonstration

Attached for your consideration is Senate bill, S. 3234, sponsored by Senator Humphrey, which establishes a Solar Energy Coordination and Management Project to conduct research, and to demonstrate the commercial use of several solar energy technologies.

Roy Ash etc.

The Counsel's office (Chapman) and Bill Timmons ^{*John C.*} both recommend approval. _{*all*}

RECOMMENDATION

That you sign Senate bill, S. 3234 (Tab B).



THE WHITE HOUSE

ACTION MEMORANDUM

WASHINGTON

LOG NO.: 698

Date: October 23, 1974

Time: 6:00 p.m.

FOR ACTION: Michael Duval
 Phil Buchen
 Bill Timmons

cc (for information): Warren K. Hendriks
Jerry Jones
Paul Theis
Glenn Schleede

FROM THE STAFF SECRETARY

DUE: Date: Friday, October 25, 1974

Time: 2:00 p.m.

SUBJECT: Enrolled Bill S. 3234 - Solar Energy Research,
Development and Demonstration

ACTION REQUESTED:

For Necessary Action

For Your Recommendations

Prepare Agenda and Brief

Draft Reply

For Your Comments

Draft Remarks

REMARKS:

Please return to Kathy Tindle - West Wing

PLEASE ATTACH THIS COPY TO MATERIAL SUBMITTED.

If you have any questions or if you anticipate a delay in submitting the required material, please telephone the Staff Secretary immediately.

K. R. COLE, JR.
For the President

To
James Heckler
10-23-74
5:15 p.m.

EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF MANAGEMENT AND BUDGET

WASHINGTON, D.C. 20503

OCT 23 1974

MEMORANDUM FOR THE PRESIDENT

Subject: Enrolled Bill S. 3234 - Solar Energy Research,
Development and Demonstration
Sponsors - Sen. Humphrey (D) Minnesota and 11 others

Last Day for Action

October 29, 1974 - Tuesday

Purpose

S. 3234 establishes a Solar Energy Coordination and Management Project to conduct research, and to demonstrate the commercial use of several solar energy technologies.

Agency Recommendations

Office of Management and Budget	Approval
Federal Power Commission	Approval
Atomic Energy Commission	Approval
Federal Energy Administration	Approval
National Science Foundation	No objection
Department of Housing and Urban Development	No objection
Department of the Interior	No objection
Department of Commerce	No objection
National Aeronautics and Space Administration	No objection

Discussion

Solar energy is broadly defined in the bill as energy recently originating from the sun including: direct and indirect solar radiation and intermediate forms of energy such as wind, sea thermal gradients (differentials in ocean temperatures), photosynthetic processes (converting light to other forms of



SOLAR ENERGY RESEARCH, DEVELOPMENT, AND
DEMONSTRATION ACT OF 1974

OCTOBER 4, 1974.—Ordered to be printed

Mr. TEAGUE, from the committee of conference,
submitted the following

CONFERENCE REPORT

[To accompany S. 3234]

The committee of conference on the disagreeing votes of the two Houses on the amendments of the House to the bill (S. 3234) to authorize a vigorous Federal program of research, development, and demonstration to assure the utilization of solar energy as a viable source for our national energy needs, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the Senate recede from its disagreement to the amendment of the House to the text of the bill and agree to the same with an amendment as follows:

In lieu of the matter proposed to be inserted by the House amendment insert the following:

That this Act may be cited as the "Solar Energy Research, Development, and Demonstration Act of 1974".

DECLARATION OF FINDINGS AND POLICY

SEC. 2. (a) *The Congress hereby finds that—*

(1) *the needs of a viable society depend on an ample supply of energy;*

(2) *the current imbalance between domestic supply and demand for fuels and energy is likely to persist for some time;*

(3) *dependence on nonrenewable energy resources cannot be continued indefinitely, particularly at current rates of consumption;*

(4) *it is in the Nation's interest to expedite the long-term development of renewable and nonpolluting energy resources, such as solar energy;*

(5) *the various solar energy technologies are today at widely differing stages of development, with some already near the stage of commercial application and others still requiring basic research;*

(6) the early development and export of viable equipment utilizing solar energy, consistent with the established preeminence of the United States in the field of high technology products, can make a valuable contribution to our balance of trade;

(7) the mass production and use of equipment utilizing solar energy will help to eliminate the dependence of the United States upon foreign energy sources and promote the national defense;

(8) to date, the national effort in research, development, and demonstration activities relating to the utilization of solar energy has been extremely limited; therefore

(9) the urgency of the Nation's critical energy shortages and the need to make clean and renewable energy alternatives commercially viable require that the Nation undertake an intensive research, development, and demonstration program with an estimated Federal investment which may reach or exceed \$1,000,000,000.

(b) The Congress declares that it is the policy of the Federal Government to—

(1) pursue a vigorous and viable program of research and resource assessment of solar energy as a major source of energy for our national needs; and

(2) provide for the development and demonstration of practicable means to employ solar energy on a commercial scale.

DEFINITIONS

SEC. 3. For the purposes of this Act—

(1) the term "solar energy" means energy which has recently originated in the Sun, including direct and indirect solar radiation and intermediate solar energy forms such as wind, sea thermal gradients, products of photosynthetic processes, organic wastes, and others;

(2) the term "byproducts" includes, with respect to any solar energy technology or process, any solar energy products (including energy forms) other than those associated with or constituting the primary product of such technology or process;

(3) the term "insolation" means the rate at which solar energy is received at the surface of the Earth;

(4) the term "Project" means the Solar Energy Coordination and Management Project; and

(5) the term "Chairman" means the Chairman of the Project.

SOLAR ENERGY COORDINATION AND MANAGEMENT PROJECT

SEC. 4. (a) There is hereby established the Solar Energy Coordination and Management Project.

(b) (1) The Project shall be composed of six members as follows:

(A) an Assistant Director of the National Science Foundation;

(B) an Assistant Secretary of Housing and Urban Development;

(C) a member of the Federal Power Commission;

(D) an Associate Administrator of the National Aeronautics and Space Administration;

(E) the General Manager of the Atomic Energy Commission; and

(F) a member to be designated by the President.

(2) The President shall designate one member of the Project to serve as Chairman of the Project.

(3) If the individual designated under paragraph (1)(F) is an officer or employee of the Federal Government, he shall receive no additional pay on account of his service as a member of the Project. If such individual is not an officer or employee of the Federal Government, he shall be entitled to receive the daily equivalent of the annual rate of basic pay in effect for level IV of the Executive Schedule (5 U.S.C. 5315) for each day (including traveltime) during which he is engaged in the actual performance of duties vested in the Project.

(c) The Project shall have overall responsibility for the provision of effective management and coordination with respect to a national solar energy research, development, and demonstration program, including—

(1) the determination and evaluation of the resource base, including its temporal and geographic characteristics;

(2) research and development on solar energy technologies; and

(3) the demonstration of appropriate solar energy technologies.

(d) (1) The Project shall carry out its responsibilities under this section in cooperation with the following Federal agencies:

(A) the National Science Foundation, the responsibilities of which shall include research;

(B) the National Aeronautics and Space Administration, the responsibilities of which shall include the provision of management capability and the development of technologies;

(C) the Atomic Energy Commission, the responsibilities of which shall include the development of technologies;

(D) the Department of Housing and Urban Development, the responsibilities of which shall include fostering the utilization of solar energy for the heating and cooling of buildings, pursuant to the Solar Heating and Cooling Demonstration Act of 1974 (P.L. 93-409; 88 Stat. 1069); and

(E) the Federal Power Commission, the responsibilities of which shall include fostering the utilization of solar energy for the generation of electricity and for the production of synthetic fuels.

(2) Upon request of the Chairman, the head of any such agency is authorized to detail or assign, on a reimbursable basis or otherwise, any of the personnel of such agency to the Project to assist it in carrying out its responsibilities under this Act.

(e) The Project shall have exclusive authority with respect to the establishment or approval of programs or projects initiated under this Act, but the agency involved in any particular program or project shall be responsible for the operation and administration of such program or project.

(f) The National Aeronautics and Space Administration is authorized to undertake and carry out those programs assigned to it by the Project.

RESOURCE DETERMINATION AND ASSESSMENT

SEC. 5. (a) *The Chairman shall initiate a solar energy resource determination and assessment program with the objective of making a regional and national appraisal of all solar energy resources, including data on insolation, wind, sea thermal gradients, and potentials for photosynthetic conversion. The program shall emphasize identification of promising areas for commercial exploitation and development. The specific goals shall include—*

(1) *the development of better methods for predicting the availability of all solar energy resources, over long time periods and by geographic location;*

(2) *the development of advanced meteorological, oceanographic, and other instruments, methodology, and procedures necessary to measure the quality and quantity of all solar resources on periodic bases;*

(3) *the development of activities, arrangements, and procedures for the collection, evaluation, and dissemination of information and data relating to solar energy resource assessment.*

(b) *The Chairman, acting through the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, and other appropriate agencies, shall—*

(1) *develop and carry out a general plan for inventorying all forms of solar energy resources associated with Federal lands and (where consistent with property rights) non-Federal lands;*

(2) *conduct regional surveys based upon such general plan, using innovative meteorological, oceanographic, and space-related techniques, in sufficient numbers to lead to a national inventory of solar energy resources in the United States;*

(3) *publish and make available maps, reports, and other documents developed from such surveys to encourage and facilitate the commercial development of solar energy resources; and*

(4) *make such recommendations for legislation as may appear to be necessary to establish policies for solar resources involving Federal lands and waters, consistent with known inventories of various resource types, with the state of technologies for solar energy development, and with evaluation of the environmental impacts of such development.*

RESEARCH AND DEVELOPMENT

SEC. 6. (a) *The Chairman shall initiate a research and development program for the purpose of resolving the major technical problems inhibiting commercial utilization of solar energy in the United States.*

(b) *In connection with or as a part of such program, the Chairman shall—*

(1) *conduct, encourage, and promote scientific research and studies to develop effective and economical processes and equipment for the purpose of utilizing solar energy in an acceptable manner for beneficial uses;*

(2) *carry out systems economic, social, and environmental studies to provide a basis for research, development and demonstration planning and phasing; and*

(3) *perform or cause to be performed technology assessments relevant to the utilization of solar energy.*

(c) *The specific solar energy technologies to be addressed or dealt with in the program shall include—*

(1) *direct solar heat as a source for industrial processes, including the utilization of low-level heat for process and other industrial purposes;*

(2) *thermal energy conversion, and other methods, for the generation of electricity and the production of chemical fuels;*

(3) *the conversion of cellulose and other organic materials (including wastes) to useful energy or fuels;*

(4) *photovoltaic and other direct conversion processes;*

(5) *sea thermal gradient conversion;*

(6) *windpower conversion;*

(7) *solar heating and cooling of housing and of commercial and public buildings; and*

(8) *energy storage.*

DEMONSTRATION

SEC. 7. (a) *The Chairman is authorized to initiate a program to design and construct, in specific solar energy technologies (including, but not limited to, those listed in section (6) (c)), facilities or powerplants of sufficient size to demonstrate the technical and economic feasibility of utilizing the various forms of solar energy. The specific goals of such programs shall include—*

(1) *production of electricity from a number of powerplants, on the order of one to ten megawatts each;*

(2) *production of synthetic fuels in commercial quantities;*

(3) *large-scale utilization of solar energy in the form of direct heat;*

(4) *utilization of thermal and all other byproducts of the solar facilities;*

(5) *design and development of hybrid systems involving the concomitant utilization of solar and other energy sources; and*

(6) *the continuous operation of such plants and facilities for a period of time.*

(b) *For each of the technologies for which a successful and appropriate development program is completed, the Chairman shall make a determination to proceed to demonstration based on criteria including, but not necessarily limited to, the following:*

(1) *the technological feasibility of the project;*

(2) *the costs and benefits of the project, as determined by an economic assessment;*

(3) *the immediate and the potential uses of the solar energy utilized in the project;*

(4) *long-term national need for the technology;*

(5) *environmental impact;*

(6) *potential for technology transfer to other applications; and*

(7) *the nature and extent of Federal participation, if any, in the project.*

(c) *In carrying out his responsibilities under this section, the Chairman, acting through the appropriate Federal agencies, may provide for the establishment of one or more demonstration projects utilizing each form of solar energy, which shall include, as appro-*

priate, the specific research, development, pilot plant construction and operation, demonstration plant construction and operation, and other facilities and activities which may be necessary to show commercial viability of the specific solar technology.

(d) The Chairman, acting through the appropriate Federal agencies, is authorized to investigate and enter into agreements for the cooperative development of facilities to demonstrate solar technologies. The responsible Federal agency may consider—

(1) cooperative agreements with non-Federal entities for construction of facilities and equipment to demonstrate solar energy technologies; and

(2) cooperative agreements with other Federal agencies for the construction of facilities and equipment and operation of facilities to produce energy for direct Federal utilization.

(e) The Chairman, acting through appropriate Federal agencies is authorized to construct and operate demonstration projects without entering into cooperative agreements with respect to such projects, if the Chairman finds that—

(1) the nature of the resource, the geographical location, the scale and engineering design of the facilities, the techniques of production, or any other significant factor of the specific demonstration project offers opportunities to make important contributions to the general knowledge of solar resources, the techniques of its development, or public confidence in the technology; and

(2) there is no opportunity for cooperative agreements with any non-Federal entity willing and able to cooperate in the demonstration project under subsection (d)(1), and there is no opportunity for cooperative agreements with other Federal agencies under subsection (d)(2).

(f) If the estimate of the Federal investment with respect to construction and operation costs of any demonstration project proposed to be established under this section exceeds \$20,000,000, no amount may be appropriated for such project except as specifically authorized by legislation hereafter enacted by the Congress.

(g) (1) At the conclusion of any demonstration project established under this section, or as soon thereafter as may be practicable, the responsible Federal agencies shall, by sale, lease, or otherwise, dispose of all Federal property interests which they have acquired pursuant to this section in accordance with existing law and the terms of the cooperative agreements involved.

(2) The agency involved shall, under appropriate agreements or other arrangements, provide for the disposition of electricity, synthetic fuels, and other byproducts of the project administered by such agency.

SOLAR ENERGY TECHNOLOGY UTILIZATION

SEC. 8. (a) (1) In carrying out his functions under this Act the Chairman, utilizing the capabilities of the National Science Foundation, the National Aeronautics and Space Administration, the Department of Commerce, the Atomic Energy Commission, and other appropriate Federal agencies to the maximum extent possible, shall establish and operate a Solar Energy Information Data Bank (hereinafter in this subsection referred to as the "bank") for the purpose of collecting,

reviewing, processing, and disseminating information and data in all of the solar energy technologies referred to in section 7(c) in a timely and accurate manner in support of the objectives of this Act.

(2) Information and data compiled in the bank shall include—

(A) technical information (including reports, journal articles, dissertations, monographs, and project descriptions) on solar energy research, development, and applications;

(B) similar technical information on the design, construction, and maintenance of equipment utilizing solar energy;

(C) general information on solar energy applications to be disseminated for popular consumption;

(D) physical and chemical properties of materials required for solar energy activities and equipment; and

(E) engineering performance data on equipment and devices utilizing solar energy.

(3) In accordance with regulations prescribed under section 12, the Chairman shall provide retrieval and dissemination services with respect to the information described under paragraph (2) for—

(A) Federal, State, and local government organizations that are active in the area of energy resources (and their contractors);

(B) universities and colleges in their related research and consulting activities; and

(C) the private sector upon request in appropriate cases.

(4) In carrying out his functions under this subsection, the Chairman shall utilize, when feasible, the existing data base of scientific and technical information in Federal agencies, adding to such data base any information described in paragraph (2) which does not already reside in such base. He shall coordinate or merge this data bank with other Federal energy information data banks as necessary to assure efficient and effective operation.

(b) In carrying out his functions under this Act the Chairman shall perform or cause to be performed studies and research on incentives to promote broader utilization and consumer acceptance of solar energy technologies.

(c) The Chairman shall enter into such arrangements and take such other steps as may be necessary or appropriate to provide for the effective coordination of solar energy technology utilization with all other technology utilization programs within the Federal Government.

SCIENTIFIC AND TECHNICAL EDUCATION

SEC. 9. The Chairman, acting through the National Science Foundation, is authorized and directed to support programs of education in the sciences and engineering to provide the necessary trained personnel to perform the solar energy research, development, and demonstration activities required under this Act. Such support may include fellowships, traineeships, technical training programs, technologist training programs, and summer institute programs.

SOLAR ENERGY RESEARCH INSTITUTE

SEC. 10. (a) There is established a Solar Energy Research Institute, which shall perform such research, development, and related functions as the Chairman may determine to be necessary or appro-

appropriate in connection with the Project's activities under this Act or to be otherwise in furtherance of the purpose and objectives of this Act.

(b) The Institute may be located (as designated by the Chairman at any new or existing Federal laboratory (including a non-Federal laboratory performing functions under a contract entered into with the Project or with any of the agencies represented in the Project as well as a laboratory whose personnel are Federal employees).

INTERNATIONAL COOPERATION

SEC. 11. (a) The Chairman, in furtherance of the objectives of this Act, is authorized to cooperate and participate jointly with other nations, especially those with agreements for scientific cooperation with the United States, in the following activities:

(1) interinstitutional, bilateral, or multilateral research projects in the field of solar energy; and

(2) agreements and programs which will facilitate the exchange of information and data relating to solar energy resource assessment and solar energy technologies.

(b) The National Science Foundation is authorized to encourage, to the maximum extent practicable and consistent with the other objectives of this Act, international participation and cooperation in the development and maintenance of programs of education to carry out the policy set forth in section 9.

REGULATIONS

SEC. 12. The Chairman in consultation with the heads of the Federal agencies having functions under this Act and with other appropriate officers and agencies, shall prescribe such regulations as may be necessary or appropriate to carry out this Act promptly and efficiently. Each such officer or agency, in consultation with the Chairman, may prescribe such regulations as may be necessary or appropriate to carry out his or its particular functions under this Act promptly and efficiently.

ANNUAL REPORTS

SEC. 13. The Chairman shall report, on an annual basis, to the President and the Congress all actions taken under the provisions of this Act, all action planned for the ensuing year, and, to the extent practical, a projection of activities and funding requirements, for the ensuing five years. The Chairman also shall recommend, as he deems appropriate, any legislation or reorganization which might further the purposes of this Act.

INFORMATION TO CONGRESS

SEC. 14. Notwithstanding any other provision of law, the Chairman (or the head of any agency which assumes the functions of the Project pursuant to section 16) shall keep the appropriate committees of the House of Representatives and the Senate fully and currently informed with respect to all activities under this Act.

COMPREHENSIVE PROGRAM DEFINITION

SEC. 15. (a) The Chairman is authorized and directed to prepare a comprehensive program definition of an integrated effort and com-

mitment for effectively developing solar energy resources. The Chairman, in preparing such program definition, shall utilize and consult with the appropriate Federal agencies, State and local government agencies, and private organizations.

(b) The Chairman shall transmit such comprehensive program definition to the President and to each House of the Congress. An interim report shall be transmitted not later than March 1, 1975. The comprehensive program definition shall be transmitted as soon as possible thereafter, but in any case not later than June 30, 1975.

TRANSFER OF FUNCTIONS

SEC. 16. Within sixty days after the effective date of the law creating a permanent Federal organization or agency having jurisdiction over the energy research and development functions of the United States (or within sixty days after the date of the enactment of this Act if the effective date of such law occurs prior to the date of the enactment of this Act), all of the authorities of the Project and all of the research and development functions (and other functions except those related to scientific and technical education) vested in Federal agencies under this Act along with related records, documents, personnel, obligations, and other items, to the extent necessary or appropriate, shall, in accordance with regulations prescribed by the Office of Management and Budget, be transferred to and vested in such organization or agency.

AUTHORIZATION OF APPROPRIATIONS

SEC. 17. To carry out the provisions of this Act, there are authorized to be appropriated—

(1) for the fiscal year ending June 30, 1976, \$75,000,000;

(2) for subsequent fiscal years, only such sums as the Congress hereafter may authorize by law;

(3) such amounts as may be authorized for the construction of demonstrations pursuant to section 7 (f) of this Act; and

(4) to the National Science Foundation for the fiscal year ending June 30, 1975, not to exceed \$2,000,000 to be made available for use in the preparation of the comprehensive program definition under section 15.

And the House agree to the same.

That the House recede from its amendment to the title of the Senate bill.

OLIN E. TEAGUE,
MIKE McCORMACK,
DON FUQUA,
JAMES W. SYMINGTON,
CHARLES A. MOSHER,
BARRY M. GOLDWATER, JR.,
JOHN W. WYDLER,
Managers on the Part of the House.
HENRY M. JACKSON,
J. BENNETT JOHNSTON, JR.,
FLOYD K. HASKELL,
PAUL FANNIN,
JAMES McCLURE,
Managers on the Part of the Senate.

JOINT EXPLANATORY STATEMENT OF THE COMMITTEE OF CONFERENCE

The managers on the part of the House and the Senate at the conference on the disagreeing votes of the two Houses on the amendments of the House to the bill (S. 3234) to authorize a vigorous Federal program of research, development, and demonstration to assure the utilization of solar energy as a viable source for our national energy needs, and for other purposes, submit the following joint statement to the House and the Senate in explanation of the effect of the action agreed upon by the managers and recommended in the accompanying conference report:

The House amendment to the text of the bill struck out all of the Senate bill after the enacting clause and inserted a substitute text.

The Senate recedes from its disagreement to the amendment of the House with an amendment which is a substitute for the Senate bill and the House amendment. The differences between the Senate bill, the House amendment, and the substitute agreed to in conference are noted below, except for clerical corrections, conforming changes made necessary by agreements reached by the conferees, and minor drafting and clarifying changes.

SHORT TITLE

Senate bill

The Senate bill provided that this legislation may be cited as the "Solar Energy Research, Development, and Demonstration Act of 1974".

House amendment

The House amendment was the same as the Senate bill.

Conference substitute

The conference substitute is the same as the Senate bill.

FINDINGS AND POLICY

Senate bill

Section 2(a) of the Senate bill made the following findings: (1) dependence on nonrenewable energy resources cannot be continued indefinitely; (2) renewable energy resources, such as solar energy, should be developed; (3) research and development with respect to solar energy has been extremely limited; and (4) the Nation should undertake a 5-year, \$1 billion research, development, and demonstration program with respect to energy alternatives.

Section 2(b) of the Senate bill provided that it is the policy of the Federal Government to (1) pursue a solar energy research and development program; and (2) develop and demonstrate methods for the commercial use of solar energy.

House amendment

Section 2 of the House amendment was essentially the same as section 2(a) of the Senate bill, except that the House amendment made the following additional findings: (1) society depends on an ample supply of energy; (2) the imbalance between the supply and demand for fuels and energy probably will persist; (3) solar energy technologies presently are at widely differing stages of development; (4) the United States balance of trade would be improved by the export of viable equipment utilizing solar energy; and (5) mass production and use of equipment utilizing solar energy would make the United States less dependent upon foreign energy sources.

Section 3 of the House amendment was essentially the same as section 2(b) of the Senate bill.

Conference substitute

The conference substitute is the same as the Senate bill, with the following changes:

1. The conference substitute incorporates the 5 findings of the House amendment which were not contained in the Senate bill.

2. The conference substitute changes the second finding made by the Senate bill in order to stress that development of renewable and nonpolluting energy resources should be expedited.

3. The conferees agree that the objective of this legislation is to achieve, at the earliest possible date, the commercial viability of various applications of solar energy technology. They also agree that suggesting a specific time period, within which this goal could be reached for any particular technology or group of technologies, is premature. The conference substitute, therefore, omits reference to a 5-year period in the fourth finding made by the Senate bill.

Consistent with this, the conferees agree to alter the Senate language which estimated a need for a Federal investment of \$1 billion over 5 years to carry out the provisions of this legislation. They agree that, while an outlay of this magnitude or more may well be required, it is too early to define the necessary level of expenditures. They therefore agree to qualify the \$1 billion figure by stating that the financial needs of the program may ". . . reach or exceed . . ." that amount. The conferees agree that these changes from the Senate bill are not meant to contravene the intent of proceeding expeditiously toward achieving the purpose of the legislation.

DEFINITIONS

Senate bill

Section 3 of the Senate bill contained the following definitions:

1. The term "utilization of solar energy" was defined to mean various advanced technology applications of solar energy.

2. The term "Project" was defined to mean the Solar Energy Coordination and Management Project.

3. The term "Chairman" was defined to mean the Chairman of the Project.

House amendment

Section 4 of the House amendment contained the following definitions:

1. The term "solar energy" was defined to mean energy which has recently originated in the Sun, including direct and indirect solar radiation and various intermediate solar energy forms.

2. The term "byproduct" was defined to include, with respect to solar energy technologies and processes, any solar energy products other than those associated with or constituting the primary product of such technologies or processes.

3. The term "insolation" was defined to mean the rate at which solar energy is received at the surface of the earth. Such term covered both direct and scattered solar radiation.

4. The term "Project" was defined in the same manner as in the Senate bill.

Conference substitute

The conference substitute is the same as the House amendment, except that the conference substitute incorporates the definition of "Chairman" contained in the Senate bill.

COORDINATION AND MANAGEMENT PROJECT

Senate bill

Section 4(a) of the Senate bill established the Solar Energy Coordination and Management Project (hereinafter in this statement referred to as the "Project").

Section 4(b) provided that the Project would be composed of 6 members as follows: (1) an Assistant Director of the National Science Foundation (hereinafter in this statement referred to as "NSF"); (2) an Assistant Secretary of Housing and Urban Development (hereinafter in this statement referred to as "HUD"); (3) a member of the Federal Power Commission (hereinafter in this statement referred to as "FPC"); (4) an Associate Administrator of the National Aeronautics and Space Administration (hereinafter in this statement referred to as "NASA"); (5) the General Manager of the Atomic Energy Commission (hereinafter in this statement referred to as "AEC"); and (6) a member designated by the President.

Section 4(b) also provided that the President shall designate one member of the Project to serve as Chairman of the Project.

Section 4(c) provided that the Project shall be responsible for the management and coordination of a national solar energy research, development, and demonstration program.

House amendment

Section 5(a) of the House amendment was the same as section 4(a) of the Senate bill. Section 5(b) of the House amendment was essentially the same as section 4(b) of the Senate bill.

Section 5(c) of the House amendment was essentially the same as section 4(c) of the Senate bill, except that the House amendment provided that the solar energy research, development, and demonstration program shall include (1) determination and evaluation of the resource base; (2) research and development on solar energy technologies; and (3) demonstration of appropriate solar energy technologies.

Section 5(d) of the House amendment provided that the Project shall cooperate with NSF, NASA, AEC, HUD, and FPC, in carrying

out its responsibilities under section 5. Such subsection also provided for the responsibilities of each such agency and authorized the head of each such agency to detail personnel to the Project.

Section 5(e) of the House amendment provided that the Project shall have overall authority with respect to programs and projects initiated under this legislation. The agencies involved, however, shall be responsible for the operation and administration of each such program or project.

Section 5(f) of the House amendment authorized NASA to undertake and carry out programs assigned to it by the Project.

Conference substitute

The conference substitute is the same as the House amendment, with the following changes:

1. The conference substitute provides that if the member of the Project designated by the President is an officer or employee of the Federal Government, he shall receive no additional salary. If he is not an officer or employee of the Federal Government, he shall receive the daily equivalent of the annual rate of pay for level IV of the Executive Schedule for each day during which he serves as a member.

2. The conference substitute specifies that the responsibilities of HUD shall be carried out pursuant to the Solar Heating and Cooling Demonstration Act of 1974 (P.L. 93-409; 88 Stat. 1069).

3. The conference substitute provides that the responsibilities of NSF are altered with regard to overall funding. Presently, NSF is the lead agency for solar energy R. & D. It is consistent with the intent of the conferees for appropriations to the Project to be made through NSF in fiscal year 1976 and beyond. The deletion of "basic and applied" in describing NSF research responsibilities is consistent with the conferees' desire to not change the character of NSF programs.

4. Section 5(c) (1) of the House amendment, as incorporated by the conference substitute, refers to a general survey of the solar resource base. It is anticipated that detailed assessments will be made in specific geographical areas, in addition to the general surveys, in conjunction with demonstrations.

The conferees intend that the Project should, whenever applicable, cooperate with and make use of the expertise of other Federal agencies not included as members of the Project, such as the Federal Energy Administration and the National Oceanic Atmospheric Administration.

RESOURCE DETERMINATION AND ASSESSMENT

Senate bill

No provision.

House amendment

Section 6(a) of the House amendment required the Chairman to initiate a solar energy resource determination and assessment program. This program, which shall emphasize the identification of promising areas for commercial exploitation and development, shall have the following goals: (1) developing methods to predict the availability of solar energy resources; (2) developing instrumentation, methodology and procedures necessary to measure solar energy re-

sources; (3) developing proposed agreements and programs with other countries with respect to solar energy resources assessment; and (4) developing arrangements for the flow of information and data with respect to solar energy resources assessment.

Section 6(b) of the House amendment required the Chairman, acting through NASA and the National Oceanic and Atmospheric Administration, to (1) develop a plan for inventorying solar energy resources associated with Federal lands and, to the extent consistent with property rights, with non-Federal lands; (2) conduct regional surveys leading to a national inventory of solar energy resources; (3) make available maps and reports developed from such surveys to encourage commercial development of solar energy resources; and (4) make recommendations for legislation with respect to Federal leasing policies for solar energy resources.

Conference substitute

The conference substitute is the same as the House amendment, except that the conference substitute omits the provision relating to developing proposed agreements and programs with other countries with respect to solar energy resources assessment, since provisions relating to international cooperation are contained in a new section added by the conference substitute.

The conference substitute also authorizes NSF to encourage international participation and cooperation in developing and maintaining programs of technical and scientific education.

RESEARCH AND DEVELOPMENT

Senate bill

Section 5 of the Senate bill provided that the Chairman shall initiate a research and development program to resolve technical problems with respect to commercial utilization of solar energy. Section 5 also provided that such program shall include (1) scientific research and studies to develop solar energy processes and equipment; (2) systems, economic, social, and environmental studies with respect to use of solar energy; (3) technical assessments with respect to use of solar energy; and (4) cooperation with other nations in interinstitutional, bilateral, or multilateral research projects with respect to solar energy.

Section 5 also provided that the program shall deal with specific solar energy technologies, including (1) direct solar heat as a source for industrial processes; (2) thermal energy conversion; (3) conversion of cellulose and other organic materials to useful energy or fuels; (4) photovoltaic and other direct conversion processes; (5) sea thermal power conversion; and (6) windpower conversion.

House amendment

Section 7(a) of the House amendment required the Chairman to initiate a research and development program to facilitate commercial utilization of solar energy resources. Section 7(b) provided for the conduct of (1) basic research in all aspects of solar energy resources; (2) various environmental and other studies to provide a basis for research and development planning and phasing; (3) technology assessments; and (4) development of means to use the solar energy resource base, with specific attention directed to (A) improving the

capability to predict environmental impacts of solar energy resources development; (B) identifying social, legal, and economic problems associated with solar energy resources development; and (C) development of agreements with other countries to exchange information and support cooperative research.

Section 7(c) was essentially the same as those provisions of section 5 of the Senate bill which required the program to deal with specific solar energy technologies, except that the House amendment also included (1) solar heating and cooling of housing and of commercial and public buildings; and (2) energy storage.

Conference substitute

The conference substitute is the same as the House amendment, except that the conference substitute adopts the approach of the Senate bill with respect to the requirement of scientific research and studies to develop solar energy processes and equipment.

DEMONSTRATION

Senate bill

Section 6 of the Senate bill required the Chairman to (1) solicit proposals for demonstration plants with respect to each technology described in section 5(c) of the Senate bill; such proposals shall include a description of (A) the proposed plant or facility; (B) an economic assessment of costs and benefits of the project; (C) an assessment of uses of solar energy utilized in the project; and (D) the nature and extent of any anticipated Federal participation; (2) select proposals for demonstration, based upon (A) economic costs and feasibility; (B) national interest considerations with respect to the technology; (C) environmental impact; (D) potential for technology transfer to other applications; and (E) likelihood of success for commercial application; and (3) conduct feasibility studies for a full-scale demonstration program for each of the specific selected proposals.

Section 8(a) of the Senate bill provided that the Chairman, in cooperation with the AEC, may initiate small-scale demonstration programs involving a total Federal investment of not more than \$20 million. Section 8(b) provided that the AEC shall be directly responsible for administering construction contracts and agreements with non-Federal participants in the small-scale demonstrations.

Section 8(c) authorized the AEC to enter into agreements with non-Federal utilities, industries, and governmental entities for the construction and operation of small-scale demonstration programs.

Section 8(d) provided that no agreement shall be entered into under section 8 unless the Chairman determines that (1) the nature of the resource, location, and facilities involved, offers an opportunity to contribute to the development of solar energy; (2) the potential non-Federal participants are willing and capable to make contributions toward the capital cost of the program; and (3) the development of benefits under the program is unlikely to be accomplished without Federal assistance.

Section 9(a) of the Senate bill provided that, after establishment of the Energy Research and Development Administration (hereinafter in this statement referred to as "ERDA"), the Administrator of ERDA shall administer contracts for the construction and operation

of any demonstration programs authorized by the Congress. Section 9(b) provided that if, on the date of submission of the report required by section 7(b) of the Senate bill, ERDA has not been established, then the President shall designate an appropriate agency to carry out the functions of section 9(a).

House amendment

Section 8(a) of the House amendment authorized the Chairman to initiate a program to design and operate facilities or powerplants to demonstrate the feasibility of utilizing solar energy. Section 8(a) also established various goals of such program.

Section 8(b) authorized the Chairman to establish one or more demonstration projects utilizing each form of solar energy. The Chairman was given authority to obtain, through appropriate Federal agencies, plants and other real property used in any demonstration project.

Any agency designated by the Chairman to conduct a demonstration project shall provide for the disposal of electric energy and other byproducts of such project. Such disposition, to the maximum extent possible, shall be achieved through the sale of such electric energy or other byproducts.

Section 8(c) authorized the Chairman, acting through appropriate Federal agencies, to enter into agreements with non-Federal entities for the development of solar demonstration facilities.

Section 8(d) required the responsible Federal agencies, at the conclusion of the program established under section 8, to dispose of Federal property interests which have been acquired pursuant to such program. Such disposition shall be on such terms and conditions as the agency determines to be reasonable, or in accordance with the terms of any cooperative agreement which is involved.

Section 8(e) provided that preference shall be given to solar energy technologies with the best opportunity for commercial success and environmental acceptability in selecting technologies for demonstration.

Conference substitute

The conference substitute authorizes the Chairman to initiate a program to construct demonstration facilities or powerplants for the development and use of solar energy. The goals of such program include (1) production of electricity from a number of powerplants, ranging from 1 to 10 megawatts each; (2) production of synthetic fuels in commercial quantities; (3) use of solar energy in the form of direct heat; and (4) use of thermal and all other byproducts; (5) design and development of hybrid systems; and (6) continuous operation of the facilities or powerplants for a period of time.

The conference substitute provides that, with respect to each solar energy technology for which a development program is completed, the Chairman shall determine whether to proceed to demonstration. His determination shall be based, in part, upon consideration of the following criteria: (1) technological feasibility of the project; (2) costs and benefits of the project; (3) uses of the solar energy to be utilized in the project; (4) long-term national need for the technology involved in the project; (5) environmental impact; (6) potential of technology transfer to other applications; and (7) the nature and extent of any Federal participation in the project.

The conference substitute also provides that the Chairman, acting through the appropriate Federal agencies, may establish one or more demonstration projects utilizing each form of solar energy. The conference substitute authorizes the Chairman, acting through the appropriate Federal agencies, to investigate and enter into agreements for the cooperative development of facilities to demonstrate solar energy technologies. The responsible Federal agencies may consider (1) cooperative agreements with non-Federal entities; and (2) cooperative agreements with other Federal agencies for production of energy for direct Federal utilization.

The conference substitute also authorizes the Chairman, acting through the appropriate Federal agencies, to operate demonstration projects without entering into any cooperative agreements with respect to such projects, if the Chairman finds that (1) the nature of the resource, location, and facilities involved, offers an opportunity to contribute to the development of solar energy; and (2) there is no opportunity for agreements with non-Federal entities or with other Federal agencies.

The conference substitute provides that if the estimate of Federal investment in a demonstration project exceeds \$20 million, then no amount may be appropriated for such project except as specifically authorized by legislation hereafter enacted by the Congress.

The conference substitute also provides that, at the conclusion of a demonstration project, the responsible Federal agencies shall dispose of all Federal property interests in the project in a manner consistent with existing law and the terms of the cooperative agreements involved. The conference substitute also provides that the Federal agency involved shall dispose of electricity, synthetic fuels, and other byproducts of the project administered by such agency.

SOLAR ENERGY TECHNOLOGY UTILIZATION

Senate bill

Section 10(a) of the Senate bill authorized and directed the Chairman to collect and disseminate information and data with respect to applications of solar energy developed under this legislation, including (1) technical information resulting from research and demonstration programs specified under sections 5, 6, and 8 of the Senate bill; and (2) general information on solar energy applications.

Section 10(b) provided that the Chairman shall encourage development of agreements and programs with other countries to exchange information relating to solar energy resource assessment.

Section 11 of the Senate bill provided that the Chairman shall take necessary steps to coordinate solar energy technology utilization with all other technology utilization programs of the Federal Government.

House amendment

Section 11(a) of the House amendment required the Chairman to establish a Solar Energy Information Data Bank to collect and disseminate information and data with respect to solar energy technologies. The Chairman was required to provide retrieval and dissemination services for Federal, State, and local governmental organizations, universities and colleges, and the private sector. The Chairman was

required to utilize the existing scientific and technical information data base of Federal agencies, and to coordinate or merge the data bank established under section 11(a) with other Federal energy information data banks as necessary to assure efficient operation.

Section 11(b) required the Chairman to establish a solar energy incentives task force. The functions of such task force are as follows: (1) report to the President and to the Congress with respect to programs to accelerate commercial application and consumer utilization of solar energy technology; (2) conduct a program of research and investigation concerning problems in developing and utilizing solar energy; and (3) carry on a program of research and investigation concerning social, legal, and economic barriers to public acceptance and use of solar energy.

Section 11(c) required the Chairman to make arrangements to coordinate solar energy technology utilization with other Federal technology utilization programs.

Conference substitute

The conference substitute is the same as the House amendment, with the following changes:

1. The conference substitute specifically requires the data bank to compile information and data on solar energy applications which would be appropriate for popular consumption.

2. The conference substitute omits the provision of the House amendment which required establishment of a solar energy incentives task force. In place of such provision, the conference substitute includes a provision which requires the Chairman to perform studies and research on incentives to promote broader use and consumer acceptance of solar energy technologies.

SCIENTIFIC AND TECHNICAL EDUCATION

Senate bill

Section 12 of the Senate bill authorized the Chairman, acting through NSF, to support education programs to provide the necessary trained personnel to perform solar energy research, development, and demonstration activities required under this legislation. Section 12 provided that such support may include fellowships, traineeships, technical training programs, technologist training programs, and summer institute programs.

House amendment

Section 9 of the House amendment provided that it is the policy of the Congress to encourage programs to provide trained personnel to carry out solar energy research, development, and demonstration activities. NSF was authorized to support educational programs designed to effectuate such policy. NSF was required to coordinate its activities with the Project or any permanent Federal organization or agency having jurisdiction over Federal research and development functions. NSF also was authorized to encourage, to the maximum extent possible and consistent with other objectives of this legislation, international participation and cooperation with respect to educational programs.

Conference substitute

The conference substitute is the same as the Senate bill, except that the conference substitute authorizes and directs the Chairman to support such education programs, instead of allowing such support to be a matter of discretion.

SOLAR ENERGY RESEARCH INSTITUTE

Senate bill

Section 14 of the Senate bill established a Solar Energy Research Institute, which shall perform functions assigned to it by the Chairman. The Chairman may locate such Institute at any Federal laboratory or any non-Federal laboratory if such laboratory is under contract with the Project, or any Federal agency represented in the Project, if the personnel of such laboratory are Federal employees.

House amendment

Section 10 of the House amendment was the same as section 14 of the Senate bill.

Conference substitute

The conference substitute is the same as the Senate bill.

INTERNATIONAL COOPERATION

Senate bill

Section 5 of the Senate bill required the Chairman to seek cooperation with other nations regarding various solar energy research projects. Section 10(b) of the Senate bill required the Chairman to encourage agreements with other countries regarding exchange of information relating to solar energy resource assessment.

House amendment

Sections 6, 7, and 9 of the House amendment contained provisions relating to international cooperation which were similar to the provisions of the Senate bill.

Conference substitute

The conference substitute combined the provisions of the Senate and House versions into one single section specifically addressed to international cooperation. The conferees agree that the development of solar energy will be enhanced by cooperation with other nations in the research projects established by this legislation and in the mutual exchange of information and data.

REGULATIONS

Senate bill

No provision.

House amendment

Section 13 of the House amendment required the Chairman, together with Federal agencies with functions under this legislation and other appropriate officers and agencies, to prescribe such regulations as may be necessary or appropriate to carry out this legislation.

Conference substitute

The conference substitute is the same as the House amendment.

ANNUAL REPORTS

Senate bill

Section 13 of the Senate bill required the Chairman to report on an annual basis to the President and to the Congress with respect to (1) actions taken under this legislation; (2) actions planned for the ensuing year; and (3) to the extent practical, activities and funding requirements for the ensuing 5 years. The Chairman was required to recommend, as he deems appropriate, any legislation or reorganization which may further the purposes of this legislation.

House amendment

Section 12 of the House amendment required each Federal agency with functions under this legislation to report to the President and to the Congress with respect to the activities of such agency. The Chairman was required to transmit an annual special report to the President and to the Congress summarizing all activities under this legislation.

Conference substitute

The conference substitute is the same as the Senate bill.

INFORMATION TO CONGRESS

Senate bill

No provision.

House amendment

Section 15 of the House amendment required the Chairman, or any organization or agency which assumes the functions of the Project under section 14 of the House amendment, to inform the appropriate committees of the Congress with respect to activities under this legislation.

Conference substitute

The conference substitute is the same as the House amendment.

COMPREHENSIVE PROGRAM DEFINITION

Senate bill

Section 7 of the Senate bill required the Chairman to report to the President and to the Congress, no later than one year after the date of the enactment of this legislation, on the results of feasibility studies conducted under section 6(c) of the Senate bill. Such reports were required to contain, as appropriate, requests for authorization for the construction of demonstration plants to be pursued to full-scale application.

House amendment

Section 16(a) of the House amendment required the Chairman, in consultation with the Federal Energy Administration, NSF, HUD.

FPC, NASA, AEC, other appropriate Federal agencies, State and local government agencies, and private organizations, to prepare a comprehensive program definition for the development of solar energy resources.

Section 16(b) required the Chairman to transmit interim reports to the President and to the Congress with respect to such program definition no later than December 31, 1974, and January 31, 1975. The completed program definition shall be transmitted no later than June 30, 1975.

Conference substitute

The conference substitute is the same as the House amendment, except that the conference substitute requires only one interim report, which shall be transmitted no later than March 1, 1975.

The conferees agree that the final report should be transmitted no later than June 30, 1975. They agree that the urgent need to develop an integrated solar energy research, development, and demonstration program warrants accelerating the completion of this program definition.

The conferees intend that the project member agencies as well as the Federal Energy Administration, the National Oceanic and Atmospheric Administration, and any other appropriate agencies, should cooperate in the comprehensive program definition.

TRANSFER OF FUNCTIONS

Senate bill

Section 4(d) of the Senate bill provided that, within 60 days after the date of the enactment of legislation establishing ERDA, the functions and authorities of the Project shall be transferred to ERDA, vested in the Administrator of ERDA, and implemented through the Assistant Administrator for Solar, Geothermal, and Advanced Energy Systems.

House amendment

Section 14 of the House amendment provided that, upon the establishment of a permanent Federal organization or agency having jurisdiction over the energy research and development functions of the United States, the authorities of the Project and the research, development, and other functions (other than those related to scientific and technical education) vested in Federal agencies under this legislation, shall be transferred to and vested in such permanent Federal organization or agency.

Conference substitute

The conference substitute is the same as the House amendment.

AUTHORIZATION OF APPROPRIATIONS

Senate bill

Section 15 of the Senate bill authorized to be appropriated (1) \$100 million for fiscal year 1976; (2) such amounts as may be authorized by annual authorization measures in subsequent years; and (3) such amounts as may be authorized for construction of full-scale demonstrations under section 9(a) of the Senate bill.

House amendment

Section 17(a) of the House amendment authorized the appropriation of not more than \$2 million to NSF for fiscal year 1975 for use in preparing the program definition under section 16 of the House amendment.

Section 17(b) authorized the appropriation of such sums as the Congress may hereafter authorize by law for fiscal years beginning after June 30, 1975.

Conference substitute

The conference substitute is the same as the Senate bill, with the following changes:

1. The conference substitute reduces the authorization of appropriations for fiscal year 1976 to \$75 million.

2. The conference substitute includes the provision of the House amendment relating to the \$2 million authorization of appropriations to NSF for fiscal year 1975 for use in preparing the program definition.

The conferees adopted the \$75 million authorization of appropriations for fiscal year 1976 so as to be more in line with the projected budget figure under consideration by the Administration. The conferees agree that reducing the authorization of appropriations for fiscal year 1976 from the Senate figure of \$100 million to \$75 million is not meant to contravene the intent to supply adequate Federal financial resources for carrying out the vigorous program established by this legislation. It is the intent of the conferees that, if additional funds are needed to carry out the provisions of this legislation during fiscal year 1976, authorization of additional funds through the appropriate committees of the Congress would be warranted and in order. Results of the program definition should be a major consideration in determining the need for further funding.

It is the understanding of the conferees that authorizations for appropriations made by this legislation are separate from any authorizations made by the Solar Heating and Cooling Demonstration Act of 1974 (P.L. 93-490; 88 Stat. 1069).

OLIN E. TEAGUE,
MIKE McCORMACK,
DON FUQUA,
JAMES W. SYMINGTON,
CHARLES A. MOSHER,
BARRY M. GOLDWATER, Jr.,
JOHN W. WYDLER,

Managers on the Part of the House.

HENRY M. JACKSON,
J. BENNETT JOHNSTON, Jr.,
FLOYD K. HASKELL,
PAUL FANNIN,
JAMES McCLURE,

Managers on the Part of the Senate.

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SOLAR ENERGY RESEARCH ACT OF 1974

SEPTEMBER 12, 1974.—Ordered to be printed

Mr. JACKSON, from the Committee on Interior and Insular Affairs,
submitted the following

REPORT

[To accompany S. 3234]



The Committee on Interior and Insular Affairs, to which was referred the bill (S. 3234) to authorize a vigorous Federal program of research and development to assure the utilization of solar energy as a major source for our national energy needs, to provide for the development of suitable incentives for rapid commercial use of solar technology and to establish an Office of Solar Energy Research in the United States Government, having considered the same, reports favorably thereon with amendments and recommends that the bill as amended do pass.

The amendments are as follows:

1. Strike out all after the enacting clause and insert the following language:

That this Act may be cited as the "Solar Energy Research, Development, and Demonstration Act of 1974".

DECLARATION OF FINDINGS AND POLICY

SEC. 2. (a) The Congress hereby finds that—

(1) dependence on nonrenewable energy resources cannot be continued indefinitely, particularly at current rates of consumption;

(2) it is in the Nation's interest to begin to expedite the long term development of renewable energy resources, such as solar energy; and

(3) to date, the national effort in research, development, and demonstration activities relating to the utilization of solar energy has been extremely limited; therefore

(4) the urgency of the Nation's critical energy shortages and the need to make clean and renewable energy alternatives commercially viable requires that the Nation undertake, at a minimum, a five-year \$1,000,000,000 research, development, and demonstration program.

(b) The Congress declares that it is the policy of the Federal Government to—

(1) pursue a vigorous and viable program of research and development into the utilization of solar energy as a major source of energy for our national needs; and

(2) provide for the development and demonstration of practicable means to employ solar energy on a commercial scale.

DEFINITIONS

SEC. 3. For the purposes of this Act—

- (1) utilization of solar energy means advanced technology applications of solar energy including, but not necessarily limited to, solar thermal and photovoltaic power generation for terrestrial applications, whether situated on the ground or in space, wind energy conversion, ocean thermal gradient conversion, solar stimulated bioconversion, and solar production of synthetic gases and hydrogen;
- (2) the term "Project" means the Solar Energy Coordination and Management Project; and
- (3) the term "Chairman" means the Chairman of the Project.

MANAGEMENT PROJECTS

SEC. 4. (a) There is hereby established the Solar Energy Coordination and Management Project.

- (b) (1) The Project shall be composed of six members as follows:
 - (A) an Assistant Director of the National Science Foundation;
 - (B) an Assistant Secretary of Housing and Urban Development;
 - (C) a member of the Federal Power Commission;
 - (D) an Associate Administrator of the National Aeronautics and Space Administration;
 - (E) the General Manager of the Atomic Energy Commission; and
 - (F) a member to be designated by the President.

(2) The President shall designate one member of the Project to serve as Chairman of the Project.

(c) The Project shall have overall responsibility for the provision of effective management and coordination with respect to a national solar energy research, development, and demonstration program.

(d) Within sixty days from the date of enactment of legislation establishing a Federal Energy Research and Development Administration, the functions and authorities of the Project shall be transferred thereto, vested in the Administrator thereof, and implemented through the Assistant Administrator for Solar, Geothermal, and Advanced Energy Systems, to achieve the purposes of this Act.

RESEARCH AND DEVELOPMENT

SEC. 5. The Chairman shall—

(a) Initiate a research and development program for the purpose of resolving the major technical problems inhibiting commercial utilization of solar energy in the United States.

(b) In connection with or as a part of such program—

- (1) conduct, encourage, and promote basic scientific research and fundamental studies to develop effective and economical processes and equipment for the purpose of utilizing solar energy in an acceptable manner for beneficial uses;
- (2) carry out systems, economic, social, and environmental studies to provide a basis for research and development planning and phasing;
- (3) perform or cause to be performed technology assessments relevant to the utilization of solar energy; and
- (4) cooperate and participate jointly with other nations, especially those with agreements for scientific cooperation with the United States, in interinstitutional, bilateral or multilateral research projects in the field of solar energy.

(c) The specific solar energy technologies to be addressed or dealt with in the program shall include—

- (1) direct solar heat as a source for industrial processes, including the utilization of low-level heat for process and other industrial purposes;
- (2) thermal energy conversion, and other methods, for the generation of electricity and the production of chemical fuels;
- (3) the conversion of cellulose and other organic materials (including wastes) to useful energy or fuels;

- (4) photovoltaic and other direct conversion processes;
- (5) sea thermal power conversion; and
- (6) windpower conversion.

FULL-SCALE DEMONSTRATIONS

SEC. 6. The Chairman shall—

(a) for each of the technologies specified in subsection 5(c), solicit specific proposals for full-scale demonstration plants. Such proposals shall be for facilities or powerplants of sufficient size to demonstrate the technical and economic feasibility of utilizing the various forms of solar energy, and shall include, at a minimum, a detailed description of:

- (1) the proposed plant or facility, including plant site and proposed technology;
- (2) an economic assessment of the costs and benefits of proposed project;
- (3) an assessment of both the immediate and potential future uses for the solar energy utilized in the proposed program; and
- (4) the nature and extent of Federal participation, if any, anticipated in carrying out the proposal.

(b) for each of the technologies specified in subsection 5(c), select one or more specific proposals solicited pursuant to subsection (a), to be pursued to the point of full-scale demonstration. Such selection shall be made pursuant to an evaluation of the potential success of each proposal, giving full consideration to the following matters:

- (1) economic costs and feasibility;
- (2) long-term national interest in the technology;
- (3) environmental impact;
- (4) potential for technology transfer to other applications; and
- (5) likelihood of success for commercial application.

(c) conduct feasibility studies for a full-scale demonstration program for each of the specific selected proposals, identifying any engineering and technical work (such as the design, construction, and testing of pilot plants, modules, or other scaled-down operations), that must be completed prior to developing processes and plant design concepts to the point of full-scale demonstration.

REPORTS

SEC. 7. (a) Not later than one year after the date of enactment of this Act, the Chairman shall report to the President and the Congress, on the results of the feasibility studies conducted pursuant to subsection 6(c), together with a request for authorization for the construction of the demonstration plants to be pursued to full-scale application.

SMALL-SCALE DEMONSTRATION PROGRAMS

SEC. 8. (a) If the Chairman determines that the available level of technology and knowledge of the proposal warrants immediate initiation of a small-scale demonstration involving a total Federal investment of not greater than \$20,000,000, the Chairman, in cooperation with the Atomic Energy Commission, is authorized to initiate such demonstrations.

(b) The Commission shall be the agency directly responsible for the administration of construction contracts and agreements with non-Federal participants in such demonstrations.

(c) The Commission is authorized to investigate, negotiate, and enter into cooperative agreements with non-Federal utilities, industries, and governmental entities for the construction, operation, and maintenance of demonstration developments for the production of electric or heat energy using solar energy technologies.

(d) No agreement shall be entered into under the authority granted by this section unless the Chairman determines that—

- (1) the nature of the resource, the geographical location, the scale and engineering design of the facilities, the techniques of production, or other significant factors of the proposal offer opportunities to make important contributions to the general knowledge of solar energy, the techniques of its development, or public confidence in the technology;
- (2) the potential non-Federal cooperating entities are willing and capable to make contributions toward the capital cost of the development, to operate

the power generation or other commercial facilities, and to provide a market for any energy produced;

(3) the development or the practical benefits of the development as set forth in clause (1) of this subsection are unlikely to be accomplished without Federal assistance.

ADMINISTRATION OF DEMONSTRATION PROGRAMS

SEC. 9. (a) Subsequent to the establishment of the Energy Research and Development Administration, the Administrator of the Energy Research and Development Administration, acting through the Assistant Administrator for Solar, Geothermal, and Advanced Energy Systems shall perform the necessary contract administration for the construction and operation of any demonstration programs authorized by the Congress, including contracts for the construction and operation of pilot plants, modules, and other scaled-down operations deemed necessary to establish the feasibility of authorized projects.

(b) If, on the date of submission of the report specified in subsection 7(b), there has not been established a Federal Energy Research and Development Administration, the President shall designate an appropriate agency to carry out the functions specified in this section and in section 13 of this Act.

INFORMATION

SEC. 10. (a) The Chairman is authorized and directed to collect, analyze, process, and disseminate information and data on the applications of solar energy developed pursuant to this Act. Such data and information shall include:

(1) technical information resulting from and related to the research and demonstration programs specified under sections 5, 6, and 8 of this Act; and

(2) general information on solar energy applications to be disseminated for popular consumption.

(b) The Chairman shall encourage the development of agreement and programs with other countries to facilitate the exchange of information and data relating to solar energy resource assessment.

PROGRAM COORDINATION

SEC. 11. The Chairman shall enter into such arrangements and take such other steps as may be necessary or appropriate to provide for the effective coordination of solar energy technology utilization with all other technology utilization programs within the Federal Government.

SCIENTIFIC AND TECHNICAL EDUCATION

SEC. 12. The Chairman is authorized to support programs of education in the sciences and engineering to provide the necessary trained personnel to perform the solar energy research, development, and demonstration activities required under this Act. Such support may include fellowships, traineeships, technical training programs, technologist training programs, and summer institute programs.

ANNUAL REPORTS

SEC. 13. The Chairman, acting through the Office, shall report, on an annual basis, to the President and the Congress all actions taken under the provisions of this Act, all action planned for the ensuing year, and, to the extent practical, a projection of activities and funding requirements, for the ensuing five years. Further, he shall recommend, as he deems appropriate, legislation and/or reorganizations which might further the purposes of this Act.

AUTHORIZATION OF APPROPRIATIONS

SEC. 14. (a) To carry out the provisions of this Act, there are authorized to be appropriated—

(1) for the fiscal year ending June 30, 1976, \$100,000,000;

(2) such amounts as may be provided by annual authorization measures in subsequent years; and

(3) such amounts as may be authorized for the construction of full-scale demonstrations pursuant to section 9(a) of this Act.

2. Amend the title so as to read:

An Act to authorize a vigorous Federal program of research, development, and demonstration to assure the utilization of solar energy as a viable source for our national energy needs, and for other purposes.

I. PURPOSE OF THE MEASURE

The purpose of S. 3234, the "Solar Energy Research Development and Demonstration Act of 1974", is to provide for research, development and demonstration activities relating to the utilization of advanced solar energy technologies. As reported by the Senate Interior Committee, the measure is designed to initiate an aggressive and comprehensive program with the administrative framework and financial support needed to make the widespread use of solar energy economically and technologically practical. The measure has the following major parts:

1. A statement of the pressing need of the U.S. to expand and accelerate the development of solar energy, among other of our renewable energy sources, and a declaration of Federal policy to establish an adequately funded national program of research, development and demonstration to ensure the early commercial viability of advanced solar energy technologies.

2. An interim organizational arrangement to coordinate and conduct the solar energy research, development and demonstration activities established under this measure pending the formal reorganization of Federal energy agencies.

3. Authorization of appropriations in the amount of \$100 million for fiscal year 1976 to accelerate Federal support for solar energy research and development.

4. Authority and direction to solicit and evaluate proposals for full-scale demonstration projects for a number of specified solar technology applications and to report to the Congress recommendations as to which proposed demonstration facilities should be authorized for construction.

5. Authority to have constructed small scale pilot or demonstration plants if the status of a technology warrants its immediate application and if the cost for such a plant would not exceed \$20,000,000.

In its entirety, the measure will provide the Congressional initiative and direction for a coordinated Federal effort in research, development and demonstration of advanced solar energy technologies. It will recognize the need for a Federal commitment to a level of financial support of at least \$1 billion over the next 5 years.

II. BACKGROUND

The Senate Committee on Interior and Insular Affairs has long been concerned with the potential uses of solar energy. As early as 1959, a measure introduced by Senator Bible, S. 2318, 86th Congress, a bill to provide for research and development of practical means for the utilization of solar energy, was referred to the Committee. When the Committee was directed, pursuant to Senate Resolution 45, 92d Congress, to conduct the National Fuels and Energy Policy Study, it ad-

ressed the consideration of solar energy as a viable energy source as an early part of its investigations. During Committee hearings in June of 1972 on "Energy Research Policy Alternatives," testimony was received on a variety of solar energy applications.

The Committee's awareness of the potential contribution of solar energy to the achievement of energy self-sufficiency has been evidenced by its favorable deliberations involving several solar-related bills during the 93d Congress. S. 1283, the National Energy Research and Development Policy Act, was introduced by Senator Jackson on March 19, 1973, and referred to the Interior Committee for its consideration. This measure includes considerable emphasis on solar energy opportunities in terms of setting forth a general national research strategy aimed at hastening the commercial application of a wide range of non-nuclear energy sources. After being reported favorably from the Interior Committee, S. 1283 passed the Senate on December 7, 1973, and it was approved by the House with amendments on September 11, 1974.

To further accelerate the wide-scale application of solar heating and cooling technology the Congress passed H.R. 11864, the Solar Heating and Cooling Demonstration Act of 1974. The Act authorizes the appropriation of \$60 million over a five-year period to HUD and NASA for the purpose of achieving the commercial demonstration of solar heating and cooling systems in residences and commercial buildings. The Interior Committee, which held hearings on this bill on June 5th, strongly endorsed the final version of the measure which was signed into law by the President on September 3, 1974.

Also pending before the Committee is S. 2636, a bill introduced by Senator McGovern, which would authorize appropriations to the National Science Foundation to carry out research into solar, hydrogen and geothermal resources.

On March 26, 1974, Senator Humphrey introduced S. 3234, the Solar Energy Research Act of 1974, which was referred to the Interior Committee. Several members of the Committee had joined Senator Humphrey as coponents of the bill.

As introduced, S. 3234 established an Office of Solar Energy Research, to be located on an interim basis, in the Atomic Energy Commission. The Office was to be transferred into the Energy Research and Development Administration (ERDA) as soon as that entity, or another such energy organization would come into being.

The Office, in cooperation with other Federal agencies actively involved in solar energy conversion, would be empowered to undertake a \$600 million, 5-year R. & D. program to accelerate the commercial readiness of solar energy systems. Hearings on S. 3234 were held on June 27, 1974. The witnesses discussed the background of solar energy and described the status of national and international research and development efforts in this field. They also addressed the current and projected future capability of U.S. and foreign industry in the area of solar energy conversion. They commented on the policy and organizational aspects of S. 3234. A consensus between Committee members and the witnesses was evidenced by the expressed agreement that there is a pressing need for an intensified Federal program of solar energy

In considering S. 3234, the Committee also made use of and built upon May 7 and 8 hearings held by the Joint Committee on Atomic R. & D. which could hasten its commercial viability.

Energy on a similar solar energy bill, S. 2819, which was originally sponsored by Senator Humphrey.

S. 3234, as ordered reported unanimously by the Interior Committee meeting in markup session September 10, was amended to reflect the findings of the June 27th hearings and the views of Committee members.

The cosponsors of S. 3234 are as follows: Mr. Humphrey, Mr. Bible, Mr. Church, Mr. Cook, Mr. Fannin, Mr. Haskell, Mr. Hatfield, Mr. Jackson, Mr. Johnston, Mr. Metcalf, Mr. Nelson, Mr. Brock, Mr. Dole, Mr. Gravel, Mr. Williams, Mr. Pell, Mr. Mondale, Mr. Tower, Mr. McGovern, Mr. Montoya, and Mr. Schweiker.

III. NEED FOR THE MEASURE

The current energy shortage has made it quite clear that we can no longer rely solely on conventional fuel sources to meet our growing energy needs. In order to attain the capability of national energy self-sufficiency, a serious Federal commitment must be made to advance the development and foster the commercial application of our alternative energy sources.

The solar radiation which impacts upon the earth is an enormous potential energy source. For example, the amount of energy from solar radiation falling upon 400 square miles (20 miles by 20 miles) is equivalent to total present annual U.S. electrical consumption. Dr. Alfred J. Eggers, Jr., of the National Science Foundation, noted in a recent solar report given to the Chairman of the Atomic Energy Commission that through widespread application of advanced solar technologies, it is estimated that 10 to 30 percent of the Nation's required input BTU's can be provided by solar energy by the year 2000 and as much as 50 percent by the year 2020.

Until quite recently, the idea of harnessing the sun's energy on a large-scale was treated more as a curiosity than as a viable energy option. Federal funding for the development of this potentially clean and abundant energy source was extremely limited. In fiscal year 1974, solar energy was commanding less than 2 percent of the Federal energy R. & D. budget. Although the fiscal year 1975 Federal authorization for solar energy is \$50,000,000, a substantial increase over the preceding year, a sustained effort requiring expanded government coordination, participation and financial assistance will be necessary to resolve the technological and economic problems currently inhibiting the commercial utilization of this energy alternative in the United States.

IV. SECTION-BY-SECTION ANALYSIS

SHORT TITLE

The short title of this measure is the Solar Energy Research, Development and Demonstration Act of 1974.

SECTION 2. DECLARATION OF FINDINGS AND POLICY

Section 2(a) sets forth the Congress' findings that faced with a depleting supply of conventional energy resources, the nation must accelerate and expand its development of such clean and renewable

energy alternatives as solar energy. The section estimates that to make solar energy commercially viable will require at least a five-year \$1 billion research, development and demonstration program and it declares (2(b)) it to be the policy of the Federal government to pursue such a program. The Committee's estimate that to make solar energy commercially viable will require a five-year \$1 billion program is derived from a variety of private and Federal agency sources, including the National Science Foundation and the Federal Energy Administration.

SECTION 3. DEFINITIONS

This section defines utilization of solar energy for purposes of this Act as being limited to advanced technology applications. The reason for this limiting definition is to avoid any overlap, conflict or duplication of the scope of this measure with the Solar Heating and Cooling Demonstration Act, which was signed into law on September 3, 1974. The scope of the present bill encompasses all applications of solar energy not contained in the previous legislation.

SECTION 4. MANAGEMENT PROJECTS

Section 4 establishes an interagency Solar Energy Coordination and Management Project to coordinate and administer the provisions of the Act. The Project is to be composed of six members, as follows:

- (1) One Assistant Director of the National Science Foundation;
- (2) One Assistant Secretary of Housing and Urban Development;
- (3) One member of the Federal Power Commission;
- (4) One Associate Administrator of the National Aeronautics and Space Administration;
- (5) The General Manager of the Atomic Energy Commission; and
- (6) One member designated by the President.

The President shall designate one of the members as Chairman of the Project.

The section requires that the functions and authorities of the Project are to be transferred to the Federal Energy Research and Development Administration within 60 days after that agency is established. Once ERDA is created, it will be the most appropriate agency to carry out the objectives of the Act, consistent with its mandate is to oversee and coordinate all energy research and development activities involving the Federal Government.

SECTION 5. RESEARCH AND DEVELOPMENT

This section authorizes and directs the Chairman of the Project to initiate research and development programs fundamental to the commercial development of advanced solar energy technologies. These activities are intended to lay the groundwork for the full-scale demonstration programs provided for in Section 6 of this Act. The Chairman is directed to carry out economic, environmental, and social studies relevant to the planning, development and demonstration

activities of the Act and to engage in solar energy research agreements and projects with other nations.

A great deal of testimony was received at the Committee's June 27th hearings in support of the mutual benefits which could accrue from international cooperation in solar research and development activities. The language in this section makes clear that to the fullest extent possible the accumulated expertise of scientists in other nations in the field of solar energy should be utilized and not needlessly duplicated by U.S. scientists.

Section 5 also delineates the specific advanced solar energy technologies to be covered by this Act, namely:

1. Solar heat for industrial purposes;
2. Thermal energy conversion for electric powerplant generation;
3. Conversion of organic materials to energy;
4. Photovoltaic conversion;
5. Sea thermal power conversion; and
6. Windpower conversion.

SECTION 6. FULL-SCALE DEMONSTRATIONS

This section provides for active solicitation and careful evaluation by the Chairman of any proposals for full-scale demonstration of the advanced solar energy technologies. It requires that feasibility studies be conducted on selected proposals for full-scale demonstrations to determine what further work is needed prior to full-scale application. The purpose of this section is to lay further groundwork for, and develop to the demonstration stage, at least one specific proposal for each of the advanced solar technologies covered by the Act.

SECTION 7. REPORTS

This section requires that, not later than one year after the date of enactment, the Chairman submit to the President and to the Congress a report on the feasibility studies conducted on specific advanced solar technology proposals, together with recommendations and requests for authorization for the construction of the selected demonstration activities. The purposes of this provision are twofold: (1) to provide a timely impetus to actual full-scale demonstration of the advanced solar technologies; and (2) to afford the opportunity for Congressional oversight of the program.

SECTION 8. SMALL-SCALE DEMONSTRATION PROGRAMS

This section provides that the Chairman may proceed with the construction of a small-scale demonstration plant if the status of a technology warrants its immediate application and if the Federal cost outlay for such a plant would not exceed \$20,000,000. The Atomic Energy Commission is designated as the agency which will be responsible for the administration of advanced design and construction contracts and agreements with non-Federal participants in such demonstrations. It is also authorized by this section to enter into cooperative agreements with non-Federal entities for the construction, operation and maintenance of demonstration developments for the

production of electric or heat energy using solar energy technologies. No agreements shall be authorized under this section unless the Chairman determines that:

(1) The demonstration will offer opportunities to make important contributions to achieving objectives of the Act;

(2) The non-Federal participants will be willing and able to make some contribution in the form of funds, rights in property, services or some other valuable consideration; and

(3) The practical benefits to the development of solar energy of the proposed demonstration are unlikely to be accomplished without the Federal assistance authorized by this Act.

SECTION 9. ADMINISTRATION OF DEMONSTRATION PROGRAMS

It is herein provided that the contracts for the construction and operation of the full-scale demonstration projects will be administered by the Assistant Administrator for Solar, Geothermal and Advanced Energy Systems of the Energy Research and Development Administration (or an appropriate alternative to be designated by the President if ERDA has not been established).

SECTION 10. INFORMATION

This section provides for the collection and analysis of data and dissemination, on both a technical and popular level, relating to the applications of advanced solar technologies covered by this Act. It also directs the Chairman to encourage the development of agreements and programs with other countries to facilitate the exchange of information and data relating to solar energy resource assessment. The purpose of this section is to assure a more rapid advance of solar energy utilization in all sectors, to facilitate replication of successfully demonstrated applications, and to increase public understanding of the potential beneficial uses of solar energy.

SECTION 11. PROGRAM COORDINATION

This section requires that the Chairman coordinate the efforts of the Project with other Federal agencies engaged in similar activities.

SECTION 12. SCIENTIFIC AND TECHNICAL EDUCATION

Financial assistance is authorized by this section to train personnel to perform the solar energy research, development and demonstration activities required by this Act. The provision recognizes that, because solar energy R & D has hitherto been extremely limited, there are insufficient personnel trained in the field to carry out the kind of large-scale program envisions by the Act. It will therefore be necessary to train a significant number of persons in the requisite skills. The broad phrasing of the language in this section permits significant leeway for innovative support programs as well as for more traditional assistance.

SECTION 13. ANNUAL REPORTS

This section requires that an annual report be submitted by the Chairman to the President and the Congress on the ongoing and pro-

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jected activities carried out under the Act and recommending the funding requirements needed for carrying out those activities.

The report shall also include any recommendations by the Project which might serve, through structural or functional revisions or additions to the program, to further the objectives of the Act.

SECTION 14. AUTHORIZATION OF APPROPRIATIONS

This section authorizes the following to be appropriated to carry out the provisions of the Act:

(1) For the fiscal year ending June 30, 1976, \$100,000,000;

(2) Such amounts as may be provided by annual authorization measures in subsequent years; and

(3) Such amounts as may be authorized for the construction of full-scale demonstrations pursuant to section 9 of the Act.

Because of the lack of experience, it is difficult to predetermine the schedule of requirements for capital investments in full-scale demonstrations, the amounts which would be authorized beyond fiscal year 1976, therefore, are not specified in the bill.

V. ESTIMATE OF COST

In accordance with Section 252(a) of the Legislative Reorganization Act of 1970 (Public Law 91-150, 91st Cong.) the Committee provides the following estimate of cost of this measure.

(1) To be authorized for appropriation in fiscal year 1976, \$100,000,000.

(2) Such amounts as may be provided by annual authorization measures in subsequent years to further carry out the provisions of this Act. It is estimated that an authorization of at least \$1 billion over a 5-year period would be necessary to achieve the objectives of the Act.

VI. COMMITTEE RECOMMENDATION

The Senate Committee on Interior and Insular Affairs in open markup session on September 10, 1974, by unanimous vote of a quorum present, recommends that S. 3234 be enacted with the amendments set forth herein.

VII. EXECUTIVE COMMUNICATIONS

The comments of appropriate Executive agencies on S. 3234 were requested but had not been received as of the date of this report.

VIII. CHANGES IN EXISTING LAW

Subsection (4) of Rule XXIX of the Standing Rules of the Senate requires a statement of any changes in existing law made by the bill as ordered reported. S. 3234 as reported makes no amendment to or changes in existing laws.

○

Ninety-third Congress of the United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Monday, the twenty-first day of January, one thousand nine hundred and seventy-four

An Act

To authorize a vigorous Federal program of research, development, and demonstration to assure the utilization of solar energy as a viable source for our national energy needs, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Solar Energy Research, Development, and Demonstration Act of 1974".

DECLARATION OF FINDINGS AND POLICY

SEC. 2. (a) The Congress hereby finds that—

(1) the needs of a viable society depend on an ample supply of energy;

(2) the current imbalance between domestic supply and demand for fuels and energy is likely to persist for some time;

(3) dependence on nonrenewable energy resources cannot be continued indefinitely, particularly at current rates of consumption;

(4) it is in the Nation's interest to expedite the long-term development of renewable and nonpolluting energy resources, such as solar energy;

(5) the various solar energy technologies are today at widely differing stages of development, with some already near the stage of commercial application and others still requiring basic research;

(6) the early development and export of viable equipment utilizing solar energy, consistent with the established preeminence of the United States in the field of high technology products, can make a valuable contribution to our balance of trade;

(7) the mass production and use of equipment utilizing solar energy will help to eliminate the dependence of the United States upon foreign energy sources and promote the national defense;

(8) to date, the national effort in research, development, and demonstration activities relating to the utilization of solar energy has been extremely limited; therefore

(9) the urgency of the Nation's critical energy shortages and the need to make clean and renewable energy alternatives commercially viable require that the Nation undertake an intensive research, development, and demonstration program with an estimated Federal investment which may reach or exceed \$1,000,000,000.

(b) The Congress declares that it is the policy of the Federal Government to—

(1) pursue a vigorous and viable program of research and resource assessment of solar energy as a major source of energy for our national needs; and

(2) provide for the development and demonstration of practicable means to employ solar energy on a commercial scale.

DEFINITIONS

SEC. 3. For the purposes of this Act—

(1) the term "solar energy" means energy which has recently originated in the Sun, including direct and indirect solar radiation and intermediate solar energy forms such as wind, sea thermal gradients, products of photosynthetic processes, organic wastes, and others;

(2) the term "byproducts" includes, with respect to any solar energy technology or process, any solar energy products (including energy forms) other than those associated with or constituting the primary product of such technology or process;

(3) the term "insolation" means the rate at which solar energy is received at the surface of the Earth;

(4) the term "Project" means the Solar Energy Coordination and Management Project; and

(5) the term "Chairman" means the Chairman of the Project.

SOLAR ENERGY COORDINATION AND MANAGEMENT PROJECT

SEC. 4. (a) There is hereby established the Solar Energy Coordination and Management Project.

(b) (1) The Project shall be composed of six members as follows:

(A) an Assistant Director of the National Science Foundation;

(B) an Assistant Secretary of Housing and Urban Development;

(C) a member of the Federal Power Commission;

(D) an Associate Administrator of the National Aeronautics and Space Administration;

(E) the General Manager of the Atomic Energy Commission;

and

(F) a member to be designated by the President.

(2) The President shall designate one member of the Project to serve as Chairman of the Project.

(3) If the individual designated under paragraph (1) (F) is an officer or employee of the Federal Government, he shall receive no additional pay on account of his service as a member of the Project. If such individual is not an officer or employee of the Federal Government, he shall be entitled to receive the daily equivalent of the annual rate of basic pay in effect for level IV of the Executive Schedule (5 U.S.C. 5315) for each day (including traveltime) during which he is engaged in the actual performance of duties vested in the Project.

(c) The Project shall have overall responsibility for the provision of effective management and coordination with respect to a national solar energy research, development, and demonstration program, including—

(1) the determination and evaluation of the resource base, including its temporal and geographic characteristics;

(2) research and development on solar energy technologies;

and

(3) the demonstration of appropriate solar energy technologies.

(d) (1) The Project shall carry out its responsibilities under this section in cooperation with the following Federal agencies:

(A) the National Science Foundation, the responsibilities of which shall include research;

(B) the National Aeronautics and Space Administration, the responsibilities of which shall include the provision of management capability and the development of technologies;

(C) the Atomic Energy Commission, the responsibilities of which shall include the development of technologies;

(D) the Department of Housing and Urban Development, the responsibilities of which shall include fostering the utilization of solar energy for the heating and cooling of buildings, pursuant to the Solar Heating and Cooling Demonstration Act of 1974 (P.L. 93-409; 88 Stat. 1069); and

(E) the Federal Power Commission, the responsibilities of which shall include fostering the utilization of solar energy for

the generation of electricity and for the production of synthetic fuels.

(2) Upon request of the Chairman, the head of any such agency is authorized to detail or assign, on a reimbursable basis or otherwise, any of the personnel of such agency to the Project to assist it in carrying out its responsibilities under this Act.

(e) The Project shall have exclusive authority with respect to the establishment or approval of programs or projects initiated under this Act, but the agency involved in any particular program or project shall be responsible for the operation and administration of such program or project.

(f) The National Aeronautics and Space Administration is authorized to undertake and carry out those programs assigned to it by the Project.

RESOURCE DETERMINATION AND ASSESSMENT

SEC. 5. (a) The Chairman shall initiate a solar energy resource determination and assessment program with the objective of making a regional and national appraisal of all solar energy resources, including data on insolation, wind, sea thermal gradients, and potentials for photosynthetic conversion. The program shall emphasize identification of promising areas for commercial exploitation and development. The specific goals shall include—

(1) the development of better methods for predicting the availability of all solar energy resources, over long time periods and by geographic location;

(2) the development of advanced meteorological, oceanographic, and other instruments, methodology, and procedures necessary to measure the quality and quantity of all solar resources on periodic bases;

(3) the development of activities, arrangements, and procedures for the collection, evaluation, and dissemination of information and data relating to solar energy resource assessment.

(b) The Chairman, acting through the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, and other appropriate agencies, shall—

(1) develop and carry out a general plan for inventorying all forms of solar energy resources associated with Federal lands and (where consistent with property rights) non-Federal lands;

(2) conduct regional surveys based upon such general plan, using innovative meteorological, oceanographic, and space-related techniques, in sufficient numbers to lead to a national inventory of solar energy resources in the United States;

(3) publish and make available maps, reports, and other documents developed from such surveys to encourage and facilitate the commercial development of solar energy resources; and

(4) make such recommendations for legislation as may appear to be necessary to establish policies for solar resources involving Federal lands and waters, consistent with known inventories of various resource types, with the state of technologies for solar energy development, and with evaluation of the environmental impacts of such development.

RESEARCH AND DEVELOPMENT

SEC. 6. (a) The Chairman shall initiate a research and development program for the purpose of resolving the major technical problems inhibiting commercial utilization of solar energy in the United States.

(b) In connection with or as a part of such program, the Chairman shall—

(1) conduct, encourage, and promote scientific research and studies to develop effective and economical processes and equipment for the purpose of utilizing solar energy in an acceptable manner for beneficial uses;

(2) carry out systems, economic, social, and environmental studies to provide a basis for research, development and demonstration planning and phasing; and

(3) perform or cause to be performed technology assessments relevant to the utilization of solar energy.

(c) The specific solar energy technologies to be addressed or dealt with in the program shall include—

(1) direct solar heat as a source for industrial processes, including the utilization of low-level heat for process and other industrial purposes;

(2) thermal energy conversion, and other methods, for the generation of electricity and the production of chemical fuels;

(3) the conversion of cellulose and other organic materials (including wastes) to useful energy or fuels;

(4) photovoltaic and other direct conversion processes;

(5) sea thermal gradient conversion;

(6) windpower conversion;

(7) solar heating and cooling of housing and of commercial and public buildings; and

(8) energy storage.

DEMONSTRATION

SEC. 7. (a) The Chairman is authorized to initiate a program to design and construct, in specific solar energy technologies (including, but not limited to, those listed in section (6)(c), facilities or powerplants of sufficient size to demonstrate the technical and economic feasibility of utilizing the various forms of solar energy. The specific goals of such programs shall include—

(1) production of electricity from a number of powerplants, on the order of one to ten megawatts each;

(2) production of synthetic fuels in commercial quantities;

(3) large-scale utilization of solar energy in the form of direct heat;

(4) utilization of thermal and all other byproducts of the solar facilities;

(5) design and development of hybrid systems involving the concomitant utilization of solar and other energy sources; and

(6) the continuous operation of such plants and facilities for a period of time.

(b) For each of the technologies for which a successful and appropriate development program is completed, the Chairman shall make a determination to proceed to demonstration based on criteria including, but not necessarily limited to, the following:

(1) the technological feasibility of the project;

(2) the costs and benefits of the project, as determined by an economic assessment;

(3) the immediate and the potential uses of the solar energy utilized in the project;

(4) long-term national need for the technology;

(5) environmental impact;

- (6) potential for technology transfer to other applications; and
- (7) the nature and extent of Federal participation, if any, in the project.

(c) In carrying out his responsibilities under this section, the Chairman, acting through the appropriate Federal agencies, may provide for the establishment of one or more demonstration projects utilizing each form of solar energy, which shall include, as appropriate, the specific research, development, pilot plant construction and operation, demonstration plant construction and operation, and other facilities and activities which may be necessary to show commercial viability of the specific solar technology.

(d) The Chairman, acting through the appropriate Federal agencies, is authorized to investigate and enter into agreements for the cooperative development of facilities to demonstrate solar technologies. The responsible Federal agency may consider—

- (1) cooperative agreements with non-Federal entities for construction of facilities and equipment to demonstrate solar energy technologies; and
- (2) cooperative agreements with other Federal agencies for the construction of facilities and equipment and operation of facilities to produce energy for direct Federal utilization.

(e) The Chairman, acting through appropriate Federal agencies is authorized to construct and operate demonstration projects without entering into cooperative agreements with respect to such projects, if the Chairman finds that—

- (1) the nature of the resource, the geographical location, the scale and engineering design of the facilities, the techniques of production, or any other significant factor of the specific demonstration project offers opportunities to make important contributions to the general knowledge of solar resources, the techniques of its development, or public confidence in the technology; and
- (2) there is no opportunity for cooperative agreements with any non-Federal entity willing and able to cooperate in the demonstration project under subsection (d) (1), and there is no opportunity for cooperative agreements with other Federal agencies under subsection (d) (2).

(f) If the estimate of the Federal investment with respect to construction and operation costs of any demonstration project proposed to be established under this section exceeds \$20,000,000, no amount may be appropriated for such project except as specifically authorized by legislation hereafter enacted by the Congress.

(g) (1) At the conclusion of any demonstration project established under this section, or as soon thereafter as may be practicable, the responsible Federal agencies shall, by sale, lease, or otherwise, dispose of all Federal property interests which they have acquired pursuant to this section in accordance with existing law and the terms of the cooperative agreements involved.

(2) The agency involved shall, under appropriate agreements or other arrangements, provide for the disposition of electricity, synthetic fuels, and other byproducts of the project administered by such agency.

SOLAR ENERGY TECHNOLOGY UTILIZATION

SEC. 8. (a) (1) In carrying out his functions under this Act the Chairman, utilizing the capabilities of the National Science Foundation, the National Aeronautics and Space Administration, the Department of Commerce, the Atomic Energy Commission, and other appropriate Federal agencies to the maximum extent possible, shall

establish and operate a Solar Energy Information Data Bank (hereinafter in this subsection referred to as the "bank") for the purpose of collecting, reviewing, processing, and disseminating information and data in all of the solar energy technologies referred to in section 7(c) in a timely and accurate manner in support of the objectives of this Act.

(2) Information and data compiled in the bank shall include—

(A) technical information (including reports, journal articles, dissertations, monographs, and project descriptions) on solar energy research, development, and applications;

(B) similar technical information on the design, construction, and maintenance of equipment utilizing solar energy;

(C) general information on solar energy applications to be disseminated for popular consumption;

(D) physical and chemical properties of materials required for solar energy activities and equipment; and

(E) engineering performance data on equipment and devices utilizing solar energy.

(3) In accordance with regulations prescribed under section 12, the Chairman shall provide retrieval and dissemination services with respect to the information described under paragraph (2) for—

(A) Federal, State, and local government organizations that are active in the area of energy resources (and their contractors);

(B) universities and colleges in their related research and consulting activities; and

(C) the private sector upon request in appropriate cases.

(4) In carrying out his functions under this subsection, the Chairman shall utilize, when feasible, the existing data base of scientific and technical information in Federal agencies, adding to such data base any information described in paragraph (2) which does not already reside in such base. He shall coordinate or merge this data bank with other Federal energy information data banks as necessary to assure efficient and effective operation.

(b) In carrying out his functions under this Act the Chairman shall perform or cause to be performed studies and research on incentives to promote broader utilization and consumer acceptance of solar energy technologies.

(c) The Chairman shall enter into such arrangements and take such other steps as may be necessary or appropriate to provide for the effective coordination of solar energy technology utilization with all other technology utilization programs within the Federal Government.

SCIENTIFIC AND TECHNICAL EDUCATION

SEC. 9. The Chairman, acting through the National Science Foundation, is authorized and directed to support programs of education in the sciences and engineering to provide the necessary trained personnel to perform the solar energy research, development, and demonstration activities required under this Act. Such support may include fellowships, traineeships, technical training programs, technologist training programs, and summer institute programs.

SOLAR ENERGY RESEARCH INSTITUTE

SEC. 10. (a) There is established a Solar Energy Research Institute, which shall perform such research, development, and related functions as the Chairman may determine to be necessary or appropriate in connection with the Project's activities under this Act or to be otherwise in furtherance of the purpose and objectives of this Act.

(b) The Institute may be located (as designated by the Chairman)

at any new or existing Federal laboratory (including a non-Federal laboratory performing functions under a contract entered into with the Project or with any of the agencies represented in the Project as well as a laboratory whose personnel are Federal employees).

INTERNATIONAL COOPERATION

SEC. 11. (a) The Chairman, in furtherance of the objectives of this Act, is authorized to cooperate and participate jointly with other nations, especially those with agreements for scientific cooperation with the United States, in the following activities:

- (1) interinstitutional, bilateral, or multilateral research projects in the field of solar energy; and
- (2) agreements and programs which will facilitate the exchange of information and data relating to solar energy resource assessment and solar energy technologies.

(b) The National Science Foundation is authorized to encourage, to the maximum extent practicable and consistent with the other objectives of this Act, international participation and cooperation in the development and maintenance of programs of education to carry out the policy set forth in section 9.

REGULATIONS

SEC. 12. The Chairman, in consultation with the heads of the Federal agencies having functions under this Act and with other appropriate officers and agencies, shall prescribe such regulations as may be necessary or appropriate to carry out this Act promptly and efficiently. Each such officer or agency, in consultation with the Chairman, may prescribe such regulations as may be necessary or appropriate to carry out his or its particular functions under this Act promptly and efficiently.

ANNUAL REPORTS

SEC. 13. The Chairman shall report, on an annual basis, to the President and the Congress all actions taken under the provisions of this Act, all action planned for the ensuing year, and, to the extent practical, a projection of activities and funding requirements, for the ensuing five years. The Chairman also shall recommend, as he deems appropriate, any legislation or reorganization which might further the purposes of this Act.

INFORMATION TO CONGRESS

SEC. 14. Notwithstanding any other provision of law, the Chairman (or the head of any agency which assumes the functions of the Project pursuant to section 16) shall keep the appropriate committees of the House of Representatives and the Senate fully and currently informed with respect to all activities under this Act.

COMPREHENSIVE PROGRAM DEFINITION

SEC. 15. (a) The Chairman is authorized and directed to prepare a comprehensive program definition of an integrated effort and commitment for effectively developing solar energy resources. The Chairman, in preparing such program definition, shall utilize and consult with the appropriate Federal agencies, State and local government agencies, and private organizations.

(b) The Chairman shall transmit such comprehensive program definition to the President and to each House of the Congress. An

interim report shall be transmitted not later than March 1, 1975. The comprehensive program definition shall be transmitted as soon as possible thereafter, but in any case not later than June 30, 1975.

TRANSFER OF FUNCTIONS

SEC. 16. Within sixty days after the effective date of the law creating a permanent Federal organization or agency having jurisdiction over the energy research and development functions of the United States (or within sixty days after the date of the enactment of this Act if the effective date of such law occurs prior to the date of the enactment of this Act), all of the authorities of the Project and all of the research and development functions (and other functions except those related to scientific and technical education) vested in Federal agencies under this Act along with related records, documents, personnel, obligations, and other items, to the extent necessary or appropriate, shall, in accordance with regulations prescribed by the Office of Management and Budget, be transferred to and vested in such organization or agency.

AUTHORIZATION OF APPROPRIATIONS

SEC. 17. To carry out the provisions of this Act, there are authorized to be appropriated—

- (1) for the fiscal year ending June 30, 1976, \$75,000,000;
- (2) for subsequent fiscal years, only such sums as the Congress hereafter may authorize by law;
- (3) such amounts as may be authorized for the construction of demonstrations pursuant to section 7(f) of this Act; and
- (4) to the National Science Foundation for the fiscal year ending June 30, 1975, not to exceed \$2,000,000 to be made available for use in the preparation of the comprehensive program definition under section 15.

Speaker of the House of Representatives.

*Vice President of the United States and
President of the Senate.*

HHH
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October 17, 1974

Dear Mr. Director:

The following bills were received at the White House on October 17th:

S.J. Res. 236 ✓	S. 2840 ✓	H.R. 7768	H.R. 14225
S.J. Res. 250 ✓	S. 3007 ✓	H.R. 7780	H.R. 14597
S.J. Res. 251 ✓	S. 3234 ✓	H.R. 11221	H.R. 15148 ✓
S. 355 ✓	S. 3473 ✓	H.R. 11251 ✓	H.R. 15427
S. 605 ✓	S. 3698 ✓	H.R. 11452 ✓	H.R. 15540 ✓
S. 628 ✓	S. 3792	H.R. 11830 ✓	H.R. 15643 ✓
S. 1411 ✓	S. 3838	H.R. 12035 ✓	H.R. 16857 ✓
S. 1412 ✓	S. 3979 ✓	H.R. 12281	H.R. 17027 ✓
S. 1769 ✓	H.R. 6624	H.R. 13561 ✓	
S. 2348 ✓	H.R. 6642 ✓	H.R. 13631 ✓	

Please let the President have reports and recommendations as to the approval of these bills as soon as possible.

Sincerely,

Robert D. Linder
Chief Executive Clerk



The Honorable Roy L. Ash
Director
Office of Management and Budget
Washington, D. C.