

reflect supply and demand relationships, and supply interruptions;

(5) the early development and widespread utilization of photovoltaic energy systems could significantly expand the domestic energy resource base of the United States, thereby lessening its dependence on foreign supplies;

(6) the establishment of sizable markets for photovoltaic energy systems will justify private investment in plant and equipment necessary to realize the economies of scale, and will result in significant reductions in the unit costs of these systems;

(7) the use of solar photovoltaic energy systems for certain limited applications has already proved feasible;

(8) there appear to be no insoluble technical obstacles to the widespread commercial use of solar photovoltaic energy technologies;

(9) an aggressive research and development program should solve existing technical problems of solar photovoltaic systems; and, supported by an assured and growing market for photovoltaic systems during the next decade, should maximize the future contribution of solar photovoltaic energy to this Nation's future energy production;

(10) it is the proper and appropriate role of the Federal Government to undertake research, development, and demonstration programs in solar photovoltaic energy technologies and to supplement and assist private industry and other entities and thereby the general public, so as to hasten the general commercial use of such technologies;

(11) the high cost of imported energy sources impairs the economic growth of many nations which lack sizable domestic energy supplies or are unable to develop these resources;

(12) photovoltaic energy systems are economically competitive with conventional energy resources for a wide variety of applications in many foreign nations at the present time, and will find additional applications with continued cost reductions;

(13) the early development and export of solar photovoltaic energy systems, consistent with the established preeminence of the United States in the field of high technology products, can make a valuable contribution to the well-being of the people of other nations and to this Nation's balance of trade;

(14) the widespread use of solar photovoltaic energy systems to supplement and replace conventional methods for the generation of electricity would have a beneficial effect upon the environment;

(15) to increase the potential application of solar photovoltaic energy systems in remote locations, and to minimize the need for backup systems depending on fossil fuel, programs leading to the development of inexpensive and reliable systems for the storage of electricity should be pursued as part of any solar photovoltaic energy research, development, and demonstration program;

(16) evaluation of the performance and reliability of solar photovoltaic energy technologies can be expedited by testing of prototypes under carefully controlled conditions;

(17) commercial application of solar photovoltaic energy technologies can be expedited by early commercial demonstration under practical conditions;

(18) photovoltaic energy systems are currently adaptable on a life cycle, cost-justified basis for certain of the energy needs of the Federal Government, and will find additional applications as continued refinements improve performance and reduce unit costs;

(19) the Federal Government can stimulate innovation and economic efficiency in the production of photovoltaic energy systems through the development and implementation of policies to promote diversity and maximum competition between firms engaged in the research, manufacture, installation, and/or maintenance of these systems;

(20) innovation and creativity in the development of solar photovoltaic energy components and systems can be fostered through encouraging direct contact between the manufacturers of such systems and the architects, engineers, developers, contractors, and other persons interested in utilizing such systems; and

(21) it is contemplated that the ten-year program established by this subchapter will require the expenditure of \$1,500,000,000 by the Federal Government.

(b) It is therefore declared to be the policy of the United States and the purpose of this subchapter to establish during the next decade an aggressive research, development, and demonstration program involving solar photovoltaic energy systems and in the long term, to have as an objective the production of electricity from photovoltaic systems cost competitive with utility-generated electricity from conventional sources. Further, it is declared to be the policy of the United States and the purpose of this subchapter that the objectives of this research, development, and demonstration program are—

(1) to double the production of solar photovoltaic energy systems each year during the decade starting with fiscal year 1979, measured by the peak generating capacity of the systems produced, so as to reach a total annual United States production of solar photovoltaic energy systems of approximately two million peak kilowatts, and a total cumulative production of such systems of approximately four million peak kilowatts by fiscal year 1988;

(2) to reduce the average cost of installed solar photovoltaic energy systems to \$1 per peak watt by fiscal year 1988; and

(3) to stimulate the purchase by private buyers of at least 90 per centum of all solar photovoltaic energy systems produced in the United States during fiscal year 1988.

(Pub. L. 95-590, § 2, Nov. 4, 1978, 92 Stat. 2513.)

#### SHORT TITLE

For short title of this subchapter as the "Solar Photovoltaic Energy Research, Development, and Demonstration Act of 1978", see section 1 of Pub. L. 95-590, set out as a note under section 5501 of this title.

#### § 5582. Definitions

For purposes of this subchapter—

(1) a “solar photovoltaic energy system” is a system of components which generates electricity from incident sunlight by means of the photovoltaic effect, and which shall include all components, including energy storage devices where appropriate, necessary to provide electricity for individual, industrial, agricultural, or governmental use;

(2) the term “solar photovoltaic energy system” may be used interchangeably with the term “photovoltaic system”;

(3) a “hybrid solar photovoltaic energy system” is a system of components that generates electricity from incident sunlight by means of the photovoltaic effect and, in conjunction with electronic and, if appropriate, optical, thermal and storage devices, provides electricity, as well as heat and/or light for individual, commercial, industrial, agricultural, or governmental use;

(4) “photovoltaic effect” refers to the physical phenomenon exhibited under certain circumstances by some materials in which a portion of the light energy striking the material is directly converted to electrical energy;

(5) “facility” means any building, agricultural, commercial or industrial complex or other device constructively employing photovoltaic systems; and

(6) “Secretary” means the Secretary of Energy.

(Pub. L. 95-590, §3, Nov. 4, 1978, 92 Stat. 2515.)

**§ 5583. Establishment and promotion of research, development, and demonstration programs**

The Secretary is directed to establish immediately and carry forth such research, development, and demonstration programs as may be necessary to meet the objectives of this subchapter as set forth in section 5581(b) of this title, and as a part of any such program shall—

(a) conduct, and promote the coordination and acceleration of, research, development, and demonstrations relating to solar photovoltaic energy systems and components thereof, and

(b) conduct, and promote the coordination and acceleration of, research, development, and demonstrations for systems and components to be used in applications that are dependent for their energy on solar photovoltaic energy systems.

(Pub. L. 95-590, §4, Nov. 4, 1978, 92 Stat. 2515.)

**§ 5584. Federal assistance application procedures; selection of applicants; agreements; financial assistance; observation and monitoring of photovoltaic systems; reports; projects and activities**

(a) In carrying out the provisions of section 5583 of this title, the Secretary is authorized—

(1) to establish procedures whereby any public or private entity wishing to install solar photovoltaic components and systems in any new or existing facility may apply for Federal assistance in purchasing and installing, in such facility, photovoltaic components or systems;

(2) to select, as soon as he deems it feasible, a number of the applicants under paragraph (1)

and enter into agreements with them for the design, purchase, fabrication, testing, installation, and demonstration of photovoltaic components and systems. Such selection shall be based on the need to obtain scientific, technological, and economic information from a variety of such systems under a variety of circumstances and conditions; and

(3) to arrange, as part of any agreement entered into under paragraph (2), to provide up to 75 per centum of the purchase and installation costs of photovoltaic components or systems, taking into account relevant considerations involving the relative stage of consumer and industry interest and development at the time of the financial assistance action. Such arrangements shall be contingent upon terms and conditions prescribed by the Secretary, including an express agreement that the entity with whom the agreement is entered into shall, in such manner and form and on such terms and conditions as the Secretary may prescribe, observe and monitor (or permit the Secretary or his agents to observe and monitor) the performance and operation of such system for a period of five years, and that such entity (including any subsequent owner of the property) shall regularly furnish the Secretary with such reports thereon as the agreement may require.

(b) The Secretary shall, as he deems appropriate, undertake any projects or activities (including demonstration projects) to further the attainment of the objectives of this section.

(Pub. L. 95-590, §5, Nov. 4, 1978, 92 Stat. 2516.)

CODIFICATION

Section 5583 of this title, referred to in subsec. (a), was in the original “section (4)” and was translated section 5583 of this title as the probable intent of Congress.

**§ 5585. Contracts, grants and arrangements**

**(a) Selection of photovoltaic components and systems, design concepts, and designs**

The Secretary is authorized to select on the basis of open competitions—

(1) a number of readily available photovoltaic components and systems;

(2) a number of design concepts for various types of applications which demonstrate adaptability to the utilization of photovoltaic components and systems; and

(3) a number of designs for applications selected under paragraph (2), so that each design includes specific provisions for the utilization of solar photovoltaic components and systems selected under paragraph (1).

**(b) Commercial production and utilization of photovoltaic components and systems; selection of components and systems compatible with chosen design concepts; procurement of components and systems**

The Secretary, in accordance with the applicable provisions of sections 5906, 5907, and 5908 of this title and with such program guidelines as the Secretary may establish, shall—

(1) enter into such contracts and grants as may be necessary or appropriate for the devel-