

(6) the term “United States” means the several States, the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and any other Commonwealth, territory, or possession of the United States.

(Pub. L. 101-218, § 3, Dec. 11, 1989, 103 Stat. 1859; Pub. L. 102-486, title XII, § 1202(d)(4), Oct. 24, 1992, 106 Stat. 2960.)

REFERENCES IN TEXT

This chapter, referred to in introductory provisions and pars. (1) and (4), was in the original “this Act”, meaning Pub. L. 101-218, Dec. 11, 1989, 103 Stat. 1859, known as the Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989, which is classified principally to this chapter. For complete classification of this Act to the Code, see Short Title note set out under section 12001 of this title and Tables.

The Plant Variety Protection Act, referred to in par. (1), is Pub. L. 91-577, Dec. 24, 1970, 84 Stat. 1542, as amended, which is classified principally to chapter 57 (§ 2321 et seq.) of Title 7, Agriculture. For complete classification of this Act to the Code, see Short Title note set out under section 2321 of Title 7 and Tables.

AMENDMENTS

1992—Pars. (2) to (5). Pub. L. 102-486 redesignated pars. (3) to (5) as (2) to (4), respectively, in par. (4) substituted “any demonstration and commercial application project” for “any joint venture” and “in the demonstration and commercial application project;” for “in the venture; and”, added par. (5), and struck out former par. (2) which read as follows: “‘joint venture’ means any agreement entered into under this chapter by the Secretary with more than one or a consortium of non-Federal persons (including a joint venture under the National Cooperative Research Act of 1984 (15 U.S.C. 4301 et seq.)) for cost-shared research, development, or demonstration of technologies, but does not include procurement contracts, grant agreements, or cooperative agreements as those terms are used in sections 6303, 6304, and 6305 of title 31;”.

§ 12003. National goals and multi-year funding for Federal wind, photovoltaics, and solar thermal programs

(a) National goals

The following are declared to be the national goals for the wind, photovoltaics, and solar thermal energy programs being carried out by the Secretary:

(1) Wind

(A) In general, the goals for the Wind Energy Research Program include improving design methodologies and developing more reliable and efficient wind turbines to increase the cost competitiveness of wind energy. Research efforts shall emphasize—

- (i) activities that address near-term technical problems and assist private sector exploitation of market opportunities of the wind energy industry;
- (ii) developing technologies such as advanced airfoils and variable speed generators to increase wind turbine output and reduce maintenance costs by decreasing structural stress and fatigue;
- (iii) increasing the basic knowledge of aerodynamics, structural dynamics, fatigue, and electrical systems interactions as applied to wind energy technology; and

(iv) improving the compatibility of electricity produced from wind farms with conventional utility needs.

(B) Specific goals for the Wind Energy Research Program shall be to—

- (i) reduce average wind energy costs to 3 to 5 cents per kilowatt hour by 1995;
- (ii) reduce capital costs of new wind energy systems to \$500 to \$750 per kilowatt of installed capacity by 1995;
- (iii) reduce operation and maintenance costs for wind energy systems to less than one cent per kilowatt hour by 1995; and
- (iv) increase capacity factors for new wind energy systems to 25 to 35 percent by 1995.

(2) Photovoltaics

(A) In general, the goals of the Photovoltaic Energy Systems Program shall include improving the reliability and conversion efficiencies of and lowering the costs of photovoltaic conversion. Research efforts shall emphasize advancements in the performance, stability, and durability of photovoltaic materials.

(B) Specific goals of the Photovoltaic Energy Systems Program shall be to—

- (i) improve operational reliability of photovoltaic modules to 30 years by 1995;
- (ii) increase photovoltaic conversion efficiencies by 20 percent by 1995;
- (iii) decrease new photovoltaic module direct manufacturing costs to \$800 per kilowatt by 1995; and
- (iv) increase cost efficiency of photovoltaic power production to 10 cents per kilowatt hour by 1995.

(3) Solar thermal

(A) In general, the goal of the Solar Thermal Energy Systems Program shall be to advance research and development to a point where solar thermal technology is cost-competitive with conventional energy sources, and to promote the integration of this technology into the production of industrial process heat and the conventional utility network. Research and development shall emphasize development of a thermal storage technology to provide capacity for shifting power to periods of demand when full insolation is not available; improvement in receivers, energy conversion devices, and innovative concentrators using stretch membranes, lenses, and other materials; and exploration of advanced manufacturing techniques.

(B) Specific goals of the Solar Thermal Energy Systems Program shall be to—

- (i) reduce solar thermal costs for industrial process heat to \$9.00 per million Btu by 1995; and
- (ii) reduce average solar thermal costs for electricity to 4 to 5 cents per kilowatt hour by 1995.

(4) Alcohol from biomass

(A) In general, the goal of the Alcohol From Biomass Program shall be to advance research and development to a point where alcohol from biomass technology is cost-competitive with conventional hydrocarbon transportation fuels, and to promote the integration of this

technology into the transportation fuel sector of the economy.

(B)(i) Specific goals for producing ethanol from biomass shall be to—

(I) reduce the cost of alcohol to 70 cents per gallon;

(II) improve the overall biomass carbohydrate conversion efficiency to 91 percent;

(III) reduce the capital cost component of the cost of alcohol to 23 cents per gallon; and

(IV) reduce the operating and maintenance component of the cost of alcohol to 47 cents per gallon.

(ii) Specific goals for producing methanol from biomass shall be to—

(I) reduce the cost of alcohol to 47 cents per gallon; and

(II) reduce the capital component of the cost of alcohol to 16 cents per gallon.

(5) Other technologies

The Secretary shall submit to the Congress, as part of the first report submitted under section 12006 of this title, recommendations for specific cost goals and other pertinent goals for 1995 for Department of Energy research, development, and demonstration programs in Biofuels Energy Systems, Biodiesel Energy Systems, Hydrogen Energy Systems, Solar Buildings Energy Systems, Ocean Energy Systems, Geothermal Energy Systems, Low-Head Hydro, and Energy Storage Systems.

(b) Amended goals

Whenever the Secretary determines that any of the goals established under this section is no longer appropriate, the Secretary shall notify Congress, as part of a report submitted under section 12006 of this title, of the reason for the determination and provide an amended goal that is consistent with the purpose stated in section 12001(b) of this title.

(c) Authorizations

There are authorized to be appropriated to the Secretary for the following renewable energy research, development, and demonstration programs: the Wind Energy Research Program, the Photovoltaic Energy Systems Program, the Solar Thermal Energy Systems Program, the Biofuels Energy Systems Program, the Hydrogen Energy Systems Program, the Solar Buildings Energy Systems Program, the Ocean Energy Systems Program, and the Geothermal Energy Systems Program—

(1) not to exceed \$113,000,000 for fiscal year 1991, of which—

(A) not to exceed \$39,000,000 shall be available for the Photovoltaic Energy Systems Program;

(B) not to exceed \$19,000,000 shall be available for the Geothermal Energy Systems Program; and

(C) not to exceed \$4,000,000 shall be available for the Hydrogen Energy Systems Program; and

(2) not to exceed \$121,000,000 for fiscal year 1992, of which—

(A) not to exceed \$40,000,000 shall be available for the Photovoltaic Energy Systems Program;

(B) not to exceed \$20,500,000 shall be available for the Geothermal Energy Systems Program; and

(C) not to exceed \$5,000,000 shall be available for the Hydrogen Energy Systems Program.

Each of the President's annual budget requests submitted to Congress after December 11, 1989, shall include as separate line items each of the categories of renewable energy programs described in this subsection.

(Pub. L. 101-218, § 4, Dec. 11, 1989, 103 Stat. 1860; Pub. L. 102-486, title XII, § 1202(b), title XXI, § 2125(1)-(3), Oct. 24, 1992, 106 Stat. 2958, 3085.)

AMENDMENTS

1992—Subsec. (a)(4), (5). Pub. L. 102-486, § 1202(b)(1), added par. (4), redesignated former par. (4) as (5), and inserted "Biodiesel Energy Systems," after "Biofuels Energy Systems,".

Subsec. (c)(3). Pub. L. 102-486, § 2125(1)-(3), struck out par. (3) which read as follows: "not to exceed \$124,000,000 for fiscal year 1993, of which—

"(A) not to exceed \$40,000,000 shall be available for the Photovoltaic Energy Systems Program;

"(B) not to exceed \$23,000,000 shall be available for the Geothermal Energy Systems Program; and

"(C) not to exceed \$6,000,000 shall be available for the Hydrogen Energy Systems Program."

§ 12004. Energy efficiency authorizations

There are authorized to be appropriated to the Secretary for the following energy efficiency research, development, and demonstration programs: transportation, industrial, buildings and community systems, multi-sector, and policy and management—

(1) not to exceed \$201,100,000 for fiscal year 1991, of which—

(A) not to exceed \$68,300,000 shall be available for the transportation program; and

(B) not to exceed \$53,500,000 shall be available for the industrial program; and

(2) not to exceed \$210,600,000 for fiscal year 1992, of which—

(A) not to exceed \$71,000,000 shall be available for the transportation program; and

(B) not to exceed \$54,700,000 shall be available for the industrial program.

(Pub. L. 101-218, § 5, Dec. 11, 1989, 103 Stat. 1862; Pub. L. 102-486, title XXI, § 2125(4)-(6), Oct. 24, 1992, 106 Stat. 3085.)

AMENDMENTS

1992—Par. (3). Pub. L. 102-486 struck out par. (3) which read as follows: "not to exceed \$225,000,000 for fiscal year 1993, of which—

"(A) not to exceed \$73,900,000 shall be available for the transportation program; and

"(B) not to exceed \$56,900,000 shall be available for the industrial program."

§ 12005. Demonstration and commercial application projects

(a) Purpose

The purpose of this section is to direct the Secretary to further the commercialization of renewable energy and energy efficiency technologies through a five-year program.