

(7) to continue international cooperation in magnetic fusion research for the benefit of all nations;

(8) to promote greater public understanding of magnetic fusion; and

(9) to maintain the United States as the world leader in magnetic fusion.

(Pub. L. 96-386, § 2, Oct. 7, 1980, 94 Stat. 1539.)

SHORT TITLE

Pub. L. 96-386, § 1, Oct. 7, 1980, 94 Stat. 1539, provided: "That this Act [enacting this chapter] may be cited as the 'Magnetic Fusion Energy Engineering Act of 1980'."

§ 9302. Definitions

For the purposes of this chapter—

(1) "fusion" means a process whereby two light nuclei, such as deuterium and tritium, collide at high velocity, forming a compound nucleus, which subsequently separates into constituents which are different from the original colliding nuclei, and which carry away the accompanying energy release;

(2) "magnetic fusion" means the use of magnetic fields to confine a very hot, fully ionized gas of light nuclei, so that the fusion process can occur;

(3) "energy system" means a facility designed to utilize energy released in the magnetic fusion process for the generation of electricity and the production of hydrogen or other fuels;

(4) "fusion engineering device" means a magnetic fusion facility which achieves at least a burning plasma and serves to test components for engineering purposes;

(5) "demonstration plant" means a prototype energy system which is of sufficient size to provide safety, environmental reliability, availability, and ready engineering extrapolation of all components to commercial size but which system need not be economically competitive with then alternative energy sources; and

(6) "Secretary" means Secretary of Energy.

(Pub. L. 96-386, § 3, Oct. 7, 1980, 94 Stat. 1540.)

§ 9303. Program activities

(a) Development in areas where lack of knowledge limits magnetic fusion energy systems

The Secretary shall initiate activities or accelerate existing activities in research areas in which the lack of knowledge limits magnetic fusion energy systems in order to ensure the achievement of the purposes of this chapter.

(b) Research programs on plasma confinement, alternate confinement concepts, advanced fuels, and properties of materials likely to be used in construction of fusion engineering devices

(1) The Secretary shall maintain an aggressive plasma confinement research program on the current lead concept to provide a full measure of support for the design, construction, and operation of the fusion engineering devices.

(2) The Secretary shall maintain a broadly based research program on alternate confinement concepts and on advanced fuels at a sufficient level of funding to achieve optimal design

of each successive magnetic fusion facility using the then best available confinement and fuel concept.

(3) The Secretary shall ensure that research on properties of materials likely to be required for the construction of fusion engineering devices is adequate to provide timely information for the design of such devices.

(c) Fusion engineering device designs

(1) The Secretary shall initiate design activities on a fusion engineering device using the best available confinement concept to ensure operation of such a device at the earliest practicable time, but not later than the year 1990.

(2) The Secretary shall develop and test the adequacy of the engineering design of components to be utilized in the fusion engineering device.

(d) Operation of demonstration plant at turn of twenty-first century

The Secretary shall initiate at the earliest practical time each activity which he deems necessary to achieve the national goal for operation of a demonstration plant at the turn of the twenty-first century.

(e) Assessment of factors in determining commercial introduction of magnetic fusion energy systems

The Secretary shall continue efforts to assess factors which will determine the commercial introduction of magnetic fusion energy systems including, but not limited to—

- (1) projected costs relative to other alternative energy sources;
- (2) projected growth rates in energy demand;
- (3) safety-related design limitations;
- (4) environmental impacts; and
- (5) limitations on the availability of strategic elements, such as helium, lithium, and special metals.

(Pub. L. 96-386, § 4, Oct. 7, 1980, 94 Stat. 1540.)

§ 9304. Comprehensive program management plan; submittal to Congressional committees

(a) The Secretary shall prepare a comprehensive program management plan for the conduct of the research, development, and demonstration activities under this chapter. Such plan shall include at a minimum—

- (1) a presentation of the program strategy which will be used to achieve the purposes of this chapter;
- (2) a five-year program implementation schedule, including identification of detailed milestone goals, with associated budget and program resources requirements;
- (3) risk assessments;
- (4) supporting research and development needed to solve problems which may inhibit or limit development of magnetic fusion energy systems; and
- (5) an analysis of institutional, environmental, and economic considerations which are limiting the national magnetic fusion program.

(b) The Secretary shall transmit the comprehensive program management plan to the Committee on Science and Technology of the House