

**§ 16212. High power density industry program****(a) In general**

The Secretary shall establish a comprehensive research, development, demonstration, and commercial application to improve the energy efficiency of high power density facilities, including data centers, server farms, and telecommunications facilities.

**(b) Technologies**

The program shall consider technologies that provide significant improvement in thermal controls, metering, load management, peak load reduction, or the efficient cooling of electronics.

(Pub. L. 109-58, title IX, §922, Aug. 8, 2005, 119 Stat. 864.)

**§ 16213. Micro-cogeneration energy technology****(a) In general**

The Secretary shall make competitive, merit-based grants to consortia for the development of micro-cogeneration energy technology.

**(b) Uses**

The consortia shall explore—

- (1) the use of small-scale combined heat and power in residential heating appliances;
- (2) the use of excess power to operate other appliances within the residence; and
- (3) the supply of excess generated power to the power grid.

(Pub. L. 109-58, title IX, §923, Aug. 8, 2005, 119 Stat. 865.)

**§ 16214. Distributed energy technology demonstration programs****(a) Coordinating consortia program**

The Secretary may provide financial assistance to coordinating consortia of interdisciplinary participants for demonstrations designed to accelerate the use of distributed energy technologies (such as fuel cells, microturbines, reciprocating engines, thermally activated technologies, and combined heat and power systems) in high-energy intensive commercial applications.

**(b) Small-scale portable power program****(1) In general**

The Secretary shall—

- (A) establish a research, development, and demonstration program to develop working models of small scale portable power devices; and
- (B) to the fullest extent practicable, identify and utilize the resources of universities that have shown expertise with respect to advanced portable power devices for either civilian or military use.

**(2) Organization**

The universities identified and utilized under paragraph (1)(B) are authorized to establish an organization to promote small scale portable power devices.

**(3) Definition**

For purposes of this subsection, the term “small scale portable power device” means a

field-deployable portable mechanical or electromechanical device that can be used for applications such as communications, computation, mobility enhancement, weapons systems, optical devices, cooling, sensors, medical devices, and active biological agent detection systems.

(Pub. L. 109-58, title IX, §924, Aug. 8, 2005, 119 Stat. 865.)

**§ 16215. Electric transmission and distribution programs****(a) Program**

The Secretary shall establish a comprehensive research, development, and demonstration program to ensure the reliability, efficiency, and environmental integrity of electrical transmission and distribution systems, which shall include—

- (1) advanced energy delivery technologies, energy storage technologies, materials, and systems, giving priority to new transmission technologies, including composite conductor materials and other technologies that enhance reliability, operational flexibility, or power-carrying capability;
- (2) advanced grid reliability and efficiency technology development;
- (3) technologies contributing to significant load reductions;
- (4) advanced metering, load management, and control technologies;
- (5) technologies to enhance existing grid components;
- (6) the development and use of high-temperature superconductors to—
  - (A) enhance the reliability, operational flexibility, or power-carrying capability of electric transmission or distribution systems; or
  - (B) increase the efficiency of electric energy generation, transmission, distribution, or storage systems;

(7) integration of power systems, including systems to deliver high-quality electric power, electric power reliability, and combined heat and power;

(8) supply of electricity to the power grid by small scale, distributed and residential-based power generators;

(9) the development and use of advanced grid design, operation, and planning tools;

(10) the development of cost-effective technologies that enable two-way information and power flow between distributed energy resources and the electric grid;

(11) the development of technologies and concepts that enable interoperability between distributed energy resources and other behind-the-meter devices and the electric grid;

(12) any other infrastructure technologies, as appropriate; and

(13) technology transfer and education.

**(b) Program plan****(1) In general**

Not later than 1 year after August 8, 2005, the Secretary, in consultation with other appropriate Federal agencies, shall prepare and