

- (1) waves, tides, and currents in oceans, estuaries, and tidal areas;
- (2) free flowing water in rivers, lakes, and streams;
- (3) free flowing water in man-made channels; and
- (4) differentials in ocean temperature (ocean thermal energy conversion).

The term “marine and hydrokinetic renewable energy” does not include energy from any source that uses a dam, diversionary structure, or impoundment for electric power purposes.

(Pub. L. 110–140, title VI, § 632, Dec. 19, 2007, 121 Stat. 1686.)

#### SHORT TITLE

This part known as the “Marine and Hydrokinetic Renewable Energy Research and Development Act”, see Short Title note set out under section 17001 of this title.

### § 17212. Marine and hydrokinetic renewable energy research and development

#### (a) In general

The Secretary, in consultation with the Secretary of the Interior and the Secretary of Commerce, acting through the Under Secretary of Commerce for Oceans and Atmosphere, shall establish a program of research, development, demonstration, and commercial application to expand marine and hydrokinetic renewable energy production, including programs to—

- (1) study and compare existing marine and hydrokinetic renewable energy technologies;
- (2) research, develop, and demonstrate marine and hydrokinetic renewable energy systems and technologies;
- (3) reduce the manufacturing and operation costs of marine and hydrokinetic renewable energy technologies;
- (4) investigate efficient and reliable integration with the utility grid and intermittency issues;
- (5) advance wave forecasting technologies;
- (6) conduct experimental and numerical modeling for optimization of marine energy conversion devices and arrays;
- (7) increase the reliability and survivability of marine and hydrokinetic renewable energy technologies, including development of corrosive-resistant materials;
- (8) identify, in conjunction with the Secretary of Commerce, acting through the Under Secretary of Commerce for Oceans and Atmosphere, and other Federal agencies as appropriate, the potential environmental impacts, including potential impacts on fisheries and other marine resources, of marine and hydrokinetic renewable energy technologies, measures to prevent adverse impacts, and technologies and other means available for monitoring and determining environmental impacts;
- (9) identify, in conjunction with the Secretary of the Department in which the United States Coast Guard is operating, acting through the Commandant of the United States Coast Guard, the potential navigational impacts of marine and hydrokinetic renewable energy technologies and measures to prevent adverse impacts on navigation;

(10) develop power measurement standards for marine and hydrokinetic renewable energy;

(11) develop identification standards for marine and hydrokinetic renewable energy devices;

(12) address standards development, demonstration, and technology transfer for advanced systems engineering and system integration methods to identify critical interfaces;

(13) identifying<sup>1</sup> opportunities for cross fertilization and development of economies of scale between other renewable sources and marine and hydrokinetic renewable energy sources; and

(14) providing<sup>2</sup> public information and opportunity for public comment concerning all technologies.

#### (b) Report

Not later than 18 months after December 19, 2007, the Secretary, in conjunction with the Secretary of Commerce, acting through the Under Secretary of Commerce for Oceans and Atmosphere, and the Secretary of the Interior, shall provide to the Congress a report that addresses—

- (1) the potential environmental impacts, including impacts to fisheries and marine resources, of marine and hydrokinetic renewable energy technologies;
- (2) options to prevent adverse environmental impacts;
- (3) the potential role of monitoring and adaptive management in identifying and addressing any adverse environmental impacts; and
- (4) the necessary components of such an adaptive management program.

(Pub. L. 110–140, title VI, § 633, Dec. 19, 2007, 121 Stat. 1686.)

### § 17213. National Marine Renewable Energy Research, Development, and Demonstration Centers

#### (a) Centers

The Secretary shall award grants to institutions of higher education (or consortia thereof) for the establishment of 1 or more National Marine Renewable Energy Research, Development, and Demonstration Centers. In selecting locations for Centers, the Secretary shall consider sites that meet one of the following criteria:

- (1) Hosts an existing marine renewable energy research and development program in coordination with an engineering program at an institution of higher education.
- (2) Has proven expertise to support environmental and policy-related issues associated with harnessing of energy in the marine environment.
- (3) Has access to and utilizes the marine resources in the Gulf of Mexico, the Atlantic Ocean, or the Pacific Ocean.

The Secretary may give special consideration to historically black colleges and universities and land grant universities that also meet one of

<sup>1</sup> So in original. Probably should be “identify”.

<sup>2</sup> So in original. Probably should be “provide”.

these criteria. In establishing criteria for the selection of the Centers, the Secretary shall consult with the Secretary of Commerce, acting through the Under Secretary of Commerce for Oceans and Atmosphere, on the criteria related to ocean waves, tides, and currents including those for advancing wave forecasting technologies, ocean temperature differences, and studying the compatibility of marine renewable energy technologies and systems with the environment, fisheries, and other marine resources.

**(b) Purposes**

The Centers shall advance research, development, demonstration, and commercial application of marine renewable energy, and shall serve as an information clearinghouse for the marine renewable energy industry, collecting and disseminating information on best practices in all areas related to developing and managing enhanced marine renewable energy systems resources.

**(c) Demonstration of need**

When applying for a grant under this section, an applicant shall include a description of why Federal support is necessary for the Center, including evidence that the research of the Center will not be conducted in the absence of Federal support.

(Pub. L. 110–140, title VI, § 634, Dec. 19, 2007, 121 Stat. 1687.)

**§ 17214. Applicability of other laws**

Nothing in this part shall be construed as waiving, modifying, or superseding the applicability of any requirement under any environmental or other Federal or State law.

(Pub. L. 110–140, title VI, § 635, Dec. 19, 2007, 121 Stat. 1688.)

**§ 17215. Authorization of appropriations**

There are authorized to be appropriated to the Secretary to carry out this part \$50,000,000 for each of the fiscal years 2008 through 2012, except that no funds shall be appropriated under this section for activities that are receiving funds under section 16231(a)(2)(E)(i) of this title.

(Pub. L. 110–140, title VI, § 636, Dec. 19, 2007, 121 Stat. 1688.)

PART D—ENERGY STORAGE FOR  
TRANSPORTATION AND ELECTRIC POWER

**§ 17231. Energy storage competitiveness**

**(a) Short title**

This section may be cited as the “United States Energy Storage Competitiveness Act of 2007”.

**(b) Definitions**

In this section:

**(1) Council**

The term “Council” means the Energy Storage Advisory Council established under subsection (e).

**(2) Compressed air energy storage**

The term “compressed air energy storage” means, in the case of an electricity grid appli-

cation, the storage of energy through the compression of air.

**(3) Electric drive vehicle**

The term “electric drive vehicle” means—

(A) a vehicle that uses an electric motor for all or part of the motive power of the vehicle, including battery electric, hybrid electric, plug-in hybrid electric, fuel cell, and plug-in fuel cell vehicles and rail transportation vehicles; or

(B) mobile equipment that uses an electric motor to replace an internal combustion engine for all or part of the work of the equipment.

**(4) Islanding**

The term “islanding” means a distributed generator or energy storage device continuing to power a location in the absence of electric power from the primary source.

**(5) Flywheel**

The term “flywheel” means, in the case of an electricity grid application, a device used to store rotational kinetic energy.

**(6) Microgrid**

The term “microgrid” means an integrated energy system consisting of interconnected loads and distributed energy resources (including generators and energy storage devices), which as an integrated system can operate in parallel with the utility grid or in an intentional islanding mode.

**(7) Self-healing grid**

The term “self-healing grid” means a grid that is capable of automatically anticipating and responding to power system disturbances (including the isolation of failed sections and components), while optimizing the performance and service of the grid to customers.

**(8) Spinning reserve services**

The term “spinning reserve services” means a quantity of electric generating capacity in excess of the quantity needed to meet peak electric demand.

**(9) Ultracapacitor**

The term “ultracapacitor” means an energy storage device that has a power density comparable to a conventional capacitor but is capable of exceeding the energy density of a conventional capacitor by several orders of magnitude.

**(c) Program**

The Secretary shall carry out a research, development, and demonstration program to support the ability of the United States to remain globally competitive in energy storage systems for electric drive vehicles, stationary applications, and electricity transmission and distribution.

**(d) Coordination**

In carrying out the activities of this section, the Secretary shall coordinate relevant efforts with appropriate Federal agencies, including the Department of Transportation.