

**Calendar No. 98**

112<sup>TH</sup> CONGRESS  
1<sup>ST</sup> SESSION

**S. 630****[Report No. 112-31]**

To promote marine and hydrokinetic renewable energy research and development, and for other purposes.

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**IN THE SENATE OF THE UNITED STATES**

MARCH 17, 2011

Ms. MURKOWSKI (for herself, Mr. BEGICH, Mr. WHITEHOUSE, Mr. WYDEN, and Mrs. SHAHEEN) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

JULY 11, 2011

Reported by Mr. BINGAMAN, with amendments

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**A BILL**

To promote marine and hydrokinetic renewable energy research and development, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

1 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

2 (a) SHORT TITLE.—This Act may be cited as the  
3 “Marine and Hydrokinetic Renewable Energy Promotion  
4 Act of 2011”.

5 (b) TABLE OF CONTENTS.—The table of contents of  
6 this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Marine and hydrokinetic renewable energy research and development program.
- Sec. 3. Test facilities.
- Sec. 4. National Marine and Hydrokinetic Renewable Energy Research, Development, and Demonstration Centers.
- Sec. 5. Marine-based energy device verification program.
- Sec. 6. Adaptive management and environmental grant program.
- Sec. 7. Administration.
- Sec. 8. Authorization of appropriations.
- Sec. 9. National Renewable Energy Deployment Program.

7 **SEC. 2. MARINE AND HYDROKINETIC RENEWABLE ENERGY**  
8 **RESEARCH AND DEVELOPMENT PROGRAM.**

9 Section 633(a) of the Energy Independence and Se-  
10 curity Act of 2007 (42 U.S.C. 17212(a)) is amended—

11 (1) in paragraph (13), by striking “; and” and  
12 inserting a semicolon;

13 (2) in paragraph (14), by striking the period at  
14 the end and inserting “; and”; and

15 (3) by adding at the end the following:

16 “(15)(A) apply advanced systems engineering  
17 and system integration methods to identify critical  
18 interfaces and develop open standards for marine  
19 and hydrokinetic renewable energy;

1           “(B) transfer the resulting environmental data  
2 to industry stakeholders as public information  
3 through published interface definitions, standards,  
4 and demonstration projects; and

5           “(C) develop incentives for industry to comply  
6 with the standards.”.

7 **SEC. 3. TEST FACILITIES.**

8           Section 633 of the Energy Independence and Security  
9 Act of 2007 (42 U.S.C. 17212) is amended by adding at  
10 the end the following:

11           “(c) TEST FACILITIES.—

12           “(1) IN GENERAL.—In carrying out this sec-  
13 tion, not later than 180 days after the date of enact-  
14 ment of this subsection, the Secretary shall award  
15 competitive grants to support ~~3~~ 4 or more geo-  
16 graphically dispersed marine and hydrokinetic re-  
17 newable energy technology research, development,  
18 and demonstration test facilities for the demonstra-  
19 tion of multiple technologies in actual ~~operating en-~~  
20 ~~vironments~~ *operating marine environments (includ-*  
21 *ing industry demonstrations).*

22           “(2) PREFERENCE.—*In awarding competitive*  
23 *grants under this subsection, the Secretary shall give*  
24 *preference to existing marine and hydrokinetic testing*

1 *facilities and existing Centers established under sec-*  
 2 *tion 634.*

3 “~~(2)~~(3) FACILITIES.—Grants under this sub-  
 4 section may support—

5 “(A) modification of an existing facility  
 6 (including a Center established under section  
 7 634); or

8 “(B) construction of a new test facility.

9 “~~(3)~~(4) PROGRAM OBJECTIVES.—In awarding  
 10 grants under this subsection, the Secretary shall  
 11 provide for the demonstration of—

12 “(A) a variety of technologies at each test  
 13 facility;

14 “(B) a variety of technologies among all of  
 15 the test facilities established; and

16 “(C) technologies on a variety of scales.

17 “~~(4)~~(5) ACTIVITIES.—Each test facility estab-  
 18 lished under this subsection shall—

19 “(A) provide infrastructure and resources  
 20 for the evaluation and technical viability testing  
 21 of marine and hydrokinetic renewable energy  
 22 technologies; and

23 “(B) conduct and support research, devel-  
 24 opment, and demonstration activities with re-

1           spect to marine and hydrokinetic renewable en-  
2           ergy technologies.

3           “~~(5)~~(6) ELIGIBILITY.—To be eligible for a  
4           grant under this subsection, an applicant for a grant  
5           shall—

6                   “(A) be—

7                           “(i) a nonprofit institution;

8                           “(ii) a State or local government;

9                           “(iii) an institution of higher edu-  
10                          cation;

11                          “~~(iv) a National Laboratory; or~~

12                          “~~(v) a Center established under sec-~~  
13                          ~~tion 634; and~~

14                           “(iv) a university consortium;

15                           “(v) a National Laboratory; or

16                           “(vi) a Center established under section  
17                          634; and

18                          “(B) demonstrate to the satisfaction of the  
19           Secretary the ability and intention to—

20                           “(i) combine expertise from relevant  
21                          academic fields, including fields relating  
22                          to—

23                                   “(I) the environment;

24                                   “(II) marine and riverine  
25                          sciences;

1                   ~~“(III) energy; and~~  
 2                   ~~“(IV) electrical, mechanical, and~~  
 3                   ~~civil engineering; and~~  
 4                   ~~“(ii) partner with other entities that~~  
 5                   ~~“(III) energy;~~  
 6                   ~~“(IV) ocean engineering; and~~  
 7                   ~~“(V) electrical, mechanical, and~~  
 8                   ~~civil engineering; and~~  
 9                   ~~“(i) partner with other entities (in-~~  
 10                   ~~cluding industry) that have expertise in ad-~~  
 11                   ~~vancing marine and hydrokinetic renewable~~  
 12                   ~~energy technologies.”.~~

13 **SEC. 4. NATIONAL MARINE AND HYDROKINETIC RENEW-**  
 14 **ABLE ENERGY RESEARCH, DEVELOPMENT,**  
 15 **AND DEMONSTRATION CENTERS.**

16           Section 634 of the Energy Independence and Security  
 17 Act of 2007 (42 U.S.C. 17213) is amended—

18           (1) in the section heading, by inserting “**AND**  
 19 **HYDROKINETIC**” after “**MARINE**”;

20           (2) in the first sentence of subsection (a), by in-  
 21 serting “and Hydrokinetic” after “Marine”; and

22           (3) by striking subsection (b) and inserting the  
 23 following:

24           “(b) PURPOSES.—The Centers—

25           “(1) shall—

1           “(A) advance research, development, dem-  
2           onstration, and commercial application of ma-  
3           rine and hydrokinetic renewable energy tech-  
4           nologies; and

5           “(B) serve as information clearinghouses  
6           for the marine and hydrokinetic renewable en-  
7           ergy industry by collecting and disseminating  
8           information on best practices in all areas relat-  
9           ing to developing and managing marine and  
10          hydrokinetic renewable energy technologies; and

11          “(2) may serve as technology test facilities es-  
12          tablished under section 633(c).”.

13 **SEC. 5. MARINE-BASED ENERGY DEVICE VERIFICATION**  
14 **PROGRAM.**

15          The Energy Independence and Security Act of 2007  
16 (42 U.S.C. 17211 et seq.) is amended—

17           (1) by redesignating sections 635 and 636 (42  
18           U.S.C. 17214, 17215) as sections 638 and 639, re-  
19           spectively; and

20           (2) by inserting after section 634 (42 U.S.C.  
21           17213) the following:

22 **“SEC. 635. MARINE-BASED ENERGY DEVICE VERIFICATION**  
23 **PROGRAM.**

24          “(a) ESTABLISHMENT.—The Secretary shall estab-  
25          lish a marine-based energy device verification program to

1 provide a bridge from the marine and hydrokinetic renew-  
2 able energy capture device design and development efforts  
3 underway across the industry to commercial deployment  
4 of marine and hydrokinetic renewable energy devices.

5 “(b) PURPOSES.—The purposes of the program are  
6 to fund, facilitate the development and installation of, and  
7 evaluate marine and hydrokinetic renewable energy  
8 projects, in partnership with Federally Funded Research  
9 and Development Centers, and in conjunction with *Centers*  
10 *established under section 634*, universities and other insti-  
11 tutions of higher education, private business entities, and  
12 other appropriate organizations, in order—

13 “(1) to increase marine and hydrokinetic renew-  
14 able energy experience; and

15 “(2) to build and operate enough candidate de-  
16 vices to obtain statistically significant operating and  
17 maintenance data.

18 “(c) OBJECTIVES.—The objectives of the program  
19 shall include—

20 “(1) verifying the performance, reliability,  
21 maintainability, and cost of new marine and  
22 hydrokinetic renewable energy device designs and  
23 system components in an operating environment;

24 “(2) providing States, regulators, utilities, and  
25 other stakeholders with a valid opportunity to test



1 and evaluate marine and hydrokinetic renewable en-  
2 ergy technology in new areas;

3 “(3) documenting and communicating the expe-  
4 rience from those projects for the benefit of utilities,  
5 independent power producers, other nonutility gen-  
6 erators, device suppliers, and others in the marine  
7 and hydrokinetic renewable energy development com-  
8 munity; and

9 “(4) resolving environmental issues through ro-  
10 bust characterization, reliable impact prediction, ef-  
11 fective monitoring, development, and use of adaptive  
12 management, and informing engineering design to  
13 improve environmental performance.”.

14 **SEC. 6. ADAPTIVE MANAGEMENT AND ENVIRONMENTAL**  
15 **GRANT PROGRAM.**

16 The Energy Independence and Security Act of 2007  
17 (42 U.S.C. 17211 et seq.) (as amended by section 5) is  
18 amended by inserting after section 635 the following:

19 **“SEC. 636. ADAPTIVE MANAGEMENT AND ENVIRONMENTAL**  
20 **GRANT PROGRAM.**

21 “(a) FINDINGS.—Congress finds that—

22 “(1) the use of marine and hydrokinetic renew-  
23 able energy technologies can reduce contributions to  
24 global warming;

1           “(2) marine and hydrokinetic renewable energy  
2 technologies can be produced domestically;

3           “(3) marine and hydrokinetic renewable energy  
4 is a nascent industry; and

5           “(4) the United States must work to promote  
6 new renewable energy technologies that reduce con-  
7 tributions to global warming gases and improve do-  
8 mestic energy production.

9           “(b) GRANT PROGRAM.—

10           “(1) IN GENERAL.—As soon as practicable  
11 after the date of enactment of this subsection, the  
12 Secretary shall establish a program under which the  
13 Secretary shall award grants to eligible entities—

14           “(A) to advance the development of marine  
15 and hydrokinetic renewable energy;

16           “(B) to help fund the costs of environ-  
17 mental analysis affecting the deployment of ma-  
18 rine hydrokinetic devices;

19           “(C) to help enable the eligible entities—

20           “(i) to gather and collect the types of  
21 environmental data that are required when  
22 working in a public resource (including the  
23 waterways and oceans of the United  
24 States); and

1           “(ii) to monitor the impacts of dem-  
2           onstration projects and make the resulting  
3           information available for widespread dis-  
4           semination to aid future projects; and

5           “(D) to help fund the cost of advancing re-  
6           newable marine and hydrokinetic technologies  
7           in ocean and riverine environments from dem-  
8           onstration projects to development and deploy-  
9           ment.

10          “(2) APPLICATION.—To be eligible to receive a  
11          grant under this paragraph, an entity shall submit  
12          to the Secretary an application at such time, in such  
13          manner, and containing such information as the Sec-  
14          retary may require.”.

15       **SEC. 7. ADMINISTRATION.**

16          The Energy Independence and Security Act of 2007  
17       (42 U.S.C. 17211 et seq.) (as amended by section 6) is  
18       amended by inserting after section 636 the following:

19       **“SEC. 637. ADMINISTRATION.**

20          “(a) IN GENERAL.—In carrying out this subtitle, the  
21       Secretary shall—

22               “(1) coordinate and avoid duplication of activi-  
23       ties across programs of the Department and other  
24       applicable Federal agencies, including the National  
25       Laboratories;

1           “(2) collaborate with (as applicable)—  
2           “(A) industry;  
3           “(B) stakeholders;  
4           “(C) other Federal agencies, including the  
5           National Laboratories;  
6           “(D) academic institutions; and  
7           “(E) international bodies with relevant sci-  
8           entific expertise; and  
9           “(3) obtain from the recipient of assistance and  
10          make available to the public, through Web sites, re-  
11          ports, and databases of the Department, any re-  
12          search, development, demonstration, and commercial  
13          application information produced with respect to  
14          supported technology, including information obtained  
15          after the completion of supported activities, except  
16          to the extent that the information is protected from  
17          disclosure under section 552(b) of title 5, United  
18          States Code.

19          “(b) REPORTS.—Not later than 1 year after the date  
20          of enactment of this section and at least once every 2 years  
21          thereafter, the Secretary shall submit to Congress a report  
22          on findings and activities conducted under this subtitle.”.

1 **SEC. 8. AUTHORIZATION OF APPROPRIATIONS.**

2 Section 639 of the Energy Independence and Security  
3 Act of 2007 (42 U.S.C. 17215) (as redesignated by section  
4 5(1)) is amended to read as follows:

5 **“SEC. 639. AUTHORIZATION OF APPROPRIATIONS.**

6 **“(a) IN GENERAL.—**There is authorized to be appro-  
7 priated to carry out this subtitle \$75,000,000 for each of  
8 fiscal years 2012 through 2014, to remain available until  
9 expended.

10 **“(b) OFFSETS.—**Of the amount authorized to be ap-  
11 propriated for each fiscal year under subsection (a),  
12 \$75,000,000 shall be derived for each fiscal year from the  
13 amount authorized for energy-intensive industries effi-  
14 ciency programs under section 452(f) of the Energy Inde-  
15 pendence and Security Act of 2007 (42 U.S.C. 17111(f))  
16 for each of fiscal years 2012 through 2015.

17 **“(c) RENEWABLE ENERGY FUNDS.—**No funds shall  
18 be appropriated under this section for activities that are  
19 receiving funds under section 931(a)(2)(E)(i) of the En-  
20 ergy Policy Act of 2005 (42 U.S.C. 16231(a)(2)(E)(i)).”.

21 **SEC. 8. AUTHORIZATION OF APPROPRIATIONS.**

22 *(a) IN GENERAL.—Section 639 of the Energy Inde-*  
23 *pendence and Security Act of 2007 (42 U.S.C. 17215) (as*  
24 *redesignated by section 5(1)) is amended to read as follows:*

1 **“SEC. 639. AUTHORIZATION OF APPROPRIATIONS.**

2       “(a) *IN GENERAL.*—*There is authorized to be appro-*  
3 *priated to carry out this subtitle, to remain available until*  
4 *expended—*

5               “(1) \$70,000,000 for fiscal year 2012; and

6               “(2) \$75,000,000 for fiscal year 2013.

7       “(b) *RENEWABLE ENERGY FUNDS.*—*No funds shall be*  
8 *appropriated under this section for activities that are re-*  
9 *ceiving funds under section 931(a)(2)(E)(i) of the Energy*  
10 *Policy Act of 2005 (42 U.S.C. 16231(a)(2)(E)(i)).”.*

11       (b) *OFFSETS.*—

12               (1) *FISCAL YEAR 2012.*—*Section 609(d) of the*  
13 *Public Utility Regulatory Policies Act of 1978 (7*  
14 *U.S.C. 918c(d)) is amended by striking “2012” and*  
15 *inserting “2011”.*

16               (2) *FISCAL YEAR 2013.*—*The amount otherwise*  
17 *made available to carry out section 412 of the Energy*  
18 *Policy Act of 2005 (42 U.S.C. 15972) shall be reduced*  
19 *by \$75,000,000 for fiscal year 2013.*

20 **SEC. 9. NATIONAL RENEWABLE ENERGY DEPLOYMENT**  
21 **PROGRAM.**

22       (a) *IN GENERAL.*—*Section 803 of the Energy Inde-*  
23 *pendence and Security Act of 2007 (42 U.S.C. 17282) is*  
24 *amended by striking the section heading and inserting*  
25 **“NATIONAL RENEWABLE ENERGY DEPLOYMENT**  
26 **PROGRAM”.**

1 (b) DEFINITIONS.—Section 803(a) of the Energy  
 2 Independence and Security Act of 2007 (42 U.S.C.  
 3 17282(a)) is amended—

4 (1) by striking paragraph (1);

5 (2) by redesignating paragraphs (2) through  
 6 (4) as paragraphs (1) through (3), respectively; and

7 (3) in paragraph (3)(B)(iv) (as so redesignig-  
 8 nated), by striking “Alaska small”.

9 (c) RENEWABLE ENERGY CONSTRUCTION  
 10 GRANTS.—Section 803(b) of the Energy Independence  
 11 and Security Act of 2007 (42 U.S.C. 17282(b)) is amend-  
 12 ed—

13 (1) in paragraph (1), by inserting “establish a  
 14 national renewable energy construction grants pro-  
 15 gram under which the Secretary shall” after “shall”;  
 16 and

17 (2) by adding at the end the following:

18 “(5) PRIORITY.—In making grants to eligible  
 19 applicants to carry out renewable energy projects  
 20 under this section, the Secretary shall give priority  
 21 to applicants that—

22 “(A) have power costs that are 125 per-  
 23 cent or more of average national retail costs; or

1           “(B) will use the grant to construct renew-  
 2           able electricity projects to replace fossil fuel  
 3           projects.”

4 **SEC. 9. NATIONAL RENEWABLE ENERGY DEPLOYMENT PRO-**  
 5 **GRAM.**

6           (a) *IN GENERAL.*—Section 803 of the Energy Inde-  
 7 *pendence and Security Act of 2007 (42 U.S.C. 17282) is*  
 8 *amended by striking the section heading and inserting*  
 9 **“NATIONAL RENEWABLE ENERGY DEPLOYMENT**  
 10 **PROGRAM”**.

11           (b) *DEFINITIONS.*—Section 803(a) of the Energy Inde-  
 12 *pendence and Security Act of 2007 (42 U.S.C. 17282(a))*  
 13 *is amended—*

14           (1) *by striking paragraph (1);*

15           (2) *by redesignating paragraphs (2) through (4)*  
 16 *as paragraphs (1) through (3), respectively;*

17           (3) *in subparagraph (B)(iv) of paragraph (3)*  
 18 *(as so redesignated), by striking “Alaska”; and*

19           (4) *by adding at the end the following:*

20           “(4) *SMALL HYDROELECTRIC POWER.*—*The term*  
 21 *‘small hydroelectric power’ means power that—*

22           “(A) *is generated—*

23           “(i) *without the use of a dam or im-*  
 24 *poundment of water; and*

25           “(ii) *through the use of—*



1                   “(I) a lake tap (but not a perched  
2                   alpine lake); or

3                   “(II) a run-of-river screened at  
4                   the point of diversion; and

5                   “(B) has a nameplate capacity rating of a  
6                   wattage that is not more than 15 megawatts.”.

7           (c) *RENEWABLE ENERGY CONSTRUCTION GRANTS.*—  
8   Section 803(b) of the *Energy Independence and Security*  
9   Act of 2007 (42 U.S.C. 17282(b)) is amended—

10           (1) in paragraph (1)—

11                   (A) by inserting “establish a national re-  
12                   newable energy construction grants program  
13                   under which the Secretary shall” after “shall”;  
14                   and

15                   (B) by inserting “, including feasibility  
16                   studies for such projects” before the period at the  
17                   end; and

18           (2) by adding at the end the following:

19                   “(5) *PRIORITY.*—In making grants to eligible  
20                   applicants to carry out renewable energy projects  
21                   under this section, the Secretary shall give priority to  
22                   applicants that—

23                           “(A) have power costs that are 125 percent  
24                           or more of average national retail costs; and

1                   “(B) will use the grant to construct renew-  
2                   able electricity projects to replace or partially re-  
3                   place fossil fuel projects.”.



Calendar No. 98

112<sup>TH</sup> CONGRESS  
1<sup>ST</sup> Session

**S. 630**

[Report No. 112-31]

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**A BILL**

To promote marine and hydrokinetic renewable energy research and development, and for other purposes.

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JULY 11, 2011

Reported with amendments