

AMENDMENT NO. _____ Calendar No. _____

Purpose: To improve the bill.

IN THE SENATE OF THE UNITED STATES—116th Cong., 1st Sess.

S. 2660

To establish a grant program for wind energy research, development, and demonstration, and for other purposes.

Referred to the Committee on _____ and
ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENTS intended to be proposed by _____

Viz:

1 Beginning on page 1, strike line 8 and all that follows
2 through page 10, line 25, and insert the following:

3 (1) ECONOMICALLY DISTRESSED AREA.—The
4 term “economically distressed area” means an area
5 described in section 301(a) of the Public Works and
6 Economic Development Act of 1965 (42 U.S.C.
7 3161(a)).

8 (2) ELIGIBLE ENTITY.—The term “eligible enti-
9 ty” means—

10 (A) an institution of higher education;

11 (B) a National Laboratory;

12 (C) a Federal research agency;

1 (D) a State research agency;

2 (E) a research agency associated with a
3 territory or freely associated state;

4 (F) a tribal energy development organiza-
5 tion;

6 (G) an Indian tribe;

7 (H) a tribal organization;

8 (I) a Native Hawaiian community-based
9 organization;

10 (J) a nonprofit research organization;

11 (K) an industrial entity;

12 (L) any other entity, as determined by the
13 Secretary; and

14 (M) a consortium of 2 or more entities de-
15 scribed in subparagraphs (A) through (L).

16 (3) INDIAN TRIBE.—The term “Indian tribe”
17 has the meaning given the term in section 4 of the
18 Indian Self-Determination and Education Assistance
19 Act (25 U.S.C. 5304).

20 (4) INSTITUTION OF HIGHER EDUCATION.—The
21 term “institution of higher education” has the
22 meaning given the term in section 101 of the Higher
23 Education Act of 1965 (20 U.S.C. 1001).

24 (5) NATIONAL LABORATORY.—The term “Na-
25 tional Laboratory” has the meaning given the term

1 in section 2 of the Energy Policy Act of 2005 (42
2 U.S.C. 15801).

3 (6) NATIVE HAWAIIAN COMMUNITY-BASED OR-
4 GANIZATION.—The term “Native Hawaiian commu-
5 nity-based organization” has the meaning given the
6 term in section 6207 of the Elementary and Sec-
7 ondary Education Act of 1965 (20 U.S.C. 7517).

8 (7) PROGRAM.—The term “program” means
9 the program established under section 3(a).

10 (8) SECRETARY.—The term “Secretary” means
11 the Secretary of Energy.

12 (9) TERRITORY OR FREELY ASSOCIATED
13 STATE.—The term “territory or freely associated
14 state” has the meaning given the term “insular
15 area” in section 1404 of the Food and Agriculture
16 Act of 1977 (7 U.S.C. 3103).

17 (10) TRIBAL ENERGY DEVELOPMENT ORGANI-
18 ZATION.—The term “tribal energy development or-
19 ganization” has the meaning given the term in sec-
20 tion 2601 of the Energy Policy Act of 1992 (25
21 U.S.C. 3501).

22 (11) TRIBAL ORGANIZATION.—The term “tribal
23 organization” has the meaning given the term in
24 section 4 of the Indian Self-Determination and Edu-
25 cation Assistance Act (25 U.S.C. 5304).

1 **SEC. 3. WIND ENERGY TECHNOLOGY PROGRAM.**

2 (a) ESTABLISHMENT.—

3 (1) IN GENERAL.—The Secretary shall establish
4 a program to conduct research, development, testing,
5 evaluation, demonstration, and commercialization of
6 wind energy technologies in accordance with this sec-
7 tion.

8 (2) PURPOSES.—The purposes of the program
9 are the following:

10 (A) To improve the energy efficiency, cost
11 effectiveness, reliability, resilience, security, in-
12 tegration, manufacturability, and recyclability
13 of wind energy technologies.

14 (B) To optimize the performance and oper-
15 ation of wind energy components, turbines, and
16 systems, including through the development of
17 new materials, hardware, and software.

18 (C) To optimize the design and adapt-
19 ability of wind energy technologies to the broad-
20 est practical range of geographic, atmospheric,
21 offshore, and other site conditions, including—

22 (i) at varying hub heights; and

23 (ii) through the use of computer mod-
24 eling.

25 (D) To support the integration of wind en-
26 ergy technologies with—

1 (i) the electric grid, including trans-
2 mission, distribution, microgrids, and dis-
3 tributed energy systems; and

4 (ii) other energy technologies and sys-
5 tems, such as—

6 (I) other generation sources;

7 (II) demand response tech-
8 nologies;

9 (III) energy storage technologies;

10 and

11 (IV) hybrid systems.

12 (E) To reduce the cost and risk across the
13 lifespan of wind energy technologies, includ-
14 ing—

15 (i) manufacturing, permitting, con-
16 struction, operations, maintenance, and re-
17 cycling; and

18 (ii) through the development of solu-
19 tions to transportation barriers to wind
20 components.

21 (F) To reduce and mitigate any potential
22 negative impacts of wind energy technologies
23 on—

24 (i) human communities;

25 (ii) military operations;

- 1 (iii) aviation;
2 (iv) radar; and
3 (v) wildlife and wildlife habitats.

4 (G) To address barriers to the commer-
5 cialization and export of wind energy tech-
6 nologies.

7 (H) To support the domestic wind indus-
8 try, workforce, and supply chain.

9 (3) TARGETS.—Not later than 180 days after
10 the date of enactment of this Act, the Secretary
11 shall establish targets for the program relating to
12 near-term (up to 2 years), mid-term (up to 7 years),
13 and long-term (up to 15 years) challenges to the ad-
14 vancement of wind energy technologies, including on-
15 shore and offshore technologies.

16 (b) ACTIVITIES.—

17 (1) TYPES OF ACTIVITIES.—In carrying out the
18 program, the Secretary shall carry out research, de-
19 velopment, demonstration, and commercialization ac-
20 tivities, including—

21 (A) awarding grants and awards, on a
22 competitive, merit-reviewed basis;

23 (B) performing precompetitive research
24 and development;

1 (C) establishing or maintaining demonstra-
2 tion facilities and projects, including through
3 stewardship of existing facilities such as the
4 National Wind Test Center;

5 (D) providing technical assistance;

6 (E) entering into contracts and cooperative
7 agreements;

8 (F) providing small business vouchers;

9 (G) conducting education and outreach ac-
10 tivities;

11 (H) conducting workforce training activi-
12 ties; and

13 (I) conducting analyses, studies, and re-
14 ports.

15 (2) SUBJECT AREAS.—The Secretary shall
16 carry out research, development, testing, evaluation,
17 demonstration, and commercialization activities in
18 the following subject areas:

19 (A) Wind power plant performance, oper-
20 ations, and security.

21 (B) New materials and designs relating to
22 all hardware, software, and components of wind
23 energy technologies, including alternatives to
24 minerals and other commodities from foreign

1 sources that are determined to be vulnerable to
2 disruption.

3 (C) Advanced wind energy manufacturing
4 technologies and practices, including materials,
5 processes, and design.

6 (D) Offshore wind-specific projects and
7 plants, including—

8 (i) the deep water floating systems,
9 materials, components, and operation of
10 offshore facilities; and

11 (ii) the monitoring and analysis of site
12 and environmental considerations unique
13 to offshore sites.

14 (E) Integration of wind energy tech-
15 nologies with—

16 (i) the electric grid, including trans-
17 mission, distribution, microgrids, and dis-
18 tributed energy systems; and

19 (ii) other energy technologies, includ-
20 ing—

21 (I) other generation sources;

22 (II) demand response tech-
23 nologies; and

24 (III) energy storage technologies.

1 (F) Methods to improve the lifetime, main-
2 tenance, recycling, and reuse of wind energy
3 components and systems.

4 (G) Wind power forecasting and atmos-
5 pheric measurement systems, including for tur-
6 bines and plant systems of varying height.

7 (H) Hybrid wind energy systems that in-
8 corporate diverse—

9 (i) generation sources;

10 (ii) loads; and

11 (iii) storage technologies.

12 (I) Reducing, including through education
13 and outreach activities, market barriers to the
14 adoption of wind energy technologies, such as
15 impacts on, or challenges relating to—

16 (i) distributed wind technologies, in-
17 cluding the development of best practices,
18 models, and voluntary streamlined proc-
19 esses for local permitting of distributed
20 wind energy systems to reduce costs;

21 (ii) airspace;

22 (iii) military uses;

23 (iv) radar;

24 (v) local communities;

25 (vi) wildlife and wildlife habitats; and

1 (vii) any other appropriate matter, as
2 determined by the Secretary.

3 (J) Advanced physics-based and data anal-
4 ysis computational tools, in coordination with
5 the high-performance computing programs of
6 the Department of Energy.

7 (K) Transformational technologies for har-
8 nessing wind energy.

9 (L) Other research areas that advance the
10 purposes of the program, as determined by the
11 Secretary.

12 (3) PRIORITIZATION.—In carrying out activities
13 under the program, the Secretary shall give priority
14 to projects that—

15 (A) are located in geographically diverse
16 regions of the United States;

17 (B) support the development or demonstra-
18 tion of projects—

19 (i) in collaboration with tribal energy
20 development organizations, Indian tribes,
21 tribal organizations, Native Hawaiian com-
22 munity-based organizations, or territories
23 or freely associated states; or

24 (ii) in economically distressed areas;

1 (C) can be replicated in a variety of re-
2 gions and climates;

3 (D) include business commercialization
4 plans that have the potential for—

5 (i) domestic manufacturing and pro-
6 duction of wind energy technologies; or

7 (ii) exports of wind energy tech-
8 nologies; and

9 (E) satisfy any other priority that the Sec-
10 retary determines to be appropriate.

11 (4) COORDINATION.—To the maximum extent
12 practicable, the Secretary shall coordinate activities
13 under the program with other relevant programs and
14 capabilities of the Department of Energy and other
15 Federal research programs.

16 (c) WIND TECHNICIAN TRAINING GRANT PRO-
17 GRAM.—The Secretary may award grants, on a competi-
18 tive basis, to eligible entities to purchase large pieces of
19 wind component equipment, such as nacelles, towers, and
20 blades, for use in training wind technician students in on-
21 shore or offshore wind applications.

22 On page 11, line 1, strike “(g)” and insert “(d)”.

23 Beginning on page 11, strike line 9 and all that fol-
24 lows through page 12, line 16, and insert the following:

25 (e) WIND ENERGY PROGRAM STRATEGIC VISION.—

1 (1) IN GENERAL.—Not later than September 1,
2 2021, and every 6 years thereafter, the Secretary
3 shall submit to Congress a report on the strategic vi-
4 sion, progress, goals, and targets of the program, in-
5 cluding assessments of wind energy markets and
6 manufacturing.

7 (2) PREPARATION.—The Secretary shall coordi-
8 nate the preparation of the report under paragraph
9 (1) with—

10 (A) existing peer review processes;

11 (B) studies conducted by the National
12 Laboratories; and

13 (C) the multiyear program planning re-
14 quired under section 994 of the Energy Policy
15 Act of 2005 (42 U.S.C. 16358).

16 (f) AUTHORIZATION OF APPROPRIATIONS.—There is
17 authorized to be appropriated to the Secretary to carry
18 out the program \$120,000,000 for each of fiscal years
19 2020 through 2024.

20 **SEC. 4. CONFORMING AMENDMENTS.**

21 (a) Section 4 of the Renewable Energy and Energy
22 Efficiency Technology Competitiveness Act of 1989 (42
23 U.S.C. 12003) is amended—

24 (1) in the section heading, by striking “**WIND,**
25 **PHOTOVOLTAICS, AND SOLAR THERMAL**” and

1 inserting **“PHOTOVOLTAICS, SOLAR THERMAL,**
2 **AND OTHER TECHNOLOGY”**;

3 (2) in subsection (a)—

4 (A) in the matter preceding paragraph (1),
5 by striking “wind, photovoltaics, and solar ther-
6 mal energy” and inserting “photovoltaics, solar
7 thermal, and other energy technology”;

8 (B) by striking paragraph (1); and

9 (C) by redesignating paragraphs (2)
10 through (5) as paragraphs (1) through (4), re-
11 spectively; and

12 (3) in subsection (c), in the matter preceding
13 paragraph (1), by striking “the Wind Energy Re-
14 search Program,”.

15 (b) Section 931(a)(2) of the Energy Policy Act of
16 2005 (42 U.S.C. 16231(a)(2)) is amended—

17 (1) by striking subparagraph (B); and

18 (2) by redesignating subparagraphs (C) through
19 (E) as subparagraphs (B) through (D), respectively.

20 (c) Section 636 of the Energy Independence and Se-
21 curity Act of 2007 (42 U.S.C. 17215) is amended by strik-
22 ing “section 931(a)(2)(E)(i)” and all that follows through
23 the period at the end and inserting “subparagraph (D)(i)
24 of section 931(a)(2) of the Energy Policy Act of 2005 (42
25 U.S.C. 16231(a)(2)).”.