

116TH CONGRESS
1ST SESSION

H. R. 3609

To provide for a program of wind energy research, development, and demonstration, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

M. _____ introduced the following bill; which was referred to the Committee on _____

A BILL

To provide for a program of wind energy research, development, and demonstration, 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,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Wind Energy Research
5 and Development Act of 2019”.

6 **SEC. 2. WIND ENERGY TECHNOLOGY, RESEARCH, DEVELOP-**
7 **MENT AND TESTING PROGRAM.**

8 (a) IN GENERAL.—The Secretary of Energy (in this
9 Act, referred to as the “Secretary”) shall carry out a pro-
10 gram to conduct research, development, testing, and eval-

1 uation of wind energy technologies. In carrying out such
2 program, the Secretary shall award grants under this sec-
3 tion and sections 3, 4, and 5 on a competitive, merit-re-
4 viewed basis to eligible entities for each of the following
5 purposes:

6 (1) To improve the energy efficiency, reliability,
7 resilience, security, and capacity of wind energy gen-
8 eration.

9 (2) To optimize the design and control of wind
10 energy systems for the broadest practical range of
11 atmospheric conditions.

12 (3) To reduce the cost and risk of permitting,
13 construction, operation, and maintenance of wind
14 energy systems, including technologies to reduce en-
15 vironmental and community impacts, improve grid
16 integration and reduce regulatory barriers.

17 (4) To improve materials, engineering, and
18 manufacturing processes for turbines, including
19 supersized turbines.

20 (5) To optimize wind plant performance and in-
21 tegration within hybrid energy systems to enhance
22 cost efficiency and electric grid stability and resil-
23 ience.

24 (b) WIND ENERGY RESEARCH SUBJECT AREAS.—

25 The program established under subsection (a) shall focus

1 on the research, development, testing, and evaluation of
2 each of the following subject areas:

3 (1) Wind power plant performance and oper-
4 ations including—

5 (A) wind flows and turbine-to-turbine
6 interactions;

7 (B) energy conversion potential;

8 (C) turbine and wind plant control para-
9 digms;

10 (D) turbine and wind plant security;

11 (E) turbine components; and

12 (F) integrated hybrid plant systems.

13 (2) New materials and designs related to
14 blades, rotors, towers and drivetrains including—

15 (A) higher tip speed rotor designs;

16 (B) low noise rotor designs;

17 (C) advanced drivetrain and generator con-
18 cepts;

19 (D) modular construction and onsite or
20 near-site manufacturing and assembly tech-
21 niques;

22 (E) sustainable and recyclable materials
23 and manufacturing systems;

24 (F) supersized turbine design and installa-
25 tion approaches; and

1 (G) lightweight materials.

2 (3) Offshore wind-specific projects including—

3 (A) fixed and floating substructure con-
4 cepts;

5 (B) projects to assess and mitigate the im-
6 pacts of hurricane wind flow, freshwater ice,
7 and other United States-specific conditions;

8 (C) innovative operations and maintenance
9 strategies;

10 (D) analysis of offshore meteorological, ge-
11 ological, and oceanographic data collection; and

12 (E) offshore infrastructure monitoring.

13 (4) Recycling and reuse of wind energy compo-
14 nents.

15 (5) Wind power forecasting and atmospheric
16 measurement systems, including for turbines and
17 plant systems of varying height.

18 (6) The distributed wind energy sector.

19 (7) Advanced transportation mechanisms for
20 wind turbine components.

21 (8) Transformational technologies for har-
22 nassing wind energy, including airborne wind energy
23 concepts.

24 (9) Methods to extend the operational lifetime
25 of onshore and offshore wind turbines and systems.

1 (10) Other research areas as determined by the
2 Secretary.

3 (c) COORDINATION.—To the maximum extent prac-
4 ticable, the Secretary shall coordinate activities under the
5 program established under subsection (a) with other rel-
6 evant programs and capabilities of the Department of En-
7 ergy and other Federal research programs.

8 (d) CONFORMING REPEALS.—

9 (1) Section 931(a)(2) of the Energy Policy Act
10 of 2005 (42 U.S.C. 16231(a)(2)) is amended by
11 striking subparagraph (B).

12 (2) Section 4(a) of the Renewable Energy and
13 Energy Efficiency Technology Competitiveness Act
14 of 1989 (42 U.S.C. 12003(a)) is amended by strik-
15 ing paragraph (1).

16 (e) DEFINITIONS.—In this section:

17 (1) The term “eligible entity” means any of the
18 following entities:

19 (A) An institution of higher education.

20 (B) A National Laboratory.

21 (C) A Federal research agency.

22 (D) A State research agency.

23 (E) A nonprofit research organization.

24 (F) An industrial entity or a multi-institu-
25 tional consortium thereof.

1 (2) The term “institution of higher education”
2 has the meaning given such term in section 101 of
3 the Higher Education Act of 1965 (20 U.S.C.
4 1001).

5 (3) The term “National Laboratory” has the
6 meaning given such term in section 2(3) of the En-
7 ergy Policy Act of 2005 (42 U.S.C. 15801(3)).

8 (4) The term “supersized turbine” means a 12
9 megawatt or greater wind turbine, typically with a
10 tower height greater than 140 meters and blades
11 greater than 75 meters.

12 **SEC. 3. WIND ENERGY TECHNOLOGY VALIDATION AND**
13 **MARKET TRANSFORMATION PROGRAM.**

14 (a) **IN GENERAL.**—In carrying out the program es-
15 tablished under section 2(a), the Secretary shall conduct
16 a wind energy technology validation and market trans-
17 formation program under which the Secretary shall award
18 grants on a competitive, merit-reviewed basis to eligible
19 entities to support activities that demonstrate and validate
20 new wind energy technologies with the potential to be cost-
21 competitive for land-based, offshore, and distributed appli-
22 cations.

23 (b) **APPLICATION.**—An eligible entity seeking a grant
24 under this section shall submit an application in such form

1 and manner as the Secretary may prescribe and that con-
2 tains—

3 (1) a certification that any demonstration
4 project carried out using grant funds are—

5 (A) conducted in collaboration with indus-
6 try and, as appropriate, with institutions of
7 higher education and other Federal research
8 programs; and

9 (B) of sufficient size and geographic diver-
10 sity to measure wind energy system perform-
11 ance under the full productive range of wind
12 conditions in the United States; and

13 (2) such other information as the Secretary
14 may require.

15 (c) **FACILITY FOR HYBRID ENERGY SYSTEM RE-**
16 **SEARCH AND DEMONSTRATION PROJECTS.**—In carrying
17 out the program established under subsection (a), the Sec-
18 retary shall establish or support a facility to conduct re-
19 search and demonstration projects for wind turbines and
20 plants in hybrid energy systems that incorporate diverse
21 generation sources, loads, and storage technologies.

22 **SEC. 4. WIND ENERGY INCUBATOR FUNDING.**

23 In carrying out the program established under section
24 2(a), the Secretary shall award grants on a competitive,
25 merit-reviewed basis to eligible entities to support innova-

1 tive technologies that are not represented in a significant
2 way in—

3 (1) the portfolio of wind energy research activi-
4 ties carried out by the Department of Energy as of
5 the date of the enactment of this Act; or

6 (2) technology roadmaps used by the Depart-
7 ment of Energy as of such date of enactment.

8 **SEC. 5. MITIGATING REGULATORY AND MARKET BARRIERS.**

9 (a) IN GENERAL.—In carrying out the program es-
10 tablished under section 2(a), the Secretary shall award
11 grants on a competitive, merit-reviewed basis to eligible
12 entities to research, develop, test, and evaluate ways to
13 reduce regulatory and market barriers to the widespread
14 adoption of wind power, including—

15 (1) grid transmission and integration chal-
16 lenges; and

17 (2) permitting issues associated with the poten-
18 tial impacts of wind power systems on wildlife, radar
19 systems, local communities, military operations, and
20 airspace.

21 (b) WILDLIFE IMPACT MITIGATION.—In carrying out
22 the activities described in subsection (a), the Secretary
23 shall support the development, testing, and evaluation of
24 wildlife impact mitigation technologies or strategies to re-
25 duce the potential impacts of wind energy facilities on—

- 1 (1) bald and golden eagles;
- 2 (2) bat species;
- 3 (3) marine wildlife; and
- 4 (4) other impacted species.

5 (c) EDUCATION AND OUTREACH.—In carrying out
6 the activities described in subsection (a), the Secretary
7 shall support education and outreach activities to dissemi-
8 nate information and promote public understanding of
9 wind technologies and the wind energy workforce, includ-
10 ing the Collegiate Wind Competition.

11 **SEC. 6. AUTHORIZATION OF APPROPRIATIONS.**

12 There are authorized to be appropriated to the Sec-
13 retary to carry out this Act—

- 14 (1) \$103,692,000 for fiscal year 2020;
- 15 (2) \$108,876,600 for fiscal year 2021;
- 16 (3) \$114,320,430 for fiscal year 2022;
- 17 (4) \$120,036,452 for fiscal year 2023; and
- 18 (5) \$126,038,274 for fiscal year 2024.