Committee Print

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

Mr. Tonko (for himself, Mr. Fortenberry, Mr. Kennedy, and Mr. Bacon) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

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

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

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

SEC. 2. WIND ENERGY TECHNOLOGY, RESEARCH, DEVELOPMENT AND TESTING PROGRAM.

(a) IN GENERAL.—The Secretary of Energy (in this Act, referred to as the “Secretary”) shall carry out a pro-
gram to conduct research, development, testing, and evaluation of wind energy technologies. In carrying out such program and in accordance with subsection (b), the Secretary shall award grants and enter into contracts and cooperative agreements under this section and sections 3, 4, and 5 for each of the following purposes:

(1) To improve the energy efficiency, reliability, resilience, security, and capacity of wind energy generation.

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

(3) To reduce the cost and risk of permitting, construction, operation, and maintenance of wind energy systems, including technologies to reduce environmental and community impacts, improve grid integration and reduce regulatory barriers.

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

(5) To optimize wind plant performance and integration within hybrid energy systems to enhance cost efficiency and electric grid stability and resilience.
(b) Grants, Contracts, and Cooperative Agreements.—

(1) Grants.—In carrying out the program, the Secretary shall award grants on a competitive, merit-reviewed basis to eligible entities for projects that the Secretary determines would best achieve the goals of the program.

(2) Contracts and Cooperative Agreements.—In carrying out the program, the Secretary may enter into contracts and cooperative agreements with eligible entities and Federal agencies for projects that the Secretary determines would further the purposes of the program.

(3) Application.—An entity seeking funding or a contract or agreement under this subsection shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.

(c) Wind Energy Research Subject Areas.—The program established under subsection (a) shall focus on the research, development, testing, and evaluation of each of the following subject areas:

(1) Wind power plant performance and operations including—
(A) wind flows and turbine-to-turbine interactions;

(B) energy conversion potential;

(C) turbine and wind plant control paradigms;

(D) turbine and wind plant security;

(E) turbine components; and

(F) integrated hybrid plant systems.

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

(A) higher tip speed rotor designs;

(B) low noise rotor designs;

(C) advanced drivetrain and generator concepts;

(D) modular construction and onsite or near-site manufacturing and assembly techniques;

(E) sustainable and recyclable materials and manufacturing systems;

(F) supersized turbine design and installation approaches; and

(G) lightweight materials.

(3) Offshore wind-specific projects including—

(A) fixed and floating substructure concepts;
(B) projects to assess and mitigate the im-
pacts of hurricane wind flow, freshwater ice,
and other United States-specific conditions;

(C) innovative operations and maintenance
strategies;

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

(E) offshore infrastructure monitoring.

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

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

(6) The distributed wind energy sector.

(7) Advanced transportation mechanisms for
wind turbine components.

(8) Transformational technologies for har-
nessing wind energy, including airborne wind energy
concepts.

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

(10) Storage technologies to address the tran-
sience and intermittency of wind energy resources.

(11) Other research areas as determined by the
Secretary.
(d) REPORT.—

(1) IN GENERAL.—Not later than 180 days after the date of the enactment of this Act, the Secretary shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report on the potential for, and technical viability of, airborne wind energy systems to provide a significant source of energy in the United States.

(2) CONTENTS.—The report under subsection (a) shall include a summary of research, development, and demonstration needs, including an estimate of Federal funding requirements, to further examine and validate the technical and economic viability of airborne wind energy concepts over the 10-year period beginning on the date of the enactment of this Act.

(e) COORDINATION.—To the maximum extent practicable, the Secretary shall coordinate activities under the program established under subsection (a) with other relevant programs and capabilities of the Department of Energy and other Federal research programs.

(f) CONFORMING REPEALS.—
(1) Section 931(a)(2) of the Energy Policy Act of 2005 (42 U.S.C. 16231(a)(2)) is amended by striking subparagraph (B).

(2) Section 4(a) of the Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989 (42 U.S.C. 12003(a)) is amended by striking paragraph (1).

(g) DEFINITIONS.—In this section:

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

(A) An institution of higher education.

(B) A National Laboratory.

(C) A Federal research agency.

(D) A State research agency.

(E) A nonprofit research organization.

(F) An industrial entity or a multi-institutional consortium thereof.

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

(3) The term “National Laboratory” has the meaning given such term in section 2(3) of the Energy Policy Act of 2005 (42 U.S.C. 15801(3)).
(4) The term “supersized turbine” means a 12 megawatt or greater wind turbine, typically with a tower height greater than 140 meters and blades greater than 75 meters.

SEC. 3. WIND ENERGY TECHNOLOGY VALIDATION AND MARKET TRANSFORMATION PROGRAM.

(a) In General.—In carrying out the program established under section 2(a), the Secretary shall conduct a wind energy technology validation and market transformation program under which the Secretary shall award grants on a competitive, merit-reviewed basis to eligible entities to support activities that demonstrate and validate new wind energy technologies with the potential to be cost-competitive for land-based, offshore, and distributed applications.

(b) Application.—An eligible entity seeking a grant under this section shall submit an application in such form and manner as the Secretary may prescribe and that contains—

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

(A) conducted in collaboration with industry and, as appropriate, with institutions of higher education and other Federal research programs; and
(B) of sufficient size and geographic diversity to measure wind energy system performance under the full productive range of wind conditions in the United States; and

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

(c) Facility for Hybrid Energy System Research and Demonstration Projects.—In carrying out the program established under subsection (a), the Secretary shall establish or support a facility to conduct research and demonstration projects for wind turbines and plants in hybrid energy systems that incorporate diverse generation sources, loads, and storage technologies.

SEC. 4. WIND ENERGY INCUBATOR FUNDING.

In carrying out the program established under section 2(a), the Secretary shall conduct research, development, testing, and evaluation activities, in accordance with section 2(b), to support innovative technologies that are not represented in a significant way in—

(1) the portfolio of wind energy research activities carried out by the Department of Energy as of the date of the enactment of this Act; or

(2) technology roadmaps used by the Department of Energy as of such date of enactment.
SEC. 5. MITIGATING REGULATORY AND MARKET BARRIERS.

(a) IN GENERAL.—In carrying out the program established under section 2(a), the Secretary shall to research, develop, test, and evaluate, in accordance with section 2(b), ways to reduce regulatory and market barriers to the widespread adoption of wind power, including—

(1) grid transmission and integration challenges; and

(2) permitting issues associated with the potential impacts of wind power systems on wildlife, radar systems, local communities, military operations, and airspace.

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

(1) bald and golden eagles;

(2) bat species;

(3) marine wildlife; and

(4) other impacted species.

(c) EDUCATION AND OUTREACH.—In carrying out the activities described in subsection (a), the Secretary shall support education and outreach activities to disseminate information and promote public understanding of
wind technologies and the wind energy workforce, including the Collegiate Wind Competition.

SEC. 6. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary to carry out this Act—

1. $103,692,000 for fiscal year 2020;
2. $108,876,600 for fiscal year 2021;
3. $114,320,430 for fiscal year 2022;
4. $120,036,452 for fiscal year 2023; and
5. $126,038,274 for fiscal year 2024.