

116TH CONGRESS
1ST SESSION

S. _____

To require the Secretary of Defense to enhance the readiness of the Department of Defense to challenges relating to climate change and to improve the energy and resource efficiency of the Department, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Ms. WARREN introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To require the Secretary of Defense to enhance the readiness of the Department of Defense to challenges relating to climate change and to improve the energy and resource efficiency of the Department, 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 “Department of Defense
5 Climate Resiliency and Readiness Act”.

6 **SEC. 2. DEFINITIONS.**

7 In this Act:

1 (1) CLIMATE CHANGE.—The term “climate
2 change” means a change of climate that is—

3 (A) attributed directly or indirectly to
4 human activity that alters the composition of
5 the global atmosphere; and

6 (B) in addition to natural climate varia-
7 bility observed over comparable time periods.

8 (2) CONGRESSIONAL DEFENSE COMMITTEES.—
9 The term “congressional defense committees” has
10 the meaning given that term in section 101(a)(16)
11 of title 10, United States Code.

12 (3) NET ZERO ENERGY.—The term “net zero
13 energy” means, with respect to each installation of
14 the Department of Defense, a reduction in overall
15 energy use, maximization of energy efficiency, and
16 implementation and use of energy recovery and co-
17 generation capabilities at each installation, and an
18 offset of the remaining demand for energy with pro-
19 duction of energy from onsite renewable energy
20 sources at such installation, such that such installa-
21 tion produces as much energy as it uses over the
22 course of a year.

23 (4) RESILIENCY.—The term “resiliency”
24 means, with respect to each installation of the De-
25 partment of Defense, an anticipation, preparation

1 for, and adaptation of each installation to utility dis-
2 ruptions and changing environmental conditions, and
3 the achievement and maintenance by such installa-
4 tion of the capability to withstand, respond to, and
5 recover rapidly from utility disruptions while ensur-
6 ing the sustainment of mission-critical operations.

7 (5) NON-OPERATIONAL SOURCES.—The term
8 “non-operational sources”—

9 (A) means fixed installations, enduring lo-
10 cations, and non-tactical vehicles of the Depart-
11 ment of Defense; and

12 (B) does not include sources in connection
13 with the training, moving, and sustaining of the
14 Armed Forces and weapons platforms for mili-
15 tary operations and training, including tactical
16 power systems and generators at non-enduring
17 locations of the Department of Defense.

18 (6) RENEWABLE ENERGY SOURCE.—The term
19 “renewable energy source” has the meaning given
20 that term in section 2924(6) of title 10, United
21 States Code.

22 (7) UNITED STATES.—The term “United
23 States” means the several States, the District of Co-
24 lumbia, and any territory or possession of the
25 United States.

1 **SEC. 3. NET ZERO ENERGY BY NON-OPERATIONAL**
2 **SOURCES OF THE DEPARTMENT OF DE-**
3 **FENSE.**

4 (a) IN GENERAL.—The Department of Defense shall
5 achieve aggregate net zero energy in use of energy by non-
6 operational sources by not later than December 31, 2029.

7 (b) STRATEGY.—

8 (1) IN GENERAL.—Not later than one year
9 after the date of the enactment of this Act, the Sec-
10 retary of Defense shall submit to Congress a report
11 setting forth the strategy of the Department of De-
12 fense to achieve the requirement under subsection
13 (a).

14 (2) ELEMENTS.—The report required by para-
15 graph (1) shall set forth the following:

16 (A) The strategy of the Department of De-
17 fense to achieve the requirement under sub-
18 section (a) for all installations under the juris-
19 diction of the Department (other than the mili-
20 tary departments).

21 (B) The strategy of each military depart-
22 ment to achieve the requirement under sub-
23 section (a) for all installations under the juris-
24 diction of such department.

25 (C) An assessment of the manner in which
26 the achievement by the Department of Defense

1 of the requirement under subsection (a) will en-
2 hance the readiness of the Armed Forces to ad-
3 dress threats posed by Russia, China, Iran,
4 North Korea, and violent extremism.

5 (3) BIENNIAL UPDATE.—Not later than two
6 years after the submittal of the report required by
7 paragraph (1), and every two years thereafter
8 through December 31, 2029, the Secretary shall
9 submit to Congress a report setting forth the fol-
10 lowing:

11 (A) A current assessment of the progress
12 of the Department of Defense in implementing
13 the strategy described in paragraph (1), set
14 forth by military department, Defense Agency,
15 and other component or element of the Depart-
16 ment.

17 (B) Any updates to the strategy.

18 (4) CONSULTATION.—The Secretary shall con-
19 sult with the National Academy of Sciences and a
20 federally funded research and development center in
21 developing the report required by paragraph (1) and
22 any update to that report under paragraph (3).

23 (c) WAIVER.—

1 (1) IN GENERAL.—The Secretary of Defense
2 may waive the requirement in subsection (a) if the
3 Secretary—

4 (A) determines that achievement of such
5 requirement would adversely affect operational
6 safety, force protection, or the national security
7 interests of the United States; and

8 (B) submits to the congressional defense
9 committees a written notification of the waiver,
10 together with a justification for the waiver.

11 (2) PERIOD.—The period of any waiver under
12 paragraph (1) may not exceed 30 days.

13 (3) RENEWAL.—Any waiver under this sub-
14 section may be renewed one or more times, in the
15 manner provided for the initial such waiver under
16 paragraph (1) and for the period provided for in
17 paragraph (2).

18 **SEC. 4. CLIMATE-CONSCIOUS BUDGETING OF DEPARTMENT**
19 **OF DEFENSE.**

20 (a) IN GENERAL.—The Secretary of Defense shall in-
21 clude in the annual budget submission of the President
22 under section 1105(a) of title 31, United States Code—

23 (1) a dedicated budget line item for adaptation
24 to, and mitigation of, climate-related risks to mili-
25 tary networks, systems, installations, facilities, and

1 other assets and capabilities of the Department of
2 Defense; and

3 (2) an estimate of the anticipated adverse im-
4 pacts to the readiness of the Department and the fi-
5 nancial costs to the Department during the year cov-
6 ered by the budget of the loss of, or damage to, mili-
7 tary networks, systems, installations, facilities, and
8 other assets and capabilities of the Department, in-
9 cluding loss of or obstructed access to training
10 ranges, as a result of climate change.

11 (b) DISAGGREGATION OF IMPACTS AND COSTS.—The
12 estimate under subsection (a)(2) shall set forth the ad-
13 verse readiness impacts and financial costs under that
14 subsection by military department, Defense Agency, and
15 other component or element of the Department.

16 **SEC. 5. INCLUSION IN ANNUAL ENERGY MANAGEMENT AND**
17 **RESILIENCE REPORT OF DEPARTMENT OF**
18 **DEFENSE OF LIST OF MILITARY INSTALLA-**
19 **TIONS THAT EMIT THE MOST CARBON AND**
20 **ESTIMATE OF ENERGY CONSUMPTION BY DE-**
21 **PARTMENT.**

22 (a) IN GENERAL.—For every fiscal year beginning
23 after the date of the enactment of this Act, the Secretary
24 of Defense shall include in the Annual Energy Manage-
25 ment and Resilience Report for that fiscal year—

1 (1) a list of the ten installations within each
2 military department that emit the most carbon;

3 (2) an estimate of all energy consumption by
4 the Department of Defense, including greenhouse
5 gas emissions; and

6 (3) an assessment of greenhouse gas emissions
7 at all installations of the Department, disaggregated
8 by operational and non-operational sources.

9 (b) METRICS.—In determining energy consumption
10 and greenhouse gas emissions under paragraphs (2) and
11 (3) of subsection (a), the Secretary shall use metrics es-
12 tablished by the Under Secretary of Defense for Acquisi-
13 tion and Sustainment, in consultation with the National
14 Academy of Sciences and a federally funded research and
15 development center.

16 **SEC. 6. CLIMATE-CONSCIOUS CONTRACTING OF DEPART-**
17 **MENT OF DEFENSE.**

18 (a) IN GENERAL.—Chapter 137 of title 10, United
19 States Code, is amended by adding at the end the fol-
20 lowing new section:

21 **“§ 2339b. Requirements relating to energy consump-**
22 **tion and climate change**

23 “(a) PROJECTED ENERGY CONSUMPTION.—Each
24 Department of Defense contract for the procurement of
25 property or services entered into on or after October 1,

1 2019, shall include a written estimate by the Department
2 of the total projected energy consumption of all work to
3 be performed under the contract, and a statement of
4 whether the contract will include investments by the con-
5 tractor or the Department in renewable energy or energy-
6 efficient sources.

7 “(b) POLICY ON CONSIDERATION OF CERTAIN FAC-
8 TORS IN DETERMINATIONS TO AWARD CONTRACTS.—In
9 making any determination to enter into a contract de-
10 scribed in subsection (a), the Secretary of Defense shall
11 take into account—

12 “(1) whether the contractor verifiably produces
13 as much renewable energy as the total energy it con-
14 sumes; and

15 “(2) whether there is any order against the con-
16 tractor by the Environmental Protection Agency, the
17 Department of Justice, or a State attorney general
18 to pay a fine or take remedial action for a violation
19 of an environmental law or regulation of the United
20 States.

21 “(c) DISCLOSURE OF CLIMATE-RELATED RISKS.—
22 Each prospective contractor with the Department of De-
23 fense shall, as a prerequisite of bidding for a contract with
24 the Department, submit a detailed statement to the De-
25 partment that includes information regarding—

1 “(1) the identification of, the evaluation of po-
2 tential financial impacts of, and any risk-manage-
3 ment strategies relating to—

4 “(A) physical risks posed to the contractor
5 by climate change; and

6 “(B) transition risks posed to the con-
7 tractor by climate change; and

8 “(2) a description of any established corporate
9 governance processes and structures to identify, as-
10 sess, and manage climate-related risks.

11 “(d) ASSESSMENT OF FEES TO COMBAT CLIMATE
12 CHANGE.—(1) Each Department of Defense contract for
13 the procurement of property or services entered into on
14 or after October 1, 2019, shall include a requirement that
15 the contractor pay to the Department of Defense a fee
16 equal to one percent of the value of the contract in the
17 case of a contractor that is not, at the time of the Depart-
18 ment’s solicitation of the contract, verifiably producing as
19 much renewable energy as the total energy it consumes.

20 “(2) Any contractor required to pay a fee under para-
21 graph (1) with respect to a contract may not offset the
22 cost of such fee by increasing the amount of the proposal
23 for such contract.

1 “(e) WAIVER.—(1) The Secretary of Defense may
2 waive the requirements in subsections (a) and (b) if the
3 Secretary—

4 “(A)(i) determines that such requirements
5 would adversely affect operational safety, force pro-
6 tection, or the national security interests of the
7 United States; or

8 “(ii) with respect to particular property or serv-
9 ices, determines that—

10 “(I) market conditions for the property or
11 services have adversely affected (or will in the
12 near future adversely affect) the acquisition of
13 the property or services by the Department of
14 Defense; and

15 “(II) the waiver will expedite or facilitate
16 the acquisition of the property or services; and

17 “(B) submits to the congressional defense com-
18 mittees a written notification of the waiver, together
19 with a justification for the waiver.

20 “(2) The period of any waiver under paragraph (1)
21 may not exceed 30 days.

22 “(3) Any waiver under this subsection may be re-
23 newed one or more times, in the manner provided for the
24 initial such waiver under paragraph (1) and for the period
25 provided for in paragraph (2).”.

1 (b) CLERICAL AMENDMENT.—The table of sections
2 at the beginning of chapter 137 of title 10, United States
3 Code, is amended by inserting after the item relating to
4 section 2339a the following new item:

“2339b. Requirements relating to energy consumption and climate change.”.

5 (c) ENERGY AND CLIMATE RESILIENCY FUND.—

6 (1) IN GENERAL.—There is established in the
7 Treasury of the United States a fund, to be known
8 as the “Energy and Climate Resiliency Fund” (in
9 this subsection referred to as the “Fund”), to be ad-
10 ministered by the Secretary of Defense.

11 (2) USE OF AMOUNTS.—Amounts deposited in
12 the Fund shall be used only for climate-related im-
13 provements that contribute to the continued oper-
14 ational viability and the resiliency of the networks,
15 systems, installations, facilities, and other assets and
16 capabilities of the Department of Defense.

17 (3) DEPOSIT AND AVAILABILITY OF
18 AMOUNTS.—Notwithstanding section 3302 of title
19 31, United States Code, fees collected under section
20 2339b(b) of title 10, United States Code, as added
21 by subsection (a)—

22 (A) shall be deposited into the Fund to
23 carry out the activities described in paragraph
24 (2);

1 (B) to the extent and in the amounts pro-
2 vided in advance in appropriations Acts, shall
3 be available to the Secretary of Defense; and

4 (C) shall remain available until expended.

5 (4) CLIMATE-RELATED IMPROVEMENTS DE-
6 FINED.—In this subsection, the term “climate-re-
7 lated improvements” means efforts by the Depart-
8 ment of Defense to prepare for, or mitigate the ef-
9 fects of, the following:

10 (A) Extreme weather.

11 (B) Rising sea tides.

12 (C) Increased flooding.

13 (D) Drought.

14 (E) Desertification.

15 (F) Wildfires.

16 (G) Thawing permafrost.

17 (H) Such other conditions as the Secretary
18 determines necessary.

19 **SEC. 7. DEVELOPMENT OF CLIMATE VULNERABILITY AND**
20 **RISK ASSESSMENT TOOL.**

21 (a) IN GENERAL.—Not later than 180 days after the
22 date of the enactment of this Act, the Secretary of Defense
23 shall develop a climate vulnerability and risk assessment
24 tool to assist the military departments in measuring how
25 the risks associated with climate change impact networks,

1 systems, installations, facilities, and other assets, as well
2 as the operational plans and capabilities of the Depart-
3 ment of Defense.

4 (b) CONSULTATION.—In developing the tool under
5 subsection (a), the Secretary shall consult with Adminis-
6 trator of the Environmental Protection Agency, the Sec-
7 retary of Energy, the Administrator of the National Oce-
8 anic and Atmospheric Administration, the Administrator
9 of the Federal Emergency Management Agency, the Com-
10 mander of the Army Corps of Engineers, the Adminis-
11 trator of the National Aeronautics and Space Administra-
12 tion, a Federally funded research and development center,
13 and the heads of such other relevant Federal agencies as
14 the Secretary of Defense determines appropriate.

15 (c) PREVAILING SCIENTIFIC CONSENSUS.—Before
16 completing development of the tool under subsection (a),
17 the Secretary shall obtain from the National Academy of
18 Sciences and a Federally funded research and development
19 center with which the Secretary has consulted under sub-
20 section (b) a certification in writing that the tool contains
21 a methodology that adequately incorporates the prevailing
22 scientific consensus on climate change.

23 (d) REPORT.—

24 (1) IN GENERAL.—Not later than 180 days
25 after the date of the enactment of this Act, the Sec-

1 retary shall submit to the congressional defense com-
2 mittees a report describing the tool developed under
3 subsection (a).

4 (2) CLASSIFIED ANNEX.—The report under
5 paragraph (1) shall be submitted in unclassified
6 form but may contain a classified annex if necessary.

7 (3) PUBLICATION.—Upon submittal of the re-
8 port under paragraph (1), the Secretary shall pub-
9 lish the unclassified portion of the report on an
10 Internet website of the Department that is available
11 to the public.

12 (e) UPDATES TO TOOL.—

13 (1) IN GENERAL.—After submittal of the report
14 under subsection (d), the Secretary of Defense shall
15 update the climate vulnerability and risk assessment
16 tool developed under subsection (a) as the Secretary
17 considers necessary and appropriate, in consultation
18 with the individuals and entities described in sub-
19 section (b) and consistent with the prevailing sci-
20 entific consensus as required under subsection (c).

21 (2) REPORT AND PUBLICATION.—Upon com-
22 pleting an update to the tool under paragraph (1),
23 the Secretary shall—

1 (A) submit to the congressional defense
2 committees a report describing such update;
3 and

4 (B) publish the unclassified version such
5 report on an Internet website of the Depart-
6 ment that is available to the public.

7 **SEC. 8. ANNUAL REPORT ON EFFECTS OF CLIMATE**
8 **CHANGE ON DEPARTMENT OF DEFENSE.**

9 (a) **IN GENERAL.**—Not later than 180 days after the
10 date of the enactment of this Act, and annually thereafter,
11 the Secretary of Defense shall submit to the congressional
12 defense committees a report on vulnerabilities to military
13 installations and combatant commander requirements re-
14 sulting from climate change that builds upon the report
15 submitted under section 335(c) of the National Defense
16 Authorization Act for Fiscal Year 2018 (Public Law 115–
17 91; 131 Stat. 1358).

18 (b) **USE OF CLIMATE VULNERABILITY AND RISK AS-**
19 **SESSMENT TOOL.**—In preparing the report required by
20 subsection (a), the Secretary shall use the climate vulner-
21 ability and risk assessment tool developed under section
22 7.

23 (c) **ELEMENTS.**—The report required by subsection
24 (a) shall include the following:

1 (1) An explanation of the underlying method-
2 ology behind the climate vulnerability analysis con-
3 ducted in preparing the report under section 335(c)
4 of the National Defense Authorization Act for Fiscal
5 Year 2018.

6 (2) An assessment of how climate change af-
7 fects low-lying military installations, military instal-
8 lations of the Navy and the Marine Corps, and mili-
9 tary installations outside the United States.

10 (3) An assessment of how climate change af-
11 fects access of members of the Armed Forces to
12 training ranges.

13 (4) With respect to a military installation in a
14 country outside the United States, an assessment of
15 the collaboration between the Department of De-
16 fense and the military or civilian agencies of the gov-
17 ernment of that country or nongovernmental organi-
18 zations operating in that country to adapt to risks
19 from climate change.

20 (5) An assessment of how climate change af-
21 fects housing safety and food security on military in-
22 stallations.

23 (6) An assessment of the strategic benefits de-
24 rived from isolating infrastructure of the Depart-
25 ment of Defense in the United States from the na-

1 tional electric grid and the use of energy-efficient,
2 distributed, and smart power grids by the Armed
3 Forces in the United States and overseas to ensure
4 affordable access to electricity.

5 (7) A list of the ten military installations within
6 each military department that are most vulnerable to
7 climate change based on the effects of the following:

8 (A) Geographic location.

9 (B) Extreme weather.

10 (C) Rising sea tides.

11 (D) Increased flooding.

12 (E) Drought.

13 (F) Desertification.

14 (G) Wildfires.

15 (H) Thawing permafrost.

16 (I) Such other categories as the Secretary
17 determines necessary.

18 (8) A climate vulnerability score, determined by
19 the Secretary, for each military installation of the
20 Department.

21 (9) An overview of mitigations, in addition to
22 current efforts undertaken by the Department, that
23 may be necessary to ensure the continued oper-
24 ational viability and to increase the resiliency of the
25 vulnerable military installations identified under

1 paragraph (7), and the estimated costs of those miti-
2 gations.

3 (10) An assessment of how adapting to climate
4 change impacts the readiness of the Armed Forces
5 to address the threats posed by Russia, China, Iran,
6 North Korea, and violent extremism.

7 (d) CONSULTATION.—In developing each report
8 under subsection (a), the Secretary of Defense shall con-
9 sult with the Administrator of the Environmental Protec-
10 tion Agency, the Secretary of Energy, the Administrator
11 of the National Oceanic and Atmospheric Administration,
12 the Administrator of the Federal Emergency Management
13 Agency, the Commander of the Army Corps of Engineers,
14 the Administrator of the National Aeronautics and Space
15 Administration, a federally funded research and develop-
16 ment center, and the heads of such other relevant Federal
17 agencies as the Secretary of Defense determines appro-
18 priate.

19 (e) FORM OF REPORT.—The report required by sub-
20 section (a) shall be submitted in unclassified form but may
21 contain a classified annex if necessary.

22 (f) PUBLICATION.—Upon submittal of the report re-
23 quired by subsection (a), the Secretary of Defense shall
24 publish the unclassified portion of the report on an Inter-

1 net website of the Department of Defense that is available
2 to the public.

3 **SEC. 9. INCORPORATION OF CLIMATE RESILIENCY INTO**
4 **EXISTING STRATEGIES OF THE DEPARTMENT**
5 **OF DEFENSE.**

6 (a) CONSIDERATION OF RISKS OF CLIMATE CHANGE
7 IN MAKING STRATEGIC DECISIONS RELATING TO MILI-
8 TARY INSTALLATIONS.—The Secretary of each military
9 department, with respect to any installation under the ju-
10 risdiction of that Secretary, and the Secretary of Defense,
11 with respect to any installation of the Department of De-
12 fense that is not under the jurisdiction of the Secretary
13 of a military department, shall consider the risks associ-
14 ated with climate change when making any strategic deci-
15 sion relating to such installation, including where to locate
16 such installation and where to position equipment, infra-
17 structure, and other military assets.

18 (b) CODIFICATION OF DIRECTIVE ON CLIMATE
19 CHANGE.—

20 (1) IN GENERAL.—Directive 4715.21 of the De-
21 partment of Defense, dated January 14, 2016, and
22 entitled “Climate Change Adaptation and Resil-
23 ience”, shall remain in effect.

24 (2) REPORTS ON IMPLEMENTATION OF DIREC-
25 TIVE.—Each posture statement submitted to Con-

1 gress by the Secretary of a military department, the
2 Chairman of the Joint Chiefs of Staff, or the com-
3 mander of a combatant command shall include a de-
4 scription of the implementation and discharge by
5 such official of the Directive referred to in para-
6 graph (1), including the personnel assigned to imple-
7 ment and discharge the Directive and the progress
8 achieved in such implementation and discharge.

9 (c) INCORPORATION OF CLIMATE CHANGE INTO CER-
10 TAIN DEFENSE STRATEGIES.—

11 (1) IN GENERAL.—The Secretary of Defense, in
12 coordination with the heads of other elements of the
13 intelligence community, the Administrator of the
14 Environmental Protection Agency, the Secretary of
15 Energy, the Administrator of the National Oceanic
16 and Atmospheric Administration, the Administrator
17 of the Federal Emergency Management Agency, the
18 Commander of the Army Corps of Engineers, the
19 Administrator of the National Aeronautics and
20 Space Administration, and the heads of such other
21 relevant Federal agencies as the Secretary of De-
22 fense determines appropriate, shall incorporate cli-
23 mate change into the National Defense Strategy, the
24 National Military Strategy, and operational plans of
25 the Department of Defense.

1 (2) INTELLIGENCE COMMUNITY DEFINED.—In
2 this subsection, the term “intelligence community”
3 has the meaning given that term in section 3 of the
4 National Security Act of 1947 (50 U.S.C. 3003).

5 (d) IMPLEMENTATION AND DISCHARGE OF REQUIRE-
6 MENTS.—

7 (1) CROSS-FUNCTIONAL TEAM ON INCORPORA-
8 TION OF CLIMATE RESILIENCY INTO DEFENSE
9 STRATEGIES.—Among the cross-functional teams es-
10 tablished by the Secretary of Defense pursuant to
11 subsection (c) of section 911 of the National De-
12 fense Authorization Act for Fiscal Year 2017 (Pub-
13 lic Law 114–328; 130 Stat. 2345; 10 U.S.C. 111
14 note) in support of the organizational strategy for
15 the Department of Defense required by subsection
16 (a) of that section, the Secretary shall establish a
17 cross-functional team on the implementation and
18 discharge of the requirements under this section.

19 (2) ESTABLISHMENT AND ACTIVITIES.—The
20 cross-functional team required by paragraph (1)
21 shall be established in accordance with subsection (c)
22 of section 911 of the National Defense Authorization
23 Act for Fiscal Year 2017, and shall be governed in
24 its activities in accordance with the provisions of
25 such subsection (c).

1 (3) DEADLINE FOR ESTABLISHMENT.—The
2 cross-functional team required by paragraph (1)
3 shall be established by not later than 90 days after
4 the date of the enactment of this Act.

5 **SEC. 10. RESEARCH, DEVELOPMENT, AND DEMONSTRATION**
6 **PROGRAM ON ENERGY STORAGE, HYBRID**
7 **MICROGRID, AND ENERGY RESILIENCY.**

8 (a) PROGRAM REQUIRED.—The Secretary of De-
9 fense, in consultation with the Secretary of Energy, shall
10 conduct a program of research, development, and dem-
11 onstration of hybrid microgrid systems and electric grid
12 energy storage.

13 (b) MULTIDISCIPLINARY TEAMS.—

14 (1) IN GENERAL.—In carrying out the program
15 under subsection (a), the Secretary of Defense shall
16 organize activities among multidisciplinary teams to
17 leverage, to the maximum extent practicable, exper-
18 tise from the Department of Energy, the National
19 Laboratories, institutions of higher education, and
20 the private sector.

21 (2) GOALS.—The multidisciplinary teams orga-
22 nized under paragraph (1) shall pursue aggressive,
23 milestone-driven, and basic research, development,
24 and demonstration goals to carry out the program
25 under subsection (a).

1 (3) RESOURCES.—The Secretary of Defense
2 shall provide sufficient resources to the multidisci-
3 plinary teams organized under paragraph (1) to
4 achieve the goals described in paragraph (2) over a
5 10-year period.

6 (c) AREAS OF FOCUS.—The program under sub-
7 section (a) shall focus on—

8 (1) addressing electrical power intermittency;

9 (2) integrating renewable energy sources into
10 microgrid systems, hybrid microgrid systems, energy
11 storage, grid security, and local generation of zero-
12 carbon fuels;

13 (3) the inspection and structural health moni-
14 toring of critical energy infrastructure;

15 (4) materials, electric thermal,
16 electromechanical, and electrochemical systems re-
17 search;

18 (5) power conversion technologies research;

19 (6) developing and using fuel-efficient engines;

20 (7) additive manufacturing;

21 (8) developing—

22 (A) empirical and science-based industry
23 standards to compare the storage capacity,
24 cycle length and capabilities, and reliability of
25 different types of electricity storage; and

1 (B) validation and testing techniques;

2 (9) other fundamental and applied research
3 critical to widespread deployment of electricity stor-
4 age;

5 (10) device development that builds on results
6 from research described in paragraphs (4), (5), and
7 (9), including combinations of power electronics, ad-
8 vanced optimizing controls, and energy storage as a
9 general purpose element of the electric grid;

10 (11) micro-scale testing and analysis of storage
11 devices, including test-beds and field trials;

12 (12) microgrid systems and hybrid microgrid
13 systems to increase the resilience of critical infra-
14 structure of the Department of Defense;

15 (13) the potential for energy storage and re-
16 newable resources, including wind, solar, and hydro-
17 power, to be integrated into microgrid systems or
18 hybrid microgrid system of installations of the De-
19 partment of Defense;

20 (14) the capacity of the workforce of the De-
21 partment of Defense to operate, maintain, and re-
22 pair a microgrid system or hybrid microgrid system;

23 (15) opportunities to develop the capacity to op-
24 erate, maintain, and repair a hybrid microgrid sys-
25 tem;

1 (16) leveraging existing capacity within local or
2 regional research organizations, such as organiza-
3 tions based at institutions of higher education, to
4 support development of hybrid microgrid systems,
5 including by testing novel components and systems
6 prior to field deployment;

7 (17) electricity storage device safety and reli-
8 ability, including potential failure modes, mitigation
9 measures, and operational guidelines;

10 (18) standards for performance, control inter-
11 face, grid interconnection, and interoperability of
12 electricity storage devices;

13 (19) maintaining a public database of energy
14 storage projects, policies, codes, standards, and reg-
15 ulations; and

16 (20) such other criteria as the Secretary of De-
17 fense, in consultation with the Secretary of Energy,
18 determines appropriate.

19 (d) COLLABORATION.—The program under sub-
20 section (a) shall be carried out in collaboration with rel-
21 evant stakeholders, including, as appropriate—

22 (1) States;

23 (2) Indian tribes;

24 (3) regional entities and regulators;

25 (4) units of local government;

1 (5) institutions of higher education, including
2 historically Black colleges or universities and other
3 minority-serving institutions; and

4 (6) private sector entities.

5 (e) REPORT.—

6 (1) IN GENERAL.—Not later than 180 days
7 after the date of enactment of this Act, and annually
8 thereafter until 2031, the Secretary of Defense shall
9 submit to the congressional defense committees a re-
10 port on the efforts to implement the program under
11 subsection (a), including any strategy developed to
12 implement such program.

13 (2) CLASSIFIED ANNEX.—The report under
14 paragraph (1) shall be submitted in unclassified
15 form but may contain a classified annex if necessary.

16 (3) PUBLICATION.—Upon submittal of the re-
17 port under paragraph (1), the Secretary shall pub-
18 lish the unclassified portion of the report on an
19 Internet website of the Department that is available
20 to the public.

21 (f) ASSISTANCE TO STATES.—The Secretary of De-
22 fense may provide technical and financial assistance to
23 States, Indian tribes, units of local government, institu-
24 tions of higher education, or private sector entities to par-

1 ticipate in or use research, development, or demonstration
2 of technology developed under this section.

3 (g) AUTHORIZATION OF APPROPRIATIONS.—There is
4 authorized to be appropriated to the Secretary of Defense
5 to carry out this section the following:

6 (1) For fiscal year 2020, \$10,000,000.

7 (2) For fiscal year 2021, \$25,000,000.

8 (3) For fiscal year 2022, \$50,000,000.

9 (4) For fiscal year 2023, \$75,000,000.

10 (5) For fiscal year 2024, \$125,000,000.

11 (6) For fiscal year 2025, \$200,000,000.

12 (7) For each of fiscal years 2026 through 2030,
13 \$250,000,000.

14 (h) NO EFFECT ON OTHER PROVISIONS OF LAW.—
15 Nothing in this section authorizes regulatory actions that
16 would duplicate or conflict with regulatory requirements,
17 mandatory standards, or related processes under section
18 215 of the Federal Power Act (16 U.S.C. 824o).

19 (i) USE OF FUNDS.—To the maximum extent prac-
20 ticable, in carrying out this section, the Secretary of De-
21 fense shall ensure that the use of funds to carry out this
22 section is coordinated with the Secretary of Energy and
23 among different offices within the Grid Modernization Ini-
24 tiative of the Department of Energy and other programs
25 conducting energy storage research.

1 (j) DEFINITIONS.—In this section:

2 (1) HISTORICALLY BLACK COLLEGE OR UNI-
3 VERSITY.—The term “historically Black college or
4 university” has the meaning given the term “part B
5 institution” in section 322(2) of the Higher Edu-
6 cation Act of 1965 (20 U.S.C. 1061(2)).

7 (2) HYBRID MICROGRID SYSTEM.—The term
8 “hybrid microgrid system” means a stand-alone elec-
9 trical system that—

10 (A) is comprised of conventional generation
11 and at least one alternative energy resource;
12 and

13 (B) may use grid-scale energy storage.

14 (3) MICROGRID SYSTEM.—The term “microgrid
15 system” means a standalone electrical system that
16 uses grid-scale energy storage.

17 (4) NATIONAL LABORATORY.—The term “Na-
18 tional Laboratory” has the meaning given that term
19 in section 2 of the Energy Policy Act of 2005 (42
20 U.S.C. 15801).

1 **SEC. 11. CONDITIONS ON BASE REALIGNMENT AND CLO-**
2 **SURE ACTIVITIES FUNDED THROUGH BASE**
3 **CLOSURE ACCOUNT OF DEPARTMENT OF DE-**
4 **FENSE.**

5 (a) **CONSIDERATION OF FACTORS REQUIRED.**—With
6 respect to any Base Realignment and Closure round begun
7 by the Department of Defense after the date of the enact-
8 ment of this Act, the Department shall consider current
9 and potential vulnerabilities to installations and operations
10 of the Department of Defense resulting from climate
11 change and the resiliency of installations of the Depart-
12 ment as described in section 2(3)(B).

13 (b) **BASE REALIGNMENT AND CLOSURE ROUND DE-**
14 **FINED.**—In this section, the term “Base Realignment and
15 Closure round” means base realignment and closure ac-
16 tivities, including real property acquisition and military
17 construction projects, as authorized by the Defense Base
18 Closure and Realignment Act of 1990 (part A of title
19 XXIX of Public Law 101–510; 10 U.S.C. 2687 note) and
20 funded through the Department of Defense Base Closure
21 Account established by section 2906 of such Act (as
22 amended by section 2711 of the Military Construction Au-
23 thorization Act for Fiscal Year 2013 (division B of Public
24 Law 112–239; 126 Stat. 2140)).

1 **SEC. 12. ASSISTANT SECRETARY OF DEFENSE AND OF THE**
2 **MILITARY DEPARTMENTS FOR ENERGY AND**
3 **CLIMATE RESILIENCY.**

4 (a) ASSISTANT SECRETARY OF DEFENSE FOR EN-
5 ERGY AND CLIMATE RESILIENCY.—

6 (1) IN GENERAL.—Section 138 of title 10,
7 United States Code, is amended—

8 (A) in subsection (a)(1), by striking “13”
9 and inserting “14”; and

10 (B) in subsection (b), by adding at the end
11 the following new paragraph:

12 “(5) One of the Assistant Secretaries is the Assistant
13 Secretary of Defense for Energy and Climate Resiliency.
14 The principal duty of the Assistant Secretary shall be the
15 overall supervision of energy and climate resiliency mat-
16 ters of the Department of Defense.”.

17 (2) DUTIES.—Not later than 90 days after the
18 date of the enactment of this Act, the Secretary of
19 Defense shall prescribe the duties of the Assistant
20 Secretary of Defense for Energy and Climate Resil-
21 iency under section 138(b)(5) of title 10, United
22 States Code (as added by paragraph (1)). In pre-
23 scribing such duties, the Secretary shall—

24 (A) specify the duties currently performed
25 by the Assistant Secretary of Defense for In-
26 stallations, Energy, and the Environment that

1 shall be performed instead by the Assistant Sec-
2 retary of Defense for Energy and Climate Resil-
3 iency; and

4 (B) specify the duties and responsibilities
5 of the Assistant Secretary of Defense for En-
6 ergy and Climate Resiliency for oversight of the
7 implementation of the requirements of this Act
8 by the Department of Defense.

9 (b) ASSISTANT SECRETARIES OF THE MILITARY DE-
10 PARTMENTS.—

11 (1) DEPARTMENT OF THE ARMY.—Section
12 7016 of such title is amended—

13 (A) in subsection (a), by striking “five”
14 and inserting “six”; and

15 (B) in subsection (b), by adding at the end
16 the following new paragraph:

17 “(6) One of the Assistant Secretaries shall be the As-
18 sistant Secretary of the Army for Energy and Climate Re-
19 siliency. The principal duty of the Assistant Secretary
20 shall be the overall supervision of energy and climate resil-
21 iency mattes of the Department of the Army.”.

22 (2) DEPARTMENT OF THE NAVY.—Section 8016
23 of such title is amended—

24 (A) in subsection (a), by striking “four”
25 and inserting “five”; and

1 (B) in subsection (b), by adding at the end
2 the following new paragraph:

3 “(5) One of the Assistant Secretaries shall be the As-
4 sistant Secretary of the Navy for Energy and Climate Re-
5 siliency. The principal duty of the Assistant Secretary
6 shall be the overall supervision of energy and climate resil-
7 iency matters of the Department of the Navy.”.

8 (3) DEPARTMENT OF THE AIR FORCE.—Section
9 9016 of such title is amended—

10 (A) in subsection (a), by striking “four”
11 and inserting “five”; and

12 (B) in subsection (b), by adding at the end
13 the following new paragraph:

14 “(5) One of the Assistant Secretaries shall be the As-
15 sistant Secretary of the Air Force for Energy and Climate
16 Resiliency. The principal duty of the Assistant Secretary
17 shall be the overall supervision of energy and climate resil-
18 iency matters of the Department of the Air Force.”.

19 (4) DUTIES.—Not later than 90 days after the
20 date of the enactment of this Act, each Secretary of
21 a military department shall prescribe the duties of
22 the Assistant Secretary of such military department
23 for energy and climate resiliency under the applica-
24 ble amendments made by this subsection. In pre-
25 scribing such duties, such Secretary shall—

1 (A) specify the duties currently performed
2 by the Assistant Secretary of such military de-
3 partment for installations, energy, and the envi-
4 ronment that shall be performed instead by the
5 Assistant Secretary of such military department
6 for energy and climate resiliency; and

7 (B) specify the duties and responsibilities
8 of the Assistant Secretary of such military de-
9 partment for energy and climate resiliency for
10 oversight of the implementation of the require-
11 ments of this Act by such military department.

12 (c) EXECUTIVE SCHEDULE MATTERS.—Section 5315
13 of title 5, United States Code, is amended by striking the
14 items relating to the Assistant Secretaries of Air Force,
15 the Assistant Secretaries of the Army, and the Assistant
16 Secretaries of the Navy and inserting the following new
17 items:

18 “Assistant Secretaries of the Air Force (5).

19 “Assistant Secretaries of the Army (6).

20 “Assistant Secretaries of the Navy (5).”.

21 (d) ADDITIONAL POSITIONS OF RESPONSIBILITY FOR
22 ENERGY AND CLIMATE RESILIENCY.—

23 (1) IN GENERAL.—Not later than 90 days after
24 the date of the enactment of this Act, each officer
25 specified in paragraph (2)) shall establish within the

1 command under the jurisdiction of such officer a po-
2 sition of responsibility for oversight of the implemen-
3 tation of the requirements of this Act by such com-
4 mand. Any individual assigned to such a position
5 shall be an officer of the Armed Forces on active
6 duty in a general or flag officer grade.

7 (2) OFFICERS.—The officers specified in this
8 paragraph are the following:

9 (A) The Chairman of the Joint Chiefs of
10 Staff.

11 (B) The commander of each combatant
12 command.