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117TH CONGRESS
1ST SESSION

H. R. 2821

To provide for a coordinated Federal program to accelerate plastics waste reduction and support recycling research and development for the economic and national security of the United States, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 22, 2021

Ms. STEVENS (for herself, Mr. GONZALEZ of Ohio, Ms. JOHNSON of Texas, and Mr. LUCAS) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

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A BILL

To provide for a coordinated Federal program to accelerate plastics waste reduction and support recycling research and development for the economic and national security of the United States, 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 ''Plastic Waste Reduction and Recycling Research Act''.

SEC. 2. FINDINGS.

Congress makes the following findings:

(1) It is estimated that global production of plastic has increased from 2,000,000 tons of plastic per year in 1950 to 400,000,000 tons per year today, and of the 8.3 billion metric tons of plastic ever produced globally, 6.3 billion metric tons has become plastic waste.

(2) The United States has failed to invest in the development of domestic recycling markets, technology and materials to make the recycling process more available and efficient, and as a result, the United States recycles only 9 percent of its plastic waste.

(3) For more than 2 decades, the United States and other developed nations sold and exported 106,000,000 metric tons of recyclable plastics to China, but in 2018 China issued a ban on contaminated United States plastics.

(4) Following the 2018 China ban, more and more United States communities are sending recyclable items to landfills or incinerators.

(5) As recycling programs have moved toward single-stream curbside recycling, more recyclable items are mixed with non-recyclable items, resulting in fewer potentially recyclable items actually being recycled and turned into new, valuable products.

(6) The resin identification coding system in use today has not been substantially updated since its creation in 1988.

(7) Characterizing the type and recyclability of different types of plastics in use today requires updated standards.

(8) Separating and processing the many different types of plastics as well as the heterogenous materials containing multiple layers of different plastic types commonly in use today will require new sorting and recycling technologies.

(9) There are currently limited private or public investments in research and development to improve plastic waste reduction, recycling technologies, or other technologies and processes to reduce the amount and impact of plastic waste.

(10) The Federal Government can play an important role in supporting research and development and facilitating standards, tools, and technologies needed across the different stages of the plastics production and recycling ecosystem.

SEC. 3. DEFINITIONS.

In this Act:

(1) COMMITTEE.—The term ''Committee'' means the Interagency Committee established or designated under section 5.

(2) DIRECTOR.—The term ''Director'' means the Director of the Office of Science and Technology Policy.

(3) PARTICIPATING AGENCIES.—The term ''participating agencies'' means the agencies under section 5(c).

(4) PROGRAM.—The term ''Program'' means the Plastic Waste Reduction and Recycling Research Program established under section 4.

(5) MARINE DEBRIS.—The term ''marine debris'' has the meaning provided in the Marine Debris Act (33 U.S.C. 1956).

SEC. 4. PLASTIC WASTE REDUCTION AND RECYCLING RESEARCH PROGRAM.

(a) ESTABLISHMENT; PURPOSES.—The Director, acting through the Committee and each of the participating agencies, shall establish and implement a program to be known as the ''Plastic Waste Reduction and Recycling Research Program''. The purposes of the Program shall be to—

(1) improve the global competitiveness of the United States plastics recycling industry;

(2) ensure United States leadership in plastic waste reduction, reuse, and recycling research and innovation;

(3) support United States leadership in the development of national and international standards for sustainable plastics design and plastic recycling infrastructure, technologies and processes; and

(4) mitigate any harmful effects of plastic waste and plastic waste recycling on the environment.

(b) PROGRAM ACTIVITIES.—In carrying out the Program, the Director, acting through the Committee and each of the participating agencies, shall carry out activities that include the following:

(1) Supporting research, development, and demonstration of plastics technologies optimized for recyclability, plastics recycling technologies, plastic reusability, bio-based plastics, biodegradable plastics, remediation, including bioremediation of plastic waste, recyclability and remediation of plastic-based textiles, and environmental impacts of plastic waste.

(2) Supporting and facilitating public-private partnerships to leverage knowledge and resources to accelerate research, development, and demonstration in plastic waste reduction, including plastics recycling, plastics reusability, plastic waste remediation

and other areas consistent with the purposes of this Act.

(3) Interagency planning and coordination of Federal research and development of plastic waste reduction and recycling technologies and plastic waste remediation.

(4) Promoting research collaboration with international partners, as appropriate.

SEC. 5. COORDINATION BY INTERAGENCY COMMITTEE.

(a) INTERAGENCY COMMITTEE.—Not later than 180 days after the date of enactment of this Act, the Director, acting through the National Science and Technology Council, shall establish or designate an Interagency Committee to coordinate Federal programs and activities in support of plastic waste reduction and recycling and plastic waste remediation research and development under the Program.

(b) CO-CHAIRS.—The Committee shall be co-chaired by the Director of the Office of Science and Technology Policy or designee and a representative from an agency participating in the Committee, as selected by the Director of the Office of Science and Technology Policy.

(c) AGENCY PARTICIPATION.—The Committee shall include representatives from—

(1) the National Institute of Standards and Technology;

(2) the National Science Foundation;

(3) the Department of Energy;

(4) the Environmental Protection Agency;

(5) the Department of Transportation;

(6) the National Oceanic and Atmospheric Administration;

(7) the Department of Agriculture; and

(8) any other Federal agency as considered appropriate by the Director of the Office of Science and Technology Policy.

(d) RESPONSIBILITIES.—The Committee shall—

(1) provide for interagency coordination of Federal plastics reduction and recycling and plastic waste remediation research, development, and demonstration, standards development, and education and training activities and programs of Federal departments and agencies undertaken pursuant to the Program;

(2) develop definitions for the following terms to guide the activities of the Program—

(A) recycle;

(B) recyclability;

(C) remediation;

(D) advanced recycling;

(E) advanced plastics;

(F) biobased plastics;

(G) biodegradable plastics;

(H) microplastic;

(I) nanoplastic; and

(J) pyroplastic;

(3) develop and update every 3 years a strategic plan, to be made publicly available, for plastic waste reduction and recycling and plastic waste remediation that—

(A) establishes goals, priorities, and metrics for guiding and evaluating the activities of the Program; and

(B) describes—

(i) how the Program will determine and prioritize areas of plastic waste reduction and recycling and plastic waste remediation for Federal research investments;

(ii) the Program's support for long-term funding for interdisciplinary plastic waste reduction and recycling research, development, demonstration, standards development, education, and public outreach activities;

(iii) how Federal agencies participating in the Program will collaborate with industry and with local governments, as appropriate; and

(iv) how the program will help move the results of research out of the laboratory and into commercial or municipal application; and

(C) with respect to the previous 3 years, provides a summary of—

(i) federally funded plastic waste reduction and recycling and plastic waste remediation research, development, and demonstration;

(ii) the adoption of improved plastic waste reduction and recycling technologies by Federal, State, and local governments and private entities; and

(iii) other related activities for the previous 3 years; and

(4) consider input from universities, State and local governments, scientific societies, and public, private and nonprofit plastic recycling manufacturers and organizations in the development of the

goals, priorities and metrics required under paragraph (3)(A).

(e) TERMINATION.—The Interagency Committee shall terminate 10 years after the date on which the Committee is established under subsection (a).

SEC. 6. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.

As part of the Program, the Director of National Institute of Standards and Technology shall—

(1) establish a science program for characterization of plastic properties before, during, and after recycling and manufacturing, development of classification systems, and creation of new data tools, techniques, and processes to advance plastics engineering and post-consumer plastic recycling and manufacturing;

(2) develop innovations for effective and efficient measures for processing plastics, including films and textiles, collected for recycling, while considering existing waste streams and future new materials;

(3) provide the metrology basis for standards development for plastic sorting infrastructure, processing technologies, classification systems, including for biobased plastics, and recycling by design;

(4) develop a clearinghouse to collect and support dissemination of tools, guidelines and standards developed under this section;

(5) consult with appropriate stakeholder groups to promote adoption and implementation of such guidelines and standards, including diverse manufacturing and industry groups, such as packaging, including food packaging, agriculture, transportation, textile and fashion;

(6) support plastics recycling research collaboration and coordinate standards development, as appropriate, with other agencies, State and local governments, nonprofit organizations, academia, private sector, and international partners; and

(7) establish a program for measurements, methods and standards to assess the environmental impacts of plastics waste, including marine debris, and plastic particles and fibers.

SEC. 7. NATIONAL SCIENCE FOUNDATION.

As part of the Program, the National Science Foundation shall—

(1) support multidisciplinary basic research on advanced plastics that are designed for recyclability or biodegradation, on plastic waste remediation, on improving recycling technologies for different plas-

tics, and on composting and compostable plastics, and on plastic waste valorization;

(2) support multidisciplinary research on the environmental and biological effects of plastic waste, and particularly the formation, transport and bioaccumulation of nano- and micro-plastics relevant to plastics recycling and plastic waste remediation;

(3) support research on social, behavioral, and economic barriers to the plastic recycling system and development, adoption, and expansion of plastic recycling;

(4) support, as appropriate, development of interdisciplinary undergraduate and graduate curriculum and instructional materials relevant to plastics recycling and plastic waste remediation;

(5) support research experiences for undergraduate students relevant to plastics recycling and plastic waste remediation; and

(6) support plastics recycling research collaborations, as appropriate, with other agencies, State and local governments, nonprofit organizations, academia, private sector, and international partners.

SEC. 8. DEPARTMENT OF ENERGY.

As part of the Program, the Secretary of Energy shall—

(1) support integrated research, development, and demonstration of—

(A) chemical and bio-inspired plastic recycling, including research on the potential environmental impact of chemical recycling technologies;

(B) advanced plastic synthesis;

(C) plastic waste remediation;

(D) recyclability-by-design;

(E) systems-level strategies for improved plastics separation and recovery; and

(F) upcycling of recycled plastics into new high-value plastics, including for food-grade packaging and advanced manufacturing applications;

(2) coordinate research efforts funded through existing programs across the Department of Energy, including the National Laboratories and relevant Manufacturing USA Institutes under section 34 of the National Institute of Standards and Technology Act (15 U.S.C. 278s); and

(3) support plastics recycling research collaborations, as appropriate, with other agencies, State and local governments, nonprofit organizations, academia, private sector, and international partners.

SEC. 9. ENVIRONMENTAL PROTECTION AGENCY.

As part of the Program, the Administrator of the Environmental Protection Agency shall—

(1) conduct and support research, development, and demonstration of innovative plastic waste management solutions, including reduction, reuse, recycling, recovery, composting infrastructure for bio-based plastics, composting infrastructure for separation and removal of contamination from plastic waste, and prevention of plastics, including microplastics, nanoplastics, and pyroplastics, from entering the air, soil, oceans, and waterways;

(2) support and conduct research and analysis on the public health impacts of airborne and waterborne microplastics, nanoplastics, and pyroplastics, including research on routes of exposure, estimates of exposure in different populations, and toxicity assessments on animal and aquatic health, including the food chain; and

(3) support plastics recycling research collaborations, as appropriate, with other agencies, State and local governments, nonprofit organizations, academia, private sector, and international partners.

SEC. 10. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

As part of the Program, the Administrator of the National Oceanic and Atmospheric Administration shall—

(1) conduct and support research, data collection, and analysis of plastic marine debris and ocean plastic pollution generation and sources, including microplastics, nanoplastics, and pyroplastics;

(2) support research and analysis on the health impacts of oceanic microplastics on marine animal health, including the food chain; and

(3) support ocean plastic research collaborations, as appropriate, with other agencies, State and local governments, nonprofit organizations, academia, private sector, and international partners.

SEC. 11. COMPTROLLER GENERAL REPORT.

Not later than 2 years after the strategic plan required by section 5(d)(3) is first issued, the Comptroller General shall submit a report to Congress that assesses the implementation of the strategic plan by the Committee and participating agencies.

SEC. 12. AUTHORIZATIONS.

There is authorized to be appropriated to carry out activities under this Act—

(1) to the National Institute of Standards and Technology—

(A) $10,000,000 for fiscal year 2022;

(B) $10,650,000 for fiscal year 2023;

(C) $11,342,000 for fiscal year 2024;

(D) $12,079,000 for fiscal year 2025; and

(E) $12,865,000 for fiscal year 2026;

(2) to the National Science Foundation—

(A) $30,000,000 for fiscal year 2022;

(B) $31,950,000 for fiscal year 2023;

(C) $34,027,000 for fiscal year 2024;

(D) $36,328,000 for fiscal year 2025; and

(E) $38,594,000 for fiscal year 2026;

(3) to the Department of Energy—

(A) $25,000,000 for fiscal year 2022;

(B) $26,625,000 for fiscal year 2023;

(C) $28,356,000 for fiscal year 2024;

(D) $30,199,000 for fiscal year 2025; and

(E) $32,162,000 for fiscal year 2026;

(4) to the Environmental Protection Agency—

(A) $10,000,000 for fiscal year 2022;

(B) $10,650,000 for fiscal year 2023;

(C) $11,342,000 for fiscal year 2024;

(D) $12,079,000 for fiscal year 2025; and

(E) $12,865,000 for fiscal year 2026; and

(5) to the National Oceanic and Atmospheric Administration—

(A) $10,000,000 for fiscal year 2022;

(B) $10,650,000 for fiscal year 2023;

(C) $11,342,000 for fiscal year 2024;

(D) $12,079,000 for fiscal year 2025; and

(E) $12,865,000 for fiscal year 2026.

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