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111TH CONGRESS
1ST SESSION

# H. R. 1580

To authorize the Administrator of the Environmental Protection Agency to award grants for electronic waste reduction research, development, and demonstration projects, and for other purposes.

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IN THE HOUSE OF REPRESENTATIVES

MARCH 18, 2009

Mr. GORDON of Tennessee (for himself, Mr. THOMPSON of California, Mr. BAIRD, Mr. CARNAHAN, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. WU, and Mr. LUJÁN) introduced the following bill; which was referred to the Committee on Science and Technology

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# A BILL

To authorize the Administrator of the Environmental Protection Agency to award grants for electronic waste reduction research, development, and demonstration projects, 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 ''Electronic Waste Research and Development Act''.

**SEC. 2. FINDINGS.**

Congress finds the following:

(1) The volume of obsolete, broken, stored, or discarded electronic devices, known as electronic waste, is substantial and will continue to grow. The Environmental Protection Agency estimates that over 2 billion computers, televisions, cell phones, printers, gaming systems, and other devices have been sold since 1980, generating 2 million tons of unwanted electronic devices in 2005 alone.

(2) Electronic waste can be refurbished or recycled to recover and conserve valuable materials, such as gold, copper, and platinum. However, according to the Environmental Protection Agency, only 15 to 20 percent of household generated electronic waste reaches recyclers.

(3) The electronic waste recycling industry in the United States is growing; however, challenges remain for the recycling of electronic waste generated by households and other small generators. Collection of the electronic waste is expensive, and separation and proper disposal of some of the materials recovered, like lead from cathode-ray tube televisions, is costly.

(4) The export of electronic waste to developing countries also presents a serious challenge. The crude methods of many of the recycling operations

in these countries can expose workers to harmful chemicals, jeopardizing their health and polluting the environment.

(5) Some of the challenges to increasing the volume of electronic waste that is recycled can be addressed by improving the logistics and technology of the collection and recycling process, designing electronic devices to avoid the use of hazardous materials and to be more easily recycled, and encouraging the use of recycled materials in more applications.

(6) The public currently does not take full advantage of existing electronic waste recycling opportunities. Studying factors that influence behavior and educating consumers about electronic waste could help communities and private industry develop recycling programs that draw more participation.

(7) The development of tools and technologies to increase the lifespan of electronic devices and to promote their safe re-use would decrease the impact of the production and disposal of electronic devices on the environment.

(8) Accurately assessing the environmental impacts of the production of electronic devices and the recycling of electronic waste is a complex task. Data,

tools, and methods to better quantify these impacts would help policymakers and others determine the best end-of-life management options for electronic devices.

**SEC. 3. ELECTRONIC WASTE ENGINEERING RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROJECTS.**

(a) IN GENERAL.—The Administrator shall award multiyear grants to consortia to conduct research to create innovative and practical approaches to reduce the volume and manage the environmental impacts of electronic waste and, through the conduct of this research, to contribute to the professional development of scientists, engineers, and technicians in the fields of electronic device manufacturing, design, refurbishing, and recycling. The grants awarded under this section shall support research to—

(1) increase the efficiency of and improve electronic waste collection and recycling;

(2) expand the uses and applications for materials recovered from electronic waste;

(3) develop and demonstrate environmentally friendly alternatives to the use of hazardous and potentially hazardous materials in electronic devices and the production of such devices;

(4) develop methods to identify, separate, and remove hazardous and potentially hazardous materials from electronic waste and to re-use, recycle, or dispose of such materials in a safe manner;

(5) reconsider product design and assembly to facilitate and improve refurbishment, re-use, and recycling of electronic devices;

(6) conduct lifecycle analyses of electronic devices, including developing tools and methods to assess the environmental impacts of the production, use, and end-of-life management of electronic devices and electronic device components;

(7) develop product design, tools, and techniques to extend the lifecycle of electronic devices, including methods to promote their upgrade and safe re-use; and

(8) develop strategies to increase awareness, consumer acceptance, and the practice of responsible recycling and re-use for electronic waste.

(b) MERIT REVIEW; COMPETITION.—Grants shall be awarded under this section on a merit-reviewed, competitive basis.

(c) APPLICATIONS.—A consortium shall submit an application for a grant under this section to the Administrator at such time, in such manner, and containing such

information and assurances as the Administrator may require. The application shall include a description of—

(1) the research project that will be undertaken by the consortium and the contributions of each of the participating entities, including the for-profit entity;

(2) the applicability of the project to reduce electronic waste in the electronic device design, manufacturing, refurbishing, or recycling industries;

(3) the potential for and feasibility of incorporating the research results into industry practice; and

(4) how the project will promote collaboration among scientists and engineers from different disciplines, such as electrical engineering, materials science, and social science.

(d) DISSEMINATION OF RESEARCH RESULTS.—Research results shall be made publicly available through—

(1) development of best practices or training materials for use in the electronics manufacturing, design, refurbishing, or recycling industries;

(2) dissemination at conferences affiliated with such industries;

(3) demonstration projects; and

(4) educational materials for the public produced in conjunction with State governments, local governments, or nonprofit organizations on problems and solutions related to electronic waste.

(e) FUNDING CONTRIBUTION FROM FOR-PROFIT MEMBER OF CONSORTIUM.—The for-profit entity participating in the consortium shall contribute at least 10 percent of the total research project cost, either directly or with in-kind contributions.

(f) BIENNIAL REPORT.—Within 2 years after the date of enactment of this Act, and every 2 years thereafter, the Administrator shall transmit a report to Congress that provides a list of the grants awarded under this section, the entities participating in each consortium receiving a grant, a description of the research projects carried out in whole or in part with funds made available under such grant, and the results of such projects.

(g) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator to carry out this section:

(1) $18,000,000 for fiscal year 2010.

(2) $20,000,000 for fiscal year 2011.

(3) $22,000,000 for fiscal year 2012.

**SEC. 4. NATIONAL ACADEMY OF SCIENCES REPORT ON ELECTRONIC WASTE.**

(a) IN GENERAL.—In order to better recognize gaps and opportunities in the research and training programs established in this Act, the Administrator shall enter into an arrangement with the National Academy of Sciences for a report, to be transmitted to Congress not later than 1 year after the date of enactment of this Act, on—

(1) opportunities for and barriers to—

(A) reducing the volume of electronic waste, specifically addressing—

(i) recycling or safe disposal of electronic waste and low value materials recovered from such waste;

(ii) designing electronic devices to facilitate re-use and recycling; and

(iii) the re-use of electronic devices; and

(B) making electronic devices safer and more environmentally friendly, specifically addressing reducing the use of hazardous materials and potentially hazardous materials in electronic devices;

(2) the risks posed by disposal of electronic waste; and

(3) the current status of research and training programs to promote the environmental design of electronic devices to reduce electronic waste.

(b) RECOMMENDATIONS.—The report under subsection (a) shall identify gaps in the current research and training programs in addressing the opportunities, barriers, and risks relating to electronic waste, and the report shall recommend areas where additional research and development resources are needed to reduce the impact of electronic waste on the environment.

**SEC. 5. ENGINEERING CURRICULUM DEVELOPMENT GRANTS.**

(a) GRANT PROGRAM.—The Administrator, in consultation with the National Science Foundation, shall award grants to institutions of higher education to develop curricula that incorporates the principles of environmental design into the development of electronic devices—

(1) for the training of electrical, mechanical, industrial, manufacturing, materials, and software engineers and other students at the undergraduate and graduate level; and

(2) to support the continuing education of professionals in the electronic device manufacturing, design, refurbishing, or recycling industries.

(b) ELIGIBLE ENTITIES.—The term ''institution of higher education'', as such term is used with respect to eligibility to receive a grant under subsection (a)(2), includes any institution of higher education under section 101(b) of the Higher Education Act of 1965 (20 U.S.C. 1001(b)).

(c) MERIT REVIEW; COMPETITION.—Grants shall be awarded under this section on a merit-reviewed, competitive basis.

(d) USE OF FUNDS.—Grants awarded under this section shall be used for activities that enhance the ability of an institution of higher education to broaden the undergraduate and graduate-level engineering curriculum or professional continuing education curriculum to include environmental engineering design principles and consideration of product life cycles related to electronic devices and the reduction of electronic waste. Activities may include—

(1) developing and revising curriculum to include multidisciplinary elements;

(2) creating research and internship opportunities for students through partnerships with industry, nonprofit organizations, or government agencies;

(3) creating and establishing certificate programs; and

(4) developing curricula for short courses and continuing education for professionals in the environmental design of electronic devices to reduce electronic waste.

(e) APPLICATION.—An institution of higher education seeking a grant under this section shall submit an application to the Administrator at such time, in such manner, and with such information and assurances as the Administrator may require.

(f) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator to carry out this section:

(1) $5,000,000 for fiscal year 2010.

(2) $5,150,000 for fiscal year 2011.

(3) $5,304,000 for fiscal year 2012.

**SEC. 6. ENVIRONMENTALLY FRIENDLY ALTERNATIVE MATERIALS PHYSICAL PROPERTY DATABASE.**

(a) IN GENERAL.—The Director shall establish an initiative to develop a comprehensive physical property database for environmentally friendly alternative materials for use in electronic devices.

(b) PRIORITIES.—The Director, working with the electronic device design, manufacturing, or recycling industries, shall develop a strategic plan to establish prior-

ities and the physical property characterization requirements for the database described in subsection (a).

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator to carry out this section:

(1) $3,000,000 for fiscal year 2010.

(2) $3,000,000 for fiscal year 2011.

(3) $3,000,000 for fiscal year 2012.

**SEC. 7. DEFINITIONS.**

For the purposes of this Act:

(1) ADMINISTRATOR.—The term ''Administrator'' means the Administrator of the Environmental Protection Agency.

(2) CONSORTIUM.—The term ''consortium'' means a grant applicant or recipient under section 3(a) that includes—

(A) at least one institution of higher education, nonprofit research institution, or government laboratory; and

(B) at least one for-profit entity, including a manufacturer, designer, refurbisher, or recycler of electronic devices or the components of such devices.

(3) DIRECTOR.—The term ''Director'' means the Director of the National Institute of Standards and Technology.

(4) ELECTRONIC WASTE.—The term ''electronic waste'' means obsolete, broken, stored, or discarded electronic devices, including computers, computer monitors, televisions, laptops, printers, cellular phones, copiers, fax machines, stereos, video gaming systems, and the components of such devices.

(5) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given such term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

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