Calendar No. 351

111TH CONGRESS
2D SESSION

S. 1397

[Report No. 111–168]

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

IN THE SENATE OF THE UNITED STATES

JULY 6, 2009

Ms. KLOBUCHAR (for herself, Mrs. GILLIBRAND, Ms. COLLINS, Mr. DURBIN, Ms. LANDRIEU, Mr. MERKLEY, and Mrs. FEINSTEIN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

APRIL 19, 2010

Reported by Mr. REID (for Mrs. BOXER), with an amendment

[Strike out all after the enacting clause and insert the part printed in italic]

A BILL

To authorize the Administrator of the Environmental Protection Agency to award grants for electronic device recycling 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 Device Recycling Research and Development Act''.

SEC. 2. FINDINGS.

Congress finds the following:

(1) The volume of electronic devices in the United States is substantial and will continue to grow. The Environmental Protection Agency estimates that over 2 billion computers, televisions, wireless devices, printers, gaming systems, and other devices have been sold since 1980, generating 2 million tons of unwanted electronic devices in 2005 alone.

(2) Electronic devices can be recycled or refurbished 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 electronic devices discarded from households reach recyclers.

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

(4) The export of unwanted electronic devices 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 recyclability of electronic devices 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 device recycling opportunities. Studying factors that influence behavior and educating consumers about responsible electronic device recycling 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 reuse would decrease the impact of the production of electronic devices on the envi-

ronment and likely increase the recyclability of such devices.

(8) Accurately assessing the environmental impacts of the production of electronic devices and the recycling of such devices 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 DEVICE 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 manage the environmental impacts of electronic devices 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 device collection and recycling;

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

(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 devices and to reuse, recycle, or dispose of such materials in a safe manner;

(5) reconsider product design and assembly to facilitate and improve refurbishment, reuse, and recycling of electronic devices, including an emphasis on design for recycling;

(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 reuse; and

(8) identify the social, behavioral, and economic barriers to recycling and reuse for electronic devices and develop strategies to increase awareness, con-

sumer acceptance, and the practice of responsible recycling and reuse for such devices.

(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 impediments to electronic device recycling 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 electronic device manufacturing, design, refurbishing, or recycling industries;

(2) dissemination at conferences affiliated with such industries;

(3) publication on the Environmental Protection Agency's Web site;

(4) demonstration projects; or

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

(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) PROTECTION OF PROPRIETARY INFORMATION.—The Administrator—

(1) shall not disclose any proprietary information or trade secrets provided by any person or entity pursuant to this section;

(2) shall ensure that, as a condition of receipt of a grant under this section, each member of the consortium has in place proper protections to maintain proprietary information or trade secrets contributed by other members of the consortium; and

(3) if any member of the consortium breaches the conditions under paragraph (2) or discloses proprietary information or trade secrets, may require the return of any funds received under this section by such member.

(g) 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—

(1) a list of the grants awarded under this section;

(2) the entities participating in each consortium receiving a grant;

(3) a description of the research projects carried out in whole or in part with funds made available under such a grant;

(4) the results of such research projects; and

(5) a description of the rate and success of the adoption or integration of such research results into

the manufacturing processes, management practices, and products of the electronics industry.

(h) 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 DEVICE RECYCLING.

(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) increasing the recyclability of electronic devices, specifically addressing—

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

(ii) designing electronic devices to facilitate reuse and recycling; and

(iii) the reuse 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 environmental and human health risks posed by the storage, transport, recycling, and disposal of unwanted electronic devices;

(3) the current status of research and training programs to promote the environmental design of electronic devices to increase the recyclability of such devices; and

(4) any regulatory or statutory barriers that may prevent the adoption or implementation of best management practices or technological innovations that may arise from the research and training programs established in this Act.

(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 device recycling, and the report shall recommend areas where additional research and development resources are needed to reduce

the impact of unwanted electronic devices on the environment.

SEC. 5. ENGINEERING CURRICULUM DEVELOPMENT GRANTS.

(a) GRANT PROGRAM.—The Administrator, in consultation with the Director of 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) OUTREACH TO MINORITY SERVING INSTITUTIONS.—The Administrator shall conduct outreach to mi-

nority serving institutions for the purposes of providing information on the grants available under this section and how to apply for such grants.

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

(e) 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 lifecycles related to electronic devices and increasing the recyclability of such devices. 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 envi-

ronmental design of electronic devices to increase the recyclability of such devices.

(f) 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.

(g) 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 priorities 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 DEVICE.—The term "electronic device" may include computers, computer monitors, televisions, laptops, printers, wireless devices, 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)).~~

~~(6) MINORITY SERVING INSTITUTION.—The term "minority serving institution" means an institution that is an eligible institution under section 371(a) of the Higher Education Act of 1965 (20 U.S.C. 1067q(a)).~~

SECTION 1. SHORT TITLE.

This Act may be cited as the "Electronic Device Recycling Research and Development Act".

SEC. 2. FINDINGS.

Congress finds that—

(1) the volume of electronic devices in the United States is substantial and will continue to increase;

(2) the Environmental Protection Agency estimates that more than 2,000,000,000 computers, televisions, wireless devices, printers, gaming systems, and other devices have been sold since 1980, gener-

ating 2,000,000 tons of unwanted electronic devices in 2005 alone;

(3) electronic devices can be recycled or refurbished to recover and conserve valuable materials, such as gold, copper, and platinum, but, according to the Environmental Protection Agency, only 15 to 20 percent of electronic devices discarded from households reach recyclers;

(4) the electronic device recycling industry in the United States is growing, but challenges remain for the recycling of electronic devices by households and other small generators;

(5) collection of those electronic devices is expensive, and separation and proper recycling of some of the materials recovered, such as lead from cathode-ray tube televisions, is costly;

(6) the export of unwanted electronic devices to developing countries also presents a serious challenge;

(7) the crude methods of many of the recycling operations in those countries can expose workers to harmful chemicals, jeopardizing the health of the workers and polluting the environment;

(8) some of the challenges to increasing the recyclability of electronic devices can be addressed by—

(A) improving the logistics and technology of the collection and recycling process;

(B) designing electronic devices to avoid the use of hazardous materials and to be more easily recycled; and

(C) encouraging the use of recycled materials in more applications;

(9) the public currently does not take full advantage of existing electronic device recycling opportunities;

(10) studying factors that influence behavior and educating consumers about responsible electronic device recycling could help communities and private industry develop recycling programs that draw more participation;

(11) the development of tools and technologies to increase the lifespan of electronic devices and to promote the safe reuse of those devices would decrease the impact of the production of electronic devices on the environment and likely increase the recyclability of those devices;

(12) accurately assessing the environmental impacts of the production of electronic devices and the recycling of those devices is a complex task; and

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

SEC. 3. DEFINITIONS.

In this Act:

(1) ACADEMY.—The term "Academy" means the National Academy of Sciences.

(2) ADMINISTRATOR.—The term "Administrator" means the Administrator of the Environmental Protection Agency.

(3) CONSORTIUM.—The term "consortium" means a grant applicant or recipient under section 4(a) that includes—

(A) at least 1 institution of higher education, nonprofit research institution, or government laboratory; and

(B) at least 1 for-profit entity, including a manufacturer, designer, refurbisher, or recycler of electronic devices or the components of those devices.

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

(5) ELECTRONIC DEVICE.—The term "electronic device" includes computers, computer monitors, televisions, laptops, printers, wireless devices, copiers, fax machines, stereos, video gaming systems, and the components of those devices.

(6) INSTITUTION OF HIGHER EDUCATION.—The term "institution of higher education"—

(A) has the meaning given the term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)); and

(B) for the purpose of section 7(a)(2), includes any institution of higher education under section 101(b) of that Act (20 U.S.C. 1001(b)).

(7) MINORITY SERVING INSTITUTION.—The term "minority serving institution" means an institution that is an eligible institution under section 371(a) of the Higher Education Act of 1965 (20 U.S.C. 1067q(a)).

SEC. 4. ELECTRONIC DEVICE ENGINEERING RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROJECTS GRANT PROGRAM.

(a) GRANT PROGRAM.—

(1) IN GENERAL.—The Administrator shall provide multiyear grants to consortia—

(A) to conduct research to create innovative and practical approaches to manage the environmental impacts of electronic devices; and

(B) through the conduct of that research, to contribute to the professional development of scientists, engineers, and technicians in the fields of electronic device manufacturing, design, refurbishing, and recycling.

(2) TYPES OF RESEARCH.—The grants provided under this section shall support research—

(A) to provide data and information on—

(i) effects, human exposures, environmental releases, and recycling and disposal processes; and

(ii) changes to manufacturing and other processes, such as refurbishing and recycling, to reduce—

(I) adverse human health and environmental impacts; and

(II) the volume of unwanted electronic devices;

(B) to increase the efficiency of and improve electronic device collection and recycling;

(C) to expand the uses and applications for materials recovered from electronic devices;

(D) to develop and demonstrate environmentally preferable alternatives to the use of toxic, hazardous, potentially hazardous, or scarce materials in electronic devices and the production of those devices;

(E) to develop methods to identify, separate, and remove hazardous and potentially hazardous materials from electronic devices and to reuse, recycle, or dispose of those materials in a safe manner;

(F) to modify product design and assembly to facilitate and improve refurbishment, reuse, and recycling of electronic devices, including an emphasis on design for recycling;

(G) to 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;

(H) to develop product design, tools, and techniques to extend the lifecycle of electronic devices, including methods to promote the upgrade and safe reuse of those devices;

(I) to identify the social, behavioral, and economic barriers to recycling and reuse for electronic devices and develop strategies to increase awareness, consumer acceptance, and the practice of responsible recycling and reuse for those devices;

(J) to characterize environmental releases from electronic device recycling processes, including—

(i) evaluating dermal or inhalation exposure to dusts or fumes from shredding, disassembly, or thermal processes; and

(ii) investigating appropriate control or mitigation processes;

(K) to assess exposure risks, and develop control and strategies to mitigate contaminant releases, from disposal of electronic devices and recycling residuals, such as landfill leachate, smelter emissions, and smelter residues that pose human health and environmental risks;

(L) to evaluate alternative materials and management processes that would reduce toxics use, extend product life, and enhance recycling of electronic devices over disposal;

(M) to quantify the environmental benefits of making the purchase, use, and end-of-life management of electronic devices more environmentally preferable, including improved designs to enhance the reuse and recyclability of new electronic devices through research on materials and life cycle impacts;

(N) to characterize the flow of unwanted electronic devices in global commerce, including identifying—

(i) specific hazardous materials and the products that contain the materials; and

(ii) the ultimate destinations of those materials through reuse, disposal, or incorporation in new products;

(O) to develop methods to discourage exports to countries with unsafe recycling practices of recyclable materials from electronic devices that could be processed into usable commodities in the United States or in North America, including identifying—

(i) what kind of additional, specialized capacity is needed;

(ii) existing barriers to the development of that capacity; and

(iii) options for overcoming those barriers;

(P) to assess—

(i) current recovery rates for precious and critical metals in various processing regimes, such as manual disassembly, shredding of whole or partially dismantled electronic devices, and smelting; and

(ii) how to optimize the recovery of precious metals and critical metals in the recycling of discarded electronic devices;

(Q) to track quantities of specific elements and substances used in electronic devices over time; and

(R) to determine current and predicted quantities and types of electronic devices used, stored, generated, collected for recycling, exported, and disposed to quantify and analyze the flow of electronic devices from the point of sale to the end of life of the devices.

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

(c) APPLICATIONS.—

(1) IN GENERAL.—To be eligible to receive a grant under this section, a consortium shall submit an application for the grant to the Administrator at such time, in such manner, and containing such information and assurances as the Administrator may require.

(2) REQUIREMENTS.—The application shall include a description of—

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

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

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

(D) 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) publication on the website of the Environmental Protection Agency;

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

(3) the dissemination at conferences affiliated with those industries;

(4) demonstration projects; or

(5) educational materials for the public produced in conjunction with State governments, local governments, or nonprofit organizations on problems and solutions relating to electronic device recycling and reuse.

(e) FUNDING CONTRIBUTION FROM FOR-PROFIT MEMBER OF CONSORTIUM.—To be eligible for a grant under this section, the for-profit entity participating in the consortium shall contribute at least 10 percent of the total research project cost, either directly or through the provision of in-kind contributions.

(f) PROTECTION OF PROPRIETARY INFORMATION.—The Administrator—

(1) shall not disclose any proprietary information or trade secrets provided by any person or entity pursuant to this section;

(2) shall ensure that, as a condition of receipt of a grant under this section, each member of the consortium has in place proper protections to maintain proprietary information or trade secrets contributed by other members of the consortium; and

(3) if any member of the consortium breaches the conditions under paragraph (2) or discloses proprietary information or trade secrets, may require the return of any funds received under this section by the member.

(g) BIENNIAL REPORT.—Not later than 2 years after the date of enactment of this Act and every 2 years thereafter until Congress does not provide funds to carry out this Act, the Administrator shall submit to Congress a report that provides—

(1) a list of the grants provided under this section;

(2) a list of the entities participating in each consortium receiving a grant;

(3) a description of the research projects carried out in whole or in part with funds made available under such a grant;

(4) the results of those research projects; and

(5) a description of the rate and success of the adoption or integration of such research results into

the manufacturing processes, management practices, and products of the electronics industry.

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

(1) $18,000,000 for fiscal year 2011;

(2) $20,000,000 for fiscal year 2012; and

(3) $22,000,000 for fiscal year 2013.

SEC. 5. ELECTRONIC DEVICE ENGINEERING RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROJECTS OF ENVIRONMENTAL PROTECTION AGENCY.

(a) IN GENERAL.—The Administrator, through an applied research program of the Office of Research and Development of the Environmental Protection Agency, shall conduct research for the purposes described in and on the topics listed in section 4(a).

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator to carry out this section $10,000,000 for each of fiscal years 2011 through 2013.

SEC. 6. NATIONAL ACADEMY OF SCIENCES REPORT ON ELECTRONIC DEVICE RECYCLING.

(a) IN GENERAL.—In order to better identify gaps and opportunities in the research and training programs estab-

lished under this Act, the Administrator shall enter into an arrangement with the Academy under which the Academy shall, not later than 1 year after the date of enactment of this Act, complete and submit to Congress a report on—

(1) opportunities for and barriers to—

(A) increasing the recyclability of electronic devices, specifically addressing—

(i) recycling or safe disposal of electronic devices and low-value materials recovered from those devices;

(ii) designing electronic devices to facilitate reuse and recycling; and

(iii) the reuse of electronic devices; and

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

(2) the environmental and human health risks posed by the storage, transport, recycling, and disposal of unwanted electronic devices;

(3) the current status of research and training programs to promote the environmental design of electronic devices to increase the recyclability of those devices;

(4) any regulatory or statutory barriers that may prevent the adoption or implementation of best management practices or technological innovations that may arise from the research and training programs established under this Act; and

(5) the direct and indirect economic and domestic employment impacts associated with recycling and harvesting materials from unwanted electronic devices in lieu of the disposal of those devices directly in landfills.

(b) RECOMMENDATIONS.—The report under subsection (a) shall—

(1) identify gaps in the research and training programs in addressing the opportunities, barriers, and risks relating to electronic device recycling; and

(2) recommend areas in which additional research and development resources are needed to reduce the impact of unwanted electronic devices on the environment.

SEC. 7. ENGINEERING CURRICULUM DEVELOPMENT GRANTS.

(a) GRANT PROGRAM.—The Administrator, in consultation with the Director of the National Science Foundation, shall provide grants to institutions of higher education to develop curricula that incorporates the principles of envi-

ronmental 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 levels; and

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

(b) OUTREACH TO MINORITY SERVING INSTITUTIONS.—The Administrator shall conduct outreach to minority serving institutions for the purposes of providing information on—

(1) the grants available under this section; and

(2) the application process for those grants.

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

(d) USE OF FUNDS.—

(1) IN GENERAL.—Grants provided 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—

(A) to include environmental engineering design principles and consideration of product lifecycles relating to electronic devices; and

(B) to increase the recyclability of those devices.

(2) INCLUDED ACTIVITIES.—Activities carried out using funds from a grant may include—

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

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

(C) creating and establishing certificate programs; and

(D) developing curricula for short courses and continuing education for professionals in the environmental design of electronic devices to increase the recyclability of those devices.

(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 2011;

(2) $5,150,000 for fiscal year 2012; and

(3) $5,304,000 for fiscal year 2013.

SEC. 8. ENVIRONMENTALLY PREFERABLE ALTERNATIVE MATERIALS PHYSICAL PROPERTY DATABASE.

(a) ESTABLISHMENT.—

(1) IN GENERAL.—The Director shall develop a comprehensive physical property database for environmentally preferable alternative materials, design features, and manufacturing practices for use in electronic devices.

(2) CONSULTATION.—In developing the database under this section, the Director shall consult with the Administrator regarding the environmental preferability of the materials, design features, and manufacturing processes to be contained in the database.

(b) PRIORITIES.—The Director, working with the electronic device design, manufacturing, or recycling industries, shall develop a strategic plan to establish priorities and the physical property characterization requirements for the database described in subsection (a).

(c) OTHER MATTERS.—The Director may expand the database to include information on the environmental impacts of various materials, design features, and manufacturing practices used in electronic devices from a lifecycle standpoint.

(d) ANNUAL UPDATES.—The Director shall update the database not less than annually.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director to carry out this section—

(1) $3,000,000 for fiscal year 2011;

(2) $3,000,000 for fiscal year 2012; and

(3) $3,000,000 for fiscal year 2013.

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Reported with an amendment