

Union Calendar No. 32

111TH CONGRESS
1ST SESSION

H. R. 1580

[Report No. 111-75]

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.

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

APRIL 21, 2009

Additional sponsors: Mr. TONKO, Mr. GEORGE MILLER of California, Ms. WOOLSEY, Mr. SESTAK, Mrs. BIGGERT, Mr. EHLERS, Mr. MCMAHON, Mr. GRIFFITH, Mrs. DAHLKEMPER, Ms. EDWARDS of Maryland, Mr. BLUMENAUER, and Ms. BORDALLO

APRIL 21, 2009

Reported with amendments, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed

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

[For text of introduced bill, see copy of bill as introduced on March 18, 2009]

A BILL

To authorize the Administrator of the Environmental Protection Agency to award grants for electronic waste reduc-

tion research, development, and demonstration projects,
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 “Electronic Device Recy-*
5 *cling Research and Development Act”.*

6 **SEC. 2. FINDINGS.**

7 *Congress finds the following:*

8 (1) *The volume of electronic devices in the*
9 *United States is substantial and will continue to*
10 *grow. The Environmental Protection Agency esti-*
11 *mates that over 2 billion computers, televisions, wire-*
12 *less devices, printers, gaming systems, and other de-*
13 *vices have been sold since 1980, generating 2 million*
14 *tons of unwanted electronic devices in 2005 alone.*

15 (2) *Electronic devices can be refurbished or recy-*
16 *clered to recover and conserve valuable materials, such*
17 *as gold, copper, and platinum. However, according to*
18 *the Environmental Protection Agency, only 15 to 20*
19 *percent of household generated electronic devices reach*
20 *recyclers.*

21 (3) *The electronic device recycling industry in*
22 *the United States is growing; however, challenges re-*
23 *main for the recycling of electronic devices generated*
24 *by households and other small generators. Collection*

1 of the electronic devices is expensive, and separation
2 and proper recycling of some of the materials recov-
3 ered, like lead from cathode-ray tube televisions, is
4 costly.

5 (4) The export of electronic devices to developing
6 countries also presents a serious challenge. The crude
7 methods of many of the recycling operations in these
8 countries can expose workers to harmful chemicals,
9 jeopardizing their health and polluting the environ-
10 ment.

11 (5) Some of the challenges to increasing the
12 recyclability of electronic devices can be addressed by
13 improving the logistics and technology of the collec-
14 tion and recycling process, designing electronic de-
15 vices to avoid the use of hazardous materials and to
16 be more easily recycled, and encouraging the use of
17 recycled materials in more applications.

18 (6) The public currently does not take full ad-
19 vantage of existing electronic device recycling oppor-
20 tunities. Studying factors that influence behavior and
21 educating consumers about responsible electronic recy-
22 cling could help communities and private industry
23 develop recycling programs that draw more participa-
24 tion.

1 (7) *The development of tools and technologies to*
2 *increase the lifespan of electronic devices and to pro-*
3 *mote their safe re-use would decrease the impact of the*
4 *production of electronic devices on the environment*
5 *and likely increase the recyclability of such devices.*

6 (8) *Accurately assessing the environmental im-*
7 *pacts of the production of electronic devices and the*
8 *recycling of such devices is a complex task. Data,*
9 *tools, and methods to better quantify these impacts*
10 *would help policymakers and others determine the*
11 *best end-of-life management options for electronic de-*
12 *vices.*

13 **SEC. 3. ELECTRONIC DEVICE ENGINEERING RESEARCH, DE-**
14 **VELOPMENT, AND DEMONSTRATION**
15 **PROJECTS.**

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

1 (1) *increase the efficiency of and improve elec-*
2 *tronic device collection and recycling;*

3 (2) *expand the uses and applications for mate-*
4 *rials recovered from electronic devices;*

5 (3) *develop and demonstrate environmentally*
6 *friendly alternatives to the use of hazardous and po-*
7 *tentially hazardous materials in electronic devices*
8 *and the production of such devices;*

9 (4) *develop methods to identify, separate, and re-*
10 *move hazardous and potentially hazardous materials*
11 *from electronic devices and to re-use, recycle, or dis-*
12 *pose of such materials in a safe manner;*

13 (5) *reconsider product design and assembly to fa-*
14 *cilitate and improve refurbishment, re-use, and recy-*
15 *cling of electronic devices, including an emphasis on*
16 *design for recycling;*

17 (6) *conduct lifecycle analyses of electronic de-*
18 *vices, including developing tools and methods to assess*
19 *the environmental impacts of the production, use, and*
20 *end-of-life management of electronic devices and elec-*
21 *tronic device components;*

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

1 (8) *identify the social, behavioral, and economic*
2 *barriers to recycling and re-use for electronic devices*
3 *and develop strategies to increase awareness, con-*
4 *sumer acceptance, and the practice of responsible re-*
5 *ycling and re-use for such devices.*

6 (b) *MERIT REVIEW; COMPETITION.*—*Grants shall be*
7 *awarded under this section on a merit-reviewed, competi-*
8 *tive basis.*

9 (c) *APPLICATIONS.*—*A consortium shall submit an ap-*
10 *plication for a grant under this section to the Adminis-*
11 *trator at such time, in such manner, and containing such*
12 *information and assurances as the Administrator may re-*
13 *quire. The application shall include a description of—*

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

17 (2) *the applicability of the project to reduce im-*
18 *pediments to electronic recycling in the electronic de-*
19 *vice design, manufacturing, refurbishing, or recycling*
20 *industries;*

21 (3) *the potential for and feasibility of incor-*
22 *porating the research results into industry practice;*
23 *and*

24 (4) *how the project will promote collaboration*
25 *among scientists and engineers from different dis-*

1 *ciplines, such as electrical engineering, materials*
2 *science, and social science.*

3 *(d) DISSEMINATION OF RESEARCH RESULTS.—Re-*
4 *search results shall be made publicly available through—*

5 *(1) development of best practices or training ma-*
6 *terials for use in the electronics manufacturing, de-*
7 *sign, refurbishing, or recycling industries;*

8 *(2) dissemination at conferences affiliated with*
9 *such industries;*

10 *(3) publication on the Environmental Protection*
11 *Agency’s website;*

12 *(4) demonstration projects; or*

13 *(5) educational materials for the public produced*
14 *in conjunction with State governments, local govern-*
15 *ments, or nonprofit organizations on problems and*
16 *solutions related to electronic waste.*

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

22 *(f) PROTECTION OF PROPRIETARY INFORMATION.—*
23 *The Administrator—*

1 (1) shall not disclose any proprietary informa-
2 tion or trade secrets provided by any person or entity
3 pursuant to this section;

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

9 (3) if any member of the consortium breaches the
10 conditions under paragraph (2) or discloses propri-
11 etary information or trade secrets, may require the
12 return of any funds received under this section by
13 such member.

14 (g) *BIENNIAL REPORT*.—Within 2 years after the date
15 of enactment of this Act, and every 2 years thereafter, the
16 Administrator shall transmit a report to Congress that pro-
17 vides—

18 (1) a list of the grants awarded under this sec-
19 tion;

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

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

25 (4) the results of such research projects; and

1 (5) a description of the rate and success of the
2 adoption or integration of such research results into
3 the manufacturing processes, management practices,
4 and products of the electronics industry.

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

8 (1) \$18,000,000 for fiscal year 2010.

9 (2) \$20,000,000 for fiscal year 2011.

10 (3) \$22,000,000 for fiscal year 2012.

11 **SEC. 4. NATIONAL ACADEMY OF SCIENCES REPORT ON**
12 **ELECTRONIC DEVICE RECYCLING.**

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

19 (1) opportunities for and barriers to—

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

22 (i) recycling or safe disposal of elec-
23 tronic devices and low value materials re-
24 covered from such devices;

1 (ii) *designing electronic devices to fa-*
2 *cilitate re-use and recycling; and*

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

5 (B) *making electronic devices safer and*
6 *more environmentally friendly, specifically ad-*
7 *dresssing reducing the use of hazardous materials*
8 *and potentially hazardous materials in electronic*
9 *devices;*

10 (2) *the environmental and human health risks*
11 *posed by the storage, transport, recycling, and dis-*
12 *posal of electronic devices;*

13 (3) *the current status of research and training*
14 *programs to promote the environmental design of elec-*
15 *tronic devices to increase the recyclability of such de-*
16 *vices; and*

17 (4) *any regulatory or statutory barriers that*
18 *may prevent the adoption or implementation of best*
19 *management practices or technological innovations*
20 *that may arise from the research and training pro-*
21 *grams established in this Act.*

22 (b) *RECOMMENDATIONS.*—*The report under subsection*
23 *(a) shall identify gaps in the current research and training*
24 *programs in addressing the opportunities, barriers, and*
25 *risks relating to electronic device recycling, and the report*

1 *shall recommend areas where additional research and devel-*
2 *opment resources are needed to reduce the impact of elec-*
3 *tronic devices on the environment.*

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

6 (a) *GRANT PROGRAM.*—*The Administrator, in con-*
7 *sultation with the Director of the National Science Founda-*
8 *tion, shall award grants to institutions of higher education*
9 *to develop curricula that incorporates the principles of envi-*
10 *ronmental design into the development of electronic de-*
11 *vices—*

12 (1) *for the training of electrical, mechanical, in-*
13 *dustrial, manufacturing, materials, and software en-*
14 *gineers and other students at the undergraduate and*
15 *graduate level; and*

16 (2) *to support the continuing education of pro-*
17 *fessionals in the electronic device manufacturing, de-*
18 *sign, refurbishing, or recycling industries.*

19 (b) *ELIGIBLE ENTITIES.*—*The term “institution of*
20 *higher education”, as such term is used with respect to eligi-*
21 *bility to receive a grant under subsection (a)(2), includes*
22 *any institution of higher education under section 101(b) of*
23 *the Higher Education Act of 1965 (20 U.S.C. 1001(b)).*

24 (c) *OUTREACH TO MINORITY SERVING INSTITU-*
25 *TIONS.*—*The Administrator shall conduct outreach to mi-*

1 *nority serving institutions for the purposes of providing in-*
2 *formation on the grants available under this section and*
3 *how to apply for such grants.*

4 (d) *MERIT REVIEW; COMPETITION.*—Grants shall be
5 awarded under this section on a merit-reviewed, competi-
6 tive basis.

7 (e) *USE OF FUNDS.*—Grants awarded under this sec-
8 tion shall be used for activities that enhance the ability of
9 an institution of higher education to broaden the under-
10 graduate and graduate-level engineering curriculum or pro-
11 fessional continuing education curriculum to include envi-
12 ronmental engineering design principles and consideration
13 of product life cycles related to electronic devices and in-
14 creasing the recyclability of such devices. Activities may in-
15 clude—

16 (1) *developing and revising curriculum to in-*
17 *clude multidisciplinary elements;*

18 (2) *creating research and internship opportuni-*
19 *ties for students through partnerships with industry,*
20 *nonprofit organizations, or government agencies;*

21 (3) *creating and establishing certificate pro-*
22 *grams; and*

23 (4) *developing curricula for short courses and*
24 *continuing education for professionals in the environ-*

1 *mental design of electronic devices to increase the*
2 *recyclability of such devices.*

3 *(f) APPLICATION.—An institution of higher education*
4 *seeking a grant under this section shall submit an applica-*
5 *tion to the Administrator at such time, in such manner,*
6 *and with such information and assurances as the Adminis-*
7 *trator may require.*

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

11 *(1) \$5,000,000 for fiscal year 2010.*

12 *(2) \$5,150,000 for fiscal year 2011.*

13 *(3) \$5,304,000 for fiscal year 2012.*

14 **SEC. 6. ENVIRONMENTALLY FRIENDLY ALTERNATIVE MATE-**
15 **RIALS PHYSICAL PROPERTY DATABASE.**

16 *(a) IN GENERAL.—The Director shall establish an ini-*
17 *tiative to develop a comprehensive physical property data-*
18 *base for environmentally friendly alternative materials for*
19 *use in electronic devices.*

20 *(b) PRIORITIES.—The Director, working with the elec-*
21 *tronic device design, manufacturing, or recycling indus-*
22 *tries, shall develop a strategic plan to establish priorities*
23 *and the physical property characterization requirements for*
24 *the database described in subsection (a).*

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

4 (1) *\$3,000,000 for fiscal year 2010.*

5 (2) *\$3,000,000 for fiscal year 2011.*

6 (3) *\$3,000,000 for fiscal year 2012.*

7 **SEC. 7. DEFINITIONS.**

8 *For the purposes of this Act:*

9 (1) *ADMINISTRATOR.*—*The term “Adminis-*
10 *trator” means the Administrator of the Environ-*
11 *mental Protection Agency.*

12 (2) *CONSORTIUM.*—*The term “consortium”*
13 *means a grant applicant or recipient under section*
14 *3(a) that includes—*

15 (A) *at least one institution of higher edu-*
16 *cation, nonprofit research institution, or govern-*
17 *ment laboratory; and*

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

22 (3) *DIRECTOR.*—*The term “Director” means the*
23 *Director of the National Institute of Standards and*
24 *Technology.*

1 (4) *ELECTRONIC DEVICE*.—The term “*electronic*
2 *device*” may include computers, computer monitors,
3 televisions, laptops, printers, wireless devices, copiers,
4 fax machines, stereos, video gaming systems, and the
5 components of such devices.

6 (5) *INSTITUTION OF HIGHER EDUCATION*.—The
7 term “*institution of higher education*” has the mean-
8 ing given such term in section 101(a) of the *Higher*
9 *Education Act of 1965 (20 U.S.C. 1001(a))*.

10 (6) *MINORITY SERVING INSTITUTION*.—The term
11 “*minority serving institution*” means an institution
12 that is an eligible institution under section 371(a) of
13 the *Higher Education Act of 1965 (20 U.S.C.*
14 *1067q(a))*.

Amend the title so as to read: “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.”.

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A BILL

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