

SIXTEENTH CONGRESS OF THE REPUBLIC)
OF THE PHILIPPINES)
Third Regular Session)



Senate
Office of the Secretary

'16 JAN 25 P5:13

SENATE
S. No. 3116

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Introduced by Senator Miriam Defensor Santiago

AN ACT
PROVIDING GRANTS FOR ELECTRONIC DEVICE RECYCLING RESEARCH,
DEVELOPMENT, AND DEMONSTRATION PROJECTS

EXPLANATORY NOTE

The Constitution, Article 14, Section 10, provides:

Science and technology are essential for national development and progress. The State shall give priority to research and development, invention, innovation, and their utilization; and to science and technology education, training, and services. It shall support indigenous, appropriate, and self-reliant scientific and technological capabilities, and their application to the country's productive systems and national life.

Technological advancements have grown significantly over the years. Many electronic devices can reportedly cause serious environmental damage due to their toxic components.

Electronics that are in need of disposal are referred to as e-waste, or electronic waste. There has been a growing concern about the hazards of electronic waste. Some of these concerns include improper disposal of toxic materials, health and safety concerns for people involved in the disposal of these items, as well as dangers to the soil and water supply.

Electronic devices are made using substances such as lead, cadmium, aluminum, zinc, copper, and plastics which can all leak poisonous material in the ground and water. These environmental concerns have resulted in the establishment of electronic recycling facilities and industries abroad which take old electronics, such as computers for the

purpose of recycling and safe disposal. Disposing of electronics through a recycling company will result in fewer electronic devices going into landfills.

Hence, this bill seeks to authorize the Secretary of Environment and Natural Resources to award grants for electronic device recycling research, development and demonstration projects.¹


MIRIAM DEFENSOR SANTIAGO
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¹ This bill was originally filed during the Fourteenth Congress, Second Regular Session.



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Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

1 SECTION 1. *Short Title.* – This Act shall be known as the “Electronic Device
2 Recycling Research and Development Act.”

3 SECTION 2. *Definition of Terms.* – For the purposes of this Act, the term:

4 A. “Consortium” refers to a grant applicant or recipient that includes the
5 following:

6 1. At least one institution of higher education, non-profit research institution,
7 or government laboratory; and

8 2. At least one for-profit, including a manufacturer, designer, refurbisher, or
9 recycler of electronic devices or the components of such devices.

10 B. “Electronic device” includes computer monitors, televisions, laptops, printers,
11 wireless devices, copiers, fax machines, stereos, video gaming systems, and the
12 components of such devices.

13 C. “Secretary” refers to the Secretary of the Department of Environment and
14 Natural Resources.

1 SECTION 3. *Electronic Device Engineering Research, Development, and*
2 *Demonstration Projects.* –

3 A. *In General.* – The Secretary shall award multiyear grants to consortia to
4 conduct research to create innovative and practical approaches to manage the
5 environmental impacts of electronic devices and through the conduct of this research, to
6 contribute to the professional development of scientists, engineers, and technicians in the
7 fields of electronic device manufacturing, design, refurbishing, and recycling. The grants
8 awarded shall support research to –

- 9 1. Increase the efficiency of and improve electronic device collection and
10 recycling;
- 11 2. Expand the uses and applications for materials recovered from electronic
12 device;
- 13 3. Develop and demonstrate environmentally friendly alternatives to the use
14 of hazardous and potentially hazardous materials in electronic devices and
15 the production of such devices;
- 16 4. Develop methods to identify, separate, and remove hazardous and
17 potentially hazardous materials from electronic devices and to reuse,
18 recycle, or dispose of such materials in a safe manner;
- 19 5. Reconsider product design and assembly to facilitate and improve
20 refurbishment, reuse, and recycling of electronic devices, including an
21 emphasis on design for recycling;
- 22 6. Conduct lifecycle analyses of electronic devices, including developing tools
23 and methods to assess the environmental impacts of the production, use,
24 and end-of-life management of electronic devices and electronic device
25 components;

1 7. Develop product design, tools, and techniques to extend the lifecycle of
2 electronic devices, including methods to promote their upgrade and safe
3 reuse; and

4 8. Identify the social, behavioral, and economic barriers to recycling and reuse
5 for electronic devices and develop strategies to increase awareness,
6 consumer acceptance, and the practice of responsible recycling and reuse
7 for such devices.

8 **B. Merit Review; Competition.** – Grants shall be awarded under this Section on a
9 merit-reviewed, competitive basis.

10 **C. Application.** – A consortium shall submit an application for a grant under this
11 Section to the Secretary at such time, in such manner, and containing such information
12 and assurances as the Secretary may require. The application shall include a description
13 of:

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

17 2. The applicability of the project to reduce impediments to electronic device
18 recycling in the electronic device design, manufacturing, refurbishing, or
19 recycling industries;

20 3. The potential for and feasibility of incorporating the research results into
21 industry practice; and

22 4. How the project will promote collaboration among scientists and engineers
23 from different disciplines, such as electrical engineering, materials science,
24 and social science.

25 **D. Dissemination of Research Results.** – Research results shall be made publicly
26 available through:

- 1 1. Development of best practices or training materials for use in the electronic
2 device manufacturing, design, refurbishing, or recycling industries;
- 3 2. Dissemination at conferences affiliated with such industries;
- 4 3. Publication on the Department of Environment and Natural Resources'
5 official website;
- 6 4. Demonstration projects; or
- 7 5. Educational materials for the public produced in conjunction with national
8 governments, local governments, or nonprofit organizations on problems
9 and solutions related to electronic device recycling and reuse.

10 **E. Funding Contribution from For-Profit Member of Consortium.** – The for-profit
11 entity participating in the consortium shall contribute at least 10 percent of the total
12 research project cost, either directly or with in-kind contributions.

13 **F. Protection of Proprietary Information.** – The Secretary:

- 14 1. Shall not disclose any proprietary information or trade secrets provided by
15 any person or entity pursuant to this section;
- 16 2. Shall ensure that, as a condition of receipt of a grant under this Section,
17 each member of the consortium has in place proper protections to maintain
18 proprietary information or trade secrets contributed by other members or
19 the consortium; and
- 20 3. If any member of the consortium breaches the conditions under paragraph
21 (2) or discloses proprietary information or trade secrets, may require the
22 return of any funds received under this section by such member.

23 **G. Biennial Report.** – Within two years after the date of enactment of this Act, and
24 every two years thereafter, the Secretary shall transmit a report to Congress that provides:

- 25 1. A list of the grants awarded under this Section;
- 26 2. The entities participating in each consortium receiving a grant;

- 1 3. A description of the research projects carried out in whole or in part with
- 2 funds made available under such a grant;
- 3 4. The results of such research projects; and
- 4 5. A description of the rate and success of the adoption or integration of such
- 5 research results into the manufacturing processes, management practices,
- 6 and products of the electronics industry.

7 **SECTION 4. *Engineering Curriculum Development Grants.* –**

8 **A. *In General.* –** The Secretary shall award grants to institutions of higher
9 education to develop curricula that incorporates the principles of environmental design
10 into the development of electronic devices:

- 11 1. For the training of electrical, mechanical, industrial, manufacturing,
- 12 materials, and software engineers and other students at the undergraduate
- 13 and graduate level; and
- 14 2. To support the continuing education of professionals in the electronic
- 15 device manufacturing, design, refurbishing, or recycling industries.

16 **B. *Merit Review; Competition.* –** Grants shall be awarded under this Section on a
17 merit-reviewed, competitive basis.

18 **C. *Use of Funds.* –** Grants awarded under this Section shall be used for activities
19 that enhance the ability of an institution of higher education to broaden the undergraduate
20 and graduate-level engineering curriculum or professional continuing education
21 curriculum to include environmental engineering design principles and consideration of
22 product lifecycles related to electronic devices and increasing the recyclability of such
23 devices. Activities may include:

- 24 1. Developing and revising curriculum to include multidisciplinary elements;

- 1 2. Creating research and internship opportunities for students through
- 2 partnerships with industry, nonprofit organizations, or government
- 3 agencies;
- 4 3. Creating and establishing certificate programs; and
- 5 4. Developing curricula for short courses and continuing education for
- 6 professionals in the environmental design of electronic devices to increase
- 7 the recyclability of such devices.

8 **D. Application.** – An institution of higher education seeking a grant under this
9 Section shall submit an application to the Secretary at such time, in such manner, and
10 with such information and assurances as the Secretary may require.

11 **SECTION 5. Appropriations.** – The funds needed for the initial implementation of
12 this Act shall be charged against the appropriations of the Department of Environment
13 and Natural Resources. Thereafter, such amount as may be necessary for its full
14 implementation shall be included in the annual General Appropriations Act as a distinct
15 and separate item.

16 **SECTION 6. Separability Clause.** – If any provision of this Act is held invalid or
17 unconstitutional, the same shall not affect the validity and effectivity of the other
18 provisions hereof.

19 **SECTION 7. Repealing Clause.** – All laws, decrees, orders, and issuances, or
20 portions thereof, which are inconsistent with the provisions of this Act, are hereby
21 repealed, amended or modified accordingly.

22 **SECTION 8. Effectivity Clause.** – This Act shall take effect fifteen (15) days after
23 its publication in the *Official Gazette* or in two (2) newspapers of general circulation.

Approved,

/lml3Dec2015