

114TH CONGRESS
1ST SESSION

S. 1447

To provide for the implementation of a Sustainable Chemistry Program,
and for other purposes.

IN THE SENATE OF THE UNITED STATES

MAY 21, 2015

Mr. COONS (for himself and Ms. COLLINS) introduced the following bill; which
was read twice and referred to the Committee on Commerce, Science, and
Transportation

A BILL

To provide for the implementation of a Sustainable
Chemistry Program, 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 “Sustainable Chemistry
5 Research and Development Act of 2015”.

6 **SEC. 2. DEFINITIONS.**

7 In this Act—

8 (1) **ADVISORY COUNCIL.**—The term “Advisory
9 Council” means the advisory council established
10 under section 3(d).

1 (2) INTERAGENCY WORKING GROUP.—The term
2 “Interagency Working Group” means the inter-
3 agency working group established under section 3(c).

4 (3) PROGRAM.—The term “Program” means
5 the Sustainable Chemistry Program described in sec-
6 tion 3.

7 (4) SUSTAINABLE CHEMISTRY.—The term
8 “sustainable chemistry” means the design, develop-
9 ment, demonstration, and commercialization of high-
10 quality chemicals and materials, chemical processes
11 and products, and engineering and manufacturing
12 processes that eliminate or reduce chemical risks to
13 benefit human health and the environment across
14 the chemical lifecycle, to the highest extent prac-
15 ticable, through—

16 (A) increasing the use of more sustainable,
17 renewable, or recycled substances and mate-
18 rials;

19 (B) increasing the use of substitutes for
20 rare substances;

21 (C) promoting safe and more efficient
22 manufacturing;

23 (D) minimizing or eliminating lifecycle im-
24 pacts, including environmental and health im-
25 pacts;

(E) optimizing product design and encouraging the reduction of waste and the reuse or recycling of chemicals and materials and design for the end of life or the final disposition of the product; or

(F) increasing the design and use of safe molecules, chemicals, materials, chemistries, and chemical processes.

9 SEC. 3. SUSTAINABLE CHEMISTRY PROGRAM.

10 (a) IN GENERAL.—The President shall establish an
11 interagency Sustainable Chemistry Program to promote
12 and coordinate Federal sustainable chemistry research,
13 development, demonstration, technology transfer, commercialization, education, and training activities.

15 (b) PROGRAM ACTIVITIES.—The activities of the Program shall be designed to—

17 (1) provide sustained support for sustainable
18 chemistry research, development, demonstration,
19 technology transfer, commercialization, education,
20 and training through—

21 (A) merit-based competitive grants to individual investigators and teams of investigators,
22 including, to the extent practicable, young investigators, for research and development;

1 (B) grants to fund collaborative research
2 and development partnerships among univer-
3 sities, industry, and nonprofit organizations;

4 (C) grants, loans, and loan guarantees to
5 aid in the technology transfer and commer-
6 cialization of sustainable chemicals, materials,
7 processes, and products;

8 (D) incentive prize competitions and chal-
9 lenges;

10 (E) coordination of sustainable chemistry
11 research, development, demonstration, and tech-
12 nology transfer conducted at Federal labora-
13 tories and agencies; and

14 (F) to the extent practicable, encourage-
15 ment of consideration of sustainable chemistry
16 in, as appropriate—

17 (i) the conduct of Federal and State
18 science and engineering research and de-
19 velopment; and

20 (ii) the solicitation and evaluation of
21 applicable proposals for science and engi-
22 neering research and development;

23 (2) examine methods by which the Federal Gov-
24 ernment can create incentives for consideration and

1 use of sustainable chemistry processes and products,
2 including innovative financing mechanisms;

3 (3) facilitate the adoption of sustainable chem-
4 istry innovations and methods;

5 (4) expand the education and training of under-
6 graduate and graduate students and professional sci-
7 entists and engineers, including through partner-
8 ships with industry, in sustainable chemistry science
9 and engineering;

10 (5) collect and disseminate information on sus-
11 tainable chemistry research, development, and tech-
12 nology transfer including information on—

13 (A) incentives and impediments to develop-
14 ment, manufacturing, and commercialization;

15 (B) accomplishments;

16 (C) best practices; and

17 (D) costs and benefits;

18 (6) support (including through technical assist-
19 ance, participation, financial support, or other forms
20 of support) venues for outreach and dissemination of
21 sustainable chemistry advances such as symposia, fo-
22 rums, conferences, and written materials in collabo-
23 ration with, as appropriate, industry, academia, sci-
24 entific and professional societies, and other relevant
25 groups;

1 (7) support (including through technical assist-
2 ance, participation, financial support, or other forms
3 of support) economic, legal, and other appropriate
4 social science research to identify barriers to com-
5 mercialization and methods to advance commer-
6 cialization of sustainable chemistry;

7 (8) provide for public input and outreach to be
8 integrated into the Program by the convening of
9 public discussions, through mechanisms such as pub-
10 lic meetings, consensus conferences, and educational
11 events, as appropriate; and

12 (9) develop metrics to track the outputs and
13 outcomes of the Program.

14 (c) INTERAGENCY WORKING GROUP.—

15 (1) ESTABLISHMENT.—Not later than 180 days
16 after the date of enactment of this Act, the Presi-
17 dent, in consultation with the Office of Science and
18 Technology Policy, shall establish an Interagency
19 Working Group that shall include representatives
20 from the National Science Foundation, the National
21 Institute of Standards and Technology, the Depart-
22 ment of Energy, the Environmental Protection
23 Agency, the Department of Agriculture, the Depart-
24 ment of Defense, the National Institutes of Health,
25 and any other agency that the President may des-

1 ignite to oversee the planning, management, and co-
2 ordination of the Program.

3 (2) GOVERNANCE.—The Director of the Na-
4 tional Science Foundation and the Assistant Admin-
5 istrator for Research and Development of the Envi-
6 ronmental Protection Agency, or their designees,
7 shall serve as co-chairs of the Interagency Working
8 Group.

9 (3) RESPONSIBILITIES.—In overseeing the
10 planning, management, and coordination of the Pro-
11 gram, the Interagency Working Group shall—

12 (A) establish goals and priorities for the
13 Program, in consultation with the Advisory
14 Council;

15 (B) provide for interagency coordination,
16 including budget coordination, of activities
17 under the Program;

18 (C) meet not later than 90 days from its
19 establishment and periodically thereafter; and

20 (D) consult with the Advisory Council on a
21 regular basis.

22 (d) ADVISORY COUNCIL.—

23 (1) ESTABLISHMENT.—Not later than 180 days
24 after the date of the establishment of the Inter-
25 agency Working Group, the co-chairs of the Inter-

1 agency Working Group shall establish an Advisory
2 Council on Sustainable Chemistry that shall make
3 recommendations to the Interagency Working Group
4 and provide it with ongoing advice and assistance.

5 (2) MEMBERSHIP.—The Advisory Council mem-
6 bers shall not be employees of the Federal Govern-
7 ment and shall include a diverse representation of
8 knowledgeable individuals from the private sector
9 (including small- and medium-sized enterprises from
10 across the value chain), academia, State and tribal
11 governments, and nongovernmental organizations
12 and others who are in a position to provide exper-
13 tise. Once a year the public may petition the co-
14 chairs of the Interagency Working Group to take
15 into consideration the nomination of an individual to
16 serve on the Advisory Council.

17 (3) CONFLICT OF INTEREST.—

18 (A) IN GENERAL.—The Interagency Work-
19 ing Group shall make its best efforts to ensure
20 that—

21 (i) no individual appointed to serve on
22 the Advisory Council has a conflict of in-
23 terest that is relevant to the functions to
24 be performed, unless such conflict is
25 promptly and publicly disclosed and the

1 Interagency Working Group determines
2 that the conflict is unavoidable;

3 (ii) the Advisory Council membership
4 is fairly balanced as determined by the
5 Interagency Working Group to be appro-
6 priate for the functions to be performed;

7 (iii) any products of the Interagency
8 Working Group will be the result of the
9 Interagency Working Group's independent
10 judgment; and

11 (iv) the meetings and proceedings of
12 the Advisory Council be open and available
13 to the public.

14 (B) NOTIFICATION OF CONFLICTS.—The
15 Interagency Working Group shall require that
16 individuals nominated or appointed to serve on
17 the Advisory Council inform the Interagency
18 Working Group of any conflicts of interest that
19 are relevant to the functions to be performed.

20 (C) FACA APPLICABILITY.—All pro-
21 ceedings and meetings of the Advisory Council
22 shall be subject to the Federal Advisory Com-
23 mittee Act (5 U.S.C. App.).

24 (4) GOVERNANCE.—The co-chairs of the Inter-
25 agency Working Group—

1 (A) may appoint new members of the Advi-
2 sory Council as needed; and

3 (B) shall appoint the original Chair to
4 serve a term of 1 year.

5 (5) APPOINTMENT OF CHAIR.—The Advisory
6 Council shall appoint a Chair from among the mem-
7 bers of the Advisory Council after the term of the
8 original Chair appointed under paragraph (3)(B) ex-
9 pires.

10 (e) AGENCY BUDGET REQUESTS.—

11 (1) IN GENERAL.—Each Federal agency and
12 department participating in the Program shall, as
13 part of its annual request for appropriations to the
14 Office of Management and Budget, submit a report
15 to the Office of Management and Budget that—

16 (A) identifies the activities of the agency or
17 department that contribute directly to the Pro-
18 gram; and

19 (B) states the portion of the agency or de-
20 partment's request for appropriations that is al-
21 located to those activities.

22 (2) ANNUAL BUDGET REQUEST TO CON-
23 GRESS.—The President shall include in the annual
24 budget request to Congress a statement of the por-
25 tion of the annual budget request for each agency or

1 department that will be allocated to activities under-
2 taken pursuant to the Program.

3 (f) REPORT TO CONGRESS.—

4 (1) IN GENERAL.—Not later than 2 years after
5 the date of enactment of this Act, the Interagency
6 Working Group shall submit a report to the Com-
7 mittee on Science, Space, and Technology and Com-
8 mittee on Energy and Commerce of the House of
9 Representatives and the Committee on Environment
10 and Public Works and the Committee on Commerce,
11 Science, and Transportation of the Senate that shall
12 include—

13 (A) a summary of federally funded sustain-
14 able chemistry research, development, dem-
15 onstration, technology transfer, commercializa-
16 tion, education, and training activities;

17 (B) a summary of the financial resources
18 allocated to sustainable chemistry initiatives;

19 (C) an analysis of the progress made to-
20 ward achieving the goals and priorities of this
21 Act, and recommendations for future program
22 activities;

23 (D) an assessment of the benefits of ex-
24 panding existing, federally supported regional
25 innovation and manufacturing hubs to include

1 sustainable chemistry and the value of directing
2 the creation of one or more dedicated sustain-
3 able chemistry centers of excellence or hubs;
4 and

5 (E) an evaluation of steps taken and fu-
6 ture strategies to avoid duplication of efforts,
7 streamline interagency coordination, facilitate
8 information sharing, and spread best practices
9 between participating agencies in the Program.

10 (2) SUBMISSION TO GAO.—The Interagency
11 Working Group shall also submit the report de-
12 scribed in paragraph (1) to the Government Ac-
13 countability Office for consideration in future Con-
14 gressional inquiries.

15 **SEC. 4. PARTNERSHIPS IN SUSTAINABLE CHEMISTRY.**

16 (a) AUTHORIZATION.—The Interagency Working
17 Group shall lead the agencies participating in the Program
18 to carry out a joint, coordinated program to award grants
19 to institutions of higher education to establish partner-
20 ships with companies across the value chain in the chem-
21 ical industry, including small- and medium-sized enter-
22 prises, to—

23 (1) create collaborative research, development,
24 demonstration, technology transfer, and commer-
25 cialization programs; and

1 (2) train students and retrain professional sci-
2 entists and engineers in the use of sustainable chem-
3 istry concepts and strategies by methods including—

4 (A) developing curricular materials and
5 courses for undergraduate and graduate levels
6 and for the professional development of sci-
7 entists and engineers; and

8 (B) publicizing the availability of profes-
9 sional development courses in sustainable chem-
10 istry and recruiting scientists and engineers to
11 pursue such courses.

12 (b) GUIDELINES.—The Interagency Working Group
13 shall establish guidelines and criteria for—

14 (1) a partnership between a company in the
15 chemical industry and an institution of higher edu-
16 cation eligible for a grant under subsection (a); and

17 (2) the grant application and awarding process,
18 which shall include—

19 (A) competitive, merit-based review of each
20 grant application; and

21 (B) cost-sharing from non-Federal sources
22 by members of the partnerships.

1 **SEC. 5. STUDY OF SUSTAINABLE CHEMISTRY.**

2 The Director of the National Science Foundation
3 shall enter into an arrangement with the National Re-
4 search Council to conduct a study that shall—

5 (1) assess the current status of sustainable
6 chemistry research in the United States, and suggest
7 high-priority research and development needs within
8 sustainable chemistry;

9 (2) examine the status of sustainable chemistry
10 in the education of chemists and chemical engineers
11 and other relevant professions and identify rec-
12 ommendations to improve and broaden the imple-
13 mentation of sustainable chemistry practices in
14 science and engineering education, including exam-
15 ining the role of toxicology, chemical hazard and risk
16 assessment, lifecycle assessment, and environmental
17 fate and effects in science and engineering edu-
18 cation;

19 (3) examine case studies of successful and un-
20 successful attempts at commercialization and adop-
21 tion of sustainable chemistry processes and products
22 in the United States and abroad and recommend re-
23 search areas, priorities, and public policy options
24 that would help to overcome identified barriers to
25 commercialization; and

1 (4) using available economic analyses, discuss
2 the potential economic impact of sustainable chem-
3 istry, including job creation.

4 **SEC. 6. NATIONAL STRATEGY AND IMPLEMENTATION PLAN.**

5 Not later than 2 years after the release of the study
6 described in section 5, the Interagency Working Group,
7 in consultation with the Advisory Council, shall produce
8 a national strategy and accompanying implementation
9 plan for sustainable chemistry that provides a framework
10 for advancing sustainable chemistry research, develop-
11 ment, technology transfer, commercialization, and edu-
12 cation and training.

13 **SEC. 7. PRIORITIZATION.**

14 In carrying out this Act, the Interagency Working
15 Group shall prioritize support for activities that achieve,
16 to the highest extent practicable, the goals of sustainable
17 chemistry.

18 **SEC. 8. RULE OF CONSTRUCTION.**

19 Nothing in this Act shall be construed to alter or
20 amend any State law or action with regard to sustainable
21 chemistry or green chemistry, as defined by the State.

○