

113TH CONGRESS  
2D SESSION

# S. 2879

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

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IN THE SENATE OF THE UNITED STATES

SEPTEMBER 18, 2014

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

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## 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 2014”.

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(e).

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 manufacturing processes that  
12          eliminate or reduce chemical risks to benefit human  
13          health and the environment across the chemical  
14          lifecycle, to the highest extent practicable, through—

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

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

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

22                 (D) minimizing lifecycle impacts, including  
23                 environmental and health impacts;

24                 (E) optimizing product design and encour-  
25                 aging the reduction of waste and the reuse or

1 recycling of chemicals and materials to account  
2 for the end of life or the final disposition of the  
3 product; or

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

7 **SEC. 3. SUSTAINABLE CHEMISTRY PROGRAM.**

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

13 (b) PROGRAM ACTIVITIES.—The activities of the Pro-  
14 gram shall be designed to—

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

19 (A) merit-based competitive grants to indi-  
20 vidual investigators and teams of investigators,  
21 including, to the extent practicable, young in-  
22 vestigators, for research and development;

23 (B) grants to fund collaborative research  
24 and development partnerships among univer-  
25 sities, industry, and nonprofit organizations;

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

5 (D) incentive prize competitions and chal-  
6 lenges;

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

11 (F) to the extent practicable, encourage-  
12 ment of consideration of sustainable chemistry  
13 in, as appropriate—

14 (i) the conduct of Federal and State  
15 science and engineering research and de-  
16 velopment; and

17 (ii) the solicitation and evaluation of  
18 applicable proposals for science and engi-  
19 neering research and development;

20 (2) examine methods by which the Federal Gov-  
21 ernment can create incentives for consideration and  
22 use of sustainable chemistry processes and products,  
23 including innovative financing mechanisms;

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

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

6           (5) collect and disseminate information on sus-  
7 tainable chemistry research, development, and tech-  
8 nology transfer including information on—

9                   (A) incentives and impediments to develop-  
10 ment, manufacturing, and commercialization;

11                   (B) accomplishments;

12                   (C) best practices; and

13                   (D) costs and benefits;

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

22           (7) support (including through technical assist-  
23 ance, participation, financial support, or other forms  
24 of support) economic, legal, and other appropriate  
25 social science research to identify barriers to com-

1       mercialization and methods to advance commer-  
2       cialization of sustainable chemistry;

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

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

10       (c) INTERAGENCY WORKING GROUP.—

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

24               (2) GOVERNANCE.—The Director of the Na-  
25       tional Science Foundation and the Assistant Admin-

1        administrator for Research and Development of the Envi-  
2        ronmental Protection Agency, or their designees,  
3        shall serve as co-chairs of the Interagency Working  
4        Group.

5            (3) RESPONSIBILITIES.—In overseeing the  
6        planning, management, and coordination of the Pro-  
7        gram, the Interagency Working Group shall—

8            (A) establish goals and priorities for the  
9        Program, in consultation with the Advisory  
10       Council;

11          (B) provide for interagency coordination,  
12       including budget coordination, of activities  
13       under the Program;

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

16          (D) consult with the Advisory Council on a  
17       regular basis.

18        (d) ADVISORY COUNCIL.—

19            (1) ESTABLISHMENT.—Not later than 180 days  
20       after the date of the establishment of the Inter-  
21       agency Working Group, the co-chairs of the Inter-  
22       agency Working Group shall establish an Advisory  
23       Council on Sustainable Chemistry that shall make  
24       recommendations to the Interagency Working Group  
25       and provide it with ongoing advice and assistance.

1           (2) MEMBERSHIP.—The Advisory Council mem-  
2           bers shall not be employees of the Federal Govern-  
3           ment and shall include a diverse representation of  
4           knowledgeable individuals from the private sector  
5           (including small- and medium-sized enterprises from  
6           across the value chain), academia, State and tribal  
7           governments, and nongovernmental organizations  
8           and others who are in a position to provide exper-  
9           tise.

10           (3) CONFLICT OF INTEREST.—

11           (A) IN GENERAL.—The Interagency Work-  
12           ing Group shall make its best efforts to ensure  
13           that—

14                   (i) no individual appointed to serve on  
15                   the Advisory Council has a conflict of in-  
16                   terest that is relevant to the functions to  
17                   be performed, unless such conflict is  
18                   promptly and publicly disclosed and the  
19                   Interagency Working Group determines  
20                   that the conflict is unavoidable;

21                   (ii) the Advisory Council membership  
22                   is fairly balanced as determined by the  
23                   Interagency Working Group to be appro-  
24                   priate for the functions to be performed;

1 (iii) any products of the Interagency  
2 Working Group will be the result of the  
3 Interagency Working Group's independent  
4 judgment; and

5 (iv) the meetings and proceedings of  
6 the Advisory Council be open and available  
7 to the public.

8 (B) NOTIFICATION OF CONFLICTS.—The  
9 Interagency Working Group shall require that  
10 individuals nominated or appointed to serve on  
11 the Advisory Council inform the Interagency  
12 Working Group of any conflicts of interest that  
13 are relevant to the functions to be performed.

14 (C) FACA APPLICABILITY.—All pro-  
15 ceedings and meetings of the Advisory Council  
16 shall be subject to the Federal Advisory Com-  
17 mittee Act (5 U.S.C. App.).

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

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

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

24 (5) APPOINTMENT OF CHAIR.—The Advisory  
25 Council shall appoint a Chair from among the mem-

1       bers of the Advisory Council after the term of the  
2       original Chair appointed under paragraph (3)(B) ex-  
3       pires.

4       (e) AGENCY BUDGET REQUESTS.—

5             (1) IN GENERAL.—Each Federal agency and  
6       department participating in the Program shall, as  
7       part of its annual request for appropriations to the  
8       Office of Management and Budget, submit a report  
9       to the Office of Management and Budget that—

10            (A) identifies the activities of the agency or  
11       department that contribute directly to the Pro-  
12       gram; and

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

16             (2) ANNUAL BUDGET REQUEST TO CON-  
17       GRESS.—The President shall include in the annual  
18       budget request to Congress a statement of the por-  
19       tion of the annual budget request for each agency or  
20       department that will be allocated to activities under-  
21       taken pursuant to the Program.

22       (f) REPORT TO CONGRESS.—

23             (1) IN GENERAL.—Not later than 2 years after  
24       the date of enactment of this Act, the Interagency  
25       Working Group shall submit a report to the Com-

1        mittee on Science, Space, and Technology and the  
2        Committee on Energy and Commerce of the House  
3        of Representatives and the Committee on Environ-  
4        ment and Public Works and the Committee on Com-  
5        merce, Science, and Transportation of the Senate  
6        that shall include—

7                (A) a summary of federally funded sustain-  
8                able chemistry research, development, dem-  
9                onstration, technology transfer, commercializa-  
10              tion, education, and training activities;

11              (B) a summary of the financial resources  
12              allocated to sustainable chemistry initiatives;

13              (C) an analysis of the progress made to-  
14              ward achieving the goals and priorities of this  
15              Act, and recommendations for future program  
16              activities;

17              (D) an assessment of the benefits of ex-  
18              panding existing, federally supported regional  
19              innovation and manufacturing hubs to include  
20              sustainable chemistry and the value of directing  
21              the creation of one or more dedicated sustain-  
22              able chemistry centers of excellence or hubs;  
23              and

24              (E) an evaluation of steps taken and fu-  
25              ture strategies to avoid duplication of efforts,

1 streamline interagency coordination, facilitate  
2 information sharing, and spread best practices  
3 between participating agencies in the Program.

4 (2) SUBMISSION TO GAO.—The Interagency  
5 Working Group shall also submit the report de-  
6 scribed in paragraph (1) to the Government Ac-  
7 countability Office for consideration in future con-  
8 gressional inquiries.

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

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

17 (1) create collaborative research, development,  
18 demonstration, technology transfer, and commer-  
19 cialization programs; and

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

23 (A) developing curricular materials and  
24 courses for undergraduate and graduate levels

1 and for the professional development of sci-  
2 entists and engineers; and

3 (B) publicizing the availability of profes-  
4 sional development courses in sustainable chem-  
5 istry and recruiting scientists and engineers to  
6 pursue such courses.

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

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

12 (2) the grant application and awarding process,  
13 which shall include—

14 (A) competitive, merit-based review of each  
15 grant application; and

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

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

19 The Director of the National Science Foundation  
20 shall enter into an arrangement with the National Re-  
21 search Council to conduct a study that shall—

22 (1) assess the current status of sustainable  
23 chemistry research in the United States, and suggest  
24 high-priority research and development needs within  
25 sustainable chemistry;

1           (2) examine the status of sustainable chemistry  
2           in the education of chemists and chemical engineers  
3           and other relevant professions and identify rec-  
4           ommendations to improve and broaden the imple-  
5           mentation of sustainable chemistry practices in  
6           science and engineering education, including exam-  
7           ining the role of toxicology, chemical hazard and risk  
8           assessment, lifecycle assessment, and environmental  
9           fate and effects in science and engineering edu-  
10          cation;

11           (3) examine case studies of successful and un-  
12          successful attempts at commercialization and adop-  
13          tion of sustainable chemistry processes and products  
14          in the United States and abroad and recommend re-  
15          search areas, priorities, and public policy options  
16          that would help to overcome identified barriers to  
17          commercialization; and

18           (4) using available economic analyses, discuss  
19          the potential economic impact of sustainable chem-  
20          istry, including job creation.

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

22          Not later than 2 years after the release of the study  
23          described in section 5, the Interagency Working Group,  
24          in consultation with the Advisory Council, shall produce  
25          a national strategy and accompanying implementation

1 plan for sustainable chemistry that provides a framework  
2 for advancing sustainable chemistry research, develop-  
3 ment, technology transfer, commercialization, and edu-  
4 cation and training.

5 **SEC. 7. PRIORITIZATION.**

6 In carrying out this Act, the Interagency Working  
7 Group shall prioritize support for activities that achieve,  
8 to the highest extent practicable, the goals of sustainable  
9 chemistry.

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