

116TH CONGRESS  
1ST SESSION

# S. 999

To provide for Federal coordination of activities supporting sustainable chemistry, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

APRIL 3, 2019

Mr. COONS (for himself, Ms. COLLINS, Mrs. CAPITO, and Ms. KLOBUCHAR) 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 Federal coordination of activities supporting sustainable chemistry, 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 2019”.

6 **SEC. 2. FINDINGS.**

7 Congress finds that—

8 (1) Congress recognized the importance and  
9 value of sustainable chemistry and the role of the  
10 Federal Government in section 114 of the American

1 Innovation and Competitiveness Act (Public Law  
2 114–329);

3 (2) sustainable chemistry and materials trans-  
4 formation is a key value contributor to business  
5 competitiveness across many industrial and con-  
6 sumer sectors;

7 (3) companies across hundreds of supply chains  
8 critical to the American economy are seeking to re-  
9 duce costs and open new markets through innova-  
10 tions in manufacturing and materials, and are in  
11 need of new innovations in chemistry, including sus-  
12 tainable chemistry;

13 (4) sustainable chemistry can improve the effi-  
14 ciency with which natural resources are used to meet  
15 human needs for chemical products while avoiding  
16 environmental harm, reduce or eliminate the emis-  
17 sions of and exposures to hazardous substances,  
18 minimize the use of resources, and benefit the econ-  
19 omy, people, and the environment; and

20 (5) a recent report by the Government Account-  
21 ability Office (GAO–18–307) found that the Federal  
22 Government could play an important role in helping  
23 realize the full innovation and market potential of  
24 sustainable chemistry technologies, including  
25 through a coordinated national effort on sustainable

1 chemistry and standardized tools and definitions to  
2 support sustainable chemistry research, development,  
3 demonstration, and commercialization.

4 **SEC. 3. NATIONAL COORDINATING ENTITY FOR SUSTAIN-**  
5 **ABLE CHEMISTRY.**

6 (a) ESTABLISHMENT.—Not later than 180 days after  
7 the date of enactment of this Act, the Director of the Of-  
8 fice of Science and Technology Policy shall convene an  
9 interagency entity (referred to in this Act as the “Entity”)  
10 under the National Science and Technology Council with  
11 the responsibility to coordinate Federal programs and ac-  
12 tivities in support of sustainable chemistry, including  
13 those described in sections 5 and 6.

14 (b) COORDINATION WITH EXISTING GROUPS.—In  
15 convening the Entity, the Director of the Office of Science  
16 and Technology Policy shall consider overlap and possible  
17 coordination with existing committees, subcommittees, or  
18 other groups of the National Science and Technology  
19 Council, such as—

- 20 (1) the Committee on Environment, Natural  
21 Resources, and Sustainability;
- 22 (2) the Committee on Technology;
- 23 (3) the Committee on Science; or
- 24 (4) related groups or subcommittees.

1 (c) CO-CHAIRS.—The Entity shall be co-chaired by  
2 representatives from the Environmental Protection Agen-  
3 cy, the National Institute of Standards and Technology,  
4 and the National Science Foundation.

5 (d) AGENCY PARTICIPATION.—The Entity shall in-  
6 clude representatives, including subject matter experts,  
7 from the Environmental Protection Agency, the National  
8 Institute of Standards and Technology, the National  
9 Science Foundation, the Department of Energy, the De-  
10 partment of Agriculture, the Department of Defense, the  
11 National Institutes of Health, the Centers for Disease  
12 Control and Prevention, the Food and Drug Administra-  
13 tion, and other related Federal agencies, as appropriate.

14 **SEC. 4. ROADMAP FOR SUSTAINABLE CHEMISTRY.**

15 (a) ROADMAP.—Not later than 2 years after the date  
16 of enactment of this Act, the Entity shall—

17 (1) develop a working framework of attributes  
18 characterizing sustainable chemistry, as described in  
19 subsection (b);

20 (2) assess the state of sustainable chemistry in  
21 the United States as a key benchmark from which  
22 progress under the activities described in this Act  
23 can be measured, including assessing key sectors of  
24 the United States economy, key technology plat-  
25 forms, and barriers to innovation;

1           (3) coordinate and support Federal research,  
2           development, demonstration, technology transfer,  
3           commercialization, education, and training efforts in  
4           sustainable chemistry, including budget coordination  
5           and support for public-private partnerships, as ap-  
6           propriate;

7           (4) identify methods by which the Federal  
8           agencies can facilitate the development of incentives  
9           for development, consideration and use of sustain-  
10          able chemistry processes and products, including in-  
11          novative financing mechanisms;

12          (5) identify major scientific challenges, road-  
13          blocks, or hurdles to transformational progress in  
14          improving the sustainability of the chemical sciences;  
15          and

16          (6) identify other opportunities for expanding  
17          Federal efforts in support of sustainable chemistry.

18          (b) ATTRIBUTES CHARACTERIZING SUSTAINABLE  
19          CHEMISTRY.—The Entity shall develop a working frame-  
20          work of attributes characterizing sustainable chemistry for  
21          the purposes of carrying out the Act. In developing this  
22          framework, the Entity shall—

23                 (1) seek advice and input from stakeholders as  
24                 described in subsection (c);

1           (2) consider existing definitions of or frame-  
2 works characterizing sustainable or green chemistry  
3 already in use at Federal agencies;

4           (3) consider existing definitions of or frame-  
5 works characterizing sustainable or green chemistry  
6 already in use by international organizations of  
7 which the United States is a member, such as the  
8 Organisation for Economic Co-operation and Devel-  
9 opment; and

10          (4) consider any other appropriate existing defi-  
11 nitions of or frameworks characterizing sustainable  
12 or green chemistry.

13          (c) CONSULTATION.—In carrying out the duties de-  
14 scribed in subsections (a) and (b), the Entity shall consult  
15 and coordinate with stakeholders qualified to provide ad-  
16 vice and information to guide Federal activities related to  
17 sustainable chemistry through workshops, requests for in-  
18 formation, and other mechanisms as necessary. The stake-  
19 holders shall include representatives from—

20           (1) business and industry (including trade asso-  
21 ciations and small- and medium-sized enterprises  
22 from across the value chain);

23           (2) the scientific community (including the Na-  
24 tional Academies of Sciences, Engineering, and Med-  
25 icine, scientific professional societies, and academia);

1 (3) the defense community;

2 (4) State, tribal, and local governments, includ-  
3 ing nonregulatory State or regional sustainable  
4 chemistry programs, as appropriate;

5 (5) nongovernmental organizations; and

6 (6) other appropriate organizations.

7 (d) REPORT TO CONGRESS.—

8 (1) IN GENERAL.—Not later than 3 years after  
9 the date of enactment of this Act, the Entity shall  
10 submit a report to the Committee on Environment  
11 and Public Works, the Committee on Commerce,  
12 Science, and Transportation, and the Committee on  
13 Appropriations of the Senate, and the Committee on  
14 Science, Space, and Technology, the Committee on  
15 Energy and Commerce, and the Committee on Ap-  
16 propriations of the House of Representatives. In ad-  
17 dition to the elements described in subsections (a)  
18 and (b), the report shall include—

19 (A) a summary of federally funded, sus-  
20 tainable chemistry research, development, dem-  
21 onstration, technology transfer, commercializa-  
22 tion, education, and training activities;

23 (B) a summary of the financial resources  
24 allocated to sustainable chemistry initiatives;

1           (C) an assessment of the current state of  
2 sustainable chemistry in the United States, in-  
3 cluding the role that Federal agencies are play-  
4 ing in supporting it;

5           (D) an analysis of the progress made to-  
6 ward achieving the goals and priorities of this  
7 Act, and recommendations for future program  
8 activities;

9           (E) an assessment of the benefits of ex-  
10 panding existing, federally supported, regional  
11 innovation and manufacturing hubs to include  
12 sustainable chemistry and the value of directing  
13 the creation of 1 or more dedicated sustainable  
14 chemistry centers of excellence or hubs; and

15           (F) an evaluation of steps taken and fu-  
16 ture strategies to avoid duplication of efforts,  
17 streamline interagency coordination, facilitate  
18 information sharing, and spread best practices  
19 among participating agencies.

20           (2) SUBMISSION TO GAO.—The Entity shall  
21 also submit the report described in paragraph (1) to  
22 the Comptroller General of the United States for  
23 consideration in future Congressional inquiries.



1 **SEC. 5. AGENCY ACTIVITIES IN SUPPORT OF SUSTAINABLE**  
2 **CHEMISTRY.**

3 (a) IN GENERAL.—The agencies participating in the  
4 Entity shall carry out activities in support of sustainable  
5 chemistry, as appropriate to the specific mission and pro-  
6 grams of each agency.

7 (b) ACTIVITIES.—The activities described in sub-  
8 section (a) shall—

9 (1) incorporate sustainable chemistry into exist-  
10 ing research, development, demonstration, tech-  
11 nology transfer, commercialization, education, and  
12 training programs, that the agency determines to be  
13 relevant, including consideration of—

14 (A) merit-based competitive grants to indi-  
15 vidual investigators and teams of investigators,  
16 including, to the extent practicable, early career  
17 investigators for research and development;

18 (B) grants to fund collaborative research  
19 and development partnerships among univer-  
20 sities, industry, and nonprofit organizations;

21 (C) coordination of sustainable chemistry  
22 research, development, demonstration, and tech-  
23 nology transfer conducted at Federal labora-  
24 tories and agencies;

1 (D) incentive prize competitions and chal-  
2 lenges in coordination with such existing Fed-  
3 eral agency programs; and

4 (E) 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 (2) collect and disseminate information on sus-  
9 tainable chemistry research, development, technology  
10 transfer, and commercialization, including informa-  
11 tion on accomplishments and best practices;

12 (3) within education and training programs, ex-  
13 pand the education and training of undergraduate  
14 and graduate students and professional scientists  
15 and engineers, and other professionals involved in  
16 materials specification in sustainable chemistry and  
17 engineering, including through partnerships with in-  
18 dustry as described in section 6;

19 (4) as relevant to an agency's programs, exam-  
20 ine methods by which the Federal agencies, in col-  
21 laboration and consultation with the National Insti-  
22 tute of Standards and Technology, can facilitate the  
23 development or recognition of validated, standard-  
24 ized tools for performing sustainability assessments  
25 of chemistry processes or products;

1           (5) through programs identified by an agency,  
2           support (including through technical assistance, par-  
3           ticipation, financial support, communications tools,  
4           awards, or other forms of support) outreach and dis-  
5           semination of sustainable chemistry advances such  
6           as non-Federal symposia, forums, conferences, and  
7           publications in collaboration with, as appropriate, in-  
8           dustry, academia, scientific and professional soci-  
9           eties, and other relevant groups;

10           (6) provide for public input and outreach to be  
11           integrated into the activities described in this section  
12           by the convening of public discussions, through  
13           mechanisms such as public meetings, consensus con-  
14           ferences, and educational events, as appropriate;

15           (7) within each agency, develop metrics to track  
16           the outputs and outcomes of the programs supported  
17           by that agency; and

18           (8) incentivize or recognize actions that advance  
19           sustainable chemistry products, processes, or initia-  
20           tives, including through the establishment of a na-  
21           tionally recognized awards program through the En-  
22           vironmental Protection Agency to identify, publicize,  
23           and celebrate innovations in sustainable chemistry  
24           and chemical technologies.

1 (c) LIMITATIONS.—Financial support provided under  
2 this section shall—

3 (1) be available only for pre-competitive activi-  
4 ties; and

5 (2) not be used to promote the sale of a specific  
6 product, process, or technology, or to disparage a  
7 specific product, process, or technology.

8 (d) AGENCY BUDGET REQUESTS.—

9 (1) IN GENERAL.—Each Federal agency and  
10 department participating in the activities described  
11 in this section shall, as part of its annual request for  
12 appropriations to the Office of Management and  
13 Budget, submit a report to the Office of Manage-  
14 ment and Budget that—

15 (A) identifies the activities of the agency or  
16 department that contribute directly to these ac-  
17 tivities; and

18 (B) estimates the portion of the agency or  
19 department's request for appropriations that is  
20 intended to be allocated to those activities.

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

1 department that will be allocated to activities under-  
2 taken pursuant to this section.

3 **SEC. 6. PARTNERSHIPS IN SUSTAINABLE CHEMISTRY.**

4 (a) IN GENERAL.—The agencies participating in the  
5 Entity may facilitate and support, through financial, tech-  
6 nical, or other assistance, the creation of partnerships be-  
7 tween institutions of higher education, nongovernmental  
8 organizations, consortia, or companies across the value  
9 chain in the chemical industry, including small- and me-  
10 dium-sized enterprises, to—

11 (1) create collaborative sustainable chemistry  
12 research, development, demonstration, technology  
13 transfer, and commercialization programs; and

14 (2) train students and retrain professional sci-  
15 entists, engineers, and others involved in materials  
16 specification on the use of sustainable chemistry con-  
17 cepts and strategies by methods, including—

18 (A) developing or recognizing curricular  
19 materials and courses for undergraduate and  
20 graduate levels and for the professional develop-  
21 ment of scientists, engineers, and others in-  
22 volved in materials specification; and

23 (B) publicizing the availability of profes-  
24 sional development courses in sustainable chem-

1           istry and recruiting professionals to pursue  
2           such courses.

3           (b) PRIVATE SECTOR PARTICIPATION.—To be eligi-  
4 ble for support under this section, a partnership in sus-  
5 tainable chemistry shall include at least one private sector  
6 organization.

7           (c) SELECTION OF PARTNERSHIPS.—In selecting  
8 partnerships for support under this section, the agencies  
9 participating in the Entity shall also consider the extent  
10 to which the applicants are willing and able to dem-  
11 onstrate evidence of support for, and commitment to, the  
12 goals outlined in the roadmap and report described in sec-  
13 tion 4.

14          (d) PROHIBITED USE OF FUNDS.—Financial support  
15 provided under this section may not be used—

16           (1) to support or expand a regulatory chemical  
17 management program at an implementing agency  
18 under a State law;

19           (2) to construct or renovate a building or struc-  
20 ture; or

21           (3) to promote the sale of a specific product,  
22 process, or technology, or to disparage a specific  
23 product, process, or technology.

1 **SEC. 7. PRIORITIZATION.**

2       In carrying out this Act, the Entity shall focus its  
3 support for sustainable chemistry activities on those that  
4 achieve, to the highest extent practicable, the goals out-  
5 lined in the Act.

6 **SEC. 8. RULE OF CONSTRUCTION.**

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

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