

116TH CONGRESS  
1ST SESSION

# H. R. 2051

---

IN THE SENATE OF THE UNITED STATES

DECEMBER 10, 2019

Received; read twice and referred to the Committee on Commerce, Science,  
and Transportation

---

## AN ACT

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,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Sustainable Chemistry  
3 Research and Development Act of 2019”.

4 **SEC. 2. FINDINGS.**

5 Congress finds that—

6 (1) Congress recognized the importance and  
7 value of sustainable chemistry and the role of the  
8 Federal Government in section 114 of the American  
9 Innovation and Competitiveness Act (Public Law  
10 114–329);

11 (2) sustainable chemistry and materials trans-  
12 formation is a key value contributor to business  
13 competitiveness across many industrial and con-  
14 sumer sectors;

15 (3) companies across hundreds of supply chains  
16 critical to the American economy are seeking to re-  
17 duce costs and open new markets through innova-  
18 tions in manufacturing and materials, and are in  
19 need of new innovations in chemistry, including sus-  
20 tainable chemistry;

21 (4) sustainable chemistry can improve the effi-  
22 ciency with which natural resources are used to meet  
23 human needs for chemical products while avoiding  
24 environmental harm, reduce or eliminate the emis-  
25 sions of and exposures to hazardous substances,

1 minimize the use of resources, and benefit the econ-  
2 omy, people, and the environment; and

3 (5) a recent report by the Government Account-  
4 ability Office (GAO–18–307) found that the Federal  
5 Government could play an important role in helping  
6 realize the full innovation and market potential of  
7 sustainable chemistry technologies, including  
8 through a coordinated national effort on sustainable  
9 chemistry and standardized tools and definitions to  
10 support sustainable chemistry research, development,  
11 demonstration, and commercialization.

12 **SEC. 3. NATIONAL COORDINATING ENTITY FOR SUSTAIN-**  
13 **ABLE CHEMISTRY.**

14 (a) ESTABLISHMENT.—Not later than 180 days after  
15 the date of enactment of this Act, the Director of the Of-  
16 fice of Science and Technology Policy shall convene an  
17 interagency entity (referred to in this Act as the “Entity”)  
18 under the National Science and Technology Council with  
19 the responsibility to coordinate Federal programs and ac-  
20 tivities in support of sustainable chemistry, including  
21 those described in sections 5 and 6.

22 (b) COORDINATION WITH EXISTING GROUPS.—In  
23 convening the Entity, the Director of the Office of Science  
24 and Technology Policy shall consider overlap and possible  
25 coordination with existing committees, subcommittees, or

1 other groups of the National Science and Technology  
2 Council, such as—

- 3 (1) the Committee on Environment;
- 4 (2) the Committee on Technology;
- 5 (3) the Committee on Science; or
- 6 (4) related groups or subcommittees.

7 (c) CO-CHAIRS.—The Entity shall be co-chaired by  
8 the Office of Science and Technology Policy and a rep-  
9 resentative from the Environmental Protection Agency,  
10 the National Institute of Standards and Technology, the  
11 National Science Foundation, or the Department of En-  
12 ergy, as selected by the Director of the Office of Science  
13 and Technology Policy.

14 (d) AGENCY PARTICIPATION.—The Entity shall in-  
15 clude representatives, including subject matter experts,  
16 from the Environmental Protection Agency, the National  
17 Institute of Standards and Technology, the National  
18 Science Foundation, the Department of Energy, the De-  
19 partment of Agriculture, the Department of Defense, the  
20 National Institutes of Health, the Centers for Disease  
21 Control and Prevention, the Food and Drug Administra-  
22 tion, the Office of Management and Budget, and other re-  
23 lated Federal agencies, as appropriate.

1 (e) TERMINATION.—The Entity shall terminate on  
2 the date that is 10 years after the date of enactment of  
3 this Act.

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

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

7 (1) consult with relevant stakeholders including  
8 representatives from industry, academia, the Federal  
9 Government, and international entities to develop  
10 and update as needed a consensus definition of “sus-  
11 tainable chemistry” to guide the activities under this  
12 Act;

13 (2) develop a working framework of attributes  
14 characterizing and metrics for assessing sustainable  
15 chemistry, as described in subsection (b);

16 (3) assess the state of sustainable chemistry in  
17 the United States as a key benchmark from which  
18 progress under the activities described in this Act  
19 can be measured, including assessing key sectors of  
20 the United States economy, key technology plat-  
21 forms, commercial priorities, and barriers to innova-  
22 tion;

23 (4) coordinate and support Federal research,  
24 development, demonstration, technology transfer,  
25 commercialization, education, and training efforts in

1 sustainable chemistry, including budget coordination  
2 and support for public-private partnerships, as ap-  
3 propriate;

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

9 (6) identify major scientific challenges, road-  
10 blocks, or hurdles to transformational progress in  
11 improving the sustainability of the chemical sciences;  
12 and

13 (7) identify other opportunities for expanding  
14 Federal efforts in support of sustainable chemistry.

15 (b) CHARACTERIZING AND ASSESSING SUSTAINABLE  
16 CHEMISTRY.—The Entity shall develop a working frame-  
17 work of attributes characterizing and metrics for assessing  
18 sustainable chemistry for the purposes of carrying out the  
19 Act. In developing this framework, the Entity shall—

20 (1) seek advice and input from stakeholders as  
21 described in subsection (c);

22 (2) consider existing definitions of or frame-  
23 works characterizing and metrics for assessing sus-  
24 tainable chemistry already in use at Federal agen-  
25 cies;

1           (3) consider existing definitions of or frame-  
2           works characterizing and metrics for assessing sus-  
3           tainable chemistry already in use by international  
4           organizations of which the United States is a mem-  
5           ber, such as the Organisation for Economic Co-oper-  
6           ation and Development; and

7           (4) consider any other appropriate existing defi-  
8           nitions of or frameworks characterizing and metrics  
9           for assessing sustainable chemistry.

10          (c) CONSULTATION.—In carrying out the duties de-  
11         scribed in subsections (a) and (b), the Entity shall consult  
12         with stakeholders qualified to provide advice and informa-  
13         tion to guide Federal activities related to sustainable  
14         chemistry through workshops, requests for information,  
15         and other mechanisms as necessary. The stakeholders  
16         shall include representatives from—

17                 (1) business and industry (including trade asso-  
18                 ciations and small- and medium-sized enterprises  
19                 from across the value chain);

20                 (2) the scientific community (including the Na-  
21                 tional Academies of Sciences, Engineering, and Med-  
22                 icine, scientific professional societies, and academia);

23                 (3) the defense community;

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

4 (5) nongovernmental organizations; and

5 (6) other appropriate organizations.

6 (d) REPORT TO CONGRESS.—

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

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

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

24 (C) an assessment of the current state of  
25 sustainable chemistry in the United States, in-



1 including the role that Federal agencies are play-  
2 ing in supporting it;

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

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

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

19 (2) SUBMISSION TO GAO.—The Entity shall  
20 also submit the report described in paragraph (1) to  
21 the Comptroller General of the United States for  
22 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) raise awareness of sustainable chemistry  
13 concepts through public outreach activities;

14 (4) expand the education and training of stu-  
15 dents at all levels of education, professional sci-  
16 entists and engineers, and other professionals in-  
17 volved in all aspects of sustainable chemistry and en-  
18 gineering appropriate to that level of education and  
19 training, including through—

20 (A) partnerships with industry as de-  
21 scribed in section 6;

22 (B) support for the integration of sustain-  
23 able chemistry principles into elementary, sec-  
24 ondary, undergraduate, and graduate chemistry  
25 and chemical engineering curriculum and re-

1 search training, as appropriate to that level of  
2 education and training; and

3 (C) support for integration of sustainable  
4 chemistry principles into existing or new profes-  
5 sional development opportunities for profes-  
6 sionals including teachers, faculty, and individ-  
7 uals involved in laboratory research, (product  
8 development, materials specification and test-  
9 ing, life cycle analysis, and management);

10 (5) as relevant to an agency's programs, exam-  
11 ine methods by which the Federal agencies, in col-  
12 laboration and consultation with the National Insti-  
13 tute of Standards and Technology, may facilitate the  
14 development or recognition of validated, standard-  
15 ized tools for performing sustainability assessments  
16 of chemistry processes or products;

17 (6) through programs identified by an agency,  
18 support (including through technical assistance, par-  
19 ticipation, financial support, communications tools,  
20 awards, or other forms of support) outreach and dis-  
21 semination of sustainable chemistry advances such  
22 as non-Federal symposia, forums, conferences, and  
23 publications in collaboration with, as appropriate, in-  
24 dustry, academia, scientific and professional soci-  
25 eties, and other relevant groups;

1           (7) provide for public input and outreach to be  
2 integrated into the activities described in this section  
3 by the convening of public discussions, through  
4 mechanisms such as public meetings, consensus con-  
5 ferences, and educational events, as appropriate;

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

9           (9) incentivize or recognize actions that advance  
10 sustainable chemistry products, processes, or initia-  
11 tives, including through the establishment of a na-  
12 tionally recognized awards program through the En-  
13 vironmental Protection Agency to identify, publicize,  
14 and celebrate innovations in sustainable chemistry  
15 and chemical technologies.

16       (c) LIMITATIONS.—Financial support provided under  
17 this section shall—

18           (1) be available only for pre-competitive activi-  
19 ties; and

20           (2) not be used to promote the sale of a specific  
21 product, process, or technology, or to disparage a  
22 specific product, process, or technology.

23       (d) AGENCY BUDGET REPORT.—For each of fiscal  
24 years 2021 through 2030, not later than 90 days after  
25 submission of the President’s annual budget request, the

1 Entity shall prepare and submit to the Committee on En-  
2 vironment and Public Works, the Committee on Com-  
3 merce, Science, and Transportation, and the Committee  
4 on Appropriations of the Senate, and the Committee on  
5 Science, Space, and Technology, the Committee on Energy  
6 and Commerce, and the Committee on Appropriations of  
7 the House of Representatives a report that includes a  
8 summarized agency budget in support of the activities  
9 under this Act for the fiscal year to which such budget  
10 request applies, and for the then current fiscal year, in-  
11 cluding a breakout of spending for each agency partici-  
12 pating in such activities.

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

14 (a) IN GENERAL.—The agencies participating in the  
15 Entity may facilitate and support, through financial, tech-  
16 nical, or other assistance, the creation of partnerships be-  
17 tween institutions of higher education, nongovernmental  
18 organizations, consortia, or companies across the value  
19 chain in the chemical industry, including small- and me-  
20 dium-sized enterprises, to—

21 (1) create collaborative sustainable chemistry  
22 research, development, demonstration, technology  
23 transfer, and commercialization programs; and

24 (2) train students and retrain professional sci-  
25 entists, engineers, and others involved in materials

1 specification on the use of sustainable chemistry con-  
2 cepts and strategies by methods, including—

3 (A) developing or recognizing curricular  
4 materials and courses for undergraduate and  
5 graduate levels and for the professional develop-  
6 ment of scientists, engineers, and others in-  
7 volved in materials specification; and

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

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

16 (c) SELECTION OF PARTNERSHIPS.—In selecting  
17 partnerships for support under this section, the agencies  
18 participating in the Entity shall also consider the extent  
19 to which the applicants are willing and able to dem-  
20 onstrate evidence of support for, and commitment to, the  
21 goals outlined in the roadmap and report described in sec-  
22 tion 4.

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

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

4 (2) to construct or renovate a building or struc-  
5 ture; or

6 (3) to promote the sale of a specific product,  
7 process, or technology, or to disparage a specific  
8 product, process, or technology.

9 **SEC. 7. PRIORITIZATION.**

10 In carrying out this Act, the Entity shall focus its  
11 support for sustainable chemistry activities on those that  
12 achieve, to the highest extent practicable, the goals out-  
13 lined in the Act.

14 **SEC. 8. RULE OF CONSTRUCTION.**

15 Nothing in this Act shall be construed to alter or  
16 amend any State law or action with regard to sustainable  
17 chemistry, as defined by the State.

Passed the House of Representatives December 9,  
2019.

Attest: CHERYL L. JOHNSON,  
*Clerk.*