

August 20, 2021

The Honorable Joe Manchin
The Honorable John Barrasso
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

The Honorable Frank Pallone
The Honorable Cathy McMorris Rodgers
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Tom Carper
The Honorable Shelley Moore Capito
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

The Honorable David Scott
The Honorable Glenn Thompson
Committee on Agriculture
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Debbie Stabenow
The Honorable John Boozman
Committee on Agriculture, Nutrition, and
Forestry
United States Senate
Washington, D.C. 20510

The Honorable Eddie Bernice Johnson
The Honorable Frank Lucas
Committee on Science, Space, and Technology
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Maria Cantwell
The Honorable Roger Wicker
Committee on Commerce, Science, and
Transportation
United States Senate
Washington, D.C. 20510

Dear Chairmen Manchin, Carper, Stabenow, Cantwell, Pallone, Scott, and Johnson, and Ranking Members Barrasso, Capito, Boozman, Wicker, McMorris Rodgers, Thompson, and Lucas:

As your committees prepare legislation to fulfil the reconciliation instructions contained in the Fiscal Year 2022 budget resolution, we write to encourage you to include robust funding for federal programs related to sustainable chemistry. A list of federal sustainable chemistry-related programs and funding recommendations are included below.

The chemical sector is an important part of the U.S. economy, providing tens of thousands of high-paying manufacturing jobs and supplying raw materials that support a wide range of critical industries.

Legislation to grow the economy, reduce greenhouse gases, and address racial injustice should invest in sustainable chemistry. Sustainable chemistry focuses on minimizing harm to the environment and human health while improving performance and efficiency of chemical processes and products. Sustainable chemistry considers the safety of workers, consumers, frontline communities, and the environment from the beginning of the lifecycle through the end. While most chemicals produced today are derived from petroleum products, sustainable chemicals can be produced from renewable feedstocks, allowing for significantly reduced greenhouse gas emissions and safe manufacturing.

Breakthroughs in chemistry have already led to super-efficient building insulation, envelopes, and coatings; advanced materials for manufacturing larger wind turbines and lower cost solar modules; low-nitrogen fertilizers; advanced batteries and biofuels; products that save energy by allowing for cold water

laundry and dishwashing; biodegradable alternatives to certain plastics; and many more technologies that are essential for decarbonization. Investing in sustainable chemistry now will lead to additional breakthroughs in the future.

As demonstrated by the list of existing federal sustainable chemistry programs at the bottom of this letter, Congress has acted numerous times to support the growth of sustainable chemistry. Most recently, in 2020, Congress passed the *Sustainable Chemistry Research and Development Act* with broad bipartisan support.

We ask that you provide robust funding in reconciliation legislation for the programs listed at the bottom of this letter.

Sincerely,



The GC3 Sustainable Chemistry Alliance is a diverse group of companies reflecting the entire breadth of the sustainable chemistry value chain. We are chemical producers, biochemicals and biomaterials makers, major beauty and consumer products brands and prominent retailers. Our brands are recognized globally, as are our commitments to sustainability. As the Alliance we are advocates for U.S. leadership in innovation, production and use of sustainable chemicals.



The Household and Commercial Products Association (HCPA) is the premier trade association representing companies that make and sell \$180 billion annually of products used for cleaning, protecting, maintaining, and disinfecting in homes and commercial environments. HCPA members employ 200,000 people in the U.S. whose work helps consumers and workers create a cleaner, healthier and more productive life. Our mission is to protect, promote and enhance the household and commercial products industry and the consumers and workers who use our members' products.

White House Office of Science and Technology Policy

The *Sustainable Chemistry Research and Development Act* became law in 2020. That law directs the Office of Science and Technology Policy (OSTP) to establish an interagency entity—with representation from at least nine federal agencies—to coordinate federal programs and activities in sustainable chemistry. The bill would require the entity to consult with stakeholders, develop metrics to assess sustainable chemistry, and report to the Congress on related initiatives and priorities. Participating agencies also would be required to incorporate sustainable chemistry into existing programs for research and development, demonstration, technology transfer, commercialization, and education and training.

The Congressional Budget Office estimated that implementing the new law would require \$14 million over a five-year period. Fully funding the program in advance would provide certain for OSTP and alleviate pressure on the annual appropriations process.

- **FY 2021 enacted:** \$5.5 million
- **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$14 million over five years for implementation of the Sustainable Chemistry Research and Development Act.

Environmental Protection Agency

- **Pollution Prevention, including Safer Choice.** The Pollution Prevention (P2) Program seeks to alleviate environmental problems by leveraging business-relevant approaches to achieve significant reductions in the generation of hazardous releases to air, water, and land; reductions in the use of hazardous materials, which also advances EPA's chemical risk reduction and management goals under the Toxic Substances Control Act (TSCA); reductions in the generation of greenhouse gases; and reductions in the use of water. P2 programs include the Green Chemistry Challenge award program, grants, technical assistance, and Safer Choice.

EPA's Safer Choice voluntary certification and labeling program supports the market for more sustainable products by helping consumers make informed purchasing decisions, and incentivizing manufactures to select more sustainable chemical alternatives when developing products by providing a way to differentiate and market their more sustainable products to interested consumers. More than 2,350 products from nearly 500 formulators and manufacturers currently qualify for the Safer Choice label, including products such as odor removers, hand soap, and pet care products.

Despite Safer Choice's broad popularity with a wide range of stakeholders, including NGOs, businesses, and state and local governments, the previous Administration significantly reduced staffing and resources for the program. Additional funding would restore the program and allow for improved consumer education and potential expansion into additional product categories.

- **Pollution Prevention Program FY 2021 enacted:** \$12.5 million
- **GC3SCA/HCPA Recommendation for Reconciliation Legislation** \$3 million for EPA's Pollution Prevention Program, including at least \$1 million for EPA's Safer Choice program.

Department of Energy

- **Advanced Manufacturing Office.** DOE's Advanced Manufacturing Office (AMO) supports the development of materials and technologies that reduce the energy intensity of manufacturing processes throughout the life cycle of a product, including through sustainable chemistry technologies. In 2021, AMO has announced \$5 million in funding opportunities for Sustainable Chemistry Practices in Manufacturing, citing that "the market demand for more sustainable manufacturing processes in the chemical industry...is a new opportunity to create significant value for U.S. manufacturing and maintain U.S. global competitiveness while fostering decarbonization."

Additional resources would provide for expanded funding opportunities like the one cited above and for additional initiatives to help the U.S. lead in the development of sustainable chemistry.

- **FY 2021 enacted:** \$396 million.
 - **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$50 million for sustainable chemistry-related activities.
- **Bioenergy Technologies Office.** The Bioenergy Technologies Office (BETO) conducts research, development and demonstration to advance technologies that convert domestic biomass and other waste resources into cost effective, low-carbon biofuels and bioproducts, including biochemicals. These technologies can enable a transition to a clean energy economy, create high-quality jobs, support rural economies, and spur innovation in renewable energy and chemicals production as part of the bioeconomy.

BETO has recently funded projects to develop algae-based biodegradable foams, biodegradable flip flops, and numerous projects focused on reducing plastic waste. DOE's FY22 budget request detailed a range of projects related to sustainable chemistry that the Department could pursue with additional funding. Those projects include work on catalysts, co-products, low carbon footprint biopolymers, and conversion of carbon dioxide into chemicals.

- **FY2021 enacted:** \$255 million.
 - **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$30 million for sustainable chemistry-related activities.
- **National Renewable Energy Lab.** At NREL, scientists are researching materials and processes to efficiently convert biomass to high value, biobased chemicals. In addition, NREL develops analytical tools, methodologies, and studies to increase understanding of the potential impact and challenges of the emerging bioeconomy.

The National Bioenergy Center (NBC) works to advance and develop innovative and cost-effective solutions that move the production of biofuels, bioproducts, biochemicals, and bioenergy to market. NREL's bioenergy research covers the full spectrum of discovery science, from exploratory research to pilot-scale processing.

Examples of NREL work on sustainable chemistry includes ethylene production via photosynthesis. Ethylene is currently the largest petrochemical produced by volume globally.

- **FY 2021 enacted:** \$442 million
- **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$20 million for sustainable chemistry-related activities.

- **Pacific Northwest National Lab.** Researchers at PNNL are developing new processes for the conversion of biomass into biobased chemicals. For example, PNNL developed an innovative catalytic process that converts plant-based feedstocks into propylene glycol, a chemical additive in liquid detergents, pharmaceuticals, and plastics typically made from petroleum. PNNL's new Energy Sciences Center will be home to research on many sustainable chemistry-related topics, including
 - Advancing the frontiers of chemistry and materials science, expanding underlying knowledge of the fields and laying a foundation for the application to new technology development;
 - Mimicking biology to achieve advances in chemical transformations and hierarchical materials;
 - Developing advanced computational and data methods to accelerate scientific discovery in chemistry and materials science;
 - Transforming abundant wastes into high-value fuels and materials;
 - Developing more efficient ways to produce agricultural fertilizers; and
 - Advancing materials and methodology for chemical separations.
 - **FY 2021 enacted:** \$680 million
 - **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$30 million for sustainable chemistry-related activities.

- **Argonne National Lab.** Argonne has a number of research initiatives that contribute to the development of more sustainable chemistry technologies. For example, Argonne is researching more sustainable catalysts for converting renewable feedstocks to biofuels and biochemicals. The lab also conducts life cycle analysis of bioproducts. Argonne conducted a life cycle analysis to identify a sustainable process for converting non-recycled plastic into fuel, which can provide a viable waste management option for petroleum-based plastics.
 - **FY 2021 enacted:** \$795 million
 - **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$25 million for sustainable chemistry-related activities.

National Science Foundation

- **Directorate of Biological Sciences (BIO) – Clean Energy.** NSF’s Directorate of Biological Sciences’ Clean Energy program supports research to advance clean energy biotechnologies and practices through fundamental research. This research seeks to streamline and scale the metabolic, energetic, and physiological potential of living organisms to produce non-petroleum sources of important chemicals/materials, plant biomass, feed stocks, and biofuels. Investigations to assess the impact of fuel and/or bio-renewable chemical production on genome stability and phenotype of the production organisms are of interest, as are studies to assess environmental impacts of these technologies.

NSF’s fiscal year 2022 budget request included this statement about needed future investments in BIO’s Clean Energy program: “future investments will continue to advance the fundamental science and engineering underlying clean-energy technologies and infrastructure, including... fuels (chemical, biomass, and biofuels), and energy conversion technologies (e.g., advanced fuel cells)...ecomanufacturing of diverse products (including materials and chemicals), and the remediation and reduction of legacy pollution...” This indicates sustained demand for additional funding for these sustainable chemistry-related programs.

- **FY2021 enacted:** \$45 million for Clean Energy Technology within the Directorate of Biological Sciences.
- **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$5 million for sustainable chemistry-focused activities

- **Centers for Chemical Innovation.** Created in 1998, the NSF Centers for Chemical Innovation focus on major, long-term fundamental chemical research challenges. CCIs are agile, collaborative entities that respond rapidly to emerging opportunities by integrating research with innovation, higher education, broadening participation, and informal science communication. A broad range of chemical research is currently represented in CCIs advancing fundamental understanding in chemical synthesis and catalysis; characterization, theory, computation, and modeling; data science, machine learning, and AI for molecular synthesis; and advanced manufacturing of nanomaterials; along with training for students at all levels. CCIs are also actively engaged in knowledge transfer to industry and the commercialization of their discoveries and new technologies. The themes of the CCIs are varied and include Administration priorities such as AI, QIS, biotechnology, clean energy technologies, and advanced manufacturing; NSF’s Big Ideas: URoL, and HDR; as well as sustainable chemistry
 - **FY2021 enacted:** \$24 million
 - **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$5 million for sustainable chemistry-focused activities

- **Advanced Manufacturing.** According to NSF, foundation-wide investments in Advanced Manufacturing result in “fundamental research to create new and sustainable capabilities for chemical and materials synthesis and processing;...discovery and manufacture of alternative materials with lower environmental impact than plastics; distributed and smart manufacturing systems; safe, productive, and collaborative worker-technology interactions; and many other areas related to advanced manufacturing.”
 - **FY 2021 enacted:** \$318 million
 - **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$30 million for sustainable chemistry-related activities

US Department of Agriculture

- **Biobased Market Program, including BioPreferred.** Authorized by Section 9002 of the Farm Security and Rural Development Investments Act of 2002, P.L. 107-171 and reauthorized under the Agricultural Act of 2014, P.L. 113-79, the purpose of the Biobased Market Program is to increase the purchase and use of biobased products to spur economic development, create new jobs and provide new markets for farm commodities. The two major parts of the program are: mandatory purchasing requirements for federal agencies and their contractors; and, a voluntary “BioPreferred” labeling initiative for producers for biobased products.

Additional funding for the Biobased Market Program could be used to increase consumer education about the program, increasing purchases of biobased products and providing further incentives for manufacturers to adopt biobased chemistries.

- **FY 2021 enacted:** \$3 million (mandatory funding)
 - **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$1 million
- **Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program** (reauthorized in the Agriculture Improvement Act of 2018 (P.L. 115-334), Title IX, Section 9003). The 9003 provides loan guarantees to assist in the development of advanced biofuels, renewable chemicals, and biobased products manufacturing facilities.
 - **American Jobs Plan:** \$14.5 billion
 - **GC3SCA/HCPA Recommendation for Reconciliation Legislation:** \$14.5 billion