



Biotechnology Innovation Organization
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May 4, 2022

The Honorable Dianne Feinstein
Chair
Subcommittee on Energy and Water
Development, & Related Agencies
U.S. Senate Committee on Appropriations
Room S-128, The Capitol
Washington, DC 20510

The Honorable John Kennedy
Ranking Member
Subcommittee on Energy and Water
Development, & Related Agencies
U.S. Senate Committee on Appropriations
Room S-128, The Capitol
Washington, DC 20510

Dear Chair Feinstein and Ranking Member Kennedy:

The Biotechnology Innovation Organization (BIO) is the largest biotechnology trade association, representing approximately 1,000 biotechnology companies, academic institutions, state biotechnology centers and related organizations across the United States and in more than 30 other nations. Our members are working every day to solve the greatest challenges facing society—whether it is finding a cure for cancer, protecting the public against bio-terror threats, feeding hungry people nutritious food, or generating renewable fuels, renewable chemicals, and other biobased products. We support public policies, including government funding for key agencies and programs that unleash our members' scientific innovation potential and grow the biobased economy. BIO members urge you to actively support the following priorities as you consider the Fiscal Year 2023 Energy and Water Development and Related Agencies Appropriations Act:

INDUSTRIAL BIOTECHNOLOGY

Industrial biotechnology is enabling a dramatic paradigm shift in the production of fuels and chemicals. Modern biorefineries are converting domestic sources of renewable biomass, wastes, and residues into sustainable low carbon fuels, chemicals, and products, positioning the United States to reduce its dependence on foreign petroleum for these goods and to grow a robust biobased economy that creates high paying jobs, particularly in rural parts of the country where renewable biomass is grown and in manufacturing communities where carbon can be captured and utilized. For this growing sector of the economy to flourish, private sector investment is essential. Department of Energy programs that foster research, development, demonstration-scale activities, and deployment of renewable low-carbon energy technologies send positive signals to the investment community. Thus, we urge continued congressional support for a variety of key programs in FY 2023:



U.S. DEPARTMENT OF ENERGY

Energy Efficiency and Renewable Energy: BIO urges the committee to support the President’s Budget Request of \$4.018 billion for the Department of Energy’s (DOE) Office of Energy Efficiency and Renewable Energy (EERE). EERE invests in clean energy technologies that strengthen the economy, protect the environment, and reduce dependence on foreign oil. According to DOE’s Aggregate Economic Return on Investment in the U.S. DOE Office of Energy Efficiency and Renewable Energy, the economic benefits of this program have far exceeded the cost of the R&D investments. A total taxpayer investment of \$12 billion (inflationadjusted 2015 dollars) in EERE’s R&D portfolio has yielded more than \$388 billion in net economic benefits to the United States. Further, BIO supports Congress’s previous direction that EERE invest in technologies through pilot, demonstration, and pioneer plants and urges the Committee to ensure that this direction is followed throughout EERE.

	FY 2021 Enacted	FY 2022 Enacted	PB FY 2023	BIO FY 2023 Request
Energy Efficiency and Renewable Energy	\$2.864 billion	\$3.2 billion	\$4.018 billion	\$4.018

Bioenergy Technologies Office: We request the Committee support the President’s Budget Request for \$340 million for the Bioenergy Technologies Office (BETO). This office within EERE funds vital research and development of technologies to convert our nation’s biomass resources into clean, renewable fuels, chemicals, and industrial products. Competitively awarded grants under this program have been critical in drastically reducing the cost of advanced biofuels production over the past six years. BETO recognizes that biofuels are especially needed in the aviation industry, where liquid fuels are still the only viable fuel source. BETO is working with related agencies, national laboratories, industry stakeholders, and airline partners to develop research and market opportunities for renewable aviation fuels. Full, dedicated funding for this program is essential to achieving the Department’s objectives of cost-competitive advanced biofuels, bioproducts, and reduced reliance on imported oil for transportation. Within BETO, BIO supports:

- The President’s Budget Request for \$48 million for the Feedstock Supply and Logistics to develop preprocessing technologies to reduce the cost for processing and



transporting feedstocks to the biorefinery, which will be an essential part of creating a national biobased economy.

- No less than the FY 2022 level of \$40 million for the Advanced Algal Systems subprogram to fund R&D of algal biomass production and logistics systems for cost competitive, advanced biofuels.
- No less than the FY 2022 level of \$110 million for the Conversion Technologies including the Agile Biology Foundry, which will remove barriers to rapid and cost-effective development and scale-up of novel organisms for the production of biofuels and renewable chemicals.
- The President’s Budget Request level of \$152.5 million for the Demonstration and Market Transformation program to establish first-of-a-kind integrated biorefineries that are capable of efficiently converting a broad range of biomass feedstocks into commercially viable biofuels, biopower, and other bioproducts.

	FY 2021 Enacted	FY 2022 Enacted	PB FY 2023	BIO FY 2023 Request
Bioenergy Technologies Office	\$255 million	\$262 million	\$340 million	\$340 million

Advanced Manufacturing Office: BIO requests the Committee supports the President’s Budget Request for \$582.2 million for the Advanced Manufacturing Office (AMO) in FY 2023. This important program is the lead government program working to develop and deploy new, energy-efficient technologies. The AMO supports research and development of novel technologies that will help manufacturers become more robust, adaptable, and globally competitive. Continued funding and investment in these emerging technologies will create high quality manufacturing jobs and enhance U.S competitiveness.

	FY 2021 Enacted	FY 2022 Enacted	PB FY 2023	BIO FY 2023 Request
Advanced Manufacturing Office	\$396 million	\$416 million	\$582.5 million	\$582.5 million



Advanced Research Projects Agency-Energy (ARPA-E): BIO urges the Committee to support the President’s Budget Request level of \$700 million to carry out the goals and mission of the Advanced Research Projects (ARPA-E) program, especially as they relate to advanced biofuels, renewable chemicals, and other biobased products. ARPA-E (P.L. 110-69 §5012) is authorized to support and incentivize transformational energy technology research in order to reduce energy imports, reduce energy-related greenhouse gas emissions, increase U.S. energy security, and ensure that the U.S. maintains a technological lead in developing and deploying advanced energy innovations. ARPA-E funding will be crucial to accelerate the development and commercialization of nascent advanced biofuels technologies.

	FY 2021 Enacted	FY 2022 Enacted	PB FY 2023	BIO FY 2023 Request
<i>Advanced Research Projects Agency-Energy (ARPA-E)</i>	\$427 million	\$450 million	\$700 million	\$700 million

Science: We support the overall mission of science and the research that is being conducted at the Department of Energy. Therefore, BIO requests the Committee support the President’s Budget Request for \$7.799 billion in FY 2023 for the valuable science and energy research priorities carried out by the Office of Science. BIO particularly urges the Committee’s support for the following requests:

- **Biological and Environmental Research Programs (Office of Science):** BIO requests the Committee support the President’s Budget Request of \$904 million for the Biological and Environmental Research (BER) programs. BER programs conduct research in the areas of biological systems science. The basic research programs aim at understanding complex biological and environmental systems across many spatial and temporal scales, from individual molecules to ecosystems, to develop predictive knowledge. Development of cost-effective advanced biofuels and new routes to chemicals requires advances in the fundamental understanding and prediction of the behavior of biological systems in order to maximize the benefits they will bring to the nation’s energy security and environmental future. Funding basic biological and environmental research has broad implications in environmental remediation, and reengineering of microorganisms and plants with direct relevance to energy, climate, and the environment.



- **Basic Energy Science:** BIO requests the Committee support the President’s Budget Request of \$2.421 billion for Basic Energy Science. Basic research in industrial biotechnology for the enhanced sustainability of biofuels and renewable chemicals produced through synthetic biology technology tools applied to diverse organisms will yield new knowledge, and lead to the design of biological catalysts/enzymes and processes that would be cost-effective and sustainable.

	FY 2021 Enacted	FY 2022 Enacted	PB FY 2023	BIO FY 2023 Request
Science	\$7.026 billion	\$7.475 billion	\$7.799 billion	\$7.799 billion
Biological and Environmental Research Programs	\$753 million	\$815 million	\$904 million	\$904 million
Basic Energy Science	\$2.245 billion	\$2.308 billion	\$2.421 billion	\$2.421 billion

Bioenergy Research Center: BIO requests the Committee recommend no less than the FY22 level of \$100 million for Bioenergy Research Centers in FY 2023. A new phase in bioproduct and bioenergy research was announced in July 2017 with the establishment of four DOE Bioenergy Research Centers (BRCs), which will provide the scientific breakthroughs for a new generation of sustainable, cost-effective bioproducts and bioenergy.

The centers—each led by a DOE National Laboratory or a top university—are designed to lay the scientific groundwork for a new biobased economy that promises to yield a range of important new products and fuels derived directly from nonfood biomass. The biobased economy will require new streams of biomass to accelerate its growth in the 21st century. The research through BRCs will unleash new technologies and feedstocks benefitting rural America and promoting billions of dollars of additional economic activity.



Thank you for your consideration of this request. Should you have any questions or comments regarding these requests, please contact Erick Lutt, Senior Director of Federal Government Relations, at elutt@bio.org. We look forward to working with you throughout the appropriations process.

Yours sincerely,

A handwritten signature in black ink, appearing to read "M. McMurry-Heath". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Michelle McMurry-Heath, MD, PhD