

January 20, 2023

Submitted electronically via email

Re: Office of Science and Technology Policy Request for Information; *National Biotechnology and Biomanufacturing Initiative* (Federal Register Doc. 2022-27600)

The Plant Based Products Council (PBPC) appreciates this opportunity to provide comments in response to the December 20, 2022 Office of Science and Technology Policy (OSTP) request for information (RFI) titled *National Biotechnology and Biomanufacturing Initiative* (Federal Register Doc. 2022-27600).

PBPC represents businesses large and small who are committed to advocating for a shift toward a more circular bioeconomy through greater adoption of plant-based materials supported by appropriate end-of-life infrastructure. We aspire to deliver a future based on renewable goods, improving global resource efficiency to meet the challenges of the 21st century while also providing environmental benefits through reduced greenhouse gas emissions and improved soil quality and water quality, along with improved recycling of food waste. Plant-based products and materials are made from renewable sources, including agricultural commodities such as corn, hemp, soy, and sugarcane and can serve as alternatives to traditional consumer materials such as single-use plastics that are often derived from fossil fuels.

PBPC appreciates the Biden Administration's strong commitment to the bioeconomy and the efforts to ensure a whole-of-government approach through the issuance of the Executive Order on Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Bioeconomy (E.O.). **Below we offer responses to relevant questions presented in the RFI.**

RFI Question 1C: *How else can the Government engage with and incentivize the private sector and other organizations to achieve the goals outlined in (a)?*

Biobased products often serve as alternatives to products made from petroleum, including plastics, textiles, waxes, etc. However, petroleum-based products have benefited from decades of investment, incentives, technological and market optimization, and infrastructure development. This has led to an economic advantage over newer technologies like biobased products.

Biobased products also face a number of challenges getting to the marketplace. These challenges include a lack of awareness of the products themselves and their benefits; cost v. petroleum-based products; questions about product performance; questions about life-cycle environmental impacts, including sustainable feedstock growing practices; and lack of end-of-life infrastructure (including collection) for some biobased products. The Government can help create incentives for biobased products including investment, incentives, technological optimization, and infrastructure development. Promoting incentives for the manufacture and adoption of bioproducts will create a more level playing field for bioproducts and drive demand throughout the bioeconomy.

RFI Question 3: *What data types and sources, to include genomic and multiomic information, are most critical to drive advances in health, climate, energy, food, agriculture, and biomanufacturing, as well as other bioeconomy-related R&D? What data gaps currently exist?*

To advance the interests of the biobased products industry, more data is needed to demonstrate the environmental, economic, performance, and other benefits of bioproducts, particularly in comparison to traditional, fossil fuel-based products. Such data can help direct policy, inform federal and consumer bioproduct purchasing decisions, and help direct needed industry investment. Other potential bioeconomy data needs include information related to:

- Feedstock carbon intensity
- Feedstock carbon capture potential
- Greenhouse gas savings
- Economic impact (including in rural communities)
- Performance/functionality
- Other environmental/sustainability benefits
- Land use impacts
- End-of-life benefits

RFI Question 4: *How can the Federal Government, in partnership with private, academic, and non-profit sectors, support a data ecosystem to drive breakthroughs for the U.S. bioeconomy? This may include technologies, software, and policies needed for data to remain high-quality, interoperable, accessible, secure, and understandable across multiple stakeholder groups.*

The lack of available life-cycle assessment (LCA) data for bioproducts makes it difficult to understand the full environmental impacts and benefits associated with the products. In order to most effectively use this data as it becomes more readily available, a framework must first be developed to establish a universal approach for LCAs for bioproducts.

These efforts should include stakeholder engagement on how to establish and define the appropriate boundary conditions, and how to draw comparisons to fossil fuel-based products. The boundaries can serve as the foundation for the development of future LCAs for bioproducts, making it easier to understand and compare as the industry continues to grow.

RFI Question 6: *What can the Federal Government do to expand and scale domestic biomanufacturing capacity and infrastructure? What level of investment would be meaningful and what incentive structures could be employed?*

There is a significant lack of critical infrastructure needed to support the scale up of new bioproducts in the United States. While some facilities exist for pilot scale testing, more infrastructure is needed as demand is high. Furthermore, there is very limited capacity for demonstration scale testing, forcing many companies to turn to facilities in Europe and the APAC region, which can still carry a significant wait time. The Federal government can help de-risk investments in bioproduct manufacturing by supporting the expansion of pilot and demonstration scale infrastructure.

RFI Question 9: *What are new, environmentally sustainable biobased products that the Federal Government could purchase through its Bio Preferred Program? How can the Federal Government incentivize development of new categories of sustainable biobased products?*

USDA's BioPreferred Program currently hosts a catalog of 139 biobased product categories that encompass over 14,000 products from at least 3,000 companies.¹ We encourage the Federal Government to ensure compliance with biobased product procurement requirements that would tap into this catalog as a resource of available products.

With growing interest in biobased products, the number of available products on the market is expected to expand. It is critical that promotion of the program is accelerated to ensure the private sector is aware of the opportunity to participate and the program's promise to propel the federal government forward as a leader in the procurement of biobased products. In recent years, a number of issues have hampered the program's ability to have a significant impact on the market, including lack of awareness of the program, insufficient federal compliance with biobased product procurement and reporting requirements. The issue of limited staff and budget impacts USDA's ability to promote the program publicly such that it has a measurable impact on both the consumer market and federal procurement.

Through modernization and increased funding, the BioPreferred Program could be unleashed to further realize its potential economic and environmental benefits in a growing U.S. bioeconomy. With additional support, the program could be on par with other federal "green" products and procurement programs like EPA's Energy Star program. As awareness of the program grows, more stakeholders recognize the benefits of the program, leading to growing interest in adding additional products to the catalog.

Further, additional measures that could bolster the program's effectiveness over the short and long term could include:

- Establishing a minimum percentage of biobased-only federal contracts
- Requiring that the Office of Federal Procurement Policy establish a minimum annual compliance requirement for each federal agency to ensure full compliance
- Developing a more user-friendly label with information on product carbon intensity, including comparative data on non-biobased products
- Expanding and replicating the program to state-level procurement programs
- Advancing biobased content requirements to reflect technological improvements
- Eliminating or significantly reducing the off-ramps (cost, availability, performance) for biobased product procurement
- Having CEQ coordinate standardized biobased product purchasing processes and policies for use by all federal agencies
- Adding a product category for certified compostable biobased products, while expanding the category to identify "certified compostable plastics," and establishing a required biobased content in addition to compostability requirements.

RFI Question 14: *What quantitative indicators, economic or otherwise, are currently used to measure the contributions of the U.S. bioeconomy? Are there new indicators that should be developed?*

¹ USDA BioPreferred Program product catalog:
<https://www.biopreferred.gov/BioPreferred/faces/catalog/Catalog.xhtml>

One significant challenge facing the measurement of the U.S. bioeconomy stems from the fact that North American Industry Classification System (NAICS) does not currently provide an effective way to track the economic and job implications of the U.S. bioeconomy. There are no industry- or product-specific NAICS codes that accurately or clearly represent the bioeconomy, making it difficult to clearly and consistently measure the U.S. bioeconomy. Crucial to gaining a better understanding of the economic impact of the nascent and growing bioeconomy is improved industry statistics from a readily accessible source.

New biobased product manufacturing NAICS codes and language will enhance the ability of firms and researchers to track the industry, and for government policymakers and other stakeholders to make more informed decisions and policy. For at least a decade, stakeholders and, most recently, Congress have recommended that NAICS codes be developed for the bioeconomy, including biobased products and chemicals.

For example, the USDA's *Biobased Economy Indicators: A Report to the U.S. Congress*² noted that "As the NAICS system now stands, there is no simple way to gather data on biobased products since there is not a NAICS three-digit code for products manufactured out of biobased feedstocks, as has been defined for the metal fabrication product manufacturing sector. Also, for the various three-digit NAICS categories more aligned with end-use products, there are no six-digit numbers set aside for biorenewable feedstocks, with few exceptions. For example, some information on the use of wood in biobased products could be captured in some of the subsectors like non-upholstered wood household furniture manufacturing, which was previously mentioned. However, a chair made out of a recently developed biorenewable feedstock, like polylactide acid (PLA), could not be easily captured. A chair that is predominantly made out of PLA would currently be captured in the household furniture (except wood and metal) manufacturing (337125) subsector.

Similar difficulties occur with other NAICS sectors. The ability to capture trade information is limited since many of the subsectors within the wholesale trade and retail trade sectors are similar to manufacturing subsectors. For instance, the sale of biobased furniture could be captured in both of the generic subsectors furniture merchant wholesalers (423210) and furniture stores (442110)."

RFI Question 15: *How should the North American Industry Classification System and the North American Product Classification System be revised to enable characterization of the economic value of the U.S. bioeconomy? Specifically, which codes or categories do not distinguish between functionally identical bio-based and fossil fuel-based commodities?*

Improvements in the NAICS codes are needed to distinguish biobased products. Such improvements can account for the fact that the manufacturing process for many biobased products is often much different than their traditional counterparts. One example is the difference between the production processes of many biobased plastic resins and traditional fossil fuel-derived plastic resins, both of which are currently listed under the 2017 NAICS Plastics Material and Resin Manufacturing code 325211. Many biobased plastics can be manufactured via the fermentation of agricultural feedstocks such as corn or sugarcane, during which novel microbes digest these crops in order to biosynthesize bio-based plastic resin. This is notably different than the processes by which many traditional plastic resins are derived, during which fossil fuels are processed into pre-polymer materials that then undergo a polymerization process that is not assisted by novel microbes.

² USDA, *Biobased Economy Indicators: A Report to the U.S. Congress*. Washington (2011). https://www.usda.gov/oce/reports/energy/USDA%20Bioindicators982011_2.pdf

Another example is the difference between the manufacturing of biobased plastic monomers and the manufacturing of their fossil fuel-based counterparts. Many biobased plastic monomers, just as some biobased plastic resins, are produced via the fermentation of agricultural feedstocks. During this fermentation process, novel microbes convert the feedstock into valuable building block materials which can be polymerized or further converted into innovative biobased products. This distinctive fermentation process is lacking from fossil fuel-based plastic monomer production. Creating a separate code for the manufacture of biobased plastic resins could allow for more accurate analysis of the economic impact of those products.

In addition, changes to the North American Product Classification System (NAPCS) codes can facilitate more accurate analyses of this industry. For example, NAPCS code 67111010101 covers all plastics and resin products, both fossil fuel-based and biobased. To better represent each type of plastic, more narrow codes could be established: one for plastics and resins made from fossil fuels and one for plastics and resins made from a renewable, biobased source.

PBPC requests revisions to the NAICS and NAPCS codes that better reflect the bioeconomy and biobased products. Noting that the NAICS codes are only revised every five years, it is important for the 2027 updates to address these long-overdue changes to allow for more consistent and accurate measurement of this valuable and growing aspect of the U.S. economy. PBPC is prepared to serve as a resource in support of the work of USDA and Commerce as they work with Census to implement the provision of the 2018 Farm Bill.

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Thank you for your consideration of these comments. Please contact me at jessica@pbpc.com with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Jessica Bowman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Jessica Bowman
Executive Director