

Bioindustrial Manufacturing

from a Harford County viewpoint



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Topics

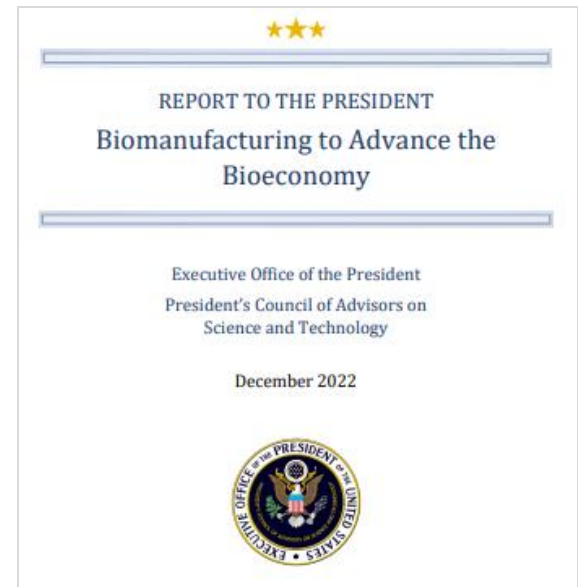


- American bioeconomy
- Economic development priorities
- Initiatives
- Harford County strengths

American Bioeconomy



- Presidential Executive Order 14081 issued September 12, 2022, for Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Economy
 - **Expand domestic biomanufacturing capacity for products spanning the health, energy, agriculture, and industrial sectors**
 - Department of Defense incentivize expansion of domestic, flexible industrial biomanufacturing capacity for a wide range of materials to make a diversity of products for the defense supply chain
 - Increase procurement of bio-based products
 - **Expand training and education opportunities for all Americans in biotechnology and biomanufacturing**
- December 2022 report from the President's Council of Advisors on Science and Technology (PCAST) identified biggest gap to advancing the bioeconomy as insufficient biomanufacturing capacity
 - Bottlenecks exist with available biomanufacturing facilities and trained workforce
 - Biomanufacturing infrastructure hubs could provide these critical facilities in locations across America advancing manufacturing methods and providing training opportunities for skilled workers



Economic Development Priorities



- Harford County Economic Development Priorities
 - Defense & Technology
 - Healthcare
 - Agriculture
- Within the defense sector we are working to expand manufacturing capability and capacity in the county and address talent pipeline needs of our defense and tech companies
 - Key technology thrust areas are: biotechnology (bioindustrial manufacturing), data science, and autonomy
 - Critical defense-community STEM talent needs are: engineers, software developers, computer scientists, cybersecurity specialists, information technologists, data scientists, cloud architects/developers, artificial intelligence/machine learning SMEs, biotechnologists, biologists, chemists
- For bioindustrial manufacturing, we want to bring skilled manufacturing jobs into the county by leveraging:
 - Chemical Biological Center's (CBC's) pilot-scale biomanufacturing facility
 - Aberdeen Proving Ground technical expertise available at CBC and the Army Research Lab (ARL)
 - Educational programs offered by Harford Community College (HCC) and Cecil College
 - But, we must attract the private sector to invest in and operate the biomanufacturing facilities

Biomanufacturing Initiatives (1 of 2)



- Established partnerships with HCC, Cecil College, and two private companies, along with CBC as a supporting organization
- With one of the private companies as lead, responded to an Air Force Research Laboratory Request For Information (RFI) on April 19th
- With HCC as lead, on July 17th submitted a Statement of Interest response to BioMADE for establishing a Biomufacturing Pilot Facility
 - BioMADE is a DOD Manufacturing Innovation Institute, whose mission is to enable domestic bioindustrial manufacturing
- As a consortium member of the Greater Baltimore Committee (GBC) participated in drafting the GBC-submitted Baltimore Region Tech Hub proposal in August to the U.S. Economic Development Administration (EDA)
 - On Oct 23rd the Baltimore Region was designated by the EDA as one of 31 new Tech Hubs, out of approximately 200 Phase 1 Tech Hub applicants
 - Core technology is biotechnology and artificial intelligence



Biomanufacturing Initiatives (2 of 2)



- With one of the private companies as the lead, on Nov 16th submitted a \$500K MD Build Our Future grant request to upgrade the wet lab at CONVERGE – An Innovation Center (formerly known as the HEAT Center)
 - Upgrade wet laboratory and equip it with analytical instrumentation needed to encourage entrepreneurship in the materials sector and for use as a training facility
 - Establishment of this support facility will expedite commercialization and market acceptance of biomanufactured materials
- As a member of the GBC consortium, pursuing next phase of the EDA Tech Hub effort
 - Baltimore Region is seeking an award of \$50M-\$70M
 - Harford County's project concept is a biomaterials manufacturing center
 - Proposal is due Feb 29, 2024
- Anticipate release of a DoD Biomanufacturing Request for Proposal (follow-on to the April 2023 RFI) in mid-Jan 2024 for up to thirty \$1M awards



Build Our Future Grant Pilot Program



Harford County Strengths for a Biomanufacturing Hub



- County Executive support
- Proximity to the DEVCOM CBC pilot production facility and both CBC and ARL scientists
- Locally trained and available manufacturing workforce
- Transportation access – I-95, Rail, Ports
 - CSX and Norfolk Southern freight rails traverse the county with five spurs in the county serving businesses
 - Port of Baltimore is nationally recognized with a best in-and-out trucking performance of 27 minutes and one of few East Coast ports capable of handling ships carrying 14,000+ Twenty-foot Equivalent Unit shipping containers
- Available feedstock to source the facility, particularly from the rural areas of this region
- Premier location in the Mid-Atlantic with a strong financial position and access to an educated workforce
 - There are 3,006 counties in the U.S.
 - 235 of these counties are within a 2.5-hour drive of 2 major ports
 - 64 of these counties are also within 1.5 hours to 4 international airports
 - 27 of these counties have a residential population with more than 35% who hold bachelor's degree or higher
 - 10 of these counties currently have a AAA Bond Rating
 - Only ONE of these 10 counties also boasts a Housing Affordability Index (HAI) greater than 150
 - HAI methodology is ability of a typical resident to purchase an existing home - national average is 130
 - Harford County has these all

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