

# **SB0960\_FAV\_MTC\_MD Clean Energy Center - Climate Te**

Uploaded by: Drew Vetter

Position: FAV



TO: The Honorable Guy Guzzone, Chair  
Members, Senate Budget and Taxation Committee  
The Honorable Brian J. Feldman

FROM: Andrew G. Vetter  
Pamela Metz Kasemeyer  
J. Steven Wise  
Danna L. Kauffman  
Christine K. Krone  
410-244-7000

DATE: March 12, 2024

RE: **SUPPORT** – Senate Bill 960 – *Maryland Clean Energy Center – Climate Technology Founder's Fund*

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The Maryland Tech Council (MTC) is a collaborative community, actively engaged in building stronger life science and technology companies by supporting the efforts of our individual members who are saving and improving lives through innovation. We support our member companies who are driving innovation through advocacy, education, workforce development, cost savings programs, and connecting entrepreneurial minds. On behalf of MTC, we submit this letter of **support** for *Senate Bill 960: Maryland Clean Energy Center – Climate Technology Founder's Fund*.

This bill would establish the Climate Technology Founder's Fund in the Maryland Clean Energy Cetner to provide early-stage funding for companies in areas such as: solar, wind, energy storage, grid modernization, carbon capture utilization, and other clean tech focus areas. As the State's largest association of technology companies, we are seeing consistent growth of the clean tech sector as the private industry continues to develop solutions to combat climate change and achieve carbon emission reduction goals. Maryland, in particular, has an imminent need to develop and deploy solutions to accomplish the goals of the Climate Solutions Now Act, passed in 2022. The bill proposes to repurpose under-invested funds from the Strategic Energy Investment Fund (SEIF) for this purpose, with a preference given to companies that are small, minority, women-owned, and veteran-owned (MWVOB) in the clean energy industry.

If passed into law, this legislation will create a pipeline of resources to help companies, especially those that are MWVOB, to bring novel technologies, products, and services to the market to address the impacts of climate change. Passage will not only help address climate change but will also bolster Maryland's clean tech ecosystem.

For these reasons, we urge a **favorable** report of Senate Bill 960.

# **USPlasma written testimony 31224.docx.pdf**

Uploaded by: Hamideh Soltani-Ahmadi

Position: FAV

March 11, 2024



USPlasma, Inc.  
4467 Technology Drive  
College Park, MD 20742

**Subject:** SB 0960/HB 1220 “Maryland Clean Energy Center - Climate Technology Founder's Fund” Tuesday, March 12 - 1:00 PM - Miller Senate Office Building, 3 West – 11 Bladen Street - Annapolis, MD

***USPlasma's mission is Science for a Better Life and Healthy Environment.***

At USPlasma, Inc. our vision is to electrify manufacturing with renewable electricity while minimizing and recycling waste, reducing GHS emission, and enabling new chemistry with reduced manufacturing cost.

Faculties at the UMD recently developed a novel impactful platform technology that can be leveraged to address mankind's challenges, such as GHS reduction, addressing food insecurity and clean energy. Our plasma-based reactors can overcome the shortcomings of past plasma processes. The tip-enhanced carbon electrode design enables the formation of uniform, stable, large-area, and voluminous plasma at atmospheric pressure with a record-low breakdown voltage, less than 50 V, while simultaneously achieving tunable ultra-high temperatures up to 8,000 K. It lends itself to safe, flexible, scalable, inexpensive, and easy to operate reactor design with the ability to cycle the reactor temperature between 1,000 K to 8,000 K in less than one second.

This revolutionary technology opens the door to new chemistries, including difficult-to-achieve non-equilibrium syntheses, high-quality bulk production processes of a wide range of extreme and emerging materials, and production processes that can replace the legacy production processes while improving product quality, reducing cost, and carbon footprint. Examples include but are not limited to, the conversion of N<sub>2</sub> to fertilizer, biomass to useful carbon at the temperature of 5,000 K for 10 second residence time, or production of high-quality amorphous high-melting oxides such as MgO, ultra-high-temperature ceramic such as Hf(C, N) hafnium carbonitride, that is very challenging to prepare because of its record high melting point (>4,000 K) and nitrogen dissociation, and production of high-quality

refractory metal alloys with ultra-high melting points such as W-1.5Nb-0.5Ti or production of higher quality cement powder at higher throughput with less CO<sub>2</sub> emission as compared to the conventional rotating kilns and production of high-quality refractory high entropy alloys, RHEA, that improve the thermal efficiency of natural gas turbines and jet engines by 7% resulting in energy saving equivalent to about 116 million barrels of petroleum per year and a significant reduction in CO<sub>2</sub> emission, about 23 million metric tons, equivalent to emission from 5 million cars, or biomass to useful carbon used in production of anode in battery.

USPlasma Inc. started with a one-woman scientist, supported by faculty founders, but without significant capital, legal, and business management support. In the span of six months, we managed to develop strategic partnerships with three industry supply chain partners. In addition, USPlasma received a \$100,000 award and are hoping to raise \$300,000 convertible note. Furthermore, we are expecting to move into UMD's rental laboratory space to de-risk and validate our technology. Because of this progress, we are in the midst of hiring an experienced Ph.D. chief technology officer and a full-time technician. We are also negotiating a marketing, manufacturing, and sales deal with a company in California to quickly commercialize our laboratory research plasma reactor for R&D purposes to get this impact technology in the hands of researchers in universities and laboratories in the USA to advance the cause of science and technology. Finally, we are also in the midst of negotiation with a major company in the USA as an industry supplier, commercialization partner and equity investor.

USPlasma would not have been able to achieve the above progress without the full commitment, dedicated and caring support of MEIA. They not only provided us with initial legal and business support but also held weekly meetings with us to guide us through the business challenges and our endeavors to connect with potential industry partners, equity investors, and HR procurement. I should also mention the high value I received from MEIA entrepreneurial periodic seminars covering important topics crucial to the success of a new startup.

Here on behalf of USPlasma, I would like to take the opportunity to thank MEIA team, Wade Haerle, Mike Ducker, and Emily Sheppard for their unwavering help and support as I and the faculty-founders are navigating through this journey.

Best Regards,

Dr. Hamideh Soltani

**Pirl (founder) Testimony SB 0960 (3-12-24).pdf**

Uploaded by: KOBBY OSEI-KUSI

Position: FAV



Kobby Osei-Kusi  
Energy Entrepreneur in Residence (EEIR)  
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*Maryland Clean Energy Center (MCEC) was created as a not-for-profit corporate instrumentality of state in 2008 through an act of the Maryland General Assembly. In 2019, MCEC launched the "Maryland Energy Innovation Accelerator (MEIA)," a venture development program that focuses on commercialization of climate-focused IP developed at Maryland-based universities, laboratories, and companies. MEIA is funded through Maryland's Strategic Energy Investment Fund, the US Economic Development Administration Build to Scale Program, and Corporate Sponsorships.*

*The heart of MEIA is the support EEIRs provide to Maryland's energy and cleantech startups. Over the last 3 years, MEIA has recruited over 100 EEIRs to meet its specific startup needs. MEIA has built relationships with EEIRs representing over 50 different cleantech technologies. EEIRs have broad business experiences; some have built cleantech companies, managed complicated advanced manufacturing factories, secured revenue from fortune 500 companies, and raised money for their startup.*

#### **HB 1220/ SB 0960 - Maryland Clean Energy Center – Climate Technology Founder's Fund**

**Hearing Dates:** 3.12.2024 Senate Budget and Taxation Committee

**Recommendation:** FAVORABLE REPORT

As a founder of an electric vehicle charging startup, one of the toughest challenges to navigate is accessing capital.

Early-stage companies often have limited cash flow and revenue, making it difficult to secure traditional financing from banks or investors. With the MCEC Founder's Fund, entrepreneurs like myself can receive funding that can help them achieve their growth objectives.

Furthermore, the MCEC Founder's Fund will help entrepreneurs attract additional investment by demonstrating a strong commitment to their business idea. By matching funds that entrepreneurs have already raised, the MCEC Founder's Fund will signal to investors that the business is worthy of investment, leading to further funding opportunities in the future. This new legislation will help to create a more vibrant entrepreneurial ecosystem in Maryland by encouraging more entrepreneurs to start businesses and providing them with the support they need to succeed.

In conclusion, the MCEC Founder's Fund is a great new initiative that will help to unlock value for entrepreneurs in the state of Maryland. By addressing the funding challenges that many early-stage entrepreneurs face, this legislation will provide them with the capital they need to take their businesses to the next level. As a result, Maryland's economy will benefit from a more vibrant entrepreneurial ecosystem, leading to more job creation, innovation, and economic growth. More importantly, this funding is going to climate and energy focused companies, which will go a long way to helping the state address its climate change challenges.

**I urge your favorable support of HB 1220/ SB 0960.**

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Uploaded by: Brian Feldman

Position: FWA



**SB0960/983428/1**

AMENDMENTS  
PREPARED  
BY THE  
DEPT. OF LEGISLATIVE  
SERVICES

06 MAR 24  
16:37:16

BY: Senator Feldman  
(To be offered in the Budget and Taxation Committee)

**AMENDMENTS TO SENATE BILL 960**  
(First Reading File Bill)

**AMENDMENT NO. 1**

On page 2, in line 24, strike “and (f–1)” and substitute “and (10), (f–2), and (f–3)”; and strike line 34 in its entirety and substitute “Section 9–20B–05(f)(11), (f–1), and (f–4)”.

**AMENDMENT NO. 2**

On page 5, strike beginning with “NOT” in line 17 down through “PURPOSES” in line 18 and substitute “**MONEY IN THE FUND MAY BE ALLOCATED AS FOLLOWS:**

**(I) UP TO \$1,720,000 MILLION FOR DIRECT INVESTMENTS OF THE FUND;**

**(II) UP TO \$3,280,000 MILLION FOR THE MARYLAND CLEAN ENERGY CENTER AND THE MARYLAND ENERGY INNOVATION ACCELERATOR TECH SUPPORT PROGRAMS; AND**

**(III) UP TO \$2,000,000 MILLION FOR MARYLAND ENERGY INNOVATION INSTITUTE SEED GRANTS”;**

in line 19, after “(F)” insert “(1)”; in the same line, strike “IN” and substitute “SUBJECT TO PARAGRAPHS (2) AND (3) OF THIS SUBSECTION, IN”; in the same line, strike “FINANCING” and substitute “INVESTMENT”; in line 20, strike “DEPARTMENT” and substitute “CENTER”; after line 22, insert:

**(2) AT LEAST 40% OF THE FUNDS AWARDED BY THE CENTER SHALL BE USED FOR EQUITY INVESTMENTS IN MINORITY, WOMEN-OWNED, AND VETERAN-OWNED BUSINESSES START-UP COMPANIES.**

**(3) FORTY PERCENT OF THE FUNDING FROM THE CENTER'S OVERALL APPROPRIATION THAT IS ALLOCATED FOR MARYLAND ENERGY INNOVATION INSTITUTE SEED GRANTS SHALL BE USED TO PROVIDE GRANTS FOR START-UP COMPANIES FROM MINORITY SERVING INSTITUTIONS.”;**

and in line 27, after “FUND” insert “BY THE CENTER”.

On page 7, strike in their entirety lines 5 through 19, inclusive; in lines 23 and 35, in each instance, strike the bracket; strike in their entirety lines 25 through 33, inclusive; in line 34, strike “(4)” and substitute “(2)”; in line 20, strike “(11)” and substitute “(10)”; and in the same line, strike “(F-3)” and substitute “(F-2)”.

On page 8, strike in their entirety lines 1 through 10, inclusive; in line 11, strike “(F-3)” and substitute “(F-2)”; and in line 12, strike “(f)(11)” and substitute “(F)(10)”.

**B\_T\_FAV\_AM\_MEII\_SB0960\_WACHSMAN\_F\_2024\_03\_12.pdf**

Uploaded by: Eric Wachsman

Position: FWA



UNIVERSITY OF  
MARYLAND

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## *Maryland Energy Innovation Institute*

Eric D. Wachsman, Director

*Maryland Energy Innovation Institute (MEI<sup>2</sup>) was created in 2017 through an Economic Development Act (HB410/SB313) of the Maryland General Assembly. MEI<sup>2</sup> works in partnership with academic institutions across the state to help attract federal and private support of Maryland energy research and innovation, with the specific economic development goal of commercializing emerging and transformative advanced clean energy technologies in Maryland.*

**Bill Number: HB1220 / SB0960**

**Title: Maryland Clean Energy Center – Climate Technology Founder’s Fund**

**Hearing Date: March 12, 2024**

**Committee: Senate Budget and Taxation Committee**

**Recommend: FAVORABLE WITH AMENDMENTS REPORT**

Clean energy technology plays a pivotal role in addressing climate change, offering a sustainable alternative to fossil fuels that significantly reduces greenhouse gas emissions. As the global population grows and energy demand increases, transitioning to clean energy sources such as solar, wind, hydroelectric, and geothermal power is essential to mitigate the adverse effects of climate change. Clean energy technologies not only reduce carbon emissions but also help to improve air quality, protect ecosystems, and enhance energy security. By investing in clean energy technology, we can curb the progression of climate change, create green jobs, and build a more sustainable future for generations to come.

The nucleus of the Maryland Energy Innovation Institute’s (MEI<sup>2</sup>) success lies in its world-class researchers, whose expertise spans a spectrum of cutting-edge domains, including battery and fuel cell technologies, biofuels, advanced materials, energy storage, and building and heating energy efficiency. Their collective knowledge and groundbreaking contributions empower us to stay ahead in the rapidly evolving landscape of sustainable energy solutions.

One of our standout capabilities is the adept handling of the energy seed grants, which have consistently translated into a high return on investment. These grants serve as catalysts for pioneering research and development projects, fostering innovation and enabling us to bring transformative ideas to fruition. The strategic allocation of resources through these grants exemplifies our commitment to driving impactful advancements in the energy sector.

However, a notable constraint lies in our limited sources of funding, which are currently short-term and small scale. Energy seed grants are \$100-200K for one year and only for early-stage development of technologies. This financial constraint can impede the sustainability of long-term products/services and hinder the potential for groundbreaking advancements. Exploring avenues for diversified and more substantial funding streams is crucial to ensuring the viability and continuity of our initiatives.

Additionally, the need for more incubators and manufacturing space is an urgent concern. As our initiatives gain momentum, the existing infrastructure is insufficient to accommodate the growing demand for space dedicated to research, development, and manufacturing. Addressing this limitation is pivotal to sustaining and scaling our innovative projects effectively.

**Since inception, state funds invested in MEI<sup>2</sup> and MEIA totaling \$6 million helped establish an energy innovation ecosystem that produced 37 new companies and created 134 new high-paying jobs in the State of Maryland. Moreover, this state, university, and private sector partnership has helped bring to Maryland over \$214M in non-dilutive grant funding and \$70M in private investment, resulting in an estimated 47X return on investment (ROI).**

With additional funding from HB 1220 / SB 0960, the following programs/objectives could be achieved:

- Increase Number and Amount of awards to Seed Grant Applicants, with a focus on more awards to Minority Serving Institutions
- Phase 2 Prototype Accelerator
- Phase 2 Manufacturing Accelerator
- MCEC Founders Fund Phase 3
- Incubation programs for local entrepreneurs; including Incubator Partnerships for Tenant Finish Investments (Phase 4 funding)
- Workforce Development and Training with Industrial Partners including establishing hands-on training programs that bridge theoretical knowledge with practical application especially for minority serving institutions

More specifically on the seed grants program, in the first six years, 57 seed grant proposals were submitted while only 27 were able to be funded due to budget limitation. Although this demonstrates a 47% acceptance rate, increased funding will allow the Maryland Energy Innovation Institute to fund more of these quality proposals. Moreover, a focus of the additional funding would be placed on minority serving institutions that submit proposals. To date, 9 energy seed grant proposals have been submitted to the Maryland Energy Innovation Institute from minority serving institutions, and 5 have been funded.

Passage of this legislation will put resources to work and would be taking another step toward Maryland achieving economic competitiveness.

**The Maryland Energy Innovation Institute urges a favorable report with sponsor amendments for HB1220/ SB0960 and thanks Chairman Feldman and Delegate Vogel for their leadership in sponsoring this legislation.**

Yours sincerely,



Eric D. Wachsman, Ph.D.  
Distinguished University Professor  
Director, Maryland Innovation Institute  
William L. Crantz Centennial Chair in Energy Research  
University of Maryland  
*Past President, The Electrochemical Society*  
*Fellow, National Academy of Inventors*

# Maryland Energy Innovation Institute

Eric D. Wachsman, Director MEI<sup>2</sup>

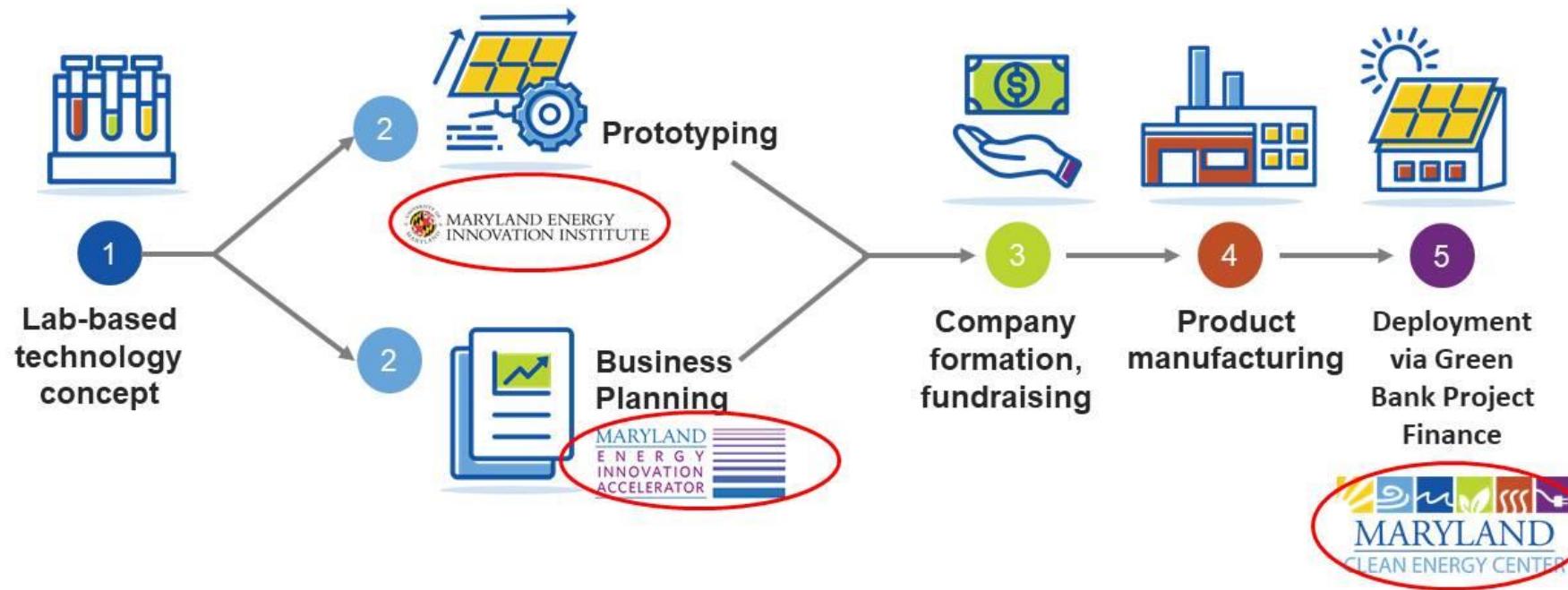
Paul Albertus, Associate Director MEI<sup>2</sup>

[www.energy.umd.edu](http://www.energy.umd.edu)

## Senate Budget and Taxation Committee Testimony for HB 1220/ SB0960

### Advanced Energy Commercialization

#### Concept to Deployment



# Transforming MEI<sup>2</sup> Research to Innovation

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## Economic Development by the Numbers for MEI<sup>2</sup> Activities and Seed Grants, and MEIA Companies

- 37 Companies Formed
- 134 F/T Jobs created
- 124 Patents Filed
- \$70.3M Private Investments
- \$214M in Federal Grants Awarded
- \$4.5M Revenue Generated

## MEI<sup>2</sup> Investment Committee

*Ellen Williams, UMD Distinguished University Professor, Former Director ARPA-E (DOE)*

*Ken Porter, Director, UM Ventures*

*Eric Chapman, Asst. Vice-President of Research, UMD*

*Rob Briber, Interim Dean, A. James Clark School of Engineering*

*Arti Santhanam, Exec. Director Innovation Initiative, TEDCO*

*Colleen Wright, Vice-President of Corporate Strategy, Constellation*

# Transforming MEI<sup>2</sup> Research to Innovation

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## MEI<sup>2</sup> Innovation Seed Grants

- Bridge the gap between transformative academic research and VC-Ready Proof-of-Concept
- Advance energy technology and economic growth of Maryland university spin-off companies  
Must have appropriate IP protection and commercialization plan.
- In first six years 27 seed grants were awarded (22 Phase I and 5 Phase II)
- Demand for these seed grants has grown rapidly far exceeding current budget to support
- Several have resulted in follow on private investment.
- Total Awards Submitted: 57      Total Recipients: 27      Acceptance rate: 47%
- Minority Serving Submitted: 9      Total Recipients: 5      Acceptance rate: 55%

# Increasing the Energy Innovation Ecosystem

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## Increased Funding would be used to:

- Increase Number and Amount of Awards to Seed Grant Applicants with a focus on more to Minority Serving Institutions
- Phase 2 Prototype Accelerator
- Phase 2 Manufacturing Accelerator
- MCEC Founders Fund Phase 3
- Market Research/ Due Diligence Support Grants
- Incubator Partnerships for Tenant Finish Investments Phase 4
- Workforce Development and Training with Industrial Partners

# Transforming MEI<sup>2</sup> Innovation to Jobs



ION is commercializing its low cost, energy dense, fast charging, safe, and versatile solid-state batteries with a goal of sustained GWh-scale production.

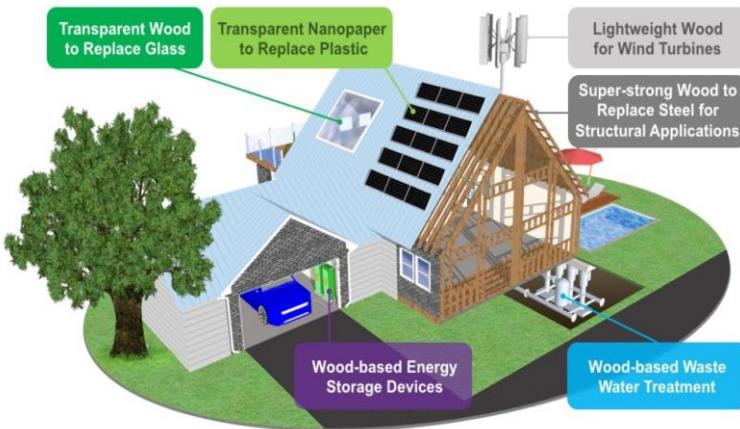
Inc. Founded	Employees	Facility	Funding
2019	70+	30k sqft (MD, USA)	\$42M in VC Funding
Dev. Partners	Customer Pipeline	Patents	Cells produced
8 <u>\$10.8M Nondilutive</u>	30+	23 Issued 28 Pending	1000's of pouch cells

- Selected as “Maryland Future 20” company

*Disclaimer: Ion Storage Systems founded by Wachsman and this is meant as only an example of potential spinoffs and not an endorsement of this company or request for any support on its behalf*

# Transforming MEI<sup>2</sup> Innovation to Jobs

## InventWood™ From Nature | For the Future



### Revolutionary Technology, Millions of Years Old

InventWood is transforming the world by developing cellulose-based materials that are high-quality, cost-effective, and environmentally-sustainable. Our proprietary technologies offer superior alternatives to the most commonly-used materials today while providing solutions to some of the world's most intractable environmental challenges.

- Moved into manufacturing facility in Frederick, MD
- \$22M in follow on federal funding
- \$3.2M in private investment

### Revolutionizing Sustainable Building Materials

#### MettleWood™



An extremely strong and tough material that is stronger, lighter, and cheaper than titanium and carbon fiber. It also offers numerous safety benefits over alternatives, and it is responsibly created and biodegradable.

#### Potential uses:



#### Insulating Wood



A bright-white material that is stronger than natural wood and insulates against both heat loss and impacts better than commercially available alternatives. It is also biodegradable and eco-friendly.

#### Potential uses:



#### Transparent Wood



A clear wood material that is lighter and tougher than glass, with up to 3x better thermal insulation. It also offers benefits in terms of both light channeling (to reduce glare) and far more environmental sustainability.

#### Potential uses:



- Selected as “Maryland Future 20” company

**B\_T\_FAV\_AM\_SB0960\_HB1220\_MCEC\_MAGRUDER\_TESTIMONY\_2**

Uploaded by: Katherine Magruder

Position: FWA



I. Katherine Magruder  
Executive Director  
[ikm@mdcleanenergy.org](mailto:ikm@mdcleanenergy.org)  
301-314-6061

The Maryland Clean Energy Center (MCEC) was created in 2008 by the Maryland General Assembly to fund and facilitate a clean energy future. To fulfill its mission, MCEC offers procurement and technical support for project development, provides access to capital, engages in consumer education, and fosters climate tech innovation to advance the adoption of clean energy and energy efficiency products, services, and technologies.

## **SB0960/ HB 1220 – Maryland Clean Energy Center – Climate Technology Founder’s Fund**

**Hearing Date: March 12, 2024**

**Committee: Senate Budget and Taxation Committee**

**Recommend: FAVORABLE WITH AMENDMENTS REPORT**

**Research and development focused on climate adaptation and impact mitigation has the potential to benefit our state economically and environmentally. Investing in the growth of early-stage start-up companies will allow the state to lead the world in bringing solutions to the marketplace.**

Maryland has leveraged the technological advances achieved at the numerous, highly regarded, top-notch research institutions and federal labs located within the state for wealth and job creation by facilitating the transfer of cutting-edge technology in aerospace engineering, IT, and biotechnology industries.

**Maryland is well-positioned to benefit from science that seeks to help society adapt to and mitigate the impact of climate change. Discoveries happening here today are becoming the new products, services, and technologies to fuel the state's economic engine.**

As a result of funding committed in [HB0419/CH0024](#), MCEC created the Maryland Energy Innovation Accelerator (MEIA) in 2019. The program offers technical and executive management support at the earliest stage of company creation by wrapping executive expertise around climate technologies to pull associated products, services, and technologies to the market. MEIA works closely with researchers at the Maryland Energy Innovation Institute (MEI<sup>2</sup>), as well as colleges and universities in and outside the state. Investments mandated in the same bill also make seed grants available through MEI<sup>2</sup> to validate technology developed by those researchers.

**Since inception, state funds invested in MEI<sup>2</sup> and MEIA totaling \$6 million helped establish an energy innovation ecosystem that produced 37 new companies and created 134 new high-paying jobs in the State of Maryland. Moreover, this state, university, and private sector partnership has helped bring to Maryland over \$214M in non-dilutive grant funding and \$70M in private investment, resulting in an estimated 35X return on investment (ROI).**

Per the Clean Energy Jobs Act ([SB0516/CH 757](#)) passed in 2019, \$7M in funds are mandated to transfer from the Strategic Energy Investment Fund (SEIF) to the Video Lottery Terminal Fund (VLT) to provide loans for Small Minority-, Women- and Veteran-Owned Business Account managed by the Department of Commerce. None of these funds have been used to date, and the current uninvested fund balance is \$2.2M, with an additional \$1.2M to be deposited over the next four fiscal years.

**SB0960/ HB1220 proposes to put these otherwise idle funds to work directly, now and in the future, to support MWVOB entrepreneurs to advance clean energy and decarbonization solutions faster and provide the critical match necessary to secure as much as \$2M in federal grants to further support this work.**

For companies and researchers participating in the MEIA and MEI<sup>2</sup> programs, this funding will:

- Make supporting MWVOB companies and minority serving universities a primary focus
- Create the Climate Tech Founders Fund to make direct equity investments in early-stage Maryland companies
- Expand technical assistance for entrepreneurs seeking to launch new start-up companies in prototype and manufacturing phases
- Increase availability of critical Innovation Seed Grants to advance the technologies from patented breakthroughs to VC investible prototypes
- Increase the non-dilutive federal energy grant funding coming to Maryland
- Attract new climate tech companies to grow in Maryland
- Provide critical investments into incubator space for those companies to grow in Maryland

Passage of this legislation will put resources to work and would be taking another step toward Maryland achieving economic competitiveness.

**MCEC urges a favorable report with sponsor amendments for SB0960/ HB1220 and thanks Chairman Feldman and Delegate Vogel for their leadership in sponsoring this legislation.**



## Testimony Senate Bill 0960 / House Bill 1220

Maryland Clean Energy Center – Climate Technology Founder's Fund

MAR 12, 2024

# What is MCEC and what does it do?

Quasi-governmental instrumentality of State that serves as a statewide Green Bank

Mission to increase clean energy jobs, drive commercialization of climate related technological innovations, and enable equitable adoption of clean energy products and services to reduce greenhouse gas emissions

**Facilitates access to capital** and operates financing programs using leveraged or direct investment

**Provides specialized procurement and technical support** to facilitate project implementation

**Supports climate tech commercialization**

**Offers outreach & education programs** and events to stimulate markets and enable climate justice

**MCEC is Building the Maryland Advanced Energy Economy!**

# Facilitate Economic Competitiveness, Build Climate Tech Sector



MARYLAND ENERGY  
INNOVATION INSTITUTE

## CLIMATE TECH COMMERCIALIZATION

### Pre-Accelerator

### Launchpad

### Accelerator

Pulling advanced energy and climate technologies to market with executive expertise

Since inception, MEI<sup>2</sup> and MEIA have established an energy innovation ecosystem

**112 Companies Accelerated**  
**134 FT Jobs Created**

**\$70.0M Private Investment**  
**\$214.0M Non-dilutive Grant Funding**

**37 New Companies Formed**  
**35X Return on Investment (ROI)**

# Why is support for this bill important?

## CLIMATE TECH IS THE NEXT BIOTECH !

- Advance Economic Competitiveness for Maryland
- Provide technical support and investment capital for very early stage MWVOB who are advancing new technologies, products and services which will help reduce GHG emissions.
- Keep MEIA Program operational to create companies using nascent climate technologies
- Provide 1 to 1 match for future US Department of Commerce EDA Build to Scale Phase 2 Grant Funds
- Provide seed grants to move technology to the market

# Put Stagnant Funds to Work NOW

## Department of Commerce Video Lottery Terminal Funding (VLT Fund)

Currently Allows just for Loans to Small-, Minority-, Women-, and Veteran-Owned Businesses

MEA - SEIF Contributes a Portion to the VLT Fund

- \$2.2M since 2021 (fund Balance)
- \$1.2M in each fiscal year from 2025 – 2028

Seeking to Redirect funds from SEIF to MCEC for the MEIA Program

Requesting future funds be directed from SEIF to MCEC to fund MEIA Program

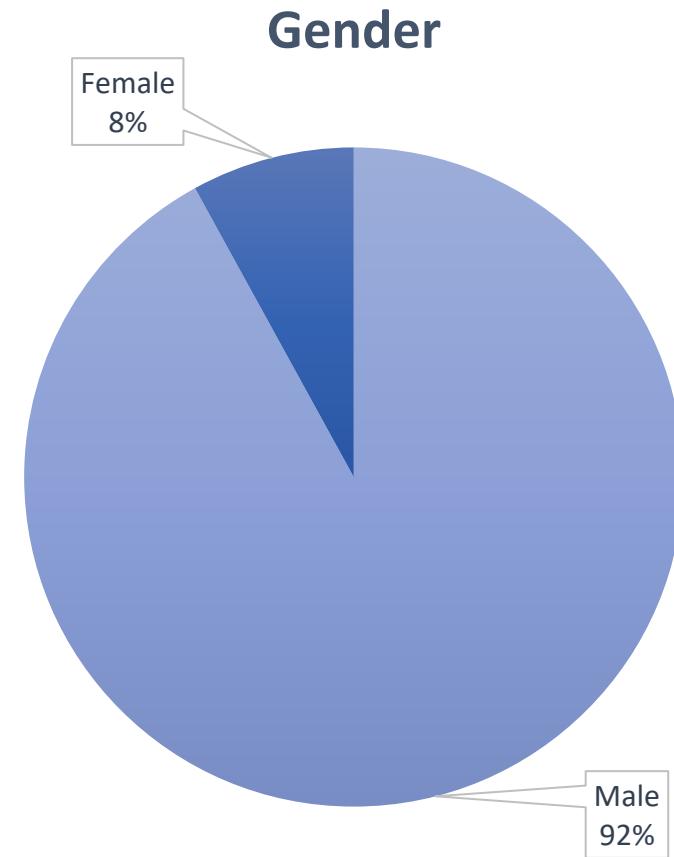
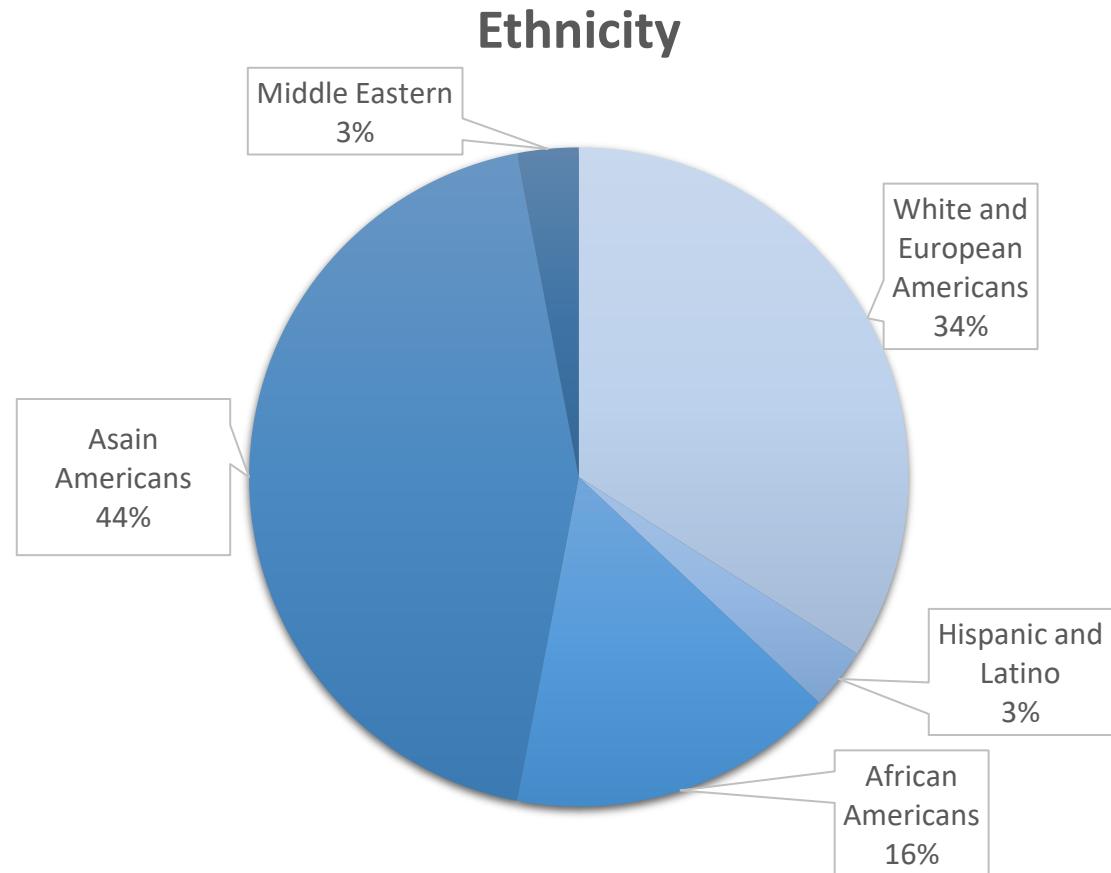
Source: [https://commerce.maryland.gov/Documents/ProgramReport/VLT\\_FinancialReport\\_FY22.pdf](https://commerce.maryland.gov/Documents/ProgramReport/VLT_FinancialReport_FY22.pdf)

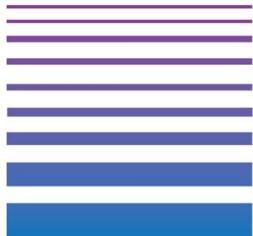
# Climate Tech Commercialization

## Maryland Energy Innovation Accelerator (MEIA) - Current Teams

	Dung Minh Hoang, Founder of Aquatic Circle		Brooke Smallwood, Founder of Oasis Energy Systems		Gabriel Cepeda, Founder of Vecino		Ning Zeng, Founder of Carbon Lock Down Project
	Kobby Ose-Kusi, Founder of Pirl		Onat Dogruer and Yvonne Thurman Co-Founder's Archer Power Solutions		Daniel Nohaft, Founder of Uplift Geosystems		Hamideh Soltani, Director of USPlasma
	Taein Lee, Founder of JJ Innovation Materials		Shengqiang Ren, Founder of NewCopper		Carlos Romero Talamas, Founder of TerraFusion		Bob Gatte, CEO of HighT-Tech Catalyst
	Steven Davey, Co-Founder of CUPTech		Ichiro Takeuchi, Co-Founder of MEST		Kevin Tu, Founder of Sustainabli		Canhui Wang, Co-Founder of Carbon Plus

# MEIA Team Ethnicity and Gender Summary





# Climate Tech Commercialization

## \$7M State Investment Request for MEIA Program

**Appropriation can be used as match for up to \$2M in EDA Federal Grant**

- Operating/Admin (currently funded thru MCEC via SEIF) \$ 2.500M
- Phase 1 Prototype Support \$ 350K
- Phase 2 Manufacturing Support Accelerator \$ 280K
- Phase 3 Founders Fund & Incubator Partnerships \$ 1.720M
- Recruit Clean Climate companies to Maryland \$ 150K
- Seed Grant Funding for MEI<sup>2</sup> \$ 1.000M

Request Fully Funded							
Sources/Uses	FY24	FY25	FY26	FY27	FY 28	VLT - 4 YR	
<b>BEGINNING FUND BALANCE</b>	-	-	<b>250,000</b>	-	-	-	
<b>SOURCES OF REVENUE</b>							
SEIF/ VLT Appropriation	-	1,200,000	1,200,000	1,200,000	1,200,000	4,800,000	
SEIF/ VLT Prior Years' Funds	-	2,200,000				2,200,000	
<b>SUB TOTAL - REVENUE</b>	-	<b>3,400,000</b>	<b>1,200,000</b>	<b>1,200,000</b>	<b>1,200,000</b>	<b>7,000,000</b>	
<b>USES OF FUNDS</b>							
MEI2/ Seed Grants VLT Appropriation		1,000,000	500,000	250,000	250,000	2,000,000	
MEIA Operational		625,000	625,000	625,000	625,000	2,500,000	
Phase I Prototype		87,500	87,500	87,500	87,500	350,000	
Phase II Manufacturing		70,000	70,000	70,000	70,000	280,000	
Phase III Climate Tech Founders Fund		1,330,000	130,000	130,000	130,000	1,720,000	
Bus Dev		37,500	37,500	37,500	37,500	150,000	
<b>SUB TOTAL - EXPENSES</b>	-	<b>3,150,000</b>	<b>1,450,000</b>	<b>1,200,000</b>	<b>1,200,000</b>	<b>7,000,000</b>	
<b>ENDING FUND BALANCE</b>	-	<b>250,000</b>	-	-	-	-	

# Potential Investment Impact

## Fostering Economic Competitiveness

- Return on investment at least 25X (\$120M)
- Increase in private investment at 10X (\$48M)
- Create a minimum of 14 new companies per year
- Create more than 50 new jobs per year
- Secure \$18M in non-dilutive grant funding per year (SBIR, ARPA-E, EDA)



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