HB0911 Carbontech Toll FAV.pdfUploaded by: Brian Toll Position: FAV



CARBON TECHNOLOGY INSTITUTE

March 10, 2023

Delegate Ben Barnes Chair, Appropriations Committee House Office Building, Room 121 Annapolis, MD 21401

Dear Delegate Barnes:

I am writing to request your favorable support for HB 0911 "Maryland Clean Energy Center - Climate Technology Founder's Fund - Establishment."

I am Managing Director of Carbon Technology Institute (www.carbontech.org), a consulting firm located in Bethesda, Maryland that assists Maryland-based startups with technology commercialization. The Maryland Clean Energy Center operates a program called the Maryland Energy Innovation Accelerator (MEIA). CTI currently supports the MEIA in a consulting capacity.

The MEIA program accelerates the commercialization of new clean energy and climate technologies created in Maryland-based businesses, universities, and laboratories with the goal of creating new Maryland-based technology and manufacturing businesses.

When a business graduates from a MEIA program, it has immediate needs for non-restricted capital. The MCEC Climate Technology Founder's Fund, which requires a one-to-one match, will invest non-restricted capital into MEIA graduates for such uses as: to assist with starting operations, to secure patent rights, to cover fundraising costs, and other uses. A small, strategic investment, made quickly and at the right time, will make a huge difference towards enabling MEIA graduates to obtain both non-dilutive (SBIR) and dilutive (venture) capital, and help Maryland attain our climate and economic development goals.

This legislation provides baseline funding for the Climate Technology Founder's Fund administered by the Maryland Clean Energy Center. **Your consideration and favorable support of HB 0911 will be much appreciated.**

Sincerely,

Brian Toll

Managing Director brian@carbontech.org

Buan P Foll

APP_HB0911_FAV_LIVINGCANOPIES_DAVE TILLEY_2023_03-Uploaded by: David Tilley



Dr. Dave Tilley, PhD
CEO & Co-founder
dave@livingcanopies.com
301-789-5099
LivingCanopies.com
CoolGreenShelters.com

Living Canopies Ltd is a Maryland-based corporation that is commercializing green technology invented and patented at the University of Maryland College Park (UMD) in 2016.

The green technology integrates nature-based solutions with smart devices to revolutionize the way cities approach sustainability and equity to co-manage mobility, green space, carbon emissions and storm water. Our flagship product, the Cool Green Shelter for Bus Stops, is designed to address the growing needs for public mobility options in cities and provide sustainable and equitable economic opportunities for all city residents. Our patent-protected design increases ridership, enhances customer experience, and reduces greenhouse gas emissions, making it a viable and attractive solution for cities and transit authorities. Our innovative Green Shelters incorporate solar power, a living green roof, device charging and rainwater harvesting technologies that will result in GHG reduction of 8000 MT-CO2/y, 5.8 million new rides per year, storage of 9.3 million liters of stormwater per year, production of 2.5 GWh of solar electricity per year and a total cooling reduction of 1.3 million cooling degree-days by 2027. We believe the Green Shelter will revolutionize the way cities create equity and sustainability in the mobility space, and we are excited to bring our vision to life.

HB 911/ SB 900- Maryland Clean Energy Center - Climate Technology Founder's Fund

Hearing Dates: 3/14/2023 House Appropriations Committee

Recommendation: FAVORABLE REPORT

As a green-tech startup company, Living Canopies relies on public and private investment to advance the research and development of its technology and to commercialize its resulting products. We have benefited greatly from the generosity and mentorship offered by the Maryland Energy Innovation Accelerator (MEIA) during 2022. MEIA has provided us with \$10,000 in non-dilutive funding that provided us with the expertise of a seasoned executive. This executive helped us develop a new business model and investor pitch deck. This has prepared us to seek private investment.

Private investment is not only necessary to execute our sales and marketing strategy, but it opens access to several of the State's technology-based business investment funds, like those managed by TEDCO and MTech/DNR. However, while we seek private investment, we fall prey to a funding gap that jeopardizes our momentum. This gap can be filled by the creation of the MCEC Founder's Fund.

Additionally, the MCEC Founder's Fund would provide needed 1:1 matching for Living Canopies so we can seek investments offered through the USM Momentum Fund and TEDCO's SEED Fund.

Living Canopies has an agreement with the City of Hyattsville to purchase several of our unique, Green Shelters. This project has a 10-year lifetime value of \$715,000 for Living Canopies. As a physical product, our Green Shelters require metal fabrication, which will result in manufacturing jobs in Maryland.

Living Canopies urges your favorable support of HB911/ SB900 and thanks, Chairman Barve, Delegates Vogel and Qi for their leadership in sponsoring this legislation.

APP_HB0911_FAV_WACHSMAN_2023_03_14.PDF Uploaded by: Eric Wachsman



Building 089 College Park, Maryland 20742-2115 301.405.8193 TEL 301.314.2029 FAX ewach@umd.edu www.energy.umd.edu

Maryland Energy Innovation Institute

Eric D. Wachsman, Director

Maryland Energy Innovation Institute (MEI²) was created in 2017 through an Economic Development Act (HB410/SB313) of the Maryland General Assembly. MEI² 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.

HB 911/SB 900- Maryland Clean Energy Center - Climate Technology Founder's Fund

Hearing Dates: 3.14.2023 House Appropriations Committee

Recommendation: FAVORABLE REPORT

MEI² was formed to advance energy innovation in the State of Maryland in partnership with the Maryland Clean Energy Center (MCEC) and its Maryland Energy Innovation Accelerator (MEIA). In this partnership MEI² focuses on development of advanced energy technology while MEIA focuses on development of the business to commercialize that technology, creating the basis for a Maryland energy innovation ecosystem.

This has been a tremendous success with MEI² efforts resulting in over \$117M in U.S. Department of Energy ARPA-E awards to University of Maryland teams to develop those advanced energy technologies. Moreover, the combined efforts of MEI² and MEIA have created 20 new Maryland energy innovation companies, receiving over \$46M in private VC funding, and creating over 100 new jobs in the State of Maryland.

However, even with this success it is abundantly clear that what is still lacking for this Maryland energy innovation ecosystem to achieve its full potential of advancing both Maryland's economic and environmental goals is the type of early-stage capital that the Founder's Fund would provide. Therefore, MEI² urges your favorable support of HB911/SB900 and thanks, Chairman Barve, Delegates Vogel and Qi for their leadership in sponsoring this legislation.

Eric D. Wachsman, Ph.D.

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Director, Maryland Energy Innovation Institute

Distinguished University Professor

William L. Crentz Centennial Chair in Energy Research

University of Maryland

APP_HB0911_FAV_MCEC_Katherine Magruder_2023_03_14. Uploaded by: Katherine Magruder



I. Katherine Magruder Executive Director ikm@mdcleanenergy.org 301-314-6061

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.

MCEC focuses on an economic development mission to advance the adoption of clean energy and energy efficiency products, services and technologies with associated jobs, wages and tax revenue for Maryland. MCEC leverages private capital and private sector capabilities; facilitates the commercialization of innovative advanced energy technologies; implements climate justice initiatives, strives to reduce energy costs for consumers, and drives reductions in greenhouse gas emissions associated with the use of fossil fuels.

HB 911 - Maryland Clean Energy Center - Climate Technology Founder's Fund

Hearing Dates: 3.14.2023 House Appropriations Committee

Recommendation: FAVORABLE REPORT

Research and development focused on climate adaptation and impact mitigation has the potential to significantly 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.

In terms of successful economic development strategies, Maryland has a history of leveraging 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. In the past, the state facilitated the transfer of cutting-edge technology and incubated industries like aerospace engineering, IT and biotechnology; which evolved into global economic industry powerhouses and major employers.

Science that seeks to help society adapt to and mitigate the impact of climate change happening here today is the seed for ideas are now becoming the new products, services and technologies driving the global economy. Maryland is once again well positioned to harvest the benefits.

HB 911 proposes to provide funding to act as an accelerant to ignite early-stage private capital investment, and fill a gap in the tech commercialization eco-system which has proven to be a significant hurdle for entrepreneurs trying to nurture a new company. With this small investment, start-ups forming the Climate Tech economy will have even better chance of surviving the commercialization valley of death and achieving the promise of a brighter economic future for Maryland

The Maryland Clean Energy Center, in partnership with the Maryland Energy Innovation Institute, is already working at the earliest stages of climate and clean energy related tech transfer. With the creation of the Maryland Energy Innovation Accelerator in 2019, Maryland began to focus on building the climate tech eco-system, support successful company formation, and pull the related technological discoveries to market faster. This work wraps executive expertise around a technology to help identify potential market applications, create pathways to market, and provide the business acumen needed to attract private investment capital for a company to ultimately succeed.

MCEC urges your favorable support of HB911/ SB900 and thanks, Chairman Barve, Delegates Vogel and Qi for their leadership in sponsoring this legislation.

HB0911 UMD Gregorczyk FAV.pdf Uploaded by: Keith Gregorczyk Position: FAV

March 10, 2023

Delegate Ben Barnes Chair, Appropriations Committee House Office Building, Room 121 Annapolis, MD 21401

Dear Delegate Barnes:

I am writing to request your favorable support for HB 0911 "Maryland Clean Energy Center - Climate Technology Founder's Fund - Establishment."

I am currently an Associate Research Scientist at the University of Maryland. I am also enrolled in the Maryland Energy Innovation Accelerator (MEIA) and recently launched an advanced solid-state battery start-up company called Ionic Devices. This would not have been possible without the education and funding provided by MEIA.

When our business graduates from the MEIA program, it will have immediate needs for non-restricted capital. The MCEC Climate Technology Founder's Fund, which requires a one-to-one match, will invest non-restricted capital into MEIA graduates for such uses as: to assist with starting operations, to secure patent rights, to cover fundraising costs, and other uses. A small, strategic investment, made quickly and at the right time, will make a huge difference towards enabling us to obtain both non-dilutive (SBIR) and dilutive (venture) capital, and help Maryland attain our climate and economic development goals.

This legislation provides baseline funding for the Climate Technology Founder's Fund administered by the Maryland Clean Energy Center. **Your consideration and favorable support of HB 0911 will be much appreciated.**

Sincerely,

Keith Gregorczyk Associate Research

Scientist

kgregorc@umd.edu

APP_HB0911_ FAV _MEIA_KOBBY OSEI-KUSI_2023_03_14.p

Uploaded by: KOBBY OSEI-KUSI



Kobby Osei-Kusi Energy Entrepreneur in Residence (EEIR) kobby@thepirl.com (347) 302 3196

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 911/ SB 900 - Maryland Clean Energy Center - Climate Technology Founder's Fund

Hearing Dates: 3.14.2023 House Appropriations Committee

Recommendation: FAVORABLE REPORT

As a MEIA Energy Entrepreneur in Residence (EEIR), I guide early-stage entrepreneurs through the challenging stages of bringing their ideas to market. 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 can receive matching funding that can help them bridge the gap and 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 HB911/ SB900 and thanks, Chairman Barve, Delegates Vogel and Qi for their leadership in sponsoring this legislation.

HB 911 CBF FAV.pdfUploaded by: Matt Stegman Position: FAV



CHESAPEAKE BAY FOUNDATION

Environmental Protection and Restoration
Environmental Education

House Bill 911

Maryland Clean Energy Center - Climate Technology Founder's Fund - Establishment

Date: March 14, 2023 Position: **SUPPORT**To: House Appropriations Committee From: Matt Stegman,

Maryland Staff Attorney

Chesapeake Bay Foundation (CBF) **SUPPORTS** HB 911 which creates the Climate Technology Founder's Fund within the Maryland Clean Energy Center. This fund will be used to provide early-stage funding for new companies focused on developing technologies that mitigate the impacts of climate change.

Climate change is affecting the Chesapeake Bay and rivers and streams across the watershed—adding more stress to a system still out of balance. Water and air temperatures are increasing, putting both wildlife and people at risk of dangerous heat and worsening the Bay's low-oxygen dead zone. Sea levels are rising at a rate nearly twice the global historic average, causing damage to habitat and property. And record-breaking storms are becoming more common, washing more pollution into rivers and the Bay.

The urgency of our climate situation requires an "all hands on deck" approach that includes investment and innovation from both the public and private sectors. HB 911 will provide a source of state investment to help foster private innovation in the field of climate technology.

CBF urges the Committee's FAVORABLE report on HB 911.

For more information, please contact Matt Stegman, Maryland Staff Attorney, at mstegman@cbf.org.

HB911 - MCEC Support Letter - HighT-Tech -10 Marc Uploaded by: Robert Gatte



4467 Technology Drive, #3104 College Park, MD 20742

Email: contact@hight-tech.com

March 10, 2023

Delegate Ben Barnes Chair, Appropriations Committee House Office Building, Room 121 Annapolis, MD 21401

Dear Delegate Barnes:

On behalf of my company, HighT-Tech, Inc., thank you for the opportunity to provide written testimony on HB 911, the creation of the MCEC Founders Fund.

After a 30-year career with W. R. Grace & Co. in Columbia, MD, holding positions as General Manager of their global refining catalyst business and as Chief Technologist, I was introduced to MEIA through their EEIR program. I agreed to mentor one of their start-up companies, HighT-Tech, which spun out from the University of Maryland, College Park, and John's Hopkins University.

As I became more involved with the founders and developed a better appreciation for the opportunities provided by the core HTT technology, I decided to become more directly involved in helping this team create a successful company. In February of 2021, I signed on as CEO of HighT-Tech. MEIA's *try before you buy* approach provided me the time and the structured interactions to get to know the technology, to work on its commercialization plan, and to get to know the founders on a deeper level. After 2 years of technical progress, made possible by the support of MEIA and several ARPA-E federal grants, we are beginning the process of securing much needed outside equity investments.

The MCEC Founder's Fund will invest in Maryland's climate tech innovation companies like ours with a one-to one match to fill gaps in the de-risking of products and the improvements of existing climate tech patents. These small, strategic investments, at the right time, will move our climate tech companies through the typical *valley of death* stages of startup enterprises, one step closer to traditional equity investment, and will help Maryland attain our climate goals.

HighT-Tech urges your favorable support of HB911/SB900.

Sincerely,

Dr. Robert Gatte CEO, HighT-Tech Inc. +1-443-280-3779

bob.gatte@hight-tech.com

APP_HB0911_FAV_BRIGHTWAVE_TIMSHAW_03142023.pdf Uploaded by: Timothy Shaw



March 10, 2023

Delegate Ben Barnes
Chair, Appropriations Committee
House Office Building, Room 121
Annapolis, MD 21401

Re: Written Testimony Submission Regarding HB911/SB900

Dear Delegate Barnes,

I am submitting this testimony in support of HB911/SB900, Maryland Clean Energy Center – Founders Fund - Establishment.

My name is Timothy Shaw. I am a resident of Clarksville, MD (district 13). My startup business, BrightWave Partners LLC ("BrightWave") is also based in district 13.

BrightWave (<u>www.brightwavellc.com</u>) has developed and patented a disruptive technology to produce algae biomass, indoors and at industrial scale. Algae biomass is a versatile and renewable feedstock with valuable applications across multiple industries.

Our cultivation platform enables manufacturers to scale the on-site production of a high-quality bio-feedstock. Growing algae, and using it in products to replace petroleum-derived components, reduces carbon dioxide emissions and mitigates the impact of climate change.

Our technology can be a key driver in helping manufacturers – of almost any product – decarbonize their operations.

Additionally, algae is an excellent source of protein and nutrition, and our systems provide unprecedented efficiencies and cost savings for food production.



BrightWave is three years old, and we are attracting clients from industries as diverse as Food, Aquaculture, Cement and Pharma. We feel as though we have an incredible future ahead of us, but we need investment to scale growth.

As BrightWave advances through the MEIA program, we have started the process of securing critical capital investments. The MCEC Founders Fund would be invaluable in helping us attract investors and accelerate getting our products to market. The quicker we get to market, the quicker we can bring revenue into our company and into Maryland.

Approving this bill does not just provide direct support for companies like mine. It also supports the network of other Maryland-based companies and organizations that we support with our business – design and manufacturing partners, paid employees, and even the University of Maryland.

Again, I urge your favorable support of HB911/SB900.

Thank you for your time and consideration.

Timothy L. Shaw Partner & Co-founder BrightWave tshaw@brightwavellc.com

APP_HB0911_ FAV _MEIA_WADE HAERLE_2023_03_14.pdf Uploaded by: Wade Haerle



Wade A, Haerle Director Wade.haerle@mdeia.org 443.294.5131

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.

HB 911/ SB 900- Maryland Clean Energy Center - Climate Technology Founder's Fund

Hearing Dates: 3.14.2023 House Appropriations Committee

Recommendation: FAVORABLE REPORT

MEIA's primary objective is to facilitate the formation of higher quality entrepreneurial teams that will create and accelerate investible Maryland-based advanced energy businesses. MEIA teams develop a business model canvas and pitch deck. We have discovered a gap between the graduation of MEIA companies and the final preparation to create an investable company. This gap can be filled by the creation of the MCEC Founder's Fund.

The first investments in MEIA companies are not traditional equity investments like those made by TEDCO. The first investments, over \$22 million since 2019, are in the form of non-diluted federal grants like ARPA-e, the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs which de-risk an innovative climate tech product.

These Federal Grants are extremely helpful but do not cover certain cost like the improvement of patents, the creation of an executive team, or the establishment of a manufacturing space. All of which are needed to secure future equity investments.

The Founder's Fund will invest in Maryland's climate tech innovation companies with a one-to one match to fill this funding gap. These strategic investments, at the right time, will move our climate tech companies one step closer to a traditional equity investment.

The capital gains estimate for MCEC and MEIA are projections, and the timing of return on investment is over multiple years. Our best-case revenue estimate is based on 9 total investments of \$50,000:

- Five companies will not have any or little gains based on liquidity events. MCEC receives no return of capital, equating to a loss of \$200,000.
- Two companies return original investment to MCEC for a return of capital of \$100,000.

- One company completes a successful seed round and returns to MCEC 3 times a return on capital of \$150,000.
- One highly successful company returns 15 times the original MCEC investment in 8 years for \$750,000.

A realistic capital gain estimate is to double the return of the original \$500,000 over 5 to 8 years based on MCEC investment. The Founders Fund will require a one-to-one match at a minimum for each MCEC investment. MEIA will seek other opportunities to raise funds for the MCEC Founders Fund.

MEIA urges your favorable support of HB911/ SB900 and thanks, Chairman Barve, Delegates Vogel and Qi for their leadership in sponsoring this legislation.

FWA_SB900-HB911.pdf Uploaded by: Alex Pavlak Position: FWA

Founders Fund Amendments

EXPLICITLY ADD THE FOLLOWING	TO CLIMATE CHANGE TECHNOLOLGIES
	NEW NUCLEAR TECHNOLOGIES

REBRAND MCEC TO EXPLICITLY INCLUDE NEW NUCLEAR TECHNOLOGIES

Dr. Alex Pavlak is a Professional Engineer who has led the successful development of major new military systems. In a former life he was the President of a solar collector development company. Today he is the Chairman of the <u>Future of Energy Initiative</u>. He is a former MCEC board member and a current member of the MEIA advisory committee. His advocacy is to engineer effective zero carbon systems.



Oral Testimony



HB0911 - UNF - Maryland Clean Energy Center - Clim Uploaded by: Landon Fahrig

Position: UNF



TO: Members, House Appropriations Committee

FROM: Paul Pinsky Director, MEA

SUBJECT: HB 911 - Maryland Clean Energy Center - Climate Technology Founder's Fund -

Establishment

DATE: March 14, 2023

MEA Position: UNF

House Bill 911 establishes a new Special Fund to support activities within the Maryland Clean Energy Center (MCEC), and requires an annual appropriation of \$500,000.

The Maryland Energy Administration (MEA) sees the need for investment in economic development as it relates to the energy sector. **MEA has been, and will continue to be, one of the strongest supporters of MCEC's mission**; namely, encouraging development of advanced clean energy industries and clean energy innovation industries in the State, and helping retain and attract business activity and commerce within the energy space.

MEA has provided significant funding to the instrumentality, and is already committed to continuing to do so in perpetuity by statute. However, the timing of this bill may not be appropriate. The <u>Climate Solutions Now Act of 2022</u> provided the instrumentality with \$15,000,000 in guaranteed funding over the course of three (3) fiscal years to establish a ClimateCatalytic Capital Fund and to begin administering programs consistent with its mission. MCEC has not yet had the opportunity to do so, and the instrumentality does have limited human resources.

MEA is happy to continue working cooperatively with MCEC, and to continue to foster future success, but questions the timing of this initiative, and the possibility it may detract from the pathways established in <u>Climate Solutions Now</u>. Also noteworthy is that there is an opportunity cost associated with the bill. New, mandated expenditures from the Strategic Energy Investment Fund (SEIF) administered by MEA will displace existing, well established, and successful energy programs.

For these reasons, MEA urges the Committee to render an **UNFAVORABLE** report.