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Maryland Energy Innovation Institute

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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.

Bill Number: HB 419

Title: Economic Development – Advanced Clean Energy and Clean Energy Innovation Investments and Initiatives

Hearing Date: February 4, 2021

Committee: House Economic Matters Committee

Recommendation: FAVORABLE SUPPORT REQUESTED

Maryland universities are established leaders in energy research and innovation. The University of Maryland, College Park, leads multiple large $\geq \$10M$ federally (e.g., DOE Energy Frontier Research Center - efrc.umd.edu, DOD Center for Research on Extreme Batteries - creb.umd.edu, and the Binational Industrial Research and Development (BIRD) Foundation Energy Storage Center - <https://us-isr-energycenter.org/energy-storage>) and industry (e.g., Center for Environmental Energy Engineering - ceee.umd.edu) supported energy research centers. Moreover, UMCP leads the nation (2nd only to MIT among all US universities) in DOE Advanced Research Projects Agency – Energy (ARPA-E - arpa-e.energy.gov) awards (28 awards for \$64M) specifically for energy innovation and commercialization.

MEI² is the only entity focused on translating Maryland's energy research leadership to commercial success. Maryland spent \$400M/year on average for last 5 years on EmPOWER and Strategic Energy Investment Fund, but other than MEI² none of it was focused to support commercial development of in-state clean energy technologies. Compared to rest of nation, Maryland is 50th (last) in diversity of State R&D spending with 85% of it going to health-related R&D and <1% going to energy.

MEI² leverages small Maryland investment to increase federal and private investment to grow the advanced energy economy in the State. Since its creation in 2017 MEI² has leveraged a small State investment (MEI² portion to date is \$2.4M) to obtain over \$55M in federal funding, a factor of **>20X return on investment (ROI)** to the Maryland economy. In addition, MEI² has accelerated innovation company progress toward commercial success, a few examples being:

- Mobile Comfort's \$300K seed grant enabled them to translate their high efficiency air conditioning technology into the prototype necessary for them to attract private funding and launch a worldwide consumer product.
- NanoDirect in partnership with Johns Hopkins University has contributed significantly to the COVID-19 response by converting their nanofabrication equipment, developed from their \$100K seed grant, to make filtration materials for PPE masks, hiring 18 engineers and rapidly increasing production from about 3 ft² of material per day to about 200 ft² per day with 24/7 operation.

- InventWood leveraged MEI² resources to attract ARPA-E for its sustainable wood technologies and launch its company in the MEI² incubator.
- Ion Storage Systems leveraged their \$100K seed grant for packaging of their advanced battery technology, to obtain \$8M in private VC funding, enabling them to move into a 20,000 ft² manufacturing facility in Beltsville, MD, and hire 17 employee.

Note, both Ion Storage Systems and InventWood were recognized as “*Maryland Future 20*” companies by Governor Hogan and the Maryland Department of Commerce.

Since inception, MEI² has:

- Leveraged a small State investment to help obtain over \$55M in federal funding a factor of **>20X return on investment (ROI)** to the Maryland economy.
- Provided innovation seed grants to assist spin-off companies translate university research to commercially relevant products. In the initial three years 14 seed grants were awarded to UMCP, University of Maryland Baltimore County (UMBC), Johns Hopkins University (JHU), University of Maryland Eastern Shore (UMES), and Morgan State University, and have resulted in follow on private investment. - *Demand for these seed grants far exceeds current budget to support.*
- Helped launch multiple companies in State attracting private investment and creating jobs.

MEI² is providing a worthwhile return on investment. To date MEI² has assisted in obtaining a 20 to 1 federal to state leveraging of its funding and assisted multiple companies in obtaining private capital to commercialize their energy technologies, and in so doing achieve its statute directed mission.

For this success to continue MEI² must have a stable, definitive commitment of revenue to help support its operation. This legislation calls for such investment to enable MEI² to continue to be a positive impact on the Maryland economy.

House Bill 419 will:

- Broaden the definition clean energy to include advanced energy and grid modernization technologies, and
- Provide \$2.1 M to fund the energy technology research and innovation activities of the Maryland Energy Innovation Institute and the capitalization and deployment work of the Maryland Clean Energy Center.

On behalf of the Maryland Energy Innovation Institute (MEI²) and the University of Maryland (UMD), I **respectfully request that the committee members give a FAVORABLE REPORT to HB 419**, and continue to fund the worthy enterprise MEI² has proven to be for our state.



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