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*Maryland Clean Energy Center (MCEC) was created as a 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 along with the associated jobs and wages for Maryland. MCEC leverages private capital and private sector capabilities; facilitates the commercialization of innovative advanced energy technologies; strives to reduce energy costs for consumers, and drive reductions in greenhouse gas emissions associated with the use of fossil fuels.*

## **HB1085 – Renewable Energy Portfolio Standard – Qualifying Biomass and Thermal Biomass Systems**

**First Reading: February 10<sup>th</sup>, 2022**

**Hearing Date: March 4<sup>th</sup>, 2022, at 1pm**

**Economic Matters Committee**

### **INFORMATIONAL TESTIMONY**

**In considering the appropriate action of the committee on this pending legislation, the Maryland Clean Energy Center (MCEC) offers the following for consideration by its members:**

Currently, Maryland sources 75% of its energy consumption needs from fossil fuel resources<sup>1</sup>, but has committed itself to The Greenhouse Gas Emissions Reduction Act<sup>2</sup> which has goals of sourcing 50% of all energy needs from renewable sources by 2030 and 100% by year 2040.

**The Maryland Renewable Portfolio Standard (RPS) acts as a signal to the marketplace to incentivize the investment in certain forms of renewable energy generation capacity.** The RPS allows for fiscal benefit to project developers who wish to own, build and operate various forms of energy technology to serve the Maryland consumer audience, but the incentive is also a tool for the state to achieve certain desirable environmental outcomes including but possibly not limited to the reduction of greenhouse gas emissions.

**This bill proposes to include qualifying biomass as a Tier 1 Thermal Renewable Energy Credit (TREC).** In addition to wind and solar energy generation, deployment of other energy technologies may allow the State to achieve other desirable outcomes related to sustainability; and as such should be considered in relation to accessing the RPS incentive benefits. Biomass energy can be a valuable part of reducing and eliminating dependence on fossil fuels, generating energy on demand without expensive battery storage, and mitigating issues with intermittency and land use that can occur with solar and wind generation. If this bill passes, it will likely be an economic incentive for small to medium scale facilities within the state that currently heat using fossil fuels to switch to biomass boilers or combined heat and power (CHP) systems.

**Developing markets for waste wood residues for biomass energy systems can benefit the environment and the economy.** Biomass energy creates a market for small-diameter, “low-value” wood generated by active forest management upkeep. Having a market for landowners to sell the waste

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<sup>1</sup> *Maryland Energy Consumption Estimates.* (2019.) U.S. Energy Information Administration. <https://www.eia.gov/state/?sid=MD#tabs-1>

<sup>2</sup> Maryland Department of the Environment. (Feb 2021). The Greenhouse Gas Emissions Reduction Act; 2030 GGRA Plan.

generated from regular management creates an incentive for landowners to resist high-grading forests and/or land use change that would result in deforestation.

**Incentivizing biomass energy through TRECs is linked to maintaining healthy forests in Maryland.** In 2013, Maryland adopted a “No Net Loss of Forests” policy to ensure that 40% of the state will remain covered by tree canopy. Currently, Maryland forests are growing 2.6 times faster than they are being removed with natural mortality rates increasing and removal rates decreasing since 1999<sup>3</sup>. Active forest management practices such as thinning can help decrease natural mortality by preventing overcrowding of forests, an important mechanism for adapting forest to changing climate conditions.

**Modern biomass energy technologies are designed to meet or exceed Maryland Air Quality Standards.** Maryland has strict regulations that limit emissions and require the most efficient technology that help filter emissions and reuse waste heat to achieve higher efficiencies. Facilities with biomass boilers must comply by law with proper notification, reporting, and record-keeping requirements Maryland has already established for environmental protection. The Maryland Greenhouse Gas Reduction (GHG) Act<sup>4</sup> requires a reduction of 40% of baseline levels (2009 emissions) by 2030. Studies have found that the lifecycle for bioenergy can achieve emission reductions of GHGs by over 80% compared to fossil fuels<sup>5</sup>. Wood energy releases less sulfur oxides (SO<sub>x</sub>) and nitrogen oxides (NO<sub>x</sub>) than traditional fossil fuels<sup>6</sup>.

**Biomass reduces fossil fuel imports and helps stimulate the local economy.** For biomass to make economic and environmental sense, it is typically sourced within 50 miles of the facility where it will be used. Since the supply chain is Maryland-based, the money spent on biomass residues will remain in the community’s radius. Unlike imported fossil fuels, which only produces \$0.34 of economic activity per dollar invested, biomass has a pay back of \$1.50 per \$1 spent within the community<sup>7</sup>. Additionally, it is estimated that producing 100,000 tons of pellets annually can create up to 342 direct jobs<sup>8</sup>.

**The Maryland Climate Change Commission (MCCC) 2021 Annual Report lists biomass energy as a sustainable energy solution that will help the state achieve a net-zero economy by 2045<sup>9</sup>.** Additionally, creating thermal renewable energy credits for qualifying biomass energy would achieve immediate legislative actions recommended by the 2021 Maryland Forestry Economic Adjustment Strategy and the 2022 Task Force on the Economic Future of Western Maryland.

**Due to its efficiency and ability to be used on-demand without energy storage, thermally led biomass energy is complementary to other renewable energy sources.** Developing a resilient grid requires identifying the strengths of each system. Biomass energy is efficient – ranging from 70-90% in thermally led systems<sup>10</sup>. In 2019, the Environmental Protection Agency recognized woody biomass as a carbon-neutral, renewable energy source due to the increased carbon sequestration rate of actively managed

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<sup>3</sup> United States Department of Agriculture. (2019). *Forests of Maryland*.

<sup>4</sup> Maryland Department of the Environment. (Feb 2021). The Greenhouse Gas Emissions Reduction Act; 2030 GGRA Plan.

<sup>5</sup> Röder, M., Whittaker, C., Thornley, P. (2015). How certain are greenhouse gas reductions from bioenergy? Life cycle assessment and uncertainty analysis of wood pellet-to-electricity supply chains from forest residues. *Biomass and Bioenergy*, Vol 79, pages 50-63. <https://doi.org/10.1016/j.biombioe.2015.03.030>

<sup>6</sup> Bowyer, J. (2012). Life Cycle Impacts of Heating with Wood in Scenarios Ranging from Home and Institutional Heating to Community Scale District Heating Systems. *Dovetail Partners*. [https://www.lrl.mn.gov/docs/2016/mandated/161074/2011\\_07\\_4.pdf](https://www.lrl.mn.gov/docs/2016/mandated/161074/2011_07_4.pdf)

<sup>7</sup> Massachusetts Division of Energy Resources and Massachusetts Department of Conservation & Recreation. (2007). *Energy from Forest Biomass: Potential Economic Impacts in Massachusetts*. <https://bct.eco.umass.edu/wp-content/uploads/2009/04/bio-eco-impact-biomass.pdf>

<sup>8</sup> Heating the Northeast with Renewable Biomass; A Vision for 2025, *Biomass Thermal Energy Council* April 2010. [https://www.biomassthermal.org/resource/pdfs/heatne\\_vision\\_full.pdf](https://www.biomassthermal.org/resource/pdfs/heatne_vision_full.pdf)

<sup>9</sup> Maryland Commission on Climate Change. (2021). *2021 Annual Report and Building Energy Transition Plan*. <https://mde.maryland.gov/programs/air/ClimateChange/MCCC/Documents/2021%20Annual%20Report%20FINAL%20%282%29.pdf>

<sup>10</sup> International Renewable Energy Agency. (2015). *Biomass for Heat and Power*. Retrieved from: [https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2015/IRENA-ETSAP\\_Tech\\_Brief\\_E05\\_Biomass-for-Heat-and-Power.pdf](https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2015/IRENA-ETSAP_Tech_Brief_E05_Biomass-for-Heat-and-Power.pdf)

forests. The IPCC's 2018 Special Report *Global Warming of 1.5°* states that biomass plays a key role in a "rapid and profound near-term de-carbonization of energy supply."<sup>11</sup>

**Including qualifying biomass as a Tier 1 Thermal Renewable Energy Credit is beneficial to Maryland's environment, energy grid, and local economy.**

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<sup>11</sup> IPCC. (2018). *Global Warming of 1.5°: Chapter 2: Mitigation Pathways Compatible with 1.5-Degree Celsius in the Context of Sustainable Development*. Retrieved from: [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15\\_Chapter2\\_Low\\_Res.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_Chapter2_Low_Res.pdf)  
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