Senator Michael J. Barrett
Chair, Joint Committee on Telecommunications, Utilities and Energy
Massachusetts General Court

Representative Thomas A. Golden, Jr.
Chair, Joint Committee on Telecommunications, Utilities and Energy
Massachusetts General Court

July 17, 2020

Dear Chair Golden, Chair Barrett, and members of the Joint Committee on Telecommunications, Utilities, and Energy,

As academics, researchers, industry leaders, and energy experts, we ask you to report favorably on the 100% **Renewable Energy Act (H.2836), filed by Rep. Marjorie Decker and Rep. Sean Garballey**, while there is still time to pass it into law before the end of the 2019–2020 session

Thanks to recent progress, we can envision a future where 100% of our energy for electricity, heating, and transportation comes from clean, renewable, and zero-emission sources like solar and wind. Experts estimate that we can reduce U.S. energy consumption by around 50% by mid-century through efficiency and conservation. Massachusetts has more than enough solar and offshore wind potential to meet our needs many times over. The cost of lithium ion batteries for energy storage has fallen by 85% since 2010, and other tools and technologies are also available to ensure a reliable supply of electricity with a 100% renewable grid. Clean heating and transportation technologies, including air source heat pumps and electric vehicles, are widely available and have become much more efficient and affordable in recent years.[1]

Now is the time for a rapid shift away from fossil fuels like oil and gas, which are polluting our air and harming our health. Pollution from the burning of fossil fuels is linked to a wide range of health problems, including respiratory disease, heart attack, and premature birth. Many of these impacts are felt disproportionately by low-income communities and people of color, as well as residents of neighborhoods that are located near highways, airports, and other highly polluting infrastructure. In the last few months, we've learned that exposure to air pollution from fossil fuels can make people more vulnerable to COVID-19, leading to an increased death rate in areas with the highest pollution.[2]

We also know that emissions of carbon dioxide and other greenhouse gases from the production and burning of fossil fuels are the major driver of climate change. Many of the impacts that scientists have predicted from greenhouse gas emissions are already happening, including rising sea levels and more frequent and severe storms, putting the safety of Massachusetts residents at risk today.

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[1] *100% Renewable is Doable: How we can repower Massachusetts with clean, renewable energy*, Peter Schneider, Liam Numrich, and Ben hellerstein, Environment Massachusetts, July 2020, <https://environmentmassachusetts.org/reports/mae/100-renewable-doable>.

[2] "COVID-19 PM2.5: A national study on long-term exposure to air pollution and COVID-19 mortality in the United States," Xiao Wu et al., Harvard T.H. Chan School of Public Health, 24 April 2020, <https://projects.iq.harvard.edu/covid-pm>.

To protect public health and help prevent the worst impacts of climate change, Massachusetts should fully transition away from the use of fossil fuels as quickly as possible. **That is why we support a statewide commitment to 100% renewable electricity by 2035 and 100% renewable energy for heating and transportation by 2045.**

Setting these goals would be a boon to the state and regional economy. With a growth rate of 10.4% since 2015, clean energy is one of the nation's fastest growing sectors.[3] Although hit hard by the COVID-19 pandemic, this sector can help lead Massachusetts' recovery, provided that the state set aggressive targets for renewable energy deployment.

While some of the climate legislation under discussion at the State House would set a target of net zero greenhouse gas emissions rather than 100% renewable energy, **we believe that a "net zero emissions" framework is inadequate** for three reasons:

- A net zero target would allow the continued use of fossil fuels, as long as the state claims that an equivalent amount of carbon has been sequestered through carbon offsets. As a result, Massachusetts residents would be exposed to harmful pollution from power plants, gas-powered cars, and oil and gas heating systems for decades to come, putting their health at risk.
- Massachusetts needs to be a leader on climate action. Net zero emissions by 2050 is effectively the global *minimum* necessary to have a chance of avoiding catastrophic climate change. We must aim higher if we expect others to act and if we want to keep global temperature increases to no more than 1.5 °C. Already, three other New England states — Connecticut, Maine, and Rhode Island — have committed to 100% renewable or clean electricity. Massachusetts should build on the work of our neighboring states by adopting more ambitious goals.
- "Net zero by 2050" is not a significant improvement over the 80% emissions reduction target set in the Global Warming Solutions Act (GWSA), because most of the additional emissions reductions could be met with offsets that aren't necessarily effective in removing and storing carbon from the atmosphere.

Therefore, we need to pass H.2836 in addition to setting emission limits under the GWSA. We can and should put Massachusetts on a path to eliminate fossil fuels and transition to 100% renewable energy. We know this is feasible. More than 180 studies have been conducted on the design of 100% renewable energy systems for electricity and other sectors.[4] Detailed hourly simulations of 100% renewable electricity scenarios have been completed for California, the PJM transmission region, and the United States, as well as many other countries.[5]

100% renewable energy commitments are increasingly common. So far, 13 states and territories, along with more than 170 U.S. cities and counties, have committed to 100% renewable or clean electricity targets, and many of these jurisdictions are also looking at how to achieve 100% renewable energy for heating and transportation.[6] Presidential

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[3] *Clean Jobs America 2020: Repowering America's Economy in the Wake of COVID-19*, E2 (Environmental Entrepreneurs), April 2020, <https://e2.org/wp-content/uploads/2020/04/E2-Clean-Jobs-America-2020.pdf>.

[4] "Status and perspectives on 100% renewable energy systems," Kenneth Hansen, Christian Bayer, and Henrik Lund, Energy 175 (2019) 471–480, <https://www.sciencedirect.com/science/article/abs/pii/S0360544219304967>.

[5] "The feasibility of 100% renewable electricity systems: A response to critics," Mark Diesendorf and Ben Elliston, 7 Renewable and Sustainable Energy Reviews 93 (2018) 318–330, <https://www.sciencedirect.com/science/article/abs/pii/S1364032118303897>.

[6] *100% Renewable is Doable: How we can repower Massachusetts with clean, renewable energy*, Peter Schneider, Liam Numrich, and Ben hellerstein, Environment Massachusetts, July 2020, <https://environmentmassachusetts.org/reports/mae/100-renewable-doable>.

candidate Joe Biden recently announced that his platform would include a 100% clean electricity standard nationwide by 2035.

In addition to a long-term commitment to renewable energy, we also support strong interim targets to ensure progress in the next few years. We support the interim targets in the Decker/Garballey 100% Renewable Energy Act, including 68% renewable electricity and 50% renewable energy for heating and transportation by 2030. Together, these goals would achieve an approximately 60% reduction in greenhouse gas emissions compared to the Commonwealth's 1990 baseline.

Please report favorably on the Decker/Garballey 100% Renewable Energy Act, including commitments to achieve 100% renewable electricity by 2035 and 100% renewable energy for heating and transportation by 2045. With your leadership, we can take bold steps toward a future powered entirely by renewable energy, and help ensure that our children inherit a safe, healthy, and livable planet.

Sincerely,

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Moneer H. Azzam
Principal
Beacon Climate

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Former Undersecretary, Office for Commonwealth Development
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