

President Harriette L. Chandler
Massachusetts Senate

Speaker Robert A. DeLeo
Massachusetts House of Representatives

July 20, 2018

Dear President Chandler and Speaker DeLeo,

As academics, researchers, industry leaders, and clean energy experts, we urge you to pass a strong clean energy bill before the end of the current legislative session to put Massachusetts on a path to 100 percent clean energy.

By enacting clean energy legislation, Massachusetts can reduce air and water pollution and help avoid the worst impacts of climate change, while building stronger, healthier, and more prosperous communities. We ask you to increase the renewable portfolio standard (RPS) by at least 3 percent per year, eliminate the caps on solar net metering, prohibit unfair demand charges for solar customers, and adopt other policies to encourage investments in clean energy and energy efficiency.

Our renewable energy potential

Recent progress on clean energy gives us confidence that we can go much further. A review of seven studies conducted by researchers at universities, government institutions, and nonprofits shows that there are no insurmountable technological or economic barriers to achieving 100 percent renewable energy.¹

Massachusetts has the potential to generate more than 19 times as much electricity from offshore wind as the entire state consumes each year. Even if all heating and transportation were converted to run on electricity — a necessary step to achieve 100 percent renewable energy economy-wide — offshore wind could still provide eight times as much electricity as Massachusetts needs.²

We also have enormous potential for solar energy. By installing photovoltaic panels on every suitable rooftop, we could generate 47 percent of Massachusetts' electricity from solar.³ With larger, ground-mounted solar installations, our solar energy potential is even greater.

¹ *We Have the Power: 100% Renewable Energy for a Clean, Thriving America*, Environment America Research & Policy Center and Frontier Group, Spring 2016, <https://environmentmassachusettscenter.org/sites/environment/files/reports/MA_100percent_RE_SCRN_o.pdf>.

² *Wind Power to Spare: The Enormous Energy Potential of Atlantic Offshore Wind*, Gideon Weissman, Rachel J. Cross, and Rob Sargent, Frontier Group and Environment America Research & Policy Center, March 2018, <<https://environmentmassachusetts.org/reports/mae/wind-power-spare-enormous-energy-potential-atlantic-offshore-wind>>.

³ *Rooftop Solar Photovoltaic Technical Potential in the United States: A Detailed Assessment*, National Renewable Energy Laboratory, January 2016, <<https://www.nrel.gov/docs/fy16osti/65298.pdf>>.

In recent years, we have seen rapid declines in the costs of other technologies that will facilitate an economy-wide transition to 100 percent renewable energy, including energy storage, electric cars, heat pumps and LED light bulbs.

While we are encouraged by Massachusetts' recent progress on clean energy, we are also concerned about the negative effects of inaction and complacency. Last year, in part because of the caps on net metering and other state-level policy obstacles, Massachusetts lost more than 3,000 jobs in the solar industry.⁴

Increasing the RPS by 1 or 2 percent per year is below the pace necessary to achieve Massachusetts' commitment to reduce carbon emissions by 80 percent by 2050 under the Global Warming Solution Act. Further, our current carbon emission goals are insufficient to reduce the risk of catastrophic climate change. We must achieve zero carbon emissions as soon as possible, and a 100 percent renewable electric grid is a necessary precursor for eliminating carbon emissions from our heating and transportation systems.

By putting Massachusetts on a path to 100 percent renewable energy, we'll also reduce other air pollutants that are linked to wide range of health problems, including asthma, cardiovascular disease, and premature death. A recent report showed that the growth in wind and solar energy from 2007–2015 in the United States had resulted in \$29.7–\$112.8 billion in health benefits and saved 3,000–12,700 lives.⁵

Additionally, Massachusetts can gain a competitive economic advantage by advancing an aggressive and innovative renewable energy plan, much as California has.

Increasing the renewable portfolio standard

The RPS is the bedrock policy setting the pace of renewable energy growth in Massachusetts. In order to cut health-harming pollution and reduce the risk of catastrophic climate change, we should increase the RPS by at least 3 percent per year to reach 50 percent renewable electricity by 2030 and 100 percent renewable electricity no later than 2050.

An RPS increase remains an essential tool, in combination with other policies, to accelerate our progress on clean energy and maximize the benefits to our health, our environment, and our economy.

While Massachusetts has adopted other policies related to energy generation, these policies are not a replacement for a strong RPS. Among Massachusetts' other energy policies, some are complementary to the RPS and will function better with a strong RPS increase in place, while others promote sources of energy that are not truly clean or renewable:

⁴ *Solar Jobs Census 2017*, The Solar Foundation, <<https://www.thesolarfoundation.org/solar-jobs-census-factsheet-2017-MA/>>.

⁵ "The climate and air-quality benefits of wind and solar power in the United States," Dev Milstein et al., *Nature Energy* 6, 14 August 2017, <<https://www.nature.com/articles/nenergy2017134>>.

- **Offshore wind procurement:** The RPS will play an important role in incentivizing and financing the development of offshore wind farms. At the current rate of increase in the RPS (1 percent per year), the state’s existing 1,600-megawatt offshore wind procurement will leave little room for solar and other technologies. Further, since the adoption of Massachusetts’ offshore wind commitment in 2016, other states have set higher targets, such as 2,400 megawatts in New York and 3,500 megawatts in New Jersey. To maintain Massachusetts’ position as a leader in the nascent offshore wind industry, we must set a higher target for offshore wind development, which will further necessitate an ambitious RPS increase.
- **Class II resources:** In Massachusetts, the RPS distinguishes between Class I resources – including solar, wind, small hydropower, and similar technologies – and Class II resources. Class II resources include waste-to-energy plants that burn trash and release harmful air pollution, as well as renewable energy facilities (mostly small hydropower facilities) that existed before 1998. Thus, energy generated by a Class II resource does not represent additional renewable energy added to the grid, and in many cases comes from a highly polluting trash incineration or wood burning facility.
- **Alternative Portfolio Standard:** The alternative portfolio standard (APS) provides incentives for energy technologies that do not qualify for the RPS. Some of these technologies, such as solar thermal heating and air source heat pumps, are related to the production of heat rather than electricity. The APS also includes combined heat and power (CHP) systems that typically burn fossil fuels or wood to produce electricity and heat, albeit at a higher efficiency than other types of fossil fuel systems. Unlike the RPS, the APS is not designed to increase the percentage of electricity generation from renewable, non-polluting sources.
- **Hydropower procurement:** While large hydropower may have some role in Massachusetts’ future energy mix, we believe it should not play the dominant role. Large dams have major impacts on ecosystems and wildlife, and recent studies have shown that hydropower is associated with significant emissions of global warming pollution.⁶ Additionally, purchasing electricity from existing hydropower dams does not necessarily displace dirty electricity generation. For these reasons, the potential contribution of hydropower toward meeting our Global Warming Solutions Act targets is debatable. In order to maximize the benefits for our health and our local economy while reducing losses associated with transmission, we should generate as much of our renewable energy as we can as close to home as possible.

Massachusetts stands to realize greater benefits by increasing the RPS by at least 3 percent per year. A study released last year shows that a 2 percent annual increase would do little beyond bringing the RPS in line with existing clean energy commitments (such as the offshore wind

⁶ “Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis,” Deemer et al., *Bioscience* 66, Issue 11, 1 November 2016, <<https://academic.oup.com/bioscience/article/66/11/949/2754271#113367175>>.

procurements mandated by 2016 legislation), while a 3 percent increase would significantly accelerate the deployment of clean energy throughout the region.⁷

A recent analysis from the Applied Economics Clinic examined the effects of increasing the RPS by 3 percent per year along with other proposed clean energy policies, and found that these policies would reduce greenhouse gas emissions by 600,000 metric tons per year by 2030, equivalent to taking 128,000 cars off the road. If adopted, these measures would result in \$263 million in economic growth per year from 2018–2030, with little or no increase in consumers' electric bills.⁸

Removing obstacles to solar energy

Massachusetts has been a national leader on solar energy for years. Unfortunately, a failure to act on solar policy this session could jeopardize the continued growth of solar energy. We ask you to act before July 31 to eliminate the caps on net metering and prohibit unfair minimum charges, such as demand charges, for residential and small business solar customers.

Already, many solar projects have stalled in Massachusetts due to a combination of factors. The caps on net metering have been hit in 230 communities, while the value of net metering credits has been cut by 40 percent for most types of solar projects. Additionally, the Department of Public Utilities recently approved a demand charge on residential solar customers, amounting to an arbitrary fee that could significantly disincentivize solar development.

While the Department of Energy Resources (DOER) and Department of Public Utilities (DPU) are in the process of developing a new SMART (Solar Massachusetts Renewable Target) program, this program will complement rather than replace net metering. The SMART program is designed to phase out after a few years, while net metering will remain the core of Massachusetts' solar policy.

Several studies conducted by independent organizations and public agencies have concluded that net metering is a fair way to compensate solar owners for the value they provide to the grid and society.⁹ We should eliminate the caps on net metering in order to ensure that this critical program remains available and to remove barriers standing in the way of Massachusetts' solar potential.

⁷ *An Analysis of the Massachusetts Renewable Portfolio Standard*, Synapse Energy Economics, Inc., and Sustainable Energy Advantage, LLC, May 2017, <<https://www.neccec.org/other-module/news/news-reader/study-finds-massachusetts-would-create-thousands-of-jobs-and-lower-electricity-prices-by-increasing-renewable-portfolio-standard.html>>.

⁸ *Massachusetts Clean Energy Bill Provisions Boost Jobs and Strengthen the State's Economy*, Liz Stanton and Tyler Comings, Applied Economics Clinic, June 2018, <<https://aeclinic.org/publicationpages/2018/6/18/massachusetts-clean-energy-bill-provisions-boost-jobs-and-strengthen-the-states-economy>>.

⁹ *Shining Rewards: The Value of Rooftop Solar Power for Consumers and Society*, 2016 Edition, Gideon Weissman and Bret Fanshaw, Frontier Group and Environment America Research & Policy Center, October 2016, <<https://environmentamerica.org/reports/ame/shining-rewards>>.

In addition to increasing the RPS and removing obstacles to solar energy, we encourage you to adopt other provisions included in the Senate clean energy bill (S.2564), such as:

- ambitious targets for offshore wind, electric vehicles, and energy storage;
- a price on carbon emissions from heating and transportation;
- and interim 2030 and 2040 limits on carbon emissions.

We also support the appliance energy efficiency standards in H.4737, *An Act relative to expanding resource efficiency in the Commonwealth*. Reducing our energy consumption through efficiency is a critical step toward powering our society entirely with renewable energy. Further, we support the use of energy efficiency funds for switching from oil or gas heating to highly efficient, clean technologies like air source heat pumps.

Finally, we oppose efforts to open up the proposed “clean peak” program to non–Class I resources, which would undercut our progress in addressing climate change and reducing air pollution.

With your leadership, we can take bold steps toward a clean, renewable future and help ensure that our children inherit a safe, healthy, and livable planet. Please pass strong clean energy legislation before the end of this legislative session.

Sincerely,

Fran Cummings
Vice President
Peregrine Energy Group, Inc.

Daniel Faber
Director, Northeastern Environmental Justice Research Collaborative
Northeastern University

Joan Fitzgerald
Professor, School of Public Policy and Urban Affairs
Northeastern University

Sarah Gardner
Lecturer, Environmental Studies
Williams College

Andrew Jorgenson
Professor and Chair, Department of Sociology
Professor, Environmental Studies
Boston College

Jonathan Levy
Professor, Environmental Health
Boston University School of Public Health

William R. Moomaw
Emeritus Professor
Co-Director, Global Development and Environment Institute
Tufts University

Nathan Phillips
Professor, Department of Earth and Environment
Boston University

Jean Ann Ramey
Executive Director
Climable.org

Rich Rosen
Tellus Institute (retired)

Mark Sandeen
Founder
RePower Partners

Jennie Stephens
Director, School of Public Policy and Urban Affairs
Northeastern University

Jen Stevenson
Director of Research & Operations
Climable.org

Benjamin S. Weil
Extension Assistant Professor of Building Energy, Department of Environmental Conservation
University of Massachusetts Amherst

David C. Adamian
CEO
GreenerU, Inc.

Harvey Michaels
Lecturer, Energy Management Strategy
Massachusetts Institute of Technology