



Recommendation: Accelerate the transition to a clean energy future

Strategy 1

Increase renewable energy generation for the Commonwealth and access for all residents.

Massachusetts has made strong progress in reducing greenhouse gas (GHG) emissions since 1990. The Commonwealth's GHG inventory shows an emissions drop of over 20 percent from 1990 levels based on the data most recently available (1990-2017).¹ The majority of these emissions reductions have come in the electricity sector, underscoring the importance of renewable energy generation in meeting the Commonwealth's climate goals. Despite this progress, the Commonwealth will need to do more to expand renewable energy generation and reduce emissions further, which will be critically important for meeting the Commonwealth's climate obligations under the Global Warming Solutions Act and the Next-Generation Roadmap Act and its goal of having net-zero emissions by 2050. This strategy will require acceleration of renewable energy generation in Massachusetts and the New England region, inclusion of municipal light plants (MLPs) more fully in these efforts, and advancement of social equity priorities to ensure a just transition for all Massachusetts residents to a clean energy future.

► **Action 1.1: Mandate a more sustained acceleration of the Renewable Portfolio Standard (RPS) to increase by 3 percent annually through 2050.**

The Commonwealth's current RPS policy will reach 35 percent Class I renewable energy by 2030. However, the Acadia Center's 2030 EnergyVision study anticipates that New England will need at least 42 percent of the region's electricity generation to be Class I renewable energy by 2030.² The Intergovernmental Panel on Climate Change (IPCC) similarly stated that the next 12 years are crucial to keeping global warming to 1.5 degrees Celsius, and that global GHG emissions need to be on track to fall 45 percent by 2030.³ Therefore, the Legislature should mandate a more aggressive acceleration of the RPS to increase by 3% annually to reach at least 45 percent renewable energy generation by 2030, and require participation by MLPs in both the state's RPS and Renewable Energy Trust Fund. The Commonwealth's 41 MLPs serve 52 Massachusetts municipalities and comprise 13 percent of the state's energy customers. While some MLPs have aggressively pursued climate and renewable energy goals, many others have not. As of 2019, no MLP offered renewable energy on par with the current RPS requirements.

1 <https://www.mass.gov/info-details/ghg-emissions-and-mitigation-policies#green-house-gas-emissions-trends>

2 <https://2030.acadiacenter.org/regions/new-england-region/>

3 <https://www.ipcc.ch/sr15/chapter/spm/>

This legislation should also include enactment of more aggressive offshore wind procurement goals, with a minimum goal of procuring six gigawatts by 2030. Massachusetts has vast offshore wind resources that offer some of the highest potential for steady, reliable renewable power in the U.S. The Legislature should consider a procurement structure that allows for a diverse range of off-takers to help drive increased demand, including municipal aggregation programs, institutional and large business purchasers, and other entities with robust renewable energy goals.

Best/emerging practice: Many other jurisdictions across the United States have adopted aggressive renewable portfolio standards. Both Hawaii and the District of Columbia (DC) have set 100 percent RPS targets. For D.C., the target year is 2032 and for Hawaii it is 2045. Other states have also adopted aggressive near-term RPS targets. New York and New Jersey both have targets of 50 percent by 2030, California's target is 60 percent by 2030, and Vermont's target is 75 percent by 2032.⁴ New York State has been driving its offshore wind industry forward with aggressive offshore wind procurement targets. The state has established a target of procuring nine gigawatts of offshore wind by 2035. In 2019, the state solicited 1,696 megawatts (MW) of offshore wind and it will seek to procure another 1,000 MW or more in 2020.⁵

► **Action 1.2: Advance an equitable clean energy future by establishing a Clean Energy Community Benefits Fund and a Commission on Energy Justice.**

The transition to a clean energy future must be just and ensure that low-income communities, communities of color, indigenous tribes and tribal nations, and other populations on the frontlines of experiencing climate impacts can fully participate and directly benefit. In a 2019 study, the Solar Foundation found that people of color comprised just over a quarter of the solar workforce and that leadership of solar companies is heavily comprised of white men.⁶ Research has also shown that racial disparities exist in the ownership of distributed energy resources, with studies finding that U.S. census tracts that are Black- and Hispanic-majority have significantly less rooftop PV installed than White-majority census tracts.⁷ Further, research has shown that people of color disproportionately experience higher energy cost burden in that a greater portion of their income goes to energy bills.⁸ To combat these inequities, the Legislature should establish a statewide Clean Energy Community Benefits Fund, which could be initially capitalized with American Rescue Plan Act (ARPA) funds and in the long-term funded by a real estate transfer tax or other mechanism. The program would create a standing fund and program for clean energy projects that benefit Environmental Justice communities, including funding renewable energy installations and energy efficiency projects, clean energy jobs training, and green infrastructure projects.

4 <https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>

5 <https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind>

6 <https://www.thesolarfoundation.org/wp-content/uploads/2019/05/Solar-Industry-Diversity-Study-2019-2.pdf>

7 <https://www.nature.com/articles/s41893-018-0204-z>

8 <https://www.aceee.org/research-report/u2006>

This Legislature should also create a statewide Commission on Energy Justice that brings together representatives from Environmental Justice communities across the Commonwealth alongside key state agencies and scientific and public health experts to address clean energy equity. The Commission would be charged with overseeing the implementation of the Clean Energy Community Benefits Fund, as well as ensuring equitable program structures and benefit distribution for programs run by the Department of Energy Resources (DOER) and the Department of Public Utilities (DPU). The Commission would be mandated to work with DOER to ensure that any incentive programs are inclusive and equitable in their distribution of benefits. The Commission could also explore other ways to alleviate high energy cost burden for disproportionately impacted ratepayers. Furthermore, as the Commonwealth prepares to make workforce development investments to accelerate economic recovery, the Commission could have a role to play to ensure there are investments made to promote the equitable development of the clean energy workforce (see the **“Improve the accessibility and efficacy of the Commonwealth’s workforce development infrastructure”** recommendation). The Commission should have dedicated staff and financial resources to develop evidence-based policy guidance that respects and draws on the knowledge of the Commission’s community representatives. It would submit an annual report on its findings to the Legislature and the Administration and be granted appropriate oversight authority.

Best/emerging practice: The City of Portland, Oregon established a Clean Energy Community Benefits Fund that launched in the fall of 2020.⁹ The program is funded by a 1 percent surcharge on retail sales of certain large retailers in the city. The fund will support clean energy projects, clean energy jobs training, regenerative agriculture and green infrastructure projects, and other programs that reduce GHG emissions and offer economic, social, and environmental benefits.

- ▶ **Action 1.3: Remove solar net metering caps and ensure equitable rates and access for virtual net metering.** The Legislature should set a target for increasing solar net metering and virtual net metering each year, matched to an aggressive statewide solar goal. The current net metering cap is 7 percent of a utility’s peak load for private projects and 8 percent for public projects. This restriction has halted viable solar energy projects, including municipal projects, from proceeding in many areas of the Commonwealth that continue to hit their caps.¹⁰ The Legislature should remove the caps entirely or aggressively increase them to ensure that solar projects can move forward.

The Legislature should also revisit the compensation rate for solar net metering, currently set at 60 percent of the retail rate of electricity for projects over 60 kilowatts (kW). The current rate structure favors smaller rooftop solar projects and creates barriers to solar access for renters and

⁹ <https://www.portland.gov/bps/cleanenergy>.

¹⁰ <https://www.mass.gov/guides/net-metering-guide>

low-income households or households of color that are more likely to rent than own their homes and participate in community shared solar projects.¹¹ The Legislature should ensure that community solar projects can participate in virtual net metering and offer rates to low-income and non-profit customers that are equal to net metering rates for residential rooftop solar of 100 percent per kilowatt hour (kWh). Changes to net metering should also allow customers to receive virtual net metering credits on their electricity bills regardless of how far they live from a solar development in Massachusetts. This will facilitate greater access to solar energy for a broader range of customers.

The Solar Massachusetts Renewable Target (SMART) Program, which is operated in coordination with DOER and participating utilities, is a long-term sustainable solar incentive program in which customers are paid a fixed rate per kWh of solar production. SMART requires utilities own all their renewable energy credits (RECs), which prevents solar site owners from retiring or claiming those environmental attributes. The Commonwealth should consider enabling the retirement of some of the RECs to reduce emissions, generate greater demand, and give site owners, including municipalities, the incentive to build local solar to help them achieve their climate goals.

Best/emerging practice: The California's Single-Family Affordable Solar Homes (SASH) and Solar on Multifamily Affordable Housing (SOMAH) programs provide incentives for solar development on affordable single-family and multi-family housing in California.¹² The programs provide upfront installation incentives to building owners. At least 51 percent of the kWh generated must go to tenants, and bill credits are required to be applied by the utility via virtual net metering in accordance with the utility's metered rate schedule.¹³ The program requires that residents receive the full economic benefit of their billing credits.

Strategy 2

Spur equitable development of microgrids, energy storage, and demand response programs.

Significant increases to renewable energy generation must be paired with the deployment of energy storage and demand response technology to maximize efficiency and improve system resiliency. Massachusetts recently enacted the nation's first Clean Peak Standard, which requires that a percentage of energy resources deployed during peak hours of electricity demand be produced by clean resources.^{14,15} State legislators and regulators should monitor the effectiveness of the Clean Peak Standard to bring new energy capacity online and review the mix of technologies that are being used for compliance. Energy storage and alternative energy systems such as microgrids are necessary investments to support implementation of the Clean Peak Standard and the overall resilience of our

11 <https://malegislature.gov/Bills/191/S1931> and <https://energynews.us/2019/04/25/northeast/massachusetts-bill-would-re-store-net-metering-rate-for-community-solar/>

12 <https://www.lowincomesolar.org/best-practices/multi-family-california/>

13 <https://calsomah.org/somah-program-handbook>

14 Regulations released in March 2020, [Clean Peak Energy Standard](#)

15 [Massachusetts Set to Become First State to Implement a Clean Peak Standard](#)

energy supply. These technologies serve to increase overall resilience and energy security by producing and storing energy locally and provide reliable power to key infrastructure during outages or other emergencies.

Implementation will require increased education around these technologies and additional incentives for installation. Massachusetts must also prioritize ways to expand access to and benefits of these technologies to communities, residents, and businesses that face financial or other barriers. Funding opportunities should focus on low-income communities, where the financial and resiliency benefits to residents will have the greatest impact. Funding should also be prioritized for projects led by minority-owned clean energy companies. In addition to these new policy actions, the state should promote and provide support for expanding existing programs for demand response run by both MAPC and the state's investor-owned utilities, and continue exploring ways to better integrate and streamline programs and incentives in this space.

- ▶ **Action 2.1: Increase public and private sector funding for microgrids, district heating and cooling, and energy storage.** The Commonwealth should increase funding for microgrids, district heating and cooling, and energy storage to support both climate change mitigation and resilience and adaptation to extreme weather events and other emergencies. This should include exploration of opportunities to pair public investment with private sector resources through the creation of public private partnerships. Two existing programs, the Massachusetts Clean Energy Center (MassCEC) Microgrid program¹⁶ and the DOER Community Clean Energy Resiliency Initiative (CCERI)¹⁷, have contributed to the growth of this sector and they should be continued and expanded, with a focus on funding project implementation in Environmental Justice communities. Lessons learned during both programs should be considered by the Legislature and DPU, and regulations should be adjusted where appropriate to remove and decrease barriers to clean energy technology deployment. For both programs, it is important that implementation funds can be released upon successful completion of a feasibility study.¹⁸ Within the CCERI program, dedicating a portion of funds to public sector projects and allowing more flexibility in project funding could improve the utility of the program. The Commonwealth should also consider the role the Property Assessed Clean Energy (PACE) program could play to further advance these technologies.

Best/emerging practice: Best/emerging practices: Green Mountain Power (Vermont utility company) launched a “Grid Transformation Pilot” encouraging residents to install home battery systems, which could be partially controlled by grid operators to manage peak demand. The batteries have delivered significant savings on peak capacity charges and kept the lights for residents on during grid outages.

¹⁶ [Community Microgrids Program](#)

¹⁷ [CCERI Program Goals](#)

¹⁸ [Massachusetts Continues Feasibility Studies for 14 Potential Microgrids](#)

- ▶ **Action 2.2: Create a statewide community energy strategy.** The Administration should develop data-driven strategies to identify suitable and high priority locations for district energy, microgrids, and energy storage across the state. In 2016, the City of Boston published a Community Energy Study to examine the potential priority areas for local energy generation, district energy, and microgrids and assess feasibility and community benefits.¹⁹ The Administration should task the DOER and MassCEC with publishing a similarly comprehensive and cohesive statewide study by 2025 to provide a strategic roadmap for community energy that prioritizes assets and system benefits for Environmental Justice communities at the frontline of climate change impacts. The study should also identify recommended opportunities for energy storage and generation at all state-owned critical facilities and put in place a plan to make the necessary upgrades by 2030. Once published, the plan should guide the state’s own investments, as well as municipal, regional, and private-sector investment, through all relevant district energy, microgrid, and energy storage funding programs. See Action 4.2 in “**Ensure land preservation, conservation, and access to recreational spaces**” for more on sustainably integrating renewable energy generation on the Commonwealth’s open spaces and recreation areas.
- ▶ **Action 2.3: Eliminate barriers to rapid deployment of microgrids, energy storage, and other active demand management strategies.** In addition to the financial barriers addressed by Policy Action 2.1, the Commonwealth needs to tackle regulatory and statutory barriers that prevent or slow down at-scale deployment of microgrids, energy storage, and other active demand management strategies. The feasibility of non-utility owned multi-user microgrid deployment across the state is currently limited by the state’s treatment of an electric utility’s “franchise” rights to delivery electricity in its service territory. In Massachusetts, those interested in operating a microgrid must receive written consent from the distribution company prior to delivering electricity within the service territory (M.G.L. Chapter 164, Section 1B(a)). The Legislature should consider amending the parameters of the utility franchise clause to allow municipalities to be a grantor of a franchise or a lessor consent to enable microgrid operation on a case-by-case basis.

Best/emerging practice: The Boston Planning & Development Agency passed a 2018 policy requiring new developments to use a “Smart Utilities Checklist” which required feasibility studies for microgrids and district energy for developments over 1.5 million square feet.^{20, 21} Other examples to explore include the Long Island Community Microgrid Project, which aims to achieve nearly 50 percent of its grid-area electric power requirement from local solar, and the Montecito Community Grid Initiative, which serves as the first building block of the regional Goleta Load Pocket Community Microgrid, designed to deploy clean local energy and build regional resilience.^{22, 23}

19 Boston Community Energy Study, 2016

20 Boston Smart Utilities Project

21 [City of Boston Climate Action Plan 2019 Update](#)

22 <https://clean-coalition.org/community-microgrids/long-island-community-microgrid-project/>.

23 <https://clean-coalition.org/community-microgrids/montecito-community-microgrid-initiative/>.

Strategy 3

Reform the electric and gas utility markets to support the transition to distributed and renewable sources of energy.

In our transition to a clean energy future, the state’s gas and electric utilities face a new set of customer demands alongside their existing responsibilities to uphold safety, reliability, and affordability. The utility markets and regulatory structures that exist today need to be reformed to effectively meet new customer demands for grid resiliency, GHG emissions reductions, flexibility, and opportunities for innovation. This comprehensive reform must include investment in and planning for grid modernization, an overhaul of the utility business model (i.e., revenue regulation), and consistent, just, and smart rate design to support these new responsibilities and priorities. Achieving net zero by 2050 also means transitioning nearly entirely away from fossil fuels (*see policy actions supporting “Decarbonization”*). For natural gas utilities, the market trends indicate that natural gas power plants may become stranded assets by 2035 based on current clean energy power production cost projections.²⁴ By shifting to a renewable-centered approach to procurement and appropriately planning for the depreciation of natural gas assets, natural gas utilities can become “energy” utilities and avoid substantial increases to customer rates.

► **Action 3.1: Require comprehensive electric and gas utility reform by 2030.** The Legislature should require implementation of comprehensive electric and gas utility reform by 2030 and amend the DPU’s mandate (M.G.L. Chapter 25, Section 1) to prioritize reductions in GHG emissions and advancement of Environmental Justice.²⁵ The legislation should require the DPU to issue a rulemaking procedure for all investor-owned utilities and specify strategies and goals that will be addressed in the rulemaking. The rulemaking should include measures to:

- Adjust the state’s cost of service model to require multi-year rate plans, shared savings mechanisms, and performance incentive mechanisms;
- Address accounting barriers through adjustment of how capital and operational expenditures are treated, and allow for either securitization or accelerated depreciation of uneconomic assets;
- Scale up plans for “utility as a platform” and new value-added services;
- Establish a near-term timeframe for implementation of state grid modernization and deployment of advanced transmission and metering infrastructure, including a critical first step that requires time of use rates for all customers; and
- Ensure consumer protection of low-income ratepayers throughout the reform process and avoid disproportionate cost burden on low-income customers.

24 Charles Teplin, Mark Dyson, Alex Engel, and Grant Glazer. *The Growing Market for Clean Energy Portfolios: Economic Opportunities for a Shift from New Gas-Fired Generation to Clean Energy Across the United States Electricity Industry*. Rocky Mountain Institute, 2019, pg. 9, <https://rmi.org/cep-reports>.

25 As proposed in Senate Bill 2477, An Act Supporting Next Generation Climate Policy, <https://malegislature.gov/Bills/191/S2477>.

The legislation should also address how municipal electric and gas utilities will be held to similar requirements so that the necessary changes are made to support the transition to both distributed and centralized renewable sources of energy in these communities.

- ▶ **Action 3.2: Develop a statewide natural gas transition plan.** The DPU should adopt a schedule for phasing out new natural gas connections by 2025 and develop a statewide plan for fully transitioning away from natural gas by 2035. The plan should include a near-term order revising the utilities' Gas System Enhancement Plans to redirect gas main replacement funds to clean heating and cooling system deployment for districts, residents, and businesses. While intrastate and interstate natural gas pipelines are federally regulated, the state has authority over the natural gas distribution system and local gas hookups. At the national level, the United Kingdom and the Netherlands have both developed comprehensive strategies to decommission natural gas through a safe, environmentally sound, and cost-effective approach. The success of this plan is interdependent with the reforms proposed in Policy Action 3.1 that would enable gas utilities to generate revenue from alternative services and appropriately account for existing uneconomic natural gas assets.
- ▶ **Action 3.3: Restructure the wholesale electricity markets.** The increase in variable and renewable sources of generation required of a clean energy future bring along characteristics (minimal production costs, small and rapid deployment, and variable on-demand availability) that are contradictory to the structure of the current wholesale electricity market, which was designed to work with large and costly power generation plants. The Federal Energy Regulatory Commission (FERC) should issue regulatory changes to mitigate the barriers for zero emission resources and demand-side participation in the wholesale electricity markets to support decarbonization of the regional energy system. The wholesale market rules should be restructured to enable technology-neutral market competition. To supplement this effort, the Executive Office of Energy and Environmental Affairs should work with ISO-New England and the other 5 states it serves (Connecticut, Maine, New Hampshire, Rhode, Island, and Vermont) to commit to region-wide decarbonization planning, building upon the Massachusetts 2050 Decarbonization Roadmap.²⁶

²⁶ ISO-NE is a regional transmission organization, created by the FERC, that coordinates, controls, and monitors the electrical power system for the region.

Best/emerging practice: Green Mountain Power, an electric utility in Vermont, transitioned to become a certified B Corporation in 2014.²⁷ Establishing itself as a B Corporation demonstrates Green Mountain Power's commitment to achieving the highest standards for measurable social and environmental performance, as well as public transparency and legal accountability. In 2010, the U.K.'s Office of Gas and Electricity Markets (Ofgem) set out a new framework for performance-based regulation of its energy companies.²⁸ At the core of the new regulatory approach are four features: a multi-year rate plan, a total expenditure approach (combines capital and operational expenditures), performance incentives, and an innovation fund.

²⁷ <https://greenmountainpower.com/2014/12/01/proud-certified-b-corporation/>

²⁸ <https://info.aee.net/hubfs/RIIO%20Case%20Study%20Final%20.pdf>