



100% Renewable Energy Agenda

Summer 2018

We can have cleaner, healthier communities today and a livable future for generations to come — but to get there, we need to transform the way we produce and consume energy. That means a major effort to conserve energy, combined with a transition to clean, renewable sources of energy to meet all of our needs.

Recent advances in clean energy and energy saving technologies enable us to envision a world where all of the energy we use to power our homes, our businesses, our institutions, and our transportation system comes from pollution-free sources like the sun and wind.

To protect our health, clean up our air, and ensure a safe future for our children, and to lead the way for the rest of the nation and the world, Massachusetts should set out an ambitious plan to achieve 100 percent renewable energy. The winner of this fall's gubernatorial election should do everything possible to accelerate our transition from fossil fuels to renewable energy, including implementing the recommendations below.

Creating a roadmap

Setting goals: Commit to power Massachusetts with 100 percent renewable electricity by 2035, and transition heating, transportation, and other sectors to 100 percent renewable energy by 2050.

Inter-agency collaboration: Establish an inter-agency council with representatives from each executive office to examine all state policies and programs with an impact on energy production and consumption, and make recommendations to modify

these programs in order to reduce energy usage to the greatest extent possible and accelerate Massachusetts' transition to renewable sources of energy.

Global Warming Solutions Act implementation: Set a limit on statewide carbon emissions for 2030 of at least 45 percent below the 1990 level, and issue regulations to reduce emissions across all sectors and achieve 2030, 2040, and 2050 targets.

Carbon pricing: Building on the success of the Regional Greenhouse Gas Initiative in the electric sector, extend carbon pricing to include transportation and heating fuels.

Invest all revenues from a carbon price in projects to reduce energy consumption and replace fossil fuel consumption with renewable energy.

Renewable electricity

Renewable portfolio standard:

Accelerate the renewable portfolio standard (RPS) to achieve 100 percent renewable electricity by 2035.

Solar: Eliminate arbitrary caps on solar net metering, and repeal unfair demand charges for solar customers. Implement incentive programs and low-interest loan programs to ensure that solar energy is available to all, including renters, low-income households, and people who aren't able to install solar panels on their roofs.

Offshore wind: Implement the state's commitment to 1,600 megawatts of offshore wind energy, and set a target of at least 5,000 megawatts of offshore wind by 2035. Ensure that offshore wind projects are sited appropriately to protect wildlife and ocean ecosystems.

Energy storage: Set a target of at least 1,766 megawatts of energy storage by 2025, and create incentives to encourage the installation of residential, commercial, and grid-scale storage systems. Work with FERC and ISO New England to fully value all attributes of energy storage.

Rooftop solar requirement: Require the installation of rooftop solar panels on all new buildings with suitable solar exposure.

Community energy: Expand opportunities for community-owned clean energy

projects, such as community solar projects, and microgrids incorporating distributed renewable energy and energy storage.

Municipal light plants: Work with local officials and residents to increase renewable energy installations in cities and towns served by municipal light plants, and bring incentives and deployment in line with those in other communities.

Regional Greenhouse Gas Initiative

(RGGI): Work with the governors of other Northeast and Mid-Atlantic states to strengthen emissions limits under RGGI. Invest all RGGI funds in clean energy and energy efficiency programs, like Green Communities and Mass Save.

Biofuels: Require an accounting of lifecycle greenhouse gas emissions and environmental impacts before supporting the use of biofuels to meet Massachusetts' renewable energy targets.

No subsidies for dirty energy: Reject proposals to use ratepayer money to support fossil fuel generation, expand gas pipelines, or subsidize nuclear power plants.

Electricity for state facilities: Increase the generation of renewable energy on state-owned land and buildings, and purchase all electricity for state facilities from renewable resources by 2025.

What do we mean by clean, renewable energy?

(Adapted in part from We Have the Power: 100% Renewable Energy for a Clean, Thriving America, Environment America Research & Policy Center and Frontier Group, Spring 2016.)

Every form of energy has an impact on our environment. But the impact of some forms of energy is much greater than others. Truly clean, renewable energy is:

- **Virtually pollution-free:** It produces little to no global warming pollution or health-threatening pollution.
- **Inexhaustible:** It comes from natural sources that are regenerative or practically unlimited. No matter how much we use, there will always be more.
- **Safe:** It has minimal impacts on the environment, community safety and public health, and those impacts that do occur are temporary, not permanent.
- **Efficient:** It is a wise use of resources.

Some forms of renewable energy are truly “clean,” provided that they are sited in appropriate locations, including solar, wind, and many types of ocean, tidal, river current and geothermal energy. Energy efficiency technologies nearly always count as “clean energy.”

Other forms of renewable energy carry much more significant environmental trade-offs, such as hydroelectric and biomass energy. Both hydroelectric and biomass energy may play a role in the transition to a 100 percent renewable energy system, but that role is limited, and state leaders must fully account for lifecycle greenhouse gas emissions and other environmental impacts before increasing the deployment of these resources.

Wherever possible, decision-makers should prioritize renewable energy from distributed resources and from facilities located in Massachusetts or elsewhere in New England. Generating renewable energy close to the place where it is consumed reduces the amount of energy lost in transmission, and can help avoid the need to invest in expensive new transmission infrastructure. Investing in distributed renewable energy can also help to increase the resiliency of our electric grid. Finally, by increasing renewable energy generation in Massachusetts and other New England states, we can maximize the environmental, public health, and economic benefits for local residents.

Energy-efficient homes and businesses

Net zero energy buildings: Require all new residential buildings to be net zero energy by 2025, and all new commercial and institutional buildings to be net zero energy by 2030. Retrofit at least half of the state's existing building stock to be net zero energy by 2030.

Renewable heating: Expand HeatSmart pilot programs to encourage residents and businesses across Massachusetts to switch to renewable heating technologies like solar thermal and air source heat pumps. Allow energy efficiency funds to be used for transitioning homes and businesses from fossil fuel heating to renewable heating.

EV-ready buildings: Require residential and commercial buildings and parking garages to be built with the infrastructure

necessary to install electric vehicle charging stations.

Appliance efficiency standards: Adopt energy efficiency standards for products that are not currently covered by state or federal regulations.

Energy efficiency for renters and low-income families: Increase access to energy efficiency programs among low-to-moderate income residents, and develop innovative strategies to reach renters and landlords.

Net zero energy for state buildings: Require all new state buildings to be net zero energy by 2025, and retrofit existing state buildings to be net zero energy by 2030.

Clean transportation

Bus service: Improve bus service through measures such as dedicated bus lanes, traffic signal priority, and the implementation of bus rapid transit service along key corridors. Increase funding to the regional transit authorities (RTAs) to maintain and improve service.

Rail service: Improve the frequency of service along subway lines and transition to more frequent urban commuter rail service.

Electrification of mass transit: Work with the MBTA and RTAs to convert buses and trains to run on electricity.

Transit expansion: Ensure the on-time completion of projects such as South Coast Rail and the Green Line Extension. Pursue other opportunities to expand and improve transit service, including the North-South Rail Link and high-speed rail service between Springfield, Worcester, and Boston.

Walking and biking: Implement Complete Streets principles in all state road construction projects, and provide funding for cities and towns to improve pedestrian and bicycle infrastructure.

Regional ballot initiatives: Allow municipalities to join together to raise

revenue for transit service and pedestrian and bicycle infrastructure via ballot initiatives.

Transportation and Climate Initiative

(TCI): Work with other governors to create a regional cap-and-trade program for the transportation sector, and ensure that all revenues are invested to reduce transportation emissions.

Electric vehicles (EVs): Provide funding for EV incentive programs. Encourage businesses, institutions, and municipalities

to introduce EVs, including larger vehicles like delivery trucks and school buses, into their fleets. Invest in public EV charging stations, and work with utilities to offer beneficial rates for off-peak charging.

Vehicle emission standards: Continue Massachusetts' participation in the stricter vehicle emission standards set by California.

State fleet: Require all vehicles purchased or leased for the state fleet to be electric vehicles.

Empowering local and institutional leadership

Net zero planning: Provide technical support and funding for municipalities to develop plans to achieve zero carbon emissions and 100 percent renewable energy community-wide.

Green Communities: Provide adequate funding and staffing levels for the Green Communities program to support clean energy and energy efficiency projects at the municipal level.

Community choice energy: Work with cities and towns to adopt community choice energy (municipal aggregation) programs with an increased level of Class I renewable energy. Adopt a Community Empowerment policy to allow cities and

towns to enter into long-term contracts for renewable electricity.

Schools: Work with the Massachusetts School Building Authority to encourage the construction of new net zero energy schools and the retrofitting of existing school buildings to be net zero energy.

Colleges and universities: Set goals for the University of Massachusetts system, state colleges and universities, and community colleges to achieve 100 percent renewable energy. Consider a joint power purchase agreement (PPA) to provide renewable energy, such as offshore wind, to multiple public and private campuses.

Urgent need for action

The Massachusetts Legislature is debating several policies that would reduce energy consumption and accelerate the growth of renewable energy technologies.

With the legislative session drawing to a close, time is running out. Delaying action on clean energy policies would mean more air pollution from fossil fuels, more Massachusetts residents suffering from asthma and cardiovascular disease, and an increased risk of devastating impacts from climate change. Additionally, a failure to act would leave arbitrary obstacles standing in the way of clean energy development, including the caps on solar net metering, which have affected some communities for more than two years.

Energy legislation passed by the Massachusetts Senate would:

- Increase the renewable portfolio standard (RPS) by 3 percent per year, reaching 50 percent renewable electricity by 2030 and 100 percent renewable electricity by 2050.
- Eliminate caps on solar net metering, and prohibit utility companies from assessing certain types of demand charges on solar owners.
- Allow additional procurements of offshore wind energy up to 5,000 megawatts.
- Set a goal for 25 percent of vehicles in Massachusetts to be electric vehicles by 2028, and create a plan to run MBTA buses and trains on electric power.
- Install 2,000 megawatts of energy storage in Massachusetts by 2030.
- Set interim carbon emissions targets for 2030 and 2040.
- Establish a price on carbon emissions from transportation and buildings.

The House has also passed clean energy legislation, although less ambitious and comprehensive in scope. House and Senate negotiators must reach an agreement by July 31 or start from scratch at the beginning of the next legislative session in 2019.

A recent study by the Applied Economics Clinic shows that increasing the RPS by 3 percent per year and adopting other clean energy policies would reduce greenhouse gas emissions by 600,000 metric tons per year by 2030, equivalent to taking 128,000 cars off the road, at little to no additional cost to consumers.

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