

2021 | Volume 26 | No. 1

MASSACHUSETTS
SIERRAN

Explore, Enjoy and Protect the Planet

Chapter Election Issue



MASSACHUSETTS
**SIERRA
CLUB**

Ipswich River Sanctuary

Letter from the Chapter Director

Dear Friends,

As we near the end of this remarkable year 2021, we at the Massachusetts Chapter of the Sierra Club (MASC) have many wins to celebrate! We helped to pass the strongest Climate Bill in over a decade which codifies environmental justice protections and sets higher targets for emissions reductions! With years of organizing, a Buildings Emissions Performance Standard for the City of Boston passed which not only prevents emission of 37 million metric tons of CO2 over the next 28 years; it establishes groundbreaking equitable policies to support local EJ communities with investments in efficiency, renewable energy, and other pollution reduction projects. Our political team saw dozens of wins across the state including the astonishing victory of Mayor Michelle Wu, who won her election on the promise of economically revitalizing Boston into a more equitable and sustainable city.



Photo: Liz Linder

Despite all of these wins – which show our increasing power – we face difficult challenges like the continuing Covid epidemic, threats to our democracy, and the apparent power of industry to shape governmental policies for short term corporate gains. We have a Governor’s administration who recently added burning wood for electricity as a fuel to be subsidized by state ratepayers, and a Department of Public Utilities which supports dirty methane gas infrastructure expansion – from Weymouth to Springfield to Peabody. Also, recently, the state’s investor-owned utilities secretly urged their largest customers to fight building electrification – *which is our least expensive path to lowering building greenhouse gas emissions in the Bay State*. It is with this backdrop, that I want to share with you how our Chapter continues to expand to meet the challenges of climate disruption, environmental injustice, and organizing in a divided society.

MASC continues our work to transform into an anti-racist organization in order to be a better partner in the broader justice movement. At the intersection of race, the economy, and climate change; we strive to become a more inclusive and welcoming community for all. As we see frontline and fenceline communities of color and poverty reeling from the impacts of the Covid epidemic and disproportionately shouldering the burdens of our current dirty energy system, our advocacy continues to prioritize low-income and frontline community solutions.

Because of our continued attention to outreach and organization, more teams – all focused on equitable solutions – now meet regularly to advocate on a number of pressing environmental and climate justice issues. These include reducing and regulating toxics, protecting and expanding forests and tree canopies, advocating and educating for building electrification and efficiency, activating Sierra Club members’ participation and action, promoting meaningful equitable change in Boston, providing resources for municipal climate action, and the list goes on.

I applaud our many volunteers, new and old, who participate regularly in our expanding areas of coalition advocacy – from offshore wind, to mosquito control, to energy legislation, to transit – you are working in alignment with allies to build a better Massachusetts for everyone.

And it’s a good thing that our strength continues to grow, because as each month passes, the escalating impacts of the climate crisis become more apparent with supersized storms, record temperatures, and rising sea levels. This is a true emergency and one that requires strengthening our movement to diligently push back on the oil and gas industry, which is doubling down on fossil fuels for pipelines, plastics, and petrochemicals. These industries have years of disinformation and lobbying behind them, and sadly continue to hold outsized power in shaping our consumer choices.

The Sierra Club’s Massachusetts Chapter will continue to show up in public advocacy, work to elect climate champions, fight in the courts and regulatory dockets, and hold elected officials accountable. You – our members and donors – are powering this fight to preserve a livable planet for now and future generations, and we are thankful to each of you for your energy, financial support, and community.

Onwards,

A handwritten signature in black ink that reads "Deb". The signature is stylized and cursive.

Deb Pasternak

Chapter Leaders and National Staff

Chapter Staff

Deb Pasternak
State Director

Veena Dharmaraj
Director of Transportation

Michele Brooks
Boston Lead Organizer

Emma Brown
*Communications and
Operations Associate*

Jess Nahigian
Political and Legislative Coordinator

National Staff (Chapter Office)

Melanie MacInnis,
Director, Outdoor Activities

Adrienne Frazier
Acting Chief Financial Officer

Jenny Muschinske
Digital Fundraising Strategist

Chapter Executive Committee

Jenny Daniell	Chris Powicki
Arthur Desloges	Clint Richmond
Sarat Dontula, <i>Treasurer</i>	Yanisa Techagumthorn
Celia Doremus, <i>Vice Chair</i>	Kannan Thiruvengadam
Benjamin Pignatelli, <i>Chair</i>	Reverend Vernon K. Walker
Jenny Lau	

Cape Cod Group Executive Committee

David Dow, *Treasurer*
Diane LeDuc, *Secretary*
Keith Lewison, *Vice Chair*
Morgan Peck
Chris Powicki
Mary Waygan
Allyson Schmidt, *Acting Chair*

Boston Inspiring Connections Outdoors (ICO)

Mar Apeseche
Cassie Bannos
Amy Mullen, *Treasurer*
Matt Perkins
Ben Pignatelli, *Chair*
Allison Rieck

Table of Contents:

Letter from the Director	1
The 2021 Climate Bill	3
Building Decarbonization in Boston	4
Investing in Our Work!	4
New Regulations for Electric Trucks	5
Pulling Back the Curtain on PFAS	6
Volunteer With Us!	6
The Peaker Plant in Peabody	7-8
Equity and Justice Roadmap	9
Massachusetts Plastic Bans	9
What's Happening on Cape Cod	10
Municipal Climate Action	11
2021 Municipal Election Roundup	12-13
The Critical Role of Forests	14-16
Meet the ExCom Candidates	17-18
ExCom Ballots	19

Sierran Editors

Deb Pasternak
Emma Brown
Celia Doremus
Shannon Garber
Angela Lin
Ali Freeman
Megan Krause
Peter Ruimerman
Ray Wiseley
Sarah Page

Design

Jenni Sisk

Cover photo

Stan Eichner

Inside Photo

Clint Richmond



The 2021 Climate Bill - What Did It Do?

By Jess Nahigian and Jacob Stern



On March 26, 2021, the state signed into law An Act Creating a Next Generation Roadmap for Climate Policy, which updated Massachusetts' original landmark 2008 Global Warming Solutions Act. This was the first significant climate bill to become law in over 12 years and the act included many needed provisions.

So what did this bill do? Primarily, the bill set new greenhouse gas emissions targets and sketched a picture of how to achieve them. It directed the state to adopt several interim emission reduction limits on the way to reaching a 50% reduction by 2030 and 75% reduction by 2040, with a final goal of net zero emissions by 2050. Starting in 2025, it also directed the state to create emissions sublimits for a number of sectors (electric power, transportation, heating and cooling, industrial processes, natural gas distribution and service, and any additional sectors deemed necessary) and a plan for how to achieve them every five years.

To meet these goals, the act increased Renewable Portfolio Standard requirements (the minimum amount of electricity that comes from renewable energy) and the state's offshore wind procurement targets. It also required municipal-run light plants (MLPs), which previously had no renewable energy requirements, to adhere to a new greenhouse gas emissions standard that gradually increases the share of renewable energy MLPs are required to procure.

For energy efficiency and building electrification, the bill directs the state to create a new "net zero" building code with stricter building emission performance standards. Once it is finalized, municipalities will be able to "opt-in" to using this "stretch" code. The act also increased energy efficiency requirements for appliances and directed the Department of Public Utilities to incorporate the impacts of climate change (by using a measurement based on the social cost of carbon) when calculating costs and benefits for their energy efficiency programs and investments.

For the first time, the act defines Environmental Justice Populations in a state statute and requires the state to give special considerations to environmentally burdened

communities, including increasing outreach and engagement opportunities for public participation. To give communities a larger voice, the act also establishes an environmental justice council.

The act improves gas pipeline safety, increasing fines for companies who do not remove gas leaks, and establishes a pilot program to create localized grids for geothermal energy, a heating technology that could replace natural gas in dense areas.

Finally, the bill requires at least \$12 million in annual funding be given to the Massachusetts Clean Energy Center to advance Environmental Justice populations, minority-owned and women-owned businesses, and employees from the fossil fuel industry in the clean energy industry.

This bill marks an important milestone in the battle to push for measurable, meaningful climate action. As it is implemented, we must ensure that the programs developed by the administration meet the urgency the climate crisis demands; that the legislature continues to create new programs; that the important environmental justice provisions of the act are followed; and that the state is held to the legally binding timeline in implementing the new measures of the bill.

But this bill is NOT ENOUGH. The 2018 report from the International Panel on Climate Change (IPCC) found that the world needed to decrease emissions rapidly, reaching net zero emissions by 2050 at the latest if we are to keep global warming to 1.5 degrees below pre-industrial levels. So far Massachusetts is woefully behind in developing the infrastructure to help us reduce emissions, even though these investments -- efficiency, electrification, renewable energy and storage projects -- will together create a powerful new regional renewable energy economy with good local jobs while removing the negative climate and health impacts of our current fossil fuel systems. The Baker Administration and the utility-administered Mass Save program are far behind implementing our currently legally mandated emissions reductions programs. They continue to ignore recommendations to increase equity in their programs and they prolong our use of fracked gas with every new piece of gas infrastructure they install. Environmental justice communities in Massachusetts also continue to be unduly burdened by pollution. We must keep pushing for appropriate timelines and larger programs while ensuring those affected first and worst by climate change are prioritized.

There are many powerful bills introduced this session to chart an ambitious and equitable transition towards a renewable energy economy. To learn more about our legislative priorities and how you can get involved, contact us or visit our website. <https://www.sierraclub.org/massachusetts/2021-2022-legislative-priorities>

Building Decarbonization Efforts Ramp Up in Boston

Michele Brooks

In Boston, buildings account for roughly 70% of the city's total carbon emissions; and just 3% of our largest buildings are responsible for 50% of our carbon emissions! In order to achieve the City of Boston's stated goal of being Carbon-Free by 2050, we must urgently decarbonize the building sector.

The City took a major step toward meeting its carbon-free goal this fall in passing amendments to the Building Emissions Reduction and Disclosure Ordinance (BERDO), which will require all large buildings to achieve carbon neutrality by 2050! The policy will prevent 37 million metric tons of greenhouse gases from going into the atmosphere over the next 30 years.

Notably, it contains provisions that establish an Emissions Review Board composed of 2/3 members nominated by community-based organizations and an Equitable Investment Fund made up of alternative compliance payments. The fund will support local emission reduction projects that benefit EJ populations and prioritize air quality improvements, lowering energy burden, low-income affordable housing and housing stabilization, access to green jobs, and clean energy installations.



The Massachusetts Chapter coordinated with many coalition partners on a robust advocacy campaign in support of the policy including Boston Climate Action Network, Mothers Out Front, ACE, Clean Water Action, Community Labor United, and more. Together we gathered approximately 1,800 letters and petition signatures from residents in support. As City Councilor Lydia Edwards said in remarks upon receiving the petitions, our organizing “dwarfed the opposition.”

This is a proud moment for the City and our advocate community, one that propels us forward as a leader in climate action!

Investing Your Dollars for Impact

- **Individual Donation:** We rely on your individual donations for the majority of our budget! Periodically, we send emails and letters with links you can click on - or slips you can mail back to us - to support the Chapter's efforts. You can also donate at any time online at <https://sc.org/mac4donate> or mail a check to: **Massachusetts Sierra Club P.O. Box 742 Westborough, MA 01581**
- **Monthly Giving Program:** With a monthly donation, you can set up a recurring investment in our work. Easily set up through the same link, this type of support provides stable revenues which are crucial to campaign planning.
- **Legacy Giving:** Including us in your estate planning will assure that your legacy includes fighting for a livable climate for generations to come. Please consider naming the Sierra Club's Massachusetts Chapter in your will or trust. To partner with the Chapter on your legacy, contact Deb.Pasternak@SierraClub.org

How can I make sure my dollars stay in Massachusetts?

When you're sending a donation by mail, be sure to write on your check (in the Memo) and on your mail-in slip "Massachusetts Chapter." If giving on-line, make sure to give through the Chapter website! **If you have questions about giving, please contact Deb Pasternak at 617.423.5775.**

New Regulations will Accelerate the Supply of Electric Trucks in Massachusetts

Veena Dharmaraj

By the end of 2021, Massachusetts is set to adopt the Advanced Clean Truck (ACT) Rule and other complementary policies that will improve air quality, slash dirty diesel emission, and build healthier and safer communities for all. The ACT Rule will bring cleaner delivery and freight trucks to our communities by accelerating the supply of electric trucks. The rule sets annually increasing zero-emission truck sale requirements for manufacturers and requires the sales of medium- and heavy-duty (MDHD) vehicles in the Commonwealth to be all-electric by 2045.

Why do we need a clean truck program?

In Massachusetts, vehicular pollution is concentrated in the Boston region and in gateway cities such as Springfield, Fall River, Lawrence, Lowell, Chelsea, and New Bedford. MDHD vehicles in Massachusetts are responsible for a disproportionately large share of vehicular pollution and greenhouse gas emissions, even though they account for only 3% of vehicles in the state. This is because a majority of these vehicles are powered by diesel and remain out on our roads for long periods of time.

Exhaust from these fossil fuel powered vehicles contain a number of toxins, such as nitrogen oxides (NOx) and ultrafine particulate matter that increase the risk of heart disease, asthma, cancers, and premature death. This disparity in exposure to air pollution has been linked to higher rates of COVID19-related infections and risks in communities with greater populations of people of color or low-income residents.

Communities across the Commonwealth, especially those located near highways, major trucking corridors, and distribution hubs, suffer from high levels of transportation related air pollution and related health impacts. On average, residents of color in Massachusetts are exposed



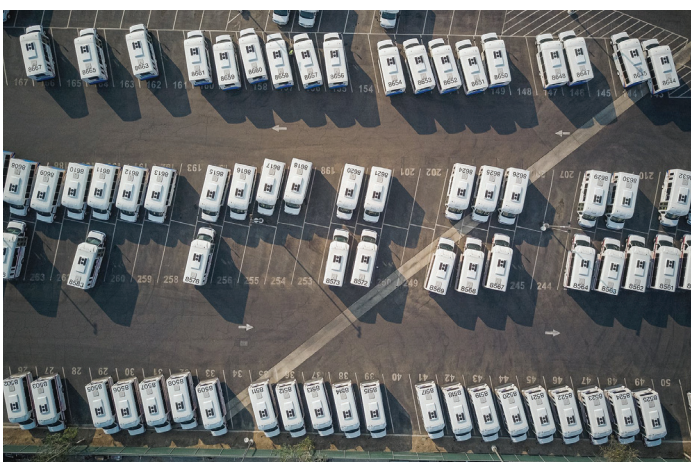
to ultrafine particulate pollution from on-road vehicles at a rate that is 26 to 36% higher than the exposure to white residents .

Implementation of the ACT Rule will be critical to reduce black carbon, fine particulate matter (PM2.5), NOx, and greenhouse gas emissions to improve air quality for our most vulnerable residents and reach our climate goals. Increasing the number of electric trucks on the road through the ACT rule will also help create new greener jobs with fair wages in manufacturing, deployment of charging infrastructure, grid upgrades, and electric vehicle operations and maintenance.

The ACT Rule will deliver public health and economic benefits

Short-haul trucks account for over 60% of all registered MDHD vehicles in the Commonwealth. Most of these delivery trucks and vans travel less than 100 miles from their home base, making them ideal candidates to be first taken up for electrification before moving into tougher categories like heavy-duty freight trucks. There are currently electric models for 40 medium-duty, 24 heavy-duty, and 40 bus models available in the market. Like Massachusetts, states including New Jersey, Washington, Oregon, New York, and Colorado are all moving to adopt the ACT Rule. This will help lower upfront costs and increase access to commercial vehicles across a range of categories.

Massachusetts must pair adoption of the ACT Rule with the implementation of other complementary policies like establishing an air quality monitoring network in pollution hotspots, and policies and programs that reduce the higher upfront costs of electric vehicles, expand charging infrastructure, and prioritize electrification of fleets operating in transportation corridors.



Pulling the Curtain Back on Local PFAS Water Contamination

In October, the Chapter released a new analysis of the state's public water systems showing that 70% of communities have detectable levels of the six most dangerous PFAS chemicals in their ground and surface waters which are used for drinking. The study of public data from the Massachusetts Department of Environmental Protection (DEP) raises great concern regarding PFAS in Massachusetts.

The October study findings look at the underlying contamination from which we're having to source our drinking water and not a study of drinking water exposure to people. According to the Massachusetts Sierra Club Toxics Policy Lead Clint Richmond, "what's shocking is that these drinking water sources are mostly deep underground."

PFAS (Per- and Polyfluorinated Alkylated Substances), often called "forever chemicals" are regulated by DEP because they do not break down naturally, persist in ecosystems, and are linked to cancer, thyroid disease, weakened immunity and other health impacts even in extremely small amounts. The DEP standard is 20 parts per trillion (ppt) for the six PFAS. Many systems have measured more than three times that level.

The Sierra Club has taken the results of the DEP screening data set and expanded it to cover all measurements for all tested chemicals. Richmond says what the analysis showed to date was 91% of the 175 communities testing for twelve or more chemicals have detectable levels of up to 13 different PFAS chemicals in their water sources. He said that many have levels much higher than 20 ppt for the other chemicals alone.

From 2016 to date (October 17, 2021), 591 systems in 259 municipalities have had their results published, and 75 systems in 56 communities have exceeded the Massachusetts quality limits for six regulated PFAS compounds ("PFAS6") in drinking water of 20 ppt. As we continue to use PFAS—and test for them—these numbers will only grow. This study reveals the underlying conditions that we now face to access clean water. Chemical companies have completely contaminated the Commonwealth with PFAS over the course of decades and are continuing to do so in the absence of Federal action. Just a handful of companies have developed thousands of these exotic chemicals and are liable for their impacts.

Richmond noted that everyone is focused on the six because those are the ones that have been identified as having immediate public health hazards. However this is a large class of related chemicals all of which need to have strict standards developed around them. Richmond recommends that Massachusetts should pass laws **like those enacted in Maine** that restrict the use of PFAS in the state.

For a one-page summary of the data see: <https://www.sierraclub.org/massachusetts/blog/2021/10/reports-show-widespread-pfas-contamination-ground-and-surface-water> For a three-page overview of the study results: <https://www.sierraclub.org/massachusetts/pfas-mass-water-part-1>

Note: The data does not reflect current treated drinking water, and so does not necessarily indicate a direct threat to public health.

Power in Volunteer Strength

Our work looks different in pandemic conditions, but it's as crucial as ever for environmental justice and climate action. The Massachusetts Chapter is looking for a wide range of volunteers to help build our power. We can support you with trainings and teachings about how to organize and which policies to fight for! Here are some activities volunteers have done in the past:

- Organized locally around climate and environmental justice issues
- Virtually led meetings, fundraisers, trainings, etc.
- Testified on legislation at the MA State House
- Provided written articles, blog posts, and persuasive writing

- Worked for Sierra Club's endorsed candidates
- Given presentations on environmental and energy issues
- Acted as a Sierra Club liaison in coalitions
- Helped with research projects
- Much, much, more!

The Sierra Club relies on the enthusiasm, energy, and ideas of our member-volunteers: **YOU!**

Learn more about current volunteer opportunities with the Chapter on our website by visiting , www.sierraclub.org/massachusetts/Join-Our-Volunteer-List or sign up for a one-on-one conversation with a member of our team at sc.org/massvolunteer!

The Peaker Power Plant in Peabody is Unnecessary, Harmful and Costly

Paul Dale, Energy Committee Chair

The opposition to a proposed gas and oil peaker power plant in Peabody, Project 2015A, has been growing, but so far law and logic have not dissuaded the Baker Administration from advancing this plan. The project is wrong on many levels:

- In approving \$85 million in funding, the Department of Public Utilities (DPU) violated the Climate Roadmap law (the most significant update to climate policy in the Commonwealth since the landmark 2008 Global Warming Solutions Act, considering everything from solar panels and offshore wind to new building codes and regulatory priorities for state agencies) that now requires the DPU to consider climate impacts.
- Project 2015A is being justified on weak and incorrect usage assumptions regarding the need for generation at peak times.
- This plant is a bad investment risk for the Municipal Light Plants (MLPs) that have purchased shares.

Health Impacts

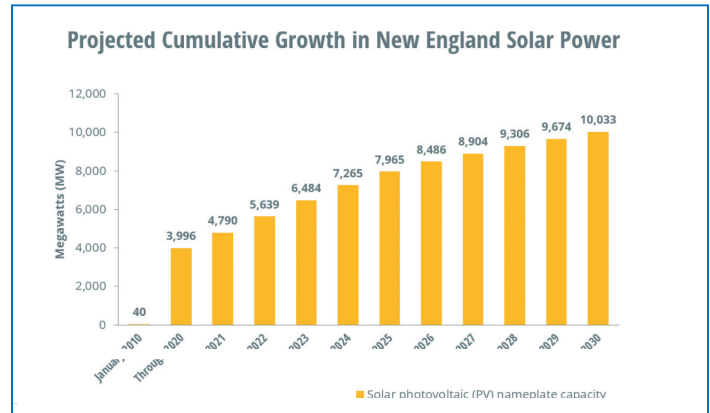
Ratepayers whose municipal utility has signed a contract for a share of the Peabody peaker plant are adamant in not wanting their communities to pay for energy that comes at the cost of making Peabody residents sick. The pandemic has revealed that we are connected across communities, and no community can be served up as a sacrifice zone.

Daily Summer Peaks

Peaker plants can start up quickly but because they supply power only occasionally, the power supplied commands a much higher price per kilowatt hour than baseload power.

Historically, the highest daily peaks occur on hot summer afternoons when the demand for air conditioning is high. Ratepayers should not be forced to pay the high cost of building a new and infrequently used plant for the few high demand hours in summer. Today, there are many other options. Some are outlined below, but using gas to help meet peaks is not the real justification for the plant. There is more to come.

Solar Plays a Key Role. ISO-NE, responsible for overseeing the operation of New England's bulk electric power system and transmission lines, has documented that "Solar Power Is Changing Historical Grid Demand Patterns" and cites, as an example, a heatwave in 2018 where solar reduced peak demand by approximately 2000 MW. This is much greater than the 55 MW that the Peabody plant would offer. And that was three years ago. There is a lot more solar online today, and more is coming. ISO-NE



has seen days when solar generation has reduced expected daily peak demand below the nighttime actual usage

Battery Storage Is Relevant. Solar not only substantially reduces the magnitude of the peak, but also shifts the (reduced) peak to later in the day or evening. Battery storage has a role to play by providing reserve power to cover this lesser but shifted peak.

Demand Response Can Be Important. MLPs have the option of implementing demand response programs and/or time-of-use rates and metering.

Conservation and Efficiency Can Be Important. The most cost effective electricity is that which ratepayers never use – because they make their homes efficient, because they control the amount of air conditioning used, because they air dry their clothes, etc.

Summer Summary. There is no justification for building additional gas infrastructure to meet summer peaks. But what about the winter? Therein lies the justification that most animates the Massachusetts Municipal Wholesale Electric Company (MMWEC), which is planning to build the plant.

Multi-Day Fuel Scarcity

ISO-NE has identified that fuel-security risk — the possibility that power plants won't have or be able to get the fuel they need in winter— is the foremost challenge to a reliable power grid in New England. It is a multi-day concern during very cold winter days. There is a fixed pipeline supply of gas and heating customers who have top priority. MMWEC says that "[t]he proposed plant is expected to run ... only ... during times of system stress, such as during extreme weather."

It's an Oil Plant. A gas fueled peaker plant has no role in alleviating winter fuel scarcity. That is the reason the proposed plant includes a 200,000 gallon oil tank. This means the plant can also burn oil.

This plant's actual use is likely not as a gas peaker, but as a backup oil plant.

Green Hydrogen? MMWEC has broached the idea that "green" hydrogen might be a possible future fuel, but /there is no rational basis for this to be viable in the foreseeable future. Making a turbine usable with hydrogen "poses quite a challenge" and even if technology is successful, how many power plant owners can afford to renew their facilities?

Second, the commercial processes that are used today to make hydrogen are not green. They are based on gasification of coal or lignite or steam methane. Green hydrogen is based on using renewable electricity, but electrolysis is very expensive.

Finally, storing and transporting this highly flammable gas is not easy; it takes up a lot of space and has a habit of making steel pipes and welds brittle and prone to failure.

Offshore Wind Alleviates Concern with Gas Supply. New England is blessed with huge offshore wind potential. Wind generation is intermittent; the wind does not always blow, particularly in the summer and fall, but fortunately, it is highly reliable exactly when we need it most – during cold or extreme weather events.

Deepwater Wind reported that the capacity factor of their wind turbines (located off Block Island) during the cold snap from January 4-7 in 2018 was "just off the charts. Usually when you have intense weather conditions that's when our turbines are producing at greatest capacity so you have this wonderful match."

As part of a larger project, researchers at the University of Delaware have collected and analyzed hourly wind data spanning multiple years from offshore wind buoys maintained by National Oceanic and Atmospheric Administration (NOAA). One of these is located near Martha's Vineyard and Nantucket. As a wind turbine, it would have been 95% active over a 3.8 year period. By comparison, the availability of fossil fuel generators is typically 94% due to maintenance and unplanned shutdowns.

Winter Wind Summary. Offshore wind (and solar and batteries) remove or significantly mitigate the fuel security concern. These new zero emission "fuels" are constrained only by our willingness to tap into them. There is no justification for a plant that is very expensive to build and will inevitably become a stranded asset as offshore wind and solar expand. MMWEC should be encouraged to enter into composite contracts for offshore wind for its member MLPs. In that way, MMWEC could provide a real service for its members.

Is the Plant a Plan to Save Money?

Saving money is a laudable goal, but even ignoring the social cost of carbon, the costs to public health or the potential cost of accidents, will an \$85 million investment

now result in a savings for the MLPs? The answer appears to be a solid no.

Ten Years Too Soon. MMWEC expects to recover the cost of the plant by participating in the ISO-NE Forward Capacity Market (FCM) auctions. But for the next ten to twelve years, the auction prices are expected to be low. This means that the MLPs would actually come out ahead if they bought all of their required capacity at the FCM auctions. Only by 2032 are FCM auction prices expected to increase so that the MLPs would begin saving money.

The Future of the FCM Is Unclear. In October 2020 the governors of five New England states, including Massachusetts, sent a letter to ISO-NE demanding major reforms. The reform process will take several years and will involve FERC, and the outcomes are hard to predict. The operation of the FCM is very much a reform issue.

Fiduciary responsibility should compel MMWEC to delay the plant at least until the future of the FCM or its replacement is certain. To build it now is likely to be a waste of \$85 million, a continuing cost burden to the MLPs, and an unnecessary risk.

Current Status

On August 12 of this year, the DPU approved MMWEC's request to borrow \$85 million to build the plant, and MMWEC has already entered into contract(s). However, the opposition continues on several fronts. Pressure is being brought to bear on Kathleen Theoharides, Secretary of The Executive Office of Energy and Environmental Affairs (EEA), on Governor Baker, and on the legislature to exercise legislative oversight. The situation is dynamic. Here are some links to stay informed:

https://www.massclimateaction.org/clean_the_peak

BreatheCleanNorthShore

<http://breathecleannorthshore.org/>

<https://www.facebook.com/breathecleanNS>

<http://cleanpowercoalition.org/>

Conclusion

Building a new fossil-fuel based plant at this time is not in the interest of the MLPs, their ratepayers, the state's recently enacted Climate Roadmap law, the residents of Massachusetts generally and those residents near the site specifically.

Perhaps this plant will be a viable proposition in the future if the need, technologies and the economics are certain. For the next ten years (or more), the emphasis in the electricity markets needs to be rapid rollout of more renewables and resolution of the misalignment of ISO-NE's market design with the state's decarbonization goals.

Equity and Justice Roadmap Update

By Emma Brown

In June 2020, as the Uprisings for Black Life were happening across the country, our Chapter staff began to engage in a process of introspection and reflection. We knew that the fights for racial justice, economic justice and climate justice are intersectional, but we realized that we hadn't been actively doing our part to dismantle these systems of oppression. In the year and a half since, we have been on a pursuit of transformation to become a more inclusive, equitable, and just organization. This journey started with the realization that we need to work harder toward racial justice. It continues because we see over and over again that we need to double our efforts to become an organization of inclusion and equity for all marginalized identities.

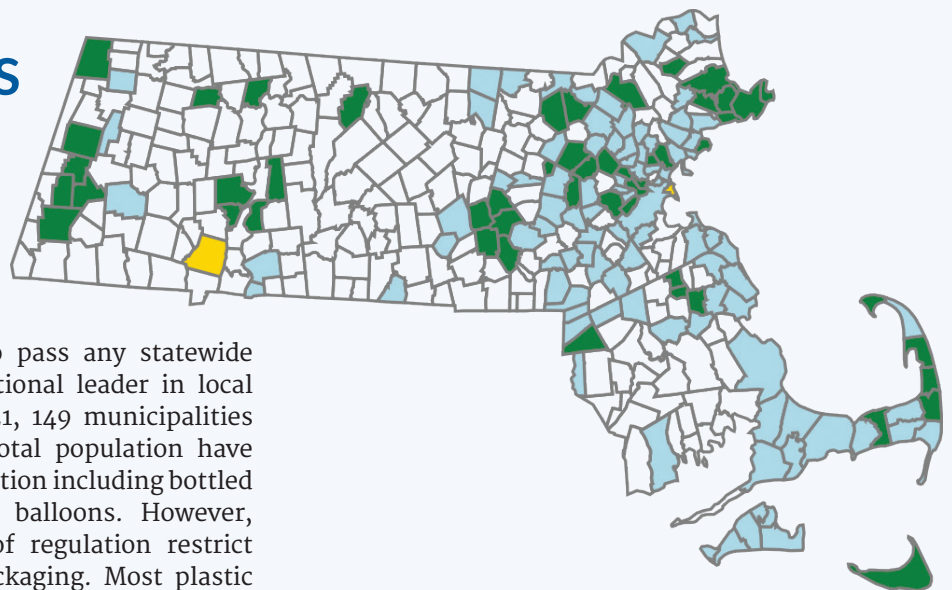
As a means of accountability, we created an action plan, a "roadmap," that will help guide us in this work. It is by no means exhaustive, rather a "living document" — that can and will be changed and updated over time to reflect our continued growth as we expand in this scope of work. Our roadmap was first released publicly in January 2021, and we continue to meet monthly as a team to reflect on our goals,

discuss our progress, and further our work toward equity and justice. You can read the full "roadmap" on our website at <https://www.sierraclub.org/massachusetts/2021-equity-justice-roadmap>

This work is incredibly challenging and I'll be honest: we don't always get it right. We have learned a lot—and grown a lot—in the last 18 or so months. We still have so much more to learn. To that end, we have been working with an outside advisor, Buffalo Cloud Consulting, since June 2021 to design and implement a training series for our staff and lead volunteers, which will wrap up in January 2022. Our intention is to build off of this foundation to provide equity and justice education to all of our volunteers. In the new year we plan to build a team of volunteers who will lead the chapter on this ongoing journey so we will continue to be accountable.

To learn more about our Equity and Justice Roadmap, or to get involved in the process, please reach out to Emma Brown at emma.brown@sierraclub.org.

Massachusetts Plastics Bans



While Massachusetts has yet to pass any statewide plastic ban, we have been a national leader in local bans. As of early November 2021, 149 municipalities representing over 60% of the total population have passed some kind of plastic regulation including bottled water, straws, nip bottles and balloons. However, the two most common types of regulation restrict plastic bags and polystyrene packaging. Most plastic bag bans actually regulate all types of shopping bags to make them more sustainable. Six communities have even regulated produce bags (Brookline and Northampton are the largest). Polystyrene bans have often been extended to include a wide range of plastic food packaging as in Brookline, Manchester-by-the-Sea and Northampton. For more information see: <https://www.sierraclub.org/massachusetts/plastics>

Blue: plastic bag ban only

Yellow: polystyrene ban only

Green: plastic bag ban and polystyrene ban

What's Happening on Cape Cod!



Photo: Clint Richmond

By Chris Powicki and Keith Lewison

The Cape Cod Group (CCG) focuses on protecting our local waters, land, wildlife, and vulnerable populations; and on accelerating an equitable and just transition to 100% clean energy, net-zero emissions, and zero waste.

About the Executive Committee

- The CCG ExCom has five members: Keith Lewison (Sandwich), Morgan Peck (Chatham), Chris Powicki (Brewster), Allyson Schmidt (Barnstable), and Mary Waygan (Mashpee). Members are elected for 2-year terms, with open seats filled by appointment. Our appointed secretary, Diane LeDuc (Harwich), and treasurer, David Dow, PhD (Falmouth), are long-serving CCG activists

Advocacy & Education Efforts

- The CCG worked with many allies against the Multi-Purpose Machine Gun Range proposed by the Massachusetts Army National Guard on protected lands within the Upper Cape Water Supply Reserve. Through public comments, rallies, email campaigns, and more, the Cape-wide coalition succeeded in broadening opposition at all levels of government, halting state-level permitting, and initiating a federal review of water quality impacts. CCG continues to urge citizens across the state to raise concerns with the Environmental Management Commission and Governor Baker's office
- Led by the CCG and 350 Cape Cod, the multi-year effort to sharpen the focus of the Cape Cod Commission (CCC)

on climate mitigation achieved a major milestone with enactment of amendments to the Cape Cod Regional Policy Plan. The next step – convincing CCC to do its job by applying the new emission reduction requirements to developments of regional impact (DRI), rather than just tout voluntary climate actions – represents an ongoing campaign.

- The CCG, working with Conservation Law Foundation (CLF), has led opposition to a massive expansion of the Bourne Landfill, while calling for measures to protect the Cape's sole-source aquifer, cut dangerous methane emissions, and promote zero waste alternatives. We are closely following the proposed expansion of Mashpee Commons and other DRI projects.
- The CCG continued to foster youth activism in collaboration with the Massachusetts Audubon Society, as well as participate in the Sources, Transport, Exposure & Effects of PFAS (STEEP) program led by University of Rhode Island, Silent Spring Institute, and Harvard's T.H. Chan School of Public Health. In 2021, educating and encouraging youth to speak out helped support passage of Town Meeting articles banning single-use plastics and establishing net-zero goals at the local level. STEEP participation gives the CCG a seat at the table in helping identify, educate, and protect vulnerable populations – critical needs now that Chatham and Mashpee have joined Barnstable in having to shut down water supply wells due to PFAS contamination.

Municipal Climate Action

Across Massachusetts, individual cities and towns are taking action to fight climate change and dedicated volunteers of the Massachusetts Sierra Club (MASC) are keeping close tabs on their great work. The actions of these municipalities to reduce greenhouse gas emissions, referred to here as municipal climate actions, are a key component to achieving a safe future.

Not only do these initiatives help Massachusetts meet its ambitious climate goals, but they also provide larger societal benefits. By implementing measures such as building upgrades and improved infrastructure for walking and biking, municipalities can lower air pollution and improve public health in their communities. Many of these initiatives can create local jobs, spur economic development in the state, and decrease municipal and resident costs. Additionally, these initiatives can help provide clean and affordable energy for all, promoting equity and energy democratization.

Municipal governments have unique qualities that set them apart from state and federal systems. They are directly accountable to, and easily accessed by, their constituents. Municipal governments' actions are immediately visible in their communities, and they can engage residents in climate solutions in an accessible and interactive way.

The Climate Research Team

With the onset of the COVID-19 pandemic, the MASC established a new volunteer group, the Climate Research

Team, to document and share these actions. With hundreds of volunteer hours, as well as the significant efforts of chapter staff, the team launched a public website in September 2021. The website, [masstownsforclimate.org](https://www.masstownsforclimate.org) not only shares research on over 140 municipalities, but provides background content, resources, and case studies.

The objective of the website is to inspire additional climate action across the state and recognize municipalities' progress so far. When designing their own programs, we anticipate that municipal leaders will rely on examples of successful neighbors and reach out to other leaders in order to develop a network of mentors. Community activists and the public can leverage the website's database to uncover opportunities in their communities and utilize its resources to deliver an appealing proposal to their elected officials.

In the coming year, the team will expand the database to cover more of the state's 351 municipalities, and refine the data collected. In parallel with ongoing research, the team will host events focused on education and action for all stakeholders, elected officials, municipal employees, community activists, and interested citizens. These events will partner expert content with dialogue to build a network of municipal climate allies.

Learn more at www.masstownsforclimate.org, and reach out to info@masstownsforclimate.org with any questions



2021 Municipal Election Roundup

By Jess Nahigian and Laura Biggs

The 2021 municipal elections in Massachusetts included a number of open seats in places like Somerville, Boston, and Medford that paved the road for newcomers. As of this writing, of Sierra Club's endorsed candidates on November 2nd, thirty-three won and ten lost. Here are several key takeaways from election night, a report on environmental justice wins, and a look into the electoral cycle of 2022.

Let's start with the takeaways. Tuesday night represented a generational shift in Boston politics. Massachusetts Sierra Club's priority candidate, Michelle Wu, won with over 60% of the vote. Sierra Club-endorsed candidates will comprise two out of four At-Large Councilors and five out of nine District Councilors. Three of these councilors are newcomers and all three are Black women - lawyer and environmental justice advocate Ruthzee Louijeune in the At-Large seat, first-generation Boston youth leader Kendra Hicks in District 6, and community non-profit founder Tania Fernandes Anderson in District 7. They will join returning Sierra Club endorsees Julia Mejia, Kenzie Bok, Ricardo Arroyo, and Lydia Edwards on the Boston City Council. Unfortunately, Sierra Club's third endorsed candidate for At-Large City Council, David Halbert, fell short by 0.09%.

This new council, 43% white, represents a large demographic shift from the 69% white council that joined Marty Walsh in his first term in 2013. Headlining this new generation of Boston politics is Michelle Wu, whose sweeping platform of social, environmental, and economic change differs starkly from Mayor Walsh's previous campaigns. These changes stand to fundamentally shift the operational norms and boundaries of possibility for Boston politics. In 2022, we can expect to hold this new City Council to their promises of a greener, cleaner, and more equitable Boston.

Tuesday night also saw success for candidates who started early and ran strong voter contact programs. In Boston, Kendra Hicks won by just under 3,000 votes against an opponent who ran an inflammatory and racist campaign. Councilor-elect Hicks, like Mayor-elect Wu, began running for office in the fall of 2020. Also like Wu, she ran an aggressive voter contact program that effectively inoculated voters against her opponent's tactics. This success would not have been possible without early support from community members and advocates who believed in her vision. In our political program for 2022, we'll be supporting candidates as early as possible and calling on our environmentally-minded membership to do the same. You can expect to see a number of requests for support either financially, or by making phone calls and knocking on doors. Candidates need this support as early as possible to win. We hope you'll join us!

We continue to see historic wins for underrepresented communities. Of Sierra Club's endorsed candidates,



Michelle Wu will become the first woman of color Mayor in Boston; Tania Fernandes Anderson will be the first Black Muslim woman on Boston City Council; and Vietnamese refugee and youth worker Thu Nguyen will be the first southeast Asian councilor in Worcester and first non-binary person elected to public office in Massachusetts. As we look to 2022, we expect to see more and more diverse environmental candidates running for office and look forward to supporting them.

Voters also want to have a larger say in key parts of democratic processes. In Boston, Ballot Question 1, endorsed by Sierra Club, passed with 67% of the vote. The initiative will amend the city's charter to allow the City Council to amend the Mayor's budget as well as create a participatory budgeting process, which would allow citizens to propose and vote on how the City spends a portion of its budget. There were several other ballot initiatives that the Sierra Club did not consider for endorsement but also represented this trend, including Boston's Ballot Question 3. The question passed with strong support and represented a non-binding vote to move from a mayoral-appointed to directly elected school committee. Similarly, in Cambridge, there were three ballot questions that represented a shift of power toward elected representatives and away from a centralized power - in this case, the City Council-appointed City Manager. The questions asked residents if the directly elected City Councilors should have more say in city processes, including oversight of appointments to boards and commissions, an annual review of the city manager's performance, and a recurring process to review and update the city charter every ten years. These each passed with 69% or more of the vote. This desire for decentralized power and transparency reflects the values of the Sierra Club's campaign for greater transparency in the Massachusetts State House. At the beginning of this legislative session in January 2021, we joined with Act on Mass to call for more transparency and accountability in the State House. We

asked legislators to amend the house rules to make all committee votes public, ensure all bills are public 72 hours before a vote, and reinstate term limits for the speaker. While these rules did not pass, we will continue to push for more transparency on Beacon Hill.

November 2nd saw the power of incumbency coupled with the possibility brought by open seats. Among all the races we endorsed, 92% of seats were won by an incumbent. At the same time, 75% of our endorsed newcomers running for open seats won on election night. This has important implications for 2022, which will be the first year after the 2020 census and redistricting. Redistricting happens once every ten years as the result of a new census with updated population counts. The new city and legislative maps will be finalized by the end of 2021 and will be used in the 2022 elections. Redistricting will draw new districts without sitting legislators, as well as districts that contain two current legislators. It will potentially also increase the competitiveness of districts. With redistricting comes a larger-than-usual turnover in seats, which means more open seats and more possibility. The results on election night reaffirm the opportunity redistricting will give us to elect new environmental champions and the importance of supporting these efforts.

It was also a good night for environmental justice in Boston and Maine. Boston voters overwhelmingly advised regulators to relocate a proposed East Boston electrical substation that had been unanimously approved to be sited along the Chelsea Creek. Environmental justice ally Greenroots has been strongly opposed to this infrastructure project in an environmental justice residential neighborhood, citing safety and climate concerns.

In Maine, voters agreed with the Sierra Club's position to reject the Central Maine Power corridor (CMP) through a ballot question. This decision by our neighbors to the north will potentially have large repercussions for Massachusetts, which has been eyeing ways to source Quebecois hydropower for years. The CMP was the final effort to achieve this vision. Mainers' vote ordered the legislature to revoke all permits for CMP. They also voted to raise the threshold for approval of such projects to 60% of the legislature, which will make transmission projects more challenging in the future. Quebecois hydropower has long been seen by Governor Baker's administration as a key component of meeting the requirement to raise the amount of renewable energy used by Massachusetts. In 2016, faced with the prospect of legal defeat over inaction on climate change, Governor Baker introduced and signed into a law a bill that required utilities to procure 1,200 megawatts of renewable energy. While this energy could have included wind and solar, the final regulations and the utilities heavily favored hydropower. The bid was ultimately awarded to Hydro-Quebec. Sierra Club opposes importing hydropower from Quebec from for a number of reasons: it will cause ecological damage; it will affect the Pessamit Innu people; its transmission lines will run through old growth forests; and it is a bandaid on the greater problem of insufficient local renewable energy. For more on why we oppose this project, see

<https://www.sierraclub.org/massachusetts/canadian-hydropower>. We need to develop renewable energy options here in Massachusetts, which will be better for our planet and our local economy. In Maine, a dislike for Central Maine Power combined with environmental activism seems to have temporarily halted construction of the corridor. As of early November 2021, the Baker administration has yet to comment on how to proceed, but Central Maine Power is appealing to the courts to overturn the vote.

So what comes next in 2022? Massachusetts continues to be off track to reach the needed net zero emissions by 2050 as recommended by the 2018 report from the International Panel on Climate Change (IPCC) to keep warming 1.5 degrees below pre-industrial levels. Several Massachusetts cities continue to have some of the worst asthma rates in the country. To pass the bold environmental and climate agendas we need in Massachusetts and set a beacon for the country, we must continue to build the number of allies in the state legislature. We need more people who will champion environmental legislation even if it means bucking the status quo. Due to redistricting, 2022 will bring a number of opportunities for substantial turnover in the state house. We must protect our allies and support clear environment candidates. The more people who support us as we do this vital work, the more candidates we are able to support and the more likely we are to see legislation pass. Many of the most consequential elections will be decided during the primary, which will likely fall in late August or early September. There will also be a governor's race, which we may be participating in.

Whether donating, volunteering, or both, our members give us our power. For example, over the last year, the Community Outreach team dove into several different activities in order to support Sierra Club endorsed candidates and legislation. In the spring of 2021, our team members engaged with their local politicians to discuss environmental legislative priorities, as defined by Mass Power Forward. In addition, they reached out to our community of Sierra Club members and volunteers to promote events such as the 2021 Virtual Climate Lobby Day.

During this most recent election season, the Community Outreach team focused on supporting Michelle Wu's campaign for Mayor of Boston. We supported existing events by sharing them with our community via email and social media. Starting in August, the team began to plan a collaborative event with other local environmental groups. In cooperation with ELM, Sunrise Movement, and 350 MA, Sierra Club helped the Wu campaign organize a Climate Canvass in Dorchester. Both Senator Ed Markey, who endorsed Wu, and Michelle herself were at the canvass to provide some words and answer questions. The event was a huge success, with a turnout of over 50 people. In addition to supporting Michelle Wu's campaign, the Community Outreach volunteers also provided support to other Sierra Club-endorsed candidates by sharing their events on social media and with our members. Our Community Outreach team will continue to support legislation and our candidates in 2022.

The Critical Role of Forests and Trees in a Climate and Biodiversity Crisis

By Lynne Man

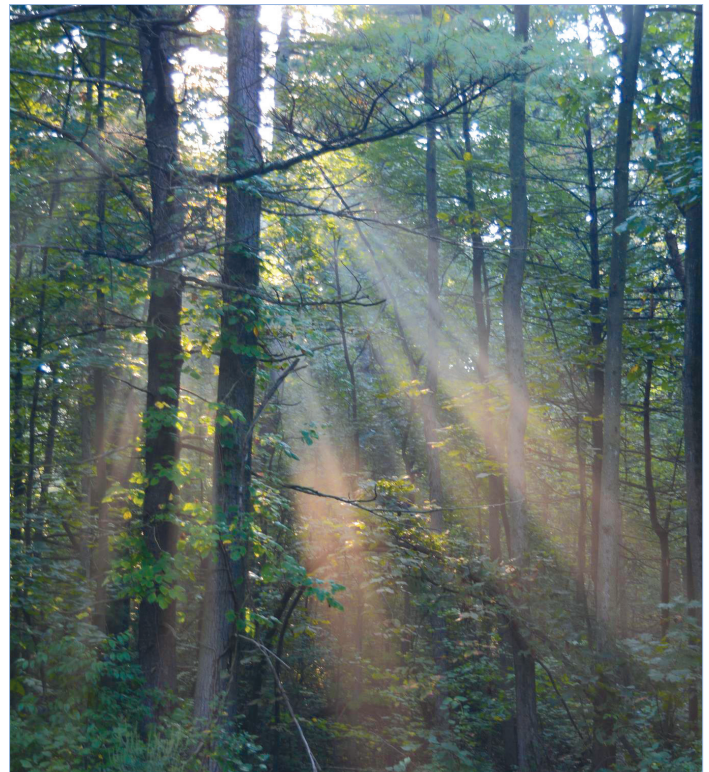
The Massachusetts Chapter of the Sierra Club (MASC) Forest Protection Team's mission is to protect, preserve and expand forests throughout Massachusetts to maximize carbon accumulation, promote biodiversity and optimize human health. An essential part of this MASC working group is to create a shared understanding of the critical role that forests and trees play in mitigating climate change, promoting biodiversity and addressing environmental justice.

The Forest Protection Team interviewed Professor William Moomaw, Professor Emeritus of International Environmental Policy at The Fletcher School of Law and Diplomacy, Tufts University, in September 2021. Professor Moomaw is an internationally recognized researcher and expert on natural solutions to climate change. His focus on increasing carbon dioxide removal and accumulation by forests, wetlands and soils compliments emission reductions from land use changes and forest harvesting, and replacing fossil fuels with zero carbon renewable energy. He has been a lead author of five Intergovernmental Panel on Climate Change (IPCC) Reports and has authored dozens of peer-reviewed scientific articles.

Below are excerpts of this interview, which have been condensed and edited for clarity. We hope that by highlighting the imperative with which forest protection needs to be included as an integral part of climate change mitigation, Professor Moomaw's insights inspire readers to action. Such ideas are woven throughout the interview, including support for legislation (state and federal) on various aspects of forest preservation and carbon capture and storage. At the time of this publication, it is unclear which bills will have been heard in committee and voted on for the current legislative session. To see which bills MASC supports, please visit [MASC Legislative Priorities](#).

Lynne Man (LM), Moderator: We've moved beyond the goal of limiting global temperature rise to 1.5°C. Zero net carbon before 2050 is insufficient to turn us around. Can you explain the importance of forests in carbon capture in relation to fighting climate change?

William Moomaw (WM): Reducing emissions is important as a means to an end, but the goal is to stabilize the amount of CO₂ that's in the atmosphere at a level that will avoid exceeding 1.5 - 2 degrees C above pre-industrial global temperatures. The only way we can do that is to transfer atmospheric CO₂ to some place else like forests and oceans. Leaving aside oceans for the moment, every year there is 31% less carbon in the atmosphere than we have emitted because of forests. Our forests are taking carbon out of the atmosphere and storing it in wood and in soil. So it is absolutely essential that we find ways of not



being just net zero but being zero on emissions and then in addition, having an increase in these removals.

LM: How does land use, including deforestation and wetland and other land degradation contribute to heat trapping gases above and beyond those of fossil fuels?

WM: Dr. Beverly Law, colleagues and I studied how much carbon has been harvested from trees in the three western states, Oregon, Washington and California, from 1900 through 2015. The question is after 115 years, where is that carbon today? Indeed some of it is in long-lived wood products, but that's only 19% of the carbon. Sixteen percent is in landfills and 65% is in the atmosphere as carbon dioxide. Less than half of the wood in those trees would go into boards. The roots wouldn't go in, the branches wouldn't go in, the slab wood on the sides wouldn't go in, the sawdust that came from making it wouldn't go in, and that's more than half the wood.

We need to accumulate more carbon in our natural systems, and half the weight of dry wood is carbon.. It is found that young trees of 50 years, absorb carbon rapidly. This percentage growth slows down as trees age. But the carbon accumulation continues. For example if I cut down a 50 year old tree and replant it, in 50 years, if all goes well, I will have the same amount of carbon in the forest that I had before. If the 50 year-old tree is allowed to keep growing for 50 more years, it will have accumulated more than twice what it had at age 50. Harvesting at age 50 and regrowing is not really progress.

LM: How should policy makers and the public be looking at carbon accumulation by forest soils and other ecosystems? And how does the use of carbon offsets for emissions divert our attention from counting and increasing the impact of natural systems on atmospheric CO₂ and biodiversity?

WM: Sustainable forestry means you do not cut more than what grows in a particular year. If the trees were still removing as much as they harvest every year, the carbon would be static. We can't afford static. We have to increase carbon removal rates over emissions rates so that forests remove more than what humans release through harvesting.

Forest carbon offsets were invented by the fossil fuel industry so that they could keep burning fossil fuels. Sure, it's great to be planting trees and replanting after harvesting. But it's not going to remove additional carbon from the atmosphere by 2050. The trees won't become big enough. They won't have absorbed additional carbon. The people in 2080 will love it that we planted trees today, if our climate hasn't changed so badly that they don't grow.

Surveys show that more than half of private landowners would prefer not to cut their forests. Suppose instead we subsidize people to let their trees grow. No questions asked. We'll pay them. That has been tried in places in Brazil and parts of the U.S. and it's working.

So for those of us here in the Northeast, I would argue that's something we should urge our state legislators to enact. It's called "payment for ecosystem services." It's not only to capture and remove carbon. It's for biodiversity, it's for flood control, it's for water quality, it's for air quality. All those are things that we all benefit from. So I think direct payments for services are far better than carbon offsets. We need to account: 1) emissions reductions and 2) removals by nature as two separate actions. Each is necessary and should be credited separately.

LM: Please explain the current system of fossil and forest bioenergy subsidies. What types of policies should be introduced and implemented to transition us to zero carbon renewables?

WM: The goal is to get rid of putting carbon into the atmosphere from any source whatsoever. So policymakers, lobbied by industry, are replacing coal with wood and they're calling it carbon neutral because a tree will regrow. You cut it down and a replacement regrows. If you cut down a 25-year-old tree, it takes 25 years to regrow. A fifty year-old tree takes 50 years. If you cut down a 100-year-old tree, it takes 100 years. Burning wood is subsidized to make electricity because it is more expensive than anything except nuclear power.

When wood is burned, the carbon dioxide goes into the atmosphere instantly. And it takes decades to centuries to replace it. And that doesn't count the fact that in many forests half the carbon per acre is in the soils from all the decomposed leaf litter. Carbon is constantly being put into

soils by a living forest. And bacteria in the soil are breaking it down and making soil carbon, and other bacteria are breaking it down and releasing carbon dioxide. As soon as you stop dropping more carbon into soils by cutting down the forests, the rate that carbon dioxide leaves that soil exceeds the amount that is coming in. The soils give an immediate release of carbon dioxide after a harvest. You then lose two ways – from soil respiration and from the loss of tree photosynthetic removal.

LM: Please describe proforestation, and how is this different from afforestation or reforestation? What impact does this have on biodiversity?

WM: Reforestation means to replant a forest that has been previously cut. Afforestation means to plant a forest where a forest is not now growing, and has not grown for a long time or ever.

Currently, many secondary forests are at a prime age to start adding massive amounts of carbon to the trees and to the soils. But there was no term for letting trees grow. So in 2019 some colleagues and I introduced the term "proforestation," to which we gave a precise definition: Proforestation is growing a forest to meet its ecological potential for carbon accumulation and biodiversity.

All those words are carefully chosen. For example, ecological potential refers to the conditions under which the forest grows: the soil, the precipitation, the climate, the temperatures, the species mix, etc. Something like 70–80% of all the biodiversity on land is in forests. We often say we should have forests to protect biodiversity. But I've learned that it's the other way around.

A forest is only a forest if it is biodiverse. Otherwise it's a tree plantation. We may need tree plantations for harvestable resources—houses, paper, furniture, etc.—but it's not really a forest and it doesn't provide the same benefits. The species of trees is part of biodiversity. Probably the most important part of biodiversity in a forest is what is in the soils. Bacteria, viruses and fungi are absolutely essential to the functioning of a forest.

LM: What is meant by forest bio-energy and bio-energy with carbon capture and storage?

WM: Forest bio-energy—This is the idea that we can burn our way to a clean climate because wood burning can replace fossil fuels. People have gotten hung up on the definition of renewables. A forest is renewable, but only slowly over long time periods, and it is not low carbon. Claims that burning wood — forest bio-energy — is carbon neutral is unfortunately entrenched in U.S. law: all federal agencies must count forest bioenergy as carbon neutral if it comes from a sustainably managed forest. We have erroneously legislated science. False science, but nevertheless, it's on the books.

Makers of wood pellets are shipping them to Europe and Great Britain. This is deforesting the southeast U.S., destroying one of the most biodiverse hotspots in North

America. This and other forest management practices have contributed to the loss of one billion forest dependent birds in North America.

Bioenergy with carbon capture and storage or BECCS requires burning trees, capturing the carbon dioxide and storing it underground in a geological formation. To remove sufficient carbon dioxide this way to keep global temperatures from rising by more than 2.7 degrees F (1.5 degrees C) requires creating a tree plantation the size of India. Furthermore the technology to do this at scale does not yet exist, and the early indications are that it is very expensive. It takes an enormous amount of energy to capture the carbon dioxide, and the process is not very effective.

LM: Are these viable options for clean energy?

WM: I do not believe BECCS is economically viable or technologically feasible at scale in the next 30 years. 3 billion dollars have been included in the infrastructure bill for technological approaches to carbon capture and storage. How much funding is there for protecting forests? Zero!. This is a missed opportunity.

LM: How do carbon capture and storage technologies relate to shrinking forests and other natural environments?

WM: I think these technologies are largely a distraction. All of these technologies are hypothetical; they've never been tried before. I'm a very early technology adopter, but these are not technologies that I see as useful. Reducing harvesting and the associated emissions and increasing carbon dioxide removals by natural systems by letting more forests continue to grow is the combination that is really needed.

A study done of Pacific Northwest National Forests found that if one were to reduce harvesting by half and allow the remaining trees to continue growing, 10 times as much carbon would be accumulated from the atmosphere by 2100 as would planting an equivalent number of trees. That is the power of proforestation or letting trees grow while still being able to harvest the other half. I am not saying don't ever cut a tree. But I am saying, if we did this in a smarter way we would be more successful in reducing climate change and producing forestry products. It is far easier and cheaper to set some areas aside that can do the carbon accumulation job that they're doing right now. This has been demonstrated: trees have been around for 300 million years. They have a very good track record.

LM: Are there specific bills in the legislature that people can support that will help protect Massachusetts forests? Also is there federal legislation that we should be paying attention to?

WM: Yes. In the state legislature, there are two bills. H.912 would remove commercial harvesting from state forest lands, and H.1002 would set aside some lands in our state wildlife areas. You've probably heard of "30 by 30" — set aside 30% of the land and 30% of the oceans for protection by 2030. Also, we need to get rid of all bioenergy subsidies

in Massachusetts, as well as our subsidies to bioenergy plants in Maine and New Hampshire. We've been paying these subsidies to out-of-state bioenergy plants because we don't have many here. The bioenergy plant proposed for Springfield has been put on indefinite hold for a number of reasons, including environmental justice. These facilities are most often located in environmental justice communities — some combination of poor people and people of color. Legislation at the federal level is not as far advanced as I would like. It's all focusing on technological solutions instead of protecting the natural systems that are already doing an effective job. I think that's a problem.

LM: There is a growing conflict between expanding solar energy generation and keeping forests intact throughout Massachusetts. How do we advocate against this?

WM: It's easy to argue against bioenergy. You get so little energy from burning wood, that protecting trees is clearly a better choice in carbon terms. Deforesting an area for solar panels means an on-going loss of carbon accumulation by the forest. There are plenty of other places for solar panels that leave forests standing, so we can have zero carbon electricity plus additional atmospheric carbon removal by the undisturbed forest.

A Clark University study pointed out that half of land conversions in Massachusetts have been for solar panels -- not for urban development, not for agriculture, not for highways. An informal study was done in Berkshire County where 37 solar arrays were put in place and just over half of those involved cutting forests. No one seems to have looked at what this means for additional flooding from intense precipitation. No one's looked at what this means for biodiversity. No one's looked at connectivity for wildlife and plant migration as the climate warms. We have fabulous connectivity in corridors going from Western Massachusetts and Western Connecticut going all the way down into NY state, and all the way up into Canada. These need to be maintained for adaptation to climate change.

The other thing that people don't fully understand and appreciate is that deforestation does not count emissions that are coming from soils which is often equal to what is lost in trees after a cutting. Developers don't count the actual area cut for solar panels, which is, on average, 3-4 times more than the area of the panels themselves to ensure the panels are not shaded. In addition, the roadway that goes out with the transmission lines requires even more cutting.

Also, when trees get to be really big, they store an enormous amount of carbon. If we're not going to let them get really big because we cut them to install solar panels, they will never achieve the long term accumulation of carbon that would occur in a forests of big trees and lots of soil carbon if left standing. So it's a false trade-off in my view.

LM: This has been very informative! Thank you so very much for sharing with us, Professor Moomaw!

Meet the Executive Committee Candidates

Reverend Vernon Walker of Cambridge

I am a current Executive Committee member of the Massachusetts Sierra Club. Throughout the last two years with Sierra Club, I have helped connect the chapter to other groups that do different types of justice work. I also serve as the chair of the Political Committee, we have been all hands-on deck with the mayoral race in Boston.

I would like to continue to serve on the Executive Committee, and as a person of color and one who has relationships with many organizations across the state, build an opportunity to build new relationships with organizations and strengthen relationships with existing organizations that the Sierra Club has for the purpose of building solidarity.



Mallorie Barber of Cambridge

I moved to Massachusetts in 2019 to be closer to the outdoor spaces that were core to my childhood. My love for these spaces extends to a belief in a universal right to nature, health, and safety for all people; not only expanding access to the outdoors as they exist today, but empowering communal solutions to the climate crisis. Through my change management and design work, I help individuals shift how they view and interact with the world. I hope to leverage this ability, combined with volunteer experience at racial justice, climate, and education organizations, to support the Massachusetts chapter's work toward fulfilling that universal right.

Laura MacLeod of Amherst

“Progreso sin Destrucción” was the motto of the first environmental NGO in 1980, Argentina. As a founding member, I dealt with issues for 20 years from assistant to president. The group embraced the SC principles, a pivotal move for activities I organized extensively and to implement national networks. My foundational dream still soars high: global environmental ethics. I participate in the SC toxics and political committees and have led outings as SC leader. I'm a founding member of ZWA and MOF. In the LWVMA energy committee, we terminated the biomass plant. As chair of school PGO, I generate zero waste and climate actions. Active member since 2006, a well-seasoned bilingual educator and coordinator, I kindly ask for your vote to accelerate the ethical change. Gracias



Clint Richmond of Brookline

My family has been a member of the Sierra Club for many years. I became active with the Chapter on the issue of single-use plastics in 2012. This campaign has expanded into solid waste and toxics. I have also served as co-chair of the Transportation Committee since 2017.

I have represented the Chapter on these issues in the media, hearings, and other public forums. I have served on the Chapter Executive Committee since 2018. I am an elected Brookline Town Meeting Member, and member of the town's Solid Waste Advisory Committee. My career has been in computer technology.



Marty Nathan of Northampton

We want to acknowledge that Marty Nathan of Northampton had agreed to run for our Executive Committee this year, and we were very excited to add her voice and guidance to our leadership. Sadly, Marty passed away on November 29, 2021. [Please take a moment to read about Marty and the incredible legacy that she left behind.](#) She will be sorely missed.

Meet the Cape Cod Committee Nominees

Allyson Schmidt of Marstons Mills

Growing up on Cape Cod I have always been passionate towards conserving our unique ecosystem. After obtaining my masters in Sustainable Natural Resource Management I was able to apply my studies to multiple nonprofits on Cape Cod, including the Cape Wildlife Center, Barnstable Clean Water Coalition, Barnstable Land Trust, Sustainable Practices, 350 Cape Cod, Extinction Rebellion, and the Dennis Solid Waste & Recycling Committee. Working with these nonprofits I was able to gain insight on what environmental & social justice issues are impacting the cape the most along with how to address these issues so that change can be implemented at the rate it is needed rather than waiting for the government to handle it.

With your support, I would be honored to serve with other leading advocates on the CCG's Executive Committee.



Mary Waygan of Mashpee



Mary Waygan is a life-long resident of Massachusetts and currently lives in Mashpee, MA. After graduating from Boston University with a Bachelor's Degree in Physics, Mary joined the National Toxics Campaign in their Citizens' Environmental Testing Laboratory. The Laboratory brought science and testing services to grassroots activist groups combating toxic poisoning of their community. Impressed by the need for accountability in government and corporate America, Mary has remained active in her community since. She is currently a member of 350 Cape Cod, the Sierra Club Cape Cod & Islands Group, Mashpee Introverts (A Women's March Group), Cape Cod and Islands Commission on the Status of Women, the Town of Mashpee Planning Board, and the Town of Mashpee Community Preservation Committee. Mary's day-job is with the Town of Yarmouth Department of Community Development. When not working or at a community meeting, Mary enjoys her time swimming in the waters of Cape Cod. She strongly encourages all to join a local community group or Town committee.

Morgan Peck of Chatham

My name is Morgan Peck, and I have been an environmental and marine science educator since 2013, working with Mass Audubon. In my role as Education Coordinator and Climate Specialist, I help develop place-based and natural history curriculum for students grades K-12, which focuses on stewardship and climate change mitigation and adaptation. Connecting students to the physical world around us, and seeing the interconnectedness of our place within it is my primary goal. Civic engagement is one of my passions, and I hope to help raise awareness about various environmental, and climate change related issues on the Outer-Cape and their solutions. I look forward to continuing to serve with Sierra Club's Cape Cod Chapter!



OFFICIAL BALLOT

Primary / individual member ballot.

Family memberships may submit a ballot for each member - up to two total

Part 1: All chapter members vote for Chapter Executive Committee
Chapter Executive Committee Nominees
(vote for not more than four)

- Reverend Vernon Walker of Cambridge
- Mallorie Barber of Cambridge
- Laura MacLeod of Amherst
- Clint Richmond of Brookline

Part 1: Only Cape Cod Group¹ members can vote for
Cape Cod Group Executive Committee
**Cape Cod Group Executive
Committee Nominees**
(vote for not more than three)

- Allyson Schmidt of Marstons Mills
- Mary Waygan of Mashpee
- Morgan Peck of Chatham

¹Cape Cod Group covers all of Barnstable, Nantucket and Dukes counties including the Elizabeth Islands and the portion of the Town of Bourne that is west of the Cape Cod Canal.

MAIL

Sierra Club Massachusetts Chapter P.O. Box 742, Westborough, MA 01581 **Your Member ID# MUST appear on the outside of the envelope for ballot to be valid.** (Your 8-digit member ID# is on your address label above your name.) **Ballots due NO LATER THAN 5:00pm on January 21, 2022.** Please contact chapter@massachusetts.sierraclub.org with questions.

To vote for your Executive Committee leaders, either mail in your ballots, or go to sc.org/maexcombballot to cast your ballot electronically. All ballots are due by 5:00 pm on January 21, 2022.

OFFICIAL BALLOT

Primary / individual member ballot.

Family memberships may submit a ballot for each member - up to two total

Part 1: All chapter members vote for Chapter Executive Committee
Chapter Executive Committee Nominees
(vote for not more than four)

- Reverend Vernon Walker of Cambridge
- Mallorie Barber of Cambridge
- Laura MacLeod of Amherst
- Clint Richmond of Brookline

Part 1: Only Cape Cod Group¹ members can vote for
Cape Cod Group Executive Committee
**Cape Cod Group Executive
Committee Nominees**
(vote for not more than three)

- Allyson Schmidt of Marstons Mills
- Mary Waygan of Mashpee
- Morgan Peck of Chatham

¹Cape Cod Group covers all of Barnstable, Nantucket and Dukes counties including the Elizabeth Islands and the portion of the Town of Bourne that is west of the Cape Cod Canal.

MASSACHUSETTS
SIERRA

Explore, Enjoy and Protect the Planet

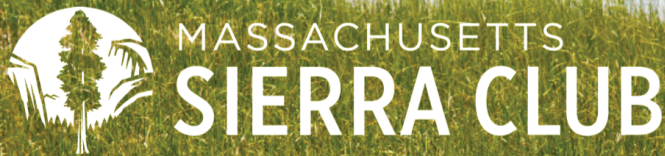
Non-Profit
US Postage
PAID
Permit 56705
Boston MA

Massachusetts Sierra Club
50 Federal Street, 3rd Floor
Boston, MA 02110
(617) 423-5775
sierraclub.org/massachusetts
facebook.com/MassSierraClub
@MassSierraClub

If you would prefer to receive communications electronically, please change your contact preferences at myaccount.sierraclub.org.
Postmaster: send all address changes to: Sierra Club Membership Services, 2101 Webster Street, Suite 1300, Oakland, CA 94612



Donate Today.



To continue all this good work, the
Massachusetts Chapter must raise the
majority of our budget from donors like you.
Please donate today!

Select your donation amount below:
 \$25 \$50 \$100 \$200 Other:.....

Sierra Club Massachusetts Chapter
P.O. Box 742
Westborough, MA 01581

Name

Address

City

State Zip

Email

Charge my: Visa Mastercard Discover

Cardholder Name

Card Number

Exp. Date

Signature

Contributions, donations, gifts, and dues to the Sierra Club are not tax deductible. They support our effective, citizen-based advocacy and lobbying efforts. The Sierra Club is a non-profit, tax-exempt, 501(c)(4) organization.