



# THE MASSACHUSETTS CLEAN ENERGY FUTURE REPORT

JANUARY 2018

*MassSenate*

COMMITTEE ON GLOBAL WARMING AND CLIMATE CHANGE

# TABLE OF CONTENTS

INTRODUCTION .....	3
KICK-OFF.....	5
RENEWABLE ENERGY .....	7
RENEWABLE PORTFOLIO STANDARDS.....	11
FOSSIL FUEL INFRASTRUCTURE.....	15
CLIMATE ADAPTATION.....	19
CARBON PRICING.....	23
ENVIRONMENTAL JUSTICE.....	27
GAS LEAK REPAIR.....	31
TRANSPORTATION ELECTRIFICATION.....	35
NEXT STEPS.....	37

# OUR 2017 CALENDAR

MAY 8 MASHPEE	MAY 9 SUDBURY	MAY 15 MELROSE
MAY 16 TAUNTON	MAY 22 WEYMOUTH	JUNE 12 SPRINGFIELD
JUNE 19 PITTSFIELD	JUNE 20 DANVERS	JUNE 26 WINTHROP
	SEPTEMBER 25 GROTON	



Launched on May 1, 2017 by the Senate Committee on Global Warming and Climate Change, the Massachusetts Clean Energy Future Tour consisted of 10 public hearings throughout the Commonwealth to hear testimony from constituents on the issues that mattered to them in the areas of clean energy and climate.

When the legislature's new energy bill was signed into law in August 2016, the Commonwealth was provided a statute that guaranteed significant new investment in offshore wind and hydroelectric power, along with energy storage targets and a Commercial Sustainable Energy Program. We in the Senate were very proud of this. While we've come a long way, we still have a ways to go. In order to fulfill our mission of making Massachusetts stronger and healthier in this legislative session, we needed your input.

From the Berkshires to the Cape, communities all across our state had an opportunity to express their ideas for sustainable legislation they want to see from the Commonwealth of Massachusetts in front of the committee and other Senate members. Not only did we hear testimony in person, but we also engaged with residents through our dedicated website, its online submission portal and our Twitter account. The engagement was incredible.

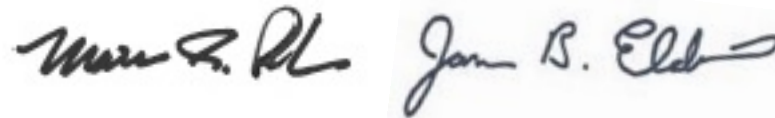
This tour was an answer to thousands of constituent conversations, calls and emails concerning the health and future of our local communities; our state; our country; and our world as a whole. As we craft policy in the next half of our legislative session, we want the people of Massachusetts to be included. The thousands of voices we heard throughout our tour – the voices we heard in Mashpee, Sudbury, Melrose, Taunton, Weymouth, Springfield, Pittsfield, Danvers, Winthrop and Groton – are in the pages that follow. They will inform coming legislation. We couldn't be more thankful for your input and passion.

In order to keep our state healthy, sustainable and strong, residents voiced their support for many priorities, the most frequent being:

- an increase in the use of renewable energy
- an increase in our renewable portfolio standards
- the ceasing of new fossil fuel infrastructure
- the development of a climate adaptation management plan
- the implementation of a price on carbon
- the promotion of environmental justice
- the assurances of gas leak repair
- the electrification of our transportation sector

We detail those priorities in the coming pages – and we couldn't have done it without you.

Here's to a true clean energy future.



Marc R. Pacheco  
CHAIRPERSON



James B. Eldridge  
VICE CHAIR



Jason M. Lewis  
MEMBER



Joseph A. Boncore  
MEMBER



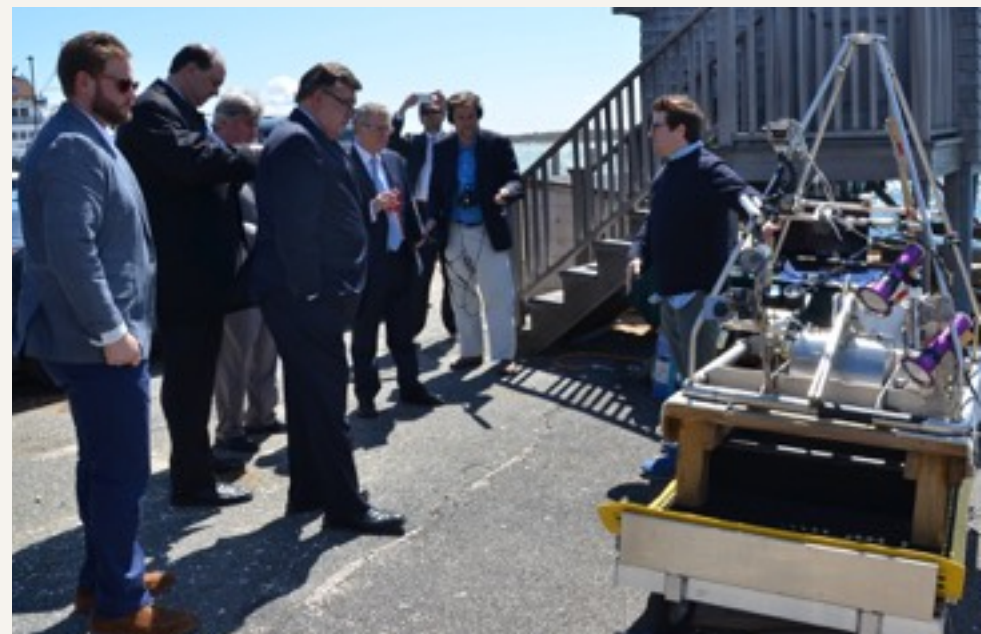
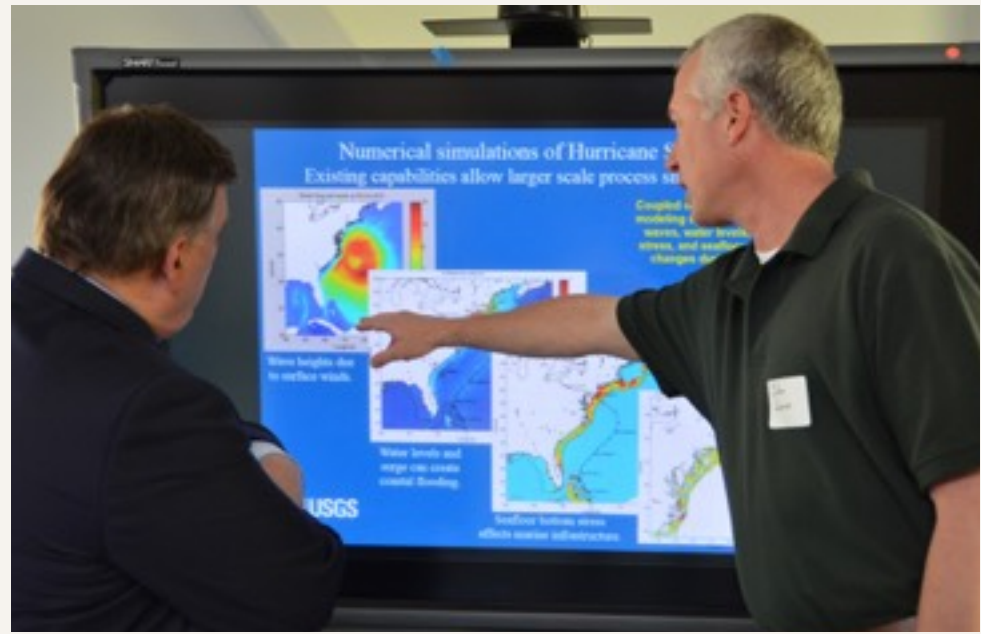
Michael J. Barrett  
MEMBER



Patrick M. O'Connor  
MEMBER



To kick off the tour, we made a site visit to the U.S. Geological Survey's Woods Hole Coastal and Marine Science Center, and we did so for a reason: **sound science is needed for policy and a resilient future**. Led by Dr. Rob Thieler, activities included a discussion of clean energy research, climate adaptation and economic development; a visit to the Woods Hole Oceanographic Institution's dock and near-shore research vessel; and a visit to Trunk River Beach for a hands-on discussion of infrastructure and vulnerability planning. That night, we had our first hearing.



# TESTIMONY

“Protect the environment, strengthen our economy and promote environmental justice.”

– Michael in Groton



“#MACleanFuture, the best energy reduction is the kWh never used and reducing the base load.”

“We're going to have climate refugees right within our borders. We need to think about that.”

– Testifier in Sudbury

“Everyone is vulnerable from climate change, but some are more vulnerable: low-income, minorities, children, seniors.”

– Karen in Taunton

“The clean energy sector is the fastest growing sector in the U.S. We must further harness it here in Massachusetts.”

– Testifier in Melrose

“Residents like myself face skyrocketing insurance costs because of our floodings. We also lose power with extreme weather events.”

– Testifier in Mashpee

“We must pass anti-pipeline legislation this session and stop utilities from charging customers for gas leaks.”

– James in Taunton

“The transportation sector can set us on an accelerated path to being a clean energy Commonwealth.”

– Eugenia in Melrose



# RENEWABLE ENERGY

Communities across the Commonwealth urged the Senate to adopt substantial policies on renewable energy, specifically offshore wind and solar power. The committee heard testimony from many individuals who pushed for the elimination of barriers to the rapid adoption of these sources.

For the adoption of solar, residents referenced the net metering caps as one of the major barriers to widespread solar adoption and urged their lifting. Net metering allows energy customers who have on-site renewables to sell back any excess energy in exchange for credits on their energy bill. However, the state caps the amount of solar energy available for this program. Residents claimed that the costs for those individuals who are not able to take advantage of net metering would be too high and discourage solar investment. They advocated for the elimination of these caps to help the industry grow through the use of commercial and community solar.



There was widespread support for the state to invest in as much offshore wind as is feasible. The comprehensive energy diversity bill signed into law in 2016 required the procurement of 1,600 megawatts of offshore wind power by 2027. Citizens stated that this amount was far too low and that the Commonwealth can – and should – go much further. While some residents opposed outdated siting procedures for land-based wind, the overwhelming majority supported wind as a major tenet of our energy landscape.

Residents also recommended that the state expend whatever funds necessary to rapidly increase the adoption of renewables. For solar power, this investment could come in the form of elevated incentives; for offshore wind, this could manifest through direct investment in projects. Constituents stated that the costs for renewables were quickly declining, while the overall costs associated with fossil fuels were continuing to rise. They believed that heavy investment in renewables would end up being less costly in the end.

In focusing on cost reductions and efficiency, the vast majority of residents supported the implementation of smart grid technology to better inform our ratepayers and utilities by electronically tracking our energy consumption. While some expressed concern about smart meter technology, most advocated for efficiency and transparent energy measurement.

Additionally, in advocating for higher efficiency and less waste, many residents voiced their support for a greater investment in energy storage to keep power flowing efficiently at both low- and peak-power periods. Testifiers noted that by focusing on energy storage, Massachusetts could save ratepayers money by reducing costs and making our grid as clean and stable as possible.

Many testifiers advocated for Green Banks, institutions dedicated to financing the deployment of renewable energy, energy efficiency and other clean energy and green infrastructure projects in partnership with private lenders. Residents noted the benefits of using public dollars to leverage private funds in the deployment of clean energy.

A large amount of testimony detailed the job growth of the renewable energy industry. According to an analysis of U.S. Department of Energy data, nearly 1 million Americans are working near- or full-time in the energy efficiency, solar, wind and alternative vehicles sectors, which is almost five times the current employment in the fossil fuel industry. In addition, solar and wind jobs are currently growing at a rate 12 times faster than the rest of the U.S. economy. Constituents urged the state to take advantage of this sector to strengthen our regional economy while protecting our environment. Many worried that Massachusetts will miss out on economic benefits if other regions act sooner.

Many testifiers favorably recommended legislation that would require the state to set a goal of 100 percent renewable energy generation by 2035 and would phase out the use of fossil fuels entirely by 2050.

# TESTIMONY



"Energy & climate challenges directly related: built environment almost 40% of US energy consumption: what r next steps in MA?"

– Tom in Groton

"Increase the Renewable Portfolio Standard. Stop additional fossil fuel infrastructure and keep us from footing the bill for it."

– Tom in Groton

"Community empowerment allows our communities to employ their own clean energy projects."

– Testifier in Mashpee

"We have to rely upon ourselves and our state and local leaders to stop infiltration by polluters."

– Wendy in Taunton

"Stop fracked gas. Stop Spectra. Protect our forests."

– Maria in Taunton

"I'm desperately afraid for my children if more gas pipelines are built."

– Testifier in Melrose

"We need equal environmental protection all across our state, in every community."

– Annabelle in Taunton



"Now's the time for carbon pricing #MACleanFuture"



**MASHPEE** HOSTED BY SENATOR JULIAN CYR



**TAUNTON** HOSTED BY SENATOR MARC PACHECO



**SUDBURY** HOSTED BY SENATOR JAMIE ELDRIDGE



# RENEWABLE PORTFOLIO STANDARD

Many individuals testified that they would like to see an increase in the Renewable Portfolio Standard. The Massachusetts Renewable Portfolio Standard was developed in 2003 and requires electricity suppliers to obtain a portion of their electricity that they distribute from renewable sources with an annual increase. That amount was set at one percent at the start of the program, with a one-half percent annual increase. That increase was then elevated to a one percent annual increase in 2009. Under the current program, 15 percent of the energy that energy suppliers provide to consumers will have to come from renewable resources by 2020.

However, many Massachusetts residents testified that they do not believe the program goes far enough. One resident testified that the Commonwealth's targets lag behind those of other states and 19 others have standards that are higher. Many believe that the Commonwealth will not meet its obligations under the Global Warming Solutions Act unless the annual increase of the Renewable Portfolio Standard is elevated.

The Global Warming Solutions Act, signed in August of 2008, created a framework for reducing heat-trapping emissions to levels that scientists believe give us a reasonable chance of avoiding the worst effects of global warming. It requires reductions in greenhouse gas emissions from each sector of the economy summing to a total reduction of 25 percent below the 1990 baseline emission level in 2020 and at least an 80 percent reduction in 2050. This is a legal obligation in statute, and the state is required to meet these reductions.

Further, a number of citizens testified that they were concerned about the Renewable Energy Credit market. An energy supplier fulfills its obligation under the Renewable Portfolio Standard by acquiring Renewable Energy Credits. A supplier can receive these credits by producing the energy themselves and receiving a set amount of credits or purchasing the credits from another supplier who has excess credits. However, the energy legislation signed into law in 2016 requires large amounts of hydroelectric and offshore wind power to come onto the market very rapidly. Residents expressed concern that this large influx of renewable energy would devalue the Renewable Energy Credits, cause the credit market to collapse and render the Renewable Portfolio Standard ineffective.

Residents cited a report from the U.S. Department of Energy's Lawrence Berkeley National Laboratory and National Renewable Energy Laboratory that finds state renewable portfolio standard policies to reduce greenhouse gas emissions and air pollution while also reducing water use, creating renewable energy jobs and suppressing wholesale electricity and natural gas prices. The greenhouse gas and air pollution benefits alone saved the U.S. \$7.4 billion in 2013. A previous report by the same lab team found average annual costs of Renewable Portfolio Standard policies of only \$1 billion: in other words, the benefits of these policies have drastically outweighed their costs.

# PITTSFIELD HOSTED BY SENATOR ADAM HINDS




# MELROSE HOSTED BY SENATOR JASON LEWIS

# TESTIMONY

"I hope solar can continue to grow in the Berkshires."

– Chris in Pittsfield

 "Accelerate the RPS. Expand solar. Promote environmental justice. Push back on gas pipelines. Empower communities. #MAcleanfuture"

"We must work on our climate crisis at home. Our vulnerable populations will suffer even more than the rest of us."

– Testifier in Springfield

"The Connecticut Expansion Pipeline is threatening us as we speak. Conservation land needs to be protected."

– Will from Ashford

"Clean energy technology should be available to all who want it, regardless of wealth, regardless of home ownership."

– Sarah from Savoy

"Environmental science and climate science need to be taught in our schools, my high school, so we can face climate deniers with facts."

– Ida in Springfield

"Transportation is the largest emitter. We need weekend bus service and regular passenger rail between the Berkshires, Boston and New York City."

– Eleanor in Pittsfield



"I vote for raising RPS 2%/yr. Businesses invest when there is legislative certainty!"



# FOSSIL FUEL INFRASTRUCTURE

Two of the top priorities consistently listed at almost every tour stop were a desire to end the continued development of fossil fuel infrastructure in the Commonwealth and altogether end the use of fossil fuels. Constituents generally cited five separate concerns: necessity, cost, land protection, emissions and safety.

A number of companies have proposed natural gas pipelines for the Commonwealth, most notably Kinder Morgan Inc. and Spectra Energy Corp. Many constituents expressed concern that these pipelines were not necessary, as the developed world is rapidly moving away from the use of fossil fuels. Many cited a report released in 2015 by Massachusetts Attorney General Maura Healey that affirmed that our region will likely face no electric reliability issues over the next 15 years. That same report also confirmed that our additional energy needs can be met more cheaply and cleanly through energy efficiency and demand response instead of new gas pipelines. New gas pipeline infrastructure would result in decreased customer savings and would actually drive up greenhouse



gas emissions. Energy efficiency, combined with firm low carbon imports on existing transmission lines, would save customers money and produce the greatest reduction in greenhouse gas emissions.

There was great concern that the costs of an unnecessary pipeline would be passed on to taxpayers. Additionally, several citizens questioned the necessity of new fossil fuel infrastructure or the continued use fossil fuels in regards to energy independence. As Massachusetts does not have any easily available fossil fuel resources in the state, the Commonwealth would remain reliant upon other states and countries for its energy resources by continuing to use fossil fuels.

Citizens were also concerned about the possible damage done to our natural resources by the expansion of natural gas infrastructure. A pipeline proposed by Tennessee Gas Pipeline Co. LLC, a subsidiary of Kinder Morgan Inc., would travel through Otis State Forest in the Berkshires. Citizens raised concerns that this pipeline would destroy the forest and disrupt a number of critical habitats.

Emissions from fossil fuels were also a major topic along the tour. Many residents across the state believed that we must stop developing fossil-fuel infrastructure as soon as possible and also rapidly reduce our use of fossil fuels. These residents believe that the legal requirements of the Global Warming Solutions Act will be impossible to meet by continuing to use fossil fuels.

Safety was the last major concern for Massachusetts residents about fossil fuel infrastructure. This topic was the top issue cited by constituents at the Weymouth hearing. Algonquin Gas Transmission LLC, a subsidiary of Spectra Energy Corp., has proposed building a 7,700 horsepower natural gas compressor station in the city. Constituents of the city listed their fears that the proposed compressor station is located too close to the population and that an explosion could devastate the population. Further, a number of residents stated that emissions from the compressor station could cause residents to develop breathing issues or become ill.

# TESTIMONY



"#MACleanFuture western mass needs more public transportation and more bike lanes"

– Testifier in Springfield

"I'm a physician at Bay State, and new fossil fuel infrastructure is unnecessary. Electric ratepayers should not have to pay for pipelines."

– Testifier in Springfield

"Electrify, expand our transportation system. We need more incentives. Massachusetts can lead by example. Make our fleet electric by 2020."

– Testifier in Springfield

"The Global Warming Solutions Act is our teeth to move beyond the requirements of the Paris Accord."

– Fred in Danvers

"I'd like to see the net metering caps removed."

– Testifier in Weymouth

"We want to ensure that the successes of adaptation and energy planning are in statute for successive administrations."

– Jack in Danvers

"The RPS keeps our money in the community, a community that tends to be fairly economically disadvantaged."

– Dominic from Lanesborough

"Our built environment, our residences, our buildings, need to be green. We need to build smart."

– Testifier in Springfield





# CLIMATE ADAPTATION

Constituents urged the Senate to move quickly in adopting a long-term comprehensive adaptation management and resiliency plan. Such a plan would allow the Commonwealth to manage climate risk and protect valuable natural resources.

Many residents stated that they found the state's current model of adaptation methods insufficient. The approach to planning for the catastrophic effects of climate change has, so far, been a piecemeal plan with small efforts throughout various bodies and agencies.

Residents favorably mentioned Executive Order No. 569, signed in September of 2016, that guides agencies to plan for climate change and directs the Executive Offices of Energy and Environmental Affairs and Public Safety and Security to develop and implement a comprehensive adaptation management plan. However, many constituents voiced concern that without the plan in statute, this

order suffers from a lack of power and permanence that a piece of legislation would provide. They also stressed the importance of prioritizing using nature-based solutions in adaptation efforts.

According to the U.S. Environmental Protection Agency, the Commonwealth of Massachusetts has warmed by more than 2° F in the last century. Throughout the northeast, spring is arriving earlier and bringing more precipitation, heavy rainstorms are more frequent and summers are hotter and drier. Sea level is rising and severe storms increasingly cause floods that damage property and infrastructure. In the coming decades, the changing climate is likely to increase flooding, harm ecosystems, disrupt fishing and farming, and increase some risks to human health.

Constituents highlighted the dangers of flooding for our inlands, wetlands and coastal communities. Today, 85 percent of Massachusetts' 6.7 million residents live within 50 miles of the coast. A report by The Boston Harbor Association states that, compared to the present water surface elevation, global average sea levels will increase one to two feet by 2050, and three to six feet by 2100. New England's local sea level is expected to rise even faster.

Boston and its surrounding areas currently have a 1 percent likelihood of experiencing a 100-year storm surge, but that likelihood jumps to 20 percent in 2050 and becomes as frequent as high tide in 2100. The Union of Concerned Scientists forecasts that we should expect today's once-a-century coastal impacts to become once-a-year outcomes. This concerned residents, homeowners and business owners across the state.

Witnesses asked for the passage of legislation that would direct the state to develop and implement a comprehensive adaptation management plan. They stated that this piece of legislation would not easily be able to be changed by any future administration. Crucially, this legislation also would also require that any actions taken by a state agency be consistent with the plan the maximum extent practicable. The Senate passed such a bill in November, and it was sent to the House of Representatives.



**WEYMOUTH** HOSTED BY SENATOR PATRICK O'CONNOR



**SPRINGFIELD** HOSTED BY SENATOR JAMES WELCH



**WINTHROP** HOSTED BY SENATOR JOE BONCORE

# TESTIMONY

"Even though we are first in energy efficiency, there is so much more that we can do. We should not be complacent."

– Cheryl from Dalton



"Big applause for east-west rail across Massachusetts @MACleanFuture - Yay!"

"I'm an M.D. We already have a 25 percent asthma rate here in the Valley. Climate change is a true issue for public health and social justice."

– Testifier in Springfield

"Here in Winthrop, we're really concerned about sea level rise."

– Testifier in Winthrop



"@MothersOutFront speaks up at @MACleanFuture listening tour in Weymouth. We say NO to the compressor station. Insanity!!#KeepItInTheGround"

"We need solar panels on municipal buildings. Small steps, over time, can make a huge difference."

– Alan from Middleborough

"Healthcare companies are investing in clean energy because it's cost-saving and healthy."

– Testifier in Springfield

"I'm a green engineer. Fossil fuels are not the way to go. We have too many adults and children suffering from asthma and health issues."

– Matt in Pittsfield



# CARBON PRICING

A carbon price is a cost that is placed upon greenhouse gas emissions in an effort to get carbon polluters to reduce their output. Placing a price on carbon was a high priority for many residents who believe our carbon pollution should decrease. Greenhouse gas emissions cause a host of issues across the globe, from environmental (rising sea levels) to public health (increasing lung conditions). However, the costs associated with ameliorating those problems are generally borne by the government and the taxpayer. The actor that generated them is not required to pay into the system to help fix these problems. The constituents who advocated for carbon pricing believe that, by placing a price on carbon and requiring polluters to actually pay for their emissions, carbon emitters will drastically reduce their greenhouse gas output.

Many of the individuals advocating for carbon pricing referenced three separate strategies. One approach uses a mechanism that would utilize the Global Warming Solutions Act and require the Executive Office of Energy and Environmental Affairs to develop and implement a price on carbon.



Another approach would implement a specific carbon price with an annual increase and revenue neutrality. The third approach would implement a specific fee with 80 percent of the revenue being returned to taxpayers, with the other 20 percent being put into a fund dedicated to transportation and clean energy upgrades.

According to a study by the Harvard T.H. Chan School of Public Health, implementing a carbon price in Massachusetts from 2017 through 2040 could save the state \$2.9 billion in cumulative health benefits while mitigating greenhouse gas emissions.

That mitigation can be used in the following capacities:

- Investing in renewable energy; clean vehicles, fuels, and transit options; and energy efficiency to speed the shift to a clean energy economy and drive down consumer costs
- Per capita dividends (e.g. annual checks) to residents, paid for by dividing some or all of the carbon revenues
- Investing in climate-resilient infrastructure (e.g. upgraded roads and sea walls) or relocation costs for communities at high risk
- Providing transition assistance to workers and communities that depend on fossil fuels for their livelihoods (e.g. funding for job training and investments in economic diversification)
- Offsetting the disproportionate impacts of higher energy prices for low-income households (e.g. through rebates on electricity bills for low and moderate income households)
- Investing in communities that face a disproportionate burden of pollution from fossil fuels
- Creating an opportunity to cut other taxes and make up for that through carbon revenues

Carbon pricing is gaining momentum in Canada, Mexico and in areas of the U.S. British Columbia implemented a revenue-neutral carbon price. California began its cap-and-trade system in 2013, and it is the fourth largest in the world behind the cap-and-trade programs of the European Union, the Republic of Korea and the Chinese province of Guangdong. Cap-and-trade is also the pricing mechanism in Quebec and Ontario, and both are trading in a joint market with California in support of the Western Climate Initiative. Mexico instituted a carbon price and launched a cap-and-trade mechanism in 2016 with full implementation expected in 2018. As part of that system, it will join the regions in the aforementioned North American trade market.



**DANVERS** HOSTED BY SENATOR BRUCE TARR



**GROTON** HOSTED BY SENATOR EILEEN DONOGHUE

# TESTIMONY

"Massachusetts needs to focus on offshore wind and solar arrays on brownfield sites."

– John in Pittsfield

"We need to listen to the people, not the utilities."

– Katy in Pittsfield



"It's critical that we plug in all communities to the green economy. #macleanfuture"

"Hopefully legislative progress will be made so that small hydropower operations can participate in net metering."

– Testifier in Pittsfield

"Energy storage is an often-overlooked part of the clean energy sphere."

– Rosemary in Pittsfield

"We are one of two states without a state climatologist or climatology office."

– Testifier in Mashpee

"Allow populations like our seniors to get loans for solar panels on their houses. We have so much roof space available."

– Patty from Revere

"I'm in support of solar access for all, legal protections for environmental justice and community empowerment."

– Andrea from Framingham



# ENVIRONMENTAL JUSTICE

Communities consistently stressed that promoting environmental justice and equal access to green energy was essential. Environmental justice is the concept that all individuals receive equal consideration under a nation, state or city's environmental laws, regulations and policies. One of the greatest concerns of constituents is that the most vulnerable populations are those hit hardest by the effects of climate change. One resident specified that the young, elderly and infirm are the most threatened from the health effects of climate change and low-income individuals who cannot afford to move are most impacted by the sea-level rise associated with climate change. These constituents supported bills to codify the concept of environmental justice into law.

According to the Northeastern University Environmental Justice Research Collaborative, Massachusetts' low-income communities bear about four times the environmental burden of higher income communities. More specifically, communities where 15 percent or more of the population is non-white bear more than 20 times the environmental burden of white communities. Those

communities also see more than 10 times as much chemical pollution released into the environment every year. There are 48 hazardous waste sites per square mile in communities of color as opposed to an average of just two in white communities.

According to a report from the Global Development And Environment Institute at Tufts University detailing the distribution of hazardous sites and polluting facilities around Massachusetts, communities of color and working-class communities are home to significantly more hazardous sites and facilities than wealthier communities and those with small minority populations. Low-income and minority populations are also more likely to live in areas where high lead exposure is likely, due either to soil contamination or to lead paint. The researchers looked at the distribution of hazardous waste sites, landfills and transfer stations, polluting industrial facilities, power plants and incinerators; they also created a measure of exposure to cumulative environmental hazards, looking at all the exposure sources together. They found that "high-minority communities face a cumulative exposure rate to environmentally hazardous facilities and sites that is nearly nine times greater than that for low-minority communities." Cumulative exposure in low-income communities is about three to four times higher than in other communities in Massachusetts.

The concept of environmental justice also extends to all individuals having equal access to programs offered by the state. Individuals testified that too frequently in the Commonwealth, cost and other factors act as a barrier to certain populations. Fees associated with programs may be too much for low-income individuals or families and language barriers may block willing participants from taking advantage of programs. Others noted the barrier of homeownership in regards to efficiency and the implementation of solar panels or energy upgrades. These constituents referenced bills that would provide an incentive for low-income and community shared solar programs and require the Department of Energy Resources to promote clean energy programs in multiple languages.



# TESTIMONY

"I live in a triple-decker in Dorchester. We need to ensure equitable energy policy for all: renters, vulnerable communities and more."

– Joel in Winthrop

"We need proactive risk reduction. We know the effects that storms have on our communities."

– Cindy in Winthrop

"The legislature must push legislation to increase energy efficiency. We cannot rest on our laurels."

– Jessica from Cambridge

"To meet the Global Warming Solutions Act requirements, we need to grow our clean energy sector."

– Fred in Danvers

"Healthcare is on the front lines of climate change. Fossil fuel emissions cost Massachusetts residents \$1 billion."

– Bill in Winthrop

"Raise the renewable portfolio standard. Increase offshore wind. Support micro-grid development. Increase resilience."

– Jane in Pittsfield



"#climate plan for @MA\_Senate: mitigate, adapt, equity"

"Natural gas infrastructure leaks. That's what it does. I support legislation to stop such leaking."

– Alex in Winthrop



## GAS LEAK REPAIR

Another major priority for residents was repairing the large number of natural gas leaks that plague the Commonwealth. They believed that legislation passed in 2014 was a step in the right direction. This law requires utilities to grade natural gas leaks on a three-tiered system in order of public safety. The most severe ones must be repaired as soon as possible, while others are given a more relaxed time period. However, respondents did not think that this law went far enough and pushed for more aggressive repairs. They stated that methane, the greenhouse gas that leaks from these pipelines, warms the planet at a rate around 86 times that of carbon dioxide.

According to the U.S. House of Representative's Natural Resources Committee, gas distribution companies reported releasing 69 billion cubic feet of natural gas to the atmosphere in 2011 – roughly enough to meet Maine's gas needs for one year and equal to the annual carbon dioxide emissions of about six million automobiles. In 2012, those companies replaced just 3 percent of their distribution mains made of cast iron or bare steel, which leak 18 times more gas than plastic pipes and 57 times



more gas than protected steel. Gas companies have little incentive to replace these leaky pipes, which span about 91,000 miles across 46 states, because they are able to pass along the cost of lost gas to consumers. Nationally, consumers paid at least \$20 billion from 2000 to 2011 for gas that was unaccounted for and never used.

Since gas companies in Massachusetts own and operate one of America's oldest natural gas pipeline distribution systems, the Massachusetts Department of Public Utilities launched incentive programs to encourage gas companies to replace leak-prone pipelines and operate more efficiently. These companies have replaced less than 4 percent of their leak-prone pipes per year while billing Massachusetts ratepayers an estimated \$640 million to \$1.5 billion from 2000 to 2011 for unaccounted gas that never reached their homes or businesses. This cost was passed onto 1.5 million residential, commercial and other customers.

Significant pipeline incidents in Massachusetts involve cast iron or other high-risk pipes. According to an analysis of national pipeline incidents by the U.S Pipeline and Hazardous Materials Safety Administration, pipeline incidents are four times more likely to occur on cast iron mains. In Massachusetts, 57 percent of the significant incidents from 2002 to 2012 — attributable to human error, leaks, natural forces, excavation damage and a variety of other causes — occurred around segments of the distribution system utilizing cast iron or steel pipe. One of these incidents, a gas explosion in July 2002 involving a corroded fitting on a steel pipe, leveled a home and killed two children in Hopkinton. Another powerful explosion occurred in Springfield in 2012 as a result of human error after a worker from Columbia Gas of Massachusetts accidentally punctured a steel service line, which had been retrofitted with plastic, while responding to a call about a gas leak. The incident resulted in injuries to 17 people and \$1.3 million in property damage.

Communities urged the Senate committee to push for natural gas legislation that would prevent utility companies from charging taxpayers for the repairs of leaks that are the least severe safety risk. Individuals were insistent that these repair costs from utilities not be passed on to consumers. One resident stated that he has noticed that in states where utilities cannot pass on these costs, the leaks seem to get fixed at a quicker pace. Some residents also believe that utilities should be charged for the methane being released from these leaks. Additionally, some constituents tied the push for increased natural gas infrastructure to the gas leak issue and believed that proposals for additional infrastructure would be eliminated if the leaks were repaired.



# TESTIMONY

"Green banks accelerate clean energy development and allow normal folks to leverage investment for high return, low risk."  
– Jane from Greenfield

"Large-scale adoption of electric vehicles is key to meeting our emissions reductions requirements."  
– Testifier in Sudbury

"Our utilities must contribute to our clean energy future. We need clean electricity. Energy efficiency must play a large role as well."  
– Arnie in Groton

"I've been trying to go solar for years. My community solar garden is being put on hold. Stop playing with solar net metering caps."  
– Cheryl in Groton

"We need to focus on adaptation, mitigation and equity. We need everyone to be thought of."  
– John in Winthrop

"The commuter rail needs to be electrified and we need to push for true high-speed rail. The No. 1 destination out of Logan is NYC."  
– Testifier in Winthrop

"We need to think about future generations. We should not subsidize fossil fuels."  
– Grady in Winthrop

"Wind power is the best way to reverse climate change. Plant trees, manage wetlands. Retrofit our buildings in a sustainable way."  
– Paul in Winthrop



# TRANSPORTATION ELECTRIFICATION

Testifiers also consistently endorsed the Commonwealth's continuation of electric vehicle support. In 2014, then Governor Deval Patrick signed an agreement to have 300,000 electric vehicles on the road by 2025. To help reach that mark, the Massachusetts Offers Rebates for Electric Vehicles (MOR-EV) program was implemented. Funded by the Massachusetts Department of Energy Resources, the program allows residents to apply for incentives of up to \$2,500 for the purchase or lease of new electric vehicles including battery electric, plug-in hybrid electric and fuel cell electric vehicles. A total of \$3.72 million has been dedicated to MOR-EV to increase the number of electric vehicles on the road.

Residents appreciate this goal and incentive program, but urged the state to act even more aggressively in pushing for electric vehicles. They believed that the state should provide increased funding for subsidies to encourage more consumers to be able to take advantage. Similarly,

constituents wanted increased funding for electric vehicle infrastructure to be developed by the state, in order to ensure an easy transition for those attempting to switch to an electric vehicle.

One resident stressed that the greatest barrier to installing infrastructure was the cost of installation, not the equipment. He believed that buildings should be ready to deploy electric vehicle charging stations from the day they are constructed, as opposed to retrofitting them later. This resident also stressed the importance of implementing charging programs for consumers to encourage car charging at night and provide less stress to the grid during the day.

Communities also pushed for the adoption of a fully electrified commuter rail system. They cited the fact that, despite a stated commitment to achieving the requirements of the Global Warming Solutions Act, the Commonwealth is still using a number of diesel-engine trains. Residents believe that the state should provide the necessary funds to fully electrify its commuter rail system.

# NEXT STEPS

The Committee heard the people of Massachusetts loud and clear.

The advocacy displayed throughout this initiative was passionate and persistent – the two characteristics needed to make substantive change. But your voice, your outreach, should not be constrained to these ten hearings.

While the Massachusetts Clean Energy Future Tour may be over, we hope the conversation continues. Our website remains a portal for constituent input and engagement. Visit us at [malegislature.gov/CleanEnergyFuture](http://malegislature.gov/CleanEnergyFuture) where you can send us your thoughts, see the priorities of your neighbors and find contact information for legislators.

In order for your priorities to become law, you must continue to let your elected officials know where you stand on clean energy. You must continue to stay informed. You must continue to spread the word. If you're reading this, you're doing a great job of it already.

We are currently drafting a substantial piece of legislation to further develop a clean energy future for the Commonwealth. There are several pieces before our body that provide a vehicle for an omnibus energy bill consisting of the people's priorities, and we look forward to unveiling the final result in the coming days.

*MassSenate*

COMMITTEE ON GLOBAL WARMING AND CLIMATE CHANGE

