

Date: December 10, 2020

To: Honorable Chris Sununu, Governor
Honorable Chuck Morse, President of the Senate
Honorable, Speaker of the House
Tammy Wright, Senate Clerk
Paul C. Smith, House Clerk

From: The New Hampshire Ad Hoc Emissions Commission

Subject: Final Report of the 2020 New Hampshire Ad Hoc Emissions Commission

To the Governor, Senate President, and Speaker of the House,

Enclosed please find the Final Report of the 2020 New Hampshire Ad Hoc Emissions Commission. The Report provides an overview of presentations and related information provided to the Commission by numerous experts, as well as the Commission's recommendation related to submission of future legislation pertaining to emission reduction goals for the State of New Hampshire. If you have any questions please contact the Commission Chairperson, Senator Tom Sherman.

[Sen. Sherman Signature]

Senator Tom Sherman
New Hampshire Senate District 24
Chairperson, 2020 New Hampshire Ad Hoc Emission Commission

The members of the NH Ad Hoc Emissions Commission agree to the filing of this report. This action should not be construed as an adoption of any position by any state agency represented.

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All presentations, public comments, commission meetings and relevant material and reports made accessible to Commission members can be found online at:

<https://nhemissioncommission.com>

FINAL REPORT OF THE NEW HAMPSHIRE AD HOC EMISSION COMMISSION
TO STUDY AND MAKE RECOMMENDATIONS REGARDING SCIENCE-BASED
EMISSIONS GOALS AND INTERIM TARGETS FOR THE STATE OF NEW HAMPSHIRE.

COMPLETED: DECEMBER 10, 2020

I. FOREWORD

In January of 2020, a dozen legislators introduced bipartisan legislation, Senate Bill 590, which sought to create a legislative committee to establish science-based recommendations for the State of New Hampshire to reduce greenhouse gas emissions, with a goal for 2050, interim goals for 2030 and 2040, and identification of the agency to lead the development of a plan to achieve those goals. SB 590 received bi-partisan support in the Senate’s Energy & Natural Resources Committee before the legislative session was disrupted by the COVID-19 pandemic. A coalition of seven organizations who were working with the bill sponsors suggested that the best next step would be to have the Senate table SB 590 and proceed with an ad hoc commission instead of a legislative committee. It was noted that the goals of SB 590 are still timely and extremely important, but that legislative timeliness would be unworkable as a result of the pandemic and its strain on the legislature.

The Ad Hoc New Hampshire Emissions Commission was formed and met virtually five times, from August 2020 to December 2020. This is the Final Report from the Commission which includes background and context for the creation of the Commission as well as its findings and recommendation.

II. INTRODUCTION

Starting in August 2020 and continuing into December 2020, the Ad Hoc Emissions Commission held five two-hour meetings via the Zoom video conferencing platform. The thirty-two Commission members, with diverse backgrounds and perspectives, came together to assist the State of New Hampshire in understanding the current emissions landscape and intersection between emissions and public health.

Summaries and links to the full video presentations provided by experts from each of these sectors can be accessed further down in this report.

The narrow scope of the Commission’s work centered around consideration of science-based emission reduction goals for the year 2050, with interim goals for 2030 and 2040. The scope of

the Commission’s work was not to establish a legislative solution, but rather to report to policy makers and interested parties what the scientific community has determined to be the necessary goals for addressing the global climate crisis and avoiding current and future public health impacts and costs associated with climate change.

The Commission members solicited speakers representing a wide spectrum of expertise, including experts in the areas of climate and public health. The Commission also provided time at each meeting to receive input from the public. Members of the public also had the option to submit comments through the commission website and via mail.

Table 1 lists the Commission members and their affiliations.

Table 1

Ad Hoc Emission Commission Members			
Title	First	Last	Representing/Affiliation
Senator	Tom	Sherman	Senate District #24
Senator	Jeb	Bradley	Senate District #3
Senator	David	Watters	Senate District #4
Representative	Dave	Danielson	House District: Hillsborough - District 7
Representative	Kat	McGhee	House District: Hillsborough - District 40
Representative	Gary	Woods	House District: Merrimack - District 23
	Joan	Ascheim	The New Hampshire Public Health Association
Asst Mayor	Clifton	Below	The New Hampshire Municipal Association City of Lebanon
	Dan	Bennett	New Hampshire Automobile Dealers Association
	Katherine	Bourque	Unitil
	Zac	Conway	Dartmouth Hitchcock
	David	Creer	Business and Industry Association
Dr.	Michael	Dowe	The New Hampshire Medical Society
	Michael	Fitzgerald	NH Department of Environmental Services
	Donna	Gamache	Eversource

Mayor	George	Hansel	Governor's Millennial Council Mayor Keene
	Tom	Irwin	Conservation Law Foundation
	Matthew	Mailloux	Office of Strategic Initiatives
	Madeleine	Mineau	Clean Energy NH
	Paula	Minnehan	The New Hampshire Hospital Association
	Huck	Montgomery	Liberty Utilities
	Jim	O'Brien	The Nature Conservancy in New Hampshire
	Michele	Roberge	NH Department of Health and Human Services
	Dennis	Sasseville	Worthen Industries
	Roger	Stephenson	Union of Concerned Scientists
Dr.	Cameron	Wake	University of New Hampshire
	Rob	Werner	League of Conservation Voters
	Colleen	Vein	Timberland
	Chris	Kelley	NAACP-Greater Manchester
	Michael	Licata	New Hampshire Electric Co-op

At its first meeting, on August 6, 2020, Senator Jeb Bradley nominated Senator Tom Sherman to chair the Commission. Commission members voted in support of the nomination.

The narrow scope of the Commission's work was identified as producing a final report that would identify recommendations on the following three topics:

- 1) A science-based emissions reduction goal for the state to achieve by 2050 with interim goals for emission reductions in 2030 and 2040, necessary to meet the 2050 goal.
- 2) The processes and timelines for developing implementation plans to achieve the science-based emissions reduction levels.
- 3) The state agencies, including a lead agency, responsible for developing, implementing, and reporting on the emission reduction levels identified, as well as public health outcomes.

The Commission identified a meeting schedule and addressed topics as set forth in Table 2, below.

Table 2

Meeting Dates and Topics:		
Date and Time	Topic	Recording
August 6 th 6:00-8:00 PM	Public Health & Climate Emissions	https://www.youtube.com/watch?v=DmiHkwykPjM&t=1727s&ab_channel=NH-EmissionCommission
September 3 rd 6:00-8:00 PM	Emissions by Sector (Transportation, Electricity Generation, Buildings, Non-Combustion)	https://www.youtube.com/watch?v=eJM8zrDX00M&t=1153s&ab_channel=NH-EmissionCommission
October 1 st 6:00-8:00 PM	Emission Reduction Goals (Midterm and Long-term)	https://www.youtube.com/watch?v=UKpyt5TSuGA&feature=emb_title&ab_channel=NH-EmissionCommission
November 12 th 6:00-8:00 PM	Review Report and Extended Public Comment Period	https://www.youtube.com/watch?v=KXGPE1fANf8&feature=emb_title&ab_channel=NH-EmissionCommission
December 10 th 6:00-8:00 PM	Final Report Approval	TBA

The Commission solicited testimony from a wide range of experts to provide the Commission with relevant information, as set forth in Table 3, below.

Table 3

Speakers who provided testimony before the Commission			
Date	Speaker	Organization	Topic
August 6 th	Semra Aytur, PhD	Associate Professor in Health Management and Policy at the University of New Hampshire	Key findings of the 2014 Climate and NH Public Health report
August 6 th	Mark R. Windt, M.D	Center for Asthma, Allergy and Respiratory Disease	Health effects of climate change and air pollution
August 6 th	Justin Kates, Director of Emergency Management	City of Nashua, NH	Climate adaptation and emergency management

September 3 rd	Kathleen Bush, PhD	NH Department of Health and Human Services Division of Public Health	Air emissions, climate change and public health
September 3 rd	Chris Skoglund, Climate & Energy Program Manager	Air Resources Division, NH Department of Environmental Services	New Hampshire Emission levels by sector, NH Climate Action Plan
October 1 st	David Farnsworth, Principal	Regulatory Assistance Project	Regional emission reduction goals
October 1 st	Doria Brown, Energy Manager	City of Nashua, NH	Municipal emission reduction goals
October 1 st	Ken Colburn, Principal	Previously of National Association of Regulatory Utility Commissioners (NARUC), NH DES, NH BIA, NESCAUM	Global emission reduction goals, IPCC report findings

All virtual meetings were open to the public and promoted through social media and media advisories. Each meeting was well attended by Commission members or alternates, with members of the public also attending each meeting. Seven coordinating organizations¹ serving as the logistical backbone for the Commission, with the assistance of b-fresh consulting, were tasked with running the Zoom meetings, identifying presenters for each meeting, compiling research for Commission members, maintaining and updating the website, compiling public comment, publicizing meetings via social media and other mediums including print, and various other administrative tasks.

The Commission held a formal vote during its final meeting on December 10, 2020 on the content of this report and final recommendation.

III. EXECUTIVE SUMMARY

The Commission members received testimony over the course of five months from various experts and agencies. The testimony and data presented was robust and often included additional resources. Commission members found it important to summarize the findings presented within this Executive Summary and to divide the findings into three overarching sections: public health impacts, global and national context, and an overview of New Hampshire emissions and regional emission reduction targets.

¹ The seven organizations providing logistical support for the Commission, with the assistance of b-fresh consulting, are: CERES, Clean Energy NH, Conservation Law Foundation, League of Conservation Voters, The New Hampshire Public Health Association, The New Hampshire Medical Society, and The Nature Conservancy (New Hampshire Chapter).

Public Health Impacts

A consistent theme among the data presented at each meeting was that greenhouse gas emissions pose significant threats to public health, both directly and indirectly through increasing temperature. Health effects include increases in emergency room visits for asthma, heat stress, and renal disease, as well as an increase in deaths even at moderate heat index values. Indirect threats include increased incidence of climate-sensitive diseases including mental health conditions and stress disorders. Extreme heat and events such as floods and hurricanes exacerbate vulnerabilities for those living with existing mental health challenges and substance use disorders (SUDS). Other public health related climate impacts include the spread of infectious, vector-borne, food-borne, and water-borne illness.

These diseases are influenced by inter-connected climate-related factors such as increased temperatures, disruption of access to social/medical services (i.e., during severe storm events), economic stressors, and disruptions to public health infrastructure that support prevention and services. Notably, the data presented suggest that climate-related exposures and climate-sensitive diseases are frequently clustered in areas of the state that are already more vulnerable with respect to income, age, education, race/ethnicity, and disability status.

The findings presented suggest that addressing greenhouse gas emissions is a step that New Hampshire can take to mitigate the impacts of climate-related exposures and associated climate-sensitive diseases. Further attempts to reduce traditional air pollutants, without addressing greenhouse gases, will offer limited benefits for either climate change mitigation or NH's pollution reduction, and will not be cost effective.

The co-benefits of strategies associated with reducing greenhouse gas emissions will result in communities that are more resilient to other types of disruptions. For example, reducing greenhouse gas emissions can align New Hampshire with regional, national, and international efforts to prevent future pandemics, as some emerging global disease threats are associated with climate-related zoonotic diseases. Furthermore, improving community resilience through co-benefits ensures that individuals and communities are better able to plan for and respond to future catastrophic events.

Global and National Context

The fourth National Climate Assessment (NCA4) summarized peer-reviewed research on climate science and climate related impacts, risks, and adaptation. The Climate Science Special Report concludes that human activities, especially the emissions of greenhouse gases, are responsible for the majority of global warming over the past century. Extensive scientific research clearly documents warming of the atmosphere and the oceans, melting glaciers and reductions in seasonal snow cover, rapidly disappearing sea ice, sea-level rise, ocean acidification, and an increase in water vapor in the atmosphere. The Impacts, Risks, and Adaptation in the United States report finds a strong and direct connection between our warming planet and impact on our lives, our communities, and our livelihoods, today and in the future. The report concludes that “*climate-related threats to Americans’ physical, social, and economic well-being are rising.*”

In October of 2018, the Intergovernmental Panel on Climate Change issued a Special Report on the impacts of global warming of 1.5°C and 2.0°C (2.7°F and 3.6°F). The report concludes that the adverse impacts on human and natural systems are already occurring at the current 1.0°C (1.8°F) of warming and that the impacts will be much more severe and destructive at 2.0°C (3.6°F) (IPCC 2018). The report recommends limiting global warming to 1.5°C (2.7°F). There is a high probability that this goal can be achieved if global greenhouse gas emissions are reduced by 45% below 2010 levels by 2030 and are reduced to net-zero by 2050. More recently the IPCC published two other Special Reports: one detailed changes in land-based ecosystems (IPCC 2019a) and the other changes in the oceans and the cryosphere (2019b).

Overview of New Hampshire Emissions & Regional Emissions Targets

New Hampshire emissions have fallen markedly since they peaked in 2005, but they are projected to remain at current levels through 2030 absent new policies. New Hampshire emissions are currently lower than the emissions reductions pathway identified in the 2009 NH Climate Action Plan and are more than 30 percent lower than when they peaked in 2005.

A deeper analysis finds that: the electric sector greenhouse gas emissions fell nearly 74% since 2005 representing almost 90% of total reductions; New Hampshire's actual energy consumption across sectors, including retail electric sales, grew over the last decade; and the reduction in electric generation emissions was principally driven by investments in other New England states.

While New Hampshire's electricity consumption and demand remained relatively steady over the past decade, most of the other New England states have seen reliable declines in their electricity use and demand as a result of policies that spurred growth in energy efficiency and renewable energy. As New Hampshire's electric sector emissions have already fallen considerably and further regional reductions in electric consumption are not expected to be as deep, New Hampshire greenhouse gas emissions will remain at present levels absent changes to state programs and policies.

Many states in the region have adopted statutory emissions reduction targets or goals. These state actions and their associated targets can be viewed in Table 4.

Table 4

Northeast States GHG Emission Reduction Targets				
State	Goal	Source	Link	Notes
CT	By 2020, reduce statewide emissions to 10 percent below 1990 levels;	Global Warming Solutions Act 2008; Conn. Gen. Stat. § 22a-200a(a)(1) and (a)(2)	https://www.cga.ct.gov/2008/ACT/PA/2008PA-00098-R00HB-05600-PA.htm	2008 Law amended in 2018 to include 2030 goal.
	By 2030, reduce statewide emissions to 45 percent below 2001 levels; and	An Act Concerning Climate Change Planning And Resiliency 2018		
	By 2050, reduce statewide emissions to 80 percent below 2001 levels.		https://cga.ct.gov/2018/act/pa/pdf/2018PA-00082-R00SB-00007-PA.pdf	
MA	By 2020, reduce GHG emissions 25 percent below statewide 1990 baseline levels.	Global Warming Solutions Act (GWSA), Chapter 298 of the Acts of 2008 as codified in M.G.L. Chapter 21N Climate Protection and Green Economy Act	https://malegislature.gov/Laws/SessionLaws/Acts/2008/Chapter298	
	By 2050, reduce GHG emissions at least 80 percent below 1990 baseline levels.	Determination of Greenhouse Gas Emissions Limit for 2020 (December 28, 2010)		These determinations are legally binding.
	By 2050, achieve net-zero GHG emissions, where emissions shall not exceed 85 of 1990 levels.	Determination of Statewide Emissions Limit for 2050 (April 22, 2020)	https://www.mass.gov/doc/final-signed-letter-of-determination-for-2050-emissions-limit/download	These determinations are legally binding.

ME	By 2030, reduce statewide GHG emissions to 45 percent below 1990 levels; and By 2050, reduce statewide GHG emissions by at least 80 percent below 1990 levels.	An Act To Establish the Maine Climate Change Council To Assist Maine To Mitigate, Prepare for and Adapt to Climate Change Reference (S.P. 550) (2019)	http://legislature.maine.gov/bills/getPDF.asp?paper=SP0550&item=1&snum=129	
	By 2045, strive to achieve carbon neutrality.	Executive Order No. 10 FY 19/20 An Order to Strengthen Maine's Economy and Achieve Carbon Neutrality by 2045	https://www.maine.gov/governor/mills/sites/maine.gov/governor.mills/files/inline-files/Executive%20Order%2009-23-2019_0.pdf	
NY	By 2030, reduce statewide GHG emissions to 40 percent below 1990 levels; and By 2050, reduce statewide GHG emissions 100 percent from 1990 levels.	New York State Climate Leadership and Community Protection Act (Senate Bill S6599) (2019)	https://legislation.nysenate.gov/pdf/bills/2019/S6599	
RI	By 2020, reduce emissions 10 percent below 1990 levels; By 2035, reduce emissions 45 percent below 1990 levels; and By 2050, reduce emissions 80 percent below 1990 levels.	Resilient Rhode Island Act of 2014 (RI General Laws, Title 42, Chapter 6.2)	Resilient Rhode Island Act of 2014 (RI General Laws, Title 42, Chapter 6.2)	

VT	<p>By 2025, reduce emissions 26 percent below 2005 levels;</p> <p>By 2030, reduce emissions 40 percent below 1990 levels; and</p> <p>By 2050, reduce emissions 80 percent below 1990 levels.</p>	Vermont House Bill 688 (2020)	https://legislature.vermont.gov/Documents/2020/Docs/BILLS/H-0688/H-0688%20As%20passed%20by%20the%20House%20Official.pdf	
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IV. SUMMARY OF SPEAKER TESTIMONY

Meeting #1: Public Health & Climate Emissions

Date: (08/06/2020)

Presenter: Semra Aytur, PhD, MPH, Epidemiologist, University of New Hampshire

Summary: Dr. Aytur reported that climate change is already impacting public health and will continue to do so in the future, more severely, as climate change intensifies. Dr. Aytur explained that climate change causes both direct and indirect health impacts and differentially impacts vulnerable populations. The frequency of extreme heat days is projected to increase dramatically, likely leading to more heat injuries and death and differentially affecting low-income communities and communities of color. Other impacts -- including death and injury, and mental health and stress disorders -- can be expected with increasing severe weather events, such as flooding and sea level rise. Dr. Aytur also explained that climate change can lead to degradation of water quality and increases in emerging diseases (pathogens), foodborne illnesses, and harmful algal blooms. She further explained that climate change plays a key role in increasing the risk, and exacerbating the impacts, of pandemics like the current COVID-19 pandemic. Dr. Aytur's presentation can be found [here](#).

Presenter: Mark R. Windt, M.D

Summary: Dr. Windt discussed what the data shows, from a clinician's perspective, about the effects of Climate Change on respiratory disease. Dr. Windt focused on the areas of concern in the United States: cardiorespiratory health, heat waves, increased pollution, allergy & asthma. Dr. Windt closed by making the connection between the adverse synergistic effect of increases in both air pollution and pollen with allergy and asthma. Dr. Windt's presentation can be found [here](#).

Presenter: Justin Kates, Director of Emergency Management, City of Nashua

Summary: Director Kates provided a high-level overview of how Climate Adaptation plays a role in the decision making within the Emergency Management Department of the City of Nashua. Mr. Kates focused on the impacts to the City of Nashua such as more extreme rain

events (more frequent rain events that drop significant amounts of water in a short period of time); the increasing numbers of hot days and the impacts thereof, particularly in downtown urban homes without air conditioning; wet snow events that bring wires down; and more dry days that lead to increased drought, among many other examples. Mr. Kates' presentation can be found [here](#).

Meeting #2: Emissions by Sector

Date: (09/03/2020)

Presenter: Kathleen Bush, PhD

Summary: Dr. Bush presented on the connections between air emissions, climate change and public health. Dr. Bush pointed to data that outlines the direct effect air emissions (both criteria air pollutants and greenhouse gasses) have on public health, as well as the indirect effects of increasing temperatures associated with climate change on public health. Dr. Bush explained that reducing greenhouse gases is important to stabilize temperatures and will provide the co-benefit of improving air quality. Dr. Bush's presentation can be found [here](#).

Presenter: Chris Skoglund, Climate & Energy Program Manager, NHDES

Summary: Mr. Skoglund reported that NH emissions have fallen markedly since they peaked in 2005, but they are projected to remain at current levels through 2030 absent new policies. While NH's electricity consumption and demand remained relatively steady over the past decade, most of the other New England states have seen reliable declines in their electricity use and demand as a result of policies that spurred growth in energy efficiency and renewable energy. As NH's electric sector emissions have already fallen considerably and further regional reductions in electric consumption are not expected to be as deep, New Hampshire's greenhouse gas emissions will remain at present levels absent any changes to NH programs and policies. Mr. Skoglund's presentation can be found [here](#).

Meeting #3: Emissions Reduction Goals

Date (10/01/2020)

Presenter: David Farnsworth, Principal, Regulatory Assistance Project

Summary: Mr. Farnsworth briefly discussed examples of legislation enacted in Massachusetts, Maine, Connecticut, New York, and Vermont related to the reduction of greenhouse gas emissions. Mr. Farnsworth concluded that state legislative efforts are extensive undertakings and are evidence that states understand that their entire economies will be affected by climate change, with certain communities more immediately or deeply affected. Mr. Farnsworth explained that legislatively established frameworks in these states are useful for information gathering and publicly exploring strategies to implement reductions of greenhouse gas emissions, ensuring statewide adaptation, and ensuring equitable and just power sector transitions. Mr. Farnsworth's presentation can be found [here](#).

Presenter: Doria Brown, Energy Manager, City of Nashua

Summary: Ms. Brown presented on the sustainability planning being done by the City of Nashua, which has adopted the goal of 100% Renewable Energy by 2050, and 20% reduction in greenhouse gases by 2025. Ms. Brown discussed how the City is on an evolving journey when it

comes to greenhouse gas emissions reduction. They are committed to reducing municipal emissions by 20% by 2025 and anticipate surpassing that goal by net metering with their hydroelectric facilities. Ms. Brown also discussed various other strategies the City is pursuing, such as purchasing alternative-fuel public transit vehicles, implementing a bike share program, and investing in renewable energy resources. Ms. Brown's presentation can be found [here](#).

Presenter: Ken Colburn, Former Director of NHDES Air Resources Division, Former Principal of Regulatory Assistance Project

Summary: Mr. Colburn provided an overview of the work of the Intergovernmental Panel on Climate Change's (IPCC) and reported that the data shows that mean temperatures are shifting higher than predicted. The IPCC special report released in 2015 outlined the need to achieve net zero greenhouse gas emissions by 2050-2055 in order to maintain 1.5° C. Mr. Colburn pointed to data that shows the impacts of climate change hitting populations harder and sooner than science predicted even a decade ago. Mr. Colburn stated that he expects to see the IPCC sixth assessment review in 2022, which is anticipated to lay out impacts of greater magnitude and urgency. An example of the greater magnitude and urgency is "climate feedback," such as permafrost methane, forest diebacks, ocean circulation, ice sheet collapse, etc. These climate feedbacks stem from continual temperature increases and will force uncontrollable responses from nature, ultimately leading to further increases. Mr. Colburn's presentation can be found [here](#).

V. COMMISSION MEMBER COMMENTS

Commission members were offered the opportunity to submit individual comments on the Commission's findings. These comments are solely attributed to the individual or organization they represent.

New Hampshire Medical Society:

The Commission was presented with compelling evidence that while the public health effects of the current level of warming are concerning, the health effects of further warming may well be disastrous, including catastrophic flooding, worsening respiratory issues from mold, and allergies, decreased access to healthcare, heat stress, toxic algal blooms, worsening air quality, vector-borne disease, food spoilage and water contamination, all of which will likely lead to a substantial increase in illness and resulting healthcare costs. The Commission understands that with appropriate goals and action, we can move to effectively reduce and control emissions, improving health and saving lives, while realizing significant economic benefits (according to a 2011 EPA estimate for every one dollar invested we will see \$30 in benefits).

New Hampshire Public Health Association:

The direct public health effects associated with climate issues are a primary and immediate concern of healthcare and public health professionals in our state. It is critical to note that these ill-health effects will disproportionately be experienced by children, the elderly, the sick and lower income individuals. Efforts must be made to protect those most vulnerable in our state.

After viewing the evidence presented at the commission meetings, it is clear that the scientific consensus is net zero by 2050. New Hampshire Public Health Association supports this goal.

The Nature Conservancy in New Hampshire:

The Nature Conservancy finds the science-based public health and environmental evidence presented during the Emission Commission meetings to be clear and consistent in the finding that net zero carbon emissions by 2050 is a necessary and achievable goal for New Hampshire. Such a goal will improve the health and wellness of all New Hampshire residents – especially those disproportionately impacted by air pollutants and the impacts of climate change. We support New Hampshire joining all the other New England states in adopting, and ultimately achieving, a comprehensive science-based emission reduction goal.

Conservation Law Foundation:

The Commission was presented with compelling evidence about the public health impacts of climate change, ranging from an increase in heat-related injuries and deaths, to increases in vector-borne diseases; about the disproportionate impacts New Hampshire's most vulnerable communities will experience as a result of climate change; and about the scientific consensus that the climate crisis requires action to reduce greenhouse gas emissions to a level of net-zero by the year 2050. The Commission also heard compelling evidence about actions taking place at the local level in New Hampshire, and at the state level in neighboring New England states, as well as public comments urging New Hampshire to proactively address climate change in a meaningful way, consistent with the recommendations of the scientific community. In light of the evidence, Conservation Law Foundation strongly supports New Hampshire's adoption of a goal of net zero greenhouse gas emissions by the year 2050, with interim 2030 and 2040 goals, and the establishment of a process led by NHDES to develop and guide the plans and actions needed to achieve those goals.

New Hampshire Department of Environmental Services & New Hampshire Department of Health and Human Services:

As referenced in the NH DES and DHHS Summary Report submitted to the Commission on September 29, 2020, DES and DHHS provided the following key points:

- Traditional air pollutants are generally well controlled in NH, having declined significantly over the last few decades.
- Air quality impairments and public health impacts are exacerbated by climate change and need to be considered in relation to heat stress associated with rising temperatures, respiratory stress associated with increased pollen levels, and mental health impacts from natural disasters.
- In New Hampshire, the primary activities that contribute to climate change overlap with the drivers of air pollution and air quality impairments. Emissions from fossil fuels contribute to both climate change and air pollution.
- The solutions to climate change are inextricably tied to air quality management and improvements in public health outcomes; a comprehensive multiple pollutant approach is

needed that will reduce GHG emissions and further improve air quality and related public-health outcomes.

- Absent additional policies and programs that target non-electric energy use in the transportation sector and the building heating/cooling sector, NH GHG emissions are projected to remain at present levels as the state continues to rely on fossil fuels to meet its non-electric energy needs.
- Further attempts to reduce traditional air pollutants, without addressing GHGs, will offer limited benefits for either climate change mitigation or NH's air quality, and will not be cost effective.

In addition, DES shared the following information with Commission members:

- The majority of reductions in NH electric generation sector emissions since 2005 have resulted from significant energy efficiency and renewable energy investments in other ISO-NE states. These investments reduced the region's total electricity consumption and peak demand, which required less overall generation from NH facilities as well as led higher emitting coal generators to become less economically competitive. Further reductions in other sectors may be possible via regional cooperation.

Representative Kat McGhee:

On climate action, New Hampshire has fallen prey to a culture of denial while ignoring the pleas of experts. Climate disruption refers to a loss of dependable conditions upon which we rely for sustainable food production, reliable water sources and seasonal weather patterns; climate disruption also contributes to the alarmingly rapid loss of biodiversity that threatens the food chain, causes ocean acidification and results in sea level rise that threatens our coastal communities.

We cannot rely on business-as-usual energy thinking to shield New Hampshire from economic and environmental disaster; in many cases, climate impacts are already costing US state budgets billions from flooding events, increased storm intensity & frequency, lost crops, droughts and historic wildfires. We need to commit to a transition plan that effectuates the necessary changes and begins by defining state emissions' targets. New Hampshire has a fiduciary obligation to take action while there is still time to avoid the worst outcomes for our state economy, environment and citizen health. Study after study concludes that ignoring climate disruption is the 'most costly' choice because as outcomes worsen, choices for action grow fewer and more costly.

It is for these reasons that we must agree with the regional and national consensus on a net-zero by 2050, or earlier target. We further need for a legislative commission to officially define New Hampshire's 2030, 2040 and 2050 targets, as well as realistic, sector-specific plans to achieve those targets.

Liberty Utilities

Sustainability and climate action are key priorities for Liberty, and we are proud of our recent accomplishments in this area, including being [named](#) in the world's top 100 most sustainable companies by Corporate Knights. Further, Liberty supports the Intergovernmental Panel on Climate Change's recommendations to reduce emissions in order to avoid the worst effects of climate change by limiting planetary temperature rise. We believe New Hampshire's efforts to reduce emissions would be aided by including emission reduction targets in statute. While we appreciate the opportunity to participate in this ad hoc commission, we believe substantial additional technical and scientific analysis will be necessary to determine precisely how any emissions standard would be crafted and implemented. Before any emissions reduction standard becomes law, several key questions must be answered, including: What is the baseline from which emissions will be measured? How will we measure emissions which occur outside the state but which are attributable to energy use in New Hampshire? What is the carbon intensity of different forms of energy, including electricity from various sources and from the electric grid as a whole at different times for various end uses, including thermal energy and transportation? And what would be the effect of any emissions reduction standard and the programs it would enable on families and businesses? Liberty looks forward to working with stakeholders and policymakers to answer these challenging questions and move forward with solutions to create a more affordable, reliable, and sustainable energy system for New Hampshire.

VI. DISCUSSION

As outlined in the preceding section of this report, the majority of the members of the Ad Hoc Emissions Commission agree, based on scientific evidence and health data, that New Hampshire should develop an emission reduction goal for 2050 of net zero emissions or a similar standard, provided that such goal or standard is clearly defined and allows for the development of programs that would effectively and equitably accomplish said goal in order to mitigate the impacts of climate change and protect public health, including the health of New Hampshire's most vulnerable residents.

Other members of the Commission believe that further analysis is warranted regarding the potential costs and benefits of implementation of such a standard. There was also general discussion that more work is needed on the strategy and process of implementation of any emission reduction goal. The Commission understands that their final recommendation and subsequent efforts are one piece of the global challenge of mitigating the effects of climate change.

VII. RECOMMENDATION

The 2020 New Hampshire Ad Hoc Emissions Commission consists of a variety of stakeholders who unanimously recommend the reintroduction of SB 590 of the 2020 legislative session, tabled due to COVID-19. Reintroduction of SB 590 would allow for the following: a thorough and data-focused legislative consideration of emission goals centered around climate science and public health; an analysis of the social, health and economic benefits and costs for New Hampshire residents and businesses of achieving, and not achieving, an emission standard; and legislative consideration of strategic processes to guide and implement future emission goals.
