Well done all..

Jeff Harrison <j.harrison@bts-hvac.com>

I strongly support all the recommendations. Implement ASAP.

Maxwell Warren

maxwellwarren@sbcglobal.net

UCONN
UNIVERSITY OF CONNECTICUT

Alec Shub <alec.shub@uconn.edu>

FW: Comment on emissions re: GC3 report

1 message

DEEP ClimateChange <DEEP.ClimateChange@ct.gov> Tue, Dec 29, 2020 at 11:42 AM
To: "French, Rebecca" <Rebecca.French@ct.gov>, "Shub, Alec" <alec.shub@uconn.edu>

Message sent from a system outside of UConn.

FYI

From: Stephanie Bahramian <sbahramian@bloomfieldct.org>
Sent: Monday, December 28, 2020 1:56 PM
To: DEEP ClimateChange <DEEP.ClimateChange@ct.gov>
Subject: Comment on emissions re: GC3 report

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Hello,

I am the environmental planner for Bloomfield and would like to comment as someone not only in the role of advising more sustainable practices in town, but also as a resident of a state with particularly high emissions. I lose a few days every year due to poor air quality, sometimes impacting my livelihood as I too have a gardening business.

I would like to share my frustration at the complete absence of any anti-idling actions in the draft report. The hard work has been done; we have a law on the books of no idling of more than 3 minutes unless meeting criteria for exceptions to the rule.

I have read the section in the draft concerning transportation, and once again the absence of any mention of idling enforcement is glaring to me. We collectively have the habit of wanting government to stay out of our lives and yet wanting government to fix the big problems we are facing, but where lies the responsibility of the individual? I can tell you from years and years of experience that the offenders are from every socio-economic class, age, race, gender, etc. and that the reactions to a polite and simple request to turn off the engine has also run the full gamut. People of every walk of life have reacted in a range of ways-from interest, leading to a great conversation about how we do life and other topics, to reluctant compliance, to blatant rudeness and abuse. This simple request, not demand, has garnered not one single event where the person was aware of this law when I mentioned it as a by-the-way. I even had a lawyer insist I was wrong and that I had no idea what I was talking about.

I have been told countless times to mind my own business. But this IS my business. The air I breath is very much my business, as it is all our business. The water we drink and the air we breathe is not up for negotiation nor compromise. If you pollute those basic needs of mine, you are harming me and need to be made accountable.

I believe in government, and that is why I decided to play a part in it in what I do. I also believe in the role of the individual, and I am demanding that our government hold the residents of Connecticut accountable for actions they take to harm the rest of us. We cannot wait for cleaner transportation. Our budgets will not allow for swift adoption of EV's neither for our municipal vehicles, nor our public transit vehicles, nor our own personal vehicles, nor our school buses.

I am suggesting that we prioritize aiding municipalities in making a swift conversion to police electric vehicles as is the case in Westport, that the police departments themselves have a serious conversation about how to become part of the solution rather than the biggest component of the problem. In addition, we need to install a program of enforcement-ideally one that does not involve the police as it should not be a police matter, and instead create/develop a division within DEEP. I also would like to see a carrot-and-stick innovative approach to getting private entities onboard to mitigating our emission problem. Every delivery vehicle needs to adopt technology that halts idling. Even a three minute idle every stop can amount to impressive emissions.

Thank you for considering my comment. I hope to see some wording in the final report that speaks to these concerns.

Stephanie Bahramian

Environmental Planner

Town of Bloomfield, CT

(860) 769-3565

Subject: STOP KILLINGLY FRACKED PLANT
Date: Sunday, January 3, 2021 at 6:45:50 PM Eastern Standard Time
From: Alexander Herpst
To: DEEP ClimateChange

Alexander Herpst <alexandermherpst@gmail.com>

to alexander.ericson

Hello, My name is Alexander Herpst, I am a CT resident from Hartford. I am sending you this letter because I am concerned about the direction of our state, and its future. I am asking that we look to the future, and do away with unneeded fossil fuel infrastructure, specifically the killingly plant. Governor Lamont, and Commissioner Dykes, I ask that you consider our future, your legacy, and the need to prevent a climate catastrophe, that you ban the plant by denying the remaining permits.

We will not meet CT's planned reduction in carbon emissions if we move forward with this plant. Also there is no reason for it to have that plant as we will have more than enough energy with the offshore wind. I'm very concerned as I'm certain this has already been pointed out, so why has it been allowed to continue.

--
If you're not involved with Animal Rights or Environmental action in CT and would like to be, feel free to message me to inquire where you could get involved.

Consent, because it belongs everywhere one goes.

Subject: GC3 report
Date: Sunday, January 3, 2021 at 3:57:03 PM Eastern Standard Time
From: Hyde, Bruce
To: DEEP ClimateChange

I would like to commend the GC3 for its inclusion of equity and environmental justice as a major consideration in addressing climate issues in Connecticut. My comments are focused on the Infrastructure and Land Use Adaption section of the report, as that is my area of interest. Establishing a Connecticut community resilience program is long overdue and much needed. With a planning horizon of 2050, there is an opportunity to look at a broad range of adaptation actions to address climate change impacts. One of those actions should be a plan for managed retreat. It is an issue that some shoreline Connecticut communities will likely be facing before 2020. It should be addressed along with identifying geographically isolated communities due to limited ingress/egress resulting from coastal and inland flooding events using 2050 SLR, storm surge and inland flooding predictions. A December virtual workshop on managed retreat attracted over 100 participants from municipalities, state government, consultants, environmentalists and others, Clearly, there is a strong interest in topic and there is a need to start addressing the complex impacts of this strategy sooner rather than later. Municipalities will be faced with how to deal with residences, businesses and infrastructure permanently lost due to sea level rise and storm surge. Now is the time to stat laying the foundation for managed retreat so that Connecticut cities and towns can best develop an plan to deal with the loss of coastal neighborhoods and businesses along with the associated loss of tax base.
Finally, while I'm sure this was not intentional, having a 14 day comment period starting on December 23rd and ending on January 6th has the appearance of not really wanting much in the way of public comment. I hope the committee is willing to extend the comment period and make it widely know that the document is still out for review and comment.

Bruce Hyde
Land Use Educator
UConn CLEAR

Subject: Comments on the draft of the GC3 Phase 1 Report

Date: Sunday, January 3, 2021 at 9:01:17 PM Eastern Standard Time

From: Chris Donnelly

To: DEEP ClimateChange

CC: Dykes, Katie

To Commissioner Dykes and the Members of the Governor's Council on Climate Change:

I have read through the Draft of the Council's Phase 1 Report, "Taking Action on Climate Change and Building a More Resilient Connecticut For All". I understand the Council's commitment to identifying actionable items. I do think that the listing of 61 Recommendations for the state to act on is an important step. At the same time, I feel that the effort is incomplete. The draft as stands is a bit inconsistent and uneven, and there are gaps. I would suggest that people in general, myself included, are looking at these recommendations for direction and guidance as to what is needed in order to confront the challenges of climate change. While the sense of the overall intent of the draft report is there to see, a sense of direction does not readily come through this long list of individual actions. It would be helpful, I respectfully suggest, to have a set of fundamental, summarizing goals presented as themes as part of this plan. I would also respectfully suggest that the expected roles to be played by various entities – who is to do what – also be discussed within the plan, in general terms and apart from within the individual recommendations.

I understand that this is only Phase 1 and there is more to come. Perhaps, by the time we arrive at Phase 2, the discussion will have evolved and many of my concerns will have been met. At least, I can hope so, and that is why I am writing this note. I feel that I would not be fully contributing if I did not send this note.

Allow me to divide my comments into two parts – Content and Process. I will try to avoid excessive detail.

Content. The 61 Recommendations are absolutely worth the individual consideration each is receiving. I have submitted my comments on these recommendations using the survey form. That done, I would also like to encourage that these recommendations be placed by the Council in a larger context. To me, commenting on these recommendations individually is a bit like looking at a magazine photo with a magnifying glass. As one looks at the individual points that make up the photo, one becomes increasingly aware of how much each of the points are isolated. In the process, sight of the bigger picture can be lost.

I am concerned that a similar effect might also occur when it comes to taking action. Individual points can come to be seen as isolated ends. Connection to the larger purpose, and the larger purpose itself, can wind up being obscured. Gaps between the individual actions can be allowed to widen. Taken to the logical conclusion, success can end up being evaluated, not by what progress is made on filling in the larger picture, but as to whether each of the individual goals are met.

For this reason I am suggesting that these various recommendations be coalesced around a small number (say 5 or 8) of broader themes that can be tied together to form a unifying picture. As I see it, the draft report has already set forth at least two targets that already are serving as broader themes. The first of these is the clearly stated overarching importance of equity and environmental justice. This is an excellent foundational point. In the end, we are talking about people and the quality of the lives that people have the opportunity to live. If we do not keep this foremost in mind, for all people in our society, then we are failing in a fundamental way.

The second foundational point in the report that functions as something of a theme is the need for hard goals as relates to greenhouse gases. The report sets up one such hard goal – the reduction of 45% of emitted greenhouse gases by 2030. It is good that this is stated with such specificity as well as clarity of purpose.

I do think that there are other themes that can be pulled from this document as a way of providing foundational organization to the effort. I will suggest two, although I am not trying to establish a list of what these themes should be. Rather, I would like to illustrate where my line of thought is going.

The first such theme might be something along the lines of climate change policy and environmental policy being intrinsic to one another. Too often, they are treated as sets of adjacent policies, related but somehow separable from one another. I do not think that is good. To pick just one issue as an example, one cannot speak at any great length about water quality and not soon be talking about stream water warming or rates of storm water runoff. Similarly, one cannot talk for long about the issues resulting from climate change and not come to the potential effects on local hydrologic patterns.

It seems obvious that, under many circumstances, climate change and environmental policy are best presented in a unified manner. Progress in climate change is also going to mean progress in terms of environmental policy, and vice versa. A healthy environment will tend to be more resilient and adaptive to climate change, so work on environmental health is work on climate change. The two approaches augment one another. It does not have to be any more complicated than that.

At the same time, there is value in being overt as to the intentions one has for working on climate change. I say this as someone who has spent the last 20 years engaged in one area of environmental activity – urban forestry. In that time, while climate change was often mentioned as a contributing factor in decision-making, it was often referenced in a sort of abstract, far-off way. Decisions tended to be made more often based on concerns seen as being of a more immediate nature, such as water or air quality. Because we took that approach, however, I do not think that we lost ground on dealing with climate change within urban forestry.

In the meantime, it has become even more apparent that climate change is real and must be given the same immediacy as these other concerns. In the process, these other concerns should not lose the sense of immediacy they have rightly been given over the past decades. The focus, as I see it, is for these motivating concerns, including climate change, to be pooled in some manner, rather than distinguished and separated.

The second theme I would like to mention is also already in the report, although not identified as such. Since climate change is a whole of society problem, it will require whole of society solutions. This includes a discussion of climate change in economic terms. In many cases, this will mean a discussion of jobs. To give one example of personal importance – planting a tree is usually an easy and small step, often done as an act of virtue on the part of an individual or small group. Commitment to maintaining that tree, and others like it, can and should provide an opportunity for a steady job for somebody. This is especially true when we are talking about trees on public property that are expected to grow large and live for years. I would like to see more of that sort of thinking brought forward in the report, with the full range of financial considerations associated with climate change underscored, including those financial considerations that can have positive economic consequences. This could be done through an appropriately phrased theme.

There is a final point that I would like to make regarding content. It goes to the importance of the proper phrasing as to purpose. The draft report states, “mitigation is defined as reducing emissions of and stabilizing the levels of heat-trapping greenhouse gases (GHG) in the atmosphere.” I would politely suggest that that is an incomplete view of what can be considered as mitigation. The level of greenhouse gases in the atmosphere is only one factor in global warming and climate change. The energy source for this warming is the long wave radiation that is radiated back up through the atmosphere from the earth’s surface. Human activities are influencing this returning energy, including how and how much of this energy is being returned. An increasing percentage of this radiated heat is coming from surfaces on the earth that were formerly green, due to plant cover, and that are now sealed and covered with asphalt, concrete or buildings. The presence of these impervious surfaces alter the earth’s energy balance, leading to more infrared radiation emitted from these surfaces. This energy, in turn, is more likely to be captured by the greenhouse gases that are in the atmosphere in increasing amounts.

This is, of course, one way to describe what is known as the urban heat island effect. My reason for bringing it up is that, in the draft report and elsewhere, the urban heat island effect is placed on the adaptation side of the ledger. It is seen as a result of how cities are built and one that will be exacerbated by climate change.

I would suggest that it would be more effective to present the urban heat island effect as something that contributes directly to climate change, as well as a phenomenon that often adversely affects people who live and work in urban areas. I recognize that there are those who would dismiss this approach by saying that the direct contribution of urban surfaces to global warming and climate change is negligible. Perhaps, in the global sense, but the local contributions of cities to atmospheric warming are not negligible. Properly presented, this aspect of warming and climate change is also not likely to be negligible in the public imagination. Instead of one more example of the need to deal with climate change as the result of our past societal excesses, combatting the urban heat island effect can be presented as an opportunity to confront directly one of the causes of atmospheric warming. At the same time, efforts made to deal with the urban heat island effect in climate change terms will also lead to changes in cities and towns that are tangibly beneficial for other reasons. For many people, this shift in focus would mean seeing the urban heat island effect in a wholly different light, both figuratively and literally.

Process. While the draft report is a strong effort to identify specific actions to be taken, I find it, as a call to action, to be a bit muddied. In addition to clouding the overall message, this number of recommendations may also end up diffusing efforts. That is probably an inevitable result of having so many recommendations. It could be offset, however, if there were some broad discussion as to who it is that will be expected to take up these actions.

I am not suggesting that each of the 61 recommendations should have a set of actors assigned to it. I am recommending a generalized characterization of the potential cast of actors. Specifically, it would help if the perceived roles for government at all levels, non-profit organizations, for-profit businesses, professional communities, citizen groups, social institutions such as churches and volunteer organizations, and people in their public lives and in their private endeavors were all to be referenced in some way that indicates how each is likely to be expected to contribute to the whole.

I suspect that many of these recommendations were created with expected actors in mind. That is fine, although doing so does introduce an element of implicit assumption into the report. For those who understand these assumptions, that may not be a problem. For those who do not, these implicit assumptions can become another source of vagueness. This can end up subtracting from, rather than adding to, the sense of accountability that should also be included as a part of this plan.

I do think that the working group approach used to create this report worked well, in most cases. The sub-group that I followed most closely was that which considered forests. It was interesting to watch as the group worked from a diverse and, in some cases, conflicting set of individual interests towards a product that now provides a well-received basis for the reasonable discussion of core concerns, potential solutions, acceptable goals and outcomes, and an agreed-upon set of actions. Some of this came from quality leadership, some from impassioned discussion within group, some from insightful input from outside the group. Much of it came from achieving a common recognition of what is most important.

One strength of the Forests Sub-Group report is that the group was able to identify a single course of action, summarized as ‘no-net forest loss’, under which many of the other, more specific individual actions could find a home. I find this synthesizing of efforts to be an effective and energizing approach that helps to carry that sub-group’s findings.

I wish the Governor’s Council on Climate Change good luck as it moves forward. I know that it is sincere and is dedicated to its work. It has the best interests of Connecticut and of the planet firmly in mind. I also hope these comments are in some manner helpful as it proceeds in its deliberations and in the further recommendations it has to offer.

With regards,

Chris Donnelly
Northford, CT
January 3, 2021

Subject: A letter to DEEP and Governor Lamont Regarding the Proposed Killingly Gas
Date: Sunday, January 3, 2021 at 6:45:42 PM Eastern Standard Time
From: Dominique DeMaria
To: Ericson, Alexander, DEEP ClimateChange

Hello, My name is Dominique Hart. I am a CT resident from New Hartford. I'm 26 years old and I am an activist and small business owner in the community. I am sending you this letter because I am concerned about the direction of our state, and its future. I am asking that we look to the future, and do away with unneeded fossil fuel infrastructure, specifically the killingly plant. Governor Lamont, and Commissioner Dykes, I ask that you consider our future, your legacy, and the need to prevent a climate catastrophe, that you ban the plant by denying the remaining permits.

It makes no sense for this administration and Attorney General Tong to be prosecuting ExxonMobil for its role in the concealment of negative climate impacts the fossil fuel industry has wrought on our planet, and to at the same time erect a structure that contributes directly to this issue. It's like saying you won't use a public toilet because of germs but you will wipe your ass with a leaf in the woods. It's ignorant at best and masochistic at worst for you allow this plan to move forward. NO NEW FOSSIL FUEL INFRASTRUCTURE. This is stupid.

Regards,
Dominique Hart

Subject: Killingly Gas Plant
Date: Sunday, January 3, 2021 at 6:48:09 PM Eastern Standard Time
From: Jenna VanDonselaar
To: DEEP ClimateChange

Hello,
to whom it may concern,

My name
is Jenna Van Donselaar, I am a CT resident from Willimantic, CT. I'm 24 years old. I am sending you this letter because I am concerned about the direction of our state, and its future. I am asking that we look to the future, and do away with unneeded fossil
fuel infrastructure, specifically the Killingly Gas Plant. Governor Lamont, and Commissioner Dykes, I ask that you consider our future, your legacy, and the need to prevent a climate catastrophe, that you stop the plant by denying the remaining permits.

CT will
never meet our 2040 emissions goals, which are already far too lax, if we build this plant. Your own GC3 reports confirmed this.

2.4
miles of gas pipeline through delicate wetlands & a massive plant on 63 acres of pristine greenfield land are not acceptable, not when we should be actively rewilding, not when we are running out of green space.

Gov.
Lamont, you have stated before that you would be "pretty tough" when it came to negotiations on Killingly, because of your commitment to zero carbon. We believe you could act with urgency and put a stop to our biggest obstacle for meeting these emissions goals.

The
public health risks are too big to ignore. A request for up to 90,000 gallons of toxic wastewater with lead, ammonia, petroleum, and more, running that through a 50 year old water treatment facility, with an additional 2.2 million tons of toxic gases emitted
into our atmosphere, are too big a problem to ignore, and these are all without considering any spills or leaks.

The
Intergovernmental Panel on Climate Change says we only have until 2030 to prevent the worst of the climate crisis from becoming our reality in the near future. As a young person, I know that the effects of climate change will be increasing during my lifetime,
and will certainly impact the lives of my children and grandchildren in drastic ways.

MY future depends on your actions. I ask that you act to stop the build of an unnecessary, costly, and damaging fossil fuel plant.

In partnership,

--
Jenna Van Donselaar
(303)-525-3059
jenna@yecaction.org

Subject: Killingly Power Plant
Date: Sunday, January 3, 2021 at 8:03:22 PM Eastern Standard Time
From: Normandy Avery
To: DEEP ClimateChange

Hello,

My name is Normandy, I am a CT resident from Vernon. I'm 26 years old and I will be attending UConn as a student in the Master's in Energy and Environmental Management program. I am sending you this letter because I am concerned about the direction of our state, and its future. I am asking that we look to the future, and do away with unneeded fossil fuel infrastructure, specifically the Killingly plant. Governor's Council on Climate Change, I ask that you consider our future, your legacy, and the need to prevent a climate catastrophe. The Killingly Power Plant is unnecessary and harmful, and needs to be stopped.

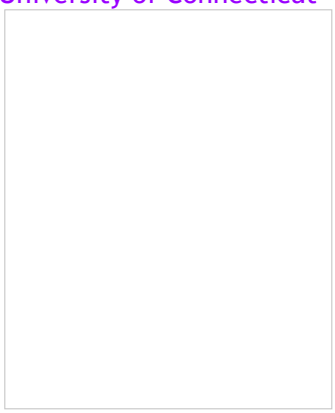
The public health risks are too big to ignore. From contamination of freshwater resources, to the release of harmful carbon dioxide and methane gases that escalate the rate of climate change. This energy plant is not the answer, especially if we ever want to reach our 2040 zero-carbon emission goals. Your own GC3 reports confirm this. We need to focus on clean, green energy sources to ensure the health and safety of CT's future.

Myself and many others do not support the Killingly Power Plant. You have the power to help stop this plant.

Thank you for your time.

Sincerely,
Normandy Avery

--
Normandy Avery
She/Her
Energy & Environmental Management Student
University of Connecticut



Subject: Stop the Killingly Plant
Date: Sunday, January 3, 2021 at 6:44:20 PM Eastern Standard Time
From: Rachel Goffin
To: DEEP ClimateChange

Hello,

My name is Rachel, I am a CT resident from West Hartford. I am sending you this letter because I am concerned about the direction of our state, and its future. I am asking that we look to the future, and do away with unneeded fossil fuel infrastructure, specifically the killingly plant. I ask that you consider our future, your legacy, and the need to prevent a climate catastrophe, that you ban the plant by denying the remaining permits.

CT will never meet our 2040 emissions goals, which are already far too lax, if we build this plant. Your own GC3 reports confirmed this. 2.4 miles of gas pipeline through delicate wetlands & a massive plant on 63 acres of pristine greenfield land are not acceptable, not when we should be actively rewilding, not when we are running out of green space.

The public health risks are too big to ignore. A request for up to 90,000 gallons of toxic wastewater with lead, ammonia, petroleum, and more, running that through a 50 year old water treatment facility, with an additional 2.2 million tons of toxic gases emitted into our atmosphere, are too big a problem to ignore, and these are all without considering any spills or leaks.

The Intergovernmental Panel on Climate Change says we only have until 2030 to prevent the worst of the climate crisis from becoming our reality in the near future. I believe you could act with urgency and put a stop to our biggest obstacle for meeting our emissions goals. Let's do the right thing here.

Best,
Rachel Goffin

Subject: FW: public input on GC3 Recommendations for phase 1 report
Date: Wednesday, January 6, 2021 at 9:08:17 AM Eastern Standard Time
From: Hart, Marybeth on behalf of DEEP ClimateChange
To: Allen, Alanis, Shub, Alec
CC: French, Rebecca

FYI

From: Diane Hoffman <hoffmandiane30@gmail.com>
Sent: Tuesday, January 5, 2021 10:43 PM
To: DEEP ClimateChange <DEEP.ClimateChange@ct.gov>
Subject: public input on GC3 Recommendations for phase 1 report

1/5/2021

Dear members of the GC3,

Thank you for your long hours and hard work to address our climate crisis and your efforts to create a survey document to help concerned people provide their comments on the recommendations for the first phase report.

Hamden Alliance for Trees would like to stress our commitment to responding to the needs of our vulnerable communities in Connecticut and sincerely believe that healthy trees in our forests and in our local neighborhoods are essential to the good health of all of our residents, and most especially, to our lowest income members.

Our urban/suburban street trees play a critically important role in the public health and safety of our vulnerable communities. Trees are our best natural ally in the fight against climate change by sequestering carbon in their leaves, bark and roots. Science tells us that trees create oxygen, clean our air, provide shade in the summer to fight the heat island effect and protect from the damaging effects of over-exposure to the sun. Science has also shown us that trees improve mental health and promote physical healing, lower blood pressure and their beauty brings us joy. Trees reduce road rage and sun glare, reduce noise and if that wasn't enough, they raise property values! This is only a partial list of what trees do for free! They send no bills! Trees are the friends of all life.

Please remember all the benefits trees provide to our citizens and all of the diversity of life we share this planet with when putting together your first phase report.
Connecticut is fortunate to have trees and it is important that we value them for the precious resource that they are and care for them wisely so we can continue to benefit from all of their services especially in our vulnerable communities.

We look forward to reading the report and participating in the second phase.

Thank you.
Sincerely,
Diane Hoffman
Melinda Tuhus
Ralph jones
Phil Cronan

Henry Dynia
Susan Etkind
Core members of Hamden Alliance for Trees

Public Comment on GC3 Recommendations 2 January 2021

Harry White, Forest Ecologist
199 Sandy Brook Road, Colebrook, CT 06021

The scientific literature is clear: natural forests are the most powerful carbon sequestering engines on the planet and are integral to the attainment of the State's carbon-reduction goals.

Given the urgency and scale of the climate problem, all State Forests should be managed to maximize carbon uptake and storage. This is best done by deploying the proforestation silvicultural system: letting the forests grow with minimal human intervention. Intact forests are self-managing forests, and thus the State benefits by greatly reducing its manpower and program costs while maximizing carbon uptake.

CT DEEP and loggers decry a "forest health issue" to justify most of their logging but the illness is never actually quantified. They do not consider any economic, social, or ecological alternatives. They log forests when the trees barely reach 25% of their natural lifespans, eliminating massive carbon storage benefits while simplifying ecosystems and making them less resilient. They routinely ignore the peer-reviewed scientific literature to perpetuate old paradigms. Ultimately, they economically reward a very small number of people at the expense of the commons.

The actual forest health issue, and one that is important to climate change, is the spread of non-native invasive plants. Such organisms threaten the current and future forest and may lead to ecosystem collapse and extinctions. We know that invasives cause regeneration failures and they greatly affect food webs, particularly in birds. But instead of working to control this grave threat, CT DEEP and the logging community keep creating it by cutting forests.

The economics of CT DEEP logging must be analyzed. In addition to essentially subsidizing private businesses and taking a loss when they sell the public commons, they ignore, in their economic calculations, the value of standing and future carbon in our forests. It's all about the cut. This cannot stand at a time when the planet is imperiled. We need to provide the greatest benefit to the most people for the longest period of time. DEEP logging program is simply not doing this.

Other agencies also have a large role in the management of Connecticut's forests. The Metropolitan District Commission is engaged in massive clearcutting on lands given to them in the public trust. They cut on steep slopes essentially to the water's edge; they clear ridgelines; they accelerate the spread of non-native invasive plants; they grossly simplify the forest; they ignore the powerful microclimate changes that they impose on the land; and they ignore the carbon sequestration power of natural forests over their man-made systems. They essentially violate the most fundamental rule of watershed forest management: the purest water comes from a dense unmanipulated forest.

If you believe that climate change is real and that it poses a grave threat to humanity, we must act now. Intact, healthy forests, managed under the proforestation silvicultural system, sequester the most carbon at the lowest cost. The only way to get this solution in play is to demand or engineer a culture change in CT DEEP and MDC.

I attach a letter from over 100 distinguished scientists that supports proforestation as major climate solution. Thank you.

To: Members of the European Parliament ITRE Committee, ENVI Committee, AGRI Committee
From: Global Scientists
Re: Forest Policy and Legislation in the European Union
22 May 2020

Dear Member,

The European Parliament will soon be voting on forest and biodiversity policies that will have consequences for global climate, biological diversity and human health. As research scientists from many nations, we are providing Members of the European Parliament information to inform them as they consider and create policies and pass legislation that meets these 21st century challenges. Attached is a list of scientists with their affiliations from many countries who endorse the message of this letter.

It is important to recognize the relationship between forests and climate change. Forests (as distinct from tree plantations) are the single most effective means for removing carbon dioxide from the atmosphere and storing the carbon for long periods of time in the wood of trees and in forest soils[i]. Carbon that is stored in trees and soils is carbon that is not in the atmosphere. It is the amount of carbon dioxide that remains in the atmosphere (along with other gases) that determines the atmospheric, land and ocean heating we are experiencing and will experience in the future.

To address the climate emergency, it is urgent that action be taken immediately to reduce heat trapping greenhouse gas emissions (especially carbon dioxide) from all energy and industrial sources and from agriculture, land use change and bioenergy. Simultaneously atmospheric carbon dioxide must be removed in order to meet any of the temperature limiting goals agreed to by the EU and all other nations of the world in Paris in 2015.

The Intergovernmental Panel on Climate Change summarized scientific findings of the need to decrease by 45% the difference between heat trapping gases humans add to the atmosphere, and what natural processes remove by 2030, reaching zero by 2050[ii]. The EU has set a goal of a 55% reduction by 2030 – less than a decade from now. **In order to maintain a stable and livable climate, it will be necessary to continue reducing emissions and removing and accumulating additional atmospheric carbon dioxide in forests and other natural systems after 2050.**

Avoiding further emissions from forests and storing additional carbon in them is therefore essential for achieving this ambitious goal. Identifying strategies and creating policies and legislation that are based upon available scientific knowledge must guide these efforts. The only means for removing atmospheric carbon dioxide at scale to achieve the stated EU climate goals in the coming decades is to protect the carbon stocks in remaining primary and older forests, and allow these and secondary forests to grow and restore their ecological potential for carbon storage and biological diversity[iii], a mitigation strategy called Proforestation[iv] Management. If this is not done, irreversible and uncontrollable alteration of the climate will occur, and these systems will become less resilient in protecting the climate and biodiversity.

While some may wish to continue business as usual using traditional forest management and harvesting practices, these forests are less capable of adapting to changing conditions compared to forests under proforestation management. **'Sustainable forest management' refers only to maintaining harvested biomass at or below the rate of annual growth. It does not maximize accumulated forest carbon storage or maintain full biodiversity and other ecosystem services.** Forests managed for commodity production never accumulate as much carbon as protected forests and those under proforestation management because trees in production

forests are harvested before they reach the large size found in older forests. Proforestation and primary forest protection provide the most cost-effective and efficient system for removing and storing carbon[v], whereas technological carbon removal systems are in the early stages of development, their costs and energy inputs are high, and they are unlikely to be available at scale during the critical decades ahead[vi].

Commodity production forests have a limited number of tree species because many native species have little or no commercial value - however important they may be for a functioning forest ecosystem. Globally, some 80% of land-based species are found in forests, with most of them in unharvested forests[vii]. The resiliency of forests depends upon having a biodiverse composition of trees, animals, insects, fungi and bacteria. Some studies have found that multispecies[viii], multiage forests[ix] are more productive in terms of accumulating carbon.

Most European forests are managed primarily for continuous production of forest products, which has contributed to additional global warming[x]. Forest products will continue to be produced in some forests. However, to also meet EU goals for addressing climate change, biodiversity loss and threats to human health it is essential that a EU-wide forest policy be developed.

Here are suggestions for an effective European Forest Policy:

1. **Conduct full, certified lifecycle carbon accounting for EU forests and the production of forest products and bioenergy. Specify the appropriate scale of forest carbon accumulation and storage in meeting overall climate goals.**
2. **Designate a portion of Europe's secondary forests to utilize proforestation management, and protect from logging all remaining primary and other old forests to meet climate and biodiversity protection goals, and resilience to a changing climate, while meeting demand for wood-based products from managed tree plantations.**
3. **Ensure that the Forest Plan is integrated with the Biodiversity Plan and monitor the implementation.**
4. **Create incentives that promote forest carbon accumulation[xi] and biodiversity with subsidies, including payments for eco-system services; redirect subsidies for carbon intensive bioenergy to effective low carbon technologies like wind and solar and enhanced energy performance through efficiency measures.**
5. **Inspect and certify sources of feed stocks for forest products to assure that none of it is from illegal harvesting, and that it meets specified biodiversity and sustainability criteria for low impact sourcing.**
6. **Recognize and account for the climate, biodiversity and social consequences of imported forest products, biofuels and bioenergy. Exporting emissions does not solve the climate problem.**

All of us are experiencing the devastation from the COVID-19 pandemic because individuals and governments were unprepared for events that scientists had been predicting for years. Climate change and species loss are happening more slowly than this pandemic, but they are accelerating and scientists have provided compelling evidence that the world has reached a critical moment that requires decisive action. Recovering from the economic shocks of COVID-19 provides an excellent opportunity to shift to greener resilient development in Europe through the proposed Green Deal. Acting now to incorporate the elements of a new European Forest Strategy presented here can become a core component of the European Green Deal, and prevent irreversible and potentially uncontrollable climate change. **Now is the time to act and dedicate a substantial portion of European forests to increased carbon storage, biological diversity and climate resilience.**

We appreciate this opportunity to contribute to the development of scientifically sound, economically appropriate, and socially just environmental policy for the EU. Individuals from this group of scientists from many countries are available to assist you in developing a new European Forest Strategy.

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[x] Naudts et al 2016 https://science.sciencemag.org/content/351/6273/597.full
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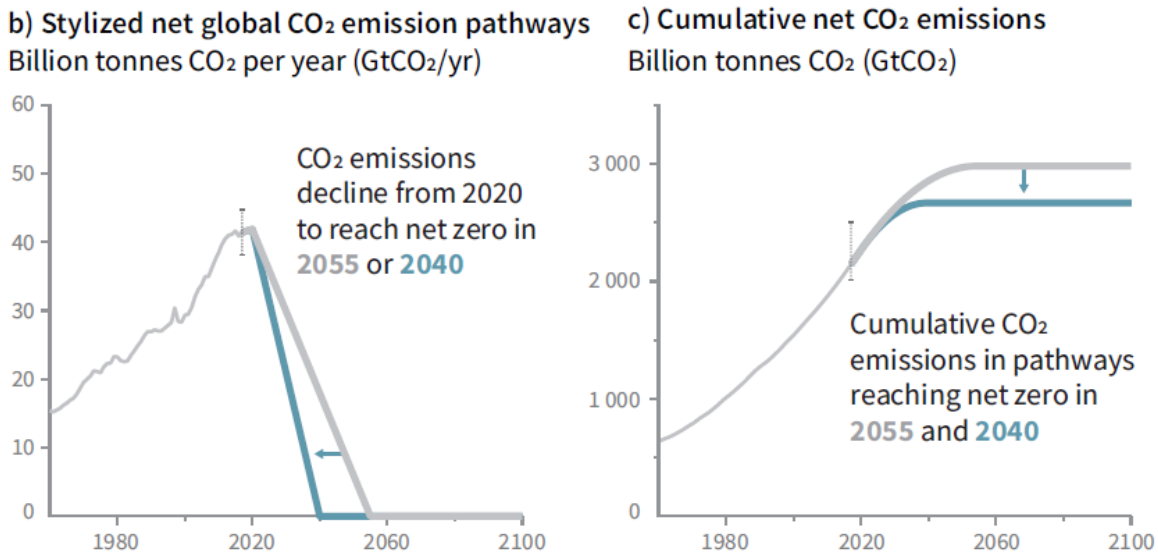
Global Warming of 1.5°C



Panel b) shows annual *rates* of emission of carbon dioxide, CO_2 from 1970 to 2100. The jagged gray line ending in 2017 is actual historical data. After 2020 the gray line and the blue line show a hypothetical slow rate, and a faster rate, respectively, of reducing emissions to achieve zero net CO_2 emissions. These occur in 2055 and 2040, respectively. In this panel, the total area under the curves represents the total amount of excess CO_2 added to the atmosphere by human activity. It is seen that the hypothetical more aggressive reduction shown by the blue line accumulates less CO_2 than does the gray line.
Panel c) shows this accumulation directly. CO_2 added according to the blue line hypothetically accumulates a lower amount of CO_2 than does the gray line.
This is important, because the increase in global average temperature is directly related to the total *accumulated* amount of atmospheric CO_2 (panel c), not the *rate* of accumulation (panel b). The *accumulated* CO_2 after midcentury remains flat because the *rate* has fallen to zero.

Source: Fig. SPM.1, "Global Warming of 1.5°C", a Special Report of the Intergovernmental Panel on Climate Change, Summary for Policymakers, Oct. 2018, https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_High_Res.pdf.

Subject: RE: Comments on the GC3 Phase 1 DRAFT report: Near-Term Actions
Date: Tuesday, January 5, 2021 at 3:58:20 PM Eastern Standard Time
From: Henry E. Auer
To: DEEP ClimateChange
CC: Henry Auer

Honorable Commissioner Dykes and Director French:

I agree with the need to provide the extensive background in the Introduction in the GC3 Phase 1 DRAFT report on equity and environmental justice issues. I'm writing now to suggest including additional introductory material providing a more direct rationale for the many discrete recommendations presented in the Mitigation sections.

I suggest that the introductory section, "The Impacts of Climate Change in Connecticut Sea Level Rise, Precipitation, Temperature,and Storms", be expanded to include the information in this paragraph. Global average temperature is directly related to the total amount of carbon dioxide and other greenhouse gases accumulated in the atmosphere. It is *not* directly related to annual emission rates of these pollutants; the annual rates contribute to their total accumulated levels. Longer-term, slower reductions in annual emission rates lead to *higher* total accumulated levels, producing *higher* global temperatures. Conversely, more rapid reductions in emission rates reduces the accumulated level of greenhouse gases, keeping global temperatures lower than the slower reductions. This crucial concept is presented in simplified fashion in the attached graphic taken from "Global Warming of 1.5°C", a Special Report of the Intergovernmental Panel on Climate Change, Summary for Policymakers, Oct. 2018, https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_High_Res.pdf, along with commentary that I prepared. It illustrates that GHG levels and the temperature will be lower if global emissions reach zero in 2040 rather than in 2055. The conclusion is that, because the Earth system is warming faster than previously modeled, more ambitious reductions in annual emission rates are imperative to minimize further warming. These worsening trends continue to the present day.

This global viewpoint should inform the recommendations outlined in the Mitigation sections of the DRAFT report.

In the Mitigation – Building Working Group section of the DRAFT report a principal policy, stated in a few entries in the section, is exchanging fossil fuel-powered space conditioning and water heating with renewable thermal technology (heat pumps). I suggest that this section be introduced by including the following information as background:

Connecticut has almost 1.4 million occupied housing units (Connecticut Data Collaborative;

http://data.ctdata.org/visualization/total-housing-units-by-county?v=table&f={%22County%22:%20%22Connecticut%22,%20%22Variable%22:%20[%22Housing%20Units%22,%20%22Margins%20of%20Error%22],%20%22Measure%20Type%22:%20%22Number%22,%20%22Year%22:%20%222014-2018%22}), of which 35% statewide are rented to tenants (Department of Numbers, https://www.deptofnumbers.com/rent/connecticut/). 53% percent of renter households (Statistica.com, https://www.statista.com/statistics/1074165/housing-cost-burdened-renters-usa-by-state/) are cost-burdened (a cost-burdened household is one that has to spend more than 30% of its income on housing. https://nlihc.org/resource/census-bureau-releases-data-2018-acs-cost-burdened-households), essentially in the LMI category. Much of Connecticut's building stock is many decades old, and is in need of deep energy retrofits to achieve high efficiency. The sheer scale, and financial burden, of upgrading this large number of Connecticut residences with effective weatherization and heat pumps, in the two decade time frame envisioned, needs to be emphasized more assertively at the outset. Commercial and industrial buildings have to be upgraded also. (It should be noted that the Buildings recommendations directly impact the EEJ and Mitigation—Electricity sections as well.)

The Mitigation – Electricity Working Group section of the GC3 Phase I DRAFT report should be introduced by a summary of the current state of the electric sector, a discussion of the impending retirement of the Millstone reactors, and an outline of plans for Connecticut's long-term electrification needs. As the state moves toward a 100% renewable energy economy by the 2040-2050 time frame the total electrical energy demand will likely grow two- to three-fold as electric vehicles and renewable thermal technology become prevalent. This introduction should also discuss the role of the EDC's in achieving this expanded capability.

In the Mitigation—Transportation Working Group section, an introduction should present the long-term policy goals to achieve a high percentage penetration of ZEVs, and of needed infrastructure, by the 2040 time frame. Items 16, 17 and 19 address these topics. The goals for EV-powered school buses, state and municipal fleets, and heavy-duty vehicles are provided in Item 22. These are revolutionary undertakings. DEEP may wish to consider presenting a general overview of this topic in the introductory section, for example based on the DEEP press release for the 2020 EV Roadmap or the Executive Summary of the Roadmap.

Respectfully submitted,

Henry Auer
New Haven Energy Task Force

Subject: Public Comment on GC3 Near-Term Actions Report
Date: Tuesday, January 5, 2021 at 4:01:59 PM Eastern Standard Time
From: Mara Tu
To: DEEP ClimateChange

Friends at CT DEEP and the Governor's Council on Climate Change,

I would like to make a comment on the Near-Term Actions Report Item #20 - "Advance initiatives that eliminate vehicle miles traveled (VMT) growth by 2030."

The statement that the near-term action is to allow for vehicle miles traveled (VMT) to increase until 2030 is not aligned with the goal to reduce motor vehicle emissions. The near-term action should instead mention the reduction of VMT by 5% by 2030 in this near term item. That is an actual goal that would reduce polluting emissions.

Increasing vehicle miles traveled for the next decade before peaking in 2030 is not an appropriate or near term strategic emissions reduction statement or goal. Please set an actual goal of % VMT reduction in the final Near-Term Actions Report.

Mara Tu
Storrs, CT

For the Governor's Council on Climate Change
From/Date: Margaret Miner, January 5, 2021

CONNECTICUT CLIMATE POLICY: THE LOST ORGANIZING PRINCIPLE

In 2011, the merging of authorities responsible for protection of natural resources and the development of state energy policy (PA 11-80) came with a promise to integrate the state's fragmented environmental and energy programs into a rational, comprehensive policy to counteract in all ways possible the lethally destructive effects of climate change.

At the time, it was clear that the creation of the Department Energy and Environmental Protection (DEEP) posed the risk that protection of water, air, woods, and wildlife would lose out in relation to energy interests. The risk seemed worth taking because, obviously, both missions are essential to protecting the planet; they should work in concert, But the benefits of this merger have been disappointing. The state's many agencies, programs, plans, and financing relating to the environment and energy still remain seriously fragmented. Even within DEEP, departments with responsibility for the management of utilities remain largely separate from the departments responsible for environmental protection and conservation. The reason can be found by following the money. There are profits to be made in the energy business. Protecting natural resources and wildlife is largely a charitable, money-losing venture.

There are numerous examples of the problems caused by the failure, up to now, to integrate energy and environmental policy. The process of the Governor's Council on Climate Change (GC3) illustrates the difficulty of developing a cohesive policy on a bifurcated and trifurcated base. This difficulty was recognized and partly addressed in the structure of GC3. In this structure. a broad, base-source of data and recommendations is intended to inform a hierarchy of policy committees where the information is organized and shaped into a policy with overarching goals and a logical chain of linked actions to achieve those goals.

There are two problems impeding the success of this approach. First, the groups and people at the base of the pyramid have had, in the past and present, limited opportunity to work together. Some of the ground-level reports are brilliant and include vital recommendations, but, by and large, the work groups were stuck in

separate lanes, despite many efforts by participants to reach out to each other. Second, at the top of the policy hierarchy are the committees on "Climate Change Mitigation" and "Climate Change Adaptation and Resiliency." These titles themselves tilt away from traditional conservation values. A Sierra Club saying I've heard is, "Mitigation means we lose." The second title might be more encouraging were it not for the association of the terms "resiliency" and "adaptation" with the influential campaign by the Koch Brothers and colleagues to deny the need to abandon fossil fuels and to support instead a well-funded campaign focused on adaptation and resilience.

Or course, we need to adapt and find ways to survive the horrible climate conditions that science predicts. But, also of course, a paramount goal of DEEP and GC3 is to prevent, to the extent possible. these development of these horrible conditions. To better reflect the true goals of DEEP and the GC3 the title should be "*Prevention*, Adaptation and Resiliency."

Real-World Problems Arising from Fragmented Policy

Policies that are targeted toward good goals and look reasonable on paper face the acid test when it comes to building or changing something on the ground. Inherent conflicts, if they exist, tend to emerge in funding and permitting processes, especially the latter. This happens in transportation policy, agricultural policy, and many other arenas. But, keeping the focus on the core mission of DEEP, support for energy projects reasonably important to slowing or reversing climate change, has frequently propelled such projects to the last stages before consideration of the effects on natural resources. This imperfect approach to addressing climate change and the environment was supposed to have been reformed through the creation of DEEP from DEP.

Put in simple terms, the hope for the new DEEP was that the public would not be faced with unpalatable choices such as: Here's a tree and here's a solar panel, which one do you want? To get maximum benefit from climate policy each decision should include analysis of the relevant components of a project for their value in maximizing the reduction of greenhouse gases. DEEP has often discussed this kind of team approach to traditional environmental permits. Nevertheless, in promoting, supporting, financing, and permitting energy projects, the siting of the facility and the potential elimination or impairment of natural resource, is the very last twig in the decision tree. We end up with avoidable conflicts and inefficiencies.

(The example of solar arrays versus trees has been in the news, but similar conflicts or disconnections exist across the spectrum of energy infrastructure planning.)

There is no reason why we cannot have an integrated policy for energy and natural resources. Water, soil, and natural vegetation all contribute to the reduction of greenhouse gases and a cleaner atmosphere. Solar arrays, electric cars, and other forms of relatively clean technology provide needed energy with minimal impairment of natural resources. But we need to get organized.

Ways and Means and Wishful Thinking

It is normal and smart to try to find ways to achieve its climate goals with minimal cost to the public and the state budget. A means to get this result is to outsource the work -- to another agency, another branch of government, another level of government, private parties, or the invisible hand of the marketplace as guided by relatively cost-free government incentives. The last option is particularly important in energy policy (and many other political arenas). But we have not been particularly good at understanding when this option is not working as well as we wished. Sometimes we double-down and lose more ground. (Examples provided on request. We need to get better at comprehensive cost analyses and course adjustments.

GC3: Change Agent?

The GC3 reflects a major commitment by the state administration to develop policies effectively targeted toward reducing global warming and adapting to its inevitable effects. The state is also signaling a willingness to consider bold moves (for example, to exit ISO New England). But the inclusive potential of GC3 is restricted by an inherited bias toward constructed infrastructure at the expense of natural, green infrastructure. And the potential to develop an integrated climate policy is clouded by a plethora of data and claims coming from a dozen different directions. In principle, DEEP should be the organizer and priorities decider. But it is hampered by the competing interests within its various parts, ranging from the very large and almost independent Public Utility Regulatory Authority, to the smallest subdivisions (some almost without staff) in its regulatory and conservation branches.

DEEP has possessed since its inception the organizing principle that beneficial energy policy and general environmental protection are inextricably linked and mutually dependent. It is time to fully activate this principle. This effort might provoke objections that elevating this organizing principle will slight the importance of public health, environmental justice, agriculture, education, and especially business interests. But wellbeing in all these domains depends on a livable planet. And a livable planet depends on maximum protection for the

natural resources that support climate health, together with maximum deployment of technologies that reduce carbon emissions.

If there is a question where to start, commitment at the top is essential. But a close examination of what is going wrong on the ground should yield insight into what needs to be changed going up the ladder of permits and incentives. If we end up with new energy sources with disappointing output and cost, what needs to change? If it doesn't make sense to have to choose between a solar panel and a tree, why is this kind of option so often the result of our present siting policies? We can figure it out. We can do better.

***M**argaret Miner Consultant*
These are strictly personal observations. They are based on my experience with the Water Planning Council Advisory Group, Rivers Alliance of Connecticut, the Connecticut League of Conservation, and various land conservation groups. But they are on no way formally representative of policy positions of these groups

Subject: Comments on GC3

Date: Wednesday, January 6, 2021 at 10:19:56 PM Eastern Standard Time

From: Anne Schmidt

To: DEEP ClimateChange

Hi,

Thank you for the opportunity to comment on the GC3 Working Group Outputs, see below.

Best regards,
Anne Schmidt

email:- annewschmidt@gmail.com
tel:- (860) 912-2065

General Comments:-

I appreciate that a lot of work went into all of the Working Groups Discussions and Reports. It is very good to see the Climate Education proposal especially for K-12 schools. I commend the emphasis on nature / natural solutions and protecting natural areas such as wetlands, forests etc for their contribution as carbon sinks. What is virtually impossible to distill out of these reports are the specific recommendations with timelines and proposed legislation to ensure that Connecticut addresses Climate change in a timely manner. Is there a Comprehensive Climate Action Plan for the state that does this? If there is a Comprehensive Climate Action Plan, can you send a link to it? Since the Global Warming Act of 2008, twelve years have passed with some progress on climate actions, but not enough it seems, to curb climate change impacts. The State of Connecticut would benefit from passing a Climate Emergency Resolution that clearly outlines the goals and timelines for legislation to implement over the next 10 years - (that brings us to 2031!!).

Fossil Fuels are the primary source of GHG emission - I do not see any statement(s) about stopping new fossil fuel infrastructure (e.g., infrastructure for natural gas, no more FF processing plants, plastics made from natural gas, etc.).

“Renewable natural gas” is methane. Methane is methane regardless of the source and is a potent carbon pollutant. How does fit with reducing Carbon emissions? Instead of anaerobic digestion of food waste that results in methane (renewable natural gas) - compost food waste to generate fertilizer. Chemicals used in fertilizer will be reduced.

Carbon Fee Scenario
The simplest, economy-wide carbon pricing approach that will accelerate the transition from a carbon economy to a renewable energy economy is to place a fee on carbon levied at the fossil fuel source. Fees would be levied on Fossil Fuel companies mining for coal, drilling for oil and fracking for natural gas. Fees would steadily rise until emissions goals are met. Consumers should not be penalized (e.g., gas tax, tolls). To offset increased costs, households (2/3 of lower wage earners) get a dividend that cover the increase. In the documents the fee is proposed to fund climate mitigation, adaptation and resilience strategies. Overtime the fee will generate substantial amounts of money…..

Cap and Trade/Invest Scenario
This approach doesn’t address the core issue that we need to get away from Fossil Fuels. Trading carbon emissions does not result in the reduction of emissions - certainly at the price currently used. This makes a carbon fee/tax the more desirable path forward.

Subject: Minor revision to GC3 Phase 1 Recommendations Report
Date: Wednesday, January 6, 2021 at 12:09:14 PM Eastern Standard Time
From: Chelsea Gazillo
To: French, Rebecca, DEEP ClimateChange
CC: Kip Kolesinskas, Nathan W. L'Etoile, james69432@gmail.com
Attachments: image531917.png, image957586.png, image754805.png, image109552.png, image904738.jpg

Good Afternoon,

Happy New Year! On behalf of the Working Lands Alliance Steering Committee, I want to thank you for all the hard work you have put into developing a robust climate plan for the State of Connecticut. We are thrilled that the Governor and his staff worked tirelessly to put together this report that mitigates, adapts, and makes CT resilient in the face of climate change. Our Steering Committee will be submitting public comments through the survey portal your agency set up later today.

I have one minor correction that I wanted to bring to your attention. On page 59 of the report, my affiliation is listed as Working Lands Alliance. As you may not know, Working Lands Alliance is a project of American Farmland Trust. I would like to respectfully request that you change my affiliation to read "Chelsea Gazillo, American Farmland Trust, Working Lands Alliance." American Farmland Trust is my employer, and I want them to get acknowledgment for being supportive of me being a part of the Working and Natural Land Agriculture and Soils Subgroup.

Thank you in advance for this consideration, and we look forward to working with your agency in advancing the comprehensive recommendations outlined within this report. Please feel free to reach out to us if you have any questions.

With best regards,
Chelsea

Chelsea Gazillo
Working Lands Alliance Director
she/her/hers

Phone: +1 8609694386
Email: cgazillo@farmland.org
Website: www.farmland.org

Join the Farming Is Our Future campaign today!

memo

To: Katie Dykes, Commissioner CT DEEP and Chair, Governor's Council on Climate Change
Members Governor's Council on Climate Change

From: Audubon Connecticut, Leslie Kane, Managing Director and Robert LaFrance, Director of Policy
Connecticut Association of Conservation Districts, Denise Savageau, President
Connecticut Forest & Park Association, Eric Hammerling, Executive Director
Connecticut Land Conservation Council, Amy Blaymore Paterson, Executive Director
Rivers Alliance of Connecticut, Alicea Charamut, Executive Director
Working Lands Alliance: a project of American Farmland Trust, Kip Kolesinskas, Co-Chair and Chelsea Gazillo, Director

Date: January 6, 2021

Re: Comment on the Working and Natural Lands Section of the DRAFT **Phase 1 Near-Term Actions Report of the GC3,** ***Taking Action on Climate Change and Building a More Resilient Connecticut for All***

Thank you for the opportunity to comment on the Phase 1 Near-Term Actions Report of the GC3. We recognize both the importance and the enormity of the work that the GC3 has begun and the additional challenges posed by the pandemic on this effort. As members of Connecticut's environmental community, we were pleased that the GC3 included a working group on Working and Natural Lands and were honored to serve both as leaders and participants on the various subgroups.

The Working and Natural Lands (WNL) Working Group was appropriately recognized as a cross-over group with elements of climate mitigation as well as adaptation/resiliency reflected in many of its recommendations. Connecticut is fortunate to have a rich and diverse natural history that provides numerous ecosystem services that are critical to maintain as we move towards a more sustainable future. Our working and natural lands face many challenges, including impacts from climate change but also pressure from development and other human impacts.

Protecting and enhancing our existing natural resources is low-hanging fruit full of best management practices available to resource managers. Protecting our forests, including urban forests, is the first step to provide a clean and abundant water supply during drought and providing relief from extreme heat events. Maintaining our supply of prime agricultural land provides a secure local food supply and reduces impacts of transporting foods from afar. Safeguarding wetlands provides nature-based flood control, vector disease control, and is critical to maintaining our biodiversity. Caring for our rivers also provides for clean water, diverse ecosystems, a boost to local economies, and is critical to the health of Long Island Sound. In addition, our soils, forests, and wetlands are important carbon sinks with the potential to continue to store and sequester carbon when effectively managed as intact ecosystems.

Given the importance of our working and natural lands, we have reviewed the near-term actions of this WNL section. Conscious of your short timeframe for considering recommendations, we are mostly providing specific language changes to the WNL section to clarify, support, and strengthen the existing actions. The following edited section is provided for your consideration, and we thank you for all of your hard work and leadership through the GC3.

Working and Natural Lands

24. **Identify and adopt usable models to reliably monitor, report on, and value carbon sinks as well as ecosystem services provided by working and natural lands relating to climate change mitigation and adaptation/resiliency** including, but not limited to, models developed by federal, state, academic, and nonprofit partners including efforts of the U.S. Climate Alliance.

a. Mitigation models should include carbon storage/sequestration in soils, forests, wetlands, and farmland and be included as part of considering a negative emissions strategy alongside reported emissions for the building, energy, and transportation sectors. (cross-listed with Science and Technology, Progress on Mitigation Strategies).

b. Adaptation/resilient models should include those beneficial services provided naturally by intact ecosystems including but not limited to providing for clean air, clean and abundant water, secure local foods, moderation of temperatures (shade, windbreaks, evapo-transpiration), flood attenuation, vector disease control, and sustainable fish and wildlife habitat.

25. **Adopt land use policies for siting of renewable and non-renewable energy infrastructure that avoid loss of forests, farmland, and other lands as well as recognize the ecosystem services they provide.** As Connecticut deploys large-scale solar projects, it is important that this development does not supersede other climate change mitigation and/or adaptation strategies, including the carbon sequestration potential of natural and working lands and the importance function they play in providing clean, abundant water and local food supplies. The state should establish incentives to encourage developers to site their projects on brownfields, rooftops, parking lots, and other developed spaces. (cross-listed with Progress on Mitigation Strategies)

Forests

26. **Adopt a statewide "no-net-loss of forest" policy.** Establish a taskforce in 2021 with stakeholders regarding the "no-net-loss of forest" policy to plan for its implementation in 2022, including evaluation of feasibility, needed resources, and associated efforts such as a no-net-loss of farmland/agricultural soils policy, to maximize mitigation and adaptation/resiliency potential. Consideration should be given to the following actions as part of the implementation of this policy: avoid forest conversion; protect healthy, intact forests; offset all planned or permitted forest losses; provide incentives for stewardship, forest retention, and forest resiliency; and protect urban forests, build more parks, and plant more trees.

27. **Increase adaptation and resilience of Connecticut's forests** through keeping forests as forests and supported actions to maintain un-fragmented forests.

a. *Support keeping forests as forests and establish mechanisms to achieve this goal,* such as encouraging private landowners to protect forestland through easements, ecosystem payment mechanisms, and strong markets for local forest products.

b. *Support and enhance statewide, regional, and local actions that align to maintain un-fragmented forests within and across political boundaries* with emphasis on connections to waterways and wetlands, core forests, and wildlife habitat linkages, including continuing work under the Coalition of New England

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Governors and Eastern Canadian Premiers on resolution 40-3, Resolution on Ecological Connectivity, Adaptation to Climate Change, and Biodiversity Conservation.

28. **Increase mitigation of greenhouse gases in Connecticut's forests** through sequestration and storage of carbon.

a. *Confirm and set a statewide goal of permanent protection of at least 50% of core forests greater than 250 acres by 2040* and identify resources that would be needed to achieve that goal.

Deleted: *Evaluate feasibility of a*

b. Develop an action plan by the end of 2021 to increase statewide forest cover from 59% to over 60% by 2040.

Deleted: Consider actions

c. *Develop improved guidelines for vegetation management* utilized by electric utilities, Department of Transportation, and public works within available resources.

Deleted: *Pursue opportunities to improve*

d. *Evaluate and develop guidelines regarding how to improve forestry practices in Connecticut's working forests* by following scientific principles including the emerging body of knowledge on how to manage forests for resilience and to store and sequester carbon.

29. **Protect vulnerable communities from climate change.** Enhance existing or establish new programs to strengthen urban forestry and community interest in tree planting, parks, and/or community gardens in densely populated areas to support climate solutions that could meet multiple needs such as protecting against extreme heat events and increasing health outcomes, employment, and entrepreneurial opportunities and the Social Determinants of Health as well as provide ecosystem services. Pursue the creation of a Youth Conservation Corps to help community-based groups with implementation.

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30. **Protect forests with a changing climate** through state and federal land acquisition, stewardship and protection programs and research for adaptive management.

a. Update Connecticut's Green Plan and open space grant programs to prioritize acquisition of land and conservation easements for habitats with the most climate resilience benefits.

Deleted: Consider reevaluation of

b. Advocate with partners for federal funding programs that support habitat stewardship and protection such as the Recovering America's Wildlife Act, and others.

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c. Identify and invest in research and opportunities for adaptive management for ecosystems vulnerable to climate change.

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31. **Identify funding, programs, and resources needed for implementation of recommendations.**

a. *Incorporate more specific climate-related criteria into selection of projects/level of funding.* These include the Open Space and Watershed Land Acquisition Grant Program (OSWA), the Recreation and Natural Heritage Trust Program (RNHT), and the Recreational Trails Program (RTP).

b. Preserve fully authorized funding for Community Investment Act (CIA) and support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other

Deleted: Preserve funding for Community Investment Act (CIA).

community environmental projects (see Financing/Funding Adaptation and Resilience recommendation **#56d** as amended at the bottom of this memo).

c. Strengthen and expand the Urban Green and Community Garden Program to include Urban Forest Improvement Projects.

Deleted: Evaluate strengthening

Wetlands

32. **Protect and enhance the ecosystem services value of wetlands using sound science and adaptive management strategies** by incorporating new and emerging science and technologies, identifying and conserving ecosystems vulnerable to climate change, monitoring climate impacts, and developing habitat suitability models.

a. *Encourage land and ocean management behaviors that support ecosystem services* by incorporating new and emerging science and technologies, such as sediment additions to marshes, low impact development, green infrastructure, living shorelines, conservation, and other nature-based adaptations.

b. *Conserve identified ecosystem services vulnerable to climate change.* Identifying and preserving future inland advancement zones would help create future protective storm buffers for coastal communities while providing the co-benefit of preserving an ecologically important habitat and protect Long Island Sound from pollutants.

Deleted: *Identify and conserve*

c. *Continue monitoring and assessment of impacts of climate change on wetlands and near coastal waters* and update management tools and strategies.

d. *Work with partners to develop and implement a habitat suitability model for restoring inland and coastal wetlands,* identifying areas which provide the greatest increase in ecosystem benefits when protected or restored.

33. **Communicate the value of wetlands to Connecticut home and business owners through engagement on climate resilience efforts,** including through natural hazard mitigation planning, education on better management of private lands, and utilizing nature-based strategies for addressing water inundation.

a. *Include nature-based solutions as part of the state Natural Hazard Mitigation Plan (NHMP)* and encourage municipalities and Councils of Governments to include this approach in local NHMPs.

b. *Work directly with partners to educate and assist private landowners and developers in the management of their lands to minimize impacts to wetlands and reduce risk from climate change*.

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c. *Prioritize nature-based adaptation strategies that will ameliorate the effects of water inundation,* including natural habitat conservation, Low Impact Development (LID) Best Management Practices (BMPs), agriculture water BMPs, and drinking water treatment standards. (cross-listed Science and Technology)

34. **Further develop policies that encourage protections for wetlands under a changing climate**, including integrating the latest climate science into stormwater and floodplain management and prioritizing acquisition of land at risk from climate change.

a. Integrate the newest rainfall data modeling into stormwater models and management tools and ensure coastal floodplain planning is informed by the state's sea level rise scenarios.

b. Prioritize acquisition of land and conservation easements for ecosystem services most at risk from climate change, leveraging Connecticut's Green Plan and open space grant programs. Preserve fully authorized funding for Community Investment Act (CIA) and support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other community environmental projects (see Financing/Funding Adaptation and Resilience recommendation #**56d** as amended at the bottom of this memo).

c. Review state policy/laws relating to wetland protections, including the Tidal Wetland Act and the Inland Wetland and Watercourses Act, by the end of 2021, and provide recommendations needed to include climate change mitigation, adaptation, and resilience benefits in decision making and protection strategies. Update training modules for local inland wetland commissions to include climate change impacts to wetlands and the ecosystem services they provide for climate change mitigation, adaptation, and resiliency.

Rivers

35. **Protect the future ecosystem services value of inland waters under a changing climate**, including prioritizing resilient river networks, prioritizing land acquisition, utilizing nature-based solutions, and including climate resilience in watershed-based planning.

a. *Develop the scope for a science-driven process for identifying and prioritizing river networks that will likely maintain diversity and functional integrity,* even under shifts due to climate change, and protect the ecosystem services of inland waters.

b. *Formalize continuation of land acquisition that will protect high-quality waters*.

c. *Promote urban forestry and expansion of urban green spaces*, including protection and/or re-establishment of riparian corridors, including daylighting rivers in urban areas, and creation and expansion of public open spaces that incorporate nature-based solutions, low impact development, and green infrastructure.

d. *Expand water quality focus of watershed-based planning to also consider related flooding and climate resilience issues and solutions.*

36. **Re-establish free-flowing character and connectivity of inland waters and hydrological connectivity** by exploring programs to eliminate physical barriers in streams, encouraging nature-based adaptive restoration and solutions, and incorporating culverts into hazard mitigation planning.

a. *Identify and invest in programs that will eliminate physical barriers to stream connectivity.* As part of a program the following should be considered: identifying resources to remove barriers; assessing impacts of road crossing designs; engaging partners to develop educational content on dam removal; and identifying, assessing, and prioritizing known barriers in the state, the removal of which would lower flood risk, allow for stream and habitat connectivity, and promote resilient ecosystems.

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b. *Encourage nature-based adaptive restoration approaches for rivers, floodplains, and estuaries and encourage the utilization of nature-based adaptation approaches over hard armoring techniques.* Engage partners for education, outreach, and technical training in these areas and establish priority projects for implementation through the development of project pipelines.

c. *Incorporate high-priority culverts into hazard mitigation planning* and leverage federal funding sources for project implementation.

37. **Create safe, equitable opportunities for people of diverse backgrounds to access and enjoy water resources** through strengthening grants; enhancing programs that better engage and inform underserved communities and improve their access to freshwater resources; and improving staff training and diversity.

a. *Strengthen Open Space and Watershed Land Acquisition grants, Recreation and Natural Heritage Trust Program, Section 319 nonpoint source grants access opportunities for vulnerable communities.* In addition, preserve fully authorized funding for Community Investment Act (CIA) and support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other community environmental projects (see Financing/Funding Adaptation and Resilience recommendation #**56d** as amended at the bottom of this memo).

b. *Enhance programs that will help outdoor recreation, natural resource partners, and municipalities engage with diverse communities.* Engage external stakeholders to evaluate program impact for underserved and vulnerable communities.

c. *Enhance accessibility of information and signage for all communities.* Better utilize technology for improved communication beyond English language signage.

d. *Implement and encourage programs that will foster the level of comfort with freshwater resource activities* (e.g., paddling and fishing instruction, outdoor swimming lessons, etc.) especially for underserved populations.

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f. *Enhance state agency staff training and staffing* in promoting equity, inclusion, and diversity, including for access, recreation, and safety issues around inland waters.

g. *Increase recruitment of more diverse staff* for positions within environmental conservation and environmental quality sectors and explore additional resources for environmental justice and public outreach in the area of environmental education to support both internal and external needs for guidance, information, and programming.

38. **Promote demand-side water conservation and water reuse** by reducing transmission losses and developing educational programming.

a. *Review opportunities to reduce transmission losses* by expanding leak detection and maintenance programs.

b. *Work with partners to develop educational programming and outreach* to educate the public as to where their drinking water comes from, the connection between a healthy environment and clean drinking water.

c. Provide resources for State Water Plan implementation.

39. **Explore water rights options that protect fish and wildlife** through supporting their needs in decision-making, educating about the role of fishing and boating in the economy, and focusing planning and funding on conservation for cold water streams and rivers.

a. Support fish, wildlife, and ecological needs when balancing economic and social needs in decision-making processes.

b. Share analysis that fishing and boating are Connecticut's top contributor to the outdoor recreation economy.

c. Focus state land conservation plans and funding on conservation lands around cold water streams and resilient river systems.

40. **Encourage protection for inland waters** through further development of policies, education/outreach, research, and funding opportunities that encourage protections for inland waters.

a. Engage partners to develop training on green infrastructure and nature-based solutions for public works and other municipal staff.

b. Enhance education, outreach, and research through goal setting, incentivizing participation, and providing training and data management for monitoring and research projects that can detect climate change impacts on inland waters.

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c. Provide opportunities for coordination and data sharing among individuals participating in citizen monitoring.

d. Develop educational campaigns for climate change adaptation awareness targeted at multiple sectors.

e. Develop and implement opportunities to improve and expand citizen participation in monitoring, including schools, non-profits, and others.

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f. Support opportunities to best utilize federal funding for wastewater infrastructure and wastewater solutions.

g. Support continued funding for the Clean Water Fund.

h. Maintain high standards for Combined Sewer Overflow (CSO) reduction in CSO communities.

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i. Complete comprehensive updates of the Stormwater Quality Manual, Erosion and Sediment Control Guidelines.

j. Evaluate barriers to implementing alternative treatment waste systems (ATS) and integrate and coordinate permitting across DPH and DEEP to enable use and oversight of high performing ATS.

Agriculture and Soils

41. **Reduce conversion of Prime and Important Farmland Soils, active agricultural land, forest land, and other soil landscapes** that provide critical ecosystem functions and values/ goods and services such as groundwater recharge/discharge, protection of headwaters of cold-water streams, public water supply watersheds, floodplains and riparian areas, wetlands, and wetland hydrology, support special habitats and migration corridors for species. According to American Farmland Trust's Farms Under Threat: State of the State from 2001-2016, 23,000 acres of Connecticut's farmland were developed or compromised, the 6th highest percentage in the nation. Baselines of kinds of farm acreage goals should be established, and goals for reduced conversion, and protection established. (citation: Freedgood, J., M. Hunter, J. Dempsey, A. Sorensen. 2020. Farms Under Threat: The State of the States. Washington, DC: American Farmland Trust).

a. Accelerate and streamline the Farmland and Open Space and Watershed Land Acquisition Grant programs with a goal of closing in two years or less and doubling the number of easements closed within four years. Evaluate Grant programs criteria to achieve these goals while including equity, adaptation, mitigation, and resiliency elements.

b. Maintain funding for the farmland preservation program through both the Community Investment Act (CIA) dollars and lump sum bonding; prioritize utilizing the federal "buy-protect-sell" and state "buy-protect-farm" programs and Community Farms Program to expedite farmland preservation process; create farmland access opportunities for the next generation of farmers; protect smaller farms in more urban and suburban communities; and support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other community environmental projects (see Financing/Funding Adaptation and Resilience recommendation **#56d** as amended at the bottom of this memo).

c. Disincentivize location of solar projects on farmland. Incentivize multiple-use projects that allow for solar and agricultural production to co-exist on the same footprint when there are no other prudent and feasible alternatives, and as needed, as part of the farm business and/or succession plan. Develop soil health standards for projects since maintaining soil health on all landscapes needs to be a critical component of the planning, installation, and possible decommissioning of solar arrays.

42. **Increase the adoption of on-farm energy production and reduce on farm energy usage** through enhancing energy efficiency, renewable energy production, renewable natural gas from anaerobic digestion, and composting.

a. Enhance energy efficiency programs available to farms. Increase the funding available for renewable energy production opportunities.

b. Investigate successful models of funding and technical assistance to allow new and innovate farm energy technology.

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c. Identify barriers, risk, and unexpected costs for farms seeking to implement on-farm energy projects and develop tools and assistance to overcome them.

d. Provide technical, financial, and regulatory support for Energize Connecticut Programs where farms can receive assistance in retrofitting their inefficient equipment with high energy measures.

e. Establish a process in which the State may direct the electric distribution companies to enter into long-term agreements to purchase power or renewable natural gas from anaerobic digestion facilities, including policies and incentives to enable on-farm anaerobic digesters.

43. **Strengthen land use planning tools for agriculture** through a more regional approach and updating and streamlining zoning.

a. *Take a more regional planning approach to supporting and planning for Connecticut agriculture*. In Connecticut, land use planning is conducted at the local municipal level. 169 sets of land use regulations have a direct impact on the growth and sustainability of Connecticut farms. Consider adoption of Regional Agricultural Councils such as the Lower CT River Valley Regional Agriculture Council that can take a more regional approach to supporting and planning for Connecticut agriculture.

b. *Reflecting the current industry trends, municipalities should consider eliminating minimum acreages for farms in municipal zoning regulations.*

c. *Municipalities should streamline their planning and zoning rules and regulations and techniques to prevent farmland loss, protect special soil landscapes and improve soil health and water management,* utilizing available technical assistance, including the 2020 American Farmland Trust's and the CT Department of Agriculture's Planning for Agriculture and Conservation Options for Connecticut Farmland guides. Develop Statewide Model P & Z regulations, for adoption, that provide language that supports climate change mitigation, adaptation, and resiliency practices.

44. **Improve soil health practices on all landscapes** through technical assistance and training, education, and outreach, and leveraging federal funding.

a. *Work with partner universities and the CT Agricultural Experiment Station in the state to provide technical assistance* on tillage practices/equipment, soil health practices, grazing/forage management, and lawn and landscaping practices, and controlled environment agriculture. Increase training, technical assistance, and outreach on the programs, tools, techniques, and applied research needed to implement mitigation and adaptation practices. Virtual training should be an important component.

b. *Conduct outreach and education* on the importance of soil health practices, and the value of agriculture and forestry's contributions to mitigation, adaptation, and resiliency.

c. *Raise awareness of the critical need for a strong soil science curriculum for agriculture and environmental science*, particularly in the area of carbon sequestration and storage, and the role of soils in adaptation and resiliency strategies on all landscapes.

d. Leverage federal funding through the United States Department of Agriculture (USDA) and Environmental Protection Agency programs and assistance to accelerate protection and management of

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parcels in public water supply areas, important habitats, flood prone areas, and recharge and discharge areas.

45. **Build a sustainable and equitable food system** through support for local, State, and regional agriculture, and strengthening state grant programs. A sustainable and equitable food system is more than urban agriculture. Building such system will require analyzing the food system "from farm to table, from processing to disposal, ensures economic opportunity; high-quality jobs with living wages; safe working conditions; access to healthy, affordable, and culturally appropriate **food**; and environmental **sustainability** "(retrieved 1.4.21 from policylink.org).

a. Increase urban agriculture initiatives, including support for urban agriculture master plans at the local and regional level.

b. Develop capacity for an urban agriculture program at the CT Dept. of Agriculture, including coordination with CT DEEP's Urban Greens and Community Gardens program to develop complementary policies, funding, and assistance.

c. Allow Senior Farmers Market Vouchers to be utilized with online purchasing platforms

d. Support research initiatives by CT's Colleges, Universities, and Agricultural Experiment Station to develop additional farm and forest adaptation strategies and practices.

46. **Support socially disadvantaged producers** incorporating climate smart agricultural practices by working collaboratively to increase their use in state and federal grant programs.

a. Increase knowledge of federal and state programs including risk management and crop insurance tools.

b. Increase support and outreach to the growing number of socially disadvantaged farmers and producers throughout Connecticut to better understand how climate change is directly impacting this sector of producers and work collaboratively to develop solutions.

c. Establish a Diversity and Race Working Group within the CT Department of Agriculture that will build organizational capacity with the CT Department of Agriculture to work towards creating racial equity across the state's agricultural sector. This initiative must aim to achieve true consultation in stakeholder engagement that goes beyond dissemination of information and asking for input to allowing BIPOC led organizations and producers in the state to influence decision making at the CT Department of Agriculture. Outreach efforts for this working group must be designed to reach diverse demographics with different communication needs and must be coordinated across state, federal and local government, and nonprofits to have collective impact to advance equity and inclusion.

47. **Sustain environmental and soil health** by working with partners to improve research to develop additional weather stations, prediction models and practices for water management, including excesses, droughts, storage, and use.

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48. **Address impacts of climate change to coastal aquaculture and the shell-fishing industry including but not limited to ocean acidification and increase stormwater runoff.**

a. *Join the International Association to Combat Ocean Acidification (OA Alliance)* and commit to furthering the five goals identified in the Alliance's Call to Action: 1) Advance scientific understanding; 2) Reduce causes of OA; 3) Build adaptation and resiliency; 4) Expand public awareness; and 5) Build sustained international support. (cross-listed with Science and Technology)

b. *Evaluate approaches to research, monitor, and address coastal acidification impacts* to natural resources including shellfish, crustaceans, and fish, including a monitoring system for water quality parameters critical to the shell-fishing industry in real-time to forecast potentially high-risk events. (cross-listed with Science and Technology and Public Health and Safety)

c. Identify and develop management strategies to address other impacts from increased runoff, saltwater intrusion into septic systems, and the additional nutrient and pathogen loads to shellfish beds. Provide incentives and disincentives to increase the implementation of practices to improve stormwater and land management in municipalities that impact shellfish beds.

Recommendation 56 d.

Support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other community environmental projects. The authorizing legislation would allow, not require, municipalities to adopt a small and limited buyer's conveyance fee (up to 1% of the value of any real estate transaction valued at $150,000 or greater) on the transfer of real estate This dedicated fee could be used by municipalities to fund municipal land conservation, stewardship, climate mitigation, resilience and adaptation strategies, and other community environmental projects. The legislation would be structured to ensure that the program does not undermine the development of affordable housing in the participating municipalities.

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Subject: RE: CSF Comments-Governor's Council on Climate Change
Date: Wednesday, January 6, 2021 at 5:57:15 PM Eastern Standard Time
From: Joseph Mullin
To: DEEP ClimateChange
Attachments: CSF Testimony-GC3 Draft Phase 1 Report - Near-Term Actions.pdf, Group Comments G3C-Forest Report Final.pdf

To Whom It May Concern:

I also meant to include the referenced testimony within the comments. Please see the attached files. If there are any questions, please do not hesitate to contact me.

Thanks,

Joseph Mullin | New England States Senior Coordinator (CT, MA, ME, NH, RI)
Congressional Sportsmen's Foundation
110 North Carolina Avenue, SE | Washington, D.C. 20003
Office: 202-543-6850 x20
Cell: 202-253-6883
www.congressionalsportsmen.org

From: Joseph Mullin
Sent: Wednesday, January 06, 2021 5:54 PM
To: DEEP.climatechange@ct.gov
Subject: CSF Comments-Governor's Council on Climate Change

To Whom It May Concern:

Please see the attached document, which includes the Congressional Sportsmen's Foundation's comments for the Governor's Council on Climate Change. Once received, I would appreciate it if you would confirm that the delivery was successful.

If you have any questions or concerns, please feel free to contact me.

Thank you,

Joseph Mullin | New England States Senior Coordinator (CT, MA, ME, NH, RI)
Congressional Sportsmen's Foundation
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January 6, 2021

Dear Members of the Governor's Council on Climate Change:

As the New England States Senior Coordinator for the Congressional Sportsmen's Foundation (CSF), I am submitting comments on the Governor's Council on Climate Change's (GC3) Draft GC3 Phase 1 Report Near-Term Actions document through the online survey, but I am also submitting this letter to express our sheer dismay with the process by which the GC3 is collecting public input. Throughout the past several months, CSF has worked alongside partner-conservation organizations to weigh-in on the materials that lead to the creation of your draft report. During this process, however, we have been utterly disappointed at the lack of responsiveness and the tactics implemented to avoid feedback from the public. CSF is not alone in this discontent, and my hope is that this letter will push the GC3 to improve the public input process in a manner that meets expectations for a professional, government chartered body charged with making decisions that will impact private lands, public lands, public trust resources, and businesses in the state.

On October 21, CSF signed a letter with eight (8) other conservation organizations that was submitted to the Forests Subgroup with regard to the Subgroup's draft report. At no point since the letter was submitted have any of the participating organizations received any acknowledgement that their comments were received, which is more than disheartening – it is a complete lack of transparency. Even at the lowest levels of government, providing follow-up after the receipt of comments is a business-norm, so it is unimaginable why a working group that is preparing materials for the Governor's eyes would find it acceptable not to, at a minimum, acknowledge receipt, or incorporate feedback from the public.

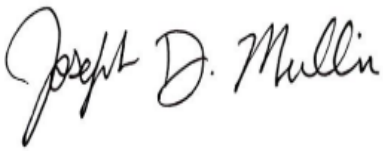
Possibly the greatest disappointment we have with this whole process is the egregious manner in which the comment period was opened. To have the notice filed on December 24 (Christmas Eve) and extended over the holidays – the slowest work week in America – while completely disregarding the hardships that this would place on individuals and organizations trying to review the document and prepare comment is completely disheartening. Opening the window during the holiday season has been received by many individuals – if not most – as an attempt to use the cover of night to avoid comment from the public. Whether or not this was intentional is beyond us, but several parties within the conservation industry took note of this poor timing and are left with sheer discontent in the GC3.

With regard to the substance of the Draft GC3 Phase 1 Report Near Term Actions document, although the document does not explicitly recommend policies that prevent commercial timber harvests, the report continues to make recommendations that run counter to practices that are critical to improve wildlife habitat and forest health, such as active forest management – which employs the use of silvicultural methods and forest management practices, such as prescribed burning and timber harvesting to create desired habitat conditions and forest stand composition and structure. Specifically, when the GC3

considers how to achieve goals 28(a)-(b), it is worth noting that the state's forests are primarily maturing forests, with 78% of the trees being over 60 years old. Connecticut's Forest Action Plan has identified this forest aging and progression to nearly 80% of stands in the sawtimber size class (over 11" diameter at breast height) as representing "potential detrimental effects for forest product sustainability, for protection against catastrophic weather or insect and disease outbreaks, and for wildlife species that depend on early successional habitats." Hochholzer 2015, p. 13. The continued emphasis on "permanent protection" instead of "conservation" illustrates the lack of incorporation of our feedback into the plan. Please reference our October letter as well as our January 6 comments submitted online for more information about the importance of management flexibility for supporting forest health and wildlife.

Regarding both the substance of the draft report and the process going forward, I hope that my comments prove to be useful.

Sincerely,



Joseph Mullin
New England States Senior Coordinator | Congressional Sportsmen's Foundation
Jmullin@congressionalsportsmen.org | 202-253-6883

Enclosed: Group Comments G3C-Forest Report Final

October 21, 2020

Governor's Council on Climate Change
deep.climatechange@ct.gov

RE: Governor's Council on Climate Change Forests Sub-Group Draft Report

Representing thousands of Connecticut members who are hunter-conservationists, the below signed organizations commend Governor Ned Lamont for convening a Governor's Council on Climate Change (GC3), including a Forests Sub-Group under the Working and Natural Lands Working Group. Connecticut is both a densely populated and heavily forested state, with nearly sixty percent of its land base in forests (Hochholzer 2015). Forests in the U.S. offset around ten to thirty percent of the nation's annual CO_2 emissions (Houghton 2003), highlighting the opportunity Connecticut has to leverage forest management policy to offset its own carbon footprint. The diverse contributions of forests to protecting water and air quality, promoting biodiversity, and providing recreational opportunities and cultural values is well appreciated by Connecticut's outdoorsmen and outdoorswomen. In addition, Connecticut's 350,000 hunters and anglers annually spend an estimated $752 million and generate $90 million in state and local taxes in the state, and our community is a strong partner in forest stewardship. We appreciate the opportunity to provide input on the draft report, and wish to highlight a few concerns.

Our first concern is the process by which the report was developed, particularly the lack of inclusion of a number of varied stakeholders that should have been included in this process. Through our close work with the Bureau of Natural Resources within the Connecticut Department of Energy and Environmental Protection, we have a great appreciation for the important roles of your professional resource managers in considering diverse values and uses while researching, monitoring, and managing the state's fish, wildlife, forests, and other natural resources. As stakeholders with a history of directly partnering in these efforts, we are disappointed to have not been directly engaged in the process of developing this critical report. Direct representation of our community in the Forests Sub-Group would have been typical of the assistance we have provided in past planning efforts.

More specifically, the Governor's Council on Climate Change recommended that "DEEP should work with land trusts, forest owners, and *working lands managers* [emphasis added]…" There was, however, no representation on the Forest Sub-Group from private landowners, the DEEP Division of Forestry or the DEEP Division of Wildlife. The report discussed the management of state forests and wildlife management areas, nevertheless the "working lands managers" responsible for stewarding these lands, according to their statutory charters, were excluded from the Forest Sub-Group, though agency representation was included on the Agriculture/Soils Sub-Group and the Wetlands Sub-Group.

Additionally, it is particularly problematic that the report even acknowledges the contributions of sportsmen and women yet excluded them from the Forest Sub-Group. The report states that the "vast majority of funding to manage these lands (wildlife management areas), comes from the U.S. Fish and Wildlife Service Wildlife and Sport Fish Restoration Program." Indeed, sportsmen and women dollars generated through the "user-pays, public-benefits" American System of Conservation Funding supports the management of wildlife management areas, yet the agency responsible for administering these funds and managing these lands, was not consulted. Likewise, partner hunting-conservation nongovernmental organizations were not invited to the table.

We therefore strongly urge you to reconstitute the Forest Sub-Group to include representation from the forestry and wildlife communities, and we additionally urge you to extend the timeline to finalize the report to ensure that input from forestry and wildlife stakeholders is included in the report.

Regarding the substance of the report and looking past the aforementioned flawed process by which it was developed, we have serious concerns regarding the recommendation for establishing Core Forest Natural Area Preserves (CFNAPs) in Connecticut. The rationale cited for creating these areas is based on unsound science. "Proforestation" is an unproven concept not recognized by professional forestry and wildlife managers. We therefore present the following specific concerns regarding the recommendation for establishing CFNAPs and the associated rationale:

1. Exclusion of commercial harvests will promote uniform progression to late successional species in Connecticut forests that are vulnerable to invasive insect infestations and projected future increases in temperatures and drought occurrence – events that could increase tree mortality and convert carbon sinks to carbon sources. Counter to the opinion on benefits of passive management for carbon storage, careful management of forests can enhance resilience, particularly through facilitating adaptation to changing climate stresses, while also increasing carbon storage (Evans and Perschel 2009).
2. Significant Connecticut State Forest acres are already minimally managed, including dedicated research forests that explicitly provide their own permanent reserve areas paired as controls to managed forests. There is no need to establish CFNAPs entirely devoid of commercial harvests and salvage logging for the sole purpose to serve as control areas "to compare to the outcomes of management prescriptions" (p. 29). What would be more effective is additional collaboration to identify priority research questions and funding sources to support research and monitoring.
3. Though CFNAPs are claimed to be "a very low cost climate solution" (p. 29), the financial ramifications of losing a self-sustaining revenue source by removing lands from consideration for sustainable commercial forestry must be taken into consideration. Even where little management occurs, monitoring forest health, trespass issues, and potential timber theft and damage requires resources that would otherwise come at the burden of taxpayers.
4. Even with active management sustained on both public and private lands in Connecticut, nearly 10% of forest stands are 100 years of age or older, while less than 3% are under 20 years of age. The state's forests are primarily maturing forests, with 78% of the trees being over 60 years old. Connecticut's Forest Action Plan has identified this forest aging and progression to nearly 80% of stands in the sawtimber size class (over 11" diameter at breast height) as representing "potential detrimental effects for forest product sustainability, for protection against catastrophic weather or insect and disease outbreaks, and for wildlife species that depend on early successional habitats" (Hochholzer 2015, p. 13).
5. Although Connecticut has abundant upland forest habitats across the state, Connecticut's Wildlife Action Plan (Terwilliger Consulting 2015) identifies maritime forests and young forests (those with seedling and sapling trees, generally 0 to 20 years of age) as the only sub-habitat types in poor condition. The secure future of a number of wildlife species of greatest conservation need depends upon suitable quantity and quality of young forest habitats, including several bellwether species for whom our organizations have served as important partners to help conserve on private and public forest lands in Connecticut, such as American woodcock (*Scolopax minor*), Eastern racer (*Coluber constrictor*), Eastern whip-poor-will (*Caprimulgus vociferus*), New England cottontail (*Sylvilagus transitionalis*), and ruffed grouse

(*Bonasa umbellus*). The lack of young forest in the state is a such a serious threat to wildlife that the DEEP Division of Wildlife partnered with other natural resource agencies and conservation organizations to develop Connecticut's Young Forest Habitat Initiative to address the loss of young forest habitat. The report does account for the dire need for diverse forest habitats to support Connecticut's diverse array of wildlife.

The report did not represent the consensus of the members of the Forest Sub-Group. We are aware of strong disagreement among the Forest Sub-Group members about the recommendations contained in the report, and to our knowledge, the report failed to disclose that Forest Sub-Group members held different opinions and did not support the report in its entirety. To be clear, we have serious reservations about the process by which the report was created and the substance of the report, but even if the process was corrected, we nonetheless disagree with the recommendations in the report and consequently recommend that the group be reconvened to expand the stakeholder group to ensure a better representation of stakeholders, especially forest owners and working lands managers, as the Council recommended.

Given the points above, we believe the lack of clearly incontrovertible carbon benefits does not warrant the negative long-term consequences for wildlife habitat and populations that could come from the draft report's recommended goal of establishing more than 100,000 acres of CFNPs, set aside from any management under commercial harvests and even salvage logging. To be clear, we would not suggest intentionally converting Connecticut's most mature stands to young forest habitat, as these stands also provide different but important wildlife habitat and other values, including higher volumes of carbon storage if properly sustained. We do support allowing professional foresters and wildlife managers to adapt to future impacts of catastrophic weather or insect and disease outbreaks on these stands, to apply forest treatments and create silvicultural conditions to benefit wildlife species that depend on early successional habitats, and to sustain multiple generations of forest stands for future benefits to Connecticut residents.

We commend your interest in exploring natural solutions to address carbon storage but encourage you to involve more affected stakeholders, particularly landowners, foresters, loggers, and wildlife managers, and consider the full range of programs and practices capable of offsetting the carbon footprint of Connecticut. Ensuring that forest lands remain economically productive through sustainable forest management is a proven carbon offset. If lands cannot be managed, their value decreases and the likelihood of forest conversion to development increases. Forest management practices sustain healthy forests and the habitats upon which many wildlife species and Connecticut hunters, anglers, and outdoorsmen and women depend. The undersigned organizations appreciate the opportunity to provide input and stand ready to assist you.

Signed,

American Woodcock Society
Congressional Sportsmen's Foundation
Connecticut State Chapter of National Wild Turkey Federation
National Deer Alliance
New England Chapter of Backcountry Hunters and Anglers
Quality Deer Management Association
Ruffed Grouse Society
Theodore Roosevelt Conservation Partnership
Wildlife Management Institute

SOURCES CITED

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Subject: Comments Governor's Council on Climate Change Phase 1 Report
Date: Wednesday, January 6, 2021 at 5:12:20 PM Eastern Standard Time
From: Michael Giaimo
To: DEEP ClimateChange
CC: David J. O'Donnell
Attachments: image003.jpg, api_final_comments_GC3.pdf

Attached please find the American Petroleum Institute's comments relative the Governor's Council on Climate Change Phase 1 Report (draft dated December 23, 2020). Thank you for this opportunity to comment. To the extent possible, please confirm you received this. Additionally, hard copies were placed in the mail today. Please let me and/or my colleague David O'Donnell (copied on this email) know if you have any follow up questions.

Respectfully,

Michael S. Giaimo
Regional Director
Northeast Region | State Relations

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American Petroleum Institute
Northeast Region

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For your consideration, please find the American Petroleum Institute's comments relative to the December 23, 2020 draft Governor's Council on Climate Change (GC3) Phase 1 Report.

The American Petroleum Institute (API) is a national trade association representing America's oil and natural gas industry. Our over 625 members - from large integrated oil and gas companies to small independent companies - comprise all segments of the oil and natural gas industry.

API and its members advocate for policies that ensure the availability and continued development of affordable, reliable, and sustainable energy, including oil and natural gas supplies and products derived from them. This is achieved by optimizing solutions to eliminate redundant or contradictory policies and supporting market-based policies to drive innovation.

The emissions identified in the draft report for reduction include those produced from fossil fuel combustion in the generation, transportation, and building sectors. While the potential impact of a successful effort to reduce fossil fuel use may vary by company and resident, it could have significant effects on a wide range of industries throughout the state and could increase costs for Connecticut's residents and businesses and make the state less economically competitive.

Oil and Natural Gas Should be Part of the Solution in Helping Deliver Connecticut's Energy Needs

The demand for oil and natural gas may decline over time as alternate forms of energy, become more available, economic, and reliable. For the foreseeable future, though, both oil and natural gas will be needed at a minimum until road, aviation, rail and other means of transportation are electrified or sustained by alternate fuels.

Natural gas and oil continue to be an essential source for power – these fuels enable renewable development and market penetration – and provide needed reliability given the current limitations of renewable energy generation and battery storage. Natural gas and oil are available, affordable and provide much needed reliability with respect to energy and heating, and serve as essential feedstocks to manufacture a variety of critical products used in agriculture, medicine, food, industrial applications, vehicles, and a multitude of consumer goods. Without large government subsidies, wind and solar-powered generation do not yet compete with conventional generators due to their relatively low capacity factors resulting from the fact that the sun is not always shining and the wind is not always blowing. Consider this, even under ideal conditions, a photovoltaic installation can reach 20 percent capacity factor; and based on location wind turbines run between 25 to 50 percent of the time.

The addition of wind and solar technologies will require interconnection to existing high-voltage transmission lines or the construction of completely new transmission infrastructure. Regardless, additional transmission and distribution lines as well as new system interconnections are expensive, lengthy in duration to be developed and are typically riddled with protracted siting and legal challenges.

Given the substantial amounts of new electric power required to charge and power electric vehicle fleets of the size envisioned by certain states,[1] major reductions in fossil fuel combustion and carbon dioxide emissions would be realized only if all of the additional electricity needed to power the new electric vehicles were to come from renewable, carbon-

[1] See *Multi-State Zero Emission Vehicle Task Force*, at https://www.zevstates.us/.

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free sources. That would, of course, require large infrastructural investment in wind turbines and photovoltaics that could not be put into place in a matter of a few years.[2]

Concerning the transportation sector, today's plug-in electric vehicles capture the public's imagination as an exciting technology that is said to hold great promise. Despite this interest, the results produced by the substantial resources that many states have already allocated to the promotion of electric vehicles should serve as a cautionary tale. Judging by sales volumes, it is fair to conclude that consumers have been reluctant to completely accept the less proven and more expensive technology. When making policies that cover electric vehicles, Connecticut should consider all environmental and economic consequences associated with its manufacture, use, and ultimate disposal. Plug-in electric vehicles will require charging infrastructure and those needs can be best met with private companies working in a free market in the same way that gasoline stations and truck stops operate today.

Connecticut's and the nation's economies depend on a reliable and affordable transportation fleet powered by energy sources that are fully compatible with motor vehicles and the existing fuel distribution infrastructure.[3] The internal combustion engine is the backbone of the U.S. transportation system and significant, systemic changes would be extraordinarily complex and must be approached accordingly. It is also worth noting that Connecticut currently has the cleanest established emissions standards in the country.

Over the past century significant investments have been made in fossil fuel-related infrastructure which has been developed and refined and serves the country well. The existing stock of refineries, pipelines, terminals, filling stations and vehicles represent extraordinary investments, not to mention the supporting employment structure in place. The fuel supply chain annually distributes more than 140 billion gallons of gasoline, 60 billion gallons of diesel home heating oil, and over 25 billion gallons of jet fuel from refinery gates to consumers at retail.[4] This fuel infrastructure and the transportation sector are highly integrated as nationally each year consumers purchase roughly between 17 and 18 million new light-duty vehicles[5] and sustain a total domestic fleet of approximately 250 million light-duty vehicles,[6] which rely on petroleum fuel.

Recent forecasts of long-term energy trends such as those prepared by the U.S. Energy Information Administration[7] indicate that despite projections of strong growth in the electric vehicle fleet, liquid fuels will continue to be the primary transportation energy source through the next two decades. Ongoing improvements in internal combustion engine design and in fuel formulations have made the vehicle fleet more efficient and cleaner. According to the Environmental Protection Agency, new cars, trucks, SUVs and heavy-duty trucks and buses run about 99 percent cleaner than models produced in 1970. This progress, coupled with the addition of highly efficient natural gas power plants, has helped

[2] Smil, Vaclav. *Energy Myths and Realities: Bringing Science to the Energy Policy Debate* (at Kindle Locations 442-443). For example, putting 2.9 million EVs on the road in the U.S. within five years would bring over 11,000 GWh of load to the U.S. power grid, or about $1.5 billion in annual electricity sales. That would constitute a significant demand for power that utilities would need to accommodate well with-in their current planning horizons and would almost certainly be the largest growth sector in the U.S. electricity market for the foreseeable future (assumes U.S. EV sales growth of 32 percent per year, 13,500 miles/year, 3.5 mi/kWh, and $0.132/kWh). Fitzgerald, Garrett and Chris Nelder. *From Gas to Grid: Building Charging Infrastructure to Power Electric Vehicle Demand,* Rocky Mountain Institute, 2017.

[3] Nearly all products that consumers use in the United States are currently transported by truck. *See* Center for Intermodal Freight Transportation Studies, the University of Memphis, *Overview of the U.S. Freight Transportation System*, (August 2007).

[4] https://www.eia.gov/dnav/pet/pet_sum_snd_d_nus_mbblpd_a_cur.htm.

[5] https://ihsmarkit.com/research-analysis/US-light-vehicle-sales-rise.html.

[6] U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2016*, Table VM-1, December 2017.

[7] U.S. Energy Information Administration, *Annual Energy Outlook 2018.*

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reduce U.S. air pollution by 73 percent between 1970 and 2016, even as vehicle miles traveled nearly tripled and the economy grew by 253 percent.[8]

Recent data shows that the average age of the vehicle fleet is increasing which suggests that we are maintaining our vehicles longer,[9] underscoring the need to recognize the long-term implications of changes to transportation policy. As a result, automakers, many of whom have publicly committed to electrification, continue seeking ways to improve their internal combustion engine vehicles. Notable gains in air quality and fuel efficiency can be achieved as cleaner vehicles enabled by lower sulfur fuels penetrate the fleet, and with the introduction of improved aerodynamic designs, lighter vehicles constructed with advanced materials and components, and increased engine efficiency.[10,] For example, by 2025, internal combustion engine vehicle efficiency could improve by 30 percent and by 2050 the fuel economy of some of these vehicles could "double."[11]

The transition to renewable sources of energy and the electrification of vehicles, engines, and buildings plays a prominent role in the proposal for meeting short-term GHG emission reduction goals. However, electrification will take enormous investment in power generation, storage, transmission, and distribution to meet the energy demands which will increase in Connecticut. The Phase 1 Report should not promote electrification as the only means to achieve GHG emission reductions and instead should allow other technologies to be developed, tested, and deployed at appropriate scales where found to be cost-effective. Forcing one path could result in a steeper increase in costs which may result in the unintended consequence of disproportionately impacting certain communities.

Less carbon-intensive fuels for use in power generation, industrial processes, as well in the transportation and building sectors will primarily depend on technological advances and infrastructure that are economically viable and accessible to all. Any state or national policy must help these fuels be abundant, reliable, and affordable to families and businesses. While well intentioned, state or regional mandates risk hurting our economy and disenfranchising our citizens, no matter how appealing they may be to some on paper. Petroleum and natural gas fuels will be with us for decades more, at least, and we all will benefit from policies that recognize this reality.

In conclusion, API supports global action that drives GHG emission reductions and economic development. The natural gas and oil industries are part of the global solution and play a vital role in developing and deploying technologies and products that continue to reduce GHG emissions while advancing human and economic prosperity and that are essential to extending the benefits of modern life to all.

API believes real and sustainable GHG emission reductions will be achieved through collaborative efforts and technological innovation. To that end, Connecticut GHG emission reduction policy should be developed according to the following tenets:

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[8] "National Air Quality: Status and Trends of Key Air Pollutants" https://www.epa.gov/air-trends.

[9] IHS Automotive/R. L. Polk *Annual Press Releases*. November 22, 2016.

[10] A. Elgowainy, *et al*, Argonne National Laboratory, 2016, "Cradle-to-Grave Lifecycle Analysis of U.S. Light-Duty Vehicle-Fuel Pathways: A Greenhouse Gas Emissions and Economic Assessment of Current (2015) and Future (2025-2030) Technologies," https://greet.es.anl.gov/publication-c2g-2016-report. Massachusetts Institute of Technology, "On the Road Toward 2050: Potential for Substantial Reduction in Light-Duty Vehicle Energy Use and Greenhouse Gas Emissions," 2015 http://web.mit.edu/sloan-auto-lab/research/beforeh2/files/On-the-Road-toward-2050.pdf. US Environmental Protection Agency, 2014, "Final Rule for Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards," https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-control-air-pollution-motor-vehicles-tier-3.

[11] *Id.*

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- GHG reduction targets must be created impartially and economy-wide, must be technologically feasible, and must be economically reasonable.

- GHG reduction targets must be clearly defined, categorized and communicated so that the regulated community can track and demonstrate progress.

- GHG emission reductions should not be technology prescriptive. Policies that seek to drive GHG emission reductions by prescribing the use of specific technologies may inhibit the development of alternative technologies that could accomplish those same goals at lower costs or improved timetables.

- GHG emission reductions should be goal oriented, allowing stakeholders and market participants the greatest flexibility in achieving those goals at the lowest possible cost.

- GHG emission reduction strategies must be evaluated for all (environmental and economic) impacts on disproportionately impacted communities.

API appreciates the opportunity to provide comments on the Governor's Council on Climate Change Phase 1 Report and we look forward to working with the state to achieve its GHG reduction targets in a manner that balances economic, environmental, and energy security needs.

Public Comments for Recommendations of the Governor's Council on Climate Change

6 A baseline inventory of commercial and residential property of the state would be a massive undertaking. If a single website with appropriate data entry forms could be developed for collecting online data I could envision a multifaceted approach to collecting the data. First involve middle school and high school science classes. Students could interview their parents to obtain information on their homes type of construction, energy efficiency measures, vehicle makes, models and miles driven etc. High school students in science classes could obtain the name of one or more neighbors that might not have school age children from local records and interview visit them to collect their data. College level science class students could be utilized to interview commercial property owners or businesses that didn't respond to direct information requests. Regional COGs and Chambers of Commerce could supply lists of businesses, maps of buildings etc. Each class would enter its data into the online system and be able to see real world application of classroom learning in real time as local maps and data get updated on the system

7 Building codes shouldn't necessarily keep pace with some international standard. Why not develop a CT based code for energy efficiency and vermin proofing of structures and let the world adopt the CT standard?

Renters do not have much opportunity to make changes to property they do not own. Incentivize owners of properties to upgrades their HVAC and building envelopes. Require owners of properties with renters on public assistance to upgrade or require tenants to relocate. Stop funding substandard housing with public funds.

Require energy efficiency in new construction. Encourage developers to consider building off the grid.

Change codes in cities to require building owners to reuse excess heat in the winter to melt snow and ice off of sidewalks rather than using salt or other deicers that pollute the water. Why let a building blow steam out of some orifice when it could be used to heat the side walk and maybe even the pavement in front of it?

9 Require natural gas utilities and delivered fuel companies to source renewable sources of fuel. RNG from methane digesters and or biodiesel could be direct replacements for fossil fuels and wouldn't require increases in electric use as would be required by switching to RTT sources. These recommendations seem to be working at cross purposes – requiring increased electricity use through RTT and the need to charge electric vehicles – while at the same time advocating to reduce electric use by multiple 10's of megawatts per year.

11 Pumped hydro at grid scale may have some possibilities in places like the Barkhamsted Reservoir, Mcdonough Lake but there are numerous dry dams in western CT installed after the 1955 flood. Is there any way to utilize some of these existing dams for power generation at scale?

12 A transparent and consistent compensation structure for energy should include solar, wind and anaerobic digestion.

50 megawatts of grid solar is a laudable goal but not at the expense of farm and forest land. CT has thousands of acres of flat roofs most of which are located in cities – near demand. Placing solar installations on farm and or forest land in rural communities increase the demand for power lines to get the power to the users and removes farm and forest land from feeding us and sequestering carbon to combat the carbon in the air which is why the solar is going in in the first place. Sponsor a design competition to encourage engineers to design economical and aesthetically pleasing ways to place solar on or above existing buildings. Another possible location for solar installations would be highway medians, - just don't make the mistake of other states and let the developers place the panels low to the ground where reflections from the panels can blind drivers. Put the panels up high and requires designers to consider reflections at all times of year and all daylight hours to ensure driving is not impaired. Retrofitting taller buildings in cities to mount solar panels on the walls of the building could reduce the energy needed to cool buildings in summer while making electricity at the same time.

CT has expertise in Groton putting nuclear power plants in submarines. Why not leverage that expertise and put distributed small nuclear plants like these to create a microgrid within a city? Placing these in areas with defined critical needs such as hospital complexes would ensure power during grid blackouts for critical infrastructure.

Off shore wind and land based wind should be augmented with run of river generation and tidal flow generation where feasible. Actually if one wanted to think outside the box the CT River would make a huge "field" to develop a series of floating solar arrays along the length.

Any examination of new transmission infrastructure should include gas lines and injection and refueling points for RNG vehicles as well as electric lines for anaerobic digestion facilities back to consumers. RNG from manure and or food waste used as a transportation fuel is carbon negative – not zero carbon resulting in better reductions faster.

13 I question why we have any tolerance for natural gas leaking from a line. We don't tolerate water leaks (at least the ones we know about) so why do we tolerate known gas leaks? Fix them when found!

The state doesn't provide significant funding for agricultural programs of livestock farmers, except in the case of lost income due to low prices under the Community Investment Act. Placing the burden of cleaning up methane on the backs of livestock farms by stopping payment of critical funds to tide farms over during low income periods seems counterproductive, and would force farms out of state.

15 Waste management to maximize recycling needs to start with new packaging regulations. Reduce or eliminate plastic in consumer packaging. Shrink wrap and windows in boxes need to be removed. All packaging materials, especially on food, need to be recyclable. Any food packaging that can be used in an anaerobic digester without costly depackaging processes should be encouraged if not required.

A disposal tax based on GHG emissions would of necessity increase the cost of food. This will impact the lower income city areas disproportionately than others.

Separating organics from the msw stream is easier in cities than suburbs. Garbage disposals in sinks can send the organics to the POTW plant rather than the msw facility. If anaerobic digestion is used at the

POTW usable RNG can be produced. Rural areas can compost organics if sufficient carbonaceous materials are available. Suburbs are the challenge with many housing plans not on sewer lines disposals are not feasible. Carbon may be available from leaves in the fall but not for the entire year. Mini collection bins for organics might work if the containers are easy to empty into a haul truck, prevent nuisance odors, and are animal proof. The question then becomes – where does the truck take the material? Anaerobic digestion facilities on farms, POTWs, or stand alone for source separated organics would seem the logical places, assuming reasonable incentives are developed and plants can actually be built with reasonable returns on investment. RNG used to displace fossil fuel transportation fuel would provide the best environmental benefit (negative carbon emissions) and the most economic return if produced at the current market rate of CNG. Conversations with several large fleet owners in CT using CNG now say they would switch to RNG in an instant if the price and performance of the RNG was identical to CNG they are using now.

The state could kick start this program by putting up capital project funds to build a regional anaerobic digester somewhere within CT to combine livestock manure with food waste to create pipeline quality RNG to fuel buses, trucks and other diesel or CNG powered vehicles of one or more private fleets or state vehicles.

17 EV proliferation will just exacerbate the electricity distribution issues in the short term. ZEV is a misnomer and ultimately misleading to consumers until, and unless, the grid supplying the electricity to the vehicles is totally emission free, which won't happen in CT for a while.

A blanket prohibition of homeowners associations and condominiums preventing them from prohibiting renters, or individual owners from installing EV charging stations is going to be hard to implement. Many locations probably have inadequate wiring and service capacity to allow the addition of charging units in multiple locations without serious upgrades to the service wiring and meters etc.

All public EV charging stations should be fee based to cover the installation costs and the electricity used. Stop subsidizing ev owners by giving them electricity. Some of us don't have the funds to pay inflated prices for evs, so why subsidize those who do?

Adding a symbol (lightning bolt) for ev charging locations at existing gasoline service stations would make sense. Adding additional signs just for ev would not.

18 Transitioning the state fleet to ZEV by electrifying it would not maximize the environmental benefit. Investing in RNG and transitioning the state fleet to RNG would maximize the environmental benefit by using negative emission RNG rather than grid supplied electricity which is not zero emissions.

19 see 18 and forget the cars – go after the trucks for the most bang for the environment and the dollar.

20 To have transit oriented development you need to first have transit. The current bus system in CT does not meet the needs of travelers. We need a system of transit that does not compete with the road system for vehicles. Losing lane miles to bicycles and buses exacerbates the congestion not lessens it. CT cities should have built light rail or subway systems, like other cities, years ago – and now it is probably too late. The CT fast track busway cost way too much per rider to justify the expense. The buses are empty but they clog up roads commuters are trying to use to get to or from work because they have to loop through the city to discharge passengers at multiple locations. The cities won't see a renaissance until there are transit options that are separate from the roads that can move people

between places they want to go at reasonable prices. Cities would probably be further ahead to rethink the traffic patterns in downtown areas and make roads one way in as many areas as possible. There is also a proliferation of unregistered vehicles using roads in CT. Mobility scooters, motorized bicycles, pedal bicycles and pedestrians are all using roads designed for by vehicles, with little attention being paid to safety. We need to reduce congestion on the roads but we have too many instances where the road designers make a road worse rather than betterTransit benefit and parking cash out are not explained in this draft for comment.

21 Transit electrification in the short term is not the best bang for the dollar, see 18.

22 RNG – not electrification – until the grid is ZE

23 seek opportunities for biodiesel powered trains

Combine livestock manure and source separated organics processing through anaerobic digesters, upgrade the gas to RNG, use Dissolved Air Flotation to remove particulate nutrients and create value added fertilizer products to help farmers comply with nutrient management plans and reduce phosphorous accumulation in soils which impacts water quality.

26 Revise to "no net loss of farmland or forest" policy. Too many good acres of farmland which provide important environmental services are lost to solar and building development projects. The cities are dying for want of jobs, so why not put fulfillment centers and other large footprint developments in urban areas that can provide workers rather than in rural areas where workers need to "drive in" to get to work? We all know the reason is that it is cheaper to build on open land than it is to tear down and rebuild in urban areas – but what will we do when there are no rural areas - either to build on - or to grow food on?

28 How is vegetation management by utilities GHG related?

29 Studies in Europe have shown that unless the gardens are above the 4th floor in urban centers the food quality of urban agriculture produce is polluted to the point it is unfit for consumption. Is anyone looking at pollutant levels in CT urban gardens?

30 Some wildlife have made such a comeback that they are becoming nuisances if not direct threats to humans. Not all habitats are vulnerable or diminishing. Bears, coyotes, geese, deer, wildcats and vultures are all increasingly challenging in the rural and suburban areas with numerous incursions into the urban areas reported. Please be specific on which wildlife species you are targeting here.

34 You talk about coastal flooding – what about inland flooding? As storm intensity and frequency increase due to climate change what is the risk of another 1955 type flood in CT? Will the dry dams provide protection in the future climate modelling scenarios?

35 what does protect future ecosystem services of inland waters mean in reality? Store more water in dry dams to be able to keep releasing it in drought periods? Drinking water reservoirs have gotten dangerously low here in in the far west in recent years. Is there opportunity to increase water holding capacity anywhere?

45 Recent research in Europe has shown that to be reasonably free of pollution in produced food the gardens need to be greater than 4 floors high above the street. Are we poisoning our citizens with food produced in US cities at ground level? IS anyone monitoring this?

50 What is a resilience structure? We need structures in high risk areas to be resilient. For example a house in the pacific islands is raised high above wave reach to prevent flooding so why do we build residential buildings in flood plains with living space at ground level?

51 There are a host of client groups you left off of you list of groups needing guidance for heat related illness or death. What about Farmers, landscapers, forestry workers, linemen, landscapers, construction workers etc.

There are also issues of heat related problems in livestock production. Cattle need to be cool to produce milk, poultry need to remain cool or they will expire in extreme heat. Pets die in cars every year in summer heat. All of these need to be considered.

If we have inadequate air conditioning in government supported housing why aren't we fixing the problem by requiring air conditioning?

New England is a food deficit area. We do not produce enough food even in the growing/harvesting season to feed our population. We saw in Covid that grocery shelve can be stripped clean in days. The major threat to food security in New England is the status of road and rail networks. Of particular importance to those of us east of the Mississippi are the road and rail bridges across the Mississisppi River. There are 6 major interstates that transport food west to east in the US. New England has a single class 1 railroad freight line and it is in Massachusetts. It wouldn't take much to interrupt either of these transit systems by having a bridge collapse in a storm to bring New England food imports to a standstill. How long it would take to reroute is anybody's guess.

53 You talk of regulating the construction of public water supply wells in flood zones – but you don't talk about regulating construction of business and residential construction out of flood zones, why? The best resilience plan is to not build there in the first place and it if floods so what?! Granted we have a lot of preexisting structures in flood hazard areas – but does that mean we have to let more be built to be at risk? Why do we have this build it and if something happens the government will bail us out mentality in the US? Building in a flood plain is risky. If you aren't prepared to accept the risk than go elsewhere, but don't expect public monies to pay for your arrogance.

54 Why do we keep perpetuating the myth that English and Spanish are the only two languages spoken by people in Connecticut, by requiring materials in these two languages? The local school district where my kids go to school has families who spoke 72 different languages at the last count I saw published. If we are truly going to be just to everyone we have only 2 choices create publications in all languages, or let the late coming immigrants to America do what my ancestors did. They came to America and learned English. No one made any concessions to the Germans, Italians, Ukrainians, Polish or any other immigrants that have come to our shores for better jobs and living conditions. These people all got by. Why are the Spanish speaking ones singled out for special treatment?

56 I don't see how creating a stormwater authority would reduce flooding? In Pennsylvania they have storm water authorities and are taxed based on water use to fund stormwater authority spending. The

only thing the authorities spend their money to build is more pipelines – which just move water off the land faster causing increased flooding – not reducing it.

Subject: Comments on Taking Action on Climate Change and Building a More Resilient Connecticut for All Governor's Council on Climate Change Phase 1 Report: Near-Term Actions – Draft of December 2020.

Date: Wednesday, January 6, 2021 at 4:53:07 PM Eastern Standard Time

From: LaFrance, Robert

To: DEEP ClimateChange

Attachments: image003.jpg, GC3_WNL-final comments_1-6-2021_submitted (002).pdf, GC3_WNL-final comments_1-6-2021_submitted.docx, 20210106_164855.jpg, 20210106_164828.jpg

January 6, 2021

Katie Dykes
Chair of the Governor's Council on Climate Change
Commissioner, Department of Energy and Environmental Protection

Dr. Rebecca French
Director, Office of Climate Planning
Department of Energy and Environmental Protection

Re: Comments on *Taking Action on Climate Change and Building a More Resilient Connecticut for All Governor's Council on Climate Change Phase 1 Report: Near-Term Actions – Draft of December 2020.*

Dear Commissioner Dykes and Dr. French:

On behalf of Audubon Connecticut, I write to thank you for the unprecedented and outstanding effort you have undertaken to solicit input on Governor Ned Lamont's Executive Order No. 3.

We appreciate the opportunity to serve the state of Connecticut as the Co-Chair of the Wetlands Sub-group (Leslie Kane) and as members of the Rivers Sub-group (Eileen Fielding) and the Financing and Funding Adaptation and Resilience Working Group (Robert LaFrance).

Audubon Connecticut, as part of the National Audubon Society, has a long history of advocacy on environmental conservation issues. We strongly believe that proper strategic planning to reverse the adverse effects of climate change must include both adaptation/resilience and mitigation measures. These

measures should complement each other rather than conflict with each other. For example, proper protection of tidal marshes sequesters carbon (mitigation), provides natural barriers to sea level rise (resilience) and maintains habitats for a diverse ecosystem (adaptation). Our strategies to combat climate change must begin with a commitment to do no harm to our complex ecological systems that provide important ecosystem services with real mitigation and economic utility.

To that end, we offer the following comments on *Taking Action on Climate Change and Building a More Resilient Connecticut for All Governor's Council on Climate Change Phase 1 Report: Near-Term Actions – Draft of December 2020.*

In order to facilitate DEEP's review of the many comments we expect you will receive, we have prepared the attached memorandum in collaboration with the Connecticut Association of Conservation Districts, Connecticut Forest & Park Association, Connecticut Land Conservation Council, Rivers Alliance of Connecticut, and the Working Lands Alliance: a project of American Farmland Trust. We will also be providing our comments via DEEP's public comment survey feature.

In closing, please think of Audubon Connecticut as a resource to rely upon as you combat climate change on behalf of the people of Connecticut. We possess significant scientific and policy expertise that we are more than happy to share with you and your staff.

Respectfully submitted,

~Robert

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memo

To: Katie Dykes, Commissioner CT DEEP and Chair, Governor's Council on Climate Change
Members Governor's Council on Climate Change

From: Audubon Connecticut, Leslie Kane, Managing Director and Robert LaFrance, Director of Policy
Connecticut Association of Conservation Districts, Denise Savageau, President
Connecticut Forest & Park Association, Eric Hammerling, Executive Director
Connecticut Land Conservation Council, Amy Blaymore Paterson, Executive Director
Rivers Alliance of Connecticut, Alicea Charamut, Executive Director
Working Lands Alliance: a project of American Farmland Trust, Kip Kolesinskas, Co-Chair and Chelsea Gazillo, Director

Date: January 6, 2021

Re: Comment on the Working and Natural Lands Section of the DRAFT **Phase 1 Near-Term Actions Report of the GC3,** ***Taking Action on Climate Change and Building a More Resilient Connecticut for All***

Thank you for the opportunity to comment on the Phase 1 Near-Term Actions Report of the GC3. We recognize both the importance and the enormity of the work that the GC3 has begun and the additional challenges posed by the pandemic on this effort. As members of Connecticut's environmental community, we were pleased that the GC3 included a working group on Working and Natural Lands and were honored to serve both as leaders and participants on the various subgroups.

The Working and Natural Lands (WNL) Working Group was appropriately recognized as a cross-over group with elements of climate mitigation as well as adaptation/resiliency reflected in many of its recommendations. Connecticut is fortunate to have a rich and diverse natural history that provides numerous ecosystem services that are critical to maintain as we move towards a more sustainable future. Our working and natural lands face many challenges, including impacts from climate change but also pressure from development and other human impacts.

Protecting and enhancing our existing natural resources is low-hanging fruit full of best management practices available to resource managers. Protecting our forests, including urban forests, is the first step to provide a clean and abundant water supply during drought and providing relief from extreme heat events. Maintaining our supply of prime agricultural land provides a secure local food supply and reduces impacts of transporting foods from afar. Safeguarding wetlands provides nature-based flood control, vector disease control, and is critical to maintaining our biodiversity. Caring for our rivers also provides for clean water, diverse ecosystems, a boost to local economies, and is critical to the health of Long Island Sound. In addition, our soils, forests, and wetlands are important carbon sinks with the potential to continue to store and sequester carbon when effectively managed as intact ecosystems.

Given the importance of our working and natural lands, we have reviewed the near-term actions of this WNL section. Conscious of your short timeframe for considering recommendations, we are mostly providing specific language changes to the WNL section to clarify, support, and strengthen the existing actions. The following edited section is provided for your consideration, and we thank you for all of your hard work and leadership through the GC3.

Working and Natural Lands

24. **Identify and adopt usable models to reliably monitor, report on, and value carbon sinks as well as ecosystem services provided by working and natural lands relating to climate change mitigation and adaptation/resiliency** including, but not limited to, models developed by federal, state, academic, and nonprofit partners including efforts of the U.S. Climate Alliance.

a. Mitigation models should include carbon storage/sequestration in soils, forests, wetlands, and farmland and be included as part of considering a negative emissions strategy alongside reported emissions for the building, energy, and transportation sectors. (cross-listed with Science and Technology, Progress on Mitigation Strategies).

b. Adaptation/resilient models should include those beneficial services provided naturally by intact ecosystems including but not limited to providing for clean air, clean and abundant water, secure local foods, moderation of temperatures (shade, windbreaks, evapo-transpiration), flood attenuation, vector disease control, and sustainable fish and wildlife habitat.

25. **Adopt land use policies for siting of renewable and non-renewable energy infrastructure that avoid loss of forests, farmland, and other lands as well as recognize the ecosystem services they provide.** As Connecticut deploys large-scale solar projects, it is important that this development does not supersede other climate change mitigation and/or adaptation strategies, including the carbon sequestration potential of natural and working lands and the importance function they play in providing clean, abundant water and local food supplies. The state should establish incentives to encourage developers to site their projects on brownfields, rooftops, parking lots, and other developed spaces. (cross-listed with Progress on Mitigation Strategies)

Forests

26. **Adopt a statewide "no-net-loss of forest" policy.** Establish a taskforce in 2021 with stakeholders regarding the "no-net-loss of forest" policy to plan for its implementation in 2022, including evaluation of feasibility, needed resources, and associated efforts such as a no-net-loss of farmland/agricultural soils policy, to maximize mitigation and adaptation/resiliency potential. Consideration should be given to the following actions as part of the implementation of this policy: avoid forest conversion; protect healthy, intact forests; offset all planned or permitted forest losses; provide incentives for stewardship, forest retention, and forest resiliency; and protect urban forests, build more parks, and plant more trees.

27. **Increase adaptation and resilience of Connecticut's forests** through keeping forests as forests and supported actions to maintain un-fragmented forests.

a. *Support keeping forests as forests and establish mechanisms to achieve this goal,* such as encouraging private landowners to protect forestland through easements, ecosystem payment mechanisms, and strong markets for local forest products.

b. *Support and enhance statewide, regional, and local actions that align to maintain un-fragmented forests within and across political boundaries* with emphasis on connections to waterways and wetlands, core forests, and wildlife habitat linkages, including continuing work under the Coalition of New England

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Governors and Eastern Canadian Premiers on resolution 40-3, Resolution on Ecological Connectivity, Adaptation to Climate Change, and Biodiversity Conservation.

28. **Increase mitigation of greenhouse gases in Connecticut's forests** through sequestration and storage of carbon.

a. *Confirm and set a statewide goal of permanent protection of at least 50% of core forests greater than 250 acres by 2040* and identify resources that would be needed to achieve that goal.

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b. Develop an action plan by the end of 2021 to increase statewide forest cover from 59% to over 60% by 2040.

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c. *Develop improved guidelines for vegetation management* utilized by electric utilities, Department of Transportation, and public works within available resources.

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d. *Evaluate and develop guidelines regarding how to improve forestry practices in Connecticut's working forests* by following scientific principles including the emerging body of knowledge on how to manage forests for resilience and to store and sequester carbon.

29. **Protect vulnerable communities from climate change.** Enhance existing or establish new programs to strengthen urban forestry and community interest in tree planting, parks, and/or community gardens in densely populated areas to support climate solutions that could meet multiple needs such as protecting against extreme heat events and increasing health outcomes, employment, and entrepreneurial opportunities and the Social Determinants of Health as well as provide ecosystem services. Pursue the creation of a Youth Conservation Corps to help community-based groups with implementation.

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30. **Protect forests with a changing climate** through state and federal land acquisition, stewardship and protection programs and research for adaptive management.

a. Update Connecticut's Green Plan and open space grant programs to prioritize acquisition of land and conservation easements for habitats with the most climate resilience benefits.

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b. Advocate with partners for federal funding programs that support habitat stewardship and protection such as the Recovering America's Wildlife Act, and others.

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c. Identify and invest in research and opportunities for adaptive management for ecosystems vulnerable to climate change.

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31. **Identify funding, programs, and resources needed for implementation of recommendations.**

a. *Incorporate more specific climate-related criteria into selection of projects/level of funding.* These include the Open Space and Watershed Land Acquisition Grant Program (OSWA), the Recreation and Natural Heritage Trust Program (RNHT), and the Recreational Trails Program (RTP).

b. Preserve fully authorized funding for Community Investment Act (CIA) and support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other

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community environmental projects (see Financing/Funding Adaptation and Resilience recommendation #**56d** as amended at the bottom of this memo).

c. Strengthen and expand the Urban Green and Community Garden Program to include Urban Forest Improvement Projects.

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Wetlands

32. **Protect and enhance the ecosystem services value of wetlands using sound science and adaptive management strategies** by incorporating new and emerging science and technologies, identifying and conserving ecosystems vulnerable to climate change, monitoring climate impacts, and developing habitat suitability models.

a. *Encourage land and ocean management behaviors that support ecosystem services* by incorporating new and emerging science and technologies, such as sediment additions to marshes, low impact development, green infrastructure, living shorelines, conservation, and other nature-based adaptations.

b. *Conserve identified ecosystem services vulnerable to climate change.* Identifying and preserving future inland advancement zones would help create future protective storm buffers for coastal communities while providing the co-benefit of preserving an ecologically important habitat and protect Long Island Sound from pollutants.

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c. *Continue monitoring and assessment of impacts of climate change on wetlands and near coastal waters* and update management tools and strategies.

d. *Work with partners to develop and implement a habitat suitability model for restoring inland and coastal wetlands,* identifying areas which provide the greatest increase in ecosystem benefits when protected or restored.

33. **Communicate the value of wetlands to Connecticut home and business owners through engagement on climate resilience efforts,** including through natural hazard mitigation planning, education on better management of private lands, and utilizing nature-based strategies for addressing water inundation.

a. *Include nature-based solutions as part of the state Natural Hazard Mitigation Plan (NHMP)* and encourage municipalities and Councils of Governments to include this approach in local NHMPs.

b. *Work directly with partners to educate and assist private landowners and developers in the management of their lands to minimize impacts to wetlands and reduce risk from climate change*.

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c. *Prioritize nature-based adaptation strategies that will ameliorate the effects of water inundation,* including natural habitat conservation, Low Impact Development (LID) Best Management Practices (BMPs), agriculture water BMPs, and drinking water treatment standards. (cross-listed Science and Technology)

34. **Further develop policies that encourage protections for wetlands under a changing climate**, including integrating the latest climate science into stormwater and floodplain management and prioritizing acquisition of land at risk from climate change.

a. Integrate the newest rainfall data modeling into stormwater models and management tools and ensure coastal floodplain planning is informed by the state's sea level rise scenarios.

b. Prioritize acquisition of land and conservation easements for ecosystem services most at risk from climate change, leveraging Connecticut's Green Plan and open space grant programs. Preserve fully authorized funding for Community Investment Act (CIA) and support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other community environmental projects (see Financing/Funding Adaptation and Resilience recommendation **#56d** as amended at the bottom of this memo).

c. Review state policy/laws relating to wetland protections, including the Tidal Wetland Act and the Inland Wetland and Watercourses Act, by the end of 2021, and provide recommendations needed to include climate change mitigation, adaptation, and resilience benefits in decision making and protection strategies. Update training modules for local inland wetland commissions to include climate change impacts to wetlands and the ecosystem services they provide for climate change mitigation, adaptation, and resiliency.

Rivers

35. **Protect the future ecosystem services value of inland waters under a changing climate**, including prioritizing resilient river networks, prioritizing land acquisition, utilizing nature-based solutions, and including climate resilience in watershed-based planning.

a. *Develop the scope for a science-driven process for identifying and prioritizing river networks that will likely maintain diversity and functional integrity,* even under shifts due to climate change, and protect the ecosystem services of inland waters.

b. *Formalize continuation of land acquisition that will protect high-quality waters*.

c. *Promote urban forestry and expansion of urban green spaces*, including protection and/or re-establishment of riparian corridors, including daylighting rivers in urban areas, and creation and expansion of public open spaces that incorporate nature-based solutions, low impact development, and green infrastructure.

d. *Expand water quality focus of watershed-based planning to also consider related flooding and climate resilience issues and solutions.*

36. **Re-establish free-flowing character and connectivity of inland waters and hydrological connectivity** by exploring programs to eliminate physical barriers in streams, encouraging nature-based adaptive restoration and solutions, and incorporating culverts into hazard mitigation planning.

a. *Identify and invest in programs that will eliminate physical barriers to stream connectivity.* As part of a program the following should be considered: identifying resources to remove barriers; assessing impacts of road crossing designs; engaging partners to develop educational content on dam removal; and identifying, assessing, and prioritizing known barriers in the state, the removal of which would lower flood risk, allow for stream and habitat connectivity, and promote resilient ecosystems.

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b. *Encourage nature-based adaptive restoration approaches for rivers, floodplains, and estuaries and encourage the utilization of nature-based adaptation approaches over hard armoring techniques.* Engage partners for education, outreach, and technical training in these areas and establish priority projects for implementation through the development of project pipelines.

c. *Incorporate high-priority culverts into hazard mitigation planning* and leverage federal funding sources for project implementation.

37. **Create safe, equitable opportunities for people of diverse backgrounds to access and enjoy water resources** through strengthening grants; enhancing programs that better engage and inform underserved communities and improve their access to freshwater resources; and improving staff training and diversity.

a. *Strengthen Open Space and Watershed Land Acquisition grants, Recreation and Natural Heritage Trust Program, Section 319 nonpoint source grants access opportunities for vulnerable communities*. In addition, preserve fully authorized funding for Community Investment Act (CIA) and support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other community environmental projects (see Financing/Funding Adaptation and Resilience recommendation #**56d** as amended at the bottom of this memo).

b. *Enhance programs that will help outdoor recreation, natural resource partners, and municipalities engage with diverse communities.* Engage external stakeholders to evaluate program impact for underserved and vulnerable communities.

c. *Enhance accessibility of information and signage for all communities.* Better utilize technology for improved communication beyond English language signage.

d. *Implement and encourage programs that will foster the level of comfort with freshwater resource activities* (e.g., paddling and fishing instruction, outdoor swimming lessons, etc.) especially for underserved populations.

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f. *Enhance state agency staff training and staffing* in promoting equity, inclusion, and diversity, including for access, recreation, and safety issues around inland waters.

g. *Increase recruitment of more diverse staff* for positions within environmental conservation and environmental quality sectors and explore additional resources for environmental justice and public outreach in the area of environmental education to support both internal and external needs for guidance, information, and programming.

38. **Promote demand-side water conservation and water reuse** by reducing transmission losses and developing educational programming.

a. *Review opportunities to reduce transmission losses* by expanding leak detection and maintenance programs.

b. *Work with partners to develop educational programming and outreach* to educate the public as to where their drinking water comes from, the connection between a healthy environment and clean drinking water.

c. Provide resources for State Water Plan implementation.

39. **Explore water rights options that protect fish and wildlife** through supporting their needs in decision-making, educating about the role of fishing and boating in the economy, and focusing planning and funding on conservation for cold water streams and rivers.

a. Support fish, wildlife, and ecological needs when balancing economic and social needs in decision-making processes.

b. Share analysis that fishing and boating are Connecticut's top contributor to the outdoor recreation economy.

c. Focus state land conservation plans and funding on conservation lands around cold water streams and resilient river systems.

40. **Encourage protection for inland waters** through further development of policies, education/outreach, research, and funding opportunities that encourage protections for inland waters.

a. Engage partners to develop training on green infrastructure and nature-based solutions for public works and other municipal staff.

b. Enhance education, outreach, and research through goal setting, incentivizing participation, and providing training and data management for monitoring and research projects that can detect climate change impacts on inland waters.

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c. Provide opportunities for coordination and data sharing among individuals participating in citizen monitoring.

d. Develop educational campaigns for climate change adaptation awareness targeted at multiple sectors.

e. Develop and implement opportunities to improve and expand citizen participation in monitoring, including schools, non-profits, and others.

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f. Support opportunities to best utilize federal funding for wastewater infrastructure and wastewater solutions.

g. Support continued funding for the Clean Water Fund.

h. Maintain high standards for Combined Sewer Overflow (CSO) reduction in CSO communities.

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i. Complete comprehensive updates of the Stormwater Quality Manual, Erosion and Sediment Control Guidelines.

j. Evaluate barriers to implementing alternative treatment waste systems (ATS) and integrate and coordinate permitting across DPH and DEEP to enable use and oversight of high performing ATS.

Agriculture and Soils

41. **Reduce conversion of Prime and Important Farmland Soils, active agricultural land, forest land, and other soil landscapes** that provide critical ecosystem functions and values/ goods and services such as groundwater recharge/discharge, protection of headwaters of cold-water streams, public water supply watersheds, floodplains and riparian areas, wetlands, and wetland hydrology, support special habitats and migration corridors for species. According to American Farmland Trust's Farms Under Threat: State of the State from 2001-2016, 23,000 acres of Connecticut's farmland were developed or compromised, the 6th highest percentage in the nation. Baselines of kinds of farm acreage goals should be established, and goals for reduced conversion, and protection established. (citation: Freedgood, J., M. Hunter, J. Dempsey, A. Sorensen. 2020. Farms Under Threat: The State of the States. Washington, DC: American Farmland Trust).

a. Accelerate and streamline the Farmland and Open Space and Watershed Land Acquisition Grant programs with a goal of closing in two years or less and doubling the number of easements closed within four years. Evaluate Grant programs criteria to achieve these goals while including equity, adaptation, mitigation, and resiliency elements.

b. Maintain funding for the farmland preservation program through both the Community Investment Act (CIA) dollars and lump sum bonding; prioritize utilizing the federal "buy-protect-sell" and state "buy-protect-farm" programs and Community Farms Program to expedite farmland preservation process; create farmland access opportunities for the next generation of farmers; protect smaller farms in more urban and suburban communities; and support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other community environmental projects (see Financing/Funding Adaptation and Resilience recommendation #**56d** as amended at the bottom of this memo).

c. Disincentivize location of solar projects on farmland. Incentivize multiple-use projects that allow for solar and agricultural production to co-exist on the same footprint when there are no other prudent and feasible alternatives, and as needed, as part of the farm business and/or succession plan. Develop soil health standards for projects since maintaining soil health on all landscapes needs to be a critical component of the planning, installation, and possible decommissioning of solar arrays.

42. **Increase the adoption of on-farm energy production and reduce on farm energy usage** through enhancing energy efficiency, renewable energy production, renewable natural gas from anaerobic digestion, and composting.

a. Enhance energy efficiency programs available to farms. Increase the funding available for renewable energy production opportunities.

b. Investigate successful models of funding and technical assistance to allow new and innovate farm energy technology.

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c. Identify barriers, risk, and unexpected costs for farms seeking to implement on-farm energy projects and develop tools and assistance to overcome them.

d. Provide technical, financial, and regulatory support for Energize Connecticut Programs where farms can receive assistance in retrofitting their inefficient equipment with high energy measures.

e. Establish a process in which the State may direct the electric distribution companies to enter into long-term agreements to purchase power or renewable natural gas from anaerobic digestion facilities, including policies and incentives to enable on-farm anaerobic digesters.

43. **Strengthen land use planning tools for agriculture** through a more regional approach and updating and streamlining zoning.

a. *Take a more regional planning approach to supporting and planning for Connecticut agriculture*. In Connecticut, land use planning is conducted at the local municipal level. 169 sets of land use regulations have a direct impact on the growth and sustainability of Connecticut farms. Consider adoption of Regional Agricultural Councils such as the Lower CT River Valley Regional Agriculture Council that can take a more regional approach to supporting and planning for Connecticut agriculture.

b. *Reflecting the current industry trends, municipalities should consider eliminating minimum acreages for farms in municipal zoning regulations.*

c. *Municipalities should streamline their planning and zoning rules and regulations and techniques to prevent farmland loss, protect special soil landscapes and improve soil health and water management,* utilizing available technical assistance, including the 2020 American Farmland Trust's and the CT Department of Agriculture's Planning for Agriculture and Conservation Options for Connecticut Farmland guides. Develop Statewide Model P & Z regulations, for adoption, that provide language that supports climate change mitigation, adaptation, and resiliency practices.

44. **Improve soil health practices on all landscapes** through technical assistance and training, education, and outreach, and leveraging federal funding.

a. *Work with partner universities and the CT Agricultural Experiment Station in the state to provide technical assistance* on tillage practices/equipment, soil health practices, grazing/forage management, and lawn and landscaping practices, and controlled environment agriculture. Increase training, technical assistance, and outreach on the programs, tools, techniques, and applied research needed to implement mitigation and adaptation practices. Virtual training should be an important component.

b. *Conduct outreach and education* on the importance of soil health practices, and the value of agriculture and forestry's contributions to mitigation, adaptation, and resiliency.

c. *Raise awareness of the critical need for a strong soil science curriculum for agriculture and environmental science*, particularly in the area of carbon sequestration and storage, and the role of soils in adaptation and resiliency strategies on all landscapes.

d. Leverage federal funding through the United States Department of Agriculture (USDA) and Environmental Protection Agency programs and assistance to accelerate protection and management of

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parcels in public water supply areas, important habitats, flood prone areas, and recharge and discharge areas.

45. **Build a sustainable and equitable food system** through support for local, State, and regional agriculture, and strengthening state grant programs. A sustainable and equitable food system is more than urban agriculture. Building such system will require analyzing the food system "from farm to table, from processing to disposal, ensures economic opportunity; high-quality jobs with living wages; safe working conditions; access to healthy, affordable, and culturally appropriate **food**; and environmental **sustainability** "(retrieved 1.4.21 from policylink.org).

a. Increase urban agriculture initiatives, including support for urban agriculture master plans at the local and regional level.

b. Develop capacity for an urban agriculture program at the CT Dept. of Agriculture, including coordination with CT DEEP's Urban Greens and Community Gardens program to develop complementary policies, funding, and assistance.

c. Allow Senior Farmers Market Vouchers to be utilized with online purchasing platforms

d. Support research initiatives by CT's Colleges, Universities, and Agricultural Experiment Station to develop additional farm and forest adaptation strategies and practices.

46. **Support socially disadvantaged producers** incorporating climate smart agricultural practices by working collaboratively to increase their use in state and federal grant programs.

a. Increase knowledge of federal and state programs including risk management and crop insurance tools.

b. Increase support and outreach to the growing number of socially disadvantaged farmers and producers throughout Connecticut to better understand how climate change is directly impacting this sector of producers and work collaboratively to develop solutions.

c. Establish a Diversity and Race Working Group within the CT Department of Agriculture that will build organizational capacity with the CT Department of Agriculture to work towards creating racial equity across the state's agricultural sector. This initiative must aim to achieve true consultation in stakeholder engagement that goes beyond dissemination of information and asking for input to allowing BIPOC led organizations and producers in the state to influence decision making at the CT Department of Agriculture. Outreach efforts for this working group must be designed to reach diverse demographics with different communication needs and must be coordinated across state, federal and local government, and nonprofits to have collective impact to advance equity and inclusion.

47. **Sustain environmental and soil health** by working with partners to improve research to develop additional weather stations, prediction models and practices for water management, including excesses, droughts, storage, and use.

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48. **Address impacts of climate change to coastal aquaculture and the shell-fishing industry including but not limited to ocean acidification and increase stormwater runoff.**

a. *Join the International Association to Combat Ocean Acidification (OA Alliance)* and commit to furthering the five goals identified in the Alliance's Call to Action: 1) Advance scientific understanding; 2) Reduce causes of OA; 3) Build adaptation and resiliency; 4) Expand public awareness; and 5) Build sustained international support. (cross-listed with Science and Technology)

b. *Evaluate approaches to research, monitor, and address coastal acidification impacts* to natural resources including shellfish, crustaceans, and fish, including a monitoring system for water quality parameters critical to the shell-fishing industry in real-time to forecast potentially high-risk events. (cross-listed with Science and Technology and Public Health and Safety)

c. Identify and develop management strategies to address other impacts from increased runoff, saltwater intrusion into septic systems, and the additional nutrient and pathogen loads to shellfish beds. Provide incentives and disincentives to increase the implementation of practices to improve stormwater and land management in municipalities that impact shellfish beds.

Recommendation 56 d.

*Support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other community environmental projects***.** The authorizing legislation would allow, not require, municipalities to adopt a small and limited buyer's conveyance fee (up to 1% of the value of any real estate transaction valued at $150,000 or greater) on the transfer of real estate This dedicated fee could be used by municipalities to fund municipal land conservation, stewardship, climate mitigation, resilience and adaptation strategies, and other community environmental projects. The legislation would be structured to ensure that the program does not undermine the development of affordable housing in the participating municipalities.

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Connecticut Chapter
P.O. Box 270595
West Hartford, Connecticut 06127
connecticut.sierraclub.org

January 6, 2021

Connecticut Department of Energy & Environmental Protection
Office of Climate Planning
79 Elm Street
Hartford, CT 06106-5127
Via email: deep.climatechange@ct.gov

On behalf of Sierra Club's more than 40,000 members and supporters in Connecticut, thank you for providing this opportunity to comment on the Governor's Council on Climate Change (GC3) Draft Phase 1 Report on Near-Term Actions. We are also submitting comments through the survey tool.

Thanks to Governor Lamont for reconvening the GC3 through Executive Order 3 and the many organizations and advocates who participated and spent countless hours developing recommendations. We particularly applaud the emphasis on centering equity and environmental justice to ensure that planning, decision-making and implementation is just and equitable.

In our previous comments on the draft working group reports, we urged bold and immediate action to achieve the 45% reduction in greenhouse gas emissions from 2001 levels by 2030 and an 80% reduction by 2050 called for by Connecticut statute. While we support many recommendations in this report as important strategies to achieve greenhouse gas reductions, our state needs to establish a goal of **100% zero-emission electricity, transportation and buildings that centers distributed equity and creates good jobs.** This recommendation would tie together the various sectors and set a clear and bold direction for the state. Connecticut would join with other states and cities that have committed to a just and equitable transition to clean and renewable energy. We continue to urge the inclusion of such a goal in this document.

A key area of concern is the absence of strategies to address a major environmental issue facing the state - the continued approval of fossil fuel infrastructure by DEEP and other decision making bodies like the Connecticut Siting Council. Governor Lamont's goal of zero carbon electricity by 2040 cannot be achieved if DEEP continues to approve fossil fuel generation. In 2020 alone, DEEP tentatively approved permits and certifications that will allow a 650 MW fossil gas power plant to be constructed in Killingly and 375 MW to be constructed in Middletown. These approvals are inconsistent with the climate goals of the state and our energy needs. Connecticut has produced more electricity than it needs since 2009. The excess power is sent to other states.[1] And, over the last 10 years fossil gas generation has more than doubled.

[1] U.S. EIA, Connecticut Electricity Profile, 2018, Table 10, Supply and disposition of electricity, 1990 through 2018

To address the Killingly and Middletown power plants specifically, the GC3 should make a recommendation to **suspend any further approvals of these unnecessary and destructive dirty power plants from moving forward**. To address future fossil fuel infrastructure proposals, the draft report should include the Cross-Sector working group recommendation to **require regulatory programs and state decision-making take into account their impact on meeting Connecticut's GHG emissions-reduction goals, and that they account for health and social cost impacts, including co-benefits of non-CO2 pollutants.** Notably, neighboring New York has enacted the Climate Leadership and Protection Act that includes a provision (Section 7(2))[2] that requires all state agency decision-making to ensure consistency with the state's climate commitments. This recommendation is a critical near-term action that was inexplicably left out of this draft report.

We want to make specific note of two recommendations that we strongly support:

Recommendation 9c - Develop a strategic plan for transitioning from fossil fuels to renewable thermal technology.

Sierra Club supports this planning to create an orderly, just and equitable transition from fossil fuels to zero emission all-electric heat pumps. Other states have also recognized the need to do this transition planning including California, New York, Colorado and Massachusetts.

This strategic plan should set end dates for expansion of the gas grid and new gas installations on the existing grid; it should also incorporate recommendations on how to retire the system to fully transition off fossil gas by 2050 or sooner with interim targets that align with the GWSA; it should anticipate environmental justice and labor impacts, and identify steps to mitigate those impacts. Analyses from other states suggest that with careful planning there will be benefits to retirement of the gas system beyond greenhouse gas reductions. While labor impacts specific to Connecticut need to be assessed, a 2019 study in California indicated that retirement of the gas system will create over 100,000 full-time equivalent jobs in the state, even after accounting for losses in the fossil fuel industry.[3]

It should be noted that we have grave concerns about strategies centered around so-called "renewable natural gas" and other fossil gas alternatives, which lack the demonstrated emissions, availability, and cost benefits of electric heat pumps. California has recognized the insufficiency of biogas as a long-term solution to the state's climate goals.

Recommendation 7c - Improve the ability of efficiency programs to overcome health, safety, and legal issues that are barriers to efficiency upgrades. We recommend[4] that DEEP improves the ability to overcome barriers by integrating the various programs for homes, especially low-income programs, into a comprehensive approach through the CL & M Home Energy Solutions and Home Energy Solutions Income-Eligible programs. An integrated, comprehensive program would couple energy efficiency retrofits with removal of health and safety barriers, and replacement of fossil fuel

[2] https://legislation.nysenate.gov/pdf/bills/2019/S6599

[3] Betony Jones, et al., California Building Decarbonization: Workforce Needs and Recommendations, November 2019.

[4] https://66f28e57-02e8-44f5-8613-feb302092242.usrfiles.com/ugd/66f28e_7cbac376d92142fb918518beac823206.pdf

burning equipment and appliances with high efficiency electric alternatives. A comprehensive program that combines energy efficiency and weatherization with these measures will address equity issues while aligning with the climate goals of the state. Connecticut should maximize the use of WAP and LIHEAP funds for this purpose.

Thank you for consideration of our comments.

Sincerely,

Samantha Dynowski, State Director
Sierra Club Connecticut

Subject: GOVERNOR'S COUNCIL ON CLIMATE CHANGE(GC3) COMMENT
Date: Wednesday, January 6, 2021 at 3:47:28 PM Eastern Standard Time
From: eloise hazelwood
To: DEEP ClimateChange

Good Afternoon,

In reviewing the GC3 draft, I am suggesting the group evaluate further the impact to both Subsurface Sewage Systems (SSDS) and the Public Sewer collection system in phase 1 and subsequent phases. As a professor at Southern Connecticut State University proctoring the Water Supply and Wastewater Treatment course, the impact of rising sea levels along with predicted higher storm surges will have a profound impact on both types of sewage removal systems. Thank you for your consideration in this matter and I am available for further assistance/discussion if required.

Respectfully,

--
Stephen A. Civitelli, RS, MPH
Director of Health
CADH President
Health Department
Town of Wallingford
45 South Main Street, Rm 215
Wallingford, CT 06492
Office: 203-294-2065
Fax: 203-294-2064

Subject: FW: GC3 comments
Date: Thursday, January 7, 2021 at 10:22:14 AM Eastern Standard Time
From: Hart, Marybeth on behalf of DEEP ClimateChange
To: Shub, Alec, Allen, Alanis
CC: French, Rebecca
Attachments: NJFAP 2020 final.pdf

FYI

From: Masino, Susan A. <Susan.Masino@trincoll.edu>
Sent: Thursday, January 7, 2021 12:00 AM
To: DEEP ClimateChange <DEEP.ClimateChange@ct.gov>
Subject: GC3 comments

To the GC3,

We need to protect the climate, and at the same time protect clean water, protect nature and protect public health – including our brains. Protecting natural resources for the future and preventing poor health and poor mental health is priceless. Stress (of all kinds) results in short-term decisions and taking the path of least resistance. We must actively avoid this in public policies.

Our best future is the path of science, truth, compassion, caution, and equity. Equity is about many things – including ideas. We need to ask difficult questions. Why is there no protection for headwaters on public land? Old-growth forests? Carbon dense forests? These benefit mitigation and adaptation.

Unfortunately false information was propagated about GC3 reports. See attached. I welcome a fulsome and honest discussion of science that protects the public trust in CT. We need natural intact systems wherever possible. It's essential for the climate and for the future of communities across the state.

Susan A. Masino, Ph.D.
Vernon Roosa Professor of Applied Science
Trinity College

Co-chair, Science and Technology Working Group
Governor's Council on Climate Change

December 1, 2020

To Whom it May Concern,

The New Jersey Department of Environmental Protection (NJ DEP) received a letter dated Oct 19th addressed to the Governor's Council on Climate Change (GC3) in Connecticut and signed by faculty members in the Yale School of the Environment (The Forest School), with respect to the New Jersey Forest Action Plan 2020.

The letter refers to draft reports of the Science and Technology Working Group of the GC3 (I am co-chair), the Forests Working Group (I attended regularly), and the original peer-reviewed paper on proforestation as a natural solution (I am a co-author). I am restricting my comments to these topics whereby the letter is based on a false premise and mispresents peer-reviewed science.

The **false premise** is that the draft reports "*call to prohibit timber harvesting on CT's state forestlands*." **Not true.** See details below. The draft and final reports are available here:

https://portal.ct.gov/DEEP/Climate-Change/GC3/GC3-Working-group-reports

The Forests draft report suggested reserves on 100,000 acres of state forestland. Currently 72,000 acres are treated as reserves (i.e., a proposed increase of ~30,000 acres, or <2% of State forestland). Of note:

- Connecticut has the *least protected forest in the region*. The draft report proposed to formalize these reserves (i.e. forestland protected from timber harvesting, as defined by the USDA Forest Service) and protect core forests (an identified State priority).
- The proposed reserves are <6% of the forestland and <3% of Connecticut overall. The majority of Connecticut forestland is owned privately and would have been unaffected.

The Science and Technology draft report did not call to prohibit timber harvesting. In the draft an "emerging recommendation" was *prioritize proforestation* (allowing existing natural forests to grow) *where suitable* to mitigate climate change, protect species, and provide clean water and healthy ecosystems for all.

- The Working Group focused on *climate impacts*, *essentials* and ***multisolving*** to provide co-benefits for climate, ecological integrity, equity, community resilience and public health.
- Areas such as headwaters, old-growth, riparian and wildlife corridors, special habitats, interior forest, carbon-dense, and/or invasive-free areas were identified for consideration.
- Proforestation can accumulate and protect carbon, complexity and native species (above and below ground) over time - including those yet-to-be discovered. This is critical for science and to prioritize resources to areas needing maintenance or intensive restoration.
- The report recommended equitable and local systems (equipment depots, partnerships) to support local jobs and businesses that process local wood so it is not exported or burned.

In short, we proposed a positive set of opportunities and a comprehensive science-based climate approach that *1)* supports natural ecosystems on a suitable subset of public land; *2)* funds research and prioritizes evidence-based intervention; *3)* supports local communities by keeping jobs and resources in Connecticut, thereby reducing emissions and protecting communities from disruption and impacts of climate change.

A **misrepresentation** is that the letter refers to proforestation as a "recent political movement" that intends to "ban" management (and even people) from forests. Proforestation is an internationally recognized scientific term, I am not aware of a "political movement" and the latter claims are not true.

Briefly, proforestation is a recent term for allowing some natural forests to grow and accumulate carbon and complexity over time. The original peer-reviewed paper synthesized data that compared "managed" forests to "passive" or "unmanaged," *i.e.* wilderness, wildlands, National Parks, the Adirondacks, and similar: https://www.frontiersin.org/articles/10.3389/ffgc.2019.00027/full

We need to forge balanced solutions, not misrepresent proforestation and foment false divisions within our communities. Hundreds of leading climate scientists, ecologists, and conservation biologists worldwide recommend proforestation: https://sites.tufts.edu/gdae/files/2020/05/EU-Forest-Letter-3.pdf

Perhaps some grassroots groups misunderstand proforestation. *Regardless, our public agencies, teachers and scholars should engage in honest debate that informs and educates the public.* **If not us, then who?**

Decisions should be made based on climate science and an inventory of the local ecology, based on evidence and ongoing data collection and analysis. Research is a *strong recommendation* of the Science and Technology report. Protecting the climate, biodiversity, clean water, health, and the processes of evolution and natural selection are all urgent environmental priorities inherent in protecting the long-term public trust.

Natural baselines, inventories, reference conditions, lifecycle analyses, dependent variables and/or unbiased control groups are essential in science. They are required to assess silviculture, habitat programs, ecological forestry, demonstration forests, product substitution, and various "treatments."

Natural solutions are *vital* to the climate and the planet. Some forest ecosystems are healthy and/or in recovery. Some may need evidence-based restoration. As the most biodiverse terrestrial ecosystem a forest is a rich and proven source of new molecules and medicine; trees live hundreds of years, and myriad species form complex networks developing over hundreds of years. Human knowledge has only scratched the surface. *We need more science, long-term funding, and long-term data on natural forest ecosystems. We need humility.*

In closing, I hope the final Forest Action Plan is ***science-based, precautionary and adaptive***. Forests are a beloved and valuable public asset for so many reasons: they offer preventative and restorative health, especially in densely populated states. Stewardship should include climate scientists, ecologists, soil scientists, and health professionals - as well as foresters. We need cooperation. And when science is unsettled, ***first do no harm.***

Respectfully,

Susan A. Masino, Ph.D. (Biology), Acting Director of Neuroscience
Vernon Roosa Professor of Applied ScienceTrinity College

Charles Bullard Fellow in Forest Research (2018-2019)
Harvard Forest / Harvard University

Co-chair, Science and Technology Working Group (2020)
Governor's Council on Climate Change (GC3, in Connecticut)

January 6, 2021

To: Members of the Governor's Council on Climate Change
deep.climatechange@ct.gov

Re: Greenwich Tree Conservancy Comments on GC3 Phase 1 Draft Report

The Greenwich Tree Conservancy welcomes this opportunity to provide input on Phase 1 Near-Term Actions Report of the GC3, *Taking Action on Climate Change and Building a More Resilient Connecticut for All.* Having commented on working group reports throughout this process, we applaud the time and focus that that GC3 committee and its many subgroups have devoted in response to the Governor's Executive Order No. 3 to better position Connecticut for the worsening effects of climate change. We look forward to providing comment on Phase II.

The Greenwich Tree Conservancy (GTC), a 501(c)(3) non-profit, was founded in January, 2007 because of a shared concern that there is insufficient recognition of the importance of urban trees in enhancing our community, our health, our ecosystems and our quality of life.

Our comments are focused on the Working and Natural Lands Group sections. We believe the report needs to:

- expressly note the role of urban forests in mitigation, adaptation and resilience. Urban forests provide benefits that are magnified by being close to people but that proximity also leads to additional stressors that are apart from those in core forests.
- strengthen the recommendations to provide a goal orientation – rather than "consider" or evaluate," we need to "implement" or "adopt" with the consideration and evaluation being elements that naturally would occur during the pursuit of the goal.
- explicitly state at outset that separate working groups were created out of necessity to cover such an expansive mandate in a short time but that recommendations are interconnected, and they should be viewed synergistically because an action proposed in one area,e.g., transportation, can impact another area, e.g., forests.

As an organization whose mission is to preserve and enhance Greenwich's urban forest, we offer specific comments below on selected sections.

Cheryl Dunson
President

Greenwich Tree Conservancy
January 6, 2021
Comments on Selected Sections of GC3 Phase 1 Draft Report

Working and Natural Lands

24. **Adopt usable models to both reliably monitor and report on carbon sinks and the climate change/ecosystem services of working and natural lands**, including models developed by federal, state, academic, and nonprofit partners as well as any efforts of the U.S. Climate Alliance as part of considering a negative emissions strategy alongside reported emissions for the building, energy, and transportation sectors. (cross-listed with Science and Technology, Progress on Mitigation Strategies)

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25. **Adopt policies and best practices for siting of renewable and non-renewable energy infrastructure in order to avoid loss of forests, farmland and other sensitive lands.** As Connecticut deploys large-scale solar projects, it is important that this development does not supersede other climate change mitigation strategies, including the carbon sequestration potential of natural and working lands. The state should encourage developers to site their projects on brownfields, rooftops, parking lots, and other developed spaces. (cross-listed with Progress on Mitigation Strategies)

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Forests

26. **Implement a statewide "no-net-loss of forest" (NNLF) policy.** Create a working group with mandate of "no-net-loss of forest" policy to include best practices, needed resources, and associated programs to maximize adaptation, resiliency and mitigation potential. This policy should include the following paramenters: ; avoid forest conversion; protect healthy, intact forests; offset all planned or permitted forest losses; provide incentives for stewardship, forest retention, and forest resiliency; and protect urban forests, build more parks, and plant more trees.

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27. **Increase adaptation and resilience of Connecticut's forests** through keeping forests as forests and supported actions to maintain un-fragmented forests.

a. *Support keeping core forests as forests and implement mechanisms to achieve this goal,* such as encouraging private landowners to protect forestland through easements, ecosystem payment mechanisms, and strong markets for local forest products.

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NEW c. Support actions to preserve and enhance CT's urban forests such as encouraging municipal adoption of policy governing the planting, maintenance, removal and protection of trees on municipal lands;adopting UCONN *Stormwise* or similar refined approach for managing vegetation in our transportation and utility corridors for maintainence of edge forests' ecosystem/climate services; in the absence of adopting a refined vegetative management approach require planting new trees with the right trees in the right places to prevent transportation conflicts; implementing urban tree canopy assessments for identification of critical areas for urban reforestation; implementing training on green infrastructure and nature-based solutions for public works and other municipal staff; providing incentives for low impact development.

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28. **Increase mitigation of greenhouse gases in Connecticut's forests** through sequestration and storage of carbon.

a. Adopt *a goal of permanent protection of at least 50% of core forests greater than 250 acres by 2040* and identify resources that would be needed to achieve that goal.

b. Develop plans to increase statewide forest cover from 59% to over 60% by 2040, including the identification of individual municipal goals to help achieve the overall state goal.

c. *Implement new and improved guidelines for vegetation management* utilized by electric utilities, Department of Transportation, and public works that are consistent with Connecticut's mitigation, adaptation and resilience objectives.

d. *Adopt improved forestry practices in Connecticut's urban and working forests* by following scientific principles including the emerging body of knowledge on how to manage forests for resilience and to store and sequester carbon.

29. Preserve and enhance urban forests to **protect vulnerable communities from climate change.** Support programs in urban forestry to develop and expand community interest in tree planting, parks, and/or community gardens in densely populated areas to support climate solutions that could meet multiple needs such as protecting against extreme heat events and increasing health outcomes, employment, and entrepreneurial opportunities and the Social Determinants of Health, and ecosystem services such as air quality improvement, flood prevention, stormwater renovation. Create a Youth Conservation Corps to help community-based groups with implementation.

30. **Protect forests with a changing climate** through state and federal land acquisition, stewardship and protection programs, best management practices, and research for adaptive management.

a. Revise Connecticut's Green Plan and open space grant programs to prioritize acquisition of land and conservation easements for habitats with the most climate resilience benefits.

c. Use research-based approaches for adaptive management of ecosystems vulnerable to climate change

31. **Identify funding, programs, and resources needed for implementation of recommendations.**

NEW c. Enable legislation for municipalities to establish a conveyance fee to fund land preservation and climate change mitigation, adaptation and resilience projects.

d. Strengthen the Urban Green and Community Garden Program to include Urban Forest Improvement Projects.

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33. **Communicate the value of wetlands to Connecticut home and business owners through engagement on climate resilience efforts,** including through natural hazard mitigation planning, education on better management of private lands, and utilizing nature-based strategies for addressing water inundation.

c. *Prioritize nature-based adaptation strategies that will ameliorate the effects of water inundation,* including natural habitat conservation, tree planting, Low Impact Development (LID) Best Management Practices (BMPs), agriculture water BMPs, and drinking water treatment standards. (cross-listed Science and Technology)

34. **Further develop policies that encourage protections for wetlands under a changing climate**, including integrating the latest climate science into stormwater and floodplain management and prioritizing acquisition of land at risk from climate change.

a. Integrate the newest rainfall data modeling into stormwater models and management tools and ensure coastal floodplain planning is informed by the state's sea level rise scenarios.

b. Prioritize acquisition of land and conservation easements for ecosystem services most at risk from climate change, leveraging Connecticut's Green Plan open space grant programs and Community Investment Act funding. Enable legislation for municipalities to establish a conveyance fee to fund land preservation and climate change mitigation, adaptation and resilience projects.

36. **Re-establish free-flowing character and connectivity of inland waters and hydrological connectivity** by exploring programs to eliminate physical barriers in streams, encouraging nature-based adaptive restoration and solutions, and incorporating culverts into hazard mitigation planning.

a. *Promote programs that will eliminate physical barriers to stream connectivity.* As part of a program the following should be considered: identifying resources to remove barriers; assessing impacts of road crossing designs; engaging partners to develop educational content on dam removal; and identifying, assessing and prioritizing known barriers in the state, the removal of which would lower flood risk and allow for stream and habitat connectivity and promote resilient ecosystems.

37. **Create safe, equitable opportunities for people of diverse backgrounds to access and enjoy water resources** through strengthening grants; enhancing programs that better engage and inform underserved communities and improve their access to freshwater resources; and improving staff training and diversity.

a. *Strengthen Open Space and Watershed Land Acquisition grants, Recreation and Natural Heritage Trust Program, Community Investment Act, Section 319 nonpoint source grants access opportunities for vulnerable communities*. Enable legislation for municipalities to establish a conveyance fee to fund land preservation and climate change mitigation, adaptation and resilience projects.

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38. **Promote demand-side water conservation and water reuse** by reducing transmission losses and developing educational programming.

b. *Work with partners to develop educational programming and outreach* to educate the public as to where their drinking water comes from, the connection between a healthy wooded environment and clean drinking water.

40. **Encourage protection for inland waters** through further development of policies, education/outreach, research, and funding opportunities that encourage protections for inland waters.

a. Engage partners to protect urban forests by developing training on green infrastructure and nature-based solutions for public works and other municipal staff.

Agriculture and Soils

44. **Improve soil health practices in urban, suburban, and rural and farm areas** through technical assistance and training, education and outreach, and leveraging federal funding.

b. *Conduct outreach and education* on the importance of soil health practices, and the value of forests and agriculture's contributions to mitigation, adaptation, and resiliency.

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Yale SCHOOL OF PUBLIC HEALTH
Center on Climate Change and Health

January 6, 2021

VIA ELECTRONIC FILING deep.climatechange@ct.gov

Dear Members of the Governor's Council on Climate Change:

The Yale Center on Climate Change and Health (YCCCH) appreciates this opportunity to provide comments on the Draft Phase 1 Near-Term Actions Report of the Governor's Council on Climate Change (GC3), *Taking Action on Climate Change and Building a More Resilient Connecticut for All.*

We congratulate the GC3 on the conclusion of Phase 1, which has led to the development of mitigation and adaptation recommendations that are both expansive and actionable. We offer the following comments in support of the report, drawn in part from the YCCCH report, *Climate Change and Health in Connecticut: 2020 Report* (executive summary appended).

YCCCH strongly encourages the GC3 to prioritize and pursue actions that simultaneously deliver greenhouse gas reductions and immediate health co-benefits, thereby maximizing societal benefits. For instance, switching to clean energy sources and electrifying the heating and transportation sectors are mitigation actions that also reduce the emissions of other air pollutants harmful to human health, including particulate matter and ozone precursors. Health benefits will be even greater when these mitigation actions are prioritized to occur first in environmental justice communities that are exposed to disproportionate pollution burdens. We ask the GC3 and Department of Energy and Environmental Protection (DEEP) to assure that public health expertise is at the table when assessing policy options, to be sure that decisions reflect a "health in all policies" approach and that health benefits are maximized. In this vein, we recommend that a Connecticut Department of Public Health representative join the GC3 Mitigation Subcommittee.

Additionally, we encourage the GC3 to prioritize and pursue actions that also make investments in the social determinants of health. Social factors, including housing, education, employment, income, and access to medical care, are major drivers of population health. Addressing the social determinants of health is fundamental to improving health and reducing health disparities, and climate change makes this imperative even more urgent. The GC3 recommendations around housing are good examples of such a synergistic action. In particular, the recommendation to address health barriers to weatherization is critical. Home weatherization can improve energy efficiency and thereby lower the household energy cost burden and reduce carbon emissions, improve indoor air quality, and make housing more climate resilient. Again, we urge the GC3 and DEEP to assure that public health expertise is represented across GC3 work stream issue areas to help identify and craft these multi-solving solutions.

Finally, we make note that during Fall 2020, a team of Yale and Vermont Law School students supported the GC3 Public Health and Safety (PHS) Working Group and the Equity and

Environmental Justice Working Group by conducting research on relevant topics. The team prepared initial findings on best practices to address the subtopics of mental health and food insecurity, which were addressed in limited capacity in the PHS working group report. While their work is not conclusive, we would be pleased to share it for discussion, if that is useful.

Respectfully,

Laura Bozzi, PhD
Director of Programs
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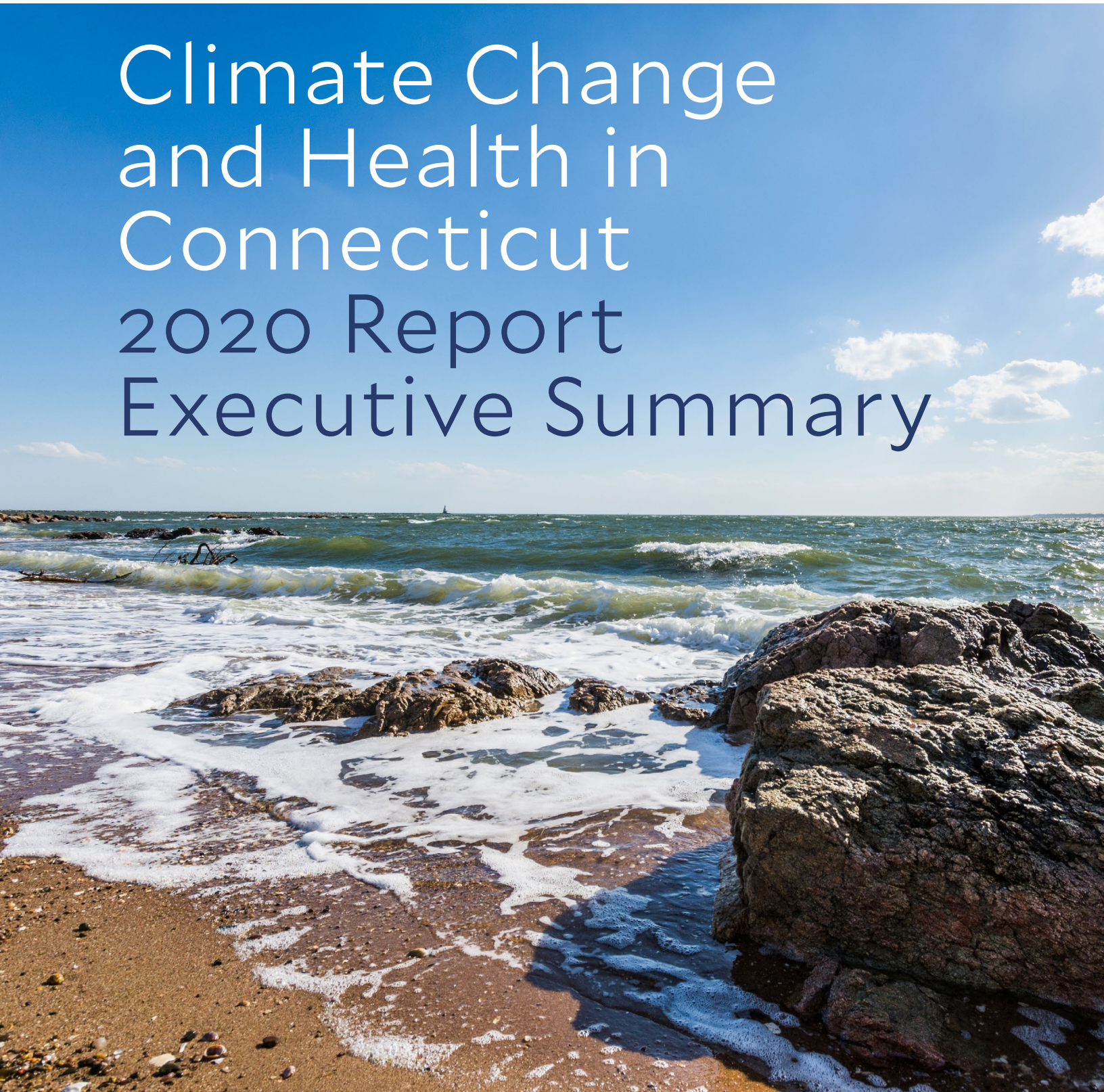
YALE CENTER on
CLIMATE CHANGE
and HEALTH

Climate Change and Health in Connecticut 2020 Report Executive Summary



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SUGGESTED CITATION

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THE YALE CENTER ON CLIMATE CHANGE AND HEALTH utilizes research, education, and public health practice to help safeguard the health of human populations from adverse impacts of climate change and human activities that cause climate change. To protect health, we work with academic, government, and civil society partners to utilize science to contribute toward sharply reducing greenhouse gas emissions and building resilience to the climate change impacts that continue to occur. We aim to make local, national, and international impact and to integrate social justice into all of our work.

More information about the Yale Center on Climate Change and Health can be found at: https://publichealth.yale.edu/climate.


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EXECUTIVE SUMMARY

This report tracks 19 indicators related to climate change and health in Connecticut. Its purpose is to inform policymakers, health professionals, advocates, and residents about the impact of climate change, now and in the future, on human health in Connecticut. The indicators have been developed using publicly available data from state and federal agencies, peer-reviewed literature, and medical associations. Where possible, we directly track trends in health impacts (e.g., West Nile virus infections; emergency department visits and hospitalizations for heat stress). However, because of the relative paucity of Connecticut-specific data on health impacts associated with climate change, we also track environmental and climate conditions (e.g., drought; outdoor allergens) that can lead to adverse health outcomes.

We note trends when they are statistically significant, and wherever possible we report indicator results for each county. Some of our indicators demonstrate a trend over time consistent with what is expected under climate change, such as increasing average temperatures and heavy rainfall events. Other indicators do not yet show a trend, but scientific studies project changes as the planet continues to warm (see PANEL). The number of heat waves, for example, is projected to increase, in turn causing more heat-related illness.

There is overwhelming evidence that the dominant cause of warming temperatures is human activities, particularly from the emissions of greenhouse gases through the burning of fossil fuels (i.e., coal, oil, and natural gas), as well as from other activities including livestock production and deforestation.[1] Greenhouse gases warm the planet by acting like a blanket that traps heat from the Earth that would otherwise escape into space; the more greenhouse gases in the atmosphere, the more heat is trapped. In this report, we track indicators related not only to the impacts of climate change, but also to impacts caused by the drivers of climate change (specifically, air quality impacts largely driven by fossil fuel combustion).

While climate change affects everyone, it does not affect everyone equally. Climate change is sometimes called a "risk amplifier," meaning that many existing

PROJECTED CLIMATE CHANGE PHYSICAL IMPACTS

University of Connecticut researchers projected climate change impacts in Connecticut employing a high greenhouse gas emissions scenario (RCP 8.5, or "business as usual," in which no efforts are made to reduce emissions). Under this scenario, the following impacts are projected for mid-century (2040–69), compared with 1970–99:

- 5 ºF increase in annual mean temperature
- 8.5% increase in annual precipitation, due primarily to increases in winter and spring
- Greater flood risk due to the increase in heavy rainfall events
- Extreme summer droughts that occur three times as often[4]

The Connecticut Institute for Resilience and Climate Adaptation recommends planning for 20 inches (0.5 meters) of sea level rise by 2050, with continued sea level rise to occur after 2050.[5,6] Higher sea levels lead to more severe storm surges associated with coastal storms. In addition, as climate change progresses, Atlantic hurricanes are expected to become more intense (higher sustained wind speeds), with greater amounts of precipitation.[7]

risks to health—derived from environmental, economic, demographic, social, or genetic factors—are intensified by climate change impacts.[2, 3] Populations disproportionately vulnerable to the effects of climate change include those with low income, communities of color, immigrant groups (including those with limited English proficiency), Indigenous people, children and pregnant women, older adults, vulnerable occupational groups, people with disabilities, and people with preexisting or chronic medical conditions.[3]

KEY FINDINGS

The following section presents the report's key findings for each of the 19 indicators, along with a brief explanation about the indicator's relationship to climate change and health. A complete description of each indicator, including data figures, is found in the full report.

TEMPERATURE

INDICATOR 1: AVERAGE ANNUAL TEMPERATURE. Average annual temperature increased by 3.0–3.5 ºF in each county from 1895 to 2019. The increase in average temperature has wide-ranging effects, including for human health. For instance, warmer nighttime temperatures can be especially dangerous, particularly for people living in urban areas and for those without access to air conditioning. This is because cool nights are typically an opportunity for the body to cool down; without this cooling-off time, heat waves can be even more perilous.

INDICATOR 2: EXTREME HEAT DAYS. From 1950 to 2018, the number of extreme heat days (days with maximum temperature over 90 ºF) did not change significantly in any county. However, under climate change, such extreme heat days can be expected to increase, which is a significant concern for human health. Extreme heat days can be especially dangerous in cities because of the urban heat island effect, a phenomenon in which urban areas are hotter than surrounding areas because of the density of buildings and roads and the lack of trees, other greenery, and streams, rivers, ponds, and lakes.

INDICATOR 3: FROST DAYS. The number of frost days (days with minimum temperature at or below 32 ºF) decreased from 1950 to 2018 in four of the eight counties: Middlesex, New London, Tolland, and Windham. Fewer frost days, an earlier winter-spring transition, and a later fall-winter transition transform the natural environment in ways that can negatively affect human health, including by creating conditions for larger tick and mosquito populations that are active over a greater proportion of the year; a longer season for ragweed pollen,[8] which causes hay fever and exacerbates asthma; and a greater abundance of and longer seasons for plant pests, adversely affecting both forests and agriculture.[9]

INDICATOR 4: EMERGENCY DEPARTMENT VISITS AND HOSPITALIZATIONS FOR HEAT STRESS. From 2007 to 2016, there were on average 422 emergency department visits and 45 hospitalizations per year for heat stress in Connecticut. It is important to note, however, that the numbers of emergency department visits and hospitalizations are likely underreported; medical personnel often mistakenly fail to attribute the cause of illness to extreme heat, especially in a state like Connecticut where heat-related illness may not be as common as in some other parts of the country. Heat-related illnesses, such as heat exhaustion or heat stroke, happen when the body is not able to properly cool itself. Heat stroke can cause damage to the brain and other vital organs, or even death.

INDICATOR 5: POPULATIONS VULNERABLE TO HEAT-RELATED ILLNESS. This indicator tracked the following groups that are especially vulnerable to heat-related illness: outdoor workers (farm laborers; workers in the landscape and construction industries), people experiencing homelessness, and people age 65 and older. **The number and proportion of people over 65 in Connecticut is increasing, while the number of**

people experiencing homelessness is decreasing. The number of people in the other groups shows no trend over time. Together, these populations represent a substantial number of people at risk for heat-related illness.

EXTREME EVENTS

INDICATOR 6: HEAVY RAINFALL EVENTS. From 1960 to 2019, the annual number of heavy rainfall events (three consecutive days with cumulative precipitation of 3 inches or more) increased in New Haven, Hartford, Litchfield, Tolland, and Windham counties. Heavy rainfall can overwhelm the natural and human-made systems that normally process rainwater, leading to flooding along river systems and in urban areas. Flooding can cause injury and death due to drowning; can lead to indirect health impacts from disruption to medical care and critical infrastructure; and can result in human exposure to pathogens or toxic chemicals through their release into floodwaters or drinking water sources.[10] Heavy rain and flooding also can adversely affect indoor air quality by causing mold growth, chemical off-gassing from damaged building materials, and formation of other air contaminants.[11,12] Exposure to extreme events, including flooding, is associated with a range of mental health impacts, such as post-traumatic stress disorder.[12]

INDICATOR 7: HIGH TIDE FLOODING. The annual number of days with high tide flooding has increased at the New London and the Bridgeport tide gauges, a trend consistent with the 8–9 inches of global sea level rise since 1880. High tide flooding occurs when seawater temporarily inundates low-lying areas until the tide recedes. As the flooding becomes more common or greater in magnitude or both, it can have an adverse effect on health. Flooding can transmit pathogens such as *Vibrio* bacteria, which can cause wound infections among people walking through the water. Saltwater can contaminate drinking water sources near the coast, as well as coastal agricultural fields. With a highly developed coastline, Connecticut also is at risk for high tide flooding affecting a large number of roads, homes, businesses, and other infrastructure.[13]

INDICATOR 8: DROUGHT. While there is no significant trend toward increased drought in any county, Connecticut has recently experienced disturbing droughts, including a 46-week statewide drought in 2016–2017. Expected impacts of moderate drought include increased wildfires, stressed trees and landscaping, and lake and reservoir levels below normal capacity. As a drought worsens, impacts expand, with particular concerns about agriculture, wildlife, and wildfires. Drought strains drinking water systems by lowering surface water reserves and contributing to saltwater intrusion into freshwater aquifers along the coast. The prolonged 2016–2017 drought raised awareness in Connecticut that river basins can become depleted, even though water scarcity has not typically been a problem for the state in the past.[14]

INDICATOR 9: DRINKING WATER RESERVOIR CAPACITY. We found no indication of a trend toward lower reservoir levels. Climate change may affect drinking water availability by increasing the intensity or frequency of droughts, storms, and other system shocks. Droughts, especially if prolonged, lower water levels in reservoirs (and wells), an impact we investigated through this indicator. Hurricanes may damage drinking water system infrastructure, as occurred during Hurricane Irene in 2011.[15,16] Wells near the coast may be at risk for contamination from saltwater intrusion due to sea level rise and drought. Blue-green algae blooms—and more dangerously, harmful algal blooms—are more likely as surface water sources warm with rising temperatures.[17]

INDICATOR 10: WEATHER DISASTERS. From 2010 to 2019, nine federal disaster declarations for weather events were issued for Connecticut, compared with only 13 in the previous 56 years. Following those nine disaster declarations, the Federal Emergency Management Agency provided a total of $304.6 million in combined individual and public assistance grants to

support recovery efforts. Nationally, weather disaster events are rising, with significant economic and social cost: 2019 was the fifth consecutive year in which the country endured 10 or more billion-dollar weather disaster events.[18] Over the past five years, the total cost of these disaster events nationally was approximately $500 billion.[18]

INDICATOR 11: SUPERFUND SITES. Seven of Connecticut's 16 Superfund sites are vulnerable to climate change impacts, including flooding and hurricane storm surge. Under the U.S. Environmental Protection Agency's Superfund program, the federal government identifies and cleans up contaminated sites to protect human health and the environment. In Connecticut, these sites range from old industrial sites to waste lagoons, quarries, and landfills. Climate change is making coastal storms more intense and extreme precipitation events and coastal and inland flooding more frequent, which may further damage Superfund sites and potentially release contaminants into ground or surface water, the air, or the soil.[19]

INFECTIOUS DISEASES

INDICATOR 12: MOSQUITOS. During 2001–2019, of 28 mosquito species found in Connecticut to carry viruses that cause human disease, 10 show trends of increasing abundance and three show trends of decreasing abundance. Mosquito abundance is a key factor that influences the capacity of a mosquito to transmit a virus and the rate at which infections spread. A high abundance is often a prelude to an epidemic.[20] Each of the mosquito species we tracked has been found in Connecticut to carry one or more of the following viruses: Cache Valley, Eastern equine encephalitis, Jamestown Canyon, Trivittatus, or West Nile.[21] Mosquitos, which are ectothermic (i.e., cold-blooded), can thrive in a warmer world.[22] As Connecticut becomes warmer, disease-carrying mosquitos may become even more abundant.

INDICATOR 13: WEST NILE VIRUS INFECTIONS. During 2000–2018, the number of reported symptomatic cases per year of West Nile virus infection, the leading mosquito-borne disease in the United States,[23] varied from 0 (2004 and 2009) to over 20 (2012 and 2018). Only about one in five people infected with West Nile virus show symptoms, which can include fever, headache, muscle pains, and rash. In very rare cases (1%), the infection can cause serious illness affecting the central nervous system, which can be fatal.[24] West Nile virus is transmitted by *Culex* mosquitos. Under INDICATOR 12, we found that one *Culex* species (*Culex salinarius*) has exhibited an increasing trend, which may be influenced by warmer weather or changes in precipitation patterns caused by climate change.

INDICATOR 14: EASTERN EQUINE ENCEPHALITIS. Connecticut's first reported human case of Eastern equine encephalitis, a rare mosquito-borne disease, occurred in 2013. In 2019, four cases were reported, of which three were fatal. Most people infected with this virus have no symptoms. Only in rare cases does an infected person develop a central nervous system infection; in these cases, Eastern equine encephalitis can be fatal. It is transmitted by *Aedes*, *Coquillettidia*, and *Culex* mosquitos. INDICATOR 12 shows that *Aedes albopictus*, *Culex salinarius*, and *Coquillettidia perturbans* are increasingly abundant in Connecticut, which may be influenced by warmer weather or changes in precipitation patterns caused by climate change.

INDICATOR 15: LYME DISEASE. Reported cases of Lyme disease declined from about 3,700 per year in 2008–2010 to about 1,900 per year in 2016–2018. Lyme disease, a bacterial disease transmitted to humans by the blacklegged tick, is generally cured with treatment; without treatment, symptoms can progress to severe joint pain and swelling, facial palsy, heart palpitations, inflammation of the brain and spinal cord, and nerve pain or numbness.[25] Transmission of Lyme disease occurs seasonally, with the most cases in Connecticut reported in June and July.[26] Cases may have declined because people are taking protective measures such as applying tick repellant and wearing

long pants and sleeves when outdoors. Shorter and milder winters and earlier springs projected under climate change may lead to earlier tick activity and larger tick populations.[27] But extreme heat and drought increase tick mortality, so climate change also may lead to a countervailing force on tick abundance.[28]

INDICATOR 16: FOODBORNE *VIBRIO* INFECTIONS. **The annual number of confirmed cases of foodborne *Vibrio* infections has increased.** *Vibrio* bacteria live naturally in warm coastal waters, especially in lower-salinity estuaries. Humans can become infected by eating contaminated seafood that is raw or undercooked. Symptoms include abdominal cramps, nausea, headaches, diarrhea, fever, and chills. As sea surface temperature rises, the abundance of *Vibrio* increases.[29] In Connecticut, summer near-surface water temperature is increasing at a significant rate on Long Island Sound,[30] consistent with the increase in *Vibrio* foodborne infections.

AIR QUALITY

INDICATOR 17: GROUND-LEVEL OZONE. Since 1990, the annual number of days on which ground-level ozone exceeded safe levels decreased in all counties, but more improvements are needed to fully protect human health. In fact, the American Lung Association gave all eight Connecticut counties an F grade for ozone pollution in its 2019 *State of the Air Report*.[31] The decreasing ground-level ozone trend in Connecticut (and nationally) is due to national and state environmental regulations, including those that limit emissions of precursor pollutants from the burning of fossil fuels in vehicles, power plants, and industry. Ground-level ozone is a strong lung irritant that can cause respiratory symptoms, asthma exacerbation, and premature death. In the Northeast's urban areas, the hottest days are associated with the highest concentrations of ground-level ozone.[9] This combination of extreme heat and poor urban air quality poses a major health risk to vulnerable groups, especially those with asthma and other preexisting respiratory conditions.[9]

INDICATOR 18: FINE PARTICULATE MATTER ($PM_{2.5}$). Since 1999, the annual number of days on which fine particulate matter exceeded safe levels decreased in Fairfield, Hartford, New Haven, and New London counties. No days meeting $PM_{2.5}$ Air Quality Index categories of unhealthy, very unhealthy, or hazardous have been reported in any of the five monitored counties in at least the past eight years. (There are no $PM_{2.5}$ monitoring stations in Middlesex, Tolland, and Windham counties.) As with ground-level ozone, this improvement in $PM_{2.5}$ pollution can be attributed to national and state environmental regulations that limit $PM_{2.5}$ emissions produced by the burning of fossil fuels in power plants, vehicles, and industrial sources. Exposure to $PM_{2.5}$ causes or aggravates heart and lung conditions and can cause premature death. Communities of color often live near power plants, major roads, and industrial facilities, increasing their exposure to $PM_{2.5}$ (as well as to ground-level ozone and other pollutants).

INDICATOR 19: OUTDOOR ALLERGENS (MOLD AND POLLEN). Since 2007, the percent of measured days with "high" or "very high" outdoor mold concentrations has increased. Concentrations of tree, grass, or weed pollen did not have increasing or decreasing trends. Nevertheless, increased carbon dioxide emissions and higher temperatures are expected to worsen allergies by lengthening the pollen season, raising the amount of pollen produced by plants, and possibly increasing the allergenic potency of the produced pollen, which would cause more intense allergic reactions.[32–34] Higher temperature and humidity have been found to promote the growth of mold outdoors.[35–37]

CONCLUSION

To protect human health now and in the future, Connecticut decision makers and residents alike must undertake strong action to confront the challenges identified in this report. First, this means swift action to mitigate climate change by reducing greenhouse gas emissions. Under its *2008 Global Warming Solutions*

Act and *2018 Act Concerning Climate Change Planning and Resiliency*, Connecticut has committed to reducing greenhouse gas emissions below 2001 levels by 45% by 2030 and 80% by 2050. Other states have committed to even more significant cuts, suggesting that Connecticut has further to go: New York, for instance, set a target of net-zero greenhouse gas emissions by 2050. Second, Connecticut must expand its work to prepare for and adapt to the climate change impacts that have begun and will worsen in the future. The Governor's Council on Climate Change now guides both efforts, with policy recommendations anticipated in early 2021 as part of the updated *Adaptation and Resilience Plan* for Connecticut and the council's annual report on the state's climate mitigation progress.

With this in mind, we offer seven crosscutting recommendations to support equitable, science-based, and holistic mitigation and adaptation actions to protect human health.

1 Monitor current conditions and project trends for Connecticut

To make rapid and effective responses based on data, decision makers need systems in place that monitor environmental and climatic changes and that track climate-sensitive health outcomes. Also needed is more research that projects Connecticut-specific impacts of climate change on human health in the future and identifies vulnerable populations. The state should pursue funding opportunities and partnerships to support the collection, monitoring, analysis, and dissemination of these critical data.

2 Invest in the social determinants of health

Social factors, including housing, education, employment, income, and access to medical care, are major drivers of population health. Climate change makes the imperative of addressing these social determinants to improve health and reduce health disparities even more urgent.[38] Actions to address climate change mitigation or adaptation that also invest in the social determinants of health produce synergistic benefits and should be prioritized.

3 Tackle the upstream drivers of climate change and health disparities

It has been aptly stated that "the root causes and upstream drivers of climate change and health inequities are often the same: Our energy, transportation, land use, housing, planning, food and agriculture, and socioeconomic systems are at once key contributors to climate pollution and key shapers of community living conditions."[39] Furthermore, these systems are "shaped by current and historical forces that include structural racism and the persistent lack of social, political, and economic power of low-income communities and communities of color."[39] Addressing climate change and health inequities requires confronting these upstream drivers by challenging historic and systemic burdens, including environmental pollution, income inequality, racism, and inequitable access to power and resources.

4 Pursue actions that integrate mitigation, adaptation, and immediate health benefits

Measures that combine climate change mitigation and adaptation with immediate health benefits should be prioritized. For example, increasing forested green space in coastal urban areas accomplishes mitigation because trees absorb carbon dioxide from the atmosphere; accomplishes adaptation because trees reduce the urban heat island effect through evapotranspiration and shade provision and because green space reduces flood risk; and provides immediate health benefits of space for physical activity, improved mental health, and healthier shellfish in Long Island Sound.

5 Build the capacity of health professionals and decision makers in other sectors to address climate and health

Most health professionals did not learn about climate change and its health effects in their formal training, and many other decision makers lack specific knowledge about how their issue area relates to climate change and health. Incorporating this material into health and other higher education curricula, as well as continuing education courses, would help close this key knowledge gap and prepare the workforce to make informed decisions under a changing climate.

This challenge should be addressed through combined efforts of colleges and universities, public health agencies, and professional associations.

6 Incorporate climate change into decision making across sectors

For both adaptation and mitigation efforts to be effective, climate change needs to be considered and incorporated into planning and investment at all levels of government. To do so requires that climate change not be treated as a siloed issue that can be addressed in isolation by personnel and policies focused only on climate change. Rather, inter-sectoral collaboration is essential.

7 Incorporate public health into climate change decision making

A "health in all policies approach" calls for public health representatives to be at the table when making policy decisions ranging from urban planning to transportation to voter registration.[40] Public health considerations should be incorporated into all climate change policymaking. An encouraging sign in Connecticut is that the Department of Public Health now has a seat on the Governor's Council on Climate Change. Its role on the council should fully cover both adaptation and mitigation workstreams, particularly given the opportunities for immediate health benefits from mitigation.

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