

Governor's Council on Climate Change Work Group Updates

July 15, 2020

23 Members of the Governor's Council on Climate Change

100
Contributing Organizations



0 Carbon Target
for electricity sector by
2040



7 Critical Work Group
Focus Areas

- Progress on Mitigation Strategies
- Working and Natural Lands
- Science and Technology
- Equity and Environmental Justice
- Infrastructure and Land Use Adaptation
- Public Health and Safety
- Financing Adaptation & Resilience

162
Individual Work
Group Members

A blue icon representing a group of people, consisting of several stylized human figures of varying heights and positions.

Progress towards implementing a
45% reduction
in CO₂ levels by 2030

1 Statewide Adaptation & Resilience Plan

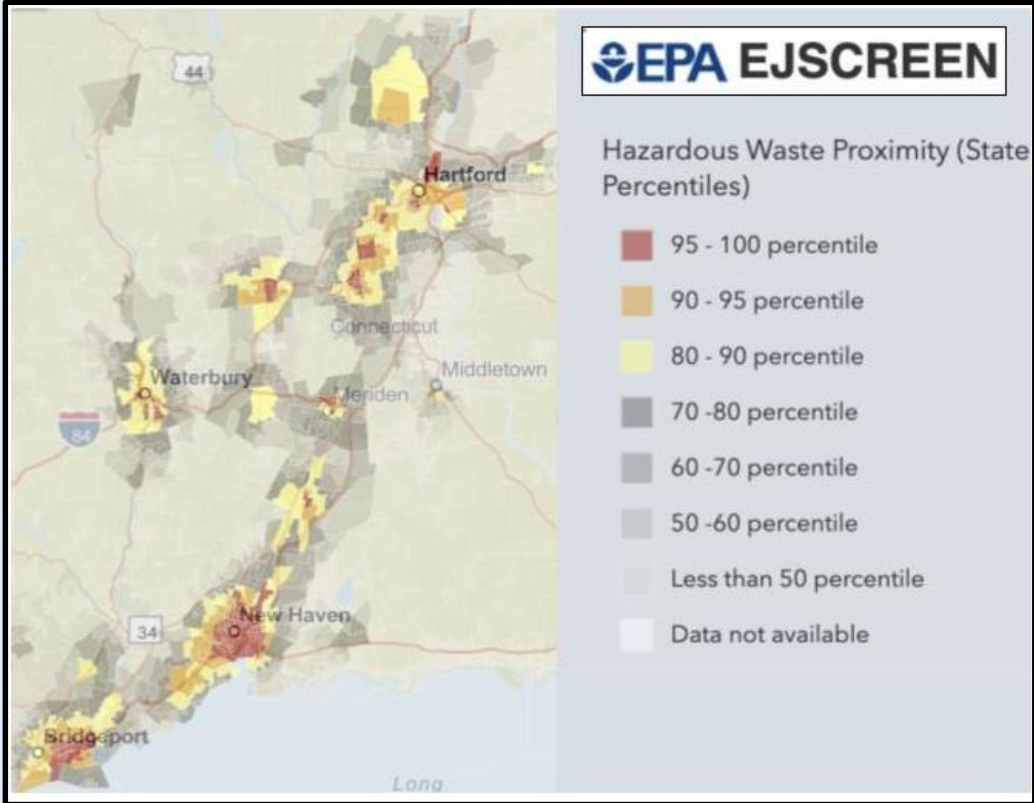
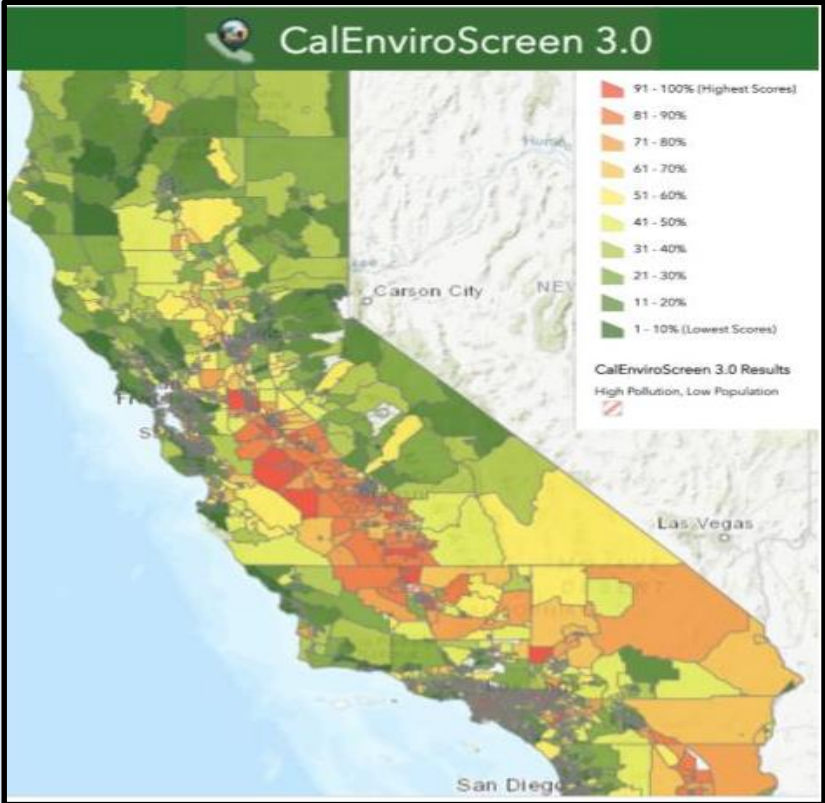
Equity & Environmental Justice

Equity & Environmental Justice

Lee Cruz, co-chair

- Thank you: *EEJ engaged with working groups on recommendations*
- Activities
 - Established subcommittees
 - July 29th Meeting: Working and Natural Lands, Forests Subgroup Presenting
 - Planning stages of EJ webinars
 - Recommendations
 - Public Participation/Remote Participation Guidance (online)
 - EJ Mapping Tool

EJ Mapping Tools



Public Participation

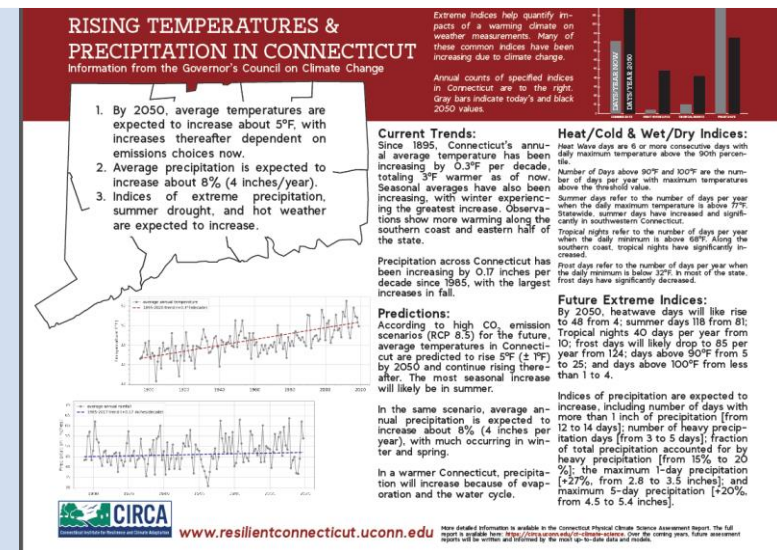
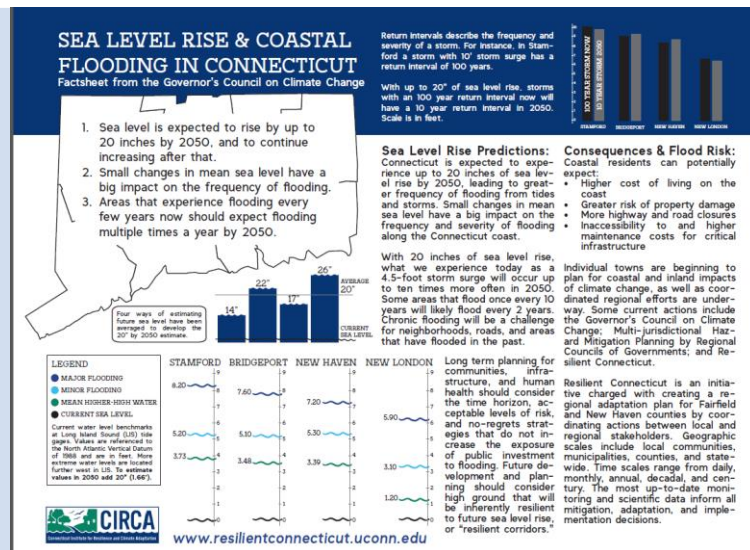
- Draft Public Participation Guidance
 - Transparent & Accountable Decision-Making
 - Accessible & Inclusive Decision-Making
 - Equal Partnerships, Co-Production, and Self-Determination
 - Respect, Efficiency & Non-Exploitation
- Draft Remote Public Participation Guidance
 - Best Practices for Remote Engagement
 - Use of Internet, Telephonic, and Other Remote Tools for Public Engagement

Science & Technology

Preface: There is high confidence in projected changes through mid-century. Projected changes after mid-century have higher scientific uncertainty AND WILL depend on mitigation actions taken in Connecticut and globally

- Sea level is expected to rise by up to 20 inches by 2050 and to continue to rise after that.
- Small changes in mean sea level have a big impact on the frequency of coastal flooding.
- Areas that currently experience flooding every few years should expect flooding multiple times a year by 2050

- By 2050, average temperatures are expected to increase about 5°F. Warming will continue after that at a rate determined by emissions of CO2.
- Average precipitation is expected to increase ~8% (~4 inches/year).
- Indices of extreme precipitation, summer drought, and hot weather are expected to increase.



- IPCC, 2014: “People who are socially, economically, culturally, politically, institutionally, or otherwise marginalized are especially vulnerable to climate change” This is likely to be true in CT too.
- Measuring climate change impacts on vulnerable communities in CT should be a priority.

Science and Technology – Climate Impacts and Issues

Guiding principles: **ecosystems, communities, health - now and in the future**

Unbiased independent science, w/o conflicts of interest. Question silos, business as usual.

Interdisciplinary evaluation and repository - avoid wrong turns, unintended consequences.

Prioritize health - of the planet and the public – including mental health.

Together these principles motivate action and planning and engender public trust.

Practical, evidence-based actions with co-benefits and harm reduction

FLOWER analysis – solving common interconnected problem. “Multisolving”

Ex: public transportation, natural systems, green infrastructure, community action.

Community resilience, Connecticut as a leader with the GC3 process

Identify essentials, support local systems across CT, consider the pandemic a “stress test”

Understand limits of science and tech; ECOLISE report on critical role of “local”

Consistent Messaging, Education and Focus on Cultural Change

We need mental health / science, data and facts / social norming / common sense.

Worldwatch Institute, Yale Climate Communications, Sustainable CT



Climate Interactive at MIT:

<https://www.climateinteractive.org/ci-topics/multisolving/flower/>

Google “CT DEEP webinar multisolving”

Progress on Mitigation Strategies

Overall – State’s mitigation initiatives need systematic attention to EEJ ([Brenda Watson](#))

Cross-sector ([Charles Rothenberger](#))

- Need to align all state actions with GHG goals
- To effectively capture benefits of carbon emissions reductions, need to attribute appropriate “cost value” to these emissions
- Need to actively engage municipalities as partners in reaching GHG goals
- Need to align mitigation and adaptation/resiliency efforts

Non-energy sector ([Charles Rothenberger](#))

- Need to reduce “passive” sources of GHG emissions
- Need to be cognizant of role that agriculture and forestry can play in mitigation and adaption

Transportation sector ([John Humphries](#))

- Need to accelerate efforts to electrify transportation
- More attention needed for policies and programs that will reduce vehicle miles traveled in single-occupant vehicles
- Adoption of Transportation Climate Initiative MOU is essential

Buildings sector

([Bernie Pelletier](#))

- ‘Sweeps’ of ratepayer funds to balance state budget cripple energy-efficiency (EE) programs
- CT must directly address physical and financial/legal barriers that impede many EE projects
- EE cost-effectiveness testing model is outdated
- Property owners often bewildered by complexities of energy improvements, incentives, financing, sequencing
- Equity and environmental justice are crucial to making significant progress on EE

Electricity sector

([Mike Li](#))

- Need to continue existing programs supporting *grid-scale generation* (e.g., offshore wind) to attain goals identified in Integrated Resources Plan
- Need to develop successor programs for *distributed generation* (e.g., rooftop solar) to attain deployment goals in line with the modeling results of Integrated Resources Plan

Working & Natural Lands

Working and Natural Lands Working Group Progress – Percent Complete

| | Public Meetings | 2011 Plan Review | Report Outline | Draft to GC3 |
|-------------|-----------------|------------------|----------------|--------------|
| Agriculture | 100 | 80 | 75 | 50 |
| Forests | 100 | 100 | 100 | 80 |
| Rivers | 70 | 75 | 75 | 50 |
| Wetlands | 90 | 90 | 100 | 50 |

WNLWG - Notable Findings

- **Agriculture/Soils**
 - Climate resiliency and food system resiliency are linked; improvements made to one benefit the other.
 - Increase flexibility between state and federal programs and grant awards like exist in other New England states.
 - Program (e.g., VT, MA) needed to support anaerobic digesters to increase alternative energy production and improve nutrient management.
- **Forests**
 - Connecticut's forests are generally the same age and lack vertical diversity which reduces resilience to changing climatic events.
 - Mitigation and adaptation strategies must include considerations for the 70% of CT forests in private ownership.
 - Connecticut needs better tools to quantify tree and forest carbon storage and sequestration at a landscape level.
 - Opportunity exists for investing in CT's urban forest; improved street tree care, replanting trees, improved utility tree management practices.
- **Rivers**
 - Improve and create consistency in land use management standards that to protect inland waterways.
 - Improve funding models (municipal, state and federal) for green infrastructure to surpass water quality and quantity goals.
 - Impacts of climate change and the adaptive measures needed must be effectively communicated to the public.
 - Elevate the implications of a changing climate on rivers in the public conversation.
- **Wetlands**
 - Critical importance of blue carbon and the role of subaqueous soils
 - Encouraging regional COGs to adopt "Green Cover" models to avoid negative impacts of engineered solutions.
 - The protection of coastal marsh areas needs to be made a priority in coastal zone planning at all levels.
 - Reduce/eliminate coastal development into CT's narrow coastal plain zone.

Public Health & Safety



Public Health & Safety Work Group

Update and Statement of Scope



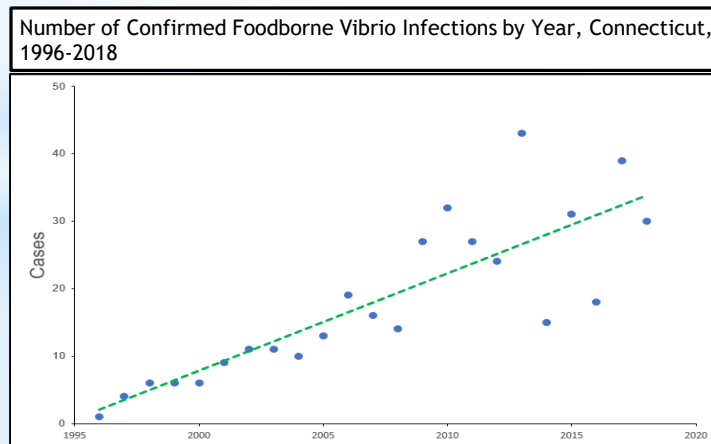
- The Public Health and Safety Work Group represents over 40 public health professionals, academic researchers, climate resilience planners, health equity and environmental justice representatives, and environmental consultants.
- Our scope is the suite of planning and implementation actions needed to address present-day and foreseeable threats to the protection and improvement of the health and safety of all people of Connecticut associated with climate change, with a focus on health equity.
- Key components are assessments to identify vulnerable populations, projections of future disease burden, assessments of suitable intervention for health impacts of greatest concern, coordination to facilitate implementation of recommended actions, and review of intervention effectiveness.

| Health Impact Domains | Water-borne Illnesses |
|--------------------------------|---------------------------|
| Temp-related Illness and Death | Nutrition and Food Safety |
| Extreme Events | Mental Health |
| Air Quality Impacts | Vector-borne Diseases |

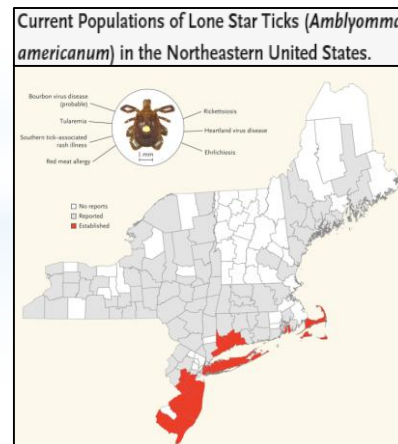
Public Health & Safety Work Group

Examples of Health Impacts

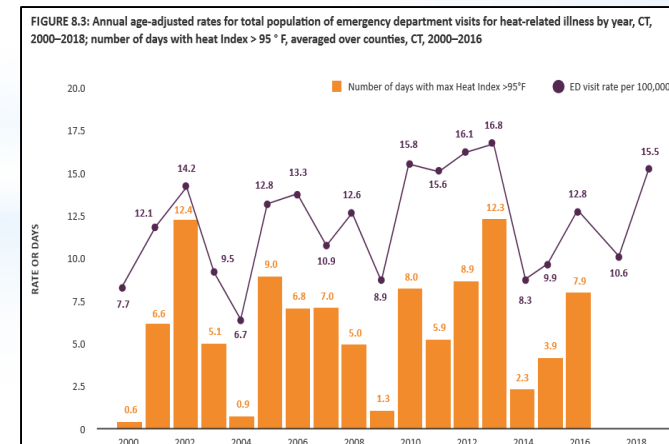
- Warmer water temperatures also enable the expansion of the geographic range for toxin-producing marine algae, freshwater algal and cyanotoxins, and *Vibrio* bacteria that can cause illness from direct water contact and shellfish consumption (Trtanj et al., 2016).
- The lone star tick has long been established in the southeastern U.S. (Cooley and Kohls 1944) but is expanding into areas of the northeastern U.S. with no previous record of activity [Dahlgren et al. 2016; Stafford et al. 2018] because of abundant reproductive hosts, an increasingly hospitable climate, and genetic plasticity (Molaei et al. 2019).
- Recent studies indicate an upward trend in annual and seasonal average temperatures (CTPCSAR 2019, Thibeault and Seth 2017). Research in the neighboring state of Rhode Island found that an increase in maximum daily temperature from 75 to 85°F was associated with a 23.9% higher rate of in heat-related ED visits (Kingsley et al. 2016).



Source: Yale Center on Climate Change and Health. *Climate Change and Health in CT: 2020 Report (DRAFT)*.



Source: Molaei, G. et al. 2019. NEJM 381: 2189-2192.



Source: Healthy Connecticut 2025 State Health Assessment

Infrastructure & Land Use Adaptation

Infrastructure and Land Use Adaptation: Scope

Transportation

- Resilience of the state's transportation infrastructure and assets including roads, highways, bridges, bus transit, rail operations, bicycle and pedestrian amenities, ports and airports.
- Comprehensive, multi-jurisdictional planning
- Transportation system is equitable and accessible for all Connecticut residents

Land Use & Buildings

- Conservation and development practices at all scales, from neighborhoods to the entire state.
- Location of future development, specifically targeting currently developed areas while prioritizing the conservation and preservation of natural areas.
- Current and future building practices, sustainable development and community health; sustainable building materials and practices such as passive house, especially for affordable housing development projects

Utility Infrastructure

- Focus on critical infrastructure groups necessary for the economic resilience and physical health and safety of all people of Connecticut.
- Communications, Fuel, Drinking Water, Waste Water, Electricity, Stormwater & Flood Control, Dams; recognizing interconnectedness
- Support local and regional planners as well as local and state officials and all utility stakeholders.

Infrastructure and Land Use Adaptation: Strategies

Transportation

- Vulnerability assessments of infrastructure and systems
- Assessment, planning and decision-making tools and best practices based on best available science
- Dry egress/evacuation route planning & coordination

Land Use & Buildings

- Create a state-wide municipal community resilience program (similar to MA & RI)
- Establish Stormwater Utilities and a state-wide Resilience Authority
- Improve Building Codes
- Integrate climate change projections and adaptation objectives into Plans of Conservation & Development and Zoning
- Enhance Low Impact Development, green infrastructure, open space (incl. urban green space), acquisition/buyout of vulnerable properties

Utility Infrastructure

- Inventory and geo-locate vulnerable utility facilities; geo-locate and prioritize vulnerable populations
- Integrate updated climate risk into state-wide planning (e.g., State Water Plan)
- Unified preparedness and recovery response across all utility sectors
- Conduct integrated assessments of vulnerability and service continuity across all sectors
- Study of vegetation management in areas of high-value, mature urban and suburban trees

Financing Adaptation & Resilience

Financing Resilience and Adaptation Work Group: Findings

- ***Current major funding source is federal.*** Majority of resilience work nationally and in Connecticut is tied to federal disaster dollars.
- ***Revenue streams are more difficult for resilience projects than energy projects.*** Resilience is cost savings by avoiding loss rather than reduced energy costs. Alternate revenue streams must be identified for financing or need to monetize avoided costs.
- ***Climate resilience impacts bond ratings.*** Bond ratings agencies are now asking about the climate change issues facing the state, what mechanisms Connecticut has in place for shoreline resiliency, etc.
- ***Insurance is an underutilized adaptation tool and financing opportunity.*** In events like Sandy, 90% of the loss was due to flood, but only about 20% of homeowners and businesses who are eligible for flood insurance purchase it.
- ***Critical need for shovel-ready projects when funding becomes available.*** Nature-based and green infrastructure solutions have multiple financing options, but potentially more difficult to be shovel-ready without more up front investment.
- ***Municipalities struggling*** to put together funding for resilience projects even when they are identified.