EBC Climate Leadership Webinar:
Massachusetts Climate Programs & Priorities for 2020
Keynote Presenter: David Ismay, EEA
Welcome

Daniel K. Moon

President & Executive Director
Environmental Business Council
Keynote Presentation: Massachusetts 2020 Climate Change Programs & Priorities

David Ismay

Undersecretary for Climate Change
Executive Office for Energy & Environmental Affairs
Commonwealth of Massachusetts
Reducing GHG Emissions
• Net Zero
• Roadmap Analysis
• TCI Update

Building Climate Resilient Communities
• Statewide Adaptation Planning
• MVP Program Update
• S.10: An Act for Infrastructure Investments in the Commonwealth
What is Net Zero by 2050?

MA Historical & Hypothetical Future GHG Emissions
(Forecasts shown are illustrative ONLY and do NOT represent actual model results)

- Transportation
- Non-Energy
- Difference Between Net and Gross Emissions
- MassDEP GHG Inventory
  - (NZ Residual)
- Electricity Consumption
- Buildings
- Net Carbon Sink
- 80x50 (Gross)
- Net-Zero Emissions

- + 15%
- 0%
- - 15%
A level of statewide greenhouse gas emissions that is equal in quantity to the amount of carbon dioxide or its equivalent that is removed from the atmosphere and stored annually by, or attributable to, the Commonwealth; provided, however, that in no event shall the level of emissions be greater than a level that is 85 percent below the 1990 level.

- Determination of Statewide Emissions Limit for 2050 (Apr. 22, 2020)
Need to Reduce Emissions Across All Sectors

14.6 MMT Reduction

0.2 MMT Increase

6 MMT Reduction

0.7 MMT Reduction

1990

2017

GHG Emissions (MMT CO2e)

Electricity
Transportation
Buildings
Non-Energy

30%
32%
31%
7%
19%
42%
32%
8%
The “what” and “by when” → a complete portfolio of reliable energy supply sufficient to serve projected demand (w/anticipated economic and population growth) – annually through 2050 – that is technically capable of delivering desired final emissions levels supporting Net Zero x 2050.

Study is examining and outlining in detail more than a half-dozen pathways – each capable of delivering desired final emissions levels – to give MA viable options grounded in “best-in-class” objective analysis.
Operations and investment decisions are co-optimized iteratively across the study period to ensure portfolio reliability.

Comprehensive, bottom-up energy system model purpose-built for long-term decarbonization analysis.
• Net Zero is “do-able” with existing technology
  • Requires higher pace than 80x50
  • Protecting and building carbon sink becomes necessary

• 2020s are critical for market transitions - by 2030:
  • VMT reductions + ~ 50% of new light-duty sales = ZEV
  • New buildings = super high-performance / zero-on-site carbon emission
  • New market/utility engine for building retrofits
  • New wholesale electricity market system to drive and sustain large additions of TX and renewables

• Transition can be done cost-effectively
  • *Early action/investment pays off*; stock-rollover transition points (e.g., furnace or vehicle replacement) critical to keeping cost impact low

• Likely need to drive the market
  • Performance standards, incentives, price signals, and regulations working together
Updates on the TCI Regional Policy Development Process

May 15, 2020 — In light of the unprecedented need for governors and agencies to respond to the impacts of the COVID-19 pandemic, the Transportation and Climate Initiative jurisdictions have shared an adjusted timeline for developing a regional clean transportation program.

Under the revised schedule, a final Memorandum of Understanding is now expected in the fall of 2020, at which point, each jurisdiction will decide whether to sign the MOU and participate in the regional program. The timing for signing the MOU has shifted to the fall, but work on the program details continues and engagement with stakeholders will continue to inform the process.

Over the next several months, TCI jurisdictions together will be working on:

- Identifying investments, initiatives, and complementary policies that will further reduce pollution, benefit public health, create jobs, and accelerate economic recovery in the wake of the pandemic.
- Economic and public health modeling to analyze how emissions reductions and investments in low-carbon transportation infrastructure will benefit people, businesses, and communities, particularly communities already bearing disproportionate impacts from pollution and lack of access to economic opportunities.

States continue to work on developing a draft Model Rule to release for public input following the final MOU.
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Massachusetts State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) - September 2018

14 hazards

Over $9.1M in damages/year, 2007-2014
On average, 6 events/year, 2009-2018

- Inland flooding
- Drought
- Landslide
- Coastal flooding
- Coastal erosion
- Tsunami
- Extreme temperatures
- Wildfire
- Invasive species
- Hurricanes/Tropical storms
- Severe winter storms / Nor’easters
- Tornadoes
- Other severe weather
- Earthquakes

200+ critical facilities in tornado hazard zones

108 actions, including:

- Develop climate change design standards
- Maintain and enhance climate change projections
- Incorporate climate effects into capital planning functions
- Create MA Coastal Flood Risk Model

Leading by Example

ResilientMA Action Team (RMAT)

Municipal Vulnerability Preparedness Program (MVP)
RMAT: Resilient MA Action Team

Responsible for the State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) implementation, monitoring, and maintenance, with representatives from each Secretariat and key state agencies.

Climate Change Coordinator Responsibilities:

- Participate in quarterly meetings, annual and post-disaster plan reviews, and 5-year updates
- Coordinate completion of required actions for each Executive Office
- Ensure new data is incorporated into the SHMCAP
- Increase general understanding of the SHMCAP through outreach, engagement, socializing the CC Clearinghouse
- Build collaborative partnerships to implement the SHMCAP
- Lead the SHMCAP’s 5 year update
RMAT: The first year

Climate Resilience Standards & Capital Planning Tools for Agencies

**PROJECT DELIVERABLES**

**STANDARDS**

*Climate Resilience Standards*

The standards will provide a risk-based process that identifies climate design adjustments to be used for planning efforts. The standards will be developed using case studies that represent different asset types, geographic locations, and criticality levels.

The standards will be uploaded to ResilientMA.org with downloadable materials, including case study examples and excel templates.

**GUIDELINES**

*Guidelines on Best Practices and Applying Standards*

The guidelines will use case studies to explain how to incorporate the standards into projects. The guidelines will include checklists and forms to document the use of climate resilient standards in procedures such as procurement and project review.

The guidelines will be uploaded to ResilientMA.org with downloadable materials, including checklists, forms, and case studies.

**TOOL**

*Web-based Capital Planning Tool*

The web-based tool will be an interactive application that enables users to quantify the resilience benefits of a project for capital planning purposes. The tool will include metrics for climate resilience along with social, environmental, and governance considerations.

The tool will be an online application hosted on ResilientMA.org, with a downloadable user’s manual that includes example projects from capital planning.
Developing climate resilience standards

Tiered Methodology

→ Translate climate parameters into design criteria based on risk

**TIER 1**
- Most level of effort required, ex.
  - High criticality assets
  - Substantial infrastructure investments
- Collect additional field data (ex. stream flows, tide gauges)
- Develop site-specific climate model using available parameters
- Perform risk-based analysis to identify design criteria

**TIER 2**
- Average level of effort required, ex.
  - Service life < 50 years
  - Limited public health/safety risk
- Use existing climate model data with a risk-based climate “factor of safety”
- Tables with climate design criteria based on criticality and design life

**TIER 3**
- Least level of effort required, ex.
  - Temporary structures, service life < 10 years
  - Green infrastructure projects
- Where feasible, incorporate Tier 2 design standards
- If not feasible, use current design standards

- Most level of effort required, ex.
  - High criticality assets
  - Substantial infrastructure investments

- Average level of effort required, ex.
  - Service life < 50 years
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- Least level of effort required, ex.
  - Temporary structures, service life < 10 years
  - Green infrastructure projects
MVP Principles

A community-led, accessible process that

- Employs local knowledge and buy-in
- Utilizes partnerships and leverages existing efforts
- Is based in best available climate projections and data
- Incorporates principles of nature-based solutions
- Demonstrates pilot potential and is proactive
- Reaches and responds to risks faced by EJ communities and vulnerable populations

Why nature-based?
Where appropriate, nature-based solutions can be more cost-effective, protect water quality and quantity, sustain lands that provide food and recreation opportunities, reduce erosion, and minimize temperature increases associated with developed areas and climate change.
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1. **Inland flooding**
   Extreme precipitation and precipitation-induced flooding, ice jams, dam failures

2. **Severe winter storms**
   Snow/Ice storms, Nor’easters

3. **Average/Extreme temperatures**
   Extreme heat, extreme cold, average higher temperatures
Risk and Response

Top Vulnerabilities
1. Stormwater Management
2. Emergency Management & Preparedness
3. Water Use/Supply
4. Natural Resources
5. Public Health & Safety

Top Priority Actions
1. Emergency Management & Preparedness
2. Stormwater Management
3. Data & Maps
4. Regulations, Zoning, & Policy
5. Resilient Electric Grid
<table>
<thead>
<tr>
<th>Task</th>
<th>Responsibility</th>
<th>Month/Year</th>
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<td>Annual Implementation Updates</td>
<td>All Lead State Agencies</td>
<td>May 2020</td>
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<td>Annual Plan Review</td>
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<td>5-Year Plan Review and Update</td>
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<td>Final SHMCAP Update (2023) Published</td>
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To the Honorable Senate and House of Representatives,

I am filing for your consideration a bill entitled “An Act Providing for Climate Change Adaptation Infrastructure Investments in the Commonwealth.”

This bill provides a dedicated revenue stream for the Global Warming Solutions Trust Fund, which will be used to expand funding for Commonwealth communities preparing to meet the challenges of climate change.

Climate change is a reality faced by all of the Commonwealth’s cities and towns, and my Administration has taken measures to identify climate-related vulnerabilities and to address them. An important next step in confronting the hazards posed by climate change is to upgrade our infrastructure statewide and utilize nature based solutions to reinforce resilience and reduce climate-related risks.

This bill proposes a modest increase in the deeds excise, which is imposed on sellers of real estate, and dedicates the increase to the Global Warming Solutions Trust Fund. The incremental funds will be made available to cities and towns to invest in climate smart infrastructure that protects public health, safety, and property across the Commonwealth.
Thank You

2050 Roadmap Website: https://www.mass.gov/info-details/ma-decarbonization-roadmap

TCI Website: https://www.mass.gov/info-details/transportation-climate-initiative-tci

MVP Website: https://www.mass.gov/municipal-vulnerability-preparedness-mvp-program

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