



# Hingham Climate Action Plan: An Introduction

**Presented to:**

Hingham Climate Action Planning Committee

24 March 2022

## Contents

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**Objective:** Introduce the Energyzt team and workplan for developing a climate action plan for Hingham

### **Agenda:**

- Introductions
- Climate Action Plans
- Project Workplan
- Next Steps

Appendix A: Links to MA Climate Action Plans

**This presentation is our official kick-off to produce Hingham's Climate Action Plan**

Hingham Climate Action Plan: An Introduction

# INTRODUCTIONS

## Introductions

# About Energyzt

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Founded in 2013, Energyzt is a limited liability corporation registered in Massachusetts and is a privately-held 100 percent woman-owned business. Since its inception, Energyzt was designed as a 21<sup>st</sup> century consulting company, with virtual offices located at the choice of each consultant, all of whom come together as needed to create the optimal team for the client's needs.



### **GLOBAL TEAM OF ENERGY EXPERTS**

Energyzt is a global collaboration of energy experts who create value for our clients through actionable insights. Combining deep industry expertise with state-of-the-art analytical capabilities, we help governments, policy-makers, and companies make informed business decisions that create competitive advantage.



### **MULTIDISCIPLINED AREAS OF EXPERTISE**

Energyzt consists of a core team of energy experts representing the power sector, transmission, natural gas industry, coal markets, environmental policy, and finance, along with an overseas team that offers operational research, software programming and modeling support.



### **APPLIED EXPERIENCE**

Members of the Energyzt team have long-standing history working in industry, economic consulting firms, management consulting firms, private equity, research companies, engineering companies and government. The combination of industry expertise, market experience, and advanced analytics brings a unique set of market insights that are supported by facts and defensible in a court of law or regulatory hearing.

**Energyzt is a local energy advisory firm bringing world-class expertise to Hingham**

## Introductions

# Tanya Bodell

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### Energyzt Project Team



MBA, Massachusetts  
Institute of Technology

MPP, University of  
Chicago

BA Mathematical  
Economics, Pomona  
College

#### **Tanya Bodell, Executive Director**

For more than 25 years, Ms. Bodell has provided business advice and expert support to clients in the energy industry. Using economics, finance, business decisions analysis and a deep understanding of public policy impacts, she advises existing and new entrants looking to invest in the energy sector, informing their decisions on corporate strategy, investment opportunities, market conditions, asset valuation, mergers/acquisitions, restructuring, regulatory outreach and market analysis. Her clients range from government to energy industry participants. She has been a regular speaker and writer on industry topics and serves as the Chair of the Cohasset Alternative Energy Committee and recently completed a two-year term as the President of the Northeast Energy Commerce Association.

**Connection to Hingham:** Applying her college volleyball skills, she coached Hingham Girls Volleyball for two years while her youngest daughter was in Middle School. Her mother-in-law currently lives in the Shipyard and her family frequents Hingham restaurants and stores frequently. She often races her International 210 in Hingham Harbor and is Vice President of the Eastern Chapter of the 210 Association.

**Tanya will be the Officer-in-Charge**

## Introductions

# Virginia LeClair

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### Energyzt Project Team



**BA Public Policy  
(Environmental  
Studies), Hobart and  
William Smith Colleges,  
Geneva, NY**

#### **Virginia LeClair, Director**

Virginia LeClair (Ginny) has over 18 years of experience in sustainable planning, energy efficiency, land use management, conservation, sustainable and equitable transportation and renewable energy. Her work focuses on community climate action and resiliency planning with the goal of advancing equitable solutions for clean energy, mobility and resiliency within communities. Prior to joining Energyzt, Virginia served as the Environmental Coordinator for the Town of Dedham from 2007-2020 where she was responsible for the environmental programs, grant funding and creation of the Sustainable Dedham Climate Action and Resiliency Plan. Prior to Dedham, Virginia was the Conservation Assistant for the Town of Brookline, where she benchmarked greenhouse gas emissions and assisted the Town in drafting their award-winning Open Space Plan.

**Connection to Hingham:** Virginia used to live in Hingham and her husband's family still lives there. She served on the board of the Hingham Energy Action Committee from 2010-2013.

**Virginia will serve as the Project Manager, responsible for day-to-day operations**

## Introductions

### John Malloy Jr.

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### Energyzt Project Team



**BA Finance, Peter T.  
Paul College of  
Business and  
Economics, University  
of New Hampshire**

**Hingham High School**

#### **John Malloy, Senior Associate**

John has been a consultant with Energyzt for four years. During this time he has performed a number of advanced quantitative analyses using publicly-available industry data including ISO-NE market data, hourly load data, hourly locational marginal prices, and EIA projections. He has generated price projections using PLEXOS and integrated Energyzt's PLEXOS model with GPCM, a national gas market model, analyzed the output data, modified the input data and summarized the conclusions in clear presentations. John has played a key role compiling and analyzing data for a number of Energyzt projects, including cost/benefit analyses of renewable energy projects.

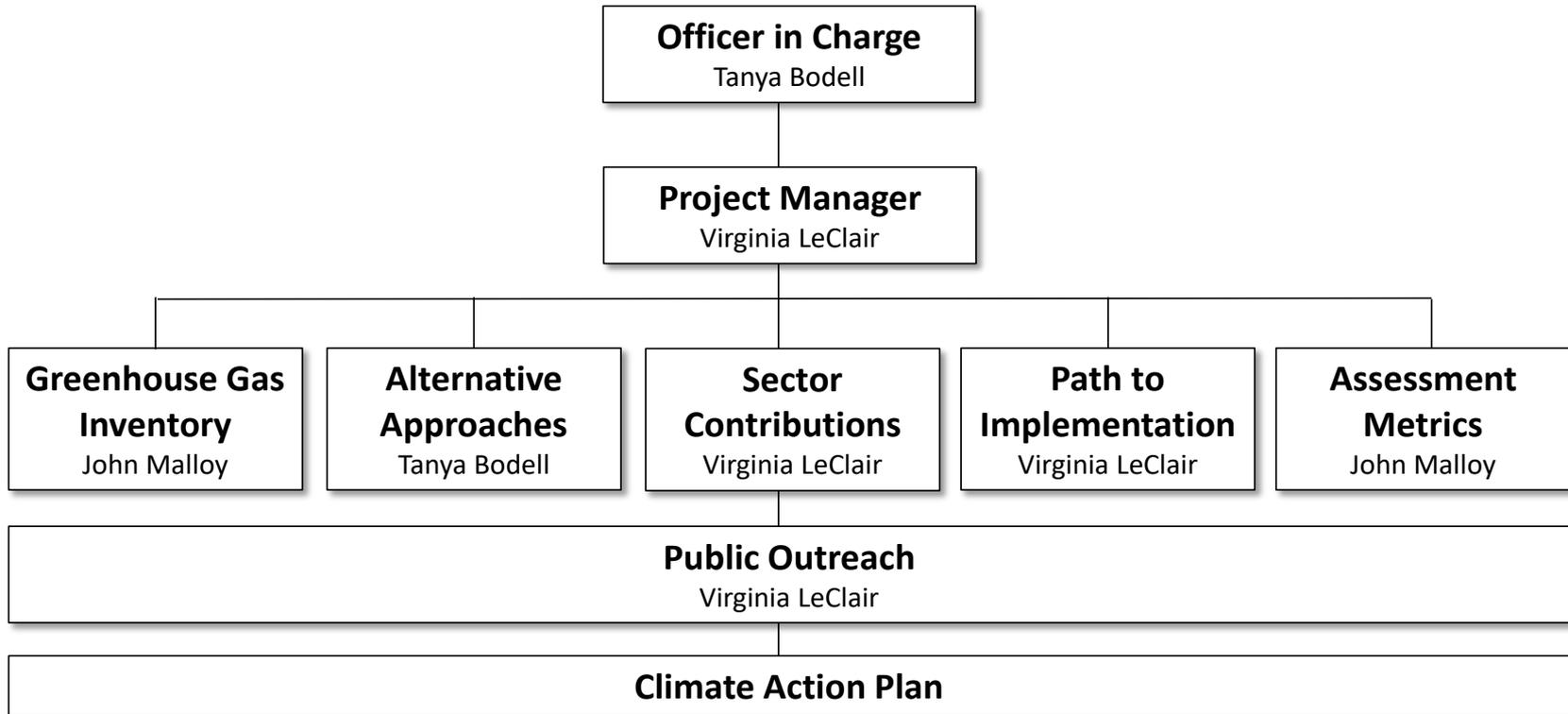
**Connection to Hingham:** John spent his formative years growing up in Hingham and attended Hingham High School where he was the founder and president of the Hingham High School Fishing Club, and a member of the Hingham High School golf, baseball, and track and field teams. John now lives in South Boston, but visits his family home in Hingham often where his parents live.

**John will be primarily responsible for the GHG Inventory and cost-benefit analyses**

## Introductions

# Organization chart of Energyzt project team

## Energyzt Project Organization Chart



The Project Team is organized around key deliverables

Hingham Climate Action Plan: An Introduction

# CLIMATE ACTION PLANS

## Climate Action Plans

**Around 2/3 of all states have or are updating Climate Action Plans**

**Massachusetts and 33 Other States Either Have or Are Updating Climate Action Plans**



Source: <https://www.c2es.org/document/climate-action-plans/>

**These plans impact municipalities through incentives and mandates**

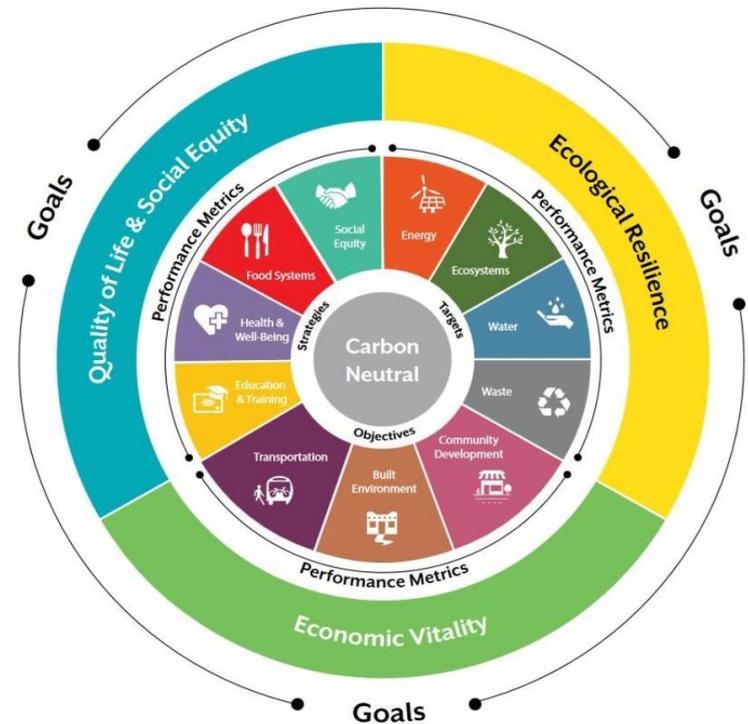
## Climate Action Plans

# Climate Action Plans differ from Climate Resiliency Plans

### Climate Action Plan



### Climate Resiliency Plan



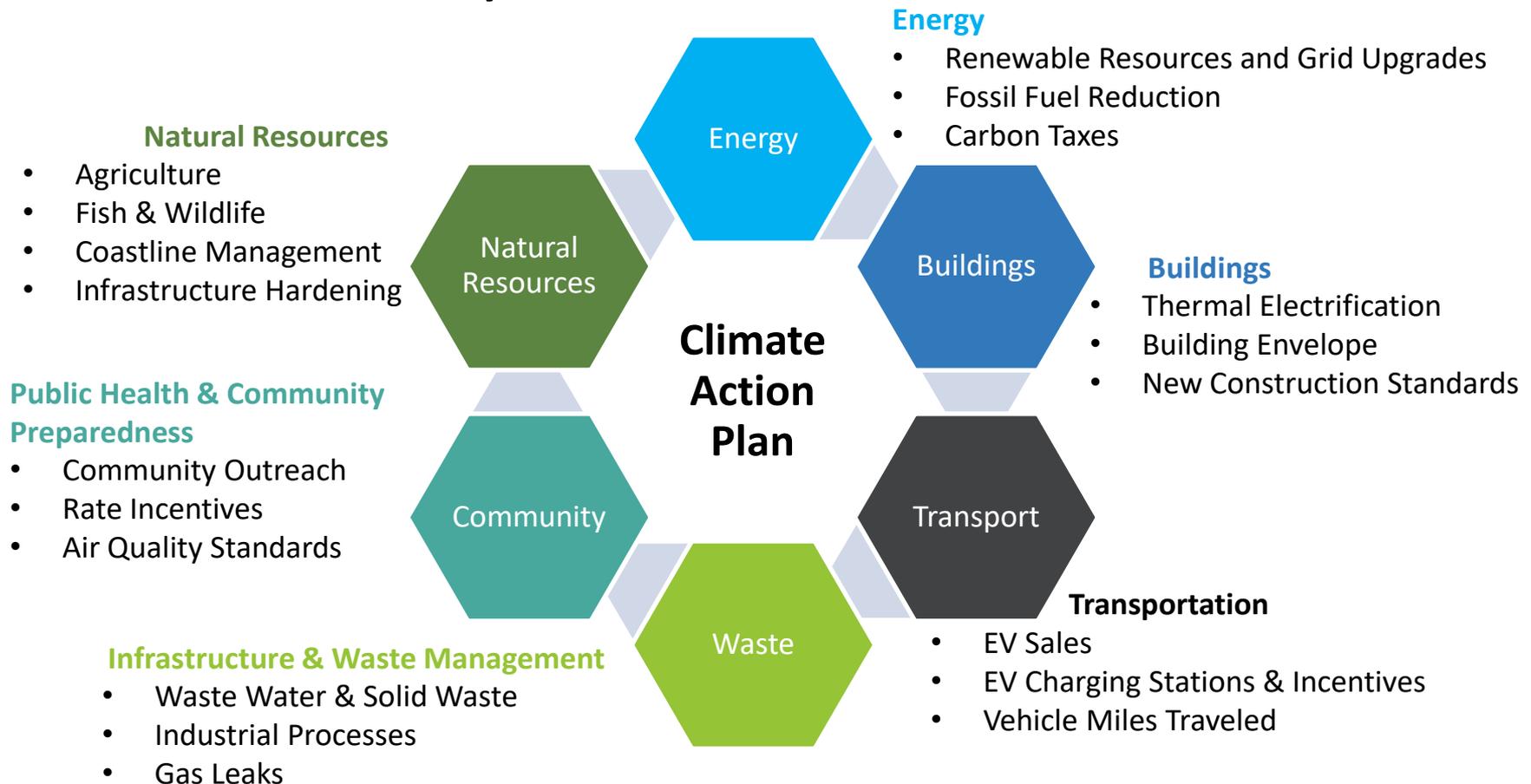
**Climate Action Plans** focus on *addressing* climate change through ways to reduce Green House Gas emissions while **Resiliency Plans** look to *minimize the impact* of climate change

**A number of MA town plans have some resiliency components include**

## Climate Action Plans

**Climate Action Plans generally consist of primary categories**

### Key Sections to Climate Action Plans

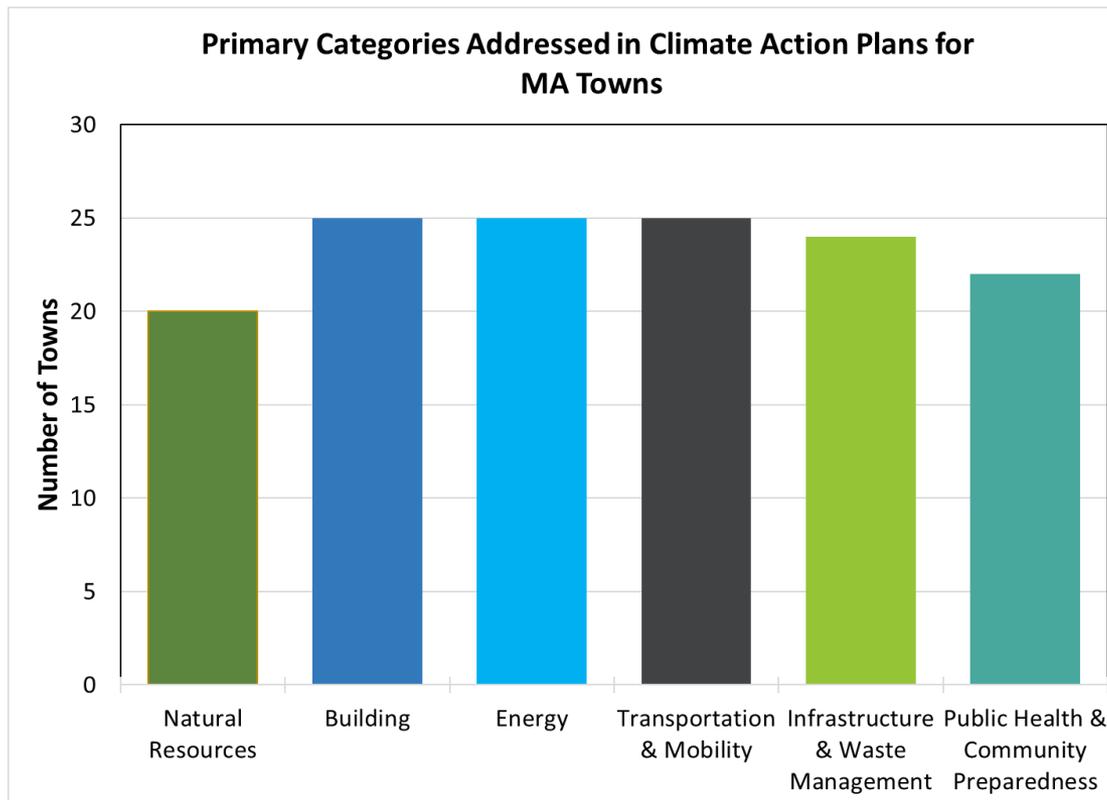


**Addressing these categories will help the Hingham meet its climate action goals**

## Climate Action Plans

**Almost all 25 towns include the same categories in the plans**

### Breakdown of Climate Action Plans for 25 Massachusetts Towns



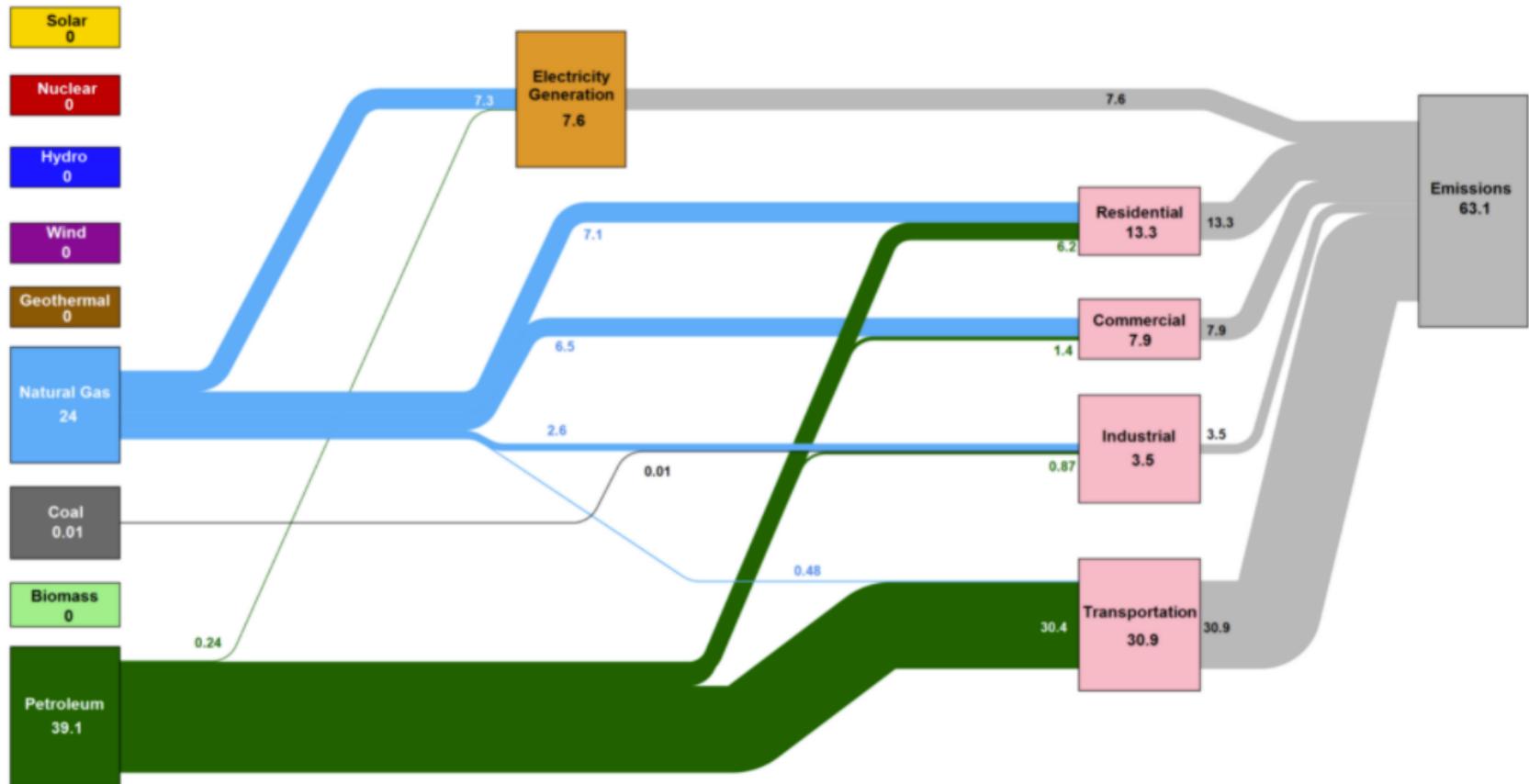
Categories	Number of Towns
Natural Resources	20
Building	25
Energy	25
Transportation & Mobility	25
Infrastructure & Waste Management	24
Public Health & Community Preparedness	22

**Towns vary in their strategies and initiatives to address these categories**

## Climate Action Plans

# A GHG Inventory is the starting point to a Climate Action Plan

Massachusetts Energy-related Carbon Dioxide Emissions in 2018: 63.1 million metric tons Lawrence Livermore National Laboratory

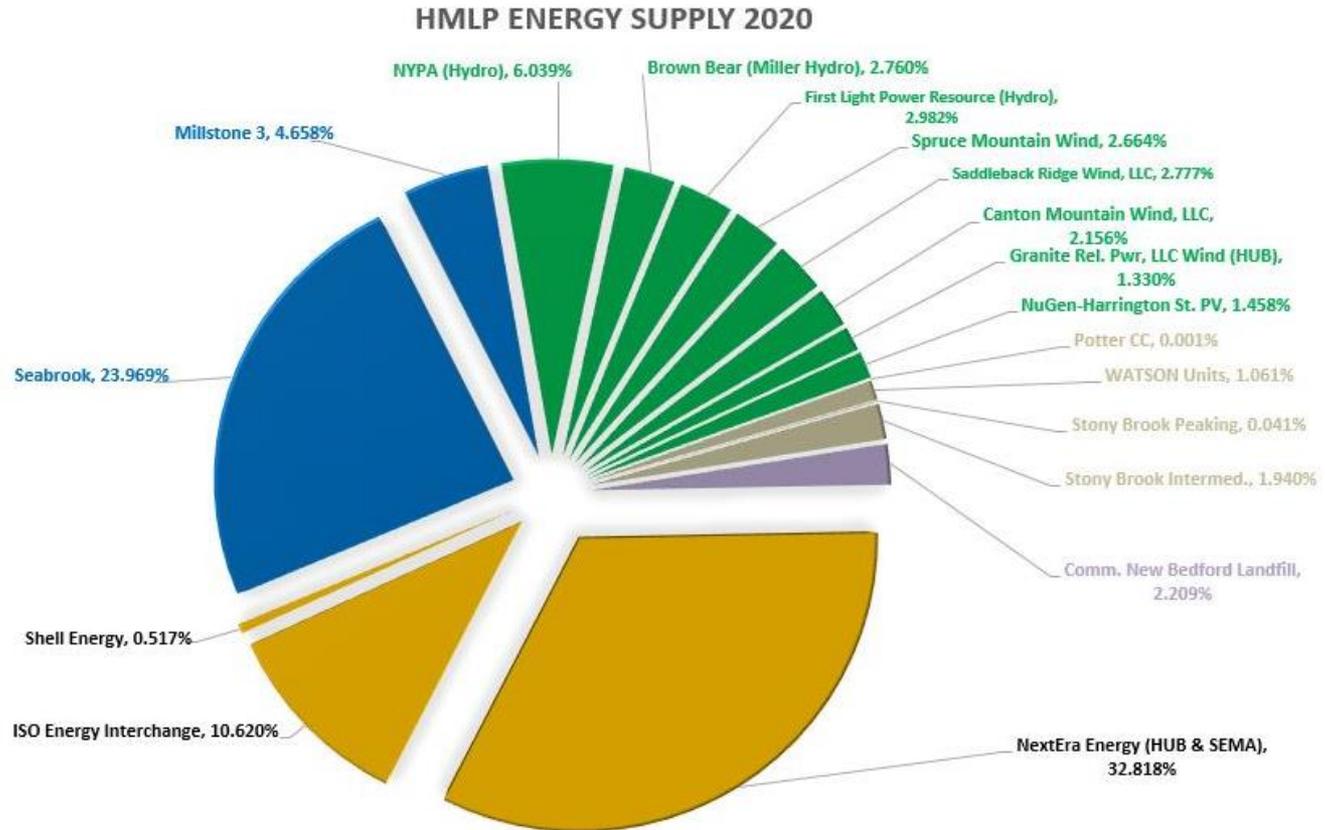


This information tracks energy and carbon flows and identifies sector contributions

# Climate Action Plans

## Electricity will be easy to inventory; natural gas requires National Grid

### Hingham Municipal Lighting Plant



**Public sources can be used to estimate usage based on town data**

## Climate Action Plans

# There are multiple tools that can be used to track GHG emissions



<https://www.cdp.net/en/>

MassEnergyInsight

● ● ● ● ● POWERING EFFICIENCY

<https://www.massenergyinsight.net/home>



Local Governments  
for Sustainability

[ClearPath - \(icleiusa.org\)](http://icleiusa.org)



[Community GHG Inventory Resources – MAPC](#)



<https://www.epa.gov/statelocalenergy/local-greenhouse-gas-inventory-tool>



GLOBAL COVENANT  
of MAYORS for  
CLIMATE & ENERGY



Our next meeting will include a summary and recommendation

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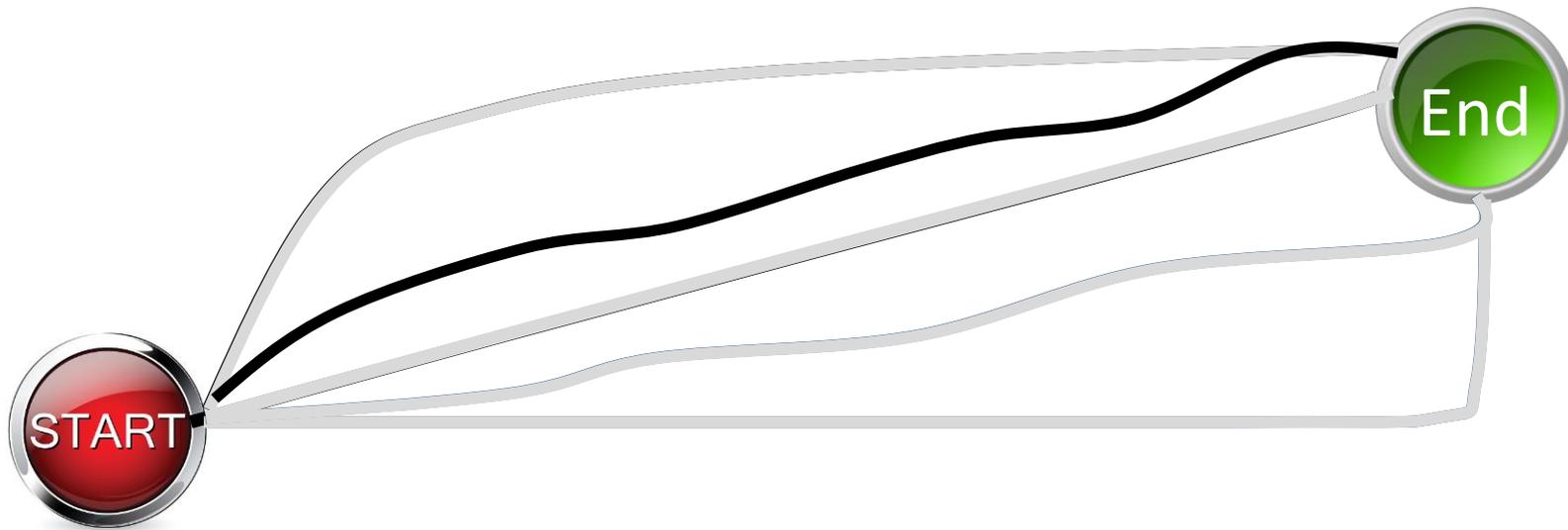
# PROJECT WORKPLAN

Project Workplan

Hingham's Climate Action Plan is a roadmap to achieve end-goals

Climate Action Plan Roadmap

100% RPS  
Net Zero Municipal  
Net Zero Community

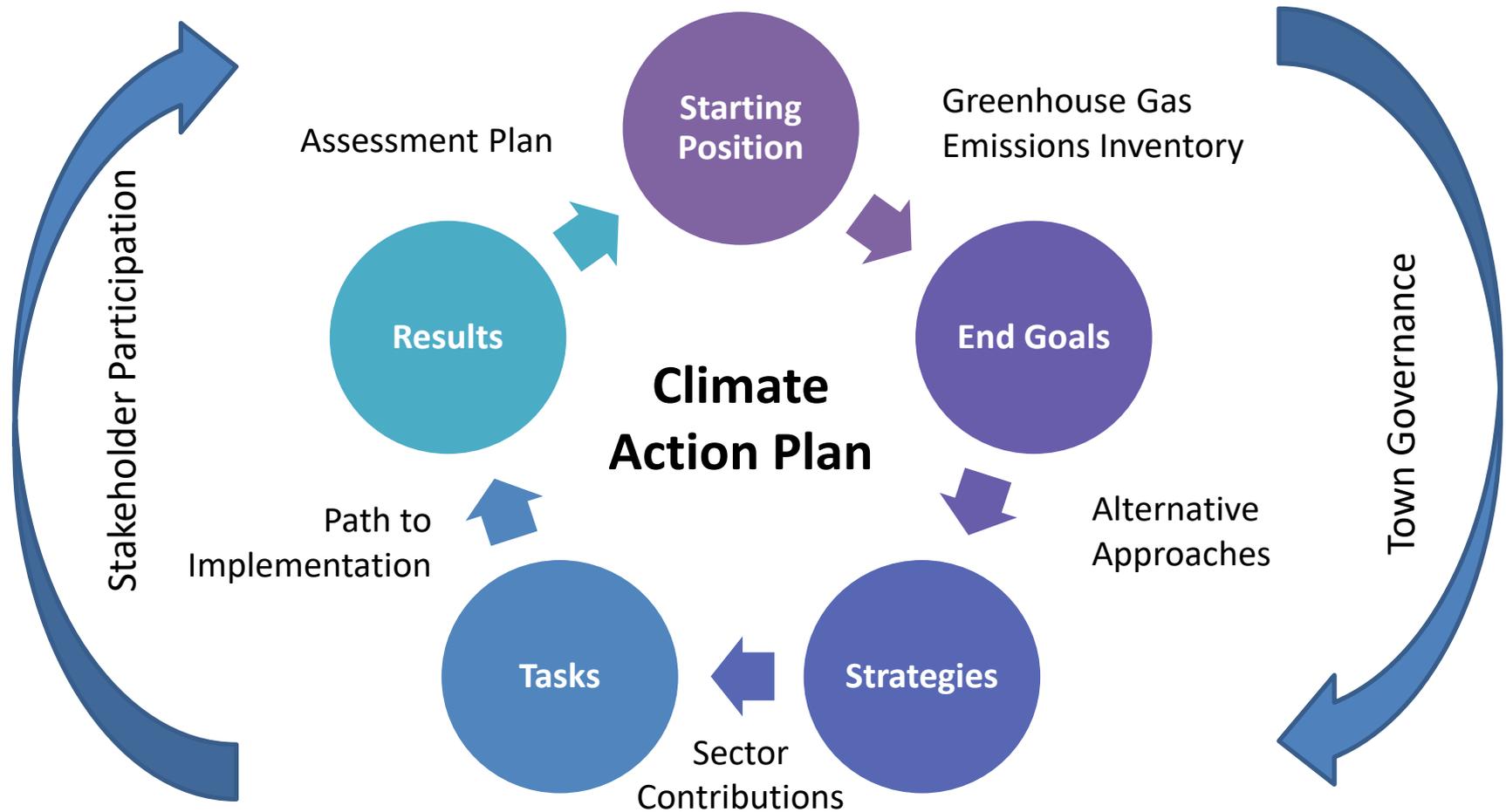


GHG Inventory  
Current Operations  
Business-as-usual

There are many ways to achieve Hingham's goals, so which path should be chosen?

## Project Workplan

# The appropriate approach requires an iterative process



**The process requires feedback from stakeholder participation and adjustments**

## Project Workplan

### Alternative approaches have different costs/benefits

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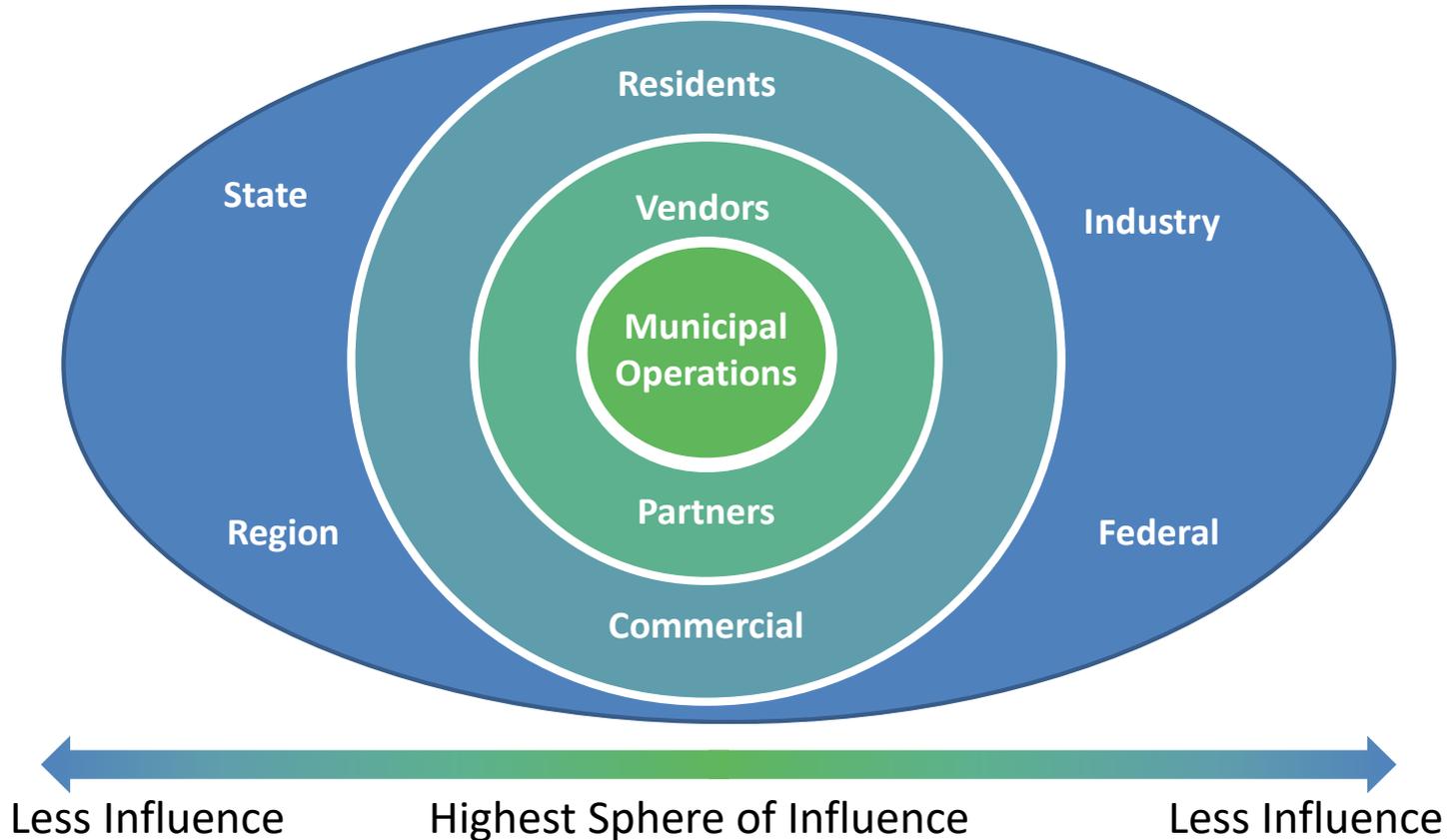
#### Examples of approaches to be examined:

- 1) **Base Case:** Achieve 100% renewable electricity through HMLP and ride along with the Massachusetts policies regarding natural gas and electric vehicles.
- 2) **Electrification:** Encourage conversion to electricity as the primary energy resource with promotion of heat pumps, electric vehicles and bans on fossil fuel machines used outdoors.
- 3) **Self-Supply using Clean Energy:** Achieve carbon emissions through self-supply using clean energy resources such as renewables, batteries, and hydrogen/renewable natural gas located in Hingham, including rooftop solar and virtual power plants located in multiple buildings.
- 4) **Renewable Natural Gas:** Procure the equivalent of Hingham's natural gas usage with purchases of renewable natural gas for delivery through National Grid's system.
- 5) **Carbon Credits:** Achieve carbon reductions through purchase and retirement of carbon credits through the Regional Greenhouse Gas Initiative (RGGI).
- 6) **Energy Efficiency/Demand Response:** HMLP focus on energy efficiency and demand response programs with customers to reduce and shift electric energy usage.
- 7) **Transportation:** Encouraging a shift away from fossil fuel transportation with bike lanes, pedestrian pathways, and installation of electric vehicle charging stations.

Project Workplan

Different sectors play a role in carbon emissions reductions

**Climate Action Sector Contributions**



**Alternative approaches will highlight the role each sector can play**

## Project Workplan

# The proposed approach incorporates the scope of work requirements

### Scope of Work Requirements versus Proposed Approach

Scope of Work Requirements in RFP	GHG Inventory	Alternative Approaches	Sector Contributions	Path to Implementation	Assessment Metrics	Public Outreach	Climate Action Plan
Project Management	✓	✓	✓	✓	✓	✓	✓
Communications with CAPC	✓	✓	✓	✓	✓	✓	✓
Collaboration with CAPC	✓	✓	✓	✓	✓	✓	✓
Communications to the Public		✓	✓	✓		✓	✓
Internal Outreach	✓	✓	✓	✓	✓		✓
GHG Emissions	✓	✓					
Mitigation Measure Analysis		✓	✓	✓			
Community Engagement Strategy						✓	
Implementation Guidance				✓	✓		
Maps and Graphics							✓
Draft Plan							✓
Final Plan							✓

**Stakeholder consultation and meetings are key to community consensus**



# Project Workplan

## The final deliverable is a Climate Action Plan

**CAMBRIDGE CLIMATE ACTION PLAN**  
JUNE 2018  
City of Cambridge, Massachusetts

**Town of Acton Climate Action Plan B**  
**The Road to Net Zero**  
December 2021  
Adopted as a living document in the Climate Action Plan process on December 20, 2021.

**CITY OF BOSTON CLIMATE ACTION PLAN 2019 UPDATE**  
OCTOBER 2019  
MAYOR MARTIN J. WALSH

**"Use Less and Green the Rest"**  
**The City of Newton's Five-Year Climate Action Plan**  
A Living Plan for 2020-2025  
November 15, 2019

**TOWN OF BROOKLINE CLIMATE ACTION PLAN 2018**

- 1 Greater Energy Efficiency**  
Residential and commercial buildings consume nearly 40% of the primary energy in the United States. High-performance buildings reduce carbon emissions, lower operating costs and increase net operating income, and are less vulnerable to volatile energy prices.
- 2 Increased Renewable Energy**  
Using solar and wind to provide electricity and heating reduces our reliance on carbon-polluting fossil fuels. Participation in Brookline Green Electricity could displace over 34 million to 130 million pounds of carbon dioxide per year, depending on the product you choose.
- 3 Improved Transportation Options**  
Providing 50 charging station ports in the public way to support an additional 300 EVs on the road could displace over 1400 pounds of greenhouse gas emissions annually. A Complete Streets policy provides for transportation options in the public way to reduce carbon dioxide emissions.
- 4 Reduced Waste**  
20 percent of total U.S. methane emissions comes from landfills. Reducing the amount of waste in our landfills means lower levels of polluting methane gas emissions over time. Programs like Pay As You Throw help to increase recycling rates.
- 5 Enhanced Tree Canopies, Open Space**  
The estimated value of carbon storage by Brookline's tree canopy exceeds \$8 million. It removes over 130,000 pounds of air-polluting gases and particulate matter and avoids 26.7 million gallons of stormwater runoff per year. Trees reduce land surface temperatures and heating and cooling loads on buildings.
- 6 Adaptation**  
A significant portion of north Brookline is within the hottest 5% of land area in the 101-municipality MAPC region. North Brookline also includes a high proportion of individuals likely to be vulnerable to extreme heat, including individuals over 65 and those living alone. We can take steps to increase our community's resilience.

Cambridge

Acton

Boston

Newton

Brookline

Hingham's plan will be a Hingham document

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# **NEXT STEPS**

## Next Steps

### Data collection, survey, and public meeting

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#### **Data Request:**

- Town Data
  - Municipal energy usage by building/function
  - Municipal fleet data
  - Assessor data on homes and business buildings
  - Assessor data on registered vehicles
  - Data on backup generation
- Hingham Municipal Lighting Plant
  - Power procurement
  - Electricity consumption patterns
  - By customer type
- National Grid
  - Natural Gas delivery data for community
  - Separated into customer type and end-use (if available)
- Public Sources
  - DOE/EIA
  - FERC
  - ISO-NE

#### **Public Meeting**

- Present initial findings
- Obtain feedback
- Elicit concerns
- Obtain support
- Incorporate feedback

#### **Survey**

- Work with subcommittee
- Identify objectives
- Incorporate feedback from public meeting
- Draft questions

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# **APPENDIX A: LINKS TO MA CLIMATE ACTION PLANS**

## Appendix A: Links to Climate Action Plans

# Climate Action Plans from 25 Massachusetts towns are listed below

### Links to Climate Actions Plans for MA Towns

Town	Link to CAP
Amherst	<a href="https://www.pvpc.org/sites/default/files/Amherst%20Climate%20Plan%20005_0.pdf">https://www.pvpc.org/sites/default/files/Amherst%20Climate%20Plan%20005_0.pdf</a>
Arlington	<a href="https://www.arlingtonma.gov/home/showpublisheddocument/55139/637507913474030000">https://www.arlingtonma.gov/home/showpublisheddocument/55139/637507913474030000</a>
Belmont	<a href="https://www.wearestillin.com/sites/default/files/sustainability-plan/cap.pdf">https://www.wearestillin.com/sites/default/files/sustainability-plan/cap.pdf</a>
Beverly & Salem	<a href="https://kladashboard-clientsourcefiles.s3.amazonaws.com/Beverly-Salem/Resilient+Together+Climate+Action+Plan+Final.pdf">https://kladashboard-clientsourcefiles.s3.amazonaws.com/Beverly-Salem/Resilient+Together+Climate+Action+Plan+Final.pdf</a>
Boston	<a href="https://www.boston.gov/departments/environment/boston-climate-action">https://www.boston.gov/departments/environment/boston-climate-action</a>
Brookline	<a href="https://www.brooklinema.gov/702/Climate-Action-Plan">https://www.brooklinema.gov/702/Climate-Action-Plan</a>
Cambridge	<a href="https://www.cambridgema.gov/CDD/climateandenergy/climatechangeplanning/climateactionplan">https://www.cambridgema.gov/CDD/climateandenergy/climatechangeplanning/climateactionplan</a>
Cape Cod	<a href="https://www.capecodcommission.org/resource-library/file/?url=/dept/commission/team/climate/Shared%20Documents/Climate%20Action%20Plan/Cape-Cod-Climate-Action-Plan.pdf">https://www.capecodcommission.org/resource-library/file/?url=/dept/commission/team/climate/Shared%20Documents/Climate%20Action%20Plan/Cape-Cod-Climate-Action-Plan.pdf</a>
Concord	<a href="https://concordma.gov/DocumentCenter/View/25318/Sustainable-Concord-Climate-Action-and-Resilience-Plan-2020?bidId=">https://concordma.gov/DocumentCenter/View/25318/Sustainable-Concord-Climate-Action-and-Resilience-Plan-2020?bidId=</a>
Dedham	<a href="https://www.dedham-ma.gov/home/showpublisheddocument/13758/637320572656730000">https://www.dedham-ma.gov/home/showpublisheddocument/13758/637320572656730000</a>
Falmouth	<a href="https://www.falmouthma.gov/DocumentCenter/View/1691/Climate-Protection-Action-Plan-PDF">https://www.falmouthma.gov/DocumentCenter/View/1691/Climate-Protection-Action-Plan-PDF</a>
Ipswich	<a href="https://www.ipswichma.gov/DocumentCenter/View/474/Climate-Action-Plan-PDF">https://www.ipswichma.gov/DocumentCenter/View/474/Climate-Action-Plan-PDF</a>

Town	Link to CAP
Medford	<a href="https://www.medfordma.org/wp-content/uploads/2012/12/FINAL_LAP.pdf">https://www.medfordma.org/wp-content/uploads/2012/12/FINAL_LAP.pdf</a>
New Bedford	<a href="https://nbresilient.com/home">https://nbresilient.com/home</a>
Newton	<a href="https://www.newtonma.gov/government/climate-and-sustainability/climate-action-plan">https://www.newtonma.gov/government/climate-and-sustainability/climate-action-plan</a>
Northampton	<a href="https://northamptonma.gov/DocumentCenter/View/16237/Northampton-Resilience--Regeneration-Plan-as-adopted-2112021?bidId=">https://northamptonma.gov/DocumentCenter/View/16237/Northampton-Resilience--Regeneration-Plan-as-adopted-2112021?bidId=</a>
Pioneer Valley	<a href="https://www.adaptationclearinghouse.org/resources/pioneer-valley-massachusetts-climate-action-and-clean-energy-plan.html">https://www.adaptationclearinghouse.org/resources/pioneer-valley-massachusetts-climate-action-and-clean-energy-plan.html</a>
Reading	<a href="https://www.readingma.gov/sites/g/files/vyhlif1116/f/file/file/reading-massachusetts-climate-action-plan.pdf">https://www.readingma.gov/sites/g/files/vyhlif1116/f/file/file/reading-massachusetts-climate-action-plan.pdf</a>
Scituate	<a href="https://www.scituatema.gov/sites/g/files/vyhlif3781/f/pages/final.scituate-climatevulnerabilityandactionplan_mapc_3.7.18_0.pdf">https://www.scituatema.gov/sites/g/files/vyhlif3781/f/pages/final.scituate-climatevulnerabilityandactionplan_mapc_3.7.18_0.pdf</a>
Somerville	<a href="https://www.somervillema.gov/departments/programs/somerville-climate-forward">https://www.somervillema.gov/departments/programs/somerville-climate-forward</a>
Springfield	<a href="https://www.springfield-ma.gov/planning/fileadmin/community_dev/DR/CARP_FINAL_REV_2017.pdf">https://www.springfield-ma.gov/planning/fileadmin/community_dev/DR/CARP_FINAL_REV_2017.pdf</a>
Westborough	<a href="https://www.town.westborough.ma.us/sites/g/files/vyhlif5176/f/uploads/westborough_2021_climate_action_plan_draft_03-02-2021.pdf">https://www.town.westborough.ma.us/sites/g/files/vyhlif5176/f/uploads/westborough_2021_climate_action_plan_draft_03-02-2021.pdf</a>
Weston	<a href="https://www.weston.org/DocumentCenter/View/29111/Climate-Action-and-Resilience-Plan---Weston-Ahead-PDF?bidId=">https://www.weston.org/DocumentCenter/View/29111/Climate-Action-and-Resilience-Plan---Weston-Ahead-PDF?bidId=</a>
Winchester	<a href="https://www.winchester.us/DocumentCenter/View/4632/Climate-Action-Plan-Executive-Summary">https://www.winchester.us/DocumentCenter/View/4632/Climate-Action-Plan-Executive-Summary</a>
Worcester	<a href="https://www.worcesterenergy.org/uploads/47/27/472786b8f49ef214aed6bb94bf4d7dd/cap-final-report_2007.pdf">https://www.worcesterenergy.org/uploads/47/27/472786b8f49ef214aed6bb94bf4d7dd/cap-final-report_2007.pdf</a>