Net Zero Planning

Virtual Workshop with MAGIC and Metro West Subregions

May 20, 2020

ZERO to 101

Zoom Meeting Norms

- Please mute your microphone unless you are speaking. If you're called on to ask your question aloud, please make sure you have a microphone/phone enabled.
- Use the "Chat" function to ask a new question.
- This meeting is being recorded. *To prevent recording, you can mute your microphone and video that you are currently using.*

Today's Agenda

2:30 PM	Welcome and Introductions
2:45 PM	Zero to 101: Get to Know the Basics
3:05 PM	A Framework for Equitable Net Zero Planning
3:25 PM	Resources to Kick Start Net Zero Planning – Breakout Sessions
	Intro to MAPC's Greenhouse Gas Inventory Tool & Step-by-Step Guide
	Adopting Climate-Smart Zoning and Permitting
	Strategies for Advancing Net Zero Buildings
3:50 PM	Exit Poll & Closing Remarks

MAGIC and Metro West Chairs

ADAM DUCHESNEAU (MAGIC)

Director of Planning and Community Development, Town of Sudbury

YOLANDA GREAVES (MetroWest)

Ashland Select Board Chair, Town of Ashland




Zero to 101

Getting to Know the Basics

Across the 101 cities and towns in our Greater Boston region…

21 **municipalities** have, or are developing, **climate action plans**

33 **municipalities** have adopted **goals to reduce greenhouse gas emissions** community-wide

66 **municipalities** have **volunteer committees** dedicated to climate, sustainability, or energy issues

* Based on a preliminary review completed by MAPC of municipal websites and publicly available information.

MAPC's Net Zero Services

DATA

Data collection and development of a GHG inventory

Inventory analysis and summary report development

Training and/or coaching on use of MAPC's new Tool

Communications materials with GHG inventory data

PLANS

Assessment and mapping of vulnerable populations

Development of community engagement strategy

Creation of net zero action roadmaps

Creation of climate action plans

GOALS

Development of ordinances / goal setting language

Support on adoption process

Net Zero Framework for Action

Recruit Support from Community

Pursue Commitment

Prioritize Holistic Planning

Gather Necessary Information

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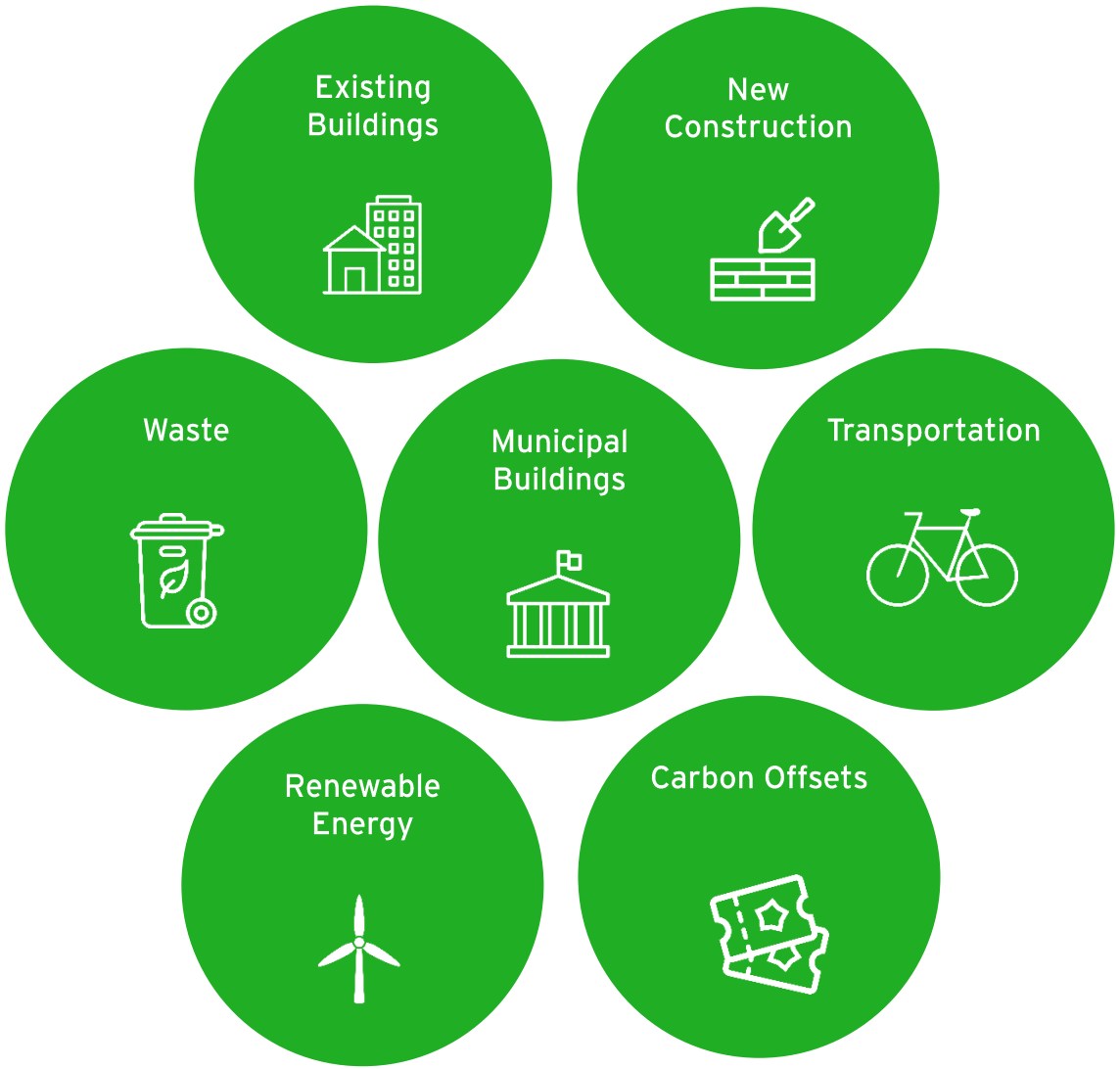


What is Net Zero?

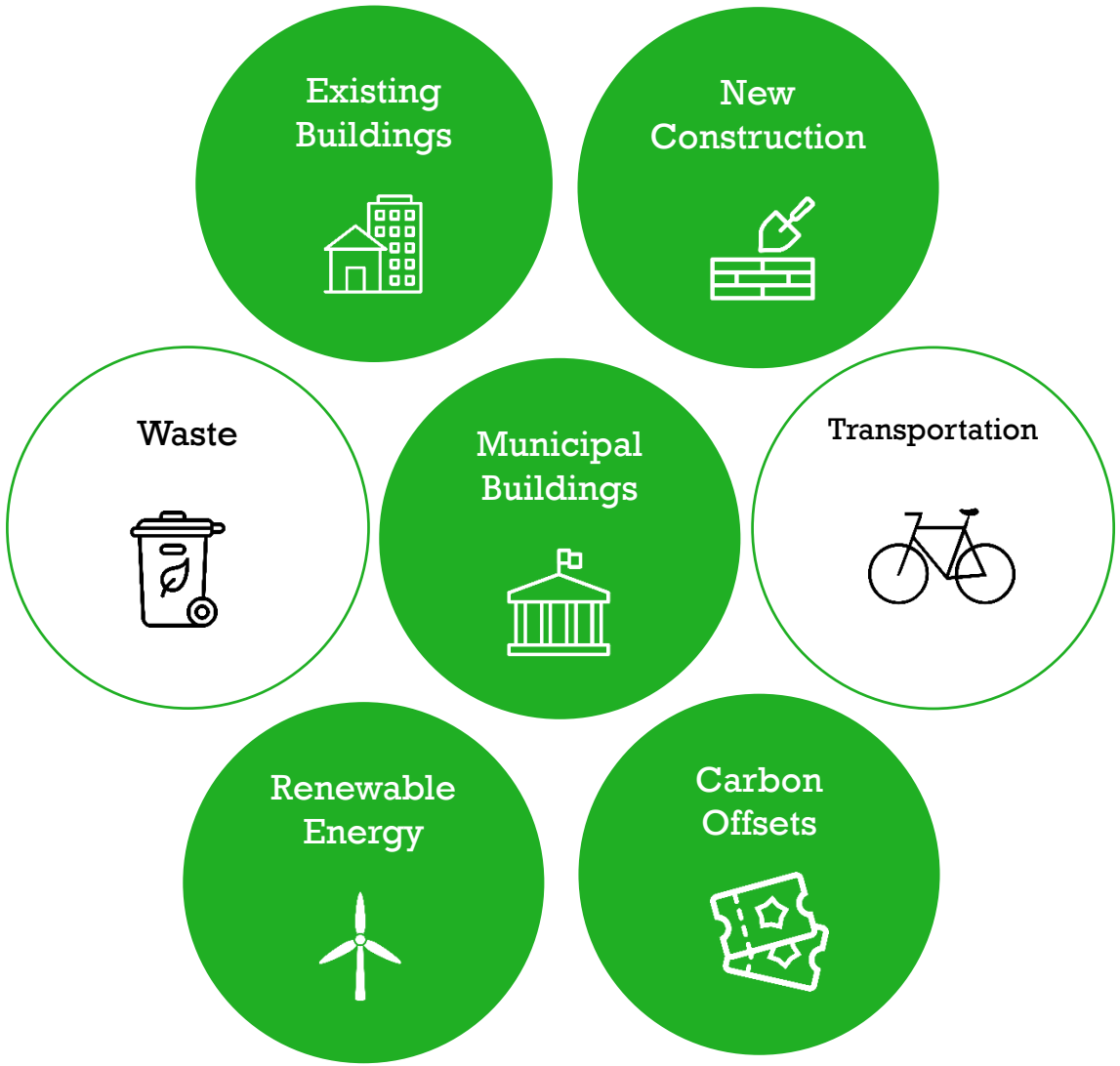
Net Zero Planning means the development of community-wide multi-sectoral goals, strategies, and processes to enable a municipality to achieve net zero carbon emissions.

To achieve **Net Zero**, a community – or other entity – must reduce greenhouse gas (GHG) emissions to the greatest extent possible and balance out any remaining emissions through GHG removal.

Carbon Neutral

Climate-damaging emissions are reduced where possible and the remaining emissions are netted out through the purchase of carbon offsets

United Nations



Net Zero

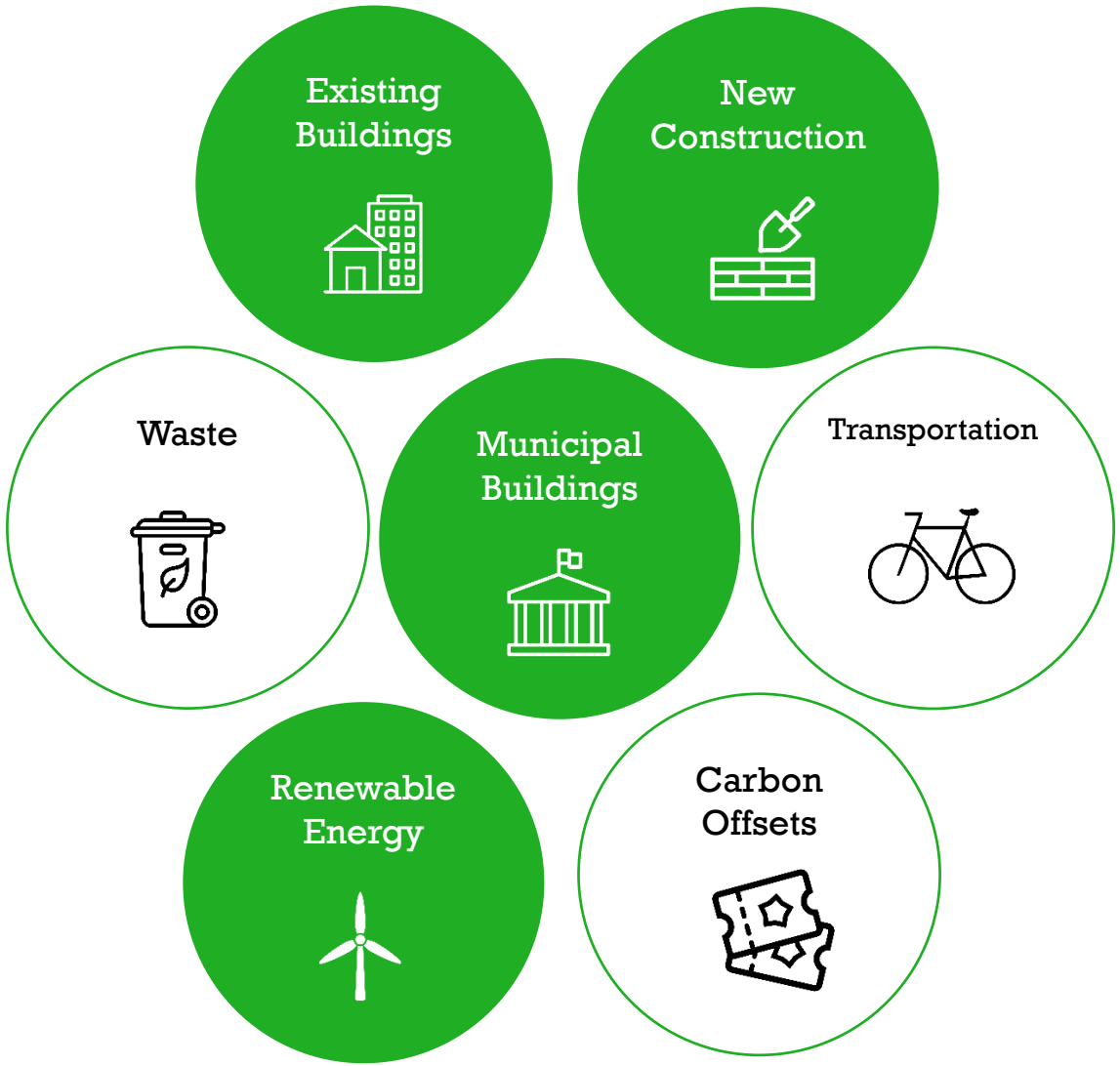
Refers to a building or a community of buildings for which, on an annual basis, all greenhouse gas emissions resulting from building operations are offset by carbon-free energy production

Cambridge Net Zero Taskforce

Net Zero Municipality

Produces zero net carbon pollution; community gets as much electricity from renewable sources as it uses. Achieved through a combination of energy efficiency improvements, local clean energy production, and purchasing renewable energy

Mass Power Forward



Zero Energy Building (ZEB)

Produces enough renewable energy to meet its own annual energy consumption requirements, thereby reducing the use of non-renewable energy in the building sector.

Department of Energy

100% Renewable Energy

All energy needed within the electricity, heat, and transport sector in a particular region is coming from renewable sources

World Future Council

Net Zero Framework for Action

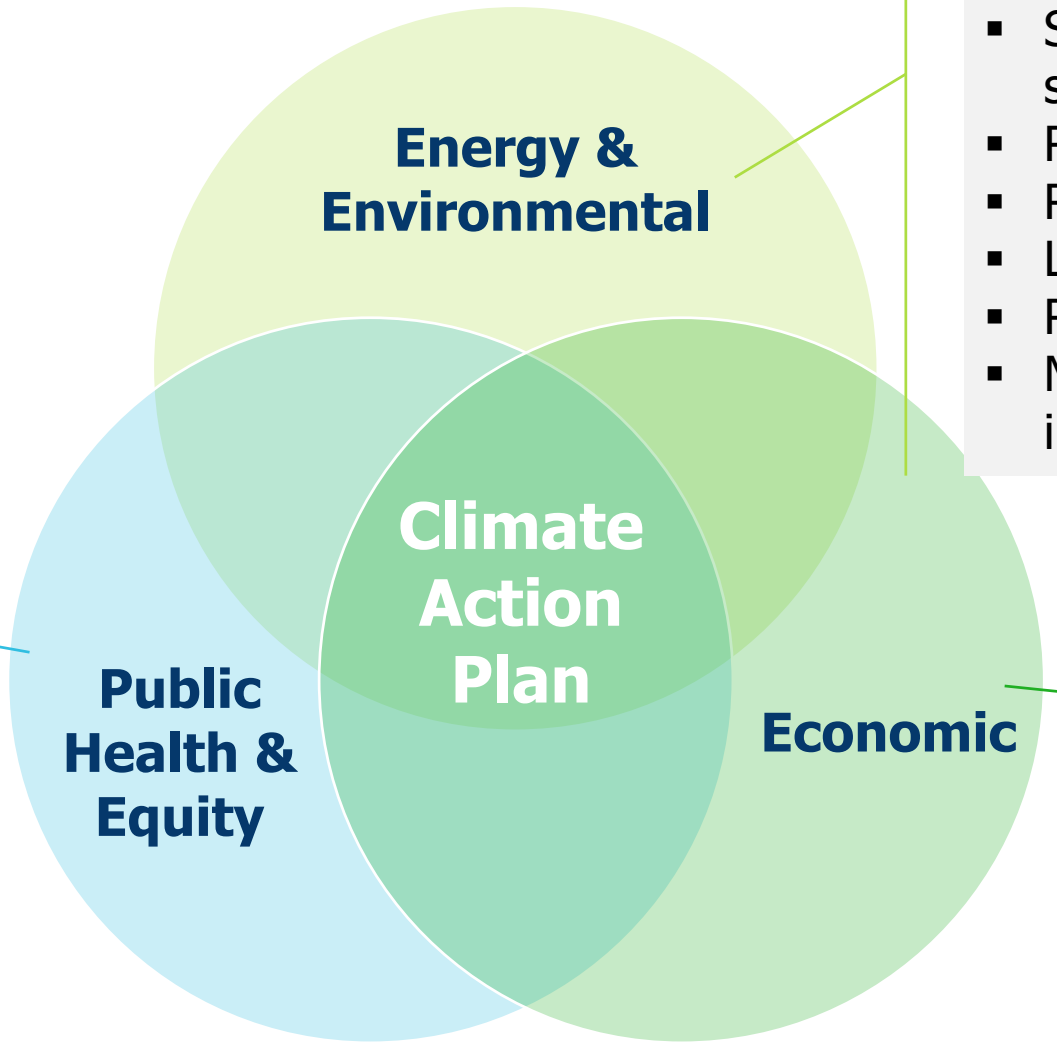
Recruit Support from Community

Pursue Commitment

Prioritize Holistic Planning

Gather Necessary Information

Co-Benefits of Climate Action

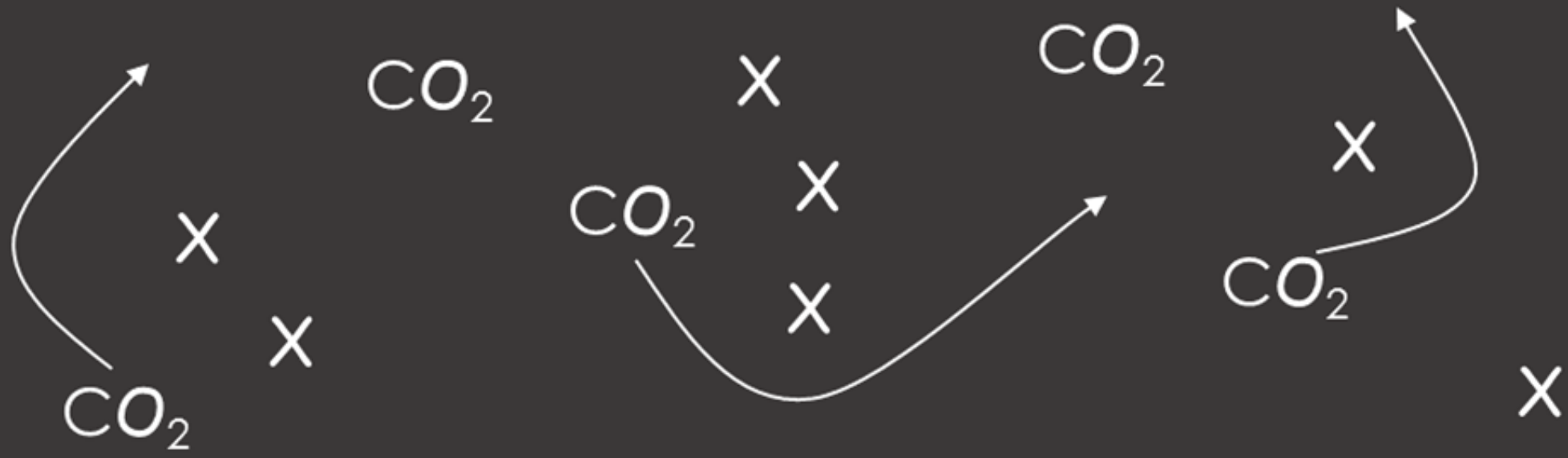


- Stable and diverse energy supply
- Reduce peaks in price
- Resilient energy system
- Local energy production
- Reduce common pollutants
- Minimize climate change impacts

- Fewer respiratory health exacerbations and cases
- Avoid unnecessary deaths
- Active lifestyles
- Save on health related costs
- Environmental Justice populations

- Economic development
- Green economy
- Green jobs

MAPC's Municipal Net Zero Playbook



- Net Zero Buildings
- Zero Emission Mobility
- Clean Energy Supply
- Climate-Smart Permitting and Zoning
- Framework for Action
- Framework for Equity

https://www.mapc.org/net-zero

ZERO TO 101

Net Zero Planning

INTRODUCTION

Net Zero goal-setting, planning, and implementation is a way to advance a community's carbon mitigation efforts. Net Zero planning offers each city or town the framework to form a scope of work and definition of Net Zero that meets its community goals and targets while taking tangible steps toward the need to keep global temperatures from rising above 1.5 degrees Celsius, as institutionalized within the Paris Climate Agreement. A community may determine, for instance, that it will next focus its net zero planning efforts on its largest source of emissions, such as building energy; on leading by example in the municipal sector as a starting point; or on going all-in with a community-wide net zero GHG emissions approach.

ZERO to 101

FROM 101 TO NET ZERO

- What is Net Zero?
- Planning Framework
- Process
- Net Zero Case Studies
- 2017 Clean Energy Forum

Municipal Perspectives on Net Zero

MATTHEW MARSHQUIST

Sustainability Committee Chair, Town of Ashland

JILLIAN WILSON MARTIN

Sustainability Coordinator, Town of Natick

KATE HANLEY

Director of Sustainability, Town of Concord

Ashland – Setting a Net Zero Goal

MATTHEW MARSHQUIST
Sustainability Committee Chair, Town of Ashland

Natick's First Community Greenhouse Gas Inventory

What We Learned & What's Next

Presented April 22, 2020

Town Meeting Directive

2018 FALL TOWN MEETING NON-BINDING RESOLUTION

"Eliminate or offset all of the greenhouse gas emissions that originate in Natick by 2050..."

PASSED BY MAJORITY VOTE (88-12-3)

Establish a baseline estimate of community-wide emissions

Develop a Net Zero Action Plan that outlines specific strategies and sets measurable, interim targets for achieving the 2050 goal

Provide an annual progress report to Town Meeting

Calculating Natick's Greenhouse Gas Emissions

STATIONARY ENERGY

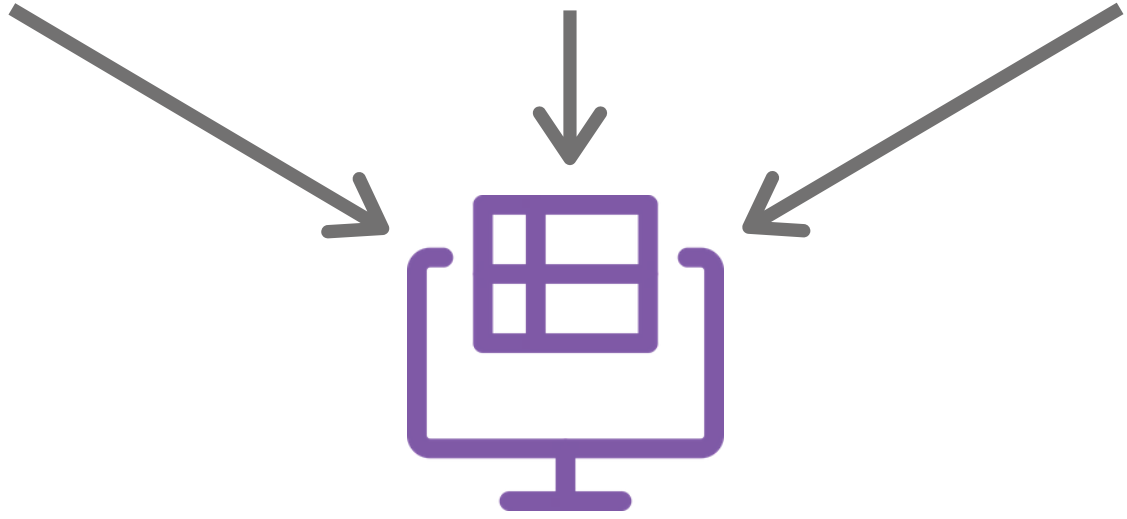
Electricity (Aggregation, Mass Save)
Natural Gas (Mass Save)
Heating Oil (Census, EOLWD)
Off Road (Census, EPA MOVES)

TRANSPORTATION

Passenger Vehicles (MA RMV)
Commercial Vehicles (MA RMV)
Commuter Rail (MBTA)
Bus (MWRTA)

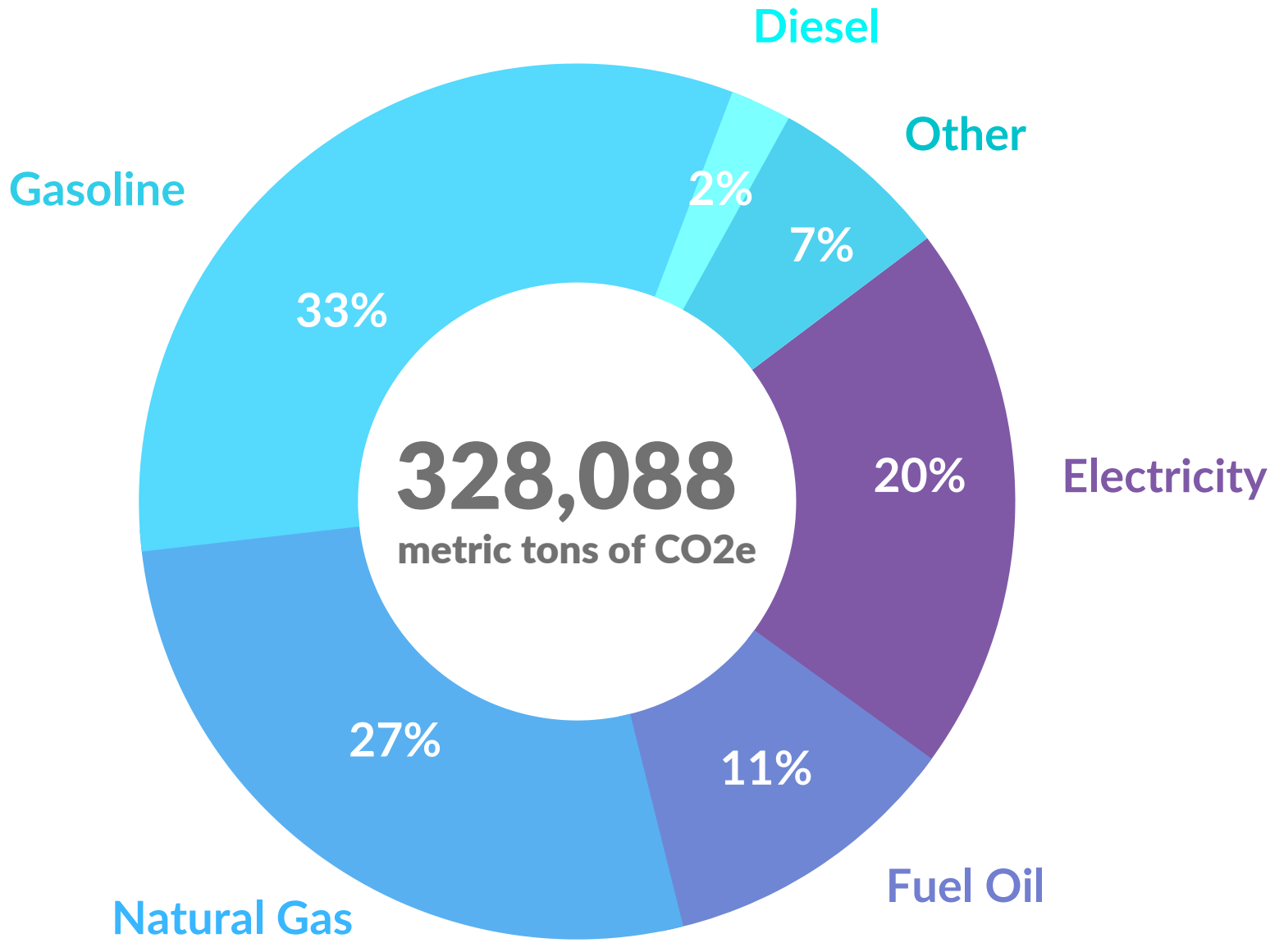
WASTE

Municipal Solid Waste (DPW)
Wastewater (MWRA)

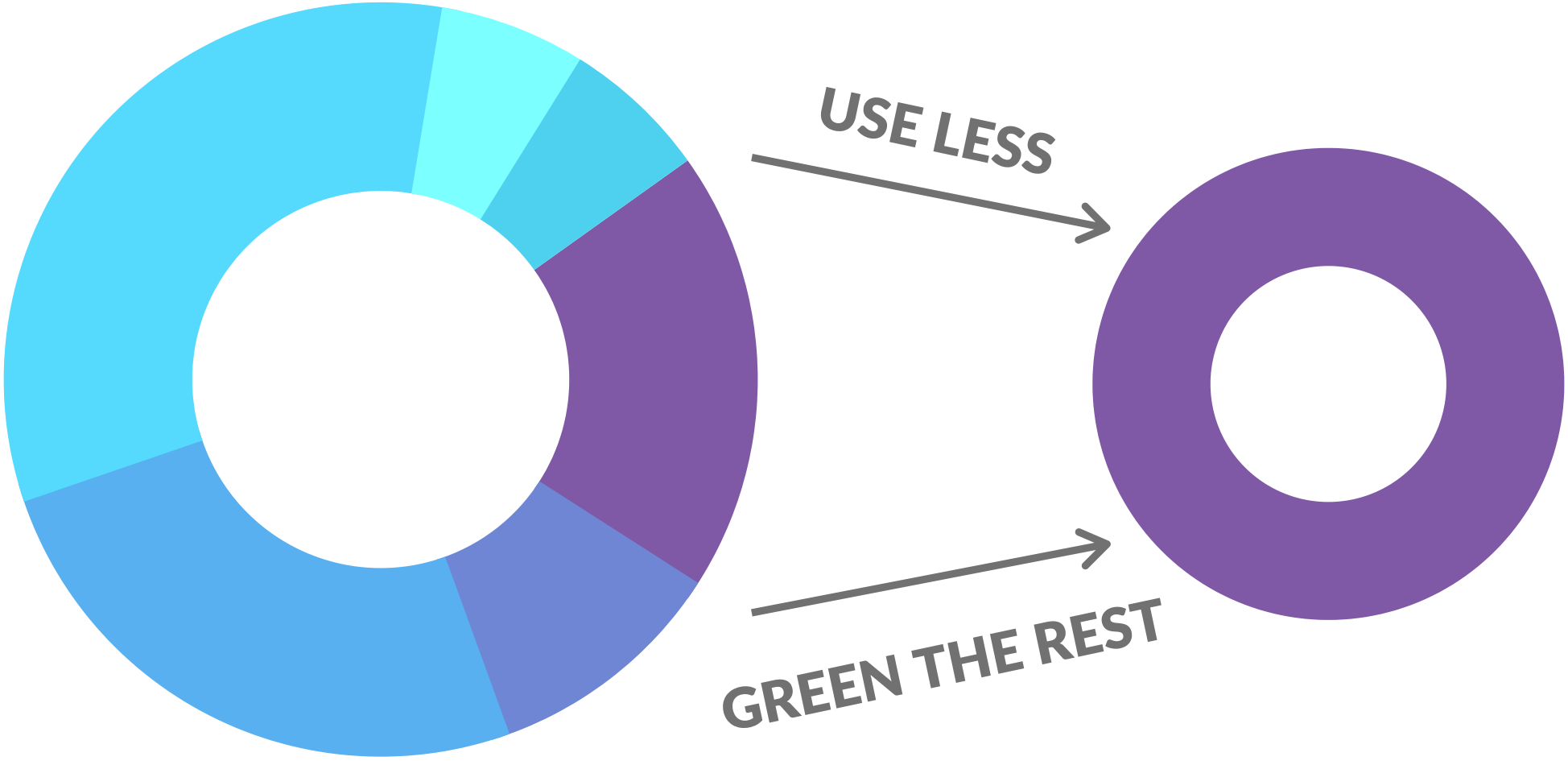


GREENHOUSE GAS PROTOCOL

Natick's 2017 Greenhouse Gas Emissions, by Source



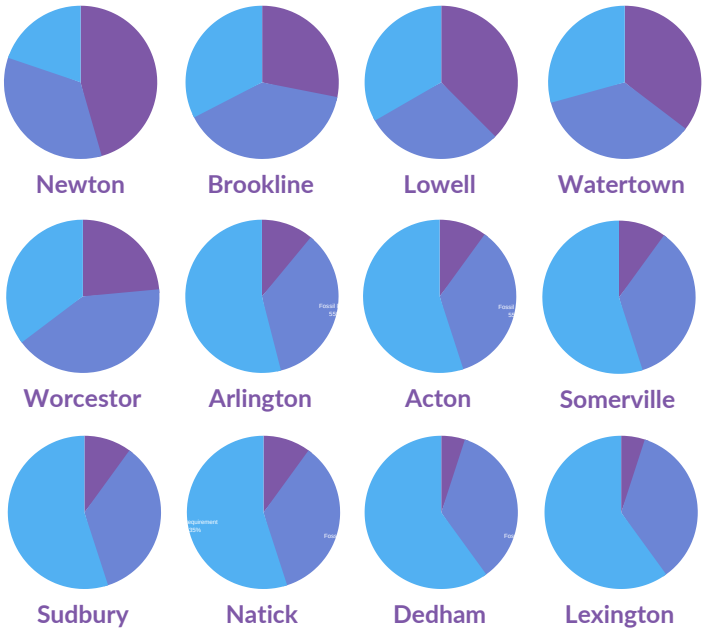
How Can Natick Reduce Greenhouse Gas Emissions?



GREEN THE REST

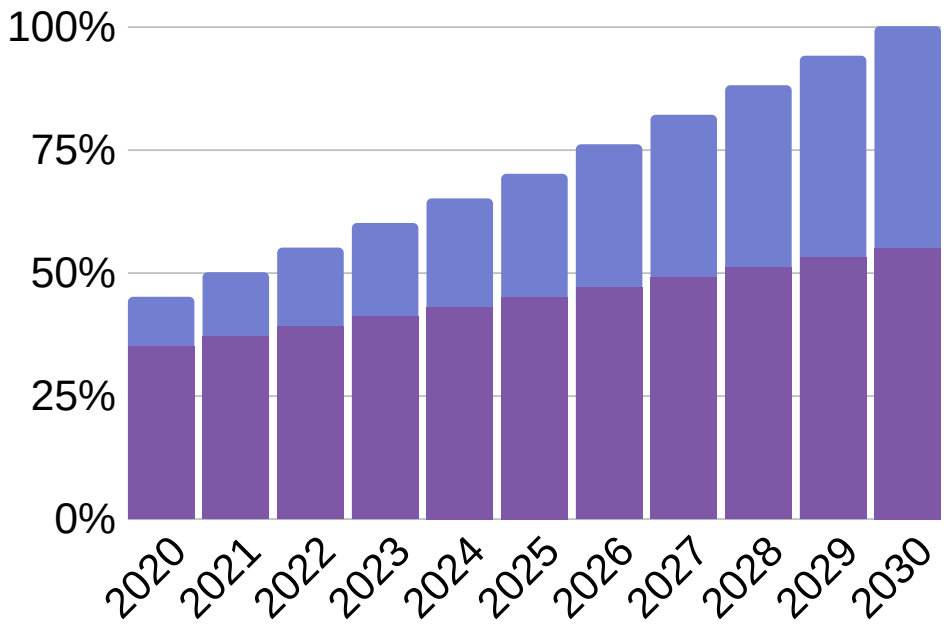
Electricity can be generated by wind, solar, hydro and nuclear power. How do we transition to 100% clean energy quickly and affordably?

ELECTRICITY SOURCE BY COMMUNITY



Additional Clean Electricity Required by Town/City
Clean Electricity Required by State
Fossil Fuels

PATH TO 100% CLEAN ELECTRICITY



Required by MA Renewable Portfolio and Clean Energy Standards
Proposed Additional Clean Electricity Requirements for the Town of Natick

Choose to power your home with 100% local renewable energy.

natickma.gov/electricity

SUSTAINABLE CONCORD

Revolutionary | Resilient | Ready

Climate Action and Resilience Pl

- ✓ Scope: GHG Reduction + Climate Resilience
- ✓ Funded by: MVP Action Grant
- ✓ Consultants: Kim Lundgren Associates, Center for Sustainable Energy, ONE Architecture
- ✓ Timeline: September 2019-June 2020

@concordclimate

concordma.gov/climateplan

Framework for Equity

MAPC's Municipal Net Zero Playbook

Equity

A practice that takes into consideration the history, policies, power structure, and culture of a community and **responds to these existing dynamics** by calibrating tools and resources according to each population's needs.

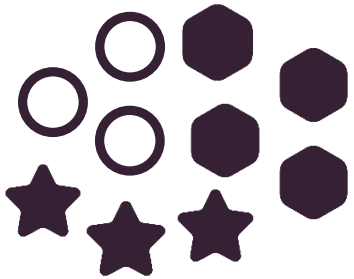
Other Terms

Equality

Treating all groups the same without taking into consideration existing dynamics

Diversity

The presence of different groups, populations, and identities in a community

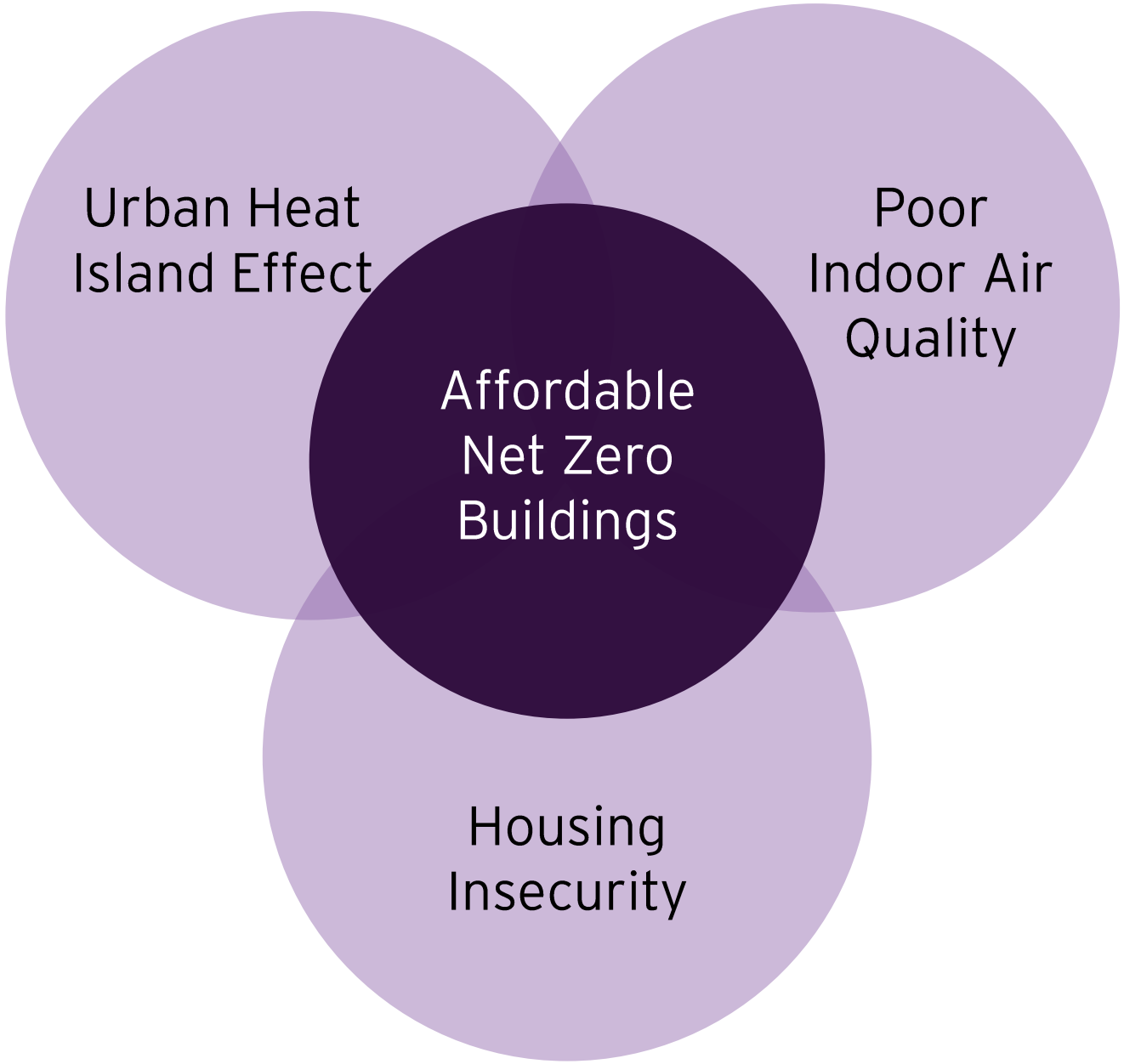


Inclusion

Diverse groups have access within the community

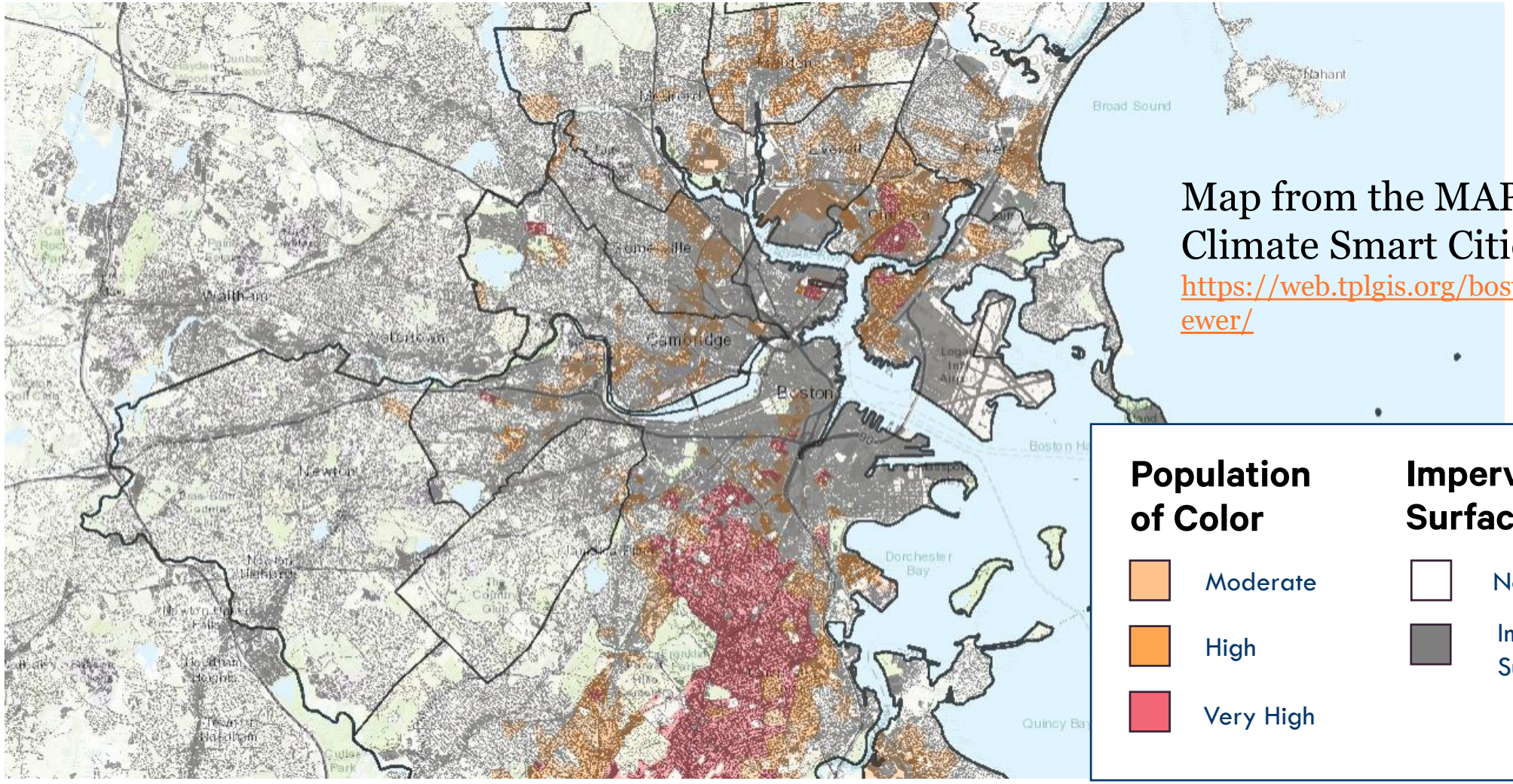
Equity as a Lens for Net Zero

Intersection of Solutions



The Cost of Business as Usual

Intent does not equal impact

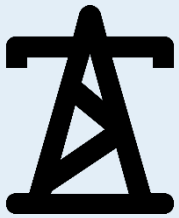


Map from the MAPC Metro Mayors Climate Smart Cities Tool
https://web.tplgis.org/bostonmetromayorsecure/viewer/

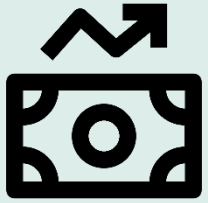
Holistic Planning Framework

Focused on the benefits of carbon mitigation:

Energy

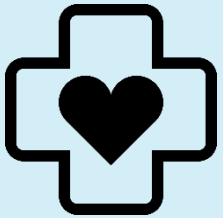


Economic

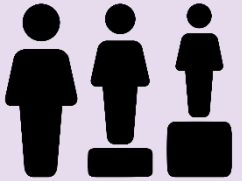


Environmental

Public Health

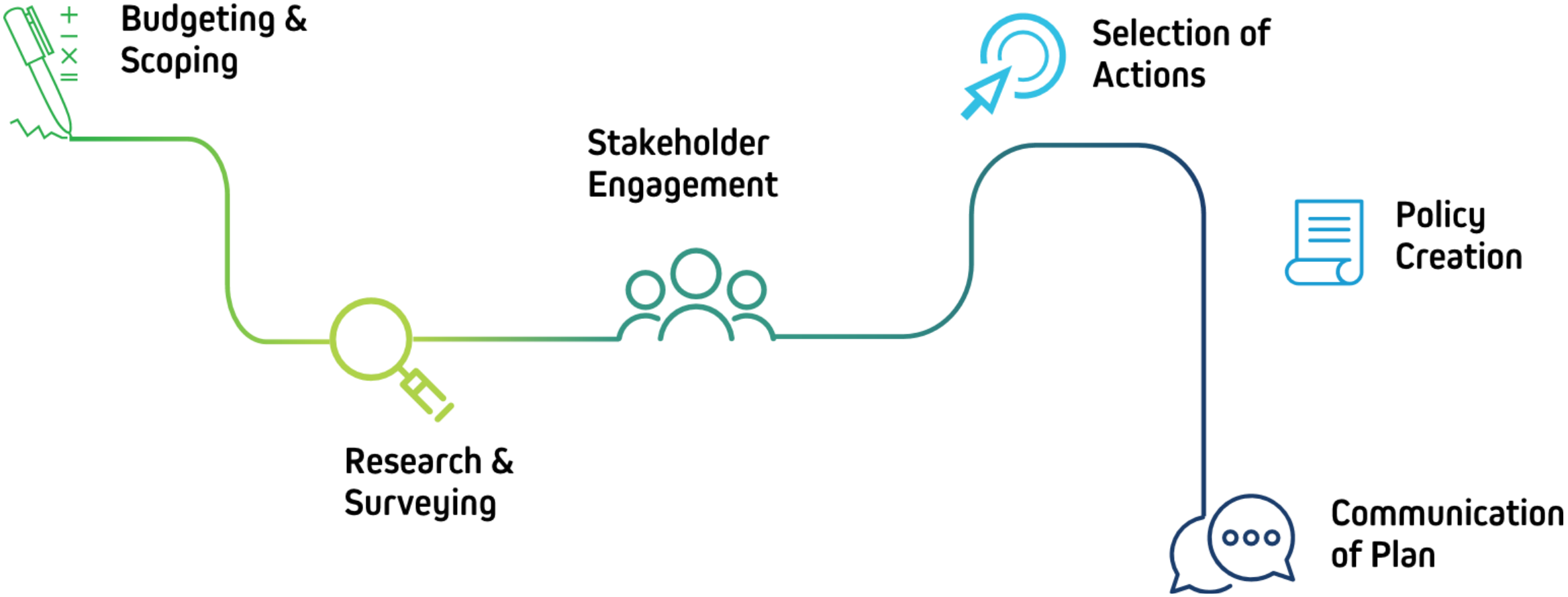


Equity



Implementing Equity

How We Can Center Equity

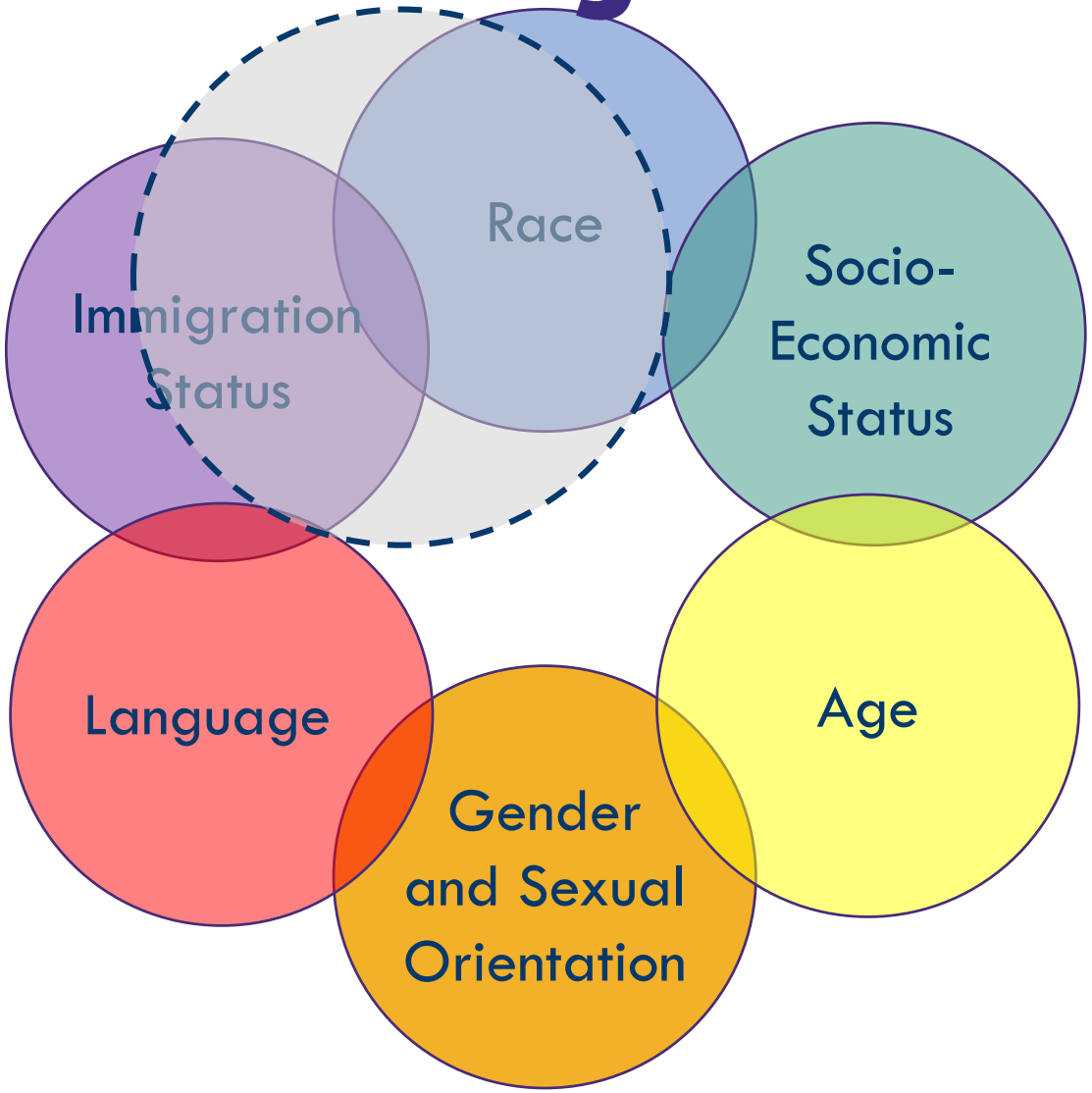


Project Scope

Include:

- An Equity Assessment
- Robust community engagement
- Time to process qualitative and quantitative data
- Budget to compensate partner organizations, community groups, and individuals for their time
- Translation and interpretation services
- Time to meet with the project team on equity goals

Who are We Talking About?



Equity Assessment

For each measure in your Net Zero Plan, answer:

Who has been historically impacted?

Both by the change this measure aims to mitigate, and by previous solutions.

Who would be most impacted in the types of changes in our climate we expect to see?

Which populations are most vulnerable to the change? Who is least likely to be able to enact this solution without action?

How will the co-benefits of this measure be distributed?

Where will assets be located? Where will health benefits be realized?

Getting Stakeholders on Board

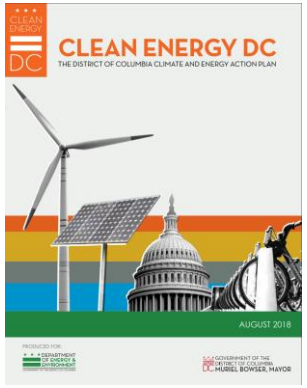
- Involve local community groups that represent hard to reach populations.
- Create a variety of ways to engage in the planning process.
- Prepare to tackle difficult conversations with your internal team before stakeholder meetings, determining how the team can be supported and how coded language or micro-aggressions will be handled.
- Ask for feedback on integrating equity in the planning process.

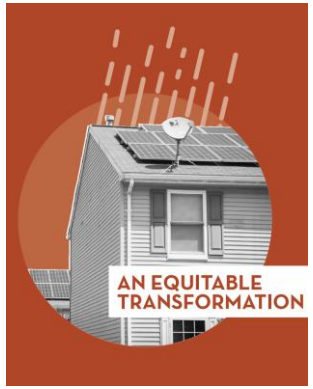
Where Equity is Implemented

Action Prioritization	• Center feedback from groups who have been traditionally left out of the decision-making process. • Be transparent and open about how decisions will be made.
Policy and Program Development	• Refer to research, engagement, and feedback when drafting new policies and programs. • Determine which populations would be most impacted by proposed actions.
Communication of Plan	• Acknowledge in the plan the history of the municipality, displaced populations, and findings of the Equity Assessment. • Use translation and interpretation services. • Get the word out to groups engaged in the stakeholder process and project partners.

Equity in Net Zero Plans

District of Columbia
Clean Energy DC Plan

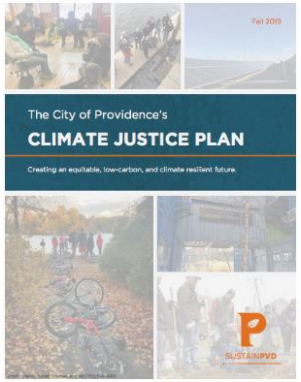




An Equitable Transformation Chapter

https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report_0.pdf

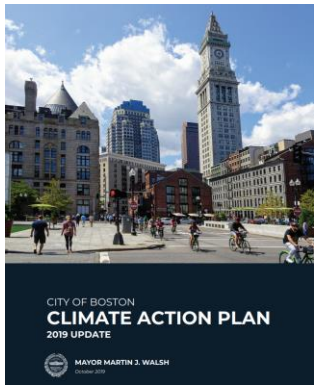
Providence, RI
Climate Justice Plan

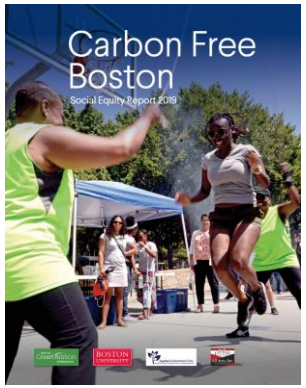


Racial and Environmental Justice Committee (REJC) Future Stories

http://www.providenceri.gov/sustainability/climate-justice-action-plan-providence/

Boston, MA
Carbon Free Boston





Social Equity Report

https://www.boston.gov/sites/default/files/embed/file/2019-10/city_of_boston_2019_climate_action_plan_update_4.pdf

Poll Everywhere!

Questions?

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Clean Energy Coordinator
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617-933-0761

Breakout Groups!

Intro to MAPC's Greenhouse Gas Inventory Tool & Step-by-Step Guide

Megan Aki & Sasha Parodi

Strategies for Advancing Net Zero Buildings

Julie Curti & Lizzie Grobbel

Adopting Climate-Smart Zoning and Permitting

Nicole Sanches & Leah Robins

Greenhouse Gas Inventories

New Step-by-Step Guide and Inventory Tool

Net Zero Framework for Action

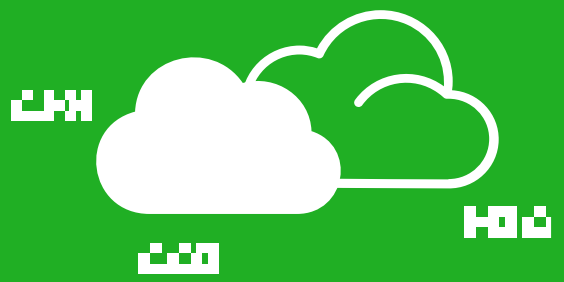
Recruit Support from Community

Pursue Commitment

Prioritize Holistic Planning

Gather Necessary Information

What is a Greenhouse Gas Inventory?



A **GHG inventory** accounts for the emissions resulting from a defined geographic area (e.g., city, town, state, etc.) in a given year.

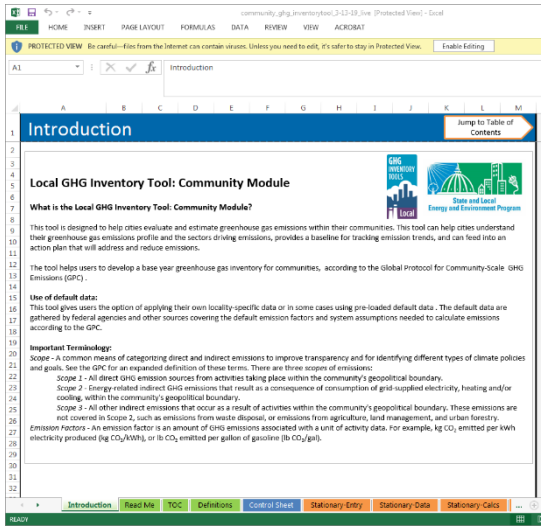
The primary greenhouse gases include: **carbon dioxide** (CO2), **methane** (CH4), and **nitrous oxide** (N2O).

The Global Protocol also includes: perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulfur hexafluoride (SF6) and nitrogen trifluoride (NF3).

Greenhouse Gas Inventory Frameworks

GUIDANCE

TOOLS



ClearPath
AN ICLEI USA TOOL

CDP™
DRIVING SUSTAINABLE ECONOMIES

REPORTING

MAPC Project Goals & Outcomes

1 A localized guide and consistent approach for municipalities, that includes:

- Recommended approaches to calculating emissions in adherence with GPC
- Preferred localized emissions factors (where available)
- Instructions on where to collect data locally
- Guidance on timeframe and staff workload

2 An easy-to-use tool for accounting and tracking GHG emissions over time, that provides users with:

- User-friendly data entry points for activity data and emissions factors
- Open access to all formulas and applied factors with details on what calculations are being performed
- Chart and table outputs with a snapshot for that inventory year and historic emissions over time

3 A training for municipal staff and volunteers from the participating communities, that leads to:

- Multiple individuals in each community with the understanding and capacity to interact with and update the GHG inventory tool
- An established process for updating and hard copies of training materials

The Global Protocol for Community-Scale Greenhouse Gas Inventories

- Developed by the World Resources Institute, C40 Cities, and ICLEI Local Governments for Sustainability.
- Establishes reporting requirements for all community GHG inventories and provides detailed guidance for quantifying GHG emissions.
- Uses a scopes framework for GHG emissions.

Reporting Levels with the Global Protocol

The Global Protocol provides communities with two levels for reporting GHG emissions: BASIC and BASIC+.

- BASIC level reporting includes GHG emissions sources that most commonly occur in communities and, for the most part, have readily available data.
- BASIC+ level reporting expands on the sources covered by BASIC and is a more comprehensive inventory of all GHG emissions.

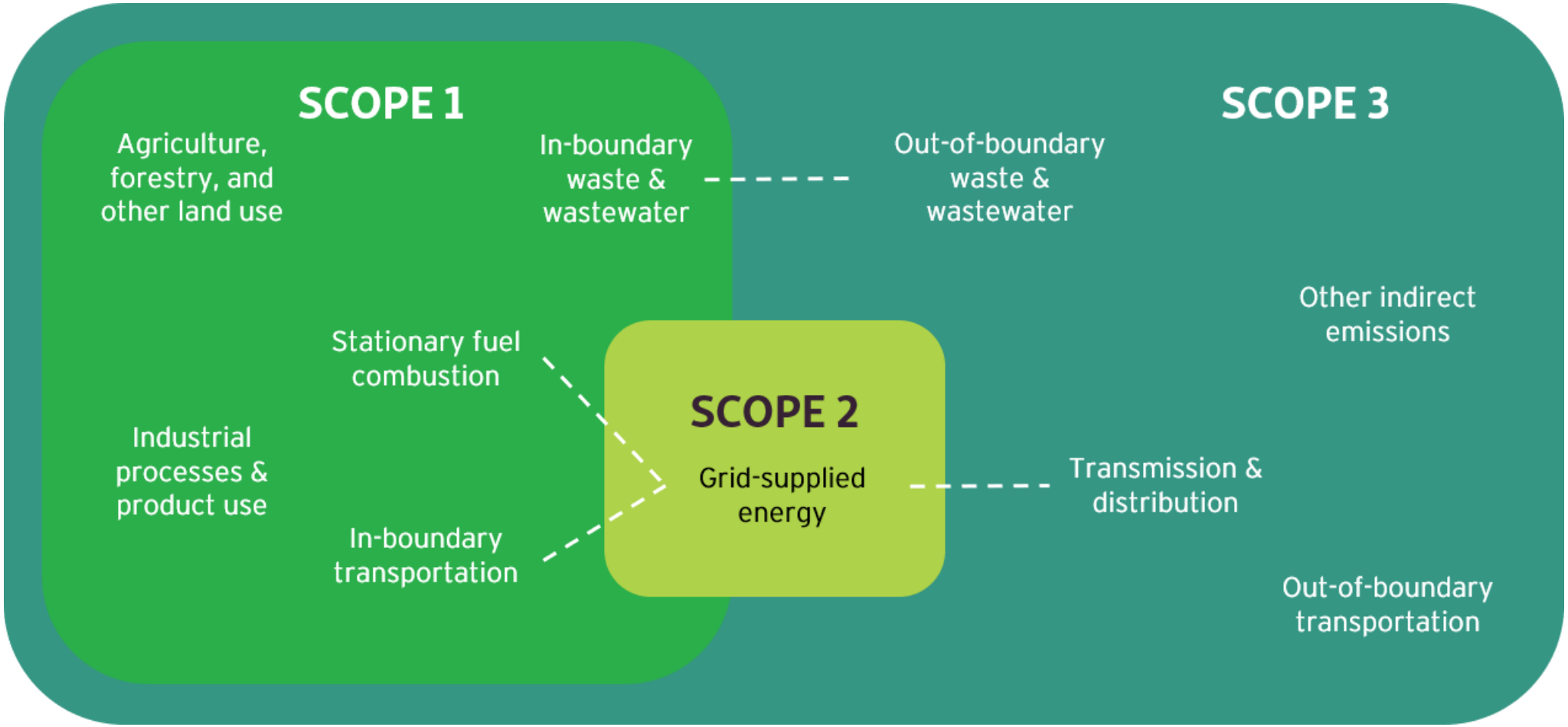
Global Protocol GHG Inventory Sectors

Sectors	Sub-sectors
Stationary Energy	Residential buildings
	Commercial and institutional buildings and facilities
	Manufacturing industries and construction
	Energy industries
	Agriculture, forestry, and fishing activities
	Fugitive emissions from oil and natural gas systems
Transportation	On-road
	Railways
	Off-road
Waste	Disposal of solid waste generated in the city
	Biological treatment of waste generated in the city
	Incineration and open burning of waste generated in the city
	Wastewater generated in the city
Potential Additional BASIC+ Sectors	
Industrial Process and Product Use	
Agriculture, Forestry and Other Land Use	
Other Scope 3	

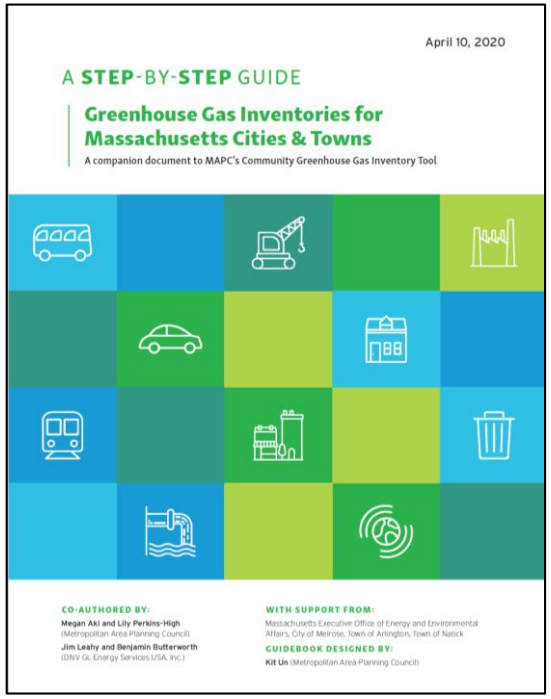
What is the Scopes Framework?

- **Scope 1** emissions are physically occur within the geographic boundary
- **Scope 2** emissions occur as a result of use of grid-supplied electricity, heat, steam and/or cooling) within the city boundary,
- **Scope 3** emissions occur outside of the geographic boundary but are driven by activities within the geographic boundary.

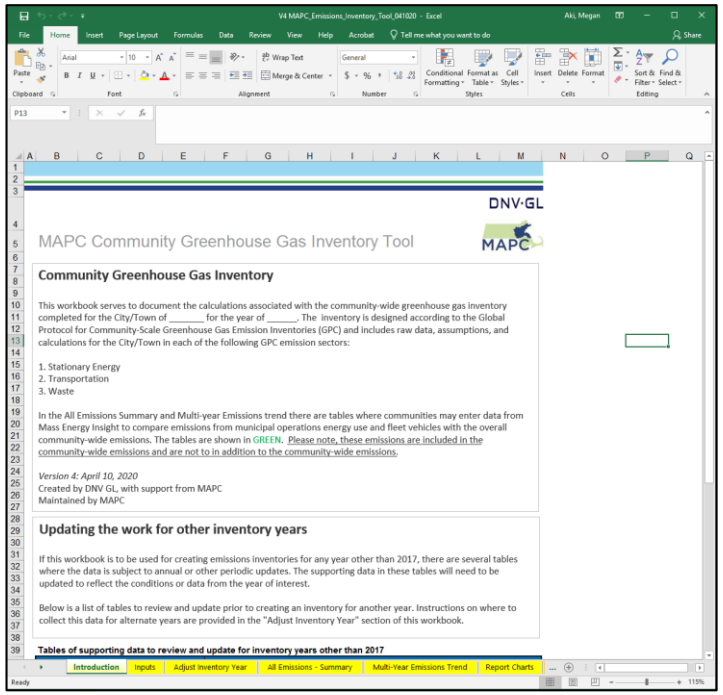
Scopes & Boundaries of GHG Emissions



MAPC's New GHG Inventory Resources

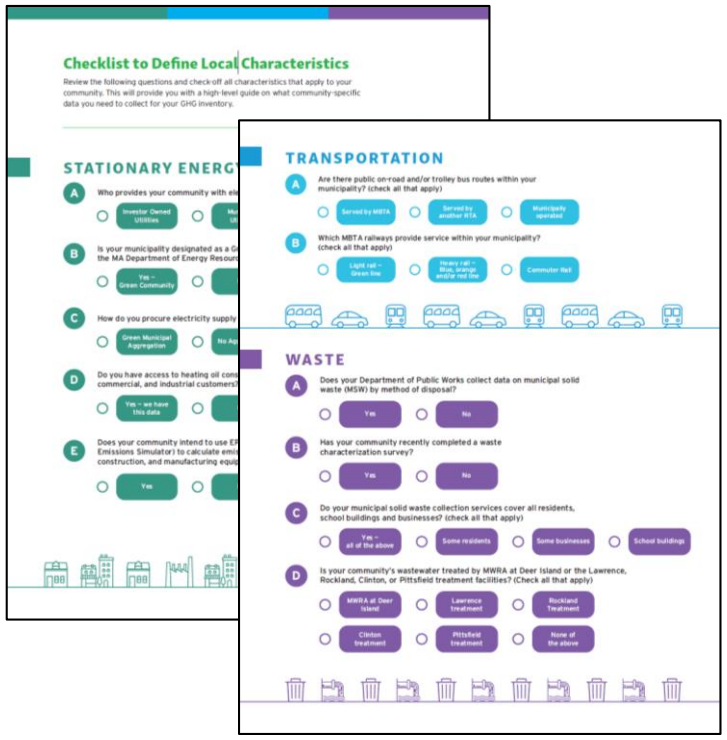


The Guide – "A Step-by-Step Guide on Greenhouse Gas Inventories for Massachusetts Cities & Towns"

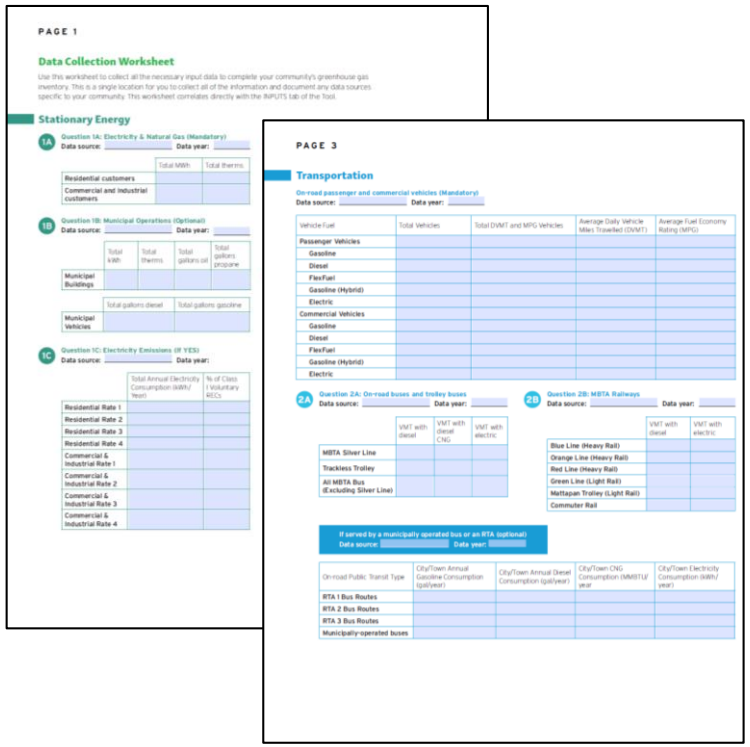


The Tool – "MAPC's Community Greenhouse Gas Inventory Tool"

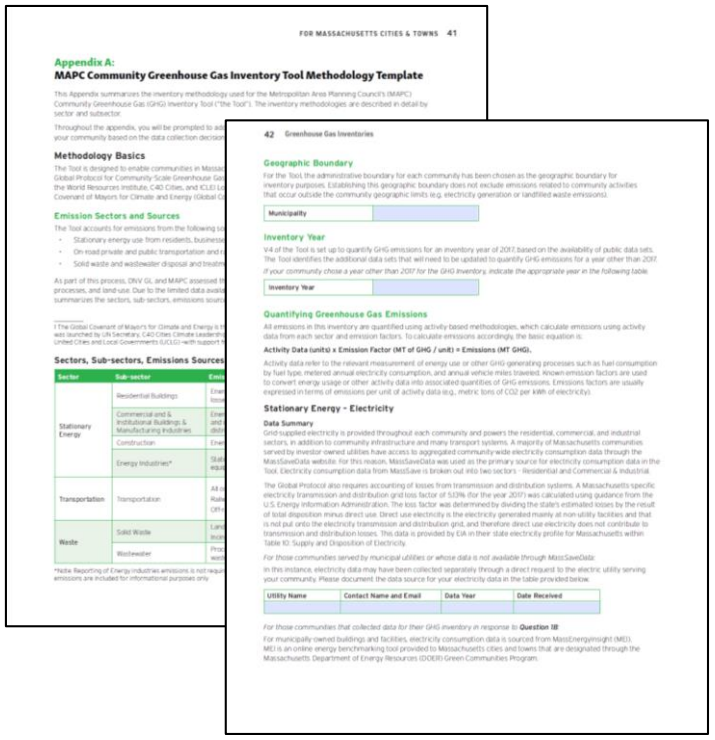
The Guide



Checklist to Define Local Characteristics

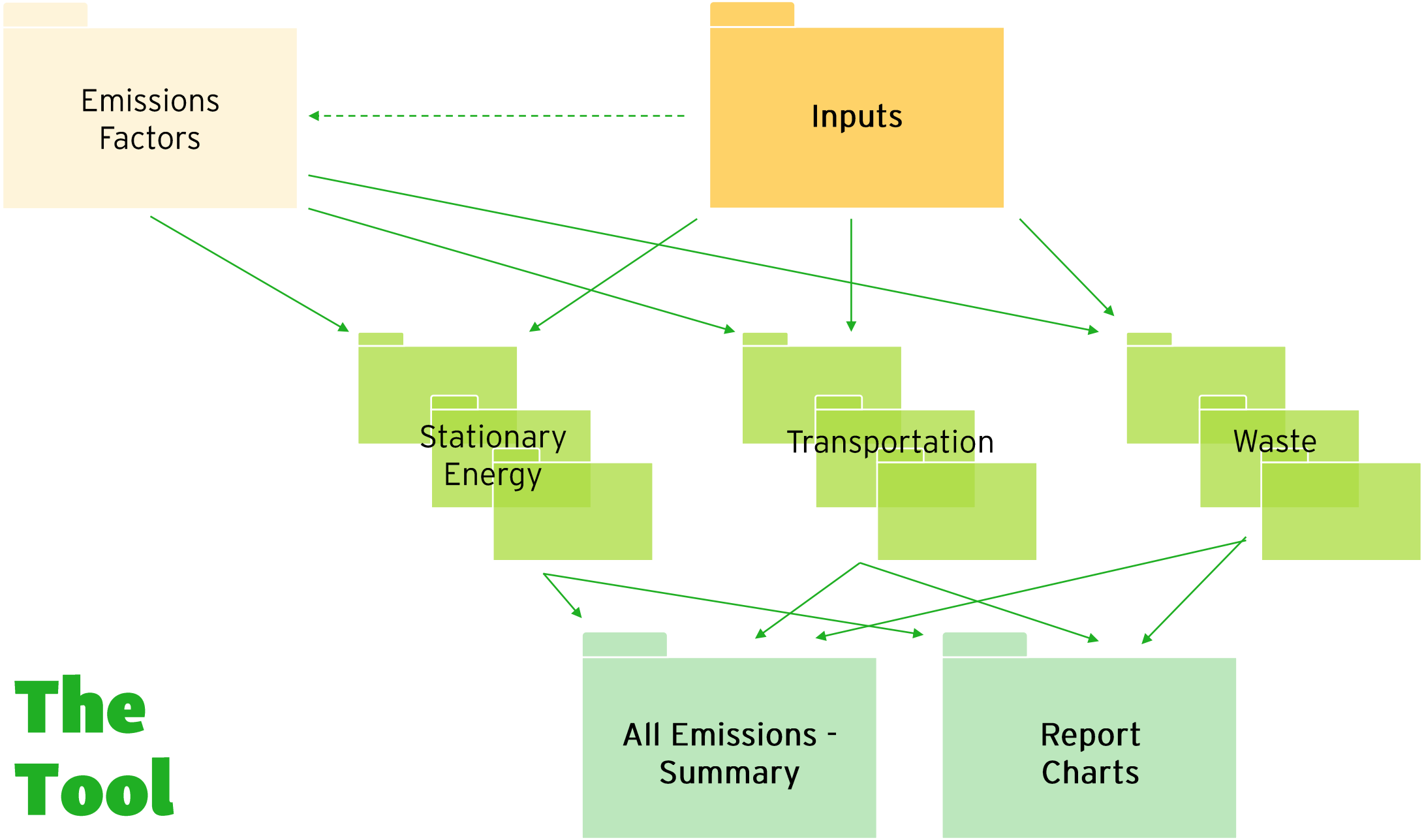


Local Data Collection Worksheet

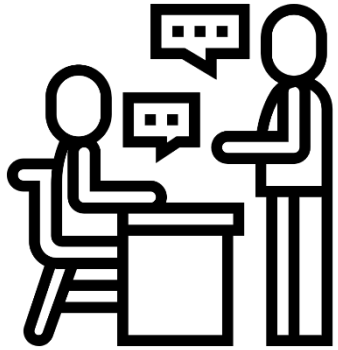


Methodology Template

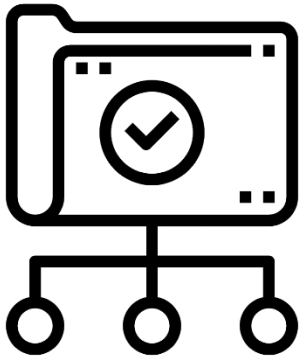
The Tool


Emissions Factors
Inputs
Stationary Energy
Transportation
Waste
All Emissions - Summary
Report Charts

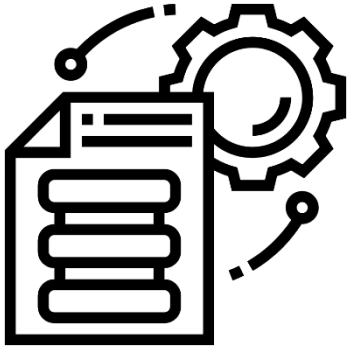
Creating a Local Process



Identify a responsible party for GHG inventory updates.



Store all files and supporting data in a central location.



Log changes made to the data and methods.

How to use these resources

1. Review the **Guide.**
2. Fill out the **Checklist to Define Local Characteristics.**
3. Identify the data you need to collect.
4. Issue any data requests necessary and collect publicly available data.
5. Complete the **Data Collection Worksheet**
6. Add collected data in the "**Inputs**" tab of the Tool.
7. Fill out the **Methodology Template** to reflect the data collection decisions that were made.

Upcoming Training Opportunity!

Join MAPC for a virtual training where we will provide in-depth guidance on how to use these new resources and data collection process for each sector.

GHG Inventory Training

Thursday, June 25, from 1:00 to 2:30PM

Register at www.mapc.ma/ghginventorytraining

Questions?

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Additional GHG Slides

Sectors and sources included

Sector	Sub-sector	Emissions sources	Energy types
Stationary Energy	Residential	Energy use in residential buildings as well as losses from distribution systems.	Electricity Natural gas Heating fuel oil Petroleum products
	Commercial, Industrial, and Manufacturing	Energy use in commercial, government and institutional buildings, manufacturing and industrial facilities, as well as losses from distribution systems.	
	Construction and Landscaping	Energy use from construction and landscaping equipment and activities.	
	Energy Industries	Stationary combustion of fuel in various equipment, such as boilers and generators.	Various – may include natural gas, propane, diesel, and waste-to-energy
Transportation	On-road vehicles	All trips taken by passenger and commercial vehicles registered in the community. Portion of trips taken within the community boundary by on-road buses and trackless trolleys.	Gasoline Diesel CNG Electricity
	Railways	Portion of trips taken within the community boundary by public light and heavy rail.	
Waste	Solid Waste	Municipal solid waste disposed in/by landfills, incineration, composting, and anaerobic digestion.	Landfill gas (methane)
	Wastewater	Process and fugitive emissions from treating wastewater.	Not applicable

BASIC sources *not* included

Stationary Energy:

- **Agriculture, forestry, and fishing activities:** emissions that result from direct fuel combustion to support these activities (e.g., machinery, generators, pumps, etc.)

Transportation:

- **Commercial and national railways:** passenger and freight activities associated with commercially owned railways servicing or running through communities
- **Waterborne navigation and aviation:** ships, ferries, and other boats operating within the community boundary, and air travel occurring within the community boundary.
- **Off-road vehicles:** emissions that result from airport equipment, agricultural tractors, chain saws, forklifts, snowmobiles, etc.

Waste:

- **Industrial waste:** waste generated from industrial processes and technologies.

Optional sources included for tracking

Energy industries

- Emissions accounted for in natural gas consumption and grid-supplied electricity emissions factors
- Option to track separately

Privately-hauled waste

- Residents served by private haulers
- School buildings
- Commercial entities

Regional transportation authorities

- Basis for replicating simplified methodology for tracking emissions

Climate-Smart Zoning & Permitting

Strategies from MAPC's Municipal Net Zero Playbook

Municipalities Can Make a Difference

Take Opportunities for Leadership

- Allow By-Right
- Establish Climate Overlays
- Require Energy Efficiency and Clean Energy
- Streamline Permitting for Net Zero Buildings

Allow Clean Energy By Right

By-Right Ultra-Low Emissions Building Systems

In order to foster further adoption of building systems that help to mitigate climate change by reducing GHG emissions or employing very low-emissions technologies, such as air-source heat pumps, Somerville should allow for these system components by-right. The goal of this language would be to future-proof the code as well as to encourage new technologies and efficiencies that mitigate climate change.

This would include:

- Community Shared Solar Systems
- Solar Photovoltaic Panels and Solar Thermal Collectors
- Compressors and equipment for Air-Source Heat Pumps
- Energy Storage

Establish Climate Overlays

By Building Standard

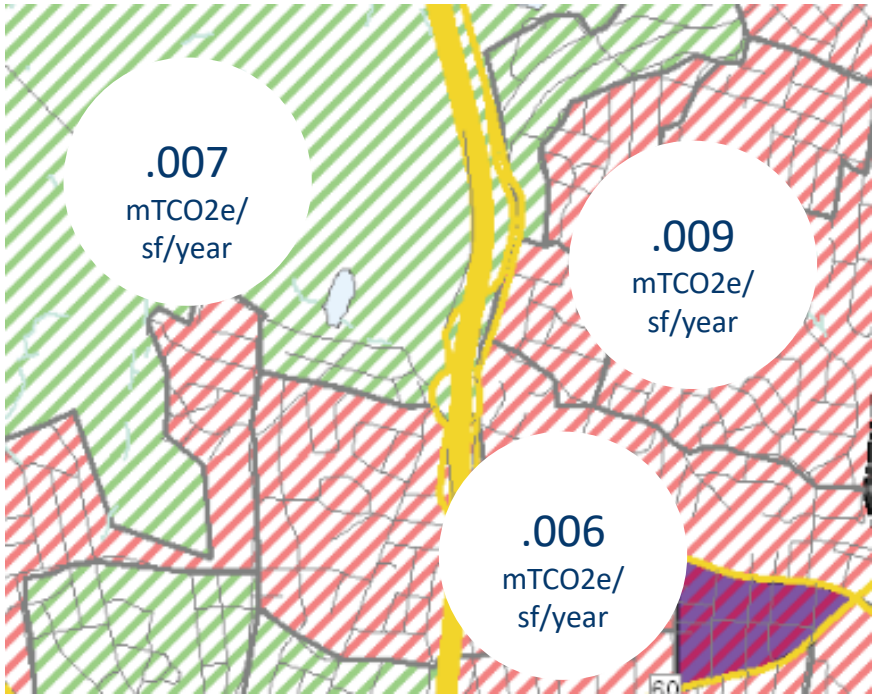
PHIUS
Passive House Institute US

architecture 2030

U.S. GREEN BUILDING COUNCIL
LEED
USGBC

INTERNATIONAL WELL BUILDING INSTITUTE™

By CO_{2e} Emission Cap



Climate Overlay Zone

GHG Emission Reduction Overlay Mechanisms:

Buildings

- Require buildings to meet Passive House standards
- Allow for accessory dwelling units by-right
- Co-locate residential and commercial uses to enable ease of microgrid implementation

Transportation

- Deploy Car-Free Zones
- Install protected bike and walking infrastructure
- Climate paving: Require new paving to be permeable to absorb stormwater, reduce run-off, and utilize albedo in order to mitigate urban heat islanding.
- Electric vehicle charging infrastructure: Require additional density of EV charging stations at perimeter parking spaces, and enable ZEV car sharing.

Energy Source

- Enable infrastructure for district heating and cooling systems
- Require onsite renewable energy, when feasible
- Require electrification of new buildings
- Allow community shared solar (CSS) by right
- Encourage battery storage and distributed renewable energy

Open Space and Landscape

- Require stormwater management in roofs and pocket parks
- Increase Green Area Ratio requirements within the overlay
- Multi-use civic space: Encourage additional community gardens, shade trees, picnic tables and other infrastructure within civic zones to encourage public engagement in parks and open space.

Require Energy Efficiency and Clean Energy

- Require Eco-Roofs
- Adopt a Green Code
- Encourage Existing Buildings to Use Climate Mitigation Strategies
- Electrify Residential and Commercial Buildings

Eco-Roof Requirement

Solar Thermal System
A system to offset the heating load of the building by pre-heating the building's water with heat generated from solar collectors on the roof.

White (or Cool) Roof
A finishing or surface that reflects more light than it absorbs, lowering the temperature of the air around it, and thereby helping to reduce urban heat island impacts.

Renewable Energy Generation
This could be a solar photovoltaic system or a micro-scale wind generation system.

Green Roof
A roof system with living green infrastructure with the purpose of mitigating urban heat, storing water, improving air quality, or as a location for urban farming.

Blue Roof
A roof system employed in storm water management. This could be active or passive water storage and drainage systems.

Establish a Green Code

Revised 12/28/10

Green Factor Score Sheet

SEATTLE×green factor

Project title:

		enter sq ft of parcel			
	Parcel size *(enter this value first)* *	5,000		SCORE	-
	Landscape Elements**	**Totals from GF worksheet**		**Factor**	**Total**
A	**Landscaped areas (select one of the following for each area)**				
1	Landscaped areas with a soil depth of less than 24"	*enter sq ft* 0		0.1	-
2	Landscaped areas with a soil depth of 24" or greater	*enter sq ft* 0		0.6	-
3	Bioretention facilities	*enter sq ft* 0		1.0	-
B	**Plantings (credit for plants in landscaped areas from Section A)**				
1	Mulch, ground covers, or other plants less than 2' tall at maturity	*enter sq ft* 0		0.1	-
2	Shrubs or perennials 2'+ at maturity - calculated at 12 sq ft per plant (typically planted no closer than 18" on center)	*enter number of plants* 0	0	0.3	-
3	Tree canopy for "small trees" or equivalent (canopy spread 8' to 15') - calculated at 75 sq ft per tree	*enter number of plants* 0	0	0.3	-
4	Tree canopy for "small/medium trees" or equivalent (canopy spread 16' to 20') - calculated at 150 sq ft per tree	*enter number of plants* 0	0	0.3	-
5	Tree canopy for "medium/large trees" or equivalent (canopy spread of 21' to 25') - calculated at 250 sq ft per tree	*enter number of plants* 0	0	0.4	-
6	Tree canopy for "large trees" or equivalent	*enter number of plants* 0	0	0.4	-

Rental Licensing for Energy Efficiency

Boulder, CO **Smart Regs**

Rental property owners comply with either a performance or prescriptive path.

Performance: HERS score of 120 or lower
Prescriptive: Must achieve 100 points or more from checklist

Implemented in 2011 with a deadline of 2018
Violation fines from $150 - $1,000

https://bouldercolorado.gov/plan-develop/smartregs

Streamline Permitting for Net Zero Buildings

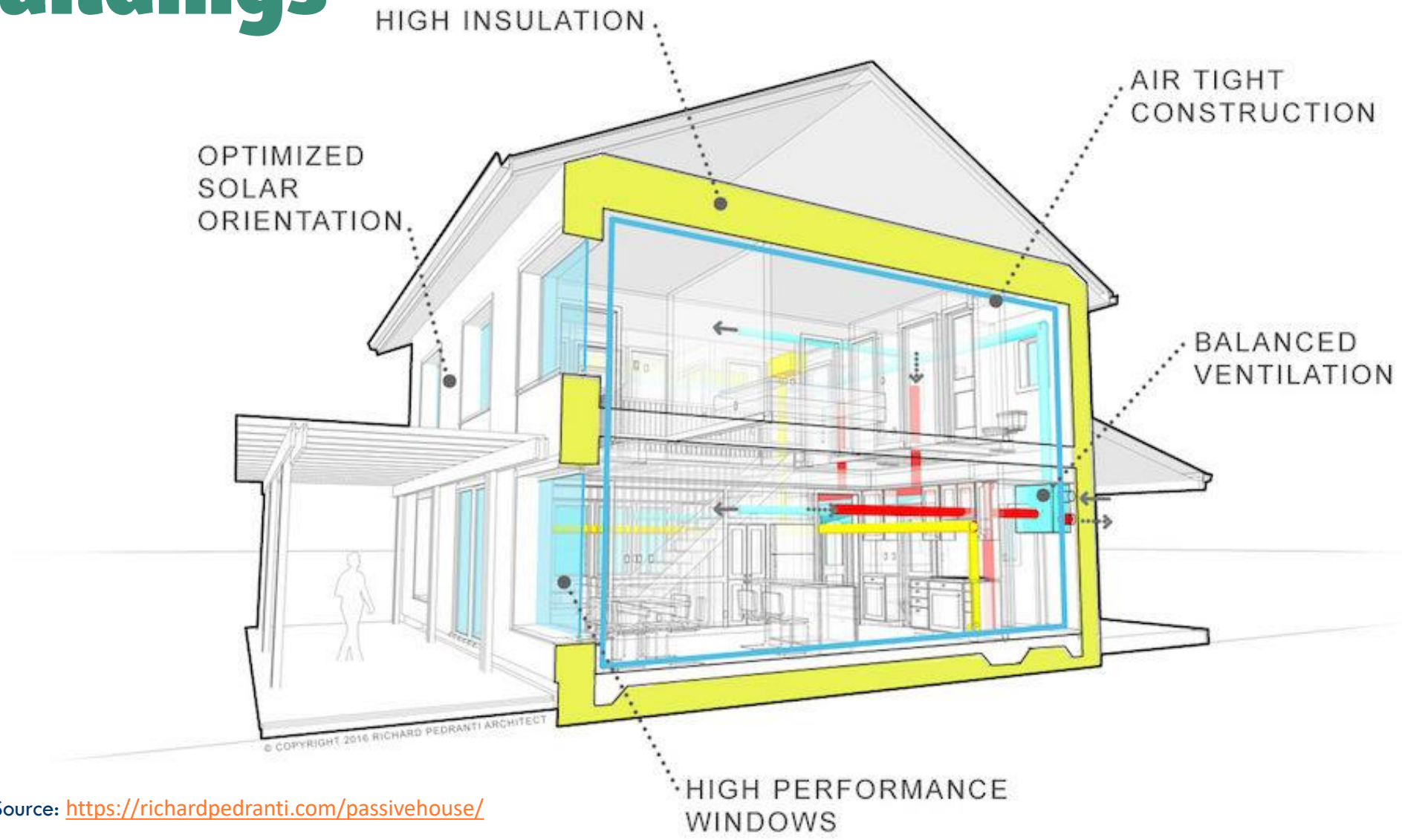
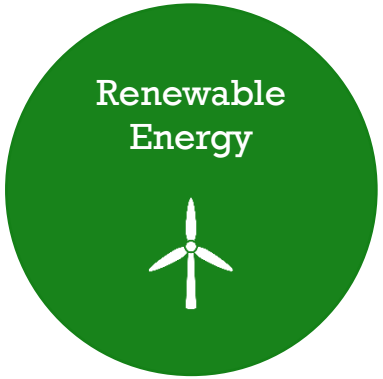


Image Source: https://richardpedranti.com/passivehouse/

Local Example: Watertown Solar Zoning



New **Section 8.05**, and amend **Section 9.03(a)**, for an updated Solar Energy System Assessment

- Require **projects of 10,000 s.f.** or more **or 10 or more residential units** to include a solar energy system equivalent to 50% of the roof area of buildings as well as 90% of uncovered area of parking structures
- Provide exemptions for a lack of a solar-zone or for load feasibility
- Section 5.04: Amend/clarify that solar systems are not included in Building Coverage or Impervious Cover

https://www.watertown-ma.gov/DocumentCenter/View/26235/2018-11-27-Zoning---Solar-Assessments

Local Example: Somerville Zoning Overhaul

https://www.somervillezoning.com/

PROPOSED CODE | ZONING MAPS | ABOUT THE OVERHAUL | ZONING INFOGRAPHICS | EXISTING ZONING | EVENTS

Proposed Code

Below is the current draft of the proposed new Somerville Zoning Ordinance. A change log and previous drafts are at the bottom for reference. To see what district your property is located under in the proposal check the **Zoning Atlas**.

Article 2: Overview & Guide explains how the 'building type' based system of the proposed Ordinance functions, describes each line item from the building type tables, provides instruction for how to measure each requirement, and includes other standards and reference information.

Public Hearings, Meetings, and Presentations

Land Use Committee Meeting (05/14/2019) – **Presentation**, Video

Maintained by the City of Somerville's Planning Department

Email us your feedback at:
planning@somervillema.gov

Language Options

EN HT PT ES

Zoning Mailing List

Questions?

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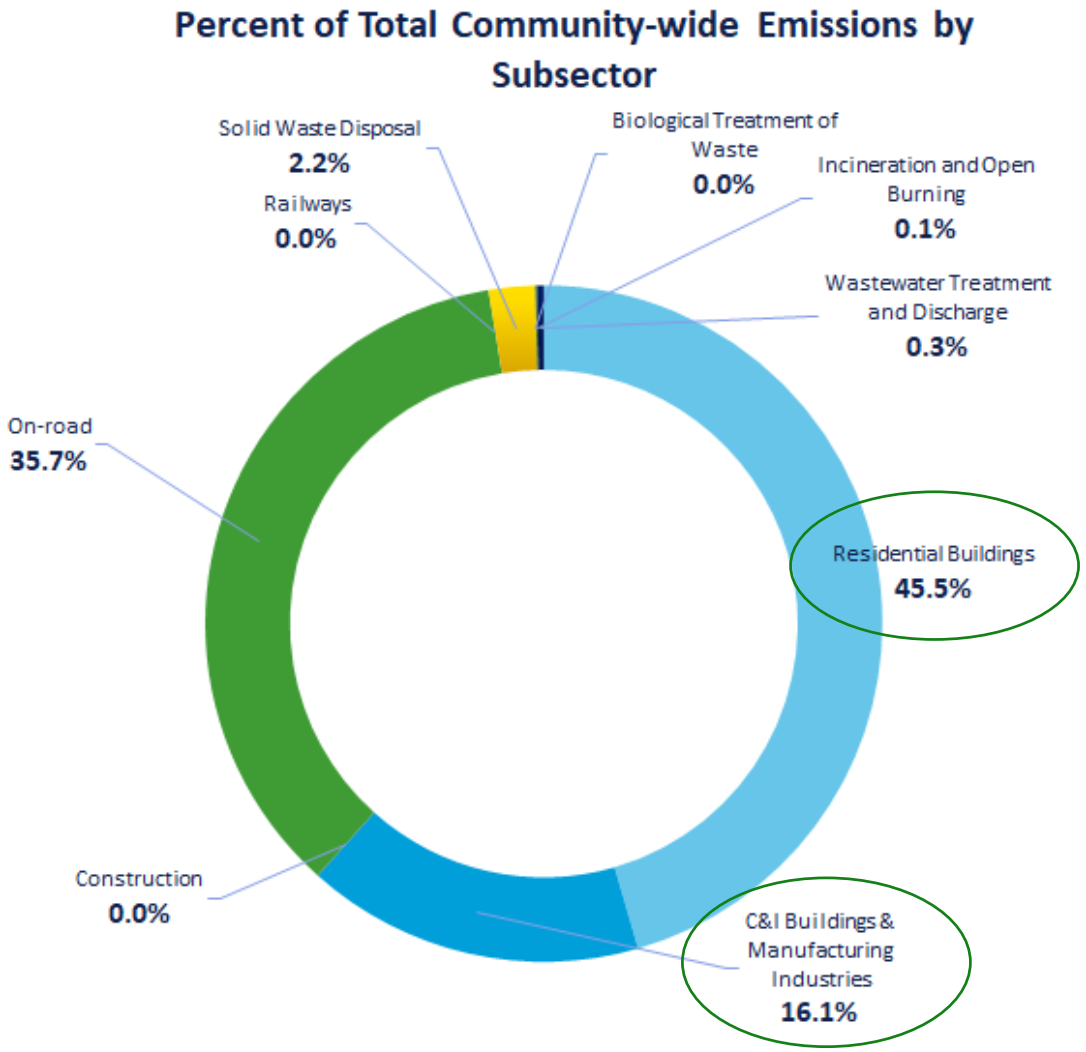
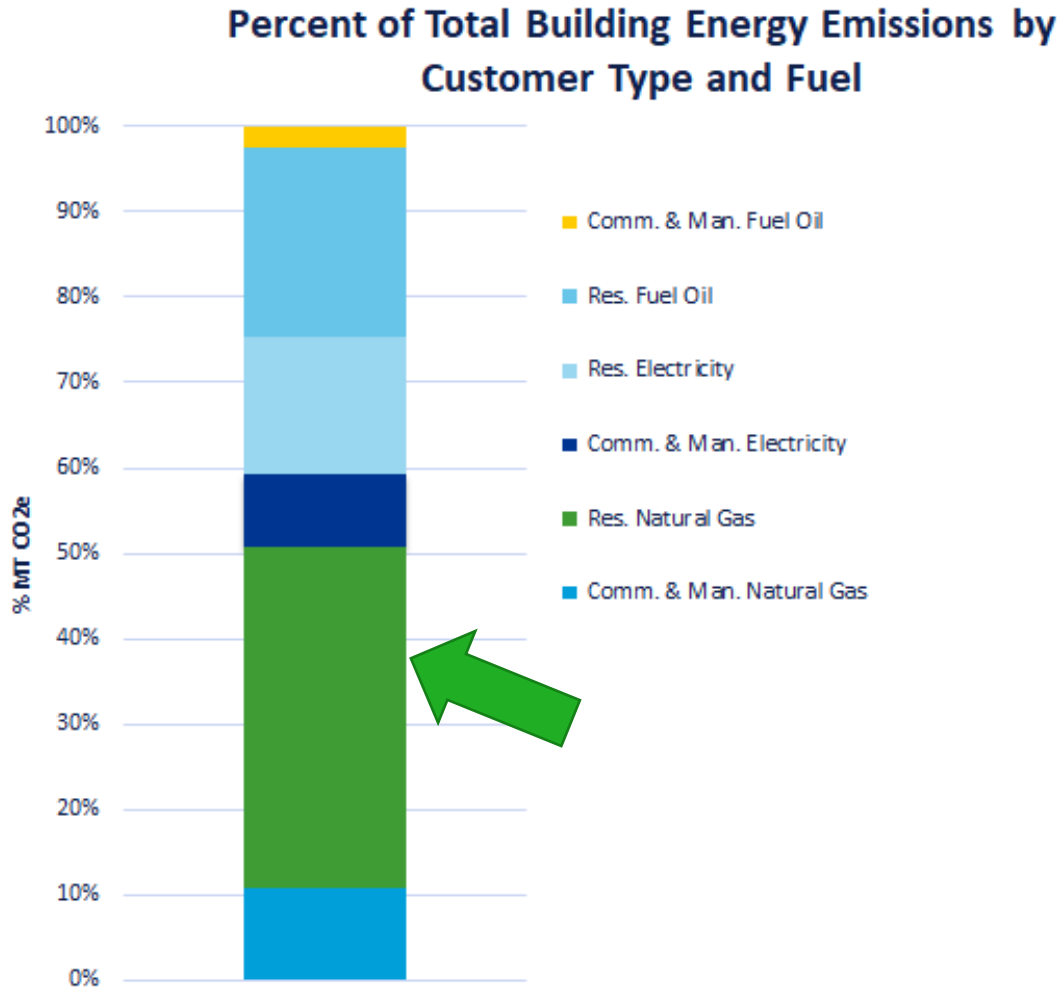
Net Zero Buildings

Strategies from MAPC's Municipal Net Zero Playbook

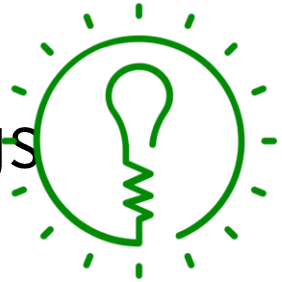
Buildings: The Foundation of Net Zero Action





Strategies

- Reduce emissions in buildings

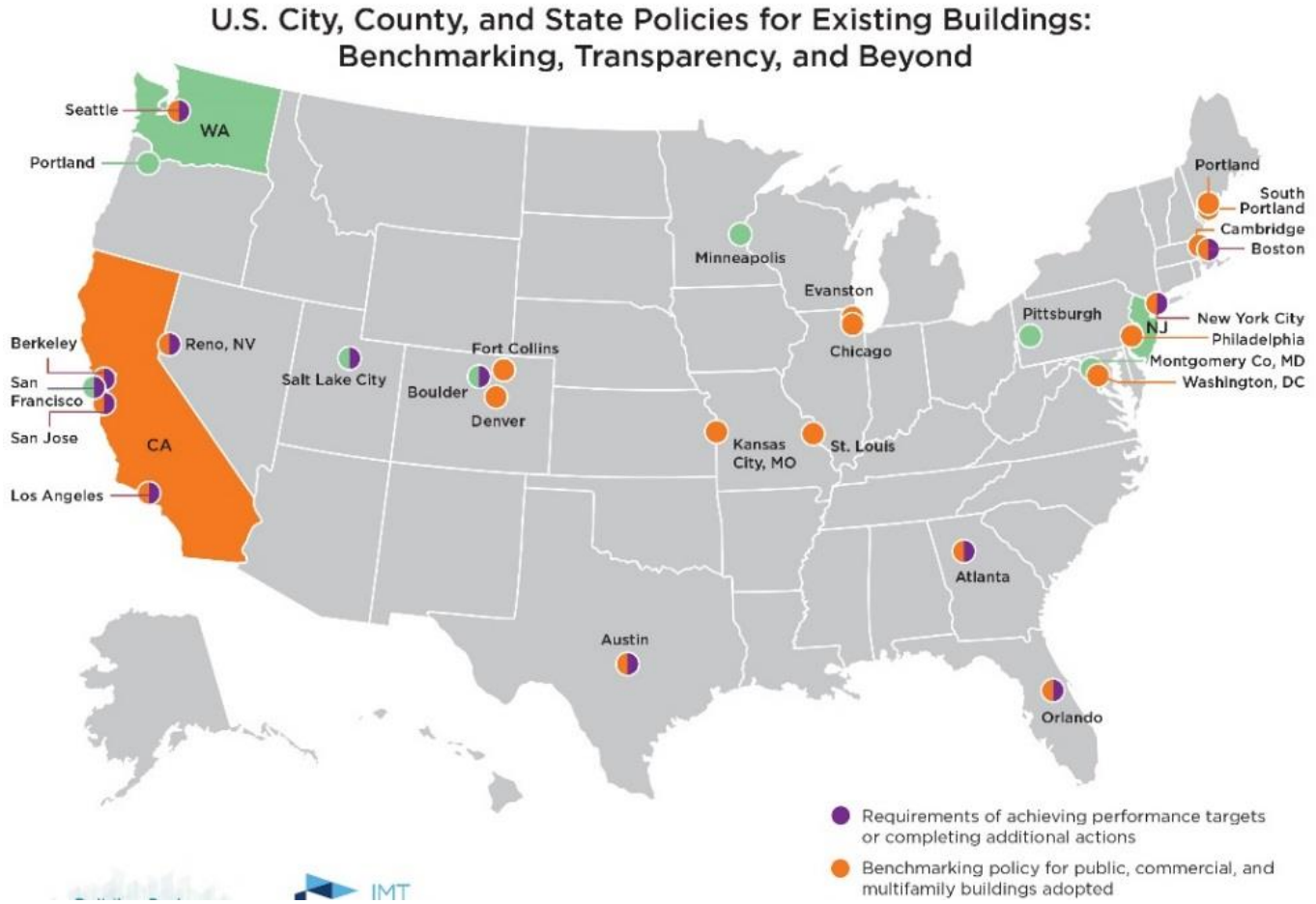


- Electrify buildings

Partner on Outreach Programs to Increase Uptake of Clean Energy

Adopt a Building Energy Use Disclosure and Reporting Policy for Buildings

- Require large buildings to report energy usage annually
- "You can't manage what you don't measure."



Develop a Carbon Emissions Performance Standard to Decarbonize Existing Buildings

BERDO | *Building Energy Reporting and Disclosure Ordinance*

ENERGY ACTION AND ASSESSMENT HOW-TO GUIDE

JANUARY 2019

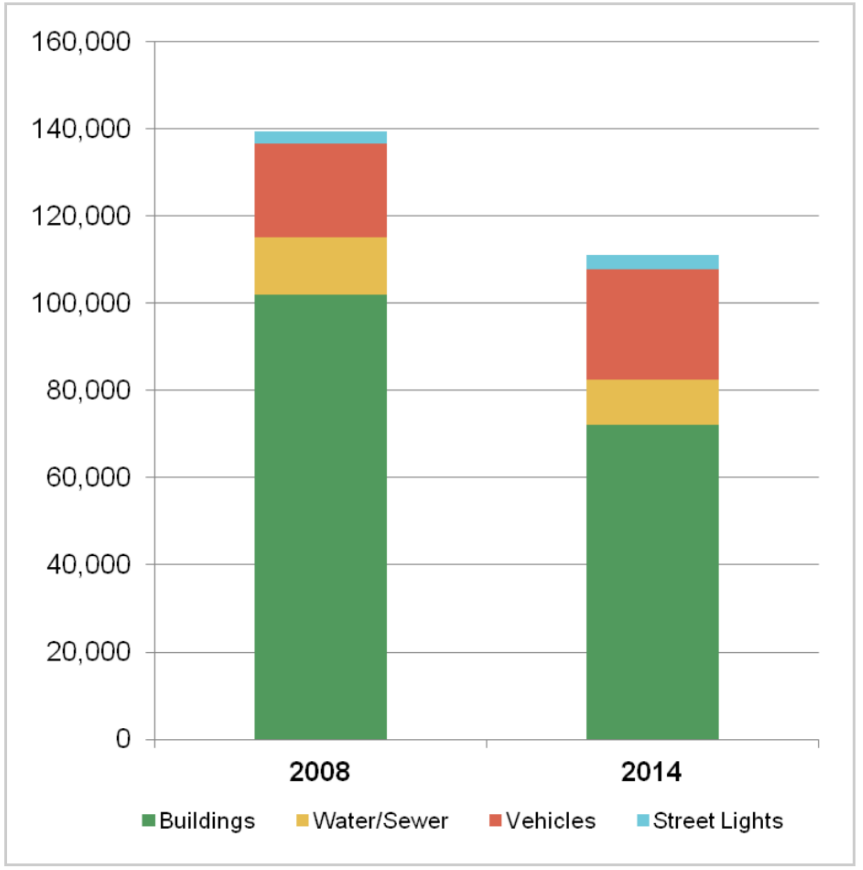
A step-by-step guide to completing the five-year energy action and assessment compliance requirements

Create and Preserve Energy- and Water-efficient Affordable Housing

Mattapan Station Passive House Equitable Transit-Oriented Development

Incentivize Building Owners to Transition to Efficient Electric Heating, Cooling, and Cooking Appliances

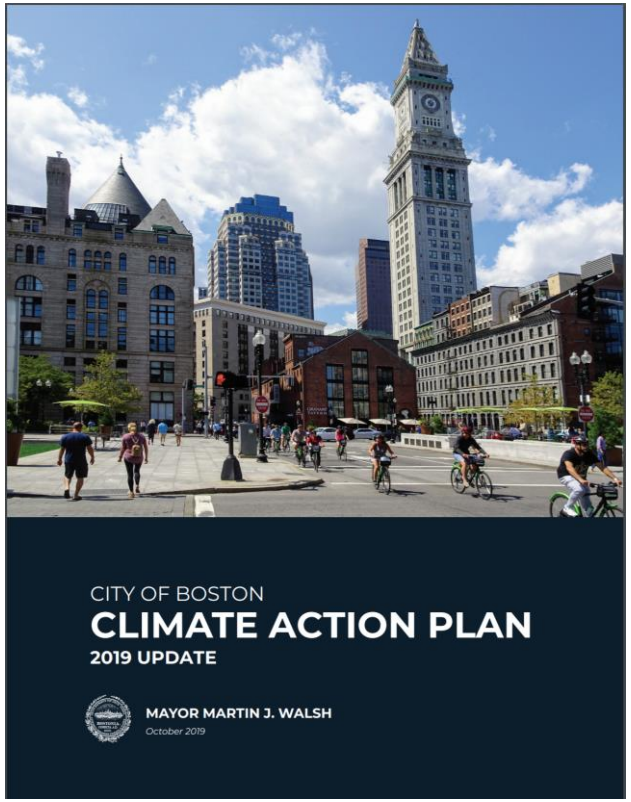
Lead by Example - Retrocommissioning, Deep Energy Retrofits, and Maximizing Renewable Energy in Municipal Buildings



Lead by Example - Adopt a Net Zero Carbon Standard for New Municipal Buildings and Municipally-funded Affordable Housing

1 CONSTRUCT NEW MUNICIPAL BUILDINGS TO A ZERO NET CARBON STANDARD

The City of Boston will strengthen its new municipal building requirements to a multi-tiered Zero Net Carbon (ZNC) standard. This standard will significantly reduce or completely eliminate the use of fossil fuels in future City buildings.



WHAT DOES IT MEAN TO CARRY OUT A DEEP ENERGY RETROFIT AND ELECTRIFY A BUILDING?

Deep energy retrofits achieve at least a 50 percent energy use reduction by:

- *Upgrading mechanical systems, lighting systems, and appliances;*
- *Insulating walls, roofs, crawlspaces, and foundations;*
- *Upgrading HVAC and plumbing;*
- *Replacing windows;*
- *Air sealing; and*
- *Installing renewable energy systems where possible.*

Electrification means converting fossil fuel systems to electric equivalents. For example, a building owner could replace a fuel oil boiler with a heat pump. By combining deep energy retrofits with electrification and clean energy procurement, existing buildings can become carbon neutral.

WGBH

LOCAL

Boston To Require All New City-Owned Buildings To Be 'Net-Zero' For Carbon Emissions

Advocate for Net Zero Policies

- **Local:** Time of sale energy disclosure or upgrade requirement
- **State:** Net zero stretch building energy code
- **State/ Federal:** Increased funding and financing options for deep energy retrofits and electrification

Questions?

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Closing Poll Everywhere

Questions?

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