

# Preview of the TOMCAP

Presented by the  
Medfield Energy  
Committee

Town of Medfield Climate  
Action Plan workgroup

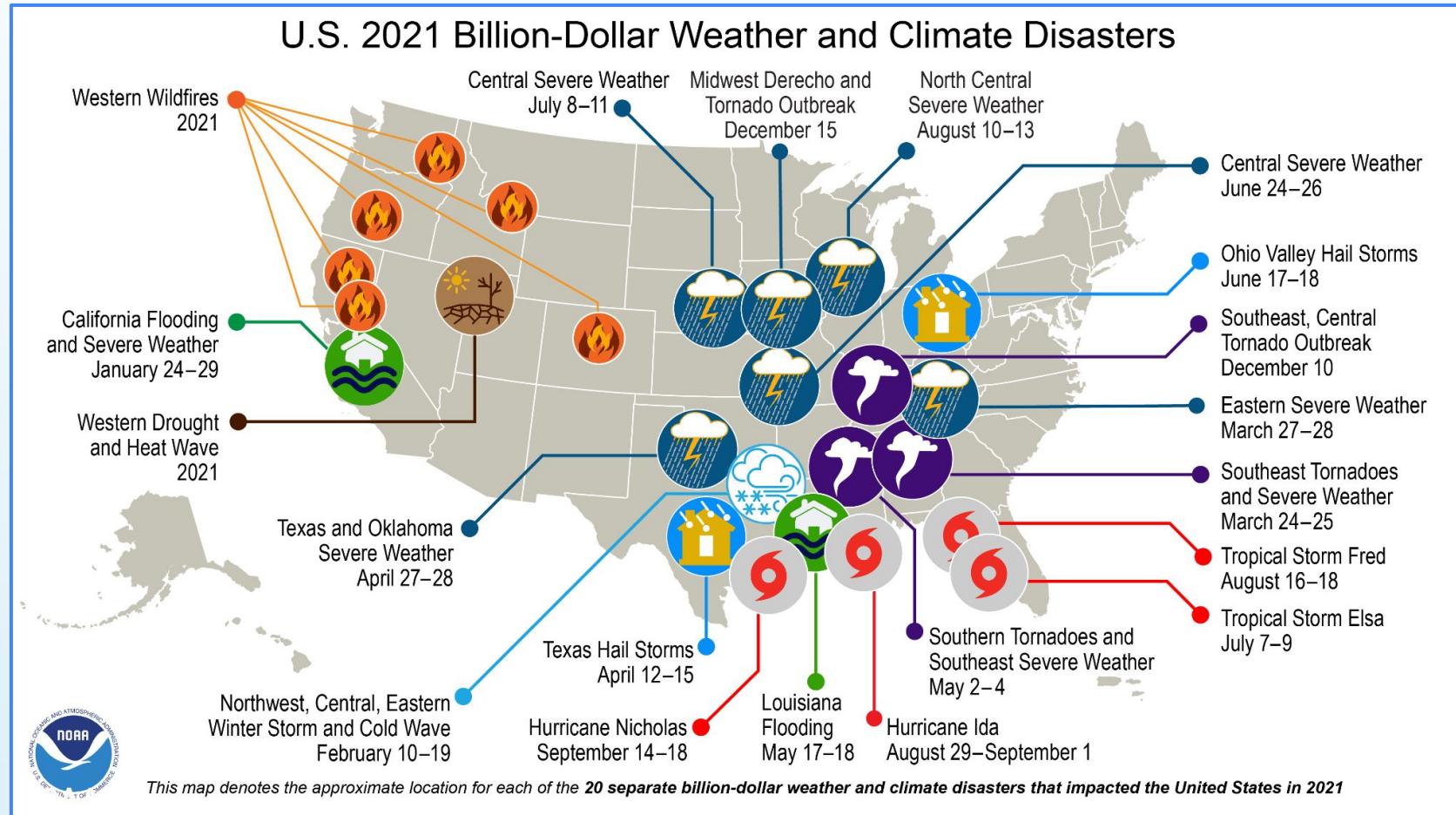
January 31<sup>st</sup>, 2022



## Town of Medfield **CLIMATE ACTION PLAN**

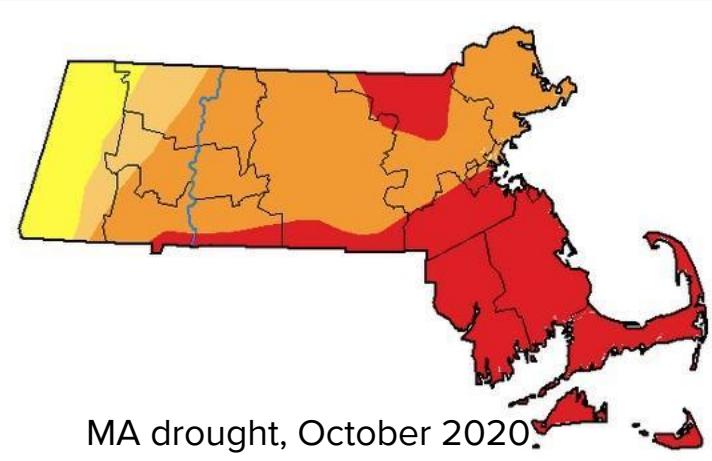


# Climate Emergency requires urgent action



- **4th warmest year on record**
- **20 Billion-dollar weather and climate disasters**
- **\$145 Billion total damage**
- **6 warmest years on record in USA all between 2012-2021**
- **2nd hottest year on record for NH and ME**
- **9th wettest year on record for MA**

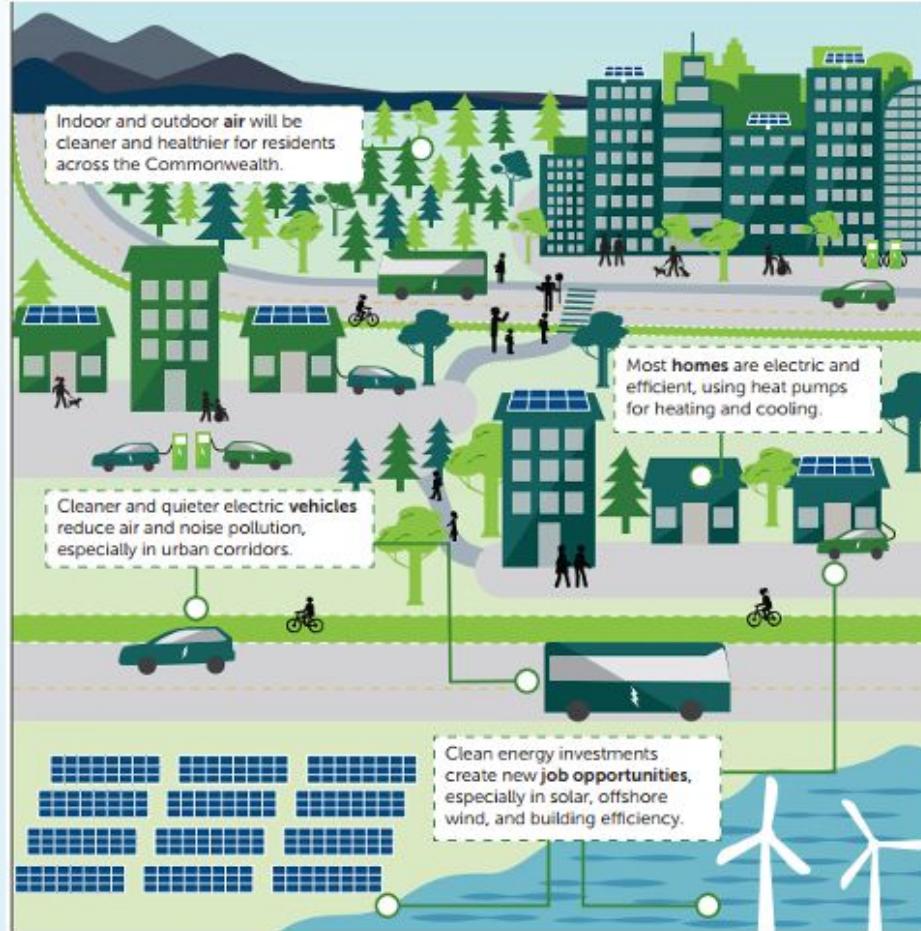
# Climate change impacts our community and requires urgent action



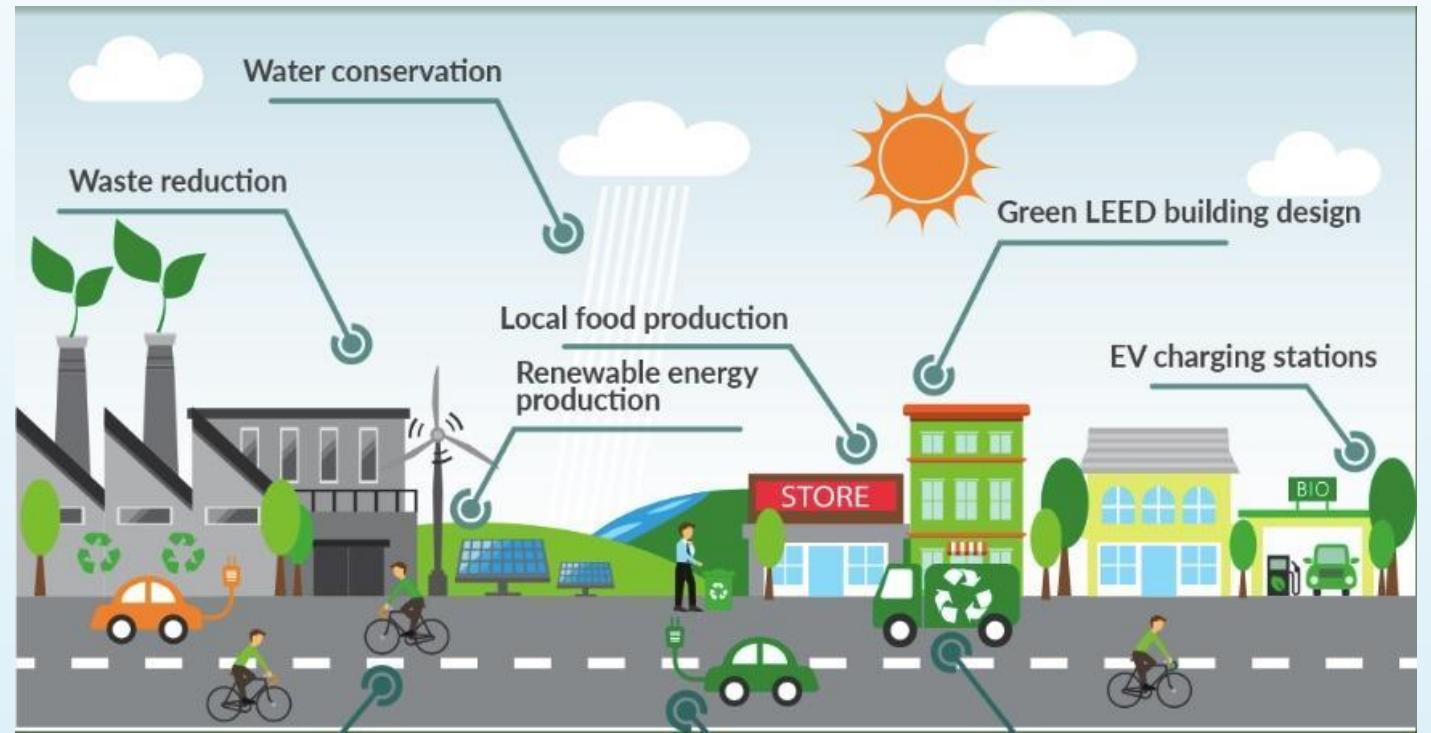
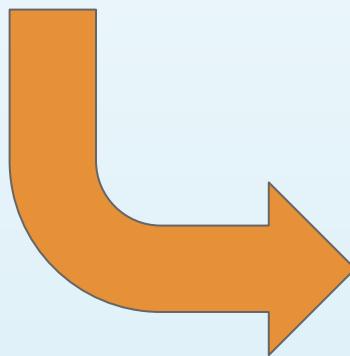
<https://droughtmonitor.unl.edu/Maps/MapArchive.aspx>



# Climate change is a crisis and an opportunity



- Build resilient infrastructure
- Prosperity
- Health benefits
- Energy independence
- Less resource use and less waste
- Lower cost & less damaging energy production
- Avoided cost of weather impact
- Protect ecosystems on land and at sea





**The Climate Emergency  
Demands that  
the Adoption of New Technology  
Accelerates**



## EV: Electric Vehicle





## HP: HeatPump





## PV: PhotoVoltaics





# Do we find new technologies...



# Do we find new technologies..

- Intimidating?



# Do we find new technologies..

- Intimidating?
- Strange?



# Do we find new technologies..

- Intimidating?
- Strange?
- Scary?



# **Medfield: We have done this before!**



## Medfield's Predominant Form of Transportation

with appreciation to: David Temple, Member of Medfield Energy Committee and President, Medfield Historical Society

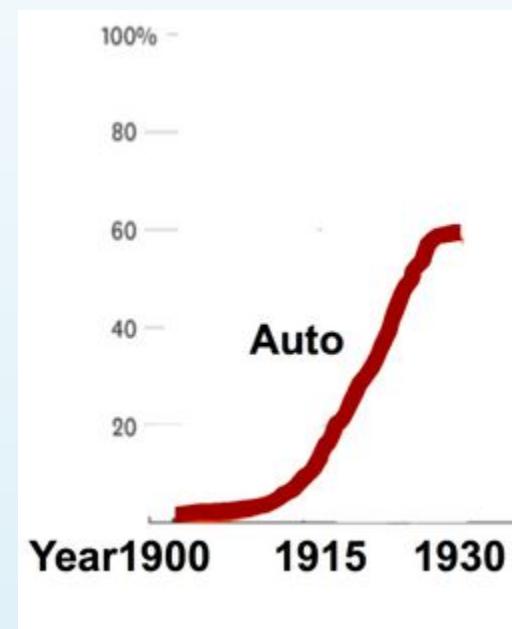


## Medfield's First Horseless Carriage (1903)

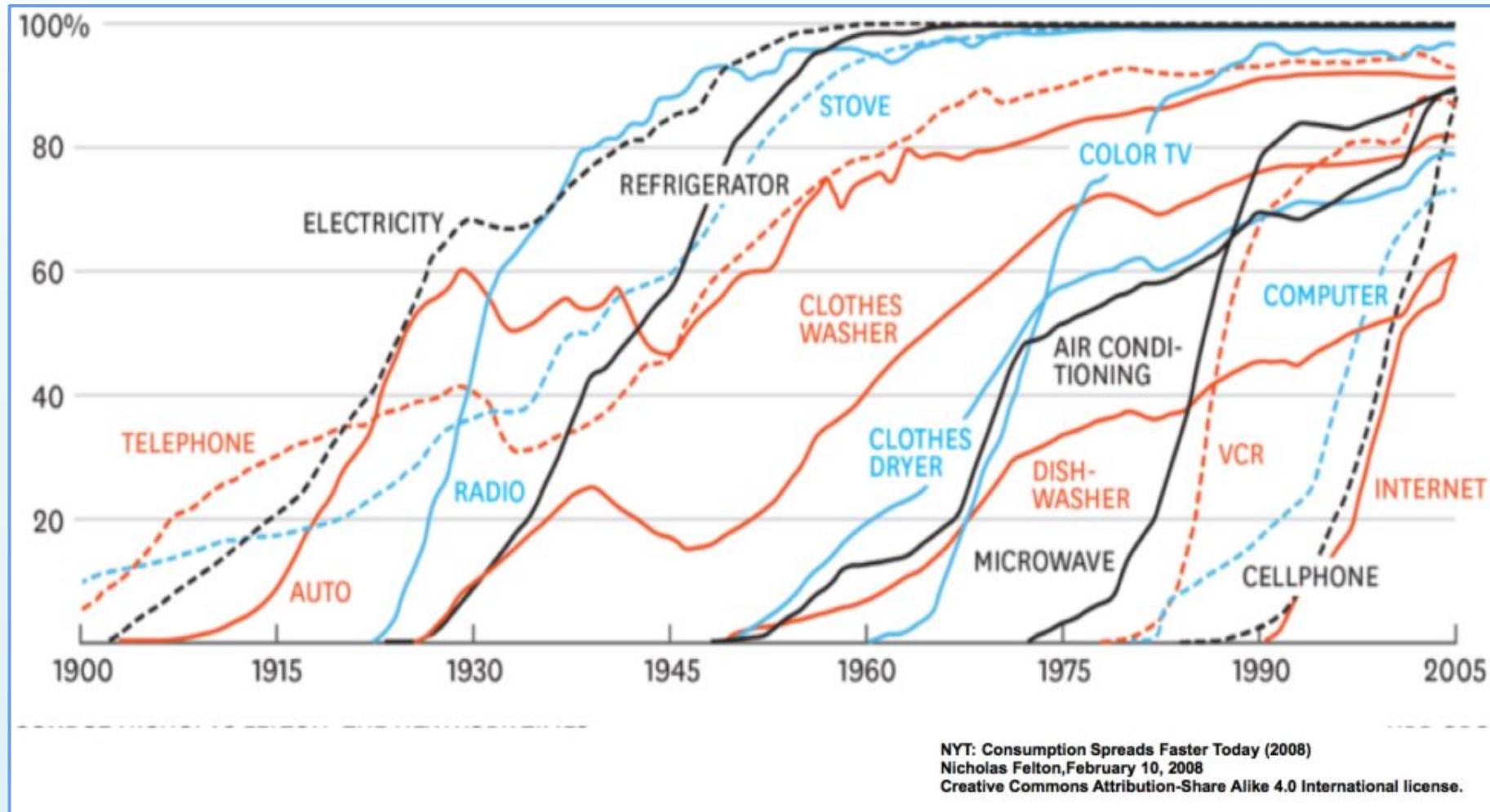
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# Adoption of new technology by household (% US)

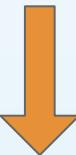


# Percent of US Households Adopting:





## Adoption of new technology is underway today



<https://burkholder-hvac.com/boilers/>



# **Medfield:**

## **We have done this before**

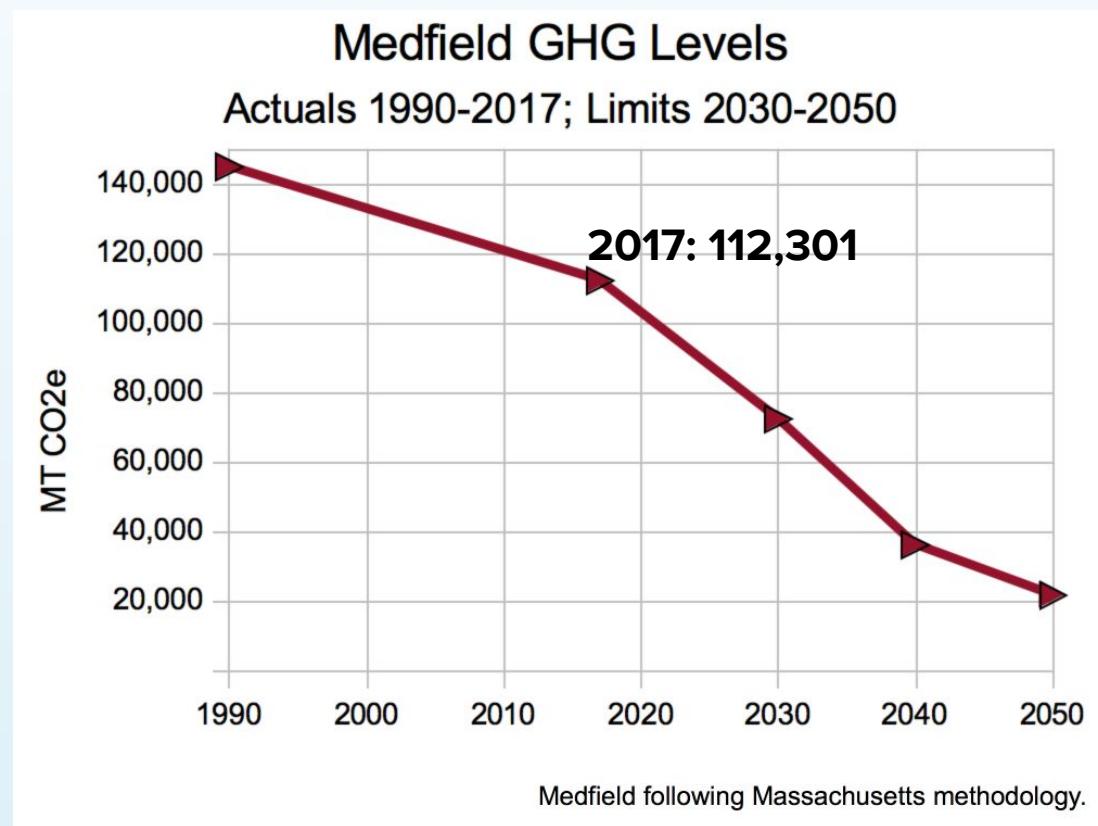
**and**

## **we can do it again!**



# Medfield Total Carbon Footprint

Whole town including residential, commercial, municipal



Medfield following Massachusetts methodology: “2017 Inventory” for Medfield, status as of Mar 9, 2021; Hildrun Passas, Medfield Energy Committee, Principal Researcher. Template: MAPC Community Greenhouse Gas Inventory Tool Version 4: April 10, 2020.



# Medfield Total Carbon Footprint

Whole town including residential, commercial, municipal

**Per-person carbon-footprint**  
2017 MT CO<sub>2</sub>e (assuming 2020 population)

Massachusetts 6.8

**Medfield** 8.8

Percent Medfield is higher than state average--> 29%

Medfield following Massachusetts methodology.

2008 Medfield Energy Committee established

2012 Infrared Survey of all buildings in Town

2016 Solarize Medfield

2016 Solar at WWTP

2016 Solar at Public Safety Building

2017 Green Community Designation

2017 GC Grant: \$146,815

2019 MSH Workgroup begun

2020 GC Grant: \$139,316

2020 PSA Campaign Zero Net in New Construction (w MEA)

2020 Net Zero Design for new Dale St. School Building

2021 Greenhouse Gas Inventory (baseline 2017)

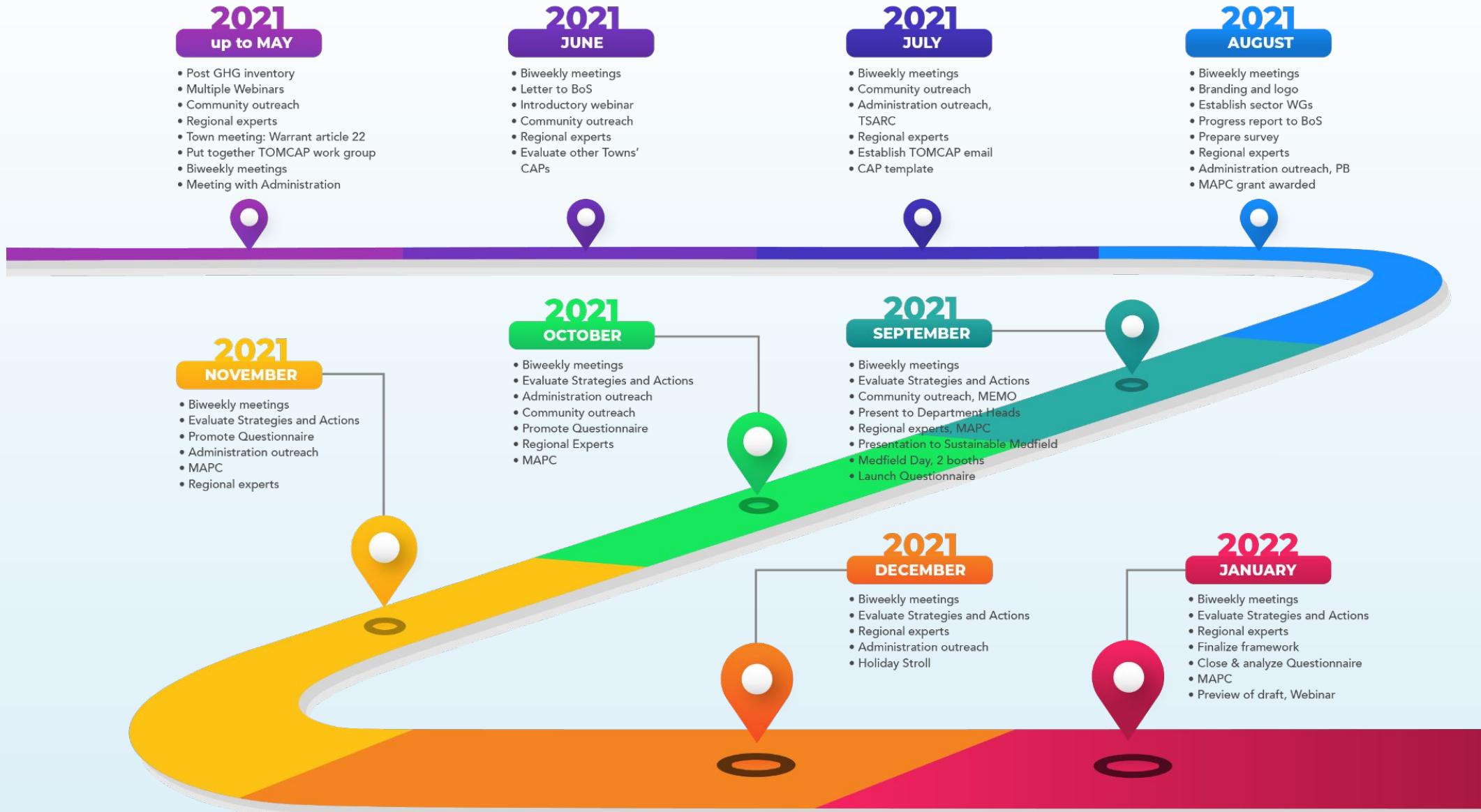
2021 TM approves Community Choice Aggregation

2021 Sustainability Coordinator (PT)

2022 GC Grant: \$179,884



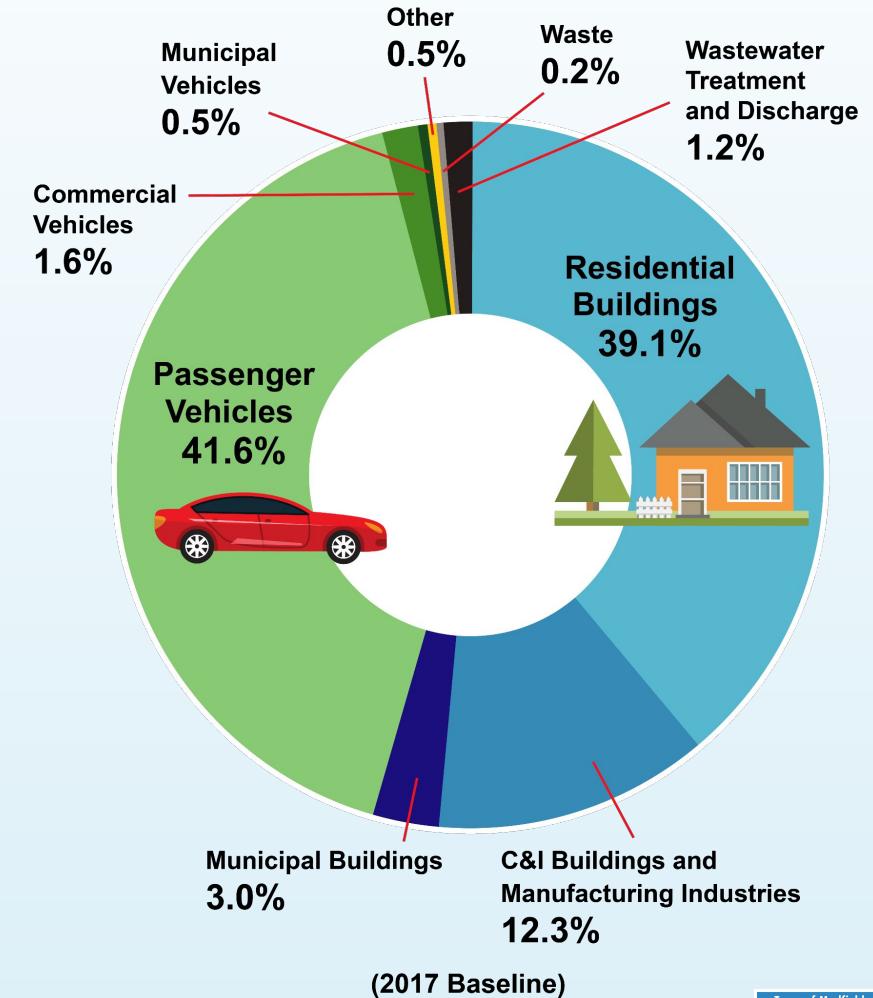
# TOMCAP Milestones and Outreach



# Medfield's Carbon Footprint

Most GHG emissions come from:

- **Passenger Vehicles (42%)**
- **Residential Buildings (39%)**



2017 Inventory" for Medfield, status as of Mar 9, 2021;

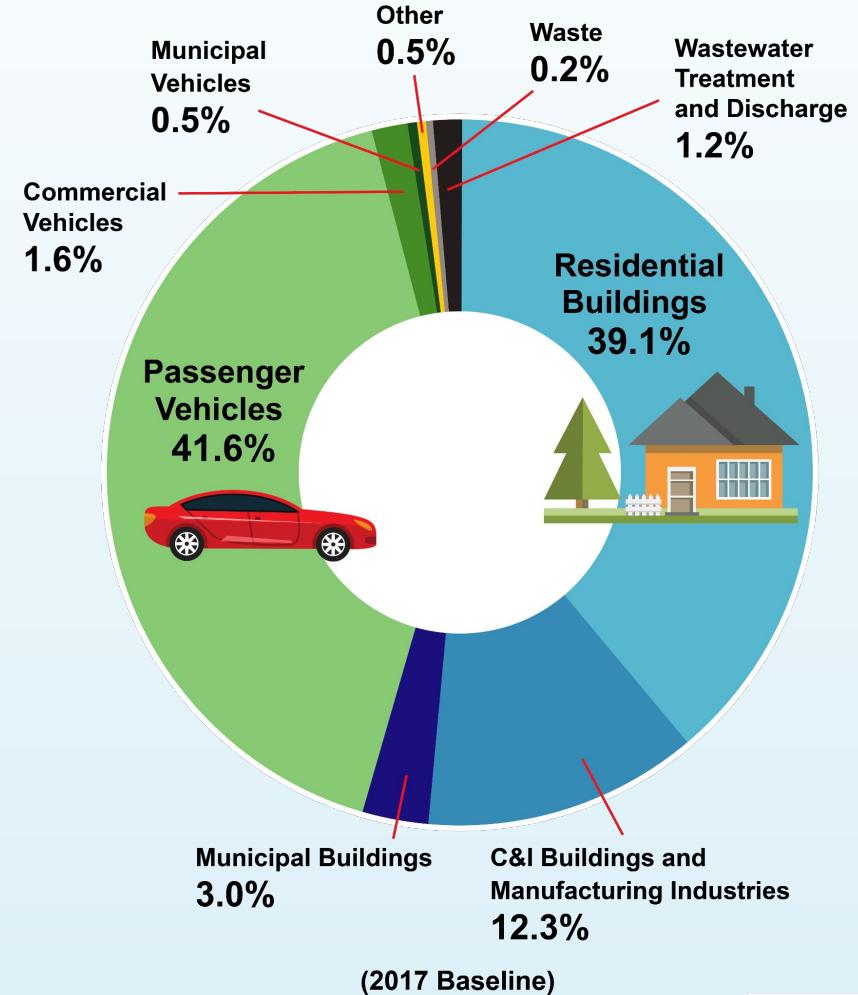
Hildrun Passas, Medfield Energy Committee, Principal Researcher.

Template: MAPC Community Greenhouse Gas Inventory Tool Version 4: April 10, 2020.

# Medfield's Action Plan

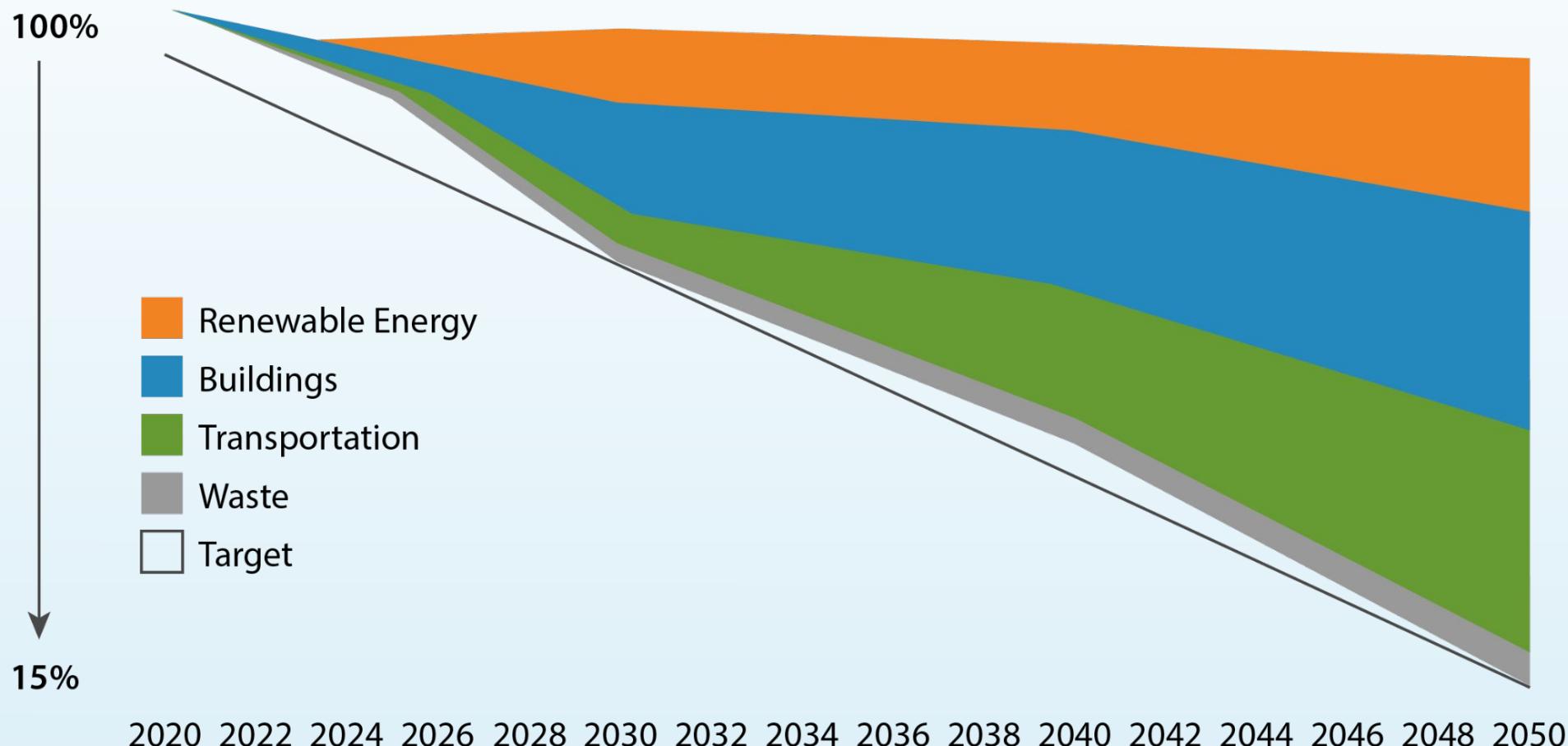
## Focus

- Biggest Bang for the Buck
  - High impact areas first
  - Technology available
  - Incentives and rebates
- The Town must lead by example.





## Medfield's Plan to Net Zero (conceptual)



# A Roadmap to 2050

Objectives

Strategies

Actions (5-10 year time horizon)

Measures of success

Implementation planning



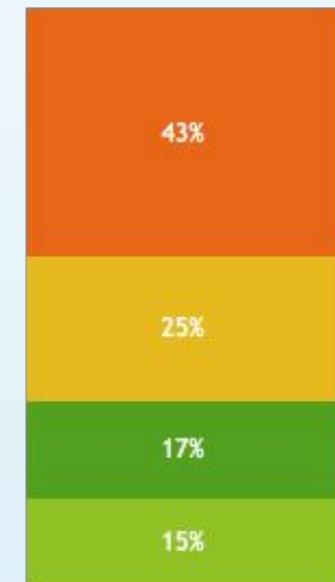
# Actions are designed to support Medfielders

- Education & Guidance
- Information sharing
- Grants, incentives, rebates
- Infrastructure
- Governance



*The largest opportunity to significantly reduce your carbon footprint is at "Natural Transition Points." It is best to plan for your future purchases before your car, furnace or appliances fail. What kind of support would you like to inform your next purchasing decision? (response choices provided)*

- Home electrification: heat pumps, heating and cooling systems, reducing fossil fuel use
- Support renewable energy, and sources for 'cleaner' electricity
- Transportation: electric vehicles, charging stations, and alternative modes of transportation
- Reduce energy load: home energy audits, weatherization and increased home efficiency



*The MEC has identified four key carbon reduction strategies for Medfield. In which area do you require further education to help you take action? (response choices provided)*

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# Priority Areas

**Renewable Energy**

**Buildings**

**Transportation**

# Renewable Energy

*Produce more energy locally and source remaining electricity via renewable resources.*

## 2030 Goals

- 100% municipal properties have solar
- 50% non-municipal roofs have solar
- 100% power supply from renewable resources

## 2050 Goal

- Installed solar capacity in Medfield maximized

# Renewable Energy

## Objective 1

Make the electricity supply  
renewable by 2030



## Objective 2

Produce more energy locally



# Transition Electricity Supply to 100% renewable

- **Medfield Community Electricity will offer supply options for Medfielders**
- **Community education and outreach to encourage adoption by Medfielders of 100% renewable option**
- **Town models the way, adopting to source with 100% renewables by 2030**

# Maximize clean energy solutions on municipal properties

- Assess solar potential on municipal properties
- Develop plan to install solar on all viable properties
- Evaluate other clean energy technologies, such as storage for the town properties





## **Create program to help homeowners & businesses reduce emissions**

- Develop new Solarize Medfield Campaign
- Develop tools to help residents assess solar potential
- Offer information and education on clean energy solutions
- Work with businesses to evaluate clean energy solutions

# Buildings

***Reduce the energy use in existing and new buildings, and replace fossil fuels with electricity***

## 2030 Goals

- All installations of new heating and hot water equipment are electric
- 100% of 'high potential' homes have installed one or more energy efficiency measures
- Reduce total fossil fuel usage at least 50%

## 2050 Goals

- All buildings in Medfield are 100% electric
- Reduce carbon emissions at least 85%

# Buildings

## Objective 3

Reduce energy use and GHG emissions of buildings



## Objective 4

Electrify heating, cooling, and hot water generation



# Buildings

## Reduce the energy use and GHG emissions of buildings

*“Energy efficiency measures must continue to be an important part of the Commonwealth’s overall decarbonization strategy, with a renewed focus on deep improvements to building envelopes and systems.”*

Massachusetts 2050 Decarbonization Roadmap

### Priorities

1. Residential: owned and rental
2. New buildings
3. Municipal and school
4. Commercial

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## Increase energy efficiency in existing buildings.

**2030: 100% of high potential homes have installed one or more energy efficiency measures**

*“Small residential buildings (<4 units) and single-family homes are relatively easy to modify and comprise over 60% of statewide building emissions.”*

### Priority Actions

- Education
- MassSave assessments
- Targeted outreach to:
  - “High potential” homes
  - Landlords and tenants



## Achieve high energy efficiency in all new buildings

**2030: All new buildings are built to Net Zero energy standard**

### Priority Actions

- Medfield State Hospital
- Education
  - Residents
  - Builders
  - Town departments
- Adopt the Net Zero Stretch Code within 2 years of the state publishing it

# Buildings

## Electrify heating, cooling, and hot water generation

*“Electrification of space and water heating is a low-risk, cost-effective strategy...”*

**Massachusetts 2050 Decarbonization Roadmap**

### Priorities

1. Residential: owned and rental
2. Municipal and school
3. Commercial



## Electrify residential heating and hot water

**2030: 50% of Medfield homes have installed a heat pump**

**2050: 100% of homes in Medfield are 100% electric**

*“The most cost-effective time for an existing building to transition to a heat pump system is during routine home improvements or when an older HVAC system must be replaced.”*

Massachusetts 2050 Decarbonization Roadmap

### Priority actions

- Education
- Guidance
- Targeted outreach to “high potential” homes

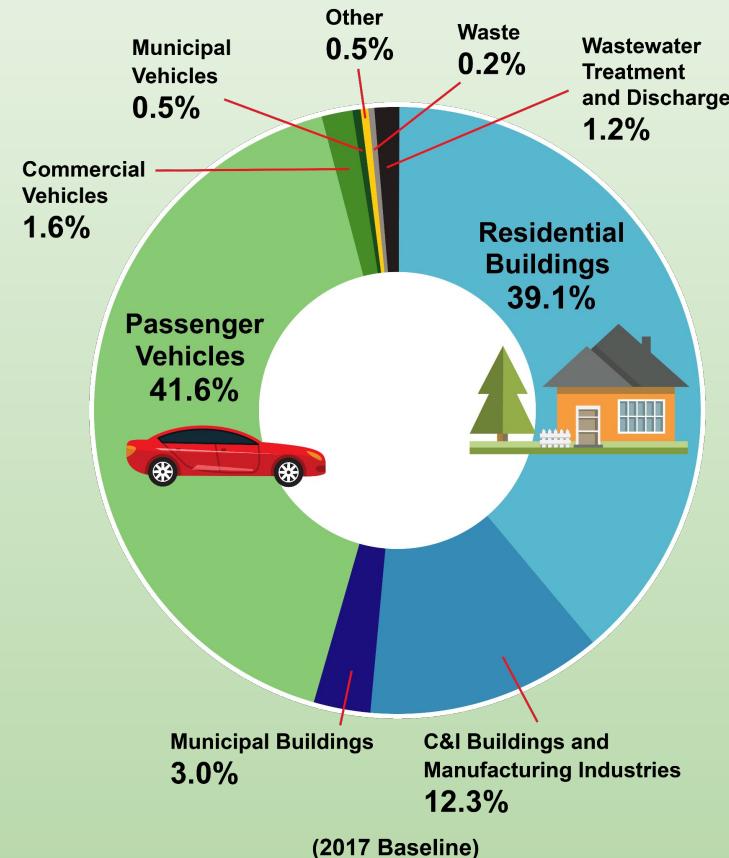


# Transportation

## Electrify vehicles and Enhance Low Carbon Mobility

### Goals:

- **2030** 100% new EV's purchased
- **2050** 100% EV's registered
- **Continuous Progress:**  
Municipal Vehicles to EVs &  
Additional charging infrastructure



# Transportation

## Objective 5

Electrify Vehicles



## Objective 6

Enhance low-carbon mobility





## Encourage Medfield Residents to drive Electric Vehicles

### Priority Actions

- Education
- Peer to Peer
- Medfield Day
- EV Car Show



### Advantages of EVs

- Lowest Fuel Cost
- Lowest Maintenance Cost
- Lowest Carbon Emissions

# Electrify Medfield municipal vehicles

## Priority Actions

- Green Communities Criterion 4
- Develop department multi-year plans
- Integrate with Capital Budgets
- Install charging stations
- Pursue school bus and future grant opportunities



# Develop town charging infrastructure

## Priority Actions

- Eversource Make Ready Program
- Identify potential charging station locations
- Coordinate with Master Plan and other town plans
- Apply for GC grants/incentives
- Encourage private sector to install





## Develop bike and walking infrastructure

### Priority Actions

- Work with Town planning efforts
- Bike sheds and racks
- Support Master Plan Goals Section 2.3
- Improve bicycle network
- Connect pedestrian and bikes paths
- Electric bikes





## Support and expand ride sharing and advocate for community transit



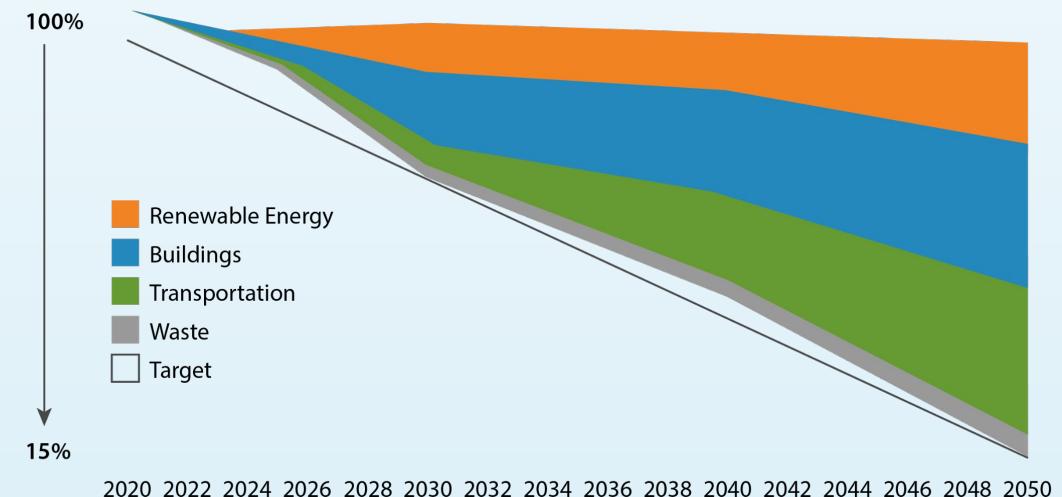
### Priority Actions

- Public Awareness
- The Ride
- COA Vans



# TOMCAP: 6 initial priority objectives

1. Make the electricity supply renewable by 2030
2. Produce more energy locally
3. Reduce energy use and GHG emissions of buildings
4. Electrify heating, cooling, and hot water generation
5. Electrify Vehicles
6. Enhance low-carbon mobility



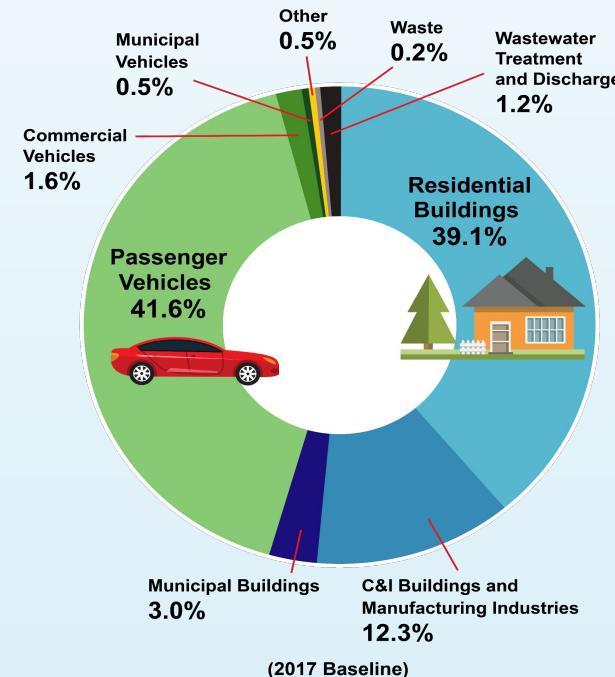
# TOMCAP

After tonight:

- Community and Town Engagement
- March 2022 Report

Ever-green plan:

- Evolve, refine and update regularly
- Incorporate for grants to support efforts
- Incorporate into planning and budget processes
- Continue Public Engagement



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January 31<sup>st</sup>, 2022

TOMCAP@Medfield.net



## Town of Medfield **CLIMATE ACTION PLAN**



# Sarah Raposa

Master Plan 2020 <http://ma-medfield.civicplus.com/350/Townwide-Master-Planning-Committee>

Municipal Vulnerability Plan 2019

[https://www.town.medfield.net/DocumentCenter/View/2839/Medfield\\_MVP-Summary-of-Findingsv532019-PDF](https://www.town.medfield.net/DocumentCenter/View/2839/Medfield_MVP-Summary-of-Findingsv532019-PDF)

Economic Development Plan,

Open Space,

ToM Hazard Mitigation Plan 2019

<https://www.town.medfield.net/DocumentCenter/View/3160/Medfield-MA-Final-Plan--Adopted-by-BoS-09-17-2019-sent-to-MEMA-PDF>

ToM Energy Reduction Plan 2016

<https://www.town.medfield.net/DocumentCenter/View/2656/Medfield-C3--Energy-Reduction-Plan-2016--FINAL-112116-095044-PDF>

# **END of Presentation**

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