

Newton Climate Change Listening Project

*Conducted in collaboration with the
Newton Citizen's Commission on Energy*

May 31, 2022

Jon Slote • Philip Vergragt
Bob Persons • Julia LaGuette



The Project Team

Jon Slote



- Former Vice President at Fidelity's Center for Applied Technology
- Provided user experience research and design expertise to *4 Our Future* website
- Published author in the solar industry
- Technology lecturer at MIT, Princeton, University of California, Kansas State

Philip Vergragt



- Professor Emeritus of Technology Assessment, Delft University of Technology
- Co-founder and board member, Sustainable Consumption Research and Action Initiative
- Co-chair, Newton EV Task Force
- Former Fellow, Tellus Institute

Bob Persons P.E.



- MA mechanical engineer license #30588
- Designed solar photovoltaic systems for most of the City of Newton's rooftops, landfills, and parking canopies
- Member, American Society of Heating, Refrigeration, and A/C Engineers
- An original Newton Energy Coach

Julia LaGuette M.D., M.P.H.



- MA medical doctor license #78345
- MD, Weill Cornell Medical College
- MPH, Harvard School of Public Health
- Academic anatomic pathologist, Cornell Medical Center and Brigham & Women's
- Member, Green Newton

Project Origins

In a City with aggressive climate goals, educated people, and above-average means, why is the adoption of climate-friendly actions so low... and how can we influence it?

This was the question on the minds of three Newton residents (Philip Vergragt, Bob Persons, and Jon Slote) when they spoke to each other in late Winter 2022. They decided that what would help most was to actively engage Newton residents to better understand their:

- Perceptions about climate change
- Favored communication channels
- Actions taken to date
- Barriers to taking further action

With the support of the Newton Citizen's Commission on Energy, the Newton Climate Change Listening Project was launched in March, consisting of two parts: an **online survey** followed by facilitated **listening sessions**.

Online Survey

How Do You Feel About Climate Change?

Newton has a goal to become carbon-neutral by 2050. To understand how we might achieve this, we would like to hear your opinions about climate change, and what you think it will take.

"We" are volunteer representatives of the Newton Citizen's Commission on Energy, which exists to advise the City on how to address this goal. This confidential, 10-minute survey is your opportunity to inform the Commission.

183 residents took the survey, which was promoted via the Mayor's Update, City Councilor newsletters, and the Nextdoor.com social media platform.

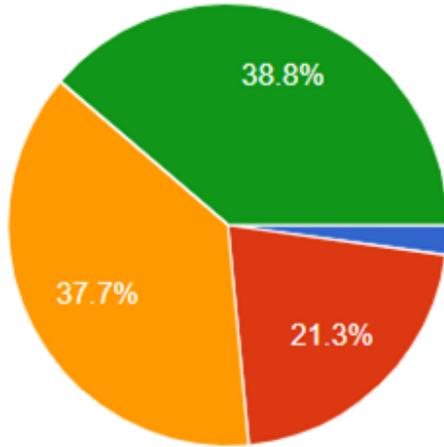
Listening Sessions

14 volunteers from the survey participated in two sessions in May. The questions included:

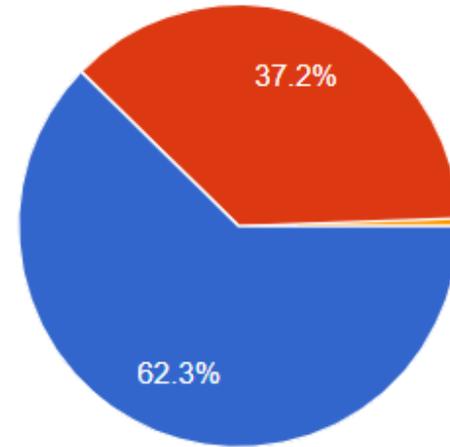
1. Give us your name and anything you might know about what the city's doing about climate change.
2. What would you like to see the City do about climate change?
3. What might you be interested in doing next about climate?
4. What's most in the way of your ability to take that next step?
5. What advice about advancing climate change goals would you most want the City to hear?

Demographics of NCCE Survey Respondents

Age Distribution



Gender Distribution

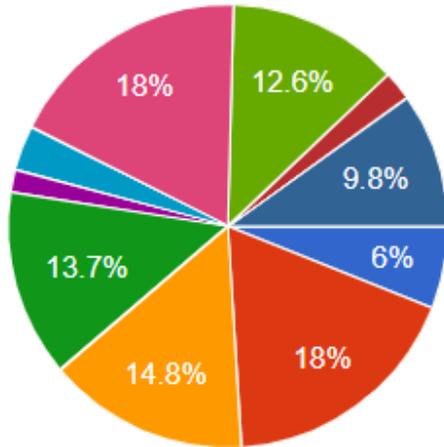


	Survey	Newton
● 24 or younger (15-24)	2%	19%
● 25-44	21%	27%
● 45-64	38%	32%
● 65 or older	39%	22%

	Survey	Newton	Nextdoor.com
● Female	62%	53%	62%
● Male	37%	47%	38%
● Non-binary	1%	N/A	N/A

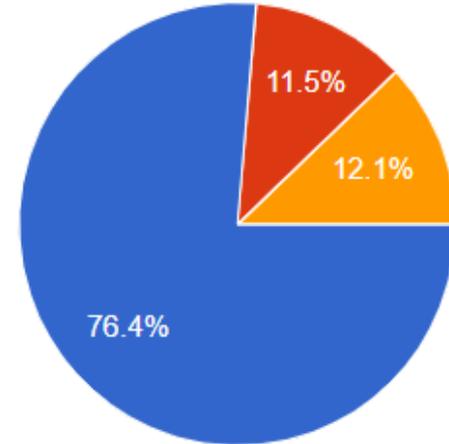
Demographics of NCCE Survey Respondents (cont.)

Neighborhood Distribution



	<u>Survey</u>	<u>Newton</u>
● 02458 Nonantum	6%	14%
● 02459 Newton Center	18%	22%
● 02460 Newtonville	15%	11%
● 02461 Newton Highlands	14%	8%
● 02462 Newton Lower Falls	2%	2%
● 02464 Newton Upper Falls	3%	4%
● 02465 West Newton	18%	13%
● 02466 Auburndale	12%	10%
● 02467 Chestnut Hill (Newton)	2%	10%
● 02468 Waban	10%	6%

Housing Type Distribution

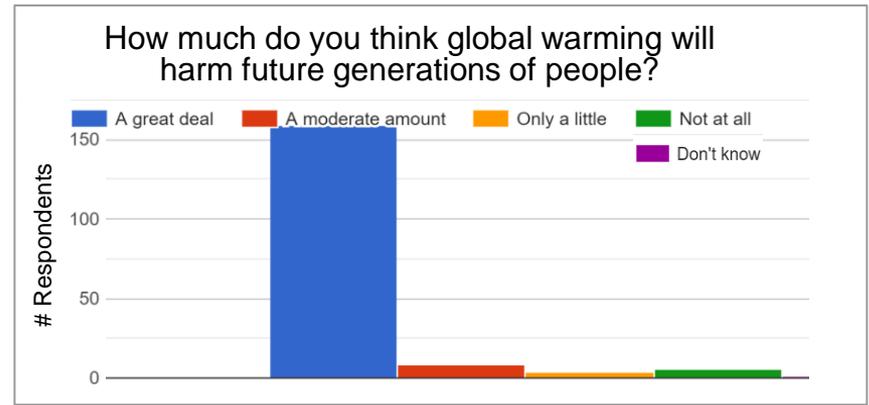
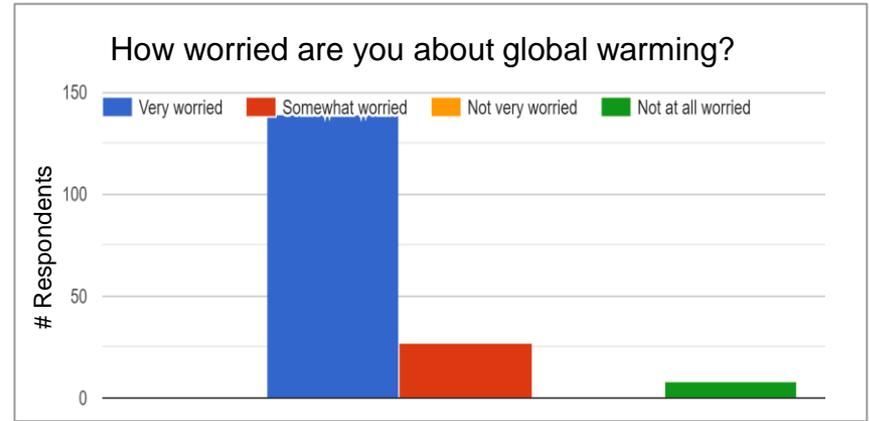
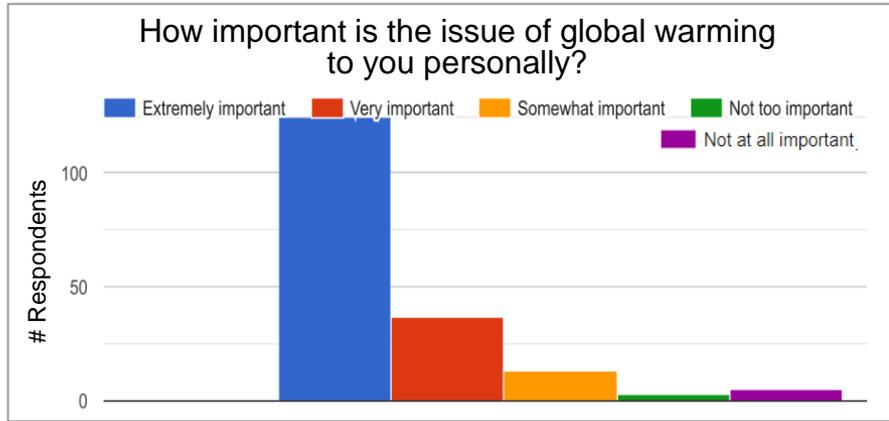


	<u>Survey</u>	<u>Newton</u>
● Single-family home owner	76%	61%
● Multifamily or condo owner	12%	11%
● Renter or living in another's home	12%	28%

Sources for housing data: <http://www.housing.ma/newton/report>
<https://www.point2homes.com/US/Neighborhood/MA/Newton-Demographics.html>

Zip code populations: <https://www.zip-codes.com/city/ma-newton.asp>

Survey Respondents' Perceptions of Climate Change



The pattern of responses to one's perceived **personal risk** is different than for the other four questions.

Audience Segmentation: Global Warming's Six Americas

Global Warming's Six Americas is an audience segmentation tool designed to help people better understand their own climate views as well as others. The original questionnaire was based on 36 items, but has now been reduced to just four questions in the Six Americas Super Short Survey (SASSY).

It was created by the Yale Program on Climate Change Communication, who conducts scientific research on public climate change knowledge, attitudes, policy preferences, and behavior at the global, national, and local scales.

These four questions were embedded in the NCEE survey to understand which segment each respondent belonged to.

Source: [Chryst, B., Marlon, J., van der Linden, S., Leiserowitz, A., Maibach, E., & Roser-Renouf, C. \(2018\). Global warming's "Six Americas Short Survey": Audience segmentation of climate change views using a four question instrument. *Environmental Communication*, 12\(8\), 1109-1122.](#)



Convinced global warming is happening, human-caused, an urgent threat, and they strongly support climate policies.



Know little about global warming. They rarely or never hear about it in the media.



Think human-caused global warming is a serious threat but that its impacts are still distant in time and space.



Don't think global warming is happening or that it's just a natural cycle. They don't think much about the issue or consider it a serious risk.



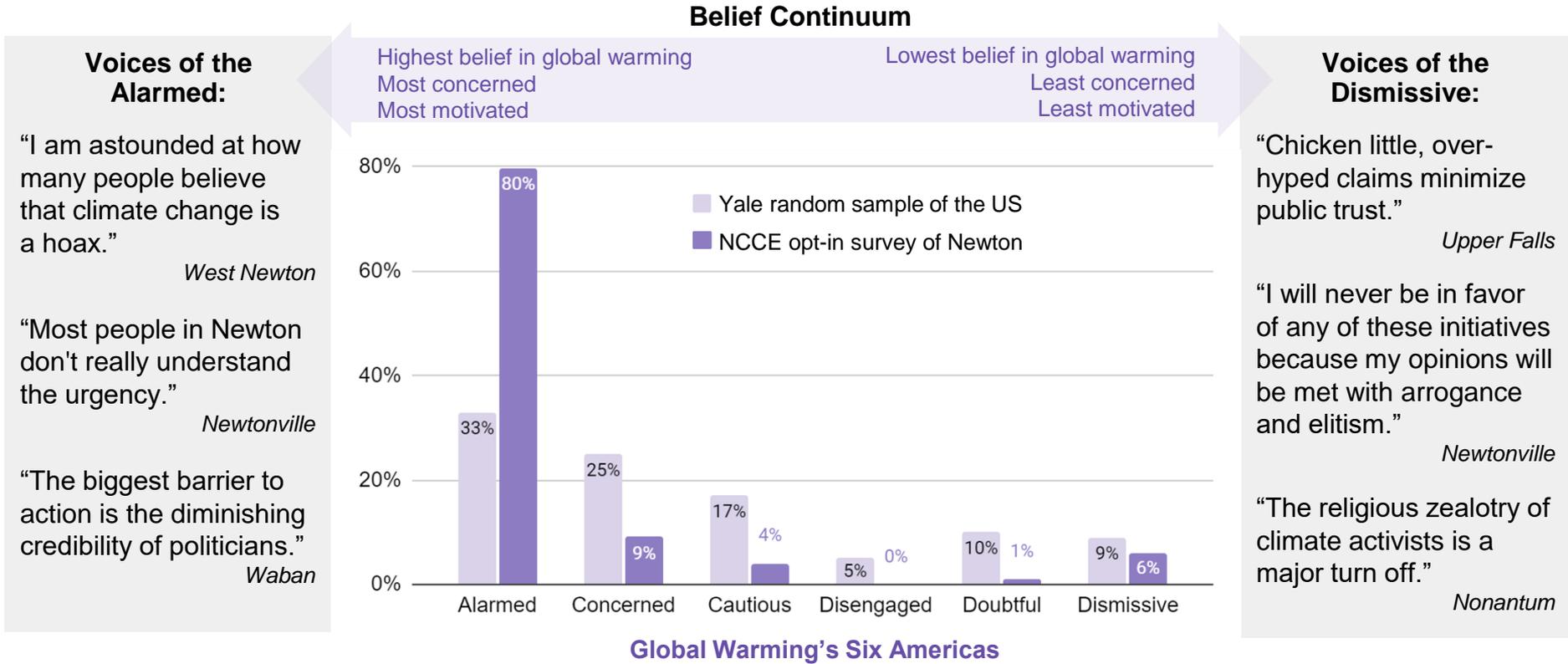
Haven't yet made up their minds: Is global warming happening? Is it human-caused?



Believe global warming is not happening, human-caused, or a threat, and most endorse conspiracy theories (eg, "global warming is a hoax")⁷

“Six Americas” Segmentation Results

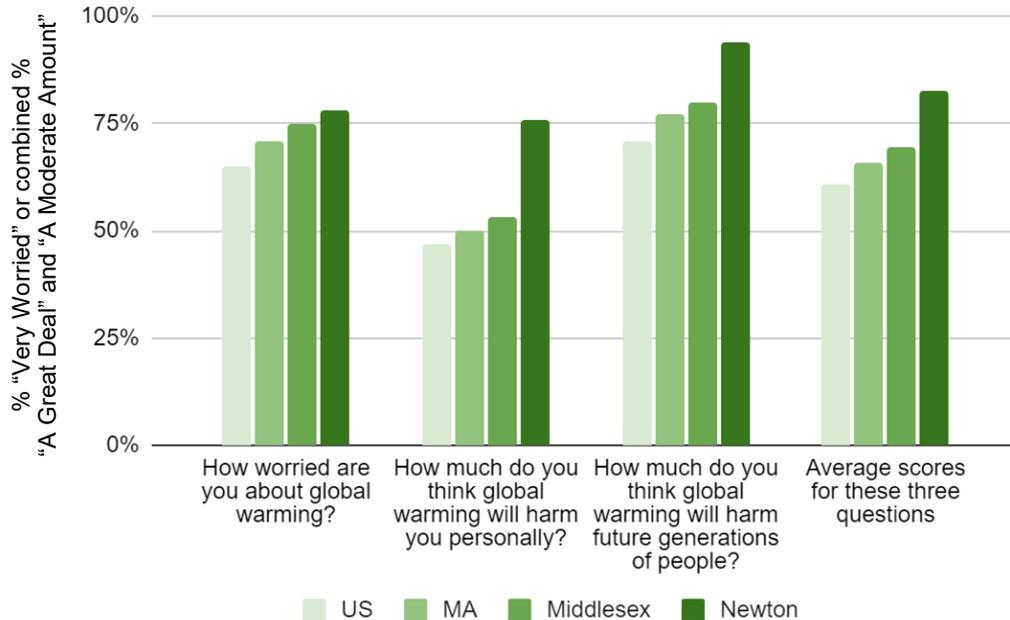
An audience segmentation tool designed by the Yale Program on Climate Change Communication



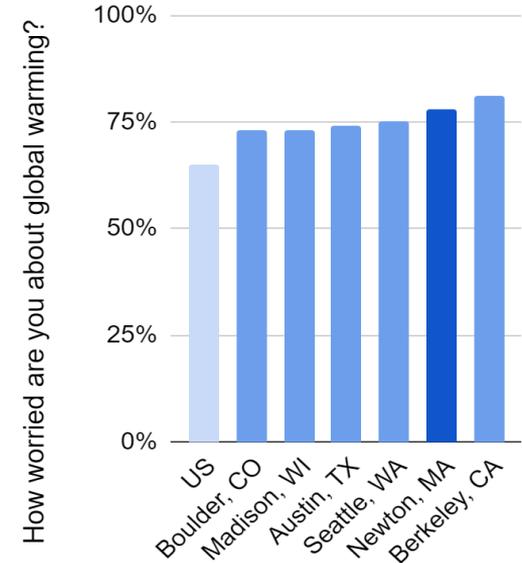
How These Respondents' Perceptions Compare To Others

The Pew Research Center has found¹ that opt-in surveys produce estimates that are **reliable** but consistently **several percentage points or more off** from the actual population value.

How This Newton Sample Compares to Other MA Locations



... And Other US Cities



1. <https://medium.com/pew-research-center-decoded/assessing-the-consistency-of-online-opt-in-polls-9f705d67e0f2>.

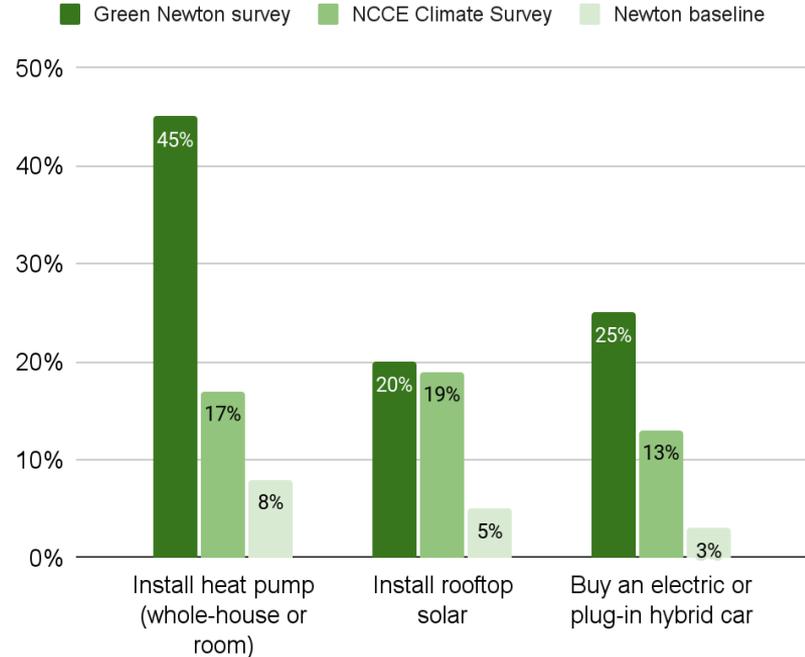
How These Respondents' Behaviors Compare To Others

A standard new product/technology adoption model typically has these five phases:

- Innovators
- Early adopters
- Early majority
- Late majority
- Laggards

This sample appears to largely represent people in the “Early adopter” phase of adoption, which sits between the “Innovators” phase (represented by the Jan 2022 Green Newton survey, dark green bars) and the “Majority” phase (represented by the Newton baselines, lightest green bars).

Adoption Rates For Big Ticket Items



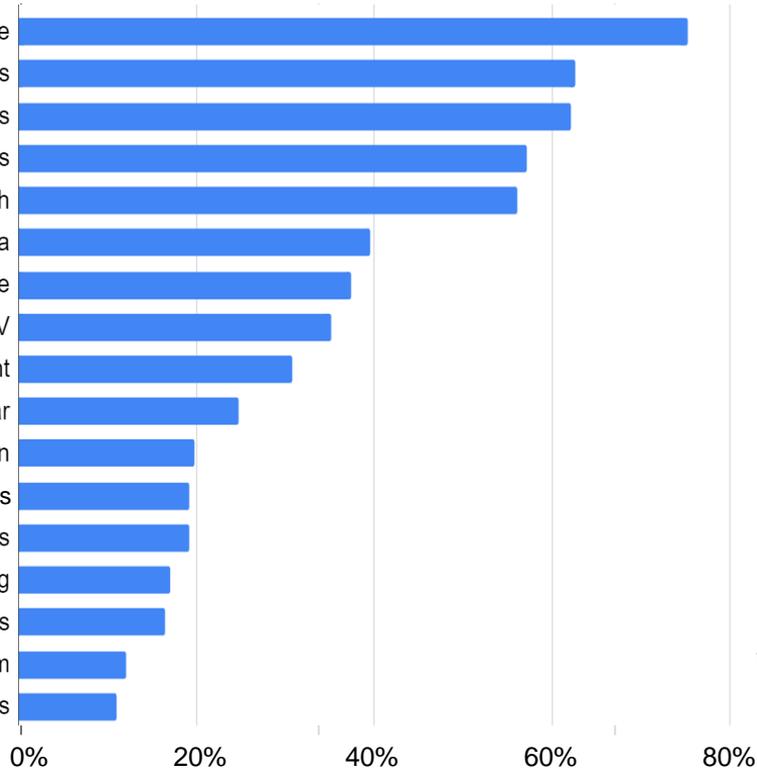
How People Like To Get Information

How have you heard about climate-friendly actions you can take?

Group Preferences:

Groups showing especially strong preferences for certain channels are shown.

- Females — Climate-related website
- Ages 46-64 — Mayor's updates
- Internet searches
- Energy suppliers
- Females — Word of mouth
- Ages <45 — Social media
- City of Newton's website
- TV
- In-person public event
- Webinar
- In-person group presentation
- Ages 65+ — Patch/Tab/Newspapers
- Retailers/installers
- Newtonenergycoach.org
- Mailers/inserts
- Nextdoor.com
- School events



Percentage of responses

Which method works best?

"Information from trusted organizations such as Green Newton."

"Mayor's email updates are good but do not have actionable information."

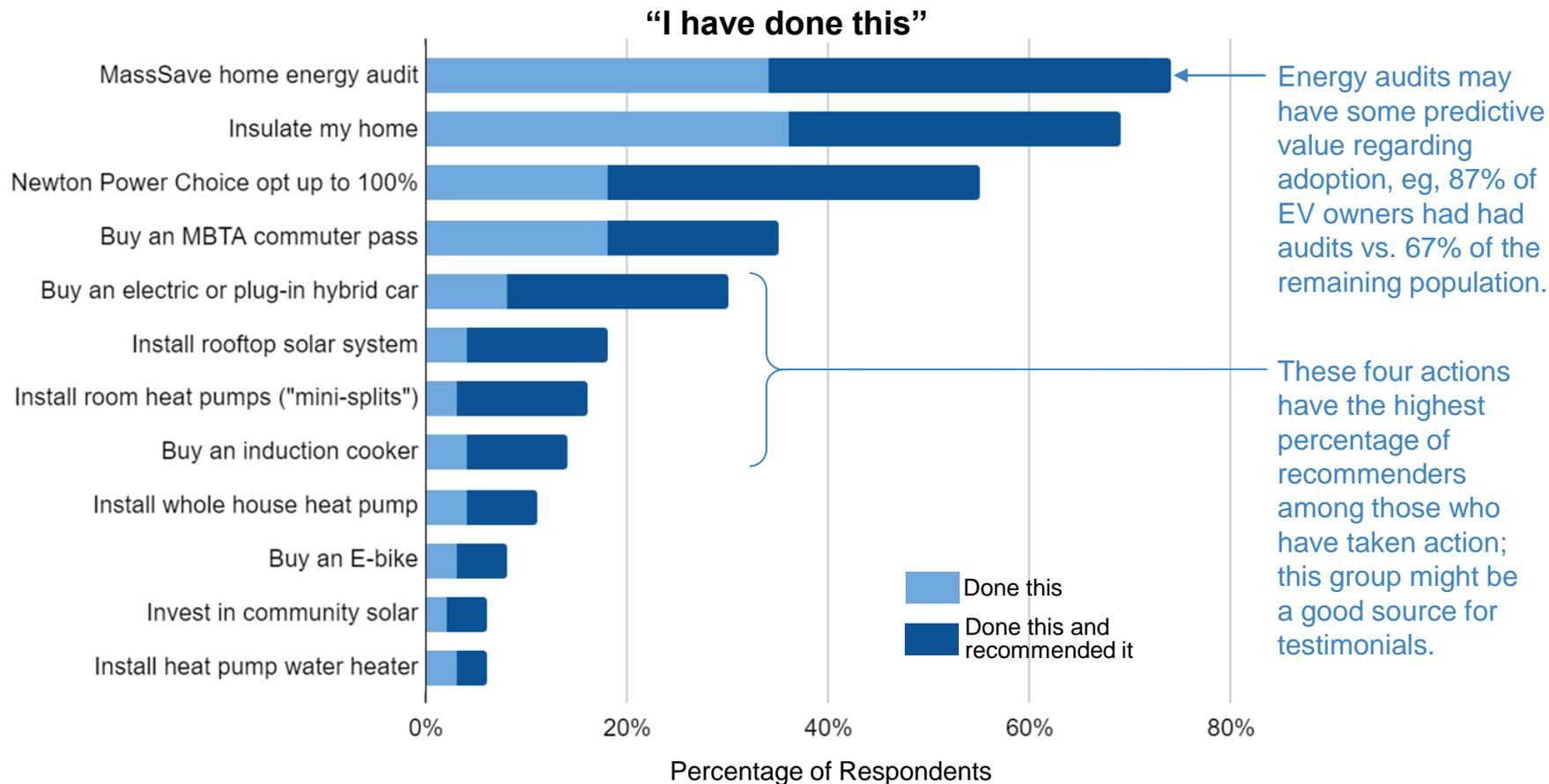
"Word of mouth - because you hear it from people you trust."

"Social Media - short and sweet, feels accessible without being overly burdened"

"I think city website could be good but it is hard to navigate."

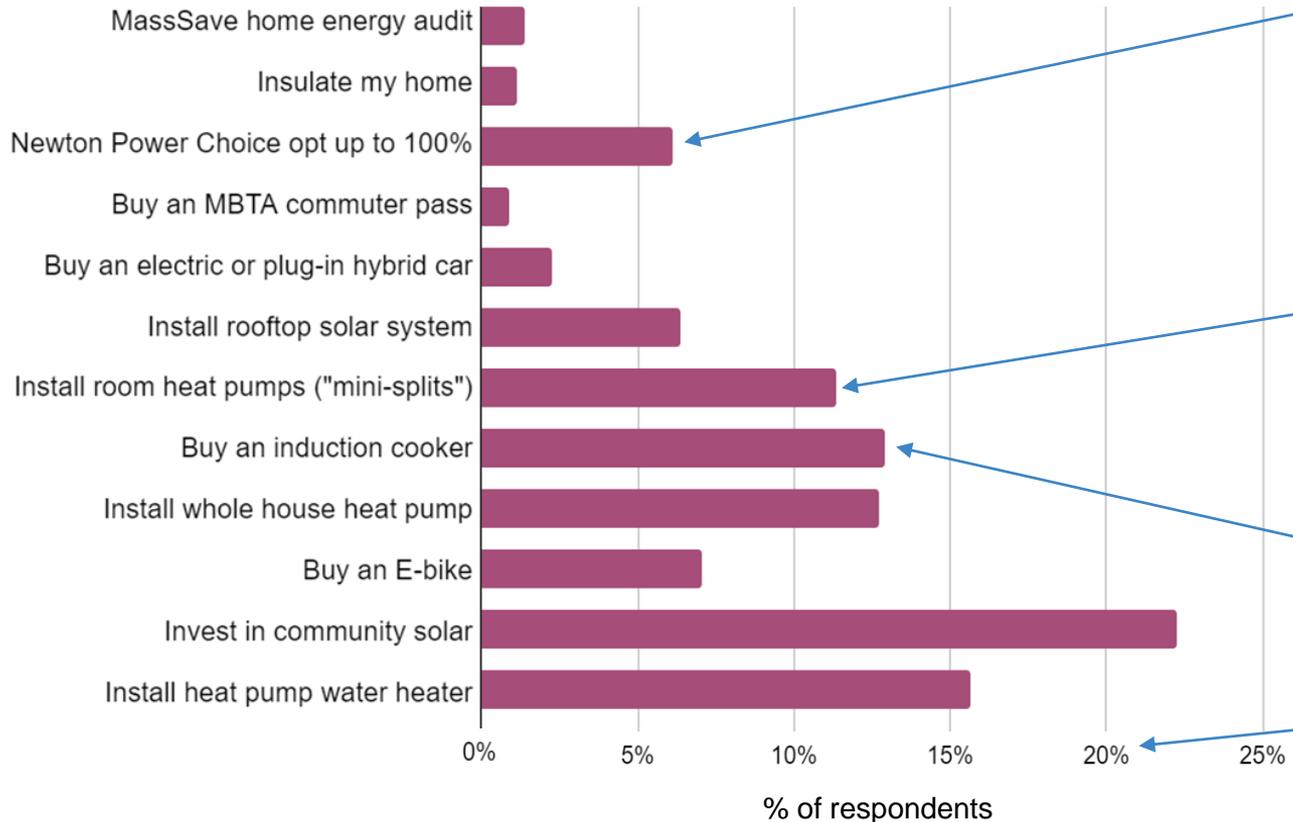
"When I have the time & motivation, I think webinars have been the best in increasing my understanding"

Actions Taken By Respondents



Respondents' Gaps In Knowledge

"I don't know much about this"



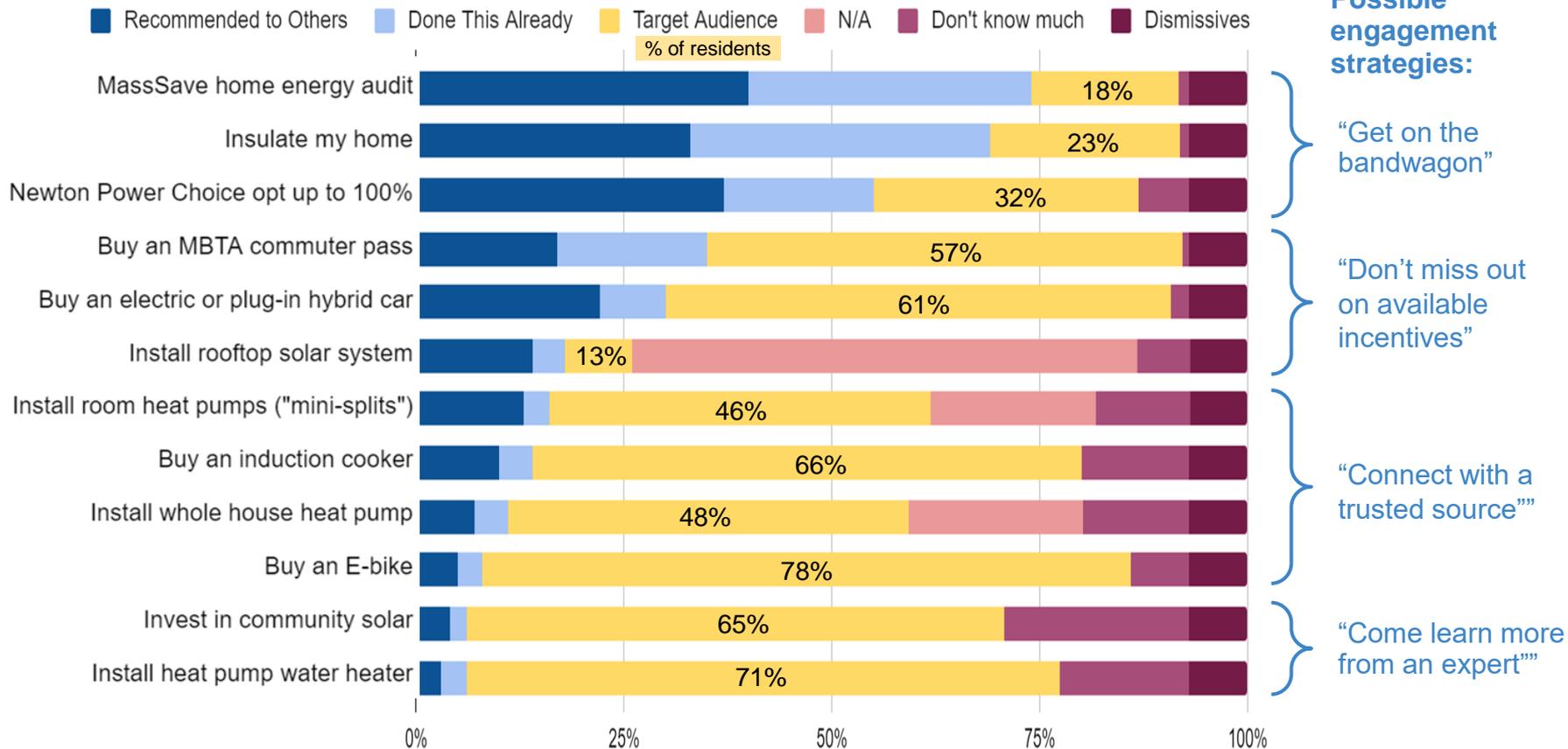
Newton Power Choice opt up is still an unknown to some. Given the minimal effort required by residents to opt up, this appears to be "low hanging fruit" (note this is independent of those who are skeptical of the opt up's effect).

Both **heat pump** categories stand out; this may be a reflection of the perceived complexity of this action demanding more information for people to become confident.

People want to experience **induction cookers** before buying - the Library's loan program could be much more heavily promoted.

Note that **overall "don't know" numbers** are generally fairly low

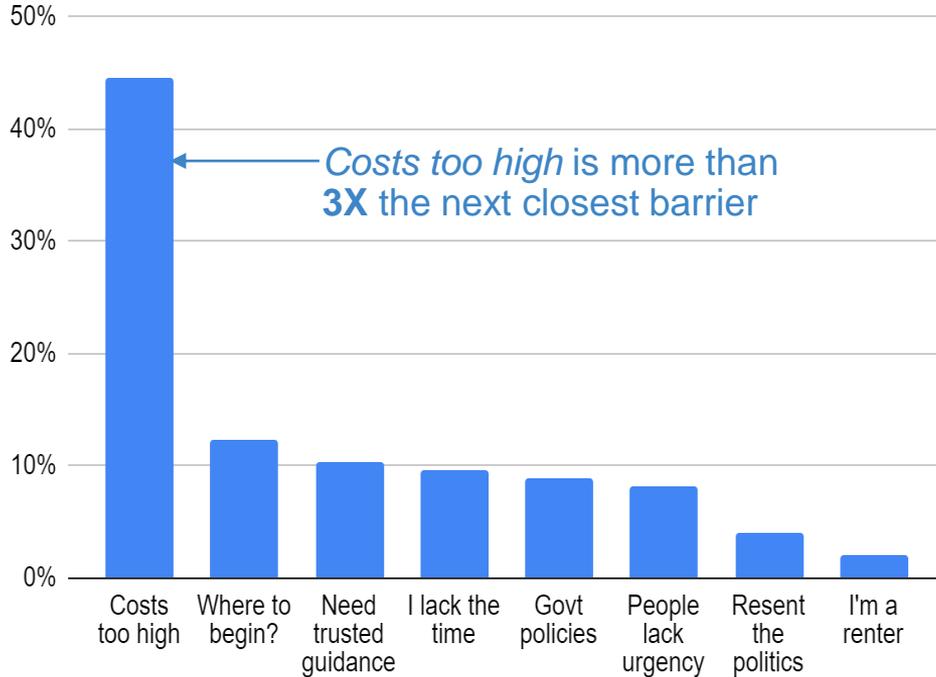
Target Audience Size For Each Action



Status values shown are from survey responses except *Dismissive* value, inferred from 7% Newton Doubtfuls and Dismissives; and *Target Audience*, calculated by subtraction. Target audiences for solar and heat pumps will not all be able to implement these actions due to limitations of their houses (shading, roof orientation, existing heating system). Target audience values are the percentage of Newton residents who theoretically could be convinced to take the described action.

Barriers To Taking Action

Which do you think is the single most important barrier?



“Would love to do more but often find it out of our **price range.**”

“This can be prohibitive sometimes even when there are rebates because paying up front is **too costly.**”

“We would install solar, but it's **not in our budget,** same with electric car.”

“Cost of items such as heat pumps - **not affordable** for existing houses with hot water radiators.”

“People who juggle **competing demands for resources** tend to focus on urgent needs instead of what is most important in the long term.”

“**Too expensive** and time consuming for low income people; high income people can't be bothered.”

Top Barriers By Audience Segment

Barriers Identified by Each Segment

Barrier	Segments				
	Alarmed	Concerned	Cautious	Doubtful	Dismissive
Costs too high	42%	73%	33%	0	33%
Where to begin?	13%	7%	17%	0	0
Need trusted guidance	10%	13%	17%	0	0
I lack the time	12%	0	0	0	0
Govt policies	11%	7%	0	0	0
People lack urgency	10%	0	0	0	0
Resent the politics	0	0	33%	100%	67%
I'm a renter	2%	0	0	0	0

 Top barrier within each segment

Costs are of high importance to the three “high motivation” segments (who represent 93% of the survey sample), potentially suggesting a strategy to engage the **Concerned** and **Cautious** groups.

Philosophical and political issues appear to be the focus of the “low motivation” segments.

Other Frequently Mentioned Top Barriers

Where to begin?

“Don't know where to begin and our house is old.”

“The technology is changing so fast that you worry about installing something that is not the best.”

“Is it worth replacing an existing system/car/etc. that is still working fine.”

“Is it effective or purely virtue signaling?”

Barrier	Alarmed	Concerned	Cautious	Doubtful	Dismissive
Costs too high	42%	73%	33%	0	33%
Where to begin?	13%	7%	17%	0	0
Need trusted guidance	10%	13%	17%	0	0
I lack the time	12%	0	0	0	0
Govt policies	11%	7%	0	0	0
People lack urgency	10%	0	0	0	0
Resent the politics	0	0	33%	100%	67%
I'm a renter	2%	0	0	0	0

Need trusted guidance

“Need guidance from a trusted source.”

“I don't know where to begin or who to trust.”

“Trustworthy contractors who will help guide best options for me vs biggest profit for themselves.”

“Most allegedly trusted sources are either conflicted or unqualified.”

Recommendations

What people want the City to do about climate

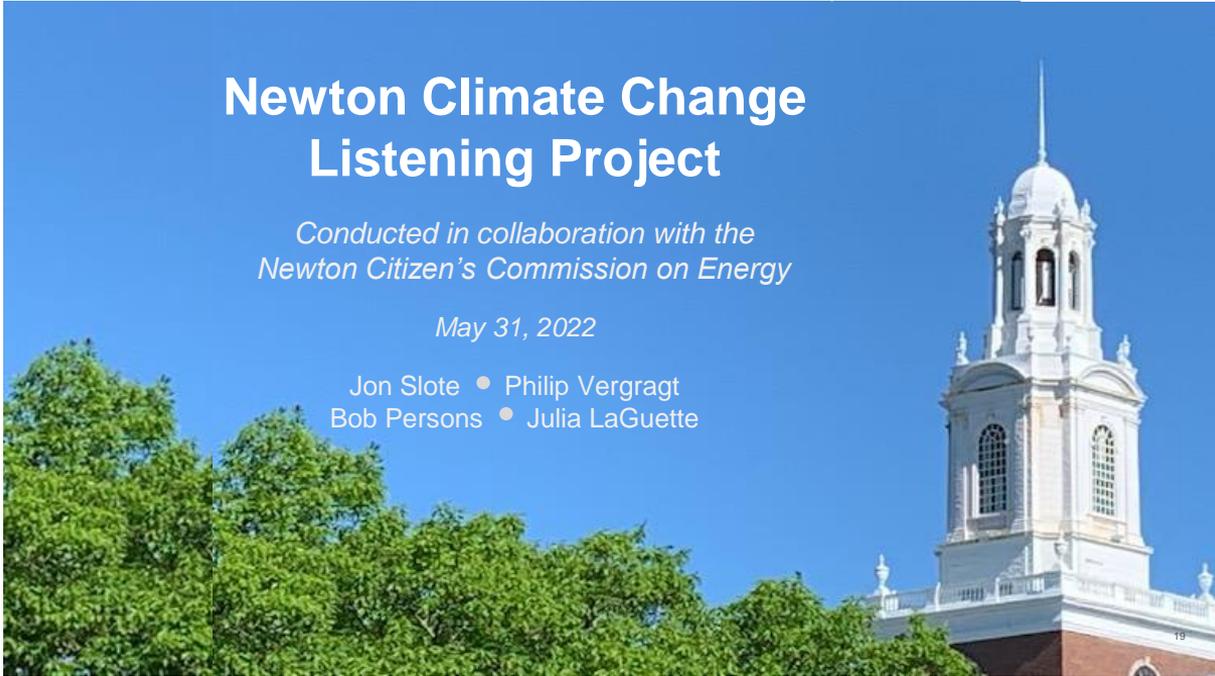
-  **Take a bold, proactive, and innovative role with a long term view**
Pursue aggressive electrification of residential and commercial buildings.
-  **Make the City's climate action more accessible**
Consumer-friendly versions of the 4 Our Future campaign (e.g., sidewalk signs, climate icon on Newton home page)
-  **Guide residents to trusted sources, contractors, and incentives**
Provide a list of vetted contractors who can be relied on for trustworthy advice and service.
-  **Leverage the City's economies of scale**
Bulk purchase solar panels or vetted contractor's services for residents.
-  **Communicate relentlessly**
Include climate-related items - Energy Coach promotions, practical tips, or testimonials - in every Mayor's update.
-  **Stay close to residents' needs and interests**
A "Citizen's Council" could help, possibly recruited from participants in the listening sessions.

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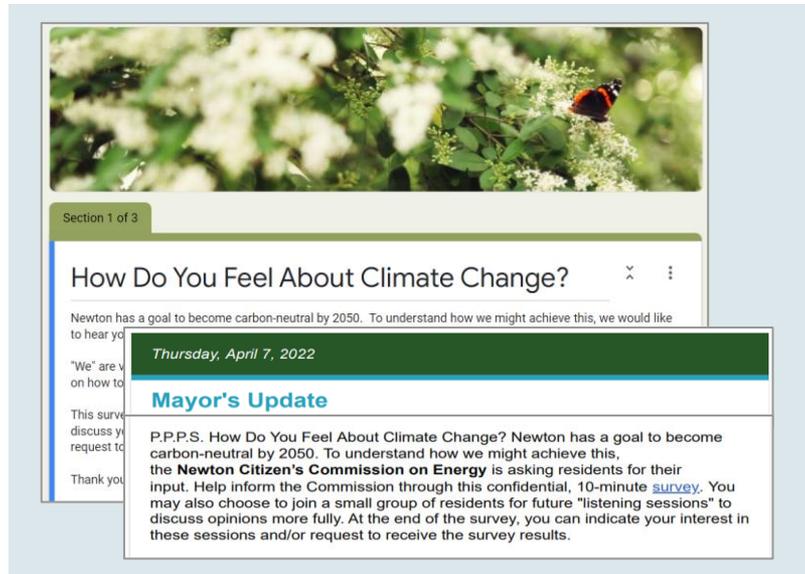


APPENDIX

Project Methods

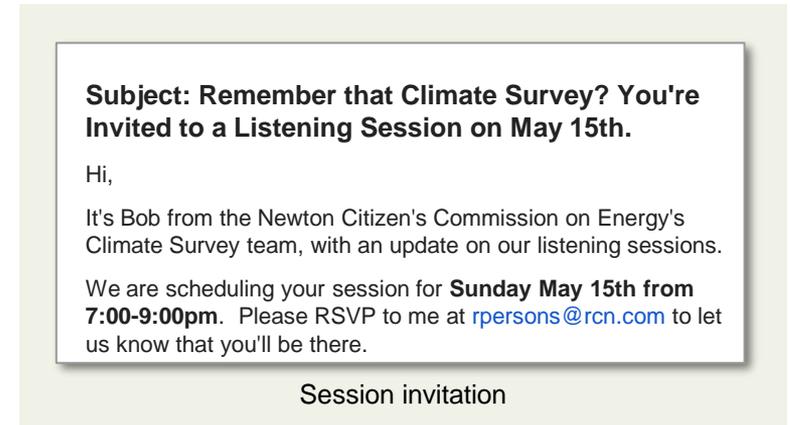
Online Survey

Awareness of the online survey was promoted through channels that were intended to be unbiased about the subject, such as the Mayor's Update, City Councilor newsletters, and the Nextdoor.com social media platform. 183 Newton residents took the survey, about half of whom had responded to the Mayor's update.



Listening Sessions

The survey was confidential, although people were asked if they wanted to attend follow-up listening sessions to discuss the subject further, in which case they provided their email addresses.



Two listening sessions involving 14 residents were conducted in May. Most session participants were alarmed about the climate situation, but skeptical voices were heard as well. Selected comments from them are included throughout this report.

Important Dimensions of Cost

Surprises

People didn't like being surprised by significant costs for an entire solution that were not originally contemplated, for example:

Heat pumps:

Possible electrical service upgrade

Rooftop solar:

Need to re-shingle roof to avoid doing it when the roof warranty runs out after the solar is installed

EV's:

Possible electrical service upgrade to accommodate higher-speed car charger

Rebates:

Claiming incentives can take years

Sunk costs

Several said they could afford the costs, but didn't want to replace an asset that was nowhere near end of life.

"I have fairly new gas stove and heat; replacing them would be expensive."

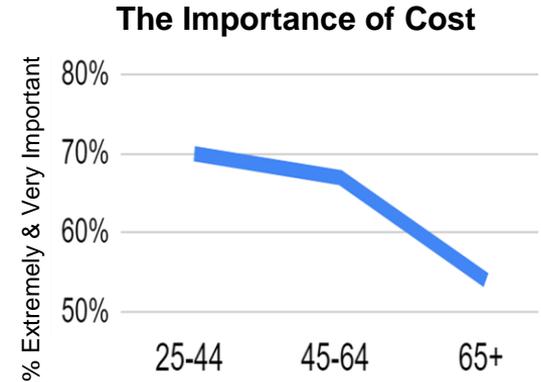
"Don't want to purchase a new product if old one is still OK."

"Don't want to invest in my home if I plan to sell in five years."

"Hoping to downsize, so not wanting to invest a lot of money in this house."

Age

Cost appear to decline in importance with age, likely influenced by lower monthly costs and higher net worth.



Climate action adoption rates for survey group vs. Newton at large

“Big Ticket” Purchase Category <i>(source: Liora Silkes, City of Newton)</i>	Newton Adoption rate			Survey Adoption Rate			Special Calc’s on Survey Population			
	Numer.	Denom.	% in Newton	Numer.	Denom.	% in Survey	Total HP	% total from 2021	Est. 2021 total	Est. %
Total heat pumps installed. <i>There have been about 117 heat pump installs through the HeatSmart program to date (since mid-2020), and there were 259 Mass Save rebates for Newton address heat pumps in 2021 (a mix of mini-split and central systems). There certainly were installs before 2021 and heatsmart, but those data were not tracked well.</i>	259	21,987	1.2%	4.65	183	2.5%	31	15%	4.65	2.5%
	2021 installs Newton	Owner-occupied housing units	% homes with 2021 installs	2021 installs (adjusted per calc’s at right)	Survey population	% survey installs in 2021 Survey: Newton ratio 2.1X	Total survey installs (17% of 183 total)	% 2021 installs (est. from follow up survey) (3 out of 20)	Est. 2021 installs from survey respondents (31x.15)	Est. % 2021 installs from survey respondents
Rooftop solar installations. <i>Would be worth double checking with the DOER and MassCEC data, but as of today there have been 1201 electrical solar permits completed since 2009.</i>	1,201	21,987	5.4%	34	183	18.6%	Conclusion: This survey population was ~2-4X more likely to make big ticket climate-friendly purchases than Newton generally.			
	Since 2009	Owner-occupied housing units	% homes w/ rooftop solar (since 2009)	Installs from respondents	# Respondents	Survey: Newton ratio 3.4X				
Number of personal EVs. 2,370 according to National Grid data from late 2021.	2370	72,750	3.3%	55	433	12.7%	# respondents	Cars/ Newton household*	Total cars represented	
	Total	From Newton CAP, pg 36		From survey	Calculated from # respondents x car ratio	Survey: Newton ratio 3.8X	183	2.37	433	

* Note:
72,750 cars / 30,765 HH's = 2.37 cars/HH

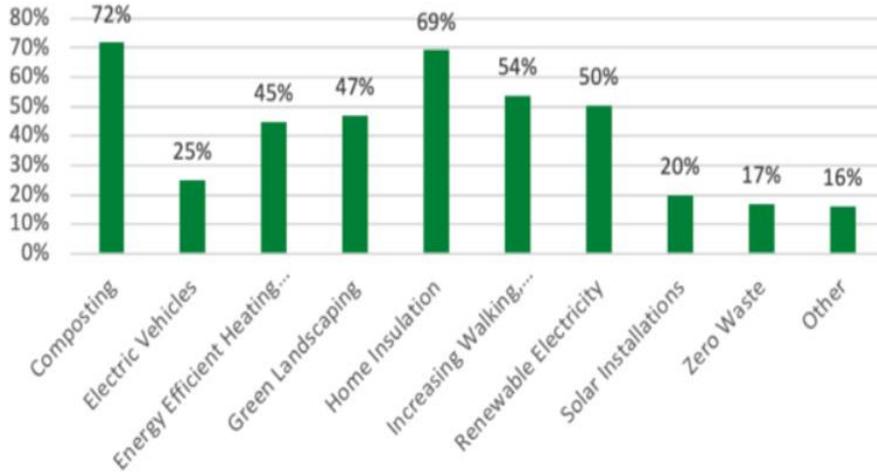
Per Google search: There are 32,504 housing units in Newton, and the median year in which these properties were built is 1941. Of the 30,756 occupied housing units in Newton, 71.49% are owner-occupied, while 28.51% have renters living in them (so 30756 x .7149 = 21,987 owner-occupied housing units).

Green Newton January 2022 survey results

2022 Survey Results January, 2022

Question 2: In which of the following areas have you already taken action? Check all that apply.

Actions Already Taken (all respondents)

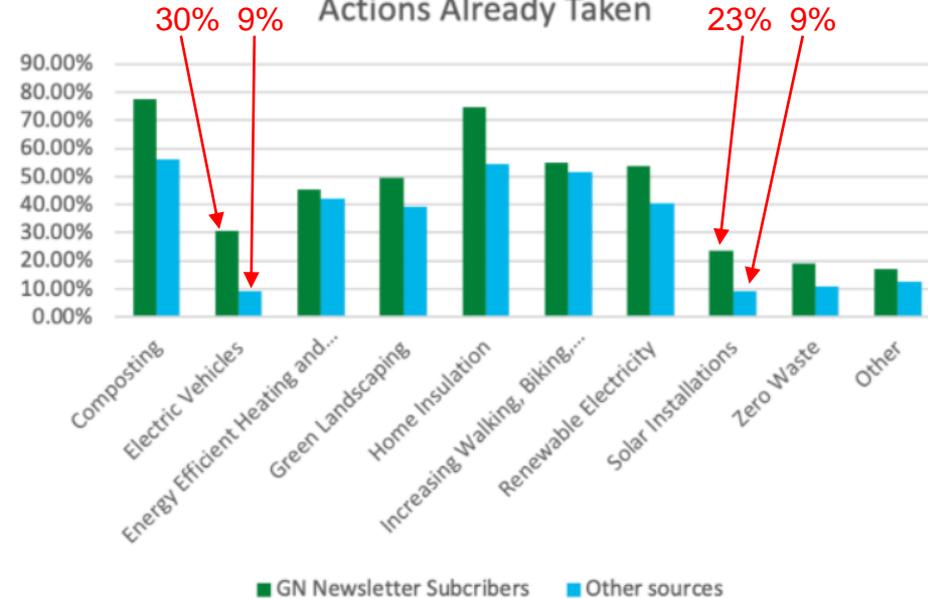


Respondents: 233

- 169 from e-news
- 64 from social media and other outside sources

2022 Survey Results January, 2022

Actions Already Taken



Refinements To Adoption Status Data

Solar and heat pumps needed additional calculations to improve the accuracy of their target audience size.

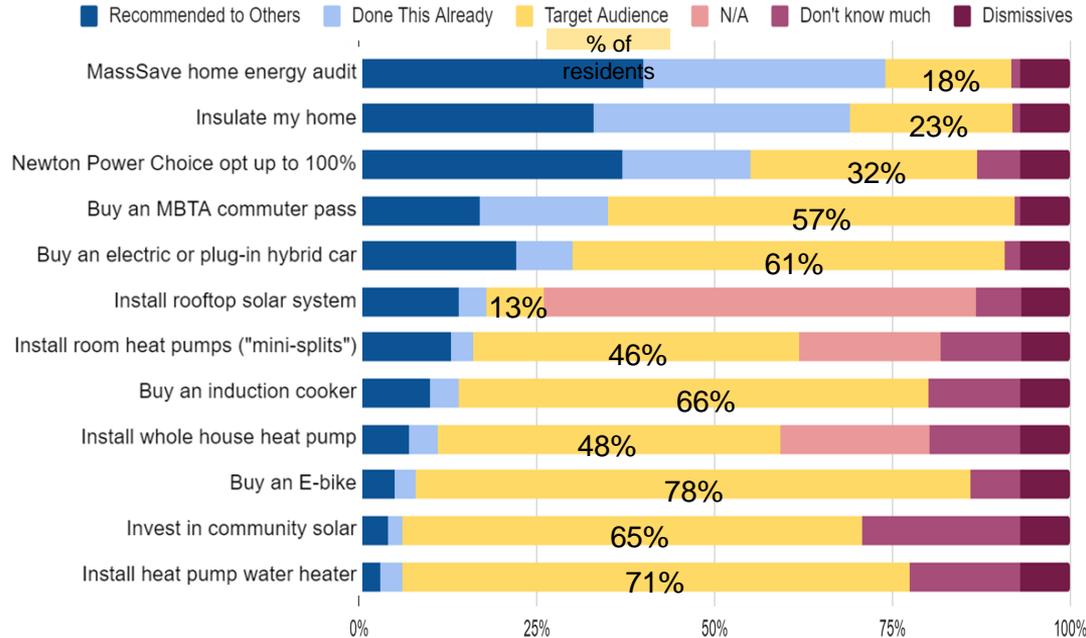
Solar:

This option is realistically available to single family homeowners (~60% of the residents), so we multiplied the aggregated total of “Recommended to Others”, “Done This Already”, and “Target Audience” by .6.

In addition, by inspection of aerial imagery, we assume 75% of these houses have shading or orientation problems that make them unsuitable for solar, so we also then multiplied the total by .25.

Heat pumps:

This option is realistically available to single family homeowners and condo owners (~70% of the residents), so we multiplied the aggregated total of “Recommended to Others”, “Done This Already”, and “Target Audience” by .7.



Climate Change Survey Questions

How Do You Feel About Climate Change?

Newton has a goal to become carbon-neutral by 2050. To understand how we might achieve this, we would like to hear your opinions about climate change, and what you think it will take.

"We" are volunteer representatives of the Newton Citizen's Commission on Energy, which exists to advise the City on how to address this goal. This confidential, 10-minute survey is your opportunity to inform the Commission.

This survey will also help us convene small groups of citizens for future "listening sessions", where you can discuss your opinions more fully. At the end of the survey you can indicate your interest in these sessions and request to receive the survey results.

Thank you!

About You

Your age range:

- 24 or younger
- 25-44
- 45-64
- 65 and up

Your gender:

- Female
- Male
- Non-binary

Your neighborhood:

- 02458 Nonantum
- 02459 Newton Center
- 02460 Newtonville
- 02461 Newton Highlands
- 02462 Newton Lower Falls
- 02464 Newton Upper Falls
- 02465 West Newton
- 02466 Auburndale
- 02467 Chestnut Hill
- 02468 Waban

Housing ownership status:

- Single-family home owner
- Multifamily or condo owner
- Renter or living in another's home

Climate Change Survey Questions (cont.)

About Climate

How important is the issue of global warming to you personally?

- Extremely important
- Very important
- Somewhat important
- Not too important
- Not at all important

How worried are you about global warming?

- Very worried
- Somewhat worried
- Not too worried
- Not at all worried

How much do you think global warming will harm you personally?

- A great deal
- A moderate amount
- Only a little
- Not at all
- Don't know

How much do you think global warming will harm future generations of people?

- A great deal
- A moderate amount
- Only a little
- Not at all
- Don't know

About Communications

How have you heard about climate-friendly actions you can take? (check all that apply)

- City of Newton's website
- Climate-related website (eg, GreenNewton, MassSave, etc.)
- Energy suppliers (eg, Eversource, National Grid, oil dealers, etc.)
- In-person public event (eg, Harvest fair, etc.)
- In-person group presentation (eg, speaker invited to your organization)
- Mayor's updates
- Mailers/inserts
- Nextdoor.com
- Newton Patch or Newton Tab
- Retailers/installers (eg, insulation contractors, car dealers, etc.)
- School events
- Webinar
- Word of mouth
- None of the above

Which among these communications methods works best, and why?
[free text response]

Climate Actions

Please indicate your level of involvement with each of the following actions:	Not applicable to me	I have read up on how I can take this action	I have done this already	I have done this and recommended it to others
Newton Power Choice opt up				
MassSave home energy audit				
Insulate my home				
Install rooftop solar system				
Invest in community solar				
Room heat pumps ("mini splits")				
Whole house heat pump system				
Install heat pump water heater				
Buy an E-bike				
Buy an electric car				
Buy an MBTA commuter pass				
Buy an induction cooker				

What other actions, if any, have you taken to reduce your carbon footprint? [free text response]

Climate Change Survey Questions (cont.)

Barriers To Action

There are many reasons why people don't take some of these actions. Please tell us how important each of these reasons are to you by selecting one response for each row

Barriers	Not at all important	Not too important	Somewhat important	Very important	Extremely important
Don't know where to begin					
Can't afford the cost					
Don't know any contractors					
Don't need a new car or heating system					
Don't have the time					
Government should figure this out					
Don't want government telling me what to do					
Don't have enough information	<input type="checkbox"/>				
Need guidance from a trusted source					
Other [indicate]					

Overall, which do you think is the single most important barrier on the previous list, and why? [free text response]

Advice

What should Newton do in the next 10 years to achieve its goal of becoming carbon neutral by 2050?
[free text response]

Want To Say More?

As part of this effort, we may conduct followup listening sessions to learn more about how residents feel. If you would be interested in participating, please indicate below. Also, tell us if you'd like to get a copy of the survey results.

- I want a copy of the results
- I may be interested in participating in a listening session

[next two boxes appear conditional upon either click above]

First name: _____

Email address: _____