

# AGENDA

## NZAP 5-Year Review Task Force Meeting 1

11/12/20

4:00 – 6:00 PM

**Meeting called by** City of Cambridge

**Attendees:** Net Zero Action Plan (NZAP) Task Force, NZAP Consulting Team, City of Cambridge

**Pre-meeting materials for review:**

- FY 2019 Getting to Net Zero Action Plan Progress Report
- Task Force Member List

**Meeting Objectives:**

1. Provide an overview of the NZAP goals, the underlying principles and work to-date so that participants are of the same understanding of the work at-hand.
2. Communicate what it means to assess the current context of the NZAP through a framework focused on Policy, Science, Technology, and Equity
3. Review the process for integrating and measuring equity of the NZAP Actions

**4:00 – 4:30**

### **Part 1: Welcome and Introductions**

Introductions by consulting team and city to the Task Force  
Task Force members to introduce themselves\* to the group

**4:30 – 4:45**

### **Part 2: Historical Overview of NZAP**

City to provide historical context of the NZAP for Task Force members

**4:45 – 5:00**

### **Part 3: Framework for Evaluating NZAP Goals and Actions**

Consulting team will cover the need for revisiting actions periodically due to changes in four spaces – Policy, Science, Technology, and Equity

**5:00 – 5:45**

### **Part 4: Enhancing Equity with the NZAP**

Building off the previous discussion, the consulting team will introduce the concept and methods for assessing Equity of NZAP actions

**5:45 – 5:50**

### **Part 5: Closing: Expectations for NZAP Task Force Members**

In closing, the consulting team will review expectations for Task Force members moving forward including what members are responsible for, what is expected outside of the NZTF meetings, and what the structure of future working sessions may look like

**5:50 – 6:00**

### **Part 6: Public Comment**

Open for public comment or questions

## **Additional Instructions:**

For introductions, Task Force members should be prepared to take no more than 1 minute to provide name, the name of the organization represented, and brief statement about why you joined the NZAP task force.

# MEETING NOTES

## Task Force Attendees:

### **City Staff**

Seth Federspiel  
Susanne Rasmussen  
Carmiya Gale

### **Consulting Team**

Douglas Kot, DNV GL  
Jim Leahy, DNV GL  
Marie Sorensen, SP  
Bryndis Woods, AEC

### **NZTF Members\***

**David Adamian, Greener U**  
**Lauren Baumann, New Ecology**  
**Gaurab Basu, Neighborhood Nine**  
**Dave Bisson, Resonant Energy**  
**Jane Carbone, Homeowners Rehab**  
**Peter Crawley, Cambridge CPAC**  
**Margery Davies, Mothers Out Front**  
**Henrietta Davis, Cambridgeport**  
**Jan Devereux, Green Cambridge**  
Deborah Donovan, Takeda  
**Tom Evans, Cambridge**  
**Redevelopment Authority**  
**Adam Gould, Youth Representative**  
**Eli Herman, Akelius Real Estate**

**Heather Henriksen, Harvard University**  
**Chris Leary, Jacobs Architects**  
**Andrea Love, Payette Architects**  
**Kolin Loveless, Neighborhood Nine**  
**Paul Lyons, Zapotec Energy**  
**Rick Malmstrom, Alexandria Real Estate**  
Steve Miller, Eversource  
Ben Myers, Boston Properties  
Julie Newman, MIT  
**Gabe Shapiro, All in Energy**  
**Tom Sieniewicz, Cambridge Planning**  
**Board**  
**Jen Stevenson Zepeda, Climable**

\*Bolted names indicate those in attendance

## Notes organized by Agenda Item:

### Part 1: Welcome and Introductions

- Task Force provided a brief introduction for themselves including name, the name of the organization represented, and brief statement about interests in NZAP task force

### Part 2: Historical Overview of NZAP

- City provided historical context for NZAP TF members covering:
  - Overall goals of the NZAP and the work of the Task Force
  - Guiding principles used to determine the actions to be implemented in the original NZAP
  - The 5 action categories found within the NZAP, what they cover, and their purpose
  - Overview of GHG emissions community-wide
- Summary: Cambridge's first action plan was released in 2002 and the original Net Zero Action Plan was adopted in 2015. Focused on buildings because they are such a large part of Cambridge's greenhouse gas emissions
  - 80% of emissions
  - Density and high intensity use

The Net Zero Action Plan resulted from demand from residents in 2013 and was originally focused on new buildings. The completed plan in 2015 includes new and existing buildings. Our current mission is to consider adjustments to the Net Zero Action Plan to reduce greenhouse gas emissions taking into consideration:

- New technology, science, and economic data to inform decision making
- Equity

The Net Zero Action Plan (NZAP) is focused on buildings (new buildings, existing buildings, renewable energy supply) and leveraging enabling actions such as a local carbon offset fund, communications, capacity building. Net zero construction targets are on track including municipal buildings. Addressing efficiency in existing buildings has potentially highest emissions impacts.

The original NZAP aimed to put Cambridge on the trajectory towards net zero by mid-century. Cambridge's 2016 commitment to Carbon Neutrality by 2050 is a more concrete target. Since 2015, community-wide greenhouse gas emissions from buildings have only been going up slightly but have not been going down, reflecting some increases in efficiency of the existing building stock along with continued new development.

With its current trendline, Cambridge will not achieve sufficient greenhouse gas emissions reductions by 2030 necessary to mitigate climate change impacts according to climate change science. The current 5-Year Review process should consider how additional GHG reductions can be achieved.

#### Relevant Comments from Chat:

*Can you clarify is Net Zero refers to Net Zero Site Energy definition versus an Emissions metric that can be offset by purchasing Carbon Offsets?*

- The original NZAP had a principle that stated that (local) offsets should be considered as a short-term flexibility member. This can be revisited by the group*
- I think we should highlight this issue and have this task force directly address it. It's a fundamental issue/definition.*

*Where are the boundaries defined for each category of the carbon inventory? For example, are all vehicle miles traveled within Cambridge captured by the transportation numbers or are those just City owned vehicles?*

- The NZAP only looks at building operations, not transportation.*

#### Part 3: Framework for NZAP Moving Forward

- During this part of the meeting, we covered the need for actions and adjustments to NZAP actions over time due to changes in four spaces – Science, Policy, Technology, and need for greater focus on Equity.
- City has established a framework that looks at science, policy, technology, and equity. For example:
  - Science of behind emissions reductions targets has changed since 2016, and new goal of carbon neutrality by 2050 aligns with United Nations and the current science.
  - Federal policies will help Cambridge, but they have slowed down recently. This may include Investment tax credits that incentivize energy supply.
  - State also has new policies and incentives. Cambridge is working with MAPC and other cities on advancing net zero stretch code at the state level. Brookline had an effort to ban fossil fuels but that is currently on-hold due to a ruling by the State Attorney General.

Question to TF Members: What technologies should be included?

- Geothermal
- Tree canopy / Passive design strategies
- NZAP should be focused on operations and embodied carbon (especially in New Construction)
- From chat:
  - Ventilation Energy Recovery
  - Green fuels that could be used to supplement fossil fuels- ex. methane from anaerobic digestion
  - High performance envelopes are critical for minimizing heat loads and going all electric
  - Cost effective implementation of passive house
  - Technology to influence occupant behavior
  - District wide solutions -daisy chain buildings

- Domestic hot water through solar thermal, heat pumps, and/or cogen

Moving forward in NZAP will need an Equity lens to also shape strategies and metrics

Relevant Comments from Chat:

*Helpful to see where we are and goals that have already been set. I think we need to bring embodied carbon into the discussion going forward, particularly for new construction. If we look at the critical time period to reduce emissions in the IPCC report, the majority of emissions from new construction will be from the embodied carbon in the materials used.*

*Cambridge could be able to adopt a Fossil Fuel Free Policy as a city, Brookline is a town that needs AG approval.*

*Cogen is still fossil fuel based and therefore less a desirable solution in the net zero goal.*

*Cogen can be powered by renewable fuels (biogas or green hydrogen). That said, the economics of either are pretty challenging and both raise the potential for public health issues from SO<sub>2</sub>, NO<sub>x</sub>, and PM emissions.*

Part 4: Discussion on Enhancing Equity

- Building off the introduction to the framework in the previous session, AEC introduced the concept and methods for assessing Equity of NZAP actions including:
  - AEC’s Climate and Social Equity Assessment Framework—including an equity checklist (and the items on that checklist that this meeting is addressing), equity dimensions and common equity pitfalls;
  - Cambridge’s current equity context—including measures such as race/ethnicity, income and housing characteristics; and
  - Equity metrics—including different types of equity metrics and examples from the buildings sector.
- AEC’s equity assessment framework goals:
  - Consider the context of society’s vulnerable groups
  - Prioritize equitable outcomes
  - Identify and intentionally avoid common mistakes
  - React to issues that arise during implementation
- AEC’s equity assessment framework categories
  - Equity checklist: method to ensure robust treatment of climate and social equity
  - Dimensions: race, gender, different sectors
  - Pitfalls: address unintended consequences
- Dimensions to consider include different communities
  - Stages of policy
  - Sectors
  - Communities
  - Intergenerational
- Pitfalls should be acknowledged and intentionally addressed. Common pitfalls in buildings include:
  - Displacement by improving buildings and pricing people out
  - Programs focus on higher income homeowners not lower income renters
  - Programs require access to good credit
  - Low to no income people pay higher percent of their income for energy than high income people
  - Sectoral overlap of different policies
- Equity checklist
  - Inclusive planning having task force meeting with representation
  - Establish baseline equity context

- Dialogue to discuss potential pitfalls
  - Allocate program costs progressively
  - Incorporate dynamic revision of programs and policies
  - Practice inclusively and equitable practices from start to finish
- Cambridge has large multilingual immigrant population. Wealthy are over-represented relative to the state and country, poor are overrepresented relative to the state not the country. Cambridge renters are paying higher percent of their income on rent than homeowners are paying on their mortgages. Cambridge's demographics have been very stable over the last 10 years.
- Cambridge social vulnerability index
    - Used census American community survey data
    - Used 6 variables specific to Cambridge and weighted them equally
    - Greater vulnerability means a higher score
    - 6 variables
      - Children
      - Limited English
      - Low to no income
      - Older adults
      - People of color
      - People with disabilities

Vulnerability concentrated in Eastern side of Cambridge, North Cambridge, and Strawberry Hill. Other vulnerability hotspots not included in the index:

- Population
- Affordable housing
- Immigration status
- Rent burden

All these indicators are in similar areas of Cambridge.

- Equity outcome metrics:
  - Did you meet the program goals?
  - Were there any unintended consequences?
  - Does the policy need iteration?
  - Equity distributional dimensions
  - Who gained and who lost in the program community?
  - Are policy gains and losses equitably distributed?
  - Have existing vulnerabilities been exacerbated or new vulnerabilities created?
- Equity process metrics
  - Is institutional feasibility accounted for?
  - Did you facilitate stakeholder participation?
  - How was stakeholder/community input used?

Example #1 for buildings

- Outcome metric could be dollars saved through energy efficiency measures
- Distributional dimensions metric could be average dollars saved through energy efficiency measures by race or ethnicity
- Process metric could be number of public comments and who were the participants at public meetings

## Example #2 for solar

- Outcome metric could be amount of solar
- Distributional dimensions metric could be share of solar by zip code
- Process metric could be distribution of outreach materials in different communities and languages

## Discussion:

- Harvard is a low-income area, was wondering if students were taken into account as low income. Bryndis: Harvard students reporting primary residence as Cambridge would be considered low income
- Equity is about bringing people in and making sure that people who can't focus on the NZAP full time are represented. Bryndis: there are gaps in representation in this task force that we need to be cognizant of.
- Are you planning to measure equity impacts through statistical modeling? Is the proposed policy going to be brought directly through the people that you are trying to impact? How are you proposing to measure these impacts? Bryndis: We will work closely with DNV GL [and the City] to ensure we adequately address these concerns. Two discussions, one quantitative with numbers working with Cambridge to see who its vulnerable populations are and one Qualitative conversation about what this transition means for Cambridge as a whole and what it means for its different populations in the short and long term. The framework is to be used for guidance
- Future task force meetings will include reading material that will address the assessment of past policies and evaluation of proposed metrics moving forward.
- Are there any public health benefits within the scope of the NZAP? Bryndis: included in qualitative long-term narrative of the work, public health benefits are associated with full use of renewable energy. Doug: matrix of co-benefits are being tracked, can include equity lens in it, would like ideas from task force about what those metrics would be.
- Census data from American community survey is clunky and doesn't represent understanding of low-income data in Cambridge, affordable housing organizations in Cambridge have a better understanding of the subtleties i.e. low income older people are different from low income homeowners. Bryndis: the census American community survey data is limited, and the most recent census data is from 2010, would like to follow up with TF members to get better low-income data. American community survey is mostly used for meetings to aggregate and present data.
- It sounds like there is too much focus on complete participation instead of bigger targets for greenhouse gas emissions. Cambridge hasn't reduced its greenhouse gas emissions, a 15% increase doesn't sound small. Bryndis: Yes, we're focused on using equity lens on greenhouse gas emissions reduction and applying an equity lens to results. The order of operations ensures that net zero is still the main goal.
- Equity needs to be front and center as a goal otherwise it won't happen, need to do the work and spend the money to make sure all Cambridge residents are benefitting. Bryndis: AEC will work closely with DNV GL to make sure equity is included every step of the way, which it wasn't during the first NZAP.
- Need to consider what are the benefits to certain groups of different mitigation strategies? For example, more open space and tree canopy which have benefits to all groups especially people who can't leave the city easily. Bryndis: not sure how open space is being considered. Doug: not a qualitative measure that is being considered, but could be a co-benefit. Will need to consider who is served by a measure but also who is impacted by a measure.
- Operations of commercial buildings is key, and has a more diverse set of people than the people using the buildings during the day time, which could be important in outreach

### Relevant Comments from Chat:

*[Re effects:] One negative impact could be pricing people out of homes*

*Consideration of potential operating cost burdens on different communities and institutions*

*High level - Success should seek to lessen the inequities mentioned (housing costs as part of income) & negative would be if policies exacerbate those inequities.*

*A metric showing percent of income spent on energy and if that changes over time could be useful. Also looking at change in amount spent on energy vs rent, and if increases in rent can be offset by decreases in energy use.*

*Success being inclusive of other stakeholders, particularly from the communities that are higher up on the vulnerability indices.*

*Might the Task Force invite representatives from underrepresented groups to engage with the Task Force in some way that works for them? For example, testing preliminary policies with underrepresented groups?*

*Slipshod solutions to energy production and insulation make poorer districts look poorer...this would be a fail*

*[Re data:] The affordable housing nonprofits seem to have more refined information in a way.*

*Need effective communication to all groups so they understand the goals and incentivize the program so all can participate or find resources to achieve that goal. If that is a barrier.*

*Success in the plan means broad awareness of the issue that education on the issue reaches every corner of our city. So we can all be proud of where we are going together.*

*Need consideration of potential operating cost burdens on different communities and institutions*

*Need good metrics so that we make the biggest differences with the biggest users - ie residential energy is ONLY 14% of the issue. We should take measures in this sector but not freak out. Commercial and government buildings are bigger levers.*

*[Re Residential sector:] they're less resource intensive to address—more bang for your buck. I don't think that means we can or should forget about residential all together, because we need to make gains in all areas to reach our goals.*

*The residential sector does have an outsize impact on the questions of equity.*

*Lesley U, HVD and MIT are driving at a gold standard for GHG reduction - we need to look at energy reporting to see where else we can make progress. And Equity is a lens...good*

*Some of the largest owners of on-site solar energy systems in Cambridge are the Cambridge Housing Authority, Cambridge Public Schools, Homeowners Rehab, Just-A-Start and numerous private companies that own affordable housing properties in Cambridge. We are already on the path to providing zero-carbon electricity to many disadvantaged families in Cambridge. Let's go further!*

*Creation of green jobs should be a something we measure.*

*Agree workforce development should be part of the program*

### Part 5: Closing: Setting Expectations of Task Force Members Going Forward

- In the part of the meeting we discussed what the TF members are responsible for, what is expected outside of the NZTF meetings as well as timing of future meetings.
- The structure facilitates providing background, talking about impact to date, and the move task force to get brainstorming and thinking about NZAP principles. Six meeting topics:
  - Net Zero Task Force Introduction (November)
  - NZAP impact analysis (December)
  - NZAP strategy adjustments (January)
  - Prioritization for NZAP updates (February)
  - Assess equity and outline implementation plan (March)
  - Finalize NZAP updates (April)

- Will include some concise reading materials ahead of time moving forward
- Next meeting to be December 10<sup>th</sup>, after that will switch to the 3<sup>rd</sup> Thursday of each month from 4:00-6:00pm
- Will post official outcomes, topics, and slides on the Cambridge website: [www.cambridgema.gov/netzero](http://www.cambridgema.gov/netzero)

#### Part 6: Open Comment

Question: Given that solar and wind are the lowest possible energy costs and have the least environmental impacts, what exactly are we concerned about in terms of equity by switching to/achieving net zero energy in buildings?

- Bryndis: The concern I hear most often is cost! Developing renewable energy and making buildings more energy efficient can be costly. Especially for folks who are already paying a large percentage of their income in energy costs, any further cost increases can price them out of these important services.

*Additional context added by City Staff and Consultants following meeting:*

- With renewable energy investment relative to actual energy bills, we need to recognize that costs of build-out finds its way into people's energy bills. This could especially affect low income people who pay a large percentage of their income in energy cost.
- Energy efficiency retrofits result in energy savings and reduce long-term operational costs. Savings are used to mitigate any increase in utility costs but also requires upfront investment.
- We need to address how investment in renewable energy and the up-front costs of retrofits may impact the energy cost burden on low-income populations and align who makes the upfront investment, who benefits from savings, and the outcomes for vulnerable populations.