Agenda

Wednesday, October 13th

- Meeting 2 Summary (5 minutes)
- Review agenda and next meetings (5-10 minutes)
- Review of current City plans and actions (10 minutes)
- Ideas for action steps - successes and failure (10-15 minutes)
- Preliminary identification of barriers (10 minutes)
- Discuss example of climate successes and failures (60 minutes)
  - Why did the initiative succeed/fail?
  - Are the barriers the right ones, and can steps to overcome them be identified?
- What are we missing that’s important? (5-10 minutes)
- Snapshot of next meeting’s goals and homework
Meeting 2 Summary

Discussed/identified Key Actors

- City of Cambridge: City Manager & Staff and City Council
- Higher Education: Harvard, MIT, Lesley
- Developers, architects, other construction industry players [Unions, firms]
- Property owners: Large commercial, Large residential, Small residential
- Residents - renters and owners

Discussed how to best identify actions to take

- Work on understanding barriers so progress can be made
- Will build on existing work
- Will add to existing lists if implementable meaningful action
Meeting Goal: Review Refine Work Plan

- **Today: agenda next page**
  - **Meeting #4:** Deeper dive/discussion on how to make progress on a limited number of issues to tackle. [BEUDO, Electrification, so far. ]
  - **Meeting 5:** Finish discussion of a few big actions AND specify quick actions/low-hanging fruit. [brainstorm ideas from no gas leaf blowers to all EV city cars to no street cleaning warning truck]
  - **Meeting #6:** Review/refine action plan - by actor with clear next steps

Comments, concerns, or thoughts?
Current City Actions - Buildings

Custom Retrofit Program in Residential Buildings

Scheduled Full Implementation*: Early 2020 [Pilot 2017-19]
Status: Implemented? not clear on goals or impact.

BEUDO Performance Requirements

Scheduled Implementation*: Early 2019
Status: Delayed, in process no draft for review yet

Upgrades at Transaction Points

Scheduled Implementation*: Early 2020
Status: Delayed

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Net Zero Requirements for New Construction

Scheduled Implementation*: N/A
Status: Feasibility stage - delayed several years

Updated Green Building Requirements

Scheduled Implementation*: 2017
Status: Delayed (partially implemented)

Net Zero Requirements for Municipal Buildings

Scheduled Implementation*: Early 2021
Status: Implemented

Scheduled implementation date determined through original NZAP target table - April 29, 2015
# Current City Actions - Energy Supply

<table>
<thead>
<tr>
<th><strong>Carbon-free Thermal Energy</strong></th>
<th><strong>On-site and Off-site Renewable Electricity Access</strong></th>
<th><strong>Rooftop Solar Ready Requirements</strong></th>
</tr>
</thead>
</table>
| Support transition to low-carbon thermal energy. Support individual de-carbonization and study how to transition away from fossil fuel infrastructure.  
*Scheduled Implementation*: n/a  
*Status*: Feasibility stage - not clear what is happening | On-site: Offer no-cost option for building owners to participate in development of solar projects.  
Off-site: Procure off-site renewable energy projects based on certain criteria.  
*Scheduled Implementation*: 2017-2020  
*Status*: Delayed | Pursuing a requirement for on-site renewable energy for new buildings, focusing on solar. New deadline: by 2022, all roofs on new construction should include solar PV and/or thermal.  
*Scheduled Implementation*: 2017-2020  
*Status*: Delayed  
*Green Roofs required now* |

Scheduled implementation date determined through [original NZAP target table](#) - April 29, 2015
Current City Actions - Selected Other

Local Carbon Fund
Community Choice Aggregation 3.0. Allows for widespread energy efficiency and electrification improvements. Provides funding and access to help implement clean energy projects. Pilot study complete.
*Scheduled Implementation*: 2019
*Status*: Not clear

Net Zero Labs Standards
Create energy efficiency standards for labs. Work with stakeholders (research institutions, industrial hygienists) to create new energy use standards. Currently in design stage.
*Scheduled Implementation*: Pilot in 2020-21,
*Status*: Delayed - not clear if pilot happened?

Communication Strategy
Implementation of communication strategy ongoing. Next steps are stakeholder engagement activities.
*Scheduled Implementation*: 2018
*Status*: Implemented but no measure of effectiveness

Scheduled implementation date determined through original NZAP target table - April 29, 2015
Most actions city has taken part of NZAP.

In 2015, the NZAP was implemented

Strength: set timelines

Weakness: no specific or measurable goals

RESULT: To date, almost no deadline was met

Status: Most steps

Delayed from 1-4 years
Results of NZAP after 5 years: almost no impact

<table>
<thead>
<tr>
<th>Action</th>
<th>Parameter</th>
<th>Estimated Emissions Savings (MTCO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Retrofit Program (NZAP Action 1.1.1.)</td>
<td>Electricity and Gas Savings from Participating Projects</td>
<td>0</td>
</tr>
<tr>
<td>Article 22 Green Building Requirement (NZAP Action 2.3)</td>
<td>Estimated energy savings beyond code</td>
<td>8,705</td>
</tr>
<tr>
<td>Renewal of Municipal Buildings (NZAP Action 2.4.2)</td>
<td>Electricity and Gas Savings from Participating Projects</td>
<td>1,504</td>
</tr>
<tr>
<td>Rooftop Solar Ready Requirements (NZAP Action 3.2)</td>
<td>Capacity of Installed Systems &amp; System Production</td>
<td>2,383</td>
</tr>
<tr>
<td>Cambridge Community Electricity Aggregation – Green+ Product</td>
<td>Purchase of 100% Renewable Electricity consumption</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>12,592</strong></td>
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2020 NZAP 5 year review:
Strength: External review, summary a call to change course.
Weakness: No sense of why most goals were not met.
RESULT: *No action plan or learning*
Status: *Next Plan will be released in next few days*
### Individual Interviews - Top Ideas

<table>
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<tr>
<th>Ideas</th>
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<tbody>
<tr>
<td>Advance/fast-track BEUDO requirements</td>
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<tr>
<td>Community aggregation - Opt-out of community aggregation program instead of opt-in</td>
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<tr>
<td>Electrify buildings (cambridge community electricity program, on-site renewables, etc.)</td>
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<td>Create third-party that has enforcement authority outside of the City Manager</td>
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<td>Mobilize citizen involvement</td>
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<td>Work with Eversource infrastructure to move toward thermal/away from gas</td>
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<tr>
<td>Eco-restoration, particularly soil</td>
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<td>Outreach to residents regarding current initiatives</td>
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### Other ideas:
- Set embodied carbon standards
- De-clutter Cambridge website
- Lobby state to develop stretch building code
- Increase tree density
- Prepare advice and information for renters regarding energy efficiency
- Electrify city’s vehicle fleet
- Eliminate parking minimums and institute parking maximums
- Tax all buildings for GHG emissions
- De-pave as many places as possible
- Participate in state docket to decarbonize gas (DPU2080)
- Create tax reduction incentive program for businesses that provide public transportation benefits
- Fast-track bus/bike lanes, incentivise people to get rid of cars
Successes and Failures

Areas of success: goals met
- City’s onsite renewable energy
- Waste reduction
- Municipal reduction in emissions

Areas of challenge: most climate programs have not met expectations, almost all are delayed 1-3 years and many never had explicit goals
- Local carbon fund
- Electrical aggregation program
- Installation of solar across the city
- EV penetration, installation of EV chargers on light poles
- Fully electrified buildings - commercial, labs, large residential, homes
- BEUDO amendments - still in formation
- ....
Success - City On-site Renewables

- 2015 goal: City will generate 5% of electricity it uses through on-site renewable systems by 2020
- 2019: 5% target reached

Cambridge has installed 2,520 kW in solar energy capacity at city facilities to date.
Successes - Waste Program

- 2009 goal: Reduce trash by 30% by 2020 and 80% by 2050
- 2019: Trash reduction goal achieved one year early
  - Trash reduced by 32% - 15.6 lbs per household

How did this succeed?
- Improved curbside recycling
- Expansion of curbside composting program
- Educational campaigns to shift behavior - encouraging reduction and reuse of materials before disposal
CCE & Renewables: Not Meeting Expectations

- Cambridge behind other cities
- Less than 5% of accounts sign up for 100% renewable opt-up option
- Adder yields $600K/year, equivalent to only 2.5%/year renewable → still lower RPS
- MIT invested in Power Purchase Agreement in 2016, built by 2017. Plant offsets 17% of emissions
CCE & Renewables: Not Meeting Expectations

Renewable Electricity Cost per Town

- Rate for 100% Renewable Electricity
- Rate for 18% Renewable Electricity


Costs per kWh: 0, 3, 5, 7, 9, 11, 13, 15
Zero Emissions Buildings (Including BEUDO)

- City overall needs to reduce emissions by 60% in next 9 years -by 2030 per state goal. Cannot get there with new buildings alone, cannot get there without dramatically changed actions
- Cambridge missed goal for BEUDO performance standards
- Cambridge now behind Boston: in implementation, applicability, [ above 50 units v 35], and shorter timelines
- Don’t know how many buildings are net zero capable, meaning all electrified

Questions to inform discussion:
What happened with Cambridge Compact for sustainable future?
Has modeling been done of timeline in Cambridge plans - to see if emissions reduction goals are met?
Barriers

**MINDSET**
- Climate-forward programs are not updated often enough
- Fear of opposition from wealthy stakeholders (homeowners, developers, etc.)
- Lack of political leadership and understanding of malleability of climate policy
- Climate isn’t prioritized by City Manager
- Difference in understanding as to actions and their impact

**MANDATE**
- Unwillingness to enforce mandates
- Structure of Cambridge government doesn’t mean council recommendations are implemented
- Mandates are necessary in an emergency
- All ideas have to pass through multiple layers - legal, CM, etc.
- High level barrier - state laws can override local (like building code)

**MONEY**
- Not enough money allocated for climate programs
- Equity concerns
- Funding is available - just needs to be identified and allocated
Discussion

- What made successes possible?
- Are barriers identified to date the right ones?
- How to overcome barriers?
Check in: are we making progress?
Anything we’ve missed?

- What and who have we left out?
- What are we not yet thinking about?
For Next Time:

- We will share the ideas on actions from interviews
- Plan is to review the top level most impactful ideas - should each CCWG member do a pitch for their idea?
- Create an action plan for highest-rated ideas

Thank You!