



Clean Energy and Sustainability Committee

Minutes of Public Meeting

Filed with Town Clerk:

DATE: Tuesday, August 2, 2022 **TIME:** 7:00 PM
PLACE: Town Offices **ADDRESS:** 50 Billerica Road **ROOM:** 200

MINUTES

Prepared by Sean McGuigan, Clerk

MEMBERS PRESENT: Badhri Uppiliappan (Chair, in person), David Drayton (Vice Chair, in person), Sean McGuigan (Clerk, remote), Bern Kosicki (in person), David Sperry (remote), Caeli Tegan (remote), Peter Spawn (remote)

MEMBERS ABSENT: Brittany Doherty

OTHERS PRESENT: Christopher Haley, Chelmsford Sustainability Manager

Welcome to Peter Spawn and introductions from other CEAS committee members.

Action Item – Committee will need to give Peter access to our Google Drive.

Public Input

None.

Current Draft of CEAS Report

Building Emission chapter from Bern and Dave Sperry – Version 5 was presented (see **Attachment #1**). Badhri has not had time to pull the other chapters together into a cohesive document but he created a folder in the Google Drive entitled Reports 2022 with all the chapters. The chapters need to be reviewed for consistency and tone. Badhri’s comment on Policies and regulations section – perhaps change language from “near-term” to 2025, “medium-term” to 2030. Bern states his dates might be all within 2030 which is fine. We again discussed that starting dates on the goal will be used. Example, start in 2022 and complete by 2025. David Drayton stresses to keep in mind that 2050 is the ultimate date and deadlines should fit into that. Caeli states that some sections may be more detailed than others and some would be briefer. The Transportation section was presented (see **Attachment #2**). Dave Sperry has other information that can be added to the Transportation section. Dave Sperry states that we need to acknowledge that other groups have been or will be working on these items and make sure they receive appropriate credit. Emphasize that these are Town goals. Perhaps the 2030 goal in the Transportation section needs a start date of 2025 for 2030 completion. Peter points out that we can perhaps partner with state agencies to tackle items that may be too intricate for the Town to handle. Clean Energy section was presented (see **Attachment #3**). Spread change over a couple of cycles. Change Basic to state-mandated requirements. Work with Chris and Paul Cohen to discuss with Select Board. Dave Drayton is proponent of 100% renewal as a default. Badhri and Peter will review all chapters and make comments. Badhri showed Energy Cost: MA Town Comparison table (**Attachment #4**).

We should work to compile everything together for the August 23 meeting. Might be a good way for Peter to come up to speed and assist Badhri to compile.

Action Item – Badhri will work with Peter to have draft report compiled and available for final review on August 23. Any edits to the sections should be done by August 9th. By August 8, Badhri will have a 2 paragraph summary to provide to the Town.

Community Surveys and Events

Bern believes that the Health Dept is having a fair on October 1 – should CEAS attend? Caeli will look into what the topic of the fair is and report back to CEAS committee on whether we should attend. Caeli was asked if Boards of Health typically look at climate-related health concerns. Caeli believes many BOHs do not have the bandwidth to tackle but it may be under their purview to address or support the Town. Public health has broad powers to address health concerns.

Old Business - Does it make sense to create a separate email account for comments to go to? Create a new Town of Chelmsford email account, an additional gmail account or use the Chelmsford net-zero gmail account? Chris will check with Town IT to see if a Town email account can be created.

Action Item – Bern will send Caeli info on the October 1 Fair.

Action Item – Chris will research how a Chelmsford email account can be created for comments to our draft report.

Other Town Committee Engagements

Bicycle and Pedestrian Committee will not be updating the Complete Streets Plan, it will be the DPW's responsibility. The Committee is focused on Freeman Bike Trail. E-bikes are not allowed on Freeman Bike Trail but e-bikes will be important in reducing emissions by replacing automobiles on shorter trips.

Zoning update. Badhri and Dave attended 2nd working session with W&S. W&S will send out a draft list of recommendations. Do we want to push forward the regular building code or specialized stretch building code? We will need to have a future discussion on this. We also need to get Evan Belansky a prioritized list of incentives (i.e., if a developer goes green, fees are waived or deadlines are shortened). What level of participation does this Committee want to provide on an on-going basis? Perhaps a questionnaire on green building designs as part of the building application process? When does this committee come into play or is it the Town's responsibility? When an application is made to Planning Board – would this Committee be involved in review of application? Green Community stretch code was adopted with little town discussion back in 2008.

Action Item – Before September 8, provide any ideas on incentives or procedures to Zoning group).

Meeting Minutes

The minutes for the 7/6/22 meeting were reviewed and approved by a vote of 5-0 (Caeli and Peter abstains as they were not at the meeting). These minutes will be submitted to the Town Clerk for posting.

Miscellaneous Items

Caeli gave a presentation on Individual Sustainability Efforts as outreach to local community members. Slide on reduce, reuse, recycle. Slide on smart thermostat, meat & dairy alternatives, plant-based plastics. Slide on possible audiences – social media, schools, town departments, newsletter, local businesses, other committees.

Chris says that the Chelmsford Recycling app is in beta phase so download and take a look.

Action Item – Peter will reach out to Caeli with comments and Caeli will upload and perhaps modify for elementary school use.

August and September 2022 Meeting Dates

Meetings are scheduled for August 23, September 6 and September 20.

Meeting was adjourned.

Attachment #1 – Draft Building add-on section to Draft CEAS Report

Attachment #2 – Draft Transportation add-on section to Draft CEAS Report

Attachment #3 – Draft Clean Energy add-on section to Draft CEAS Report

Attachment #4 – Energy Cost: MA Town Comparison Table

Strategies and Actions to Reduce Building Emissions

Almost 60% of the greenhouse gas emissions in Chelmsford are due to buildings. This is split relatively evenly between residential and commercial/industrial buildings. To become net zero by 2050 Chelmsford must convert almost all buildings to being powered solely by renewable electricity before that date.

To accomplish this will involve attention to retrofitting existing buildings with improved insulation and heat pumps. New-construction buildings will be required to be insulated to increasingly higher standards. In the near- term exclusive use of electricity to power all new buildings will be strongly encouraged and in the longer term required.

Massachusetts is increasing a number of financial incentives to aid in this transition, with the model that home and business building owners will switch to incentivized electrification when old fossil fuel furnaces have reached end -of -life. But besides these incentives more actions are needed to inform our residents and businesses of existing programs and to assure them that new unfamiliar all-electric systems will be reliable, cost-effective and able to do the job in our cold climate.

Chelmsford will supplement state actions to achieve this vision of energy transition by adopting a range of **policies and regulations** and providing **programs and services** to support and help its residents and businesses while depending on state financial support programs. The following two sections describe actions to take that will implement both of these main strategies. These actions have been adopted and tested by a range of other towns who have also adopted net-zero goals.

Policies and regulations

- 1. Adopt new Massachusetts energy efficient building codes.** The Department of Energy Resources (DOER) develops Stretch and Specialized Stretch Energy Codes at regular intervals. As a Green Community Chelmsford has already agreed to adopt future versions of the Stretch Code. Recognizing the urgency of moving more strongly to address climate change DOER will also be producing a Specialized Stretch Code that will contain additional requirements to discourage fuel use in new building construction. Towns will need to explicitly opt-in to the Specialized Stretch Energy Code. Chelmsford will study and adopt these Specialized Stretch Energy codes when they become available from DOER. Near-Medium Term.
- 2. Advocate at state-level for new building codes and policies that will enforce net zero building standards.** For Chelmsford to reach a goal of net-zero greenhouse gas emissions all buildings must use electricity as the only energy source for heating, cooling and cooking. Building electrification is most readily achieved in new construction. However, DOER has not yet adopted the principle of prohibition of fossil fuel connections to new buildings which will ultimately be required for Massachusetts to reach its goal of net zero in the future. Chelmsford will advocate to the Massachusetts Legislature and DOER to enable/create future building codes which increasingly penalize and eventually prohibit use of fossil fuels in new-construction buildings. Near-Long Term.
- 3. Adopt a net zero carbon standard for new municipal buildings and town-funded affordable housing.** There is increasing evidence that particular pathways to electrification of new buildings in the Northeast are definitely cost effective with up- front costs compensated by lower future power costs. Realizing this fact other towns are already taking advantage and constructing

all-electric new municipal and affordable housing buildings as being both consistent with net-zero carbon goals and at the same time being cost-effective. Chelmsford will study and adopt a zero- carbon standard for future new-construction municipal buildings and affordable housing. Near-Medium Term.

4. **Adopt the Massachusetts Property Assessed Clean Energy (PACE) program to help commercial and industrial property owners in Massachusetts finance energy improvement.** This state program encourages owners of commercial and industrial property to make investments in clean energy improvements. The PACE program allows financing of qualifying improvements to be spread out for up to 20 years by using betterment fees. A property owner agrees to a betterment assessment and lien on their property, which repays the financing. Individual municipalities may allow owners to participate in PACE by opting in by a majority vote of the city or town council or the board of selectmen, as appropriate. Chelmsford will begin the process of studying and opting in to the PACE program. Near Term.
5. **Promote and encourage full electrification for new- construction buildings.** In the future new building codes will prohibit use of fossil fuels in new-construction buildings. Until this time the appropriate planning and building departments will provide developers and owners requesting permits an information packet on the economics and other benefits of electrification for new construction and how this is consistent with Chelmsford goals. Chelmsford will create a document promoting full electrification of new buildings and establish a program do distribute it to applicants of new building permits. Near Term.
6. **Adopt zoning bylaws to encourage electrification of commercial new construction buildings.** Complete the review and assessment of Chelmsford's zoning bylaws to understand how electrification can be encouraged separately from a building code change. (See Zoning section for details. This action is repeated here for completeness.)

Programs and Services

1. **Implement a community-wide energy efficiency outreach program to improve residential and commercial building energy efficiency.** The first step toward removing fossil fuels systems from buildings is to assure good energy efficiency. Mass Save is the most effective energy efficiency program in the country, its use is already paid for by fees assessed on energy use, but it has still been used by a minority of households in Massachusetts. Chelmsford will mount a multi- year promotion effort to encourage residents and businesses to take part in this free energy assessment program. Near Term.
2. **Implement a community-wide effort to encourage heat pump conversion in residential and commercial buildings.** State incentives to convert building heating systems to heat pumps have been increased substantially in 2022. Create a program to inform residential building owners about incentives and provide support to assess how heat pumps might be advantageous in their existing structures. Modern heat pump equipment can be used effectively in cold climates like Massachusetts, is cost effective with most fossil fuel heating sources right now, and is likely to become even more so in the future. Near-Medium Term.
3. **Advocate for financial assistance and low-cost financing options from the state and federal government.** Non-profit organizations are developing and implementing programs to finance

retrofits- in particular, of low- income housing. Study these programs and propose a model that can be used in Chelmsford. Medium-Long Term.

Transportation

Overview of overarching strategies

Chelmsford residents annually generate over 138,000 metric tons of CO2 from transportation - that's 39% of our emissions. There are four overarching strategies that will help to bring these numbers to net zero by 2050. These strategies encompass all of the suggestions below, and they are:

1. Support walking, biking, and public transportation options
2. Advance zero emission vehicle infrastructure
3. Encourage use of zero emission vehicles
4. Lead by example in the municipal fleet

Timeline of Initiatives

Start ASAP or currently in progress:

Adopt a Complete Streets policy.

A [Complete Streets report](#) was published by the town in 2017 to improve safety and convenience for residents who choose to bike, walk, or take public transportation. However, no new grants have been sought to help implement this plan since 2018. CEAS can work with the Bike and Pedestrian Committee and DPW to help identify funding, get public input, and hold joint meetings to help make this plan become a reality.

Expand publicly accessible charging stations.

Much progress has already been made here, but more will need to be done as electric cars become more prevalent. Consider additional siting at libraries, multiservice centers, garages, parking lots, fire/police stations, and other publicly accessible facilities, staying ahead of anticipated demand.

Adopt EV charging site guidance.

Specify requirements for stations, signage, and wayfinding for both on- and off-street parking, alongside regulations and enforcement policies for EV parking spaces.

Adopt a zero emission municipal fleet policy.

The town has already made headway in giving preference to zero emission vehicles whenever a vehicle in the municipal fleet needs to be replaced. Making this an official policy wouldn't be a big leap.

Start by 2030:

Advocate for community and regional transit needs.

This should be an on-going activity working with the Lowell Regional Transit Authority to provide Chelmsford residents and businesses with effective service to reduce individual vehicle traffic. Strategies and opportunities will change over time, but prioritizing bus improvements and electrification of the regional transit system are a good place to start.

Chelmsford Clean Energy Supply – Path to 2050

To help Chelmsford reach net zero GHG emissions by 2050, the Town will need to meet the energy needs of our homes, businesses, and vehicles with 100 percent renewable sources of energy.

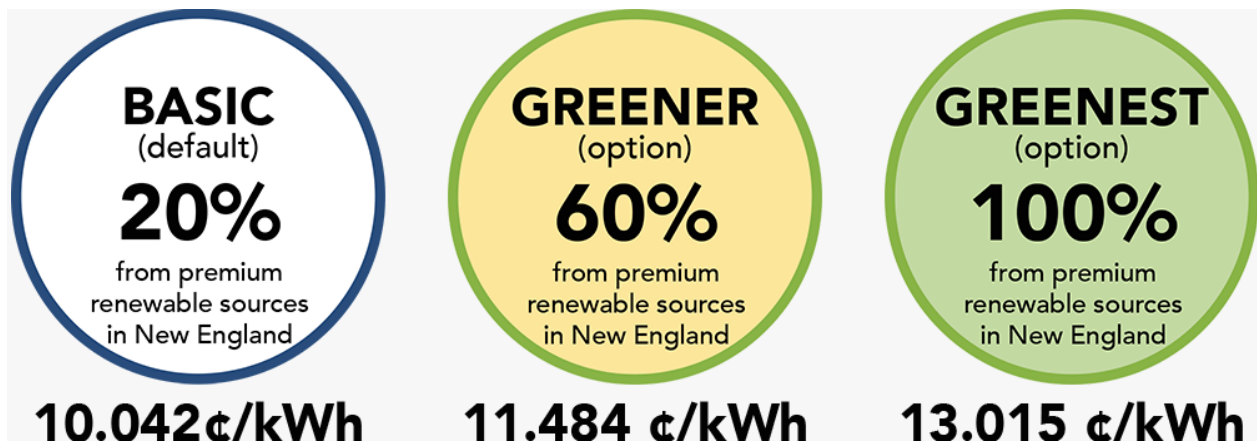
The following three strategies can be used to advance the 2050 net zero goal:

- Increase renewable energy generation, use, and access;
- Build smart, resilient energy infrastructure; and
- Reduce the carbon impact of the energy system, from the grid to building scale.

1. *Increase renewable energy generation, use, and access*

(a) **Strengthen Chelmsford’s current municipal energy aggregation program**

Chelmsford Choice is the Town’s electricity aggregation program that gives Chelmsford residents and businesses a clean energy alternative. Chelmsford residents currently have the choice to enroll one of three programs with different clean energy portfolios and different costs:



Near-term strategy:

- At the time of the next contract renewal, increase the amount of renewable energy in the “basic” portfolio from 20% to 50%;
- At the time of the next contract renewal, increase the amount of renewable energy in the “greener” portfolio from 60% to 75%;
- At the time of the next contract renewal, change the default option from the “basic” option to the “greener” option (75% renewable energy); and
- Focus on recruiting new Chelmsford residents to join the Chelmsford Choice program and work to encourage residents currently signed up for the “basic” and “greener” options to step up to the “greenest” option.
- At the time of next contract renewal, connect Chelmsford Choice to a solar installation in Massachusetts that provides a kWh discount to low-income customers via the Solar Massachusetts Renewable Target (SMART) program

<https://www.mass.gov/doc/alternative-licss-and-css-programs-guideline-october-2020/download>

(b) Develop community shared solar program

A community shared solar (CSS) project allows multiple energy users in a community to benefit from that project. CSS projects use virtual net metering to allow participants to subscribe to a project and receive credits for a portion of the energy generated on their utility bill.

Low-income CSS builds access to solar for residents who may have been excluded from other solar models, since participation does not depend on owning a home or having a roof in good condition and a suitable location for installing solar. To ensure that low-income residents are able to participate, municipal staff should include residents in the development of the program and ask for contract terms from vendors that will eliminate barriers to participation and provide consumer protection (e.g., clear contract terms and easy opt-out options or support if unable to pay utility bills).

Intermediate-term strategy:

- Lease municipal land or rooftop space to set up a program that benefits low-income residents in your community.

(c) Maximize renewable energy generation on municipal property and encourage residential and commercial renewable energy generation

Municipalities can install solar PV in multiple configurations – on municipal rooftops, as parking canopies, or as ground-mounted installations. They can also install other renewables, such as wind turbines, solar thermal systems for hot water heating in municipal buildings, and geothermal generation via ground source heat pumps. Renewable energy installations reduce the GHG emissions of the municipal portfolio and allow a community to lead by example, showing residents and businesses what is possible.

Chelmsford has already done a tremendous job installing solar on its municipal properties. In fact, it is believed that these solar installations offset 70-80% of the Town's municipal electrical needs.

Near-term strategy:

- Assess possible locations for installation of additional renewable energy generation and if feasible projects are identified, obtain necessary approvals and funding to proceed with projects
- Partner on Clean Energy Outreach Programs: Municipalities can support clean energy in households and businesses by partnering with service providers on clean energy outreach programs. Often called Solarize, HeatSmart, or Solarize Plus, municipalities organize these programs by identifying and vetting qualified vendors, typically via an RFP process.

2. Build smart, resilient energy infrastructure

Municipalities can plan for and support centralized clean energy systems, such as district energy and microgrids, among multiple buildings via zoning and permitting policies. District energy uses networks of insulated pipes that carry steam or water to heat and cool buildings. Microgrids are localized electrical

grids powered by renewables and with control capability that allows them to operate autonomously from the main electrical grid.

(a) Pilot microgrids fueled by renewable energy.

Microgrids can operate independently from the larger electrical grid and serve a specified area, usually at least several buildings with proximate energy loads. They include battery storage and controls and should be powered by renewable sources like solar PV, rather than with fossil fuels, to help meet net zero goals. Microgrids with energy storage build resiliency into the local clean energy supply because the storage system allows for energy to be used at different times of day than it is produced and to power some or all of the grid during a power outage.

Long-term strategy:

- Identify potential sites in your municipality to host a microgrid. Microgrid infrastructure should be co-located with facilities that provide essential services when feasible and strategic. This could include buildings such as a fire department, health center, assisted living facility, community shelter, school, water pumping station, or emergency cooling center.
- Begin discussions early with your electric utility about project feasibility and discuss any written approvals needed for a microgrid from the utility if the infrastructure will cross multiple property owners' boundaries.
- Engage partners and members of the community who would be impacted by or benefit from the project early on to get input.
- Pursue funding to commission a feasibility study for the project.

(b) Deploy energy storage at critical facilities.

Energy storage refers to a suite of technologies that allow for energy to be stored for later use. At the building level, storage can provide demand management services, allowing a building to scale back its grid energy use at peak times and supply energy to the grid at times when more is needed. Energy storage can also increase resiliency by providing power during outages and make onsite renewable energy more efficient when paired together. Most building-level storage solutions are comprised of different types of batteries; lithium ion, lead acid, and flow are the most common, with new types such as highly efficient iron-air batteries nearing market viability as well. Energy storage systems can work with electric or thermal energy.

Long-term strategy:

- Identify key priorities for energy storage, how long that storage would ideally provide power during an emergency or regular basis, and critical facilities in the community, either municipal or privately-owned, that might be well-suited to host a storage system.
- Reach out to staff who own and operate a prioritized building to discuss the potential for energy storage paired with renewables onsite. Coordinate with the Fire Chief and Inspections Department.
- Draft and release an RFP for a vendor to conduct a feasibility study for the project. A good feasibility study will respond to the goals for the system and review energy load and variation

onsite, logistics of interconnection, system size, design, lifespan, approximate cost, past energy usage (up to one year of previous data), safety, and appropriate opportunities for funding.

- Identify funding and financing opportunities for the project.
- With funding secured, release an RFP for engineering and construction of the project. Pursue funding to commission a feasibility study for the project.

3. Reduce the carbon impact of the energy system, from the grid to building scale.

(a) Coordinate with utilities to address major gas leaks.

Municipalities can advocate for the repair of super-emitter gas leaks in their communities and coordinate information and data sharing with the gas utility. Repairing gas leaks improves residents' health, makes the gas network more efficient, and helps to eliminate difficult-to-account-for GHG emissions.

Long-term strategy:

- Establish an internal policy to coordinate municipal paving, water, and sewer infrastructure planning efforts.
- Ahead of each construction season, hold a coordination meeting with your gas company to align infrastructure repair schedules and establish communications, restoration, paving, and inspection procedures. Use this meeting to check-in on the repair status of gas leaks, including Grade 3 super-emitters, those that they are larger than 2,000 square feet and have Significant Environmental Impact (SEI).
- Check in on progress internally and with the gas utility regularly throughout the construction season. Where possible, consider expediting permitting for projects that will involve gas leak repair.
- Encourage the replacement or alternative use of gas pipelines in your community with renewable energy sources. While the repair of major gas leaks is a very significant measure in reducing GHG emissions and improving public health and safety, the replacement of fossil fuel energy sources in your community with more clean energy will lead to the greatest impact and enable longer-term change.

Town	Basic Plan, cents per kWh. (20% clean energy)	Standard Plan (ranges 30%-82%)	DEFAULT %	Green Plan (100% clean energy)	Green local Plan (100% clean energy)
<u>Acton</u>	10.741	10.985	30%	12.671	---
<u>Bellingham</u>	12.732	10.755	50%	13.863	---
<u>Beverly</u>	under development				
<u>Cambridge</u>	10.200		20%	13.669	---
Chelmsford	10.042 (default)	11.484	60%	13.015	---
<u>Chelsea</u>	under development				
<u>Foxborough</u>	10.367		20%	13.223	---
<u>Grafton</u>	10.800		20%	11.708	---
<u>Greenfield</u>	9.629		100%	9.879	13.281
<u>Lexington</u>	9.935		100%	10.800	13.219
<u>Lincoln</u>	10.651	11.725	47%	14.043	
<u>Nantucket</u>	11.065		20%	14.001	---
<u>Natick</u>	10.938	11.551	36%	14.422	---
<u>Newton</u>	10.646	13.452	82%	14.357	---
<u>Salem</u>	10.750		100%	11.317	13.709
<u>Sharon</u>	10.730	11.586	40%	14.275	---
<u>Sherborn</u>	under development				
<u>Southborough</u>	10.999		20%	13.724	---
<u>Sutton</u>	10.651		20%	11.593	---
<u>Swampscott</u>	10.603		100%	11.406	13.583
<u>Walpole</u>	9.945		20%	10.749	
<u>Watertown</u>	12.723	12.999	50%	15.638	
<u>Webster</u>	9.509		20%	12.281	
<u>Westborough</u>	9.709	10.425	40%	12.585	
<u>Weston</u>	under development				
<u>Worcester</u>	14.821	11.442	40%	14.031	
AVG Cost	10.864	11.640		12.875	13.448