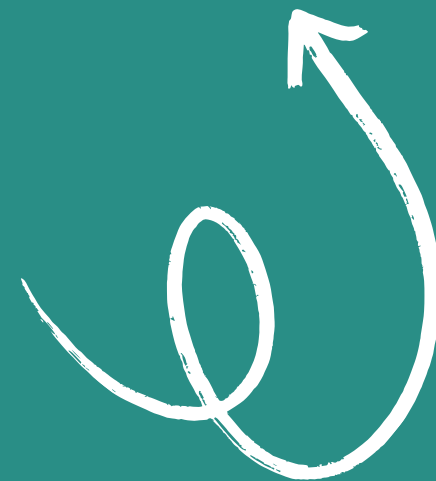


Energy Planning in Practice: My Municipal Fellowship Experience

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About the Town of Berlin



Berlin is a relatively small community in Massachusetts, with the population of 3158, recognized as a Green Community since 2012, dedicated to sustainability and zero carbon emission planning and striving toward becoming a Climate Leader Community through innovative energy initiatives.



Fellowship Work Overview

Key Contributions to Berlin's Energy Goals

HVAC System Analysis

HVAC system analysis of a historic building to address its future heating, cooling, and dehumidification needs

Energy-Savings Prioritization

Energy-savings prioritization plan for ranking energy conservation measures for buildings based on several metrics and factors

Energy Grant Proposal Contribution

Support for preparation of Green Communities Grant application for weatherization and electrification of a school

Decarbonization Roadmap Contribution

- Studying municipal building energy portfolio using Mass Energy Insight information

Focus on Specialized Energy Code

Introducing and presenting Specialized building energy code to The Town's Energy Committee



HVAC Analysis in a Historic Building

Bullard House was first constructed in 1780 as a residential house, expanded significantly in 1790s, sold to the town in 1996 and operates as a local history museum.

A detailed HVAC system analysis is conducted for heating, cooling, dehumidification and hot water supply

Steps:

- Field inspection of the house and its facilities
- Studying latest energy audits, plans and reports of the building
- Calculation of heating and cooling load using online energy assessment tools
- Recommending HVAC systems configuration based on the current situation and limitations
- Writing a technical report to Historical committee about the outcome of the analysis
- Preparation of Request For Proposal (RFP)

HVAC Load Calculator

*Where is the house located? 
United States
Region 44 - Upper Mid

What is the square footage? (SQFT)
- 2000 +

What is the ceiling height? (FT)
- 8 +

*Have you added extra insulation? 
Insulation grade: Average

*Have you added sunlight doors? 
Sunlight doors: Standard

*Have many windows does it have? 
Amount of windows: Standard

*Are the doors and windows well sealed? 
Sealing of doors and windows: Typical

Does the house have storm doors?
Storm doors: No

Climate
Climate: No

*How many people live there? 
Occupants: 2

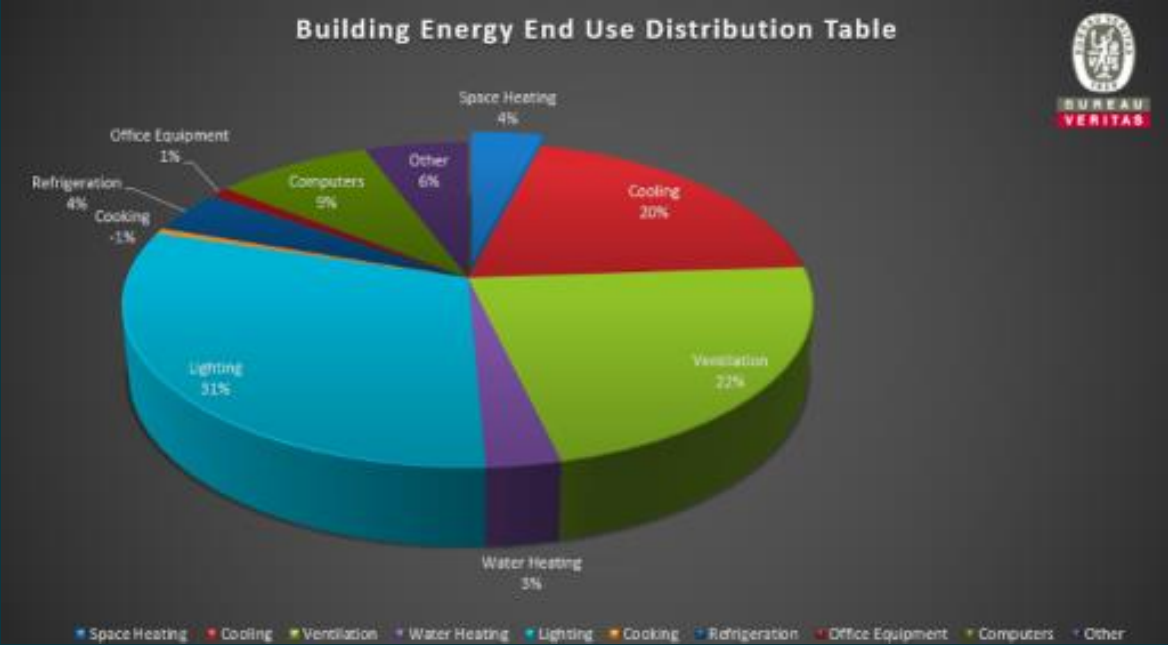
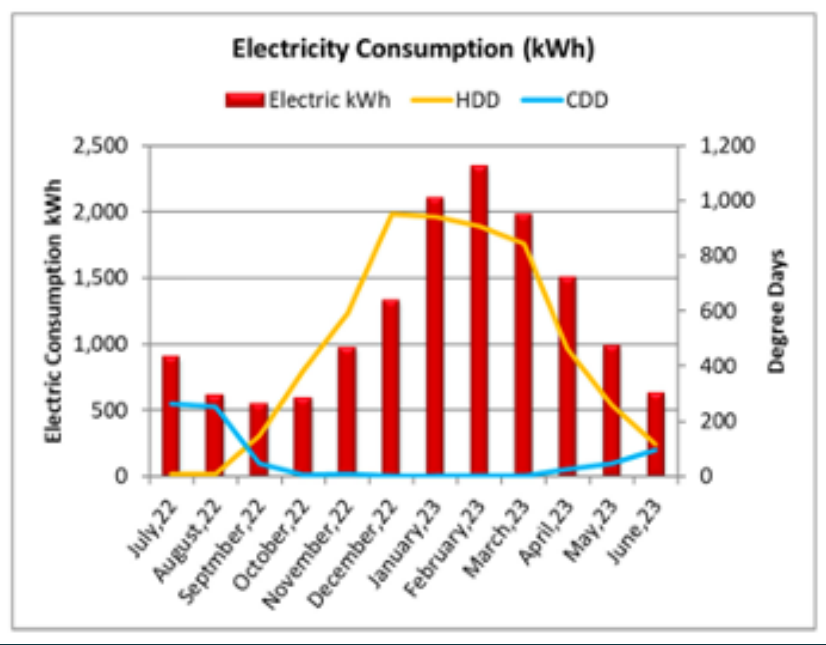
*Extra Device Heat/Mortgage (W) 
Extra Device Heat/Mortgage (W): 2

PRELIMINARY EQUIPMENT CAPACITY
60,000 BTU / 5 Tons
Calculated Cooling Load: 71,000 BTU / 5.917 Tons
[Calculate](#)

BE ABLE TO FIND TO YOUR LOCATION
The used Calculator Tool provides information and data for general information purposes only. There is no warranty which may impact on the results of the calculation and the accuracy of the results is not guaranteed. The tool is not intended to be used for any other purpose than to provide an approximate calculation of the heating and cooling load. The results of the calculation are not intended to be used for any other purpose than to provide an approximate calculation of the heating and cooling load. The results of the calculation are not intended to be used for any other purpose than to provide an approximate calculation of the heating and cooling load.

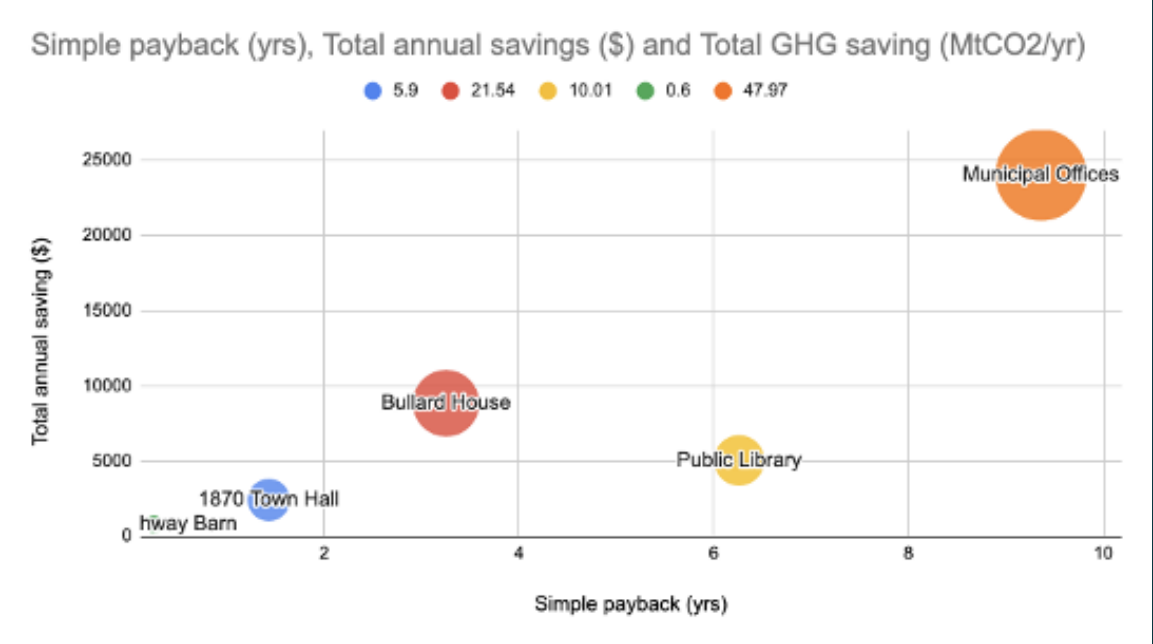


Energy-Saving Prioritization Plan



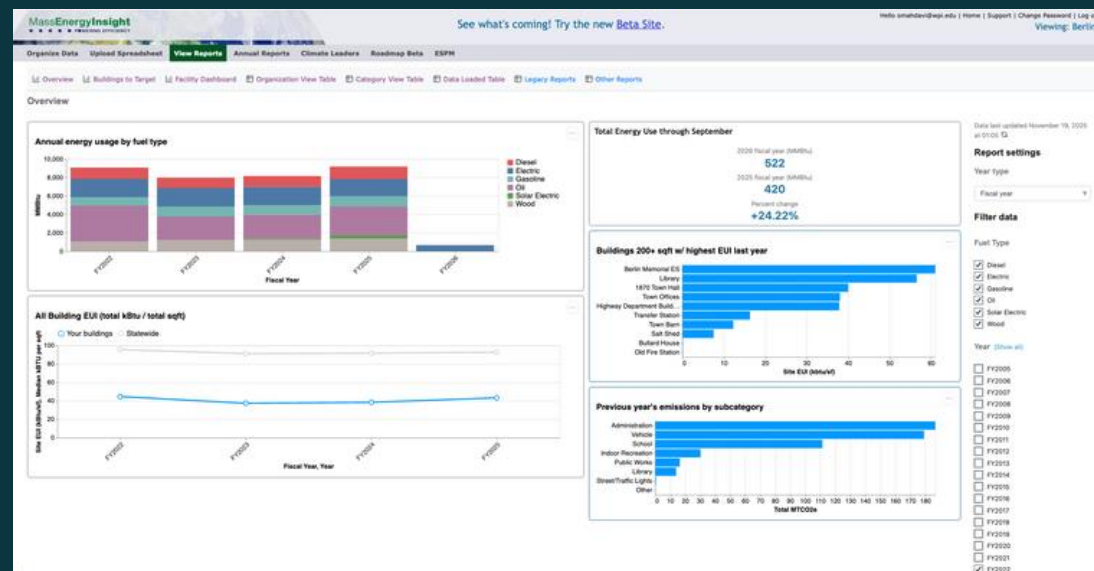
	Annual cost saving/Net projected initial	Total energy savings	Total greenhouse gas saving	Total estimated annual cost savings	Simple payback	Prior ECM Implementation Status	Age of the building	Scope of Measures Implemented	Weighted Score
Weights	4	3	2	3	3	5	2	2	
1870 Town Hall	4	2	2	2	4	3	2	2	67
Bullard House	3	4	4	4	3	1	1	3	66
Public Library	2	3	3	3	2	5	4	5	81
Old Highway Barn	5	1	1	1	5	5	5	1	80
Municipal Offices	1	5	5	5	1	1	3	4	66

The prioritization plan involved a thorough review of recent energy audits for buildings, ranking buildings’ energy conservation measures based on several metrics and factors such as cost and carbon emission potential savings with the goal of allocation of a limited budget for energy efficiency projects.



Decarbonization Roadmap Contributions

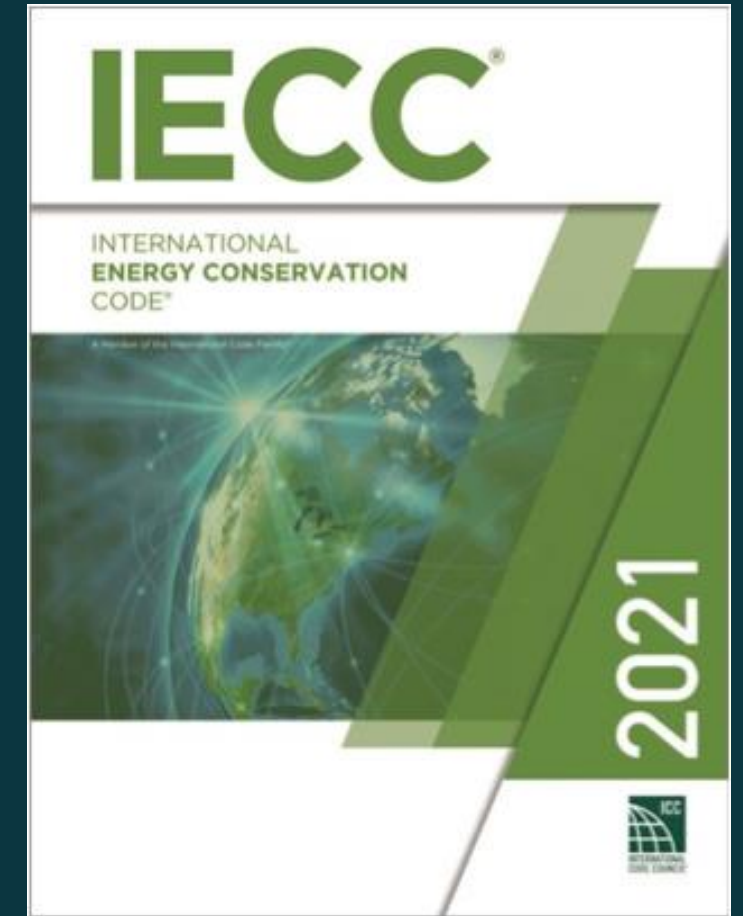
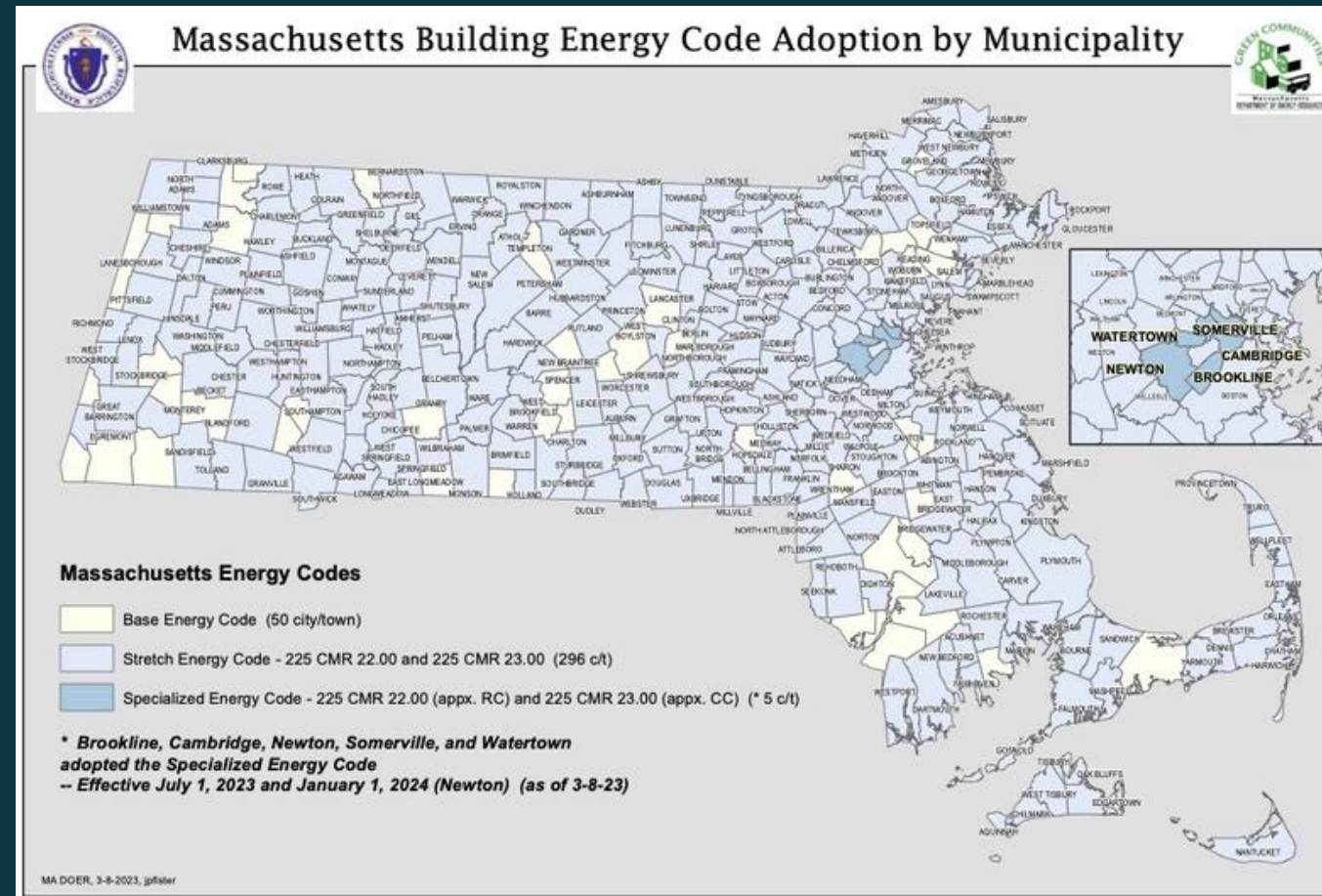
- Studying the municipal buildings' energy portfolio using Mass Energy Insight data
- Performing the necessary calculations to establish the town's baseline energy status
- Drafting the baseline energy part of the roadmap



Focus on Specialized Energy Code

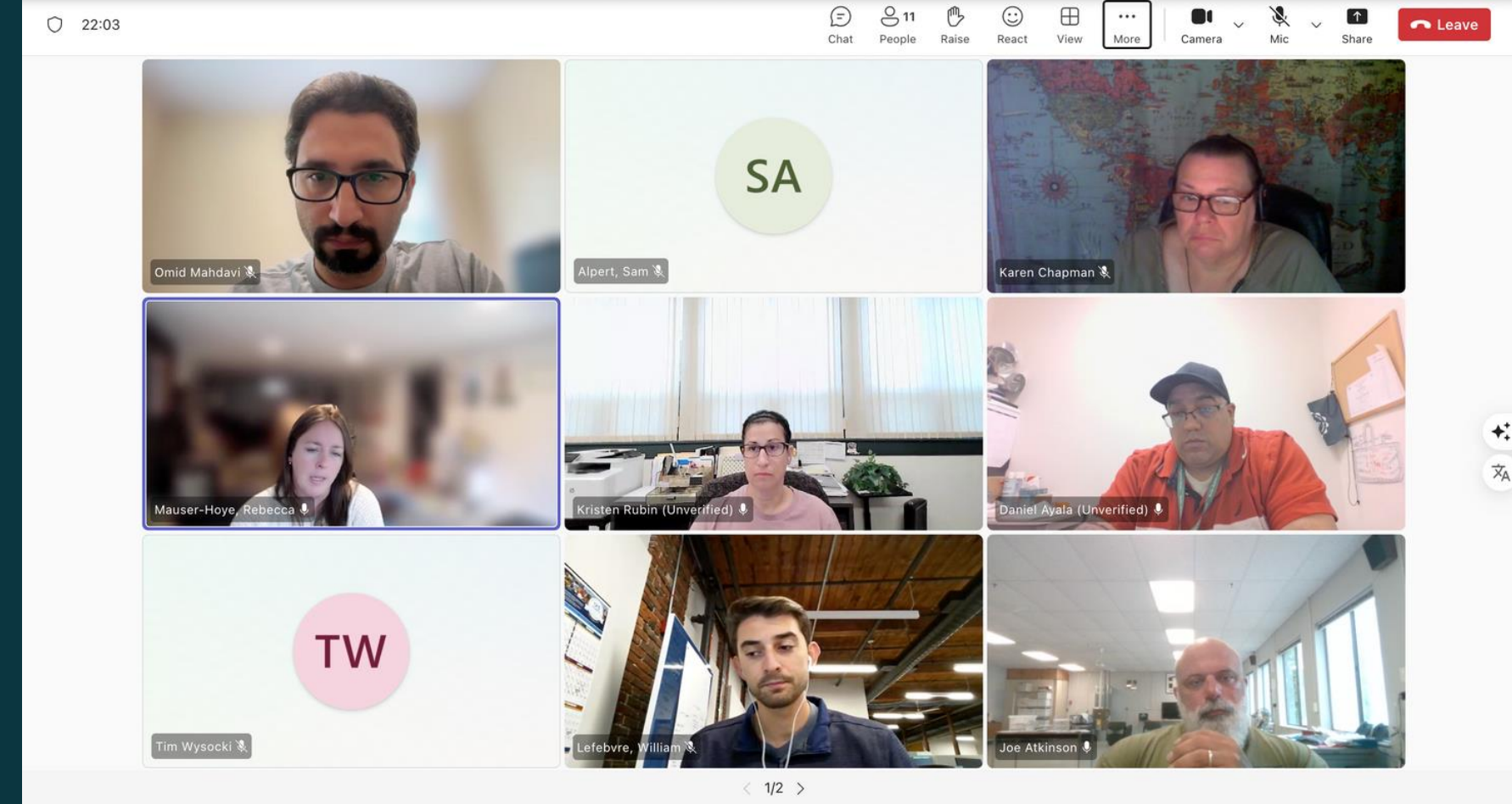
This project introduced a specialized energy code to town leaders, enhancing their understanding of its benefits and requirements, thereby supporting Berlin's goals as a Climate Leader Community.

- Collecting information from mass.gov, energycodes.gov, phius.org, etc.
- Attending several Mass Save's webinars about building energy codes
- Preparation of a presentation covering the standard, stretch and specialized code and their requirements for the town
- Presenting the material to the Energy Committee



Engaging Municipal Stakeholders

Collaborating with Berlin's Energy Committee and energy players working with Berlin like DOER Green Communities division, CMRPC, MRPC, National Grid, energy consulting and engineering firms like Weston & Sampson, etc. for management and advancement of the energy efficiency projects



Personal Growth and Insights

This fellowship:

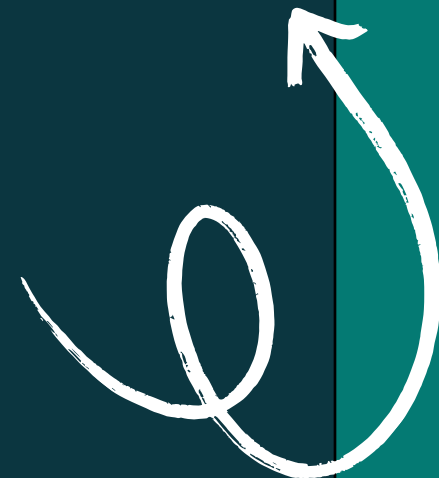
- Deepened my understanding of Massachusetts clean energy and climate plans and municipal level of energy efficiency and sustainability projects and processes
- Enhanced my technical policy and communication skills
- Solidified my commitment and interest in decarbonization efforts within society
- Strengthened my confidence and readiness for a career in renewable energy and sustainability



Special Thanks to:

- Tim Wysocki, Energy Committee Chair
- Kristen Rubin, Town Administrator
- Amy Grenier, Energy Committee
- Pegg Stone, Vice-Chair Select Board
- Lisa Wysocki, Clerk Select Board

- Devon Milisci
- Carley Castro





Thank You