



Newton City Council

Committee of the Whole Report

Monday, March 21, 2022

Present: Councilors Baker, Bowman, Crossley, Danberg, Downs, Gentile, Greenberg, Grossman, Humphrey, Kalis, Kelley, Krintzman, Laredo, Leary, Lipof, Lucas, Malakie, Markiewicz, Noel, Norton, Oliver, Ryan, Wright & Albright.

Also Present: City Staff: William Ferguson, Co-Director of Sustainability; Ann Berwick, Co-Director of Sustainability; Michael Gevelber, Newton Citizens Commission on Energy member

Clerk's Note: The full Council meeting can be viewed on the following link:

<https://newtv.org/recent-video/63-newton-city-council-meetings/7419-city-council-committee-of-the-whole-march-21-2022>

The City Council went into a Committee of the Whole to hear the Newton's Co-Directors of Sustainability and the Citizens' Energy Commission present on the regulating of building energy reporting and reduction.

#184-22 Discussion on Regulating Building Energy Reporting and Reduction

COUNCILOR CROSSLEY ON BEHALF OF THE ZONING & PLANNING COMMITTEE

requesting that Newton's Co-Directors of Sustainability and the Citizens' Energy Commission, join the Council to present the key elements and expected timeline and resources necessary to create a program ordinance that would regulate building energy reporting and reduction by large property owners in the city.

Committee of the Whole voted No Action Necessary 24 yeas, 0 nays

Co-Director Ferguson and Michael Gevelber presented (attached) an overview of the proposed Building Emissions Reduction & Disclosure Ordinance (BERDO) for Newton. The presentation included Newton's current Green House Gas emissions and ways to meet climate objectives, definition of a building performance standard and the elements of the new BERDO Policies.

Councilors discussed and asked questions of the presenters for a clearer picture on program ordinance.

Respectfully submitted,
Susan Albright, President

A BERDO for Newton.

(Building Emissions
Reduction and
Disclosure Ordinance.)

Bill Ferguson, Co-
Director of
Sustainability

Michael Gevelber,
Newton Citizens Energy
Commission.

- Boston BERDO.
- A BERDO for Newton.

- GHG in Newton Buildings.
- Pathways to compliance.

- Summary



Boston BERDO

(Building Emissions
Reduction and
Disclosure Ordinance)

- For existing-and effectively new-buildings.
- For large commercial and large residential buildings.
- Two phases: BERDO 1.0 and 2.0.



Boston BERDO 1.0

(Building Energy
Reporting and Disclosure
Ordinance)

- Boston BERDO 1.0 passed in 2013.
- BERDO 1.0 requires reporting of energy use (not emissions).
- BERDO 1.0 failed to produce desired results.
- Boston BERDO 2.0 passed in September 2021.



Boston BERDO 2.0

(Building Emissions
Reduction and
Disclosure Ordinance)

- Covers same buildings as 1.0.
- Requires buildings to achieve net zero emissions by 2050.
- Sets mandatory milestones for emissions reductions over time.
- Offers compliance pathways to achieve performance standards.



A BERDO for Newton



- City staff are working on a BERDO for Newton. It will combine 1.0 and 2.0. but phase implementation.
- Will be based on Boston's BERDO but tailored to Newton.
- Decisions:
scope, timelines, fines, fees, enforcement, data, administration.

A BERDO for Newton

BERDO 1.0 and 2.0

The wisdom of
phasing.

- Why a two-year Phase 1?
- Data quality: Accurate input = accurate output.
- Assistance to building owners.



A BERDO for Newton

Why pass BERDO 1.0
& 2.0 at the same
time if not
implementing for
two years?

- Set clear expectations so property owners can plan.
- Provide education/ assistance to building owners on pathways to compliance.



A BERDO for Newton

What do we need to
do before passing a
Newton Ordinance?

- Critical Stakeholder involvement.
- Write the ordinance: determine scope, enforcement, fines, admin. procedures, timelines.
- Determine budget, resources needed.



Building Emissions Reduction & Disclosure Ordinance (BERDO) for Newton

Michael Gevelber gevelber@bu.edu

Associate Professor, Mechanical Engineering, Boston University

Member of Newton Citizens Commission on Energy

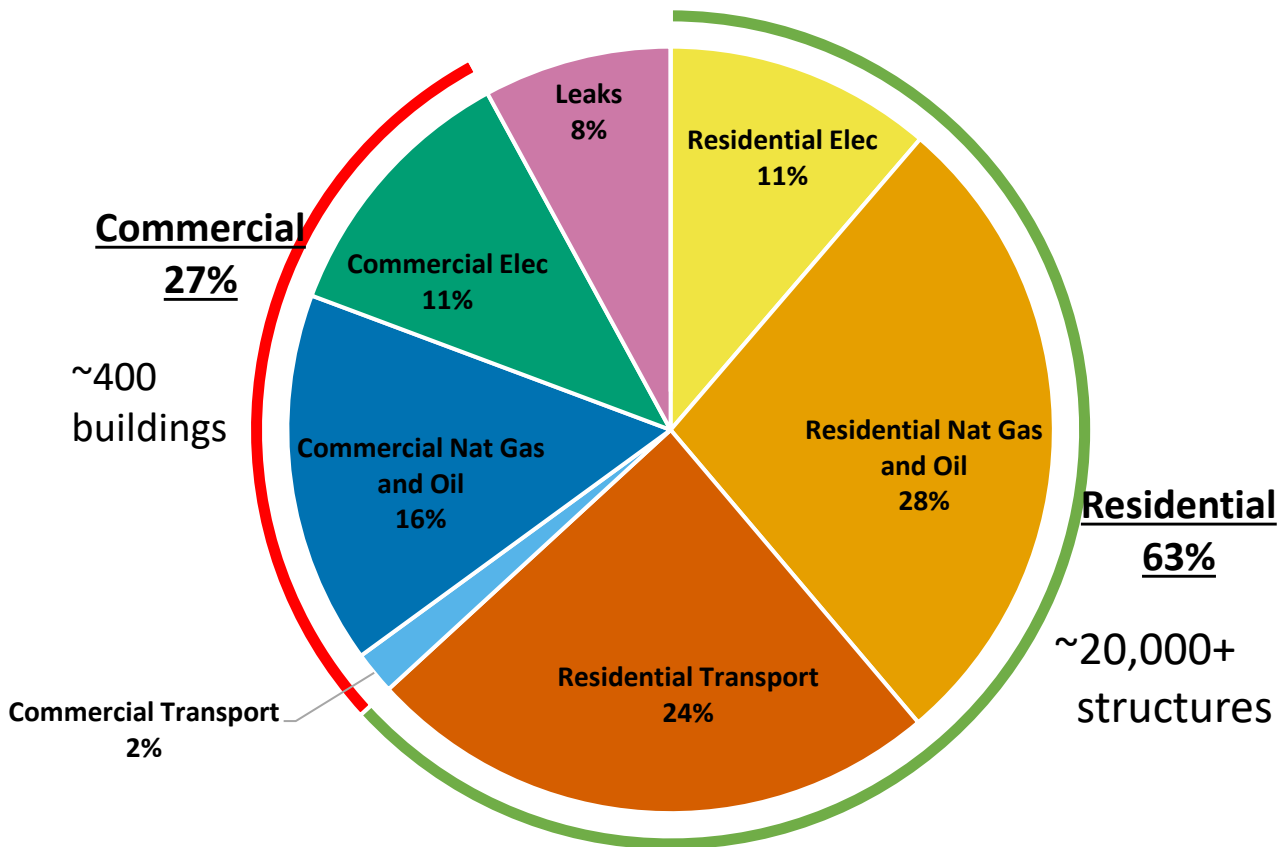
Topics:

- Newton's Green House Gas emissions
- Characteristics of Newton's commercial buildings
- How does BERDO work?: compliance pathways & cost

Newton's GHG emissions & how meet climate objectives

BERDO applies to large buildings
(GHG emissions labeled "Commercial")

Newton 2019 GHG Emissions: 717,500 MT



Why is BERDO important for meeting Newton's climate objectives?

~400 buildings account for 27% of Newton's emissions.

Can achieve significant reductions with focused effort. This is next easiest area after NPC

Newton's GHG emissions from commercial buildings by size

Non-Residential Buildings (NRB): ~18 million sq ft

<u>Size (sqft.)</u>	<u>Number of bldgs.</u>	<u>% of Newton's total emissions</u>
>100,000	51	12%
50,000 -100,000	61	5%
<u>20,000 – 50,000</u>	<u>153</u>	<u>6%</u>
	265	23%

- Provides insight where one might focus initial emission limits & phasing
- 42% of NRB GHG emissions are from electricity: easier and cheaper to green

Large Residential buildings: a variety of different types (for profit, dorms, assisted living, low income). 120 buildings contributing 4.3% to Newtons GHG emissions.

requirement every 5 years

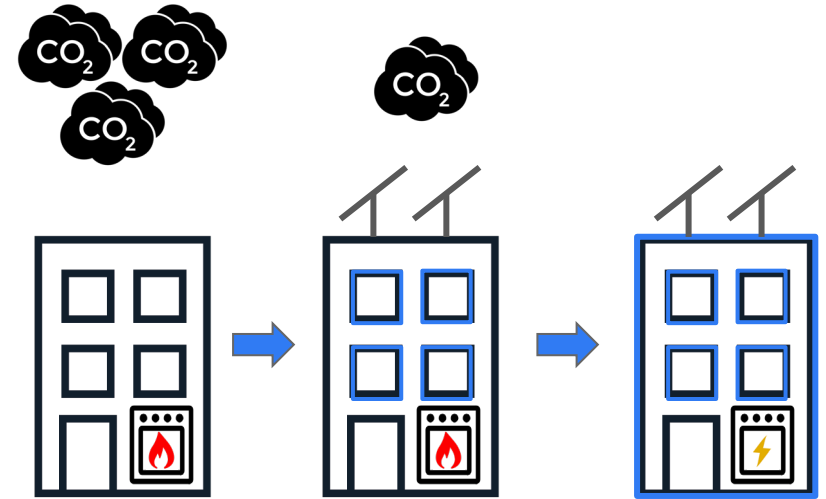


Despite high compliance, emissions did not decline

BERDO 2.0 WHAT AND WHY

A building performance standard sets carbon targets for existing large buildings that decrease over time.

- Directly targets largest source of emissions;
- Sets long planning horizons;
- Provides flexibility in how buildings meet targets and when they make investments.



NEW POLICY ELEMENTS (Boston BERDO 2.0)

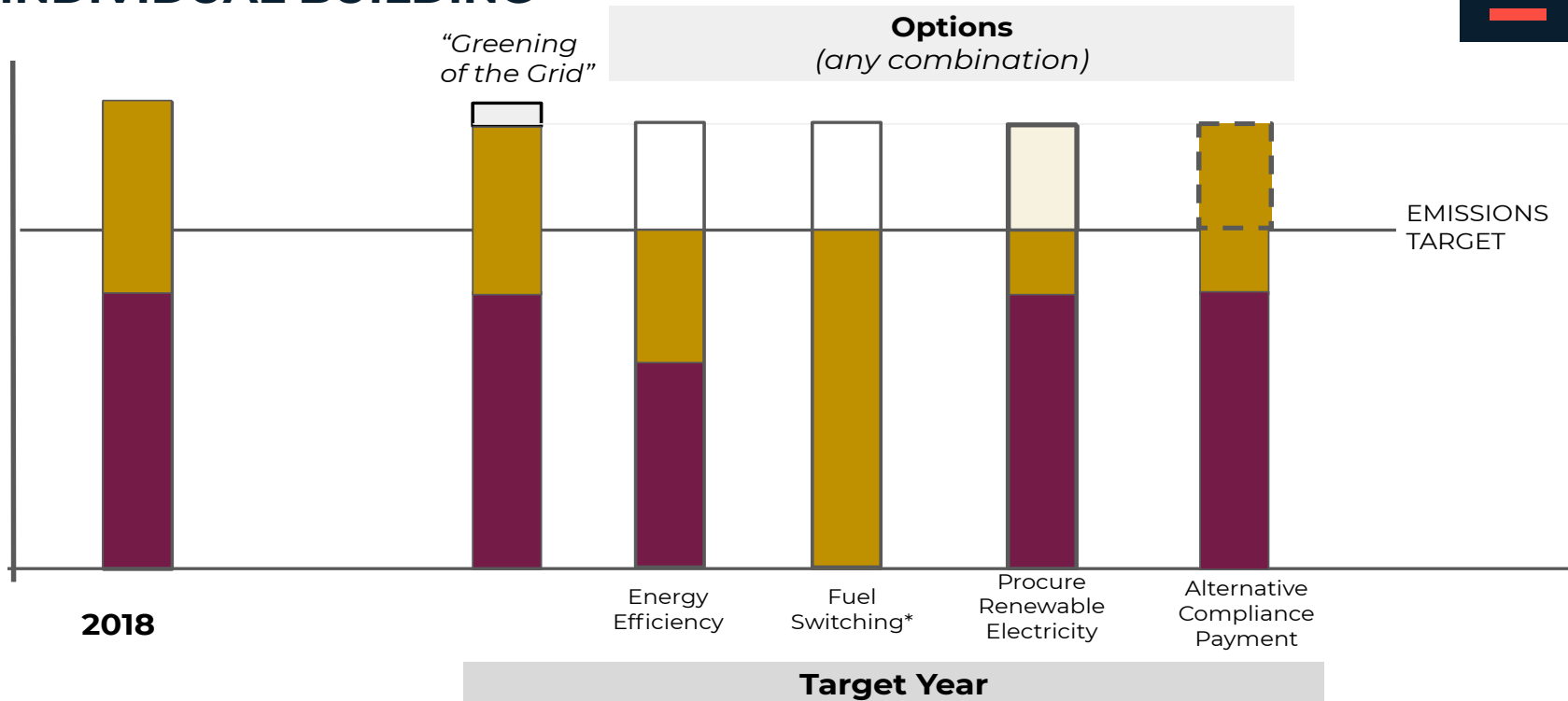


- Different requirements by building type
- Many pathways to achieve targets:
 - *Energy efficiency*
 - *Electrification and fuel switching*
 - *Renewable energy*
 - *Alternative compliance payments*
- Additional flexibility:
 - *Portfolio*
 - *Individual compliance schedule*
 - *Hardship compliance plan*
 - *Staff supported Review Board*

GHG Emission targets for 13 building types

Building type	Emissions threshold (kgCO ₂ e/SF)					
	2025	2030	2035	2040	2045	2050
Assembly	7.8	4.6	3.3	2.1	1.1	0.0
College/University	10.2	5.3	3.8	2.5	1.2	0.0
Education	3.9	2.4	1.8	1.2	0.6	0.0
Food Sales & Service	17.4	10.9	8.0	5.4	2.7	0.0
Healthcare	15.4	10.0	7.4	4.9	2.4	0.0
Lodging	5.8	3.7	2.7	1.8	0.9	0.0
Manufacturing/Industrial	23.9	15.3	10.9	6.7	3.2	0.0
Multifamily housing	4.1	2.4	1.8	1.1	0.6	0.0
Office	5.3	3.2	2.4	1.6	0.8	0.0
Retail	7.1	3.4	2.4	1.5	0.7	0.0
Services	7.5	4.5	3.3	2.2	1.1	0.0
Storage	5.4	2.8	1.8	1.0	0.4	0.0
Technology/Science	19.2	11.1	7.8	5.1	2.5	0.0

INDIVIDUAL BUILDING

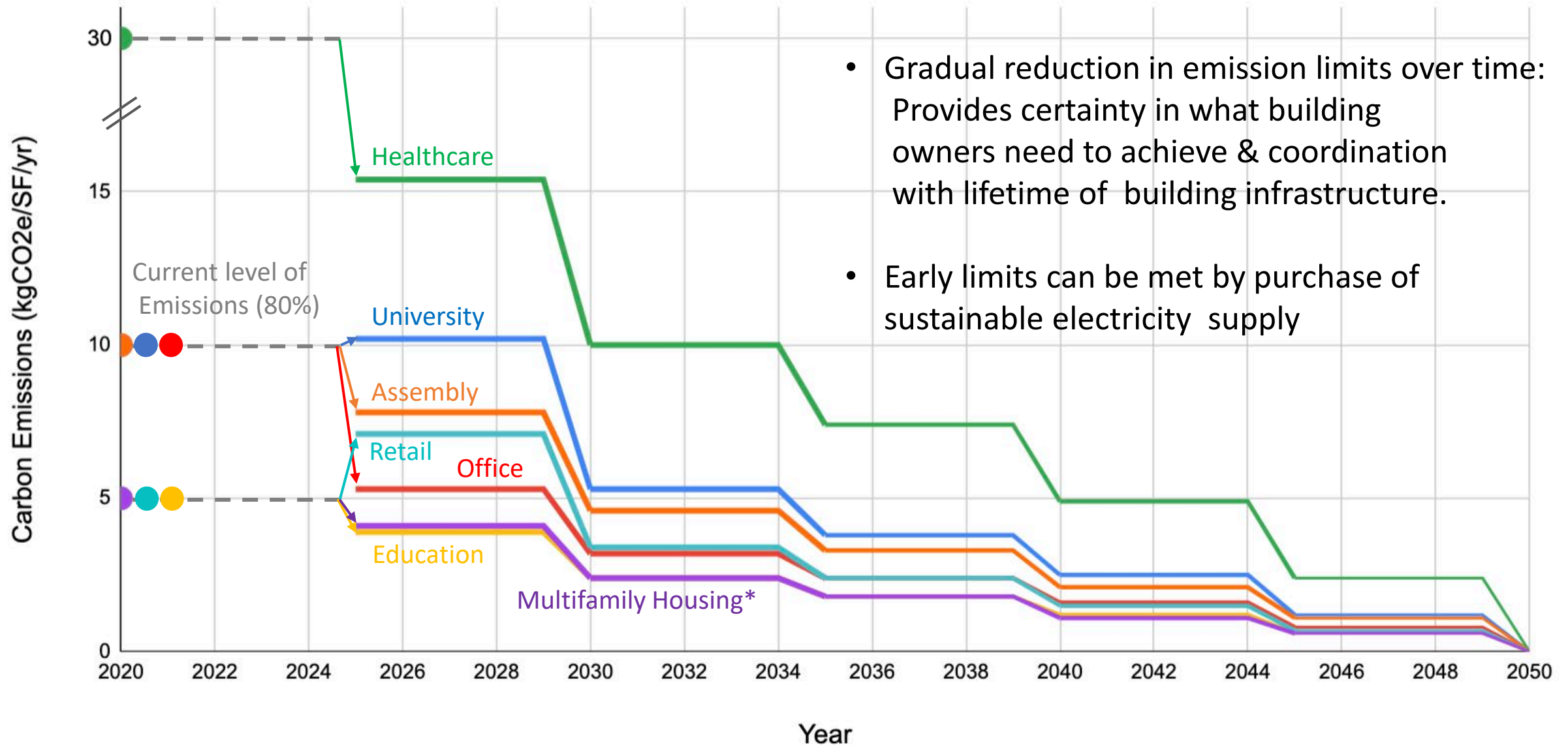


* Fuel switching often best when combined with efficiency **For illustrative purposes only

Electricity Natural Gas

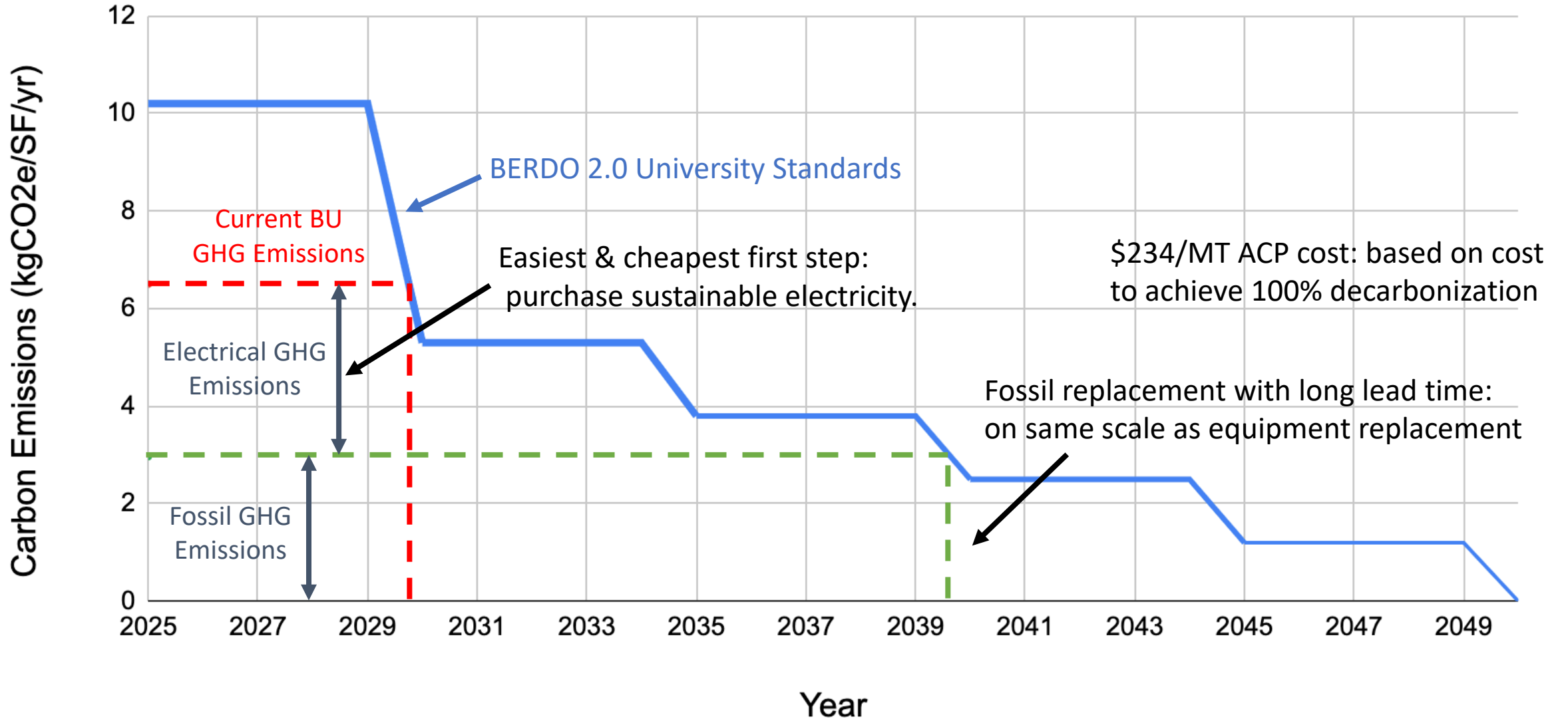
Boston's Estimated Current Emissions and Compliance Level Time Frames

Boston BERDO 2.0 GHG Emission Requirements



*Buildings under 35,000 sqft do not need to meet these GHG emission requirements until 2030

Example: Estimated Compliance Time Frame & Costs at Boston University under Boston BERDO 2.0



A BERDO for Newton

Tasks

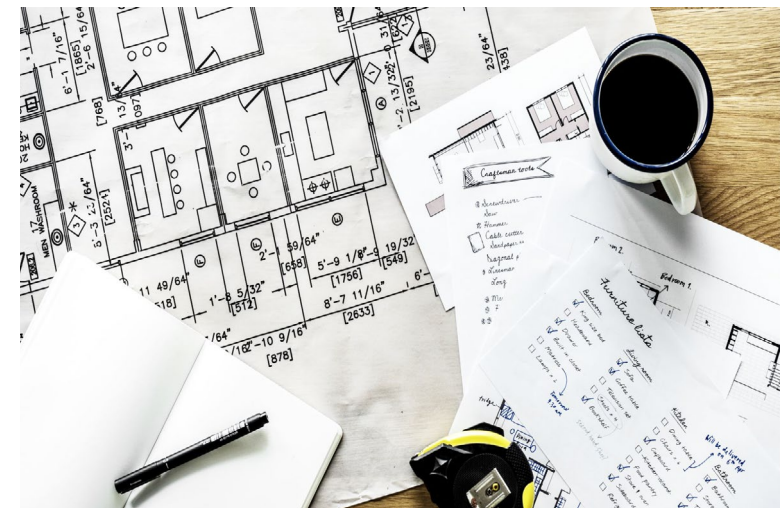
- Develop and implement an engagement plan for building owners and stakeholders.
- Coordinate with City Council, EDC, and Chamber of Commerce.
- Develop the ordinance.
- Determine needs for consultants and staff.
- Develop data collection and management plan/tool.
- Determine a budget.



A BERDO for Newton

More Tasks

- Identify resources in the public domain.
- Find and apply for grants.
- Hire consultants.
- Hire staff as necessary.
- Develop regulations.



A BERDO for Newton

Summary

- BERDO is impactful: 400 bldgs.=27% of emissions.
- Flexibility: pathways, individualized plans.
- Council support.
- Engagement of stakeholders.
- Phased approach.
- A good data management plan/tool.
- Many tasks.



Backup Data Slides

Newton Non-Residential Building GHG Emissions by Type (> 20,000 sqft)

Building Types	Total GHG Emissions (MT)	GHG Emissions Ranking for NRB	% of Newton's GHG Emissions	Sqft	Area Ranking	Number of buildings	Assumed avg GHG emission intensity: 80% (kg/sqft) ²
Office	47,900	1 st	6.7%	4,790,000	1 st	63	10
Healthcare	34,100	2 nd	4.8%	1,140,000	5 th	5	30
Education K-12	19,200	3 rd	2.7%	3,830,000	2 nd	52	5
Assembly	14,400	4 th	2.0%	1,440,000	4 th	36	10
Retail	11,100	5 th	1.5%	2,220,000	3 rd	35	10
Colleges/Universities	10,900	6 th	1.5%	1,090,000	6 th	29	5
All other buildings ¹	26,100		3.6%	2,850,000		45	8.3
Total (>20K ft²)	164,000		23%	17,400,000		265	9.4

¹ All other buildings includes the building types: Manufacturing/Industrial, Services, Lodging, Food Sales/Service, and Storage.

² Values obtained from [Boston Building Emissions Performance Standards: Technical Methods Overview](#), Prepared for Boston 2/18/2021

Residential Buildings GHG Emissions by Type

Residential Buildings >20k sf

Residence Types	Total GHG Emissions (MT)	GHG Emissions Ranking for Residences	% of Newton's GHG Emissions	Sqft	Area Ranking	Number of buildings	Assumed avg GHG emission intensity: 80% (kg/sqft) ²
For Profit	13,600	1 st	1.9%	2,710,000	1 st	45	5
Dormitories	6,860	2 nd	0.96%	1,370,000	2 nd	31	5
Assisted Living and Skilled Nursing	5,360	3 rd	0.75%	1,070,000	3 rd	15	5
Residential Style Living	2,160	4 th	0.30%	433,000	4 th	16	5
Non-Profit	1,370	5 th	0.19%	275,000	5 th	7	5
Low-income	1,110	6 th	0.15%	222,000	6 th	6	5
Total	30,400		4.3%	6,090,000		120	5

Boston BERDO advised that only multifamily residences or residences over 20,000 sqft are addressed in the first stage to be achieved by 2025. Therefore we didn't include single family residences or residences smaller than 20,000 sqft.

² Values obtained from [Boston Building Emissions Performance Standards: Technical Methods Overview](#), Prepared for Boston 2/18/2021