



ECONOMIC DEVELOPMENT & UNIVERSITY RELATIONS COMMITTEE

COMMITTEE MEETINGS

~ MINUTES ~

Tuesday, January 24, 2023

3:00 PM

Sullivan Chamber
795 Massachusetts Avenue
Cambridge, MA 02139

The Economic Development and University Relations Committee will conduct a public meeting to continue its November 22, 2022 discussion of the environmental and economic impact of BEUDO on residential, business, and academic properties/communities. This will be a roundtable discussion with the Community Development Department, representatives from Eversource, the business community, universities, and large commercial/residential property owners.

Attendee Name	Present	Absent	Late	Arrived
Paul F. Toner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Burhan Azeem	<input type="checkbox"/> Remote	<input type="checkbox"/>	<input type="checkbox"/>	
Alanna Mallon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Patricia Nolan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quinton Zondervan	<input type="checkbox"/> Remote	<input type="checkbox"/>	<input type="checkbox"/>	

A public meeting of the Cambridge City Council's Economic Development and University Relations Committee was held on Tuesday, January 23, 2023. The meeting was Called to Order at 3:00 p.m. by the Chair, Councillor Toner. Pursuant to Chapter 20 of the Acts of 2022 adopted by Massachusetts General Assembly and approved by the Governor, this public meeting was hybrid, allowing participation in person, in the Sullivan Chamber, 2nd Floor, City Hall, 795 Massachusetts Avenue, Cambridge, MA and by remote participation via zoom.

Clerk of Committees Erwin called the roll.

Councillor Azeem – Present/Remote

Vice Mayor Mallon – Present

Councillor Nolan – Present

Councillor Zondervan – Present/Remote

Councillor Toner – Present

Present – 5 – Absent – 0. Quorum established.

Councillor Toner began by noting the call of the meeting was to continue the discussion of the November 22, 2022, discussion of the environmental and economic impact of BEUDO on residential, business, and academic properties/communities. He introduced staff from the Community Development Department (CDD), Iram Farooq, Assistant City Manager, who was joined by Susanne Rasmussen, Director of Environmental and Transportation Planning. Joined remotely from CDD was Pardis Saffari, Director of Economic Opportunity and Development and Seth Federspiel, Energy Planner. Other City Staff that were also joined remotely included Megan Bayer, Deputy City Solicitor for the Law Department and Kathy Watkins, Commissioner for the Department of Public Works (DPW). Councillor Toner also noted that there were members from Eversource present at the meeting, as well as staff from Harvard University and MIT, Central Square Business Improvement District, Chamber of Commerce, Kendall Square

Business Association, and many others joined remotely. Other Council members who were present at the meeting were Councillors McGovern, Simmons, and Carlone, and Mayor Siddiqui.

Councillor Nolan had a follow up question from the last meeting regarding electric capacity, grids, and community involvement, and what Eversource would need from the City to make sure it's sufficient. Maija Benjamins, Director, Strategic Project Development Transmission for Eversource, responded by reviewing the steps they follow with the State for clean energy projects. She also noted that Eversource is working with the community by providing information more up front and getting community input and city and stakeholder support before working on a project. Councillor Nolan concluded her questions by asking for clarification on substations and City land. Ms. Benjamins shared that it would be helpful for the City to identify its property and what the capacity of the load will be to understand how large the substation should be.

Councillor McGovern had a clarifying question on the 2050 Hybrid Model that was shared by Eversource from their presentation from the previous meeting (Attachment A) and if Eversource was going to be able to create potentially four substations within a six-to-ten-year timeline. Maija Benjamins noted that a big component of construction is the installation of transmission lines and the weather and seasons when construction can be done are both factors in the timeline. She noted that it is something that must be planned years in advance. Councillor McGovern shared that it should be done the right way and a way that's achievable.

Councillor Carlone shared that the location is going to be critical. He noted that the City will be changing in the next twenty years, and he wants to know if Eversource is looking into different locations to be able to adapt to City changes. Maija Benjamins commented that Eversource has been creating partnerships with Boston Properties, Harvard, and MIT to have conversations about potential locations. Juan Martinez, Manager, Distribution and Planning for Eversource, offered comments about substation locations, noting that construction will not only effect Cambridge, but surrounding communities as well.

Vice Mayor Mallon had a clarifying question on the effects that other communities may have when Eversource is using all of their resources and capacity when focusing on Cambridge and if it will affect other communities in a negative way. Maija Benjamins commented that having a tight time frame doesn't allow Eversource to look at the big picture and Massachusetts as a whole. They are looking into different areas and taking into consideration different communities. Vice Mayor Mallon asked what a longer timeline would like for the State.

Councillor Zondervan shared that he would like a better understanding of what the timeline is that Eversource is operating against and noted that the city is not planning to completely electrify Cambridge by 2035. He noted that what the City is proposing is subject to the emergency net disclosure ordinance have to be net-zero by 2035 and residential buildings subject to the ordinance would have until 2050. Susanne Rasmusen noted that the current discussion is the commercial buildings subject to BEUDO who be required to meet net-zero by 2035, with residential building by 2050. She also noted that the City is considering adopting a requirement for all new construction to be fossil fuel free. Councillor Zondervan commented that the City needs to figure out how much of an additional load it would need and then plan for that. Members from Eversource reviewed what the potential timeline could look like and what factors into that.

Councillor Azeem had a clarifying question concerning substations and asked how much faster substation development could happen if the City tried to make it as easy and quick as possible.

Juan Martinez noted that there would still be other components that would factor into the building of substations and would not expect a significant reduction on time.

Councillor Toner had a follow up question about equipment needed to get substations installed, Juan Martinez responded by noting that Eversource is experiencing a supply chain issue. Maija Benjamins clarified that Eversource is looking ahead of problems like this and getting creative in ways with working with suppliers to forecast what supplies will be needed in the future. Councillor Toner asked for clarification on the workforce need for substations. Members from Eversource shared that getting crews together is not a challenge they are currently facing. Councillor Toner questioned costs, and what the cost of these projects and installations of equipment will look like for Cambridge residents. Ms. Benjamins shared that projects like this would fall on the rate base across New England and those rates go through the independent system operator of New England and the Federal Regulatory Commission. Councillor Toner concluded his follow up questions by asking how Cambridge can work with other communities to make the process easier. Eversource noted that partnerships are always a great solution. Susanne Rasmussen shared that there are regular meetings with Boston and Somerville and communities are very supportive of each other.

Councillor Zondervan shared that the City is contemplating amendments to BEUDO that would exempt the timeline due to supply chain issues. He noted that the City is considering a Green Jobs ordinance that may be able to help supply the workforce with Cambridge projects.

Councillors Nolan, McGovern and Zondervan all offered additional comments and questions. Team members from Eversource and CDD were able to respond.

Councillor Nolan had clarifying questions for representatives from MIT and Harvard University on what they need from the City to accelerate planning and what changes they have made to their decarbonization plan for their properties. Sarah Gallop, Director of Government and Community Relations and Joe Higgins, Vice President for Campus Services and Stewardship, both from MIT, shared that they have updated their plan and a way the City and Eversource could help is going to DPU with requests to help accelerate electrifying on a certain timeline.

Tom Lucey, Director of Government and Community Relations, Harvard University, commented that they share similar goals with MIT and are constantly reevaluating and shared that one way the City could be helpful and to be a good partner is to pass regulations that are science and reality based. He noted that Harvard would like to bring their expertise to the table and be part of the solution.

Councillor Toner had a follow up question for MIT and Harvard regarding what type of disruption their campuses will experience when the changes go into effect and how it would impact their communities. Tom Lucey and Heather Henriksen, Chief Sustainability Officer for Harvard University, responded by noting it's the volume of buildings that will need to be transitioned, and all the work associated with that. Joe Higgins echoed comments from Harvard, noting that it's what realistic and what's achievable when technologies are evolving and changing. Councillor Nolan had a follow up question about current buildings being built or renovated and if they are carbon free. MIT noted that they are pushing for a fossil free design for current renovations that are in progress. Heather Henriksen shared that they are looking at the district system transition wide to decarbonize.

The Chair, Councillor Toner made a motion to extend the meeting by ten minutes.

Clerk of Committees Erwin called the roll.

Councillor Azeem – Yes

Vice Mayor Mallon – Yes

Councillor Nolan – Yes

Councillor Zondervan – Yes

Councillor Toner – Yes

Yes – 5, No – 0. Motion passed.

Patrick Barrett from the Central Square Business Improvement District offered comments and shared that his biggest concern is about honesty and disclosure. He noted that the larger property owners, like Harvard and MIT, have funding to move forward, unlike small business owners. He also shared his experience working with the City and Eversource while building properties in Cambridge, and offered ways both could be more useful during the process.

Beth Maloney, Executive Director from the Kendall Square Business Association, shared that they believe everyone's goal is to combat climate change with science-based regulations. She noted that there is complexity at every level and it should be thoughtful on how to approach it.

David Maher, President and CEO of Cambridge Chamber of Commerce, echoed comments made by others at the meeting. He shared that everyone has the same goal, it's just how do you get there, and thinking about how everyone can collectively work together.

Councillor Toner noted that it was a tough discussion to have at the are meeting, but as a City, Cambridge can be a leader in this, and there are many leaders around the table that were apart of this discussion. He stressed the fact that the City has to do a good job communicating with residents and property owners going forward.

The Chair, Councillor Toner recognized Councillor Nolan who mad a motion to adjourn.

Clerk of Committees Erwin called the roll.

Councillor Azeem – Yes

Vice Mayor Mallon – Yes

Councillor Nolan – Yes

Councillor Zondervan – Yes

Councillor Toner – Yes

Yes – 5, No – 0. Meeting adjourned.

Attachment A – Presentation titled, “Economic Development and University Relations Committee Presentation”.

Clerk's Note: The City of Cambridge/22 City View records every City Council meeting and every City Council Committee meeting. This is a permanent record.

The video for this meeting can be viewed at:

https://cambridgema.granicus.com/player/clip/417?view_id=1&redirect=true&h=b2d4ac95473007d0db4344a2c71bd4b2

A communication was received from Iram Farooq, Assistant City Manager for Community Development transmitting Building Energy Use Disclosure Ordinance (BEUDO) Amendment Proposal.

A communication was received from Jason Wright Eversource Community Relations Specialist, regarding Cambridge Transmission and Distribution System Overview.

Attachment A

EVERSOURCE
ENERGY

CITY OF CAMBRIDGE

Economic Development and University Relations Committee Presentation

November 22, 2022

System Planning

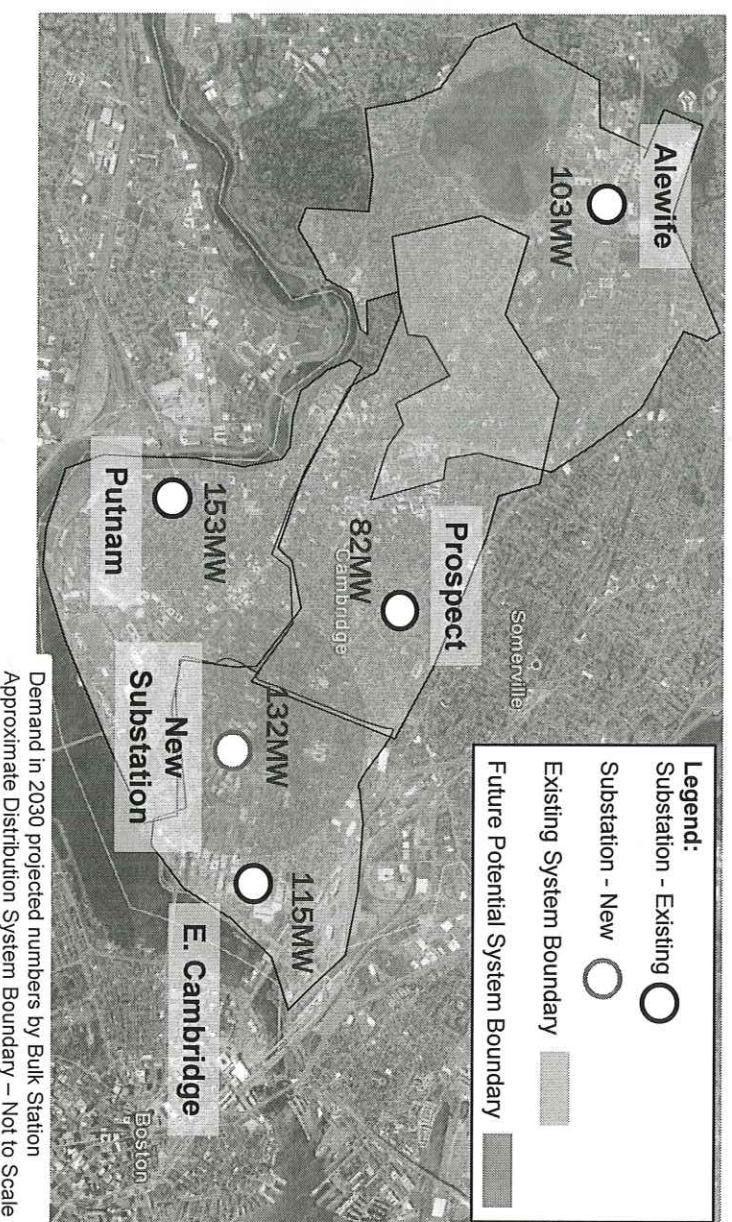
CAMBRIDGE TRANSMISSION AND DISTRIBUTION SYSTEM OVERVIEW

Cambridge Area 2030 Projection and Proposed 10-Year Plan

EVERSOURCE
ENERGY

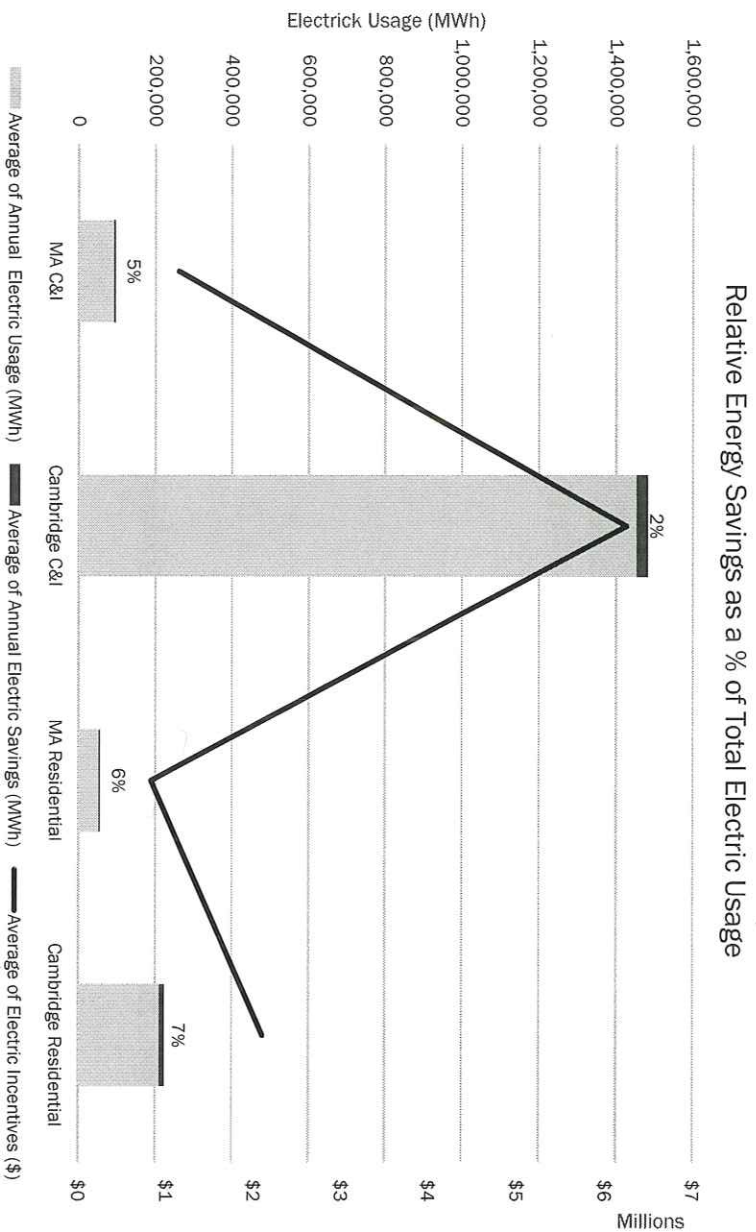
More than **585 MW** of demand projected for 2030

- **5** distribution bulk substations (16 bulk transformers)
- **17** non-bulk substations
- **~250+** distribution feeders of various voltages
- **~2000+** distribution service transformers



ENERGY EFFICIENCY

Energy Efficiency

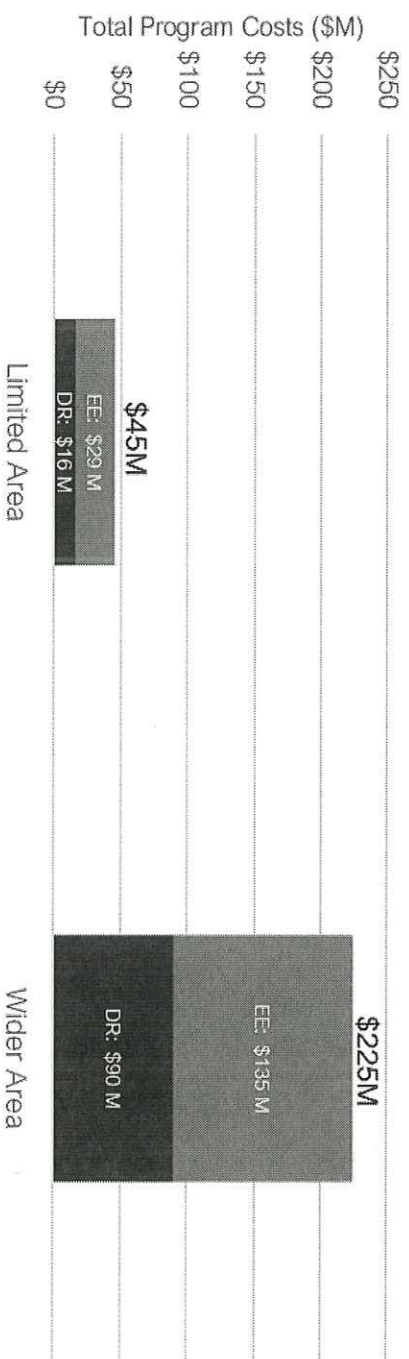


Comparison of
Cambridge energy
usage, EE
incentives, and
energy savings as a
% of total energy
use.

Based on data from Mass Save Data 2019

Energy Efficiency

Figure 13: Total Program Costs under Max Achievable Scenarios (2022-2027)

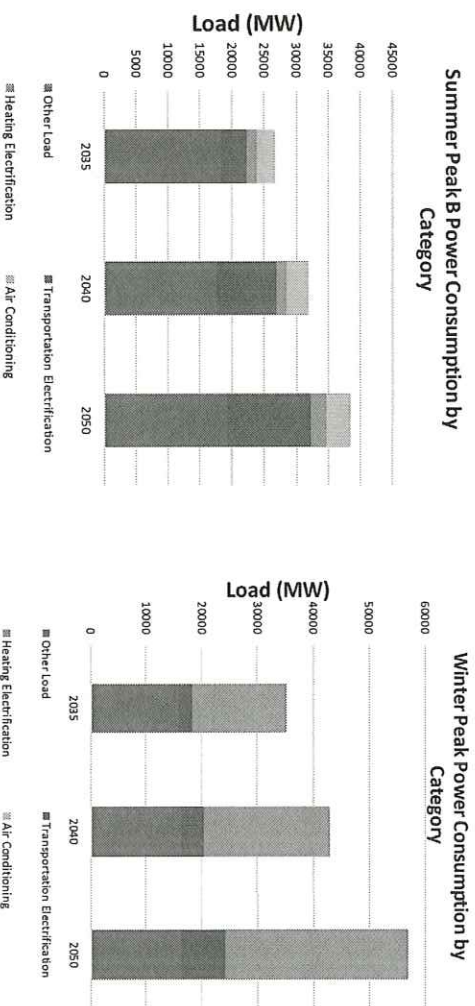


Challenges of an Electrified Society

Electrification will drive an unprecedented load growth on the electric system

New England ISO finds that by 2035 the system peak will have gone up to 150% of the 2022 peak, flipping to a winter peak, while the winter peak will have increased to almost 190% from 2022's January peak. By 2050 those values will reach 232% and 290% respectively.

A recent study commissioned by the MassCEC is expected to show significant incremental distribution capital investments in the Commonwealth till 2050 to ensure sufficient distribution capacity



Challenges

- I. Uneven adoption propensity of electrification requires detailed models to prioritize investments
- II. Investment optimization on the electric system as well as across the gas and electric company to provide an integrated plan
- III. Communication of the necessity and level of investments to regulators and stakeholders using data driven results
- IV. Manage current inflection point of rising energy cost, significant proposed distribution investments, and challenges to the EDC business model

Eversource is taking the initiative

Strategic Investment into Advanced Forecasting and Modeling

Dedicated team to transition forecasting from load centric, single value forecasts to advanced forecasting with multiple variables based on policy objectives.

- New Software Solutions such as LoadSeer, GridTwin, and Microsoft DataBricks allow for forecasting far ahead of industry standards across North America (\$3+ Million in GridMod 1.5 Funding)
- Key Talent investments by introducing data scientists into System Planning with a team of three data scientists and one forecasting engineer
- Dedicated Synergi Modeling Function to allow incorporation of forecasts into models and transition planning into 8760 models
- Centralized Model Management to ensure consistent model quality and to provide models as a service to all DSP, DER, and DE departments
- Development of Planning Models which represent the build out state of the system till 2050, including all forecasts

Whats Next? Expected approval of ~\$5 Million GridMod funding to introduce significant automation in Synergi, as well as probabilistic power flow capabilities.

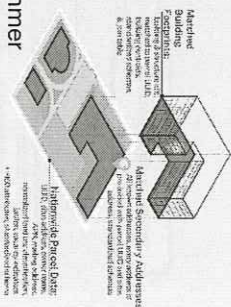


Heat Pumps

- Detailed property data based
- Close cooperation with EE Programs
- Known square footage

Creates

- Station specific heating load potential
- Understanding when winter peaks overtake summer
- Provides feedback to EE programs and gas business

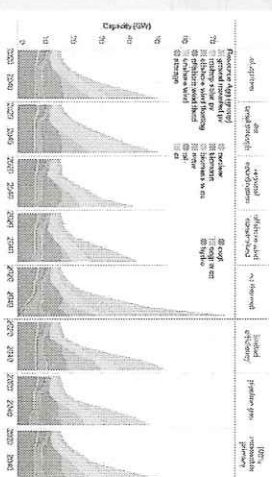


2050 Decarbonization Roadmap

- Variety of pathways to achieve 2050 decarbonization objectives
- Baseline of all long-term electrification impact assessments
- Updated as policy objectives change

For more help, go to www.pearsoned.com

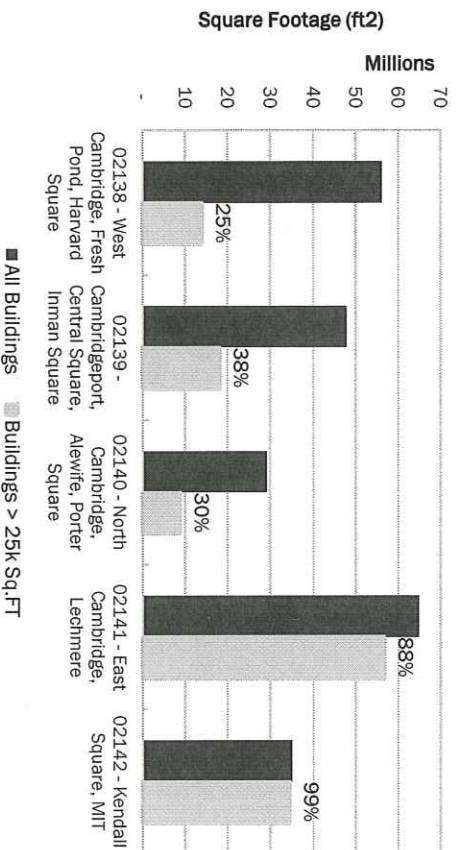
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FACTS AND FIGURES

Facts and Figures: Heating Electrification

Cambridge Building Area by Zip Code

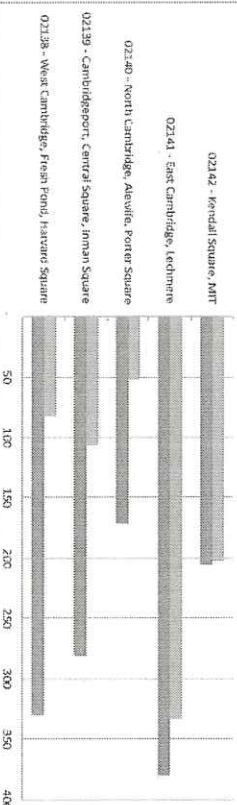


- The estimated total heating demand is 2.1 GW for direct heat to electric demand
- Using ASHP or GSHP demand is reduced to 1 GW and 540 MW respectively
- Commercial/large building heating demand has highest impact
- Cambridge consumes at peak around ~5,100 MMBTU/hr gas which represents about 1.5 GW

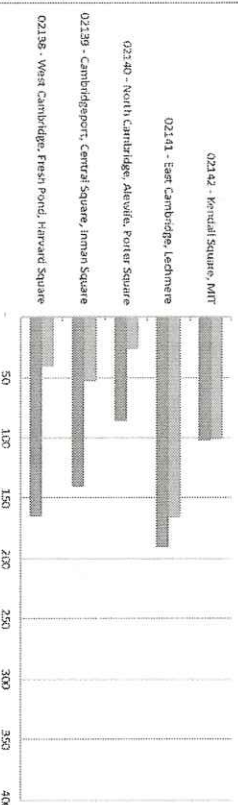
*Heating potential estimated based on building square footage and peak heating assumptions

Safety First and Always

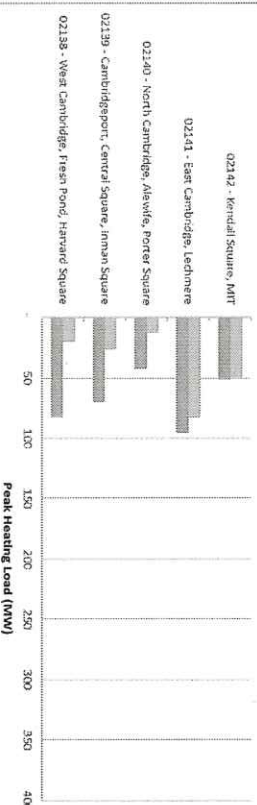
100% Electric Direct (100% Heat Direct to Electric)



100% Air Sourced Heat Pump



100% Ground Source Heat Pump

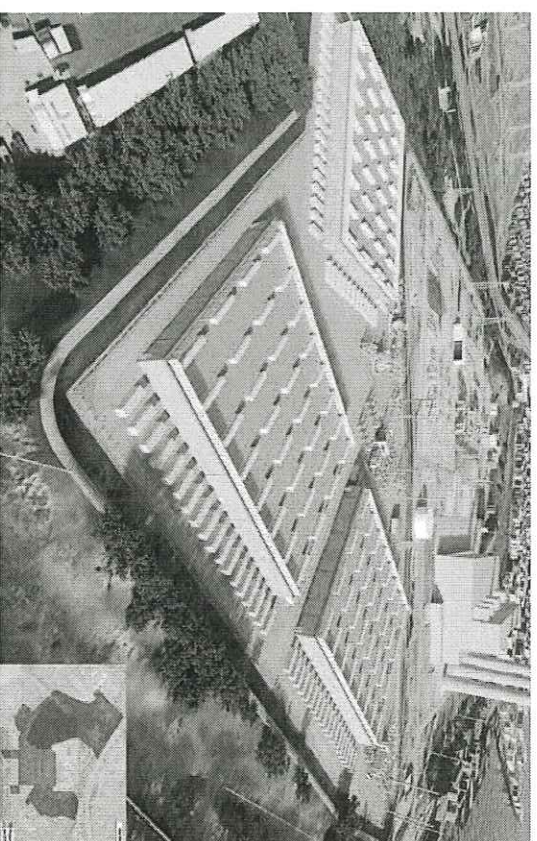


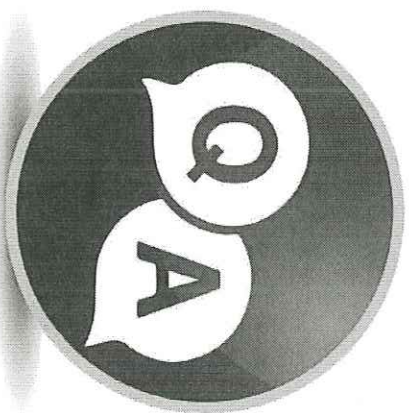
■ Large Building Heating Load (MW) ■ All Heating Load (GW)

Facts and Figures: Storage Systems

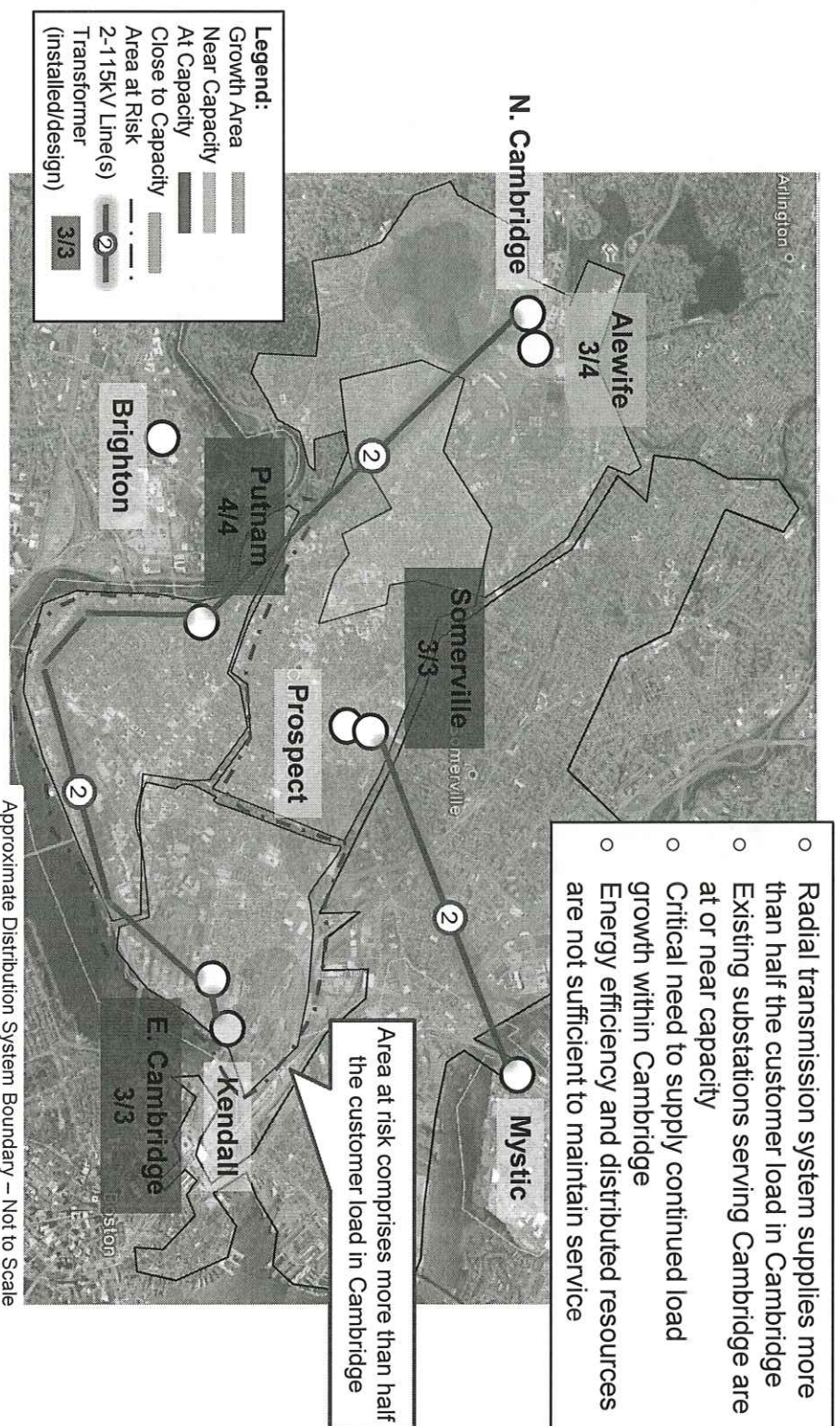
- For the Greater Cambridge Project, the Company evaluated Storage + other options as a Non-Wires Alternative
- For the 2032 forecast on a 2050 timescale to decarbonization, a battery need was established
- The Battery identified would be
 - An additional load and consume 183 MWh in heat losses per cycle (more than a 5 MW Lab building in a day) adding to urban heating effects
 - Cannot be cost effectively split up and would be equal to more than 84,000 tesla power walls
 - Require significant space; compares to Moss Landing at 1600 MWh which replaced an entire power plant and sits on more than 7 acres
- Batteries will help shave peaks and offset loads, but not to the extend electrification will demand and not with the longevity required

Scenario	Peak Power	24-hour Energy
Distribution Contingency	92 MW	1218 MWh
Maximum Achievable Energy Efficiency and Demand Response	86.3 MW	
100% utilization of rooftop space PV 47.8 MW	77 MW	1038 MWh
Battery Requirement at 85% roundtrip	77 MW	1126 MWh





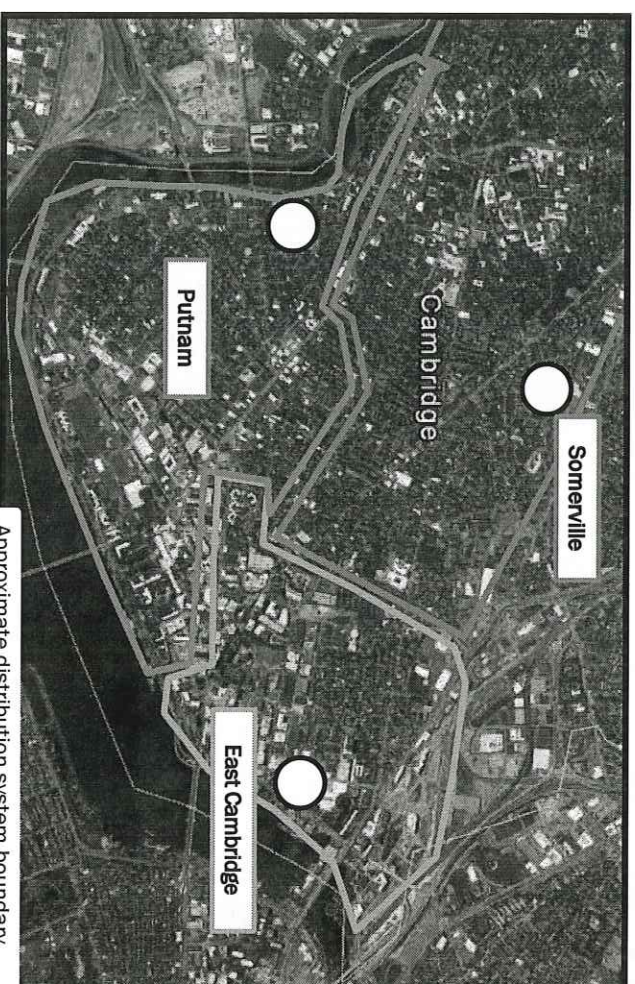
Cambridge Area T&D Need



Distribution Need

- East Cambridge Substation has reached its Operational and Emergency limit in 2021
- Each of the individual East Cambridge substation transformers has also reached its Normal thermal limit
- In the broader project area, inclusive of Somerville, load growth is projected to increase ~130MVA

Station	Capacity	2021	2022
East Cambridge 875	Load	150	179
	Firm Capacity	150	150
	Load/Firm Capacity	100%	119%



Cambridge EV Peak Data

Load in MW

Season	Weekday (M-Th)	Peak Time	Friday	Peak Time	Weekend Day (Sa-Su)	Peak Time	Holidays	Peak Time
Zip: 02138								
Mar-May	28.8	7:45am-8:00am	31.4	2:45pm-3:00pm	29.2	2:45pm-3:00pm	31.2	5:15pm-5:30pm
Jun-Aug	25.3	7:45am-8:00am	22.7	7:45am-8:00am	16.3	12:30noon-12:45noon	23.2	2:45pm-3:00pm
Sep-Oct	35.3	5:15pm-5:30pm	35.0	5:15pm-5:30pm	33.4	5:15pm-5:30pm	31.3	5:15pm-5:30pm
Nov-Dec Jan-Feb	31.2	5:15pm-5:30pm	32.0	5:15pm-5:30pm	30.3	5:15pm-5:30pm	25.8	5:15pm-5:30pm
Zip: 02139								
Mar-May	26.4	9:00am-9:15am	25.8	7:45am-8:00am	19.4	4:00pm-4:15pm	18.9	4:00pm-4:15pm
Jun-Aug	25.7	7:45am-8:00am	24.1	7:45am-8:00am	12.7	3:00pm-3:15pm	21.2	10:00pm-10:15pm
Sep-Oct	25.5	9:00am-9:15am	28.1	9:00am-9:15am	19.0	12:45noon-1:00pm	19.8	4:00pm-4:15pm
Nov-Dec Jan-Feb	23.1	9:00am-9:15am	23.0	6:45am-7:00am	18.0	4:00pm-4:15pm	14.6	2:45pm-3:00pm
Zip: 02140								
Mar-May	17.0	6:15pm-6:30pm	15.9	6:15pm-6:30pm	13.2	6:15pm-6:30pm	17.0	6:15pm-6:30pm
Jun-Aug	12.8	7:45am-8:00am	11.7	7:45am-8:00am	8.7	3:15pm-3:30pm	11.9	6:00pm-6:15pm
Sep-Oct	19.9	6:15pm-6:30pm	20.8	6:15pm-6:30pm	17.4	6:15pm-6:30pm	16.4	6:15pm-6:30pm
Nov-Dec Jan-Feb	19.3	6:15pm-6:30pm	19.9	6:15pm-6:30pm	16.5	6:15pm-6:30pm	14.4	6:15pm-6:30pm
Zip: 02141								
Mar-May	13.2	10:00am-10:15am	13.3	11:00am-11:15am	10.8	1:30pm-1:45pm	11.3	11:15am-11:30am
Jun-Aug	12.5	10:15am-10:30am	11.7	10:15am-10:30am	11.0	1:30pm-1:45pm	11.0	11:15pm-11:30pm
Sep-Oct	12.6	10:00am-10:15am	14.5	9:45am-10:00am	12.5	11:15am-11:30am	12.0	11:15am-11:30am
Nov-Dec Jan-Feb	12.7	9:45am-10:00am	13.2	9:30am-9:45am	11.5	11:15am-11:30am	10.1	11:15am-11:30am
Zip: 02142								
Mar-May	13.7	7:45am-8:00am	14.9	7:15am-7:30am	6.9	7:00pm-7:15pm	6.0	3:30pm-3:45pm
Jun-Aug	15.4	8:00am-8:15am	10.7	8:00am-8:15am	4.1	6:30am-6:45am	18.2	9:45pm-10:00pm
Sep-Oct	15.8	8:00am-8:15am	13.7	8:00am-8:15am	7.4	6:45am-7:00am	8.6	8:00am-8:15am
Nov-Dec Jan-Feb	12.2	7:15am-7:30am	12.8	6:45am-7:00am	5.8	3:30pm-3:45pm	6.2	6:45am-7:00am
Zip: 02138-02142								
Mar-May	90.8	7:45am-8:00am	89.0	7:45am-8:00am	63.3	2:30pm-2:45pm	59.5	4:45pm-5:00pm
Jun-Aug	88.4	7:45am-8:00am	76.4	7:45am-8:00am	43.7	2:00pm-2:15pm	72.8	9:30pm-9:45pm
Sep-Oct	89.1	8:15am-8:30am	89.3	8:15am-8:30am	68.2	5:00pm-5:15pm	61.8	5:00pm-5:15pm
Nov-Dec Jan-Feb	75.3	7:30am-7:45am	74.7	7:30am-7:45am	61.0	5:00pm-5:15pm	51.0	5:00pm-5:15pm