

Annual Load Forecast and Major Activities

presented to

Cambridge Planning Board

May 25, 2021

Agenda

- Eversource Gas
- Gas Projects
- Geothermal Pilot Program
- Electric Load Growth and Forecast
- Electric Projects
- Carbon Neutral by 2030
- Energy Efficiency
- Electric Vehicle Program
- Conclusion
- Q&A



Eversource Gas 2021

Joel Diagostino, Gas Operations Manager

In the combined territory of Cambridge & Somerville Eversource owns, operates and maintains over 250 miles of natural gas distribution mains and provides reliable service to 55,000 customers.

Safety is our #1 priority

To safely and reliably deliver natural gas to our customers, vintage pipe materials such as cast iron and steel are being replaced with state-of-the-art materials throughout the system to reduce leaks, improve capacity and extend the life of the system.

What is GSEP?

- GSEP is a program through which Eversource is replacing old leak prone infrastructure with new state of the art pipe

Why is GSEP important?

- By replacing this old infrastructure, we drastically reduce leaks and damage risk of the system
- Reduces the environmental impact of methane induction in the atmosphere
- Increases system reliability and capacity

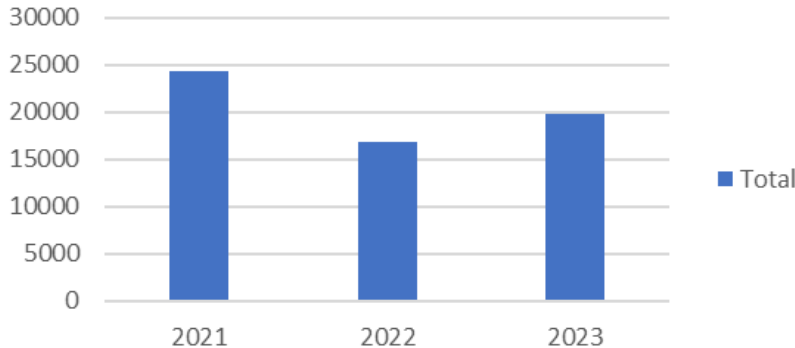
5 Year GSEP Plan – All Eversource in Massachusetts

Year	2020	2021	2022	2023	2024	2025
GSEP Scope	45 Miles	60 Miles	62 Miles	62 Miles	62 Miles	62 Miles

3 Year Cambridge Project Outlook

Sum of Install Length (Ft.)

Install Length by Year



Year

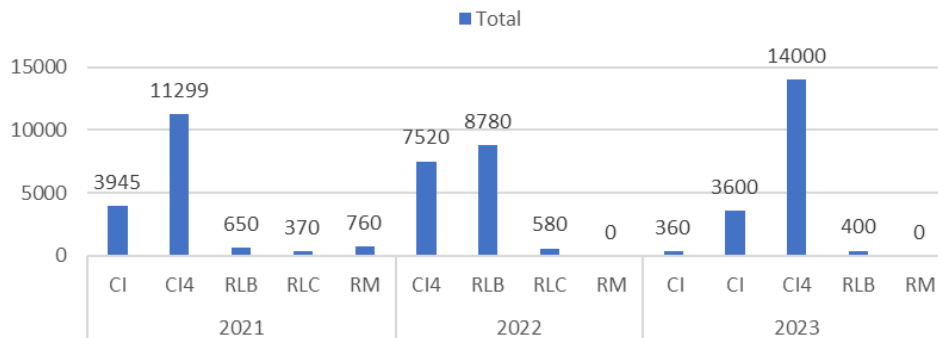
Row Labels Sum of Install Length (Ft.) Sum of Install Length (Mi.)

2021	24369	4.62
2022	16880	3.20
2023	19760	3.74
Grand Total	61009	11.55

Diameter (inch)	2021	2022	2023	Grand Total
1.25	120			120
1.5	170			170
2	290	160	80	530
3	920	440		1360
4	3789	6220	13320	23329
6	1170	520	640	2330
8	240	4720		4960
12		220		220
16	0	1000		1000
1.5, 2,	280			280
2,3,4,6	90			90
3,4	4020	1160		5180
3,4,6	1160			1160
4,2		1280		1280
4,3	1720	1160		2880
6, 3, 1.5			1400	1400
6, 4			360	360
6,12	3200			3200
6,3	7200		2960	10160
6,4			1000	1000
Grand Total	24369	16880	19760	61009

Sum of Install Length (Ft.)

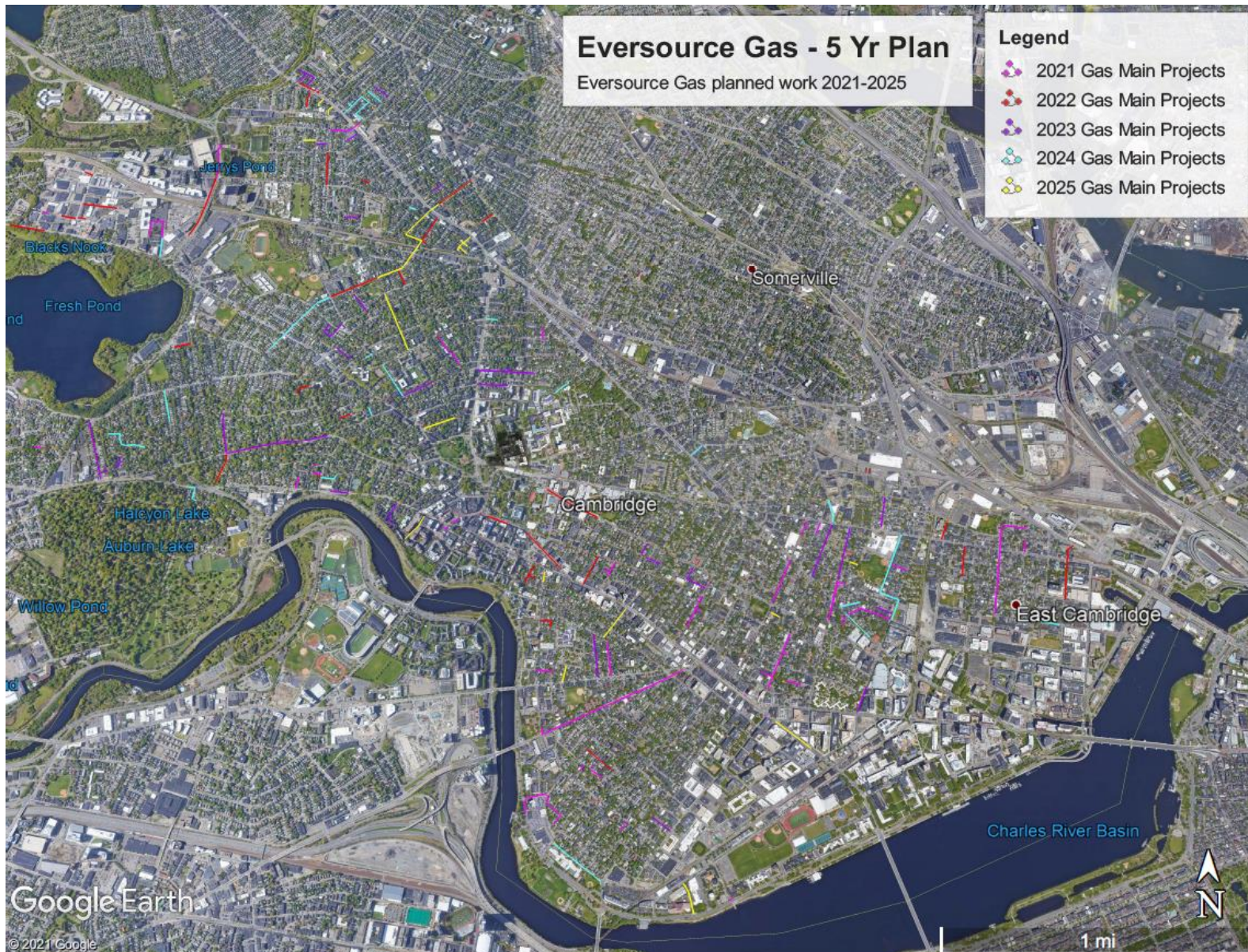
GSEP Plan by Category



Year

Cat.

Eversource Major Projects Locations



Eversource Geothermal Pilot Program

Nikki Bruno, Clean Technologies, Gas

What are the benefits of Geothermal Energy?

As a low carbon resource, geothermal networks have the potential to be a critical resource in supporting Massachusetts' greenhouse gas (GHG) emission goals.

How Does it Work?

The networked geothermal system pulls the earth's heat out of the ground to warm buildings in winter and pumps heat from buildings back into the ground in summer to cool them.

What is the Geothermal Pilot Program?

Eversource is piloting the use of networked geothermal heating and cooling technology at scale in an eastern Massachusetts neighborhood as a potential option to complement or replace delivered fuels and natural gas service for heating and cooling.

Target Group for Pilot Program:



Eversource is looking for a mixed group of about 100 residential and commercial or industrial customers in the same neighborhood.



Applicants must currently receive either delivered fuels (heating oil or propane) or Eversource natural gas service in the qualifying territory.

Interested?

Please email geothermal@eversource.com include the following:

- Your name
- The address of the potential site or an idea of the area
- Additional details on why it would be a good location

Additional Information can be found on the dedicated Geothermal Pilot Program Page on the Eversource Website

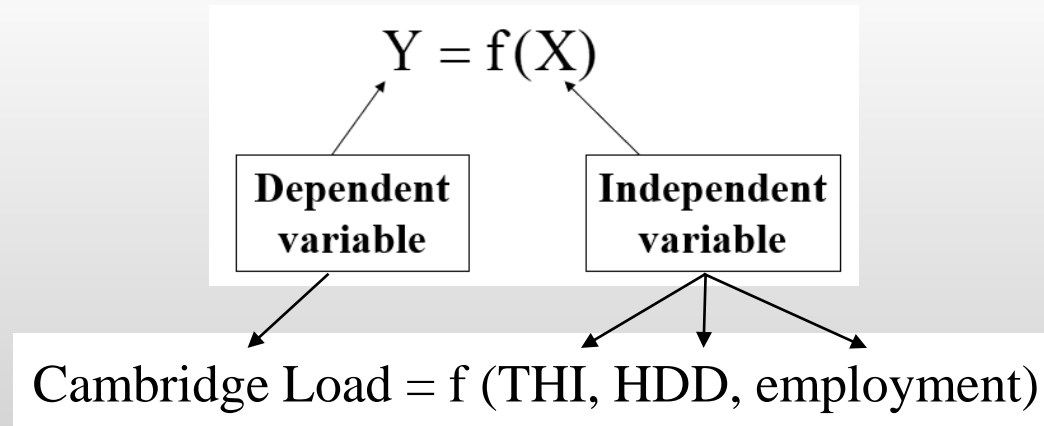
Link: [Eversource Geothermal Pilot Program Page](#)

Load Growth and Forecasting

Daniel Ludwig, Sales and Revenue Forecasting

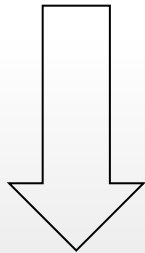
Econometric forecasting approach allows us to:

- Calculate how much of the monthly historical changes in peak demands are due to heating, cooling and economic conditions.
 - Types of economic variables include non-manufacturing employment, retail sales or gross metro product.
- Include adjustments for company sponsored energy efficiency (EE), behind-the-meter solar and electric vehicles.
- Capture pockets of load growth by identifying known large customer projects.



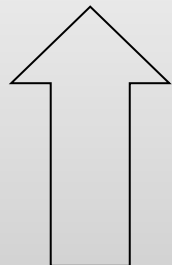
The load forecast was finalized in Spring 2021 capturing the latest ‘large customer’ assumptions and updated economic projections

- Overall, the 2021 load forecast is slightly higher than last year’s forecast due to known large customer additions
- The company's load forecast assumes COVID-19 restrictions will no longer negatively impact peak demands beginning next summer (summer 2022)



Repercussions of COVID-19 restrictions will (again) result in reduced peak loads in Summer 2021:

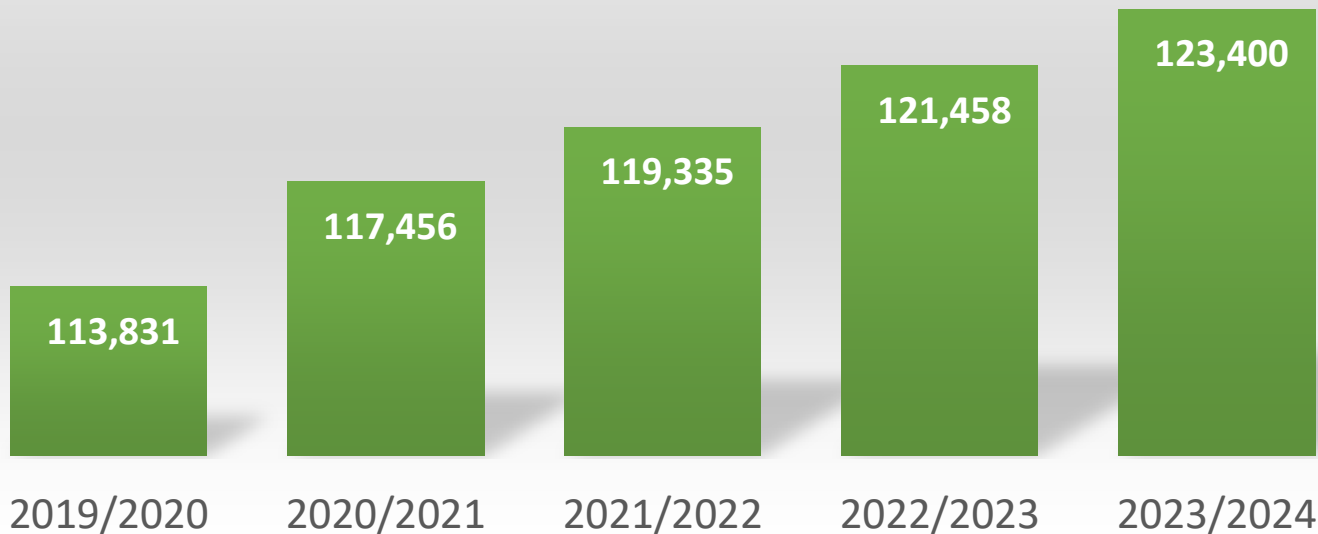
- Reduced staffing levels / remote working
- Less “foot traffic” / hesitant tourism



Potential long term increases to forecast:

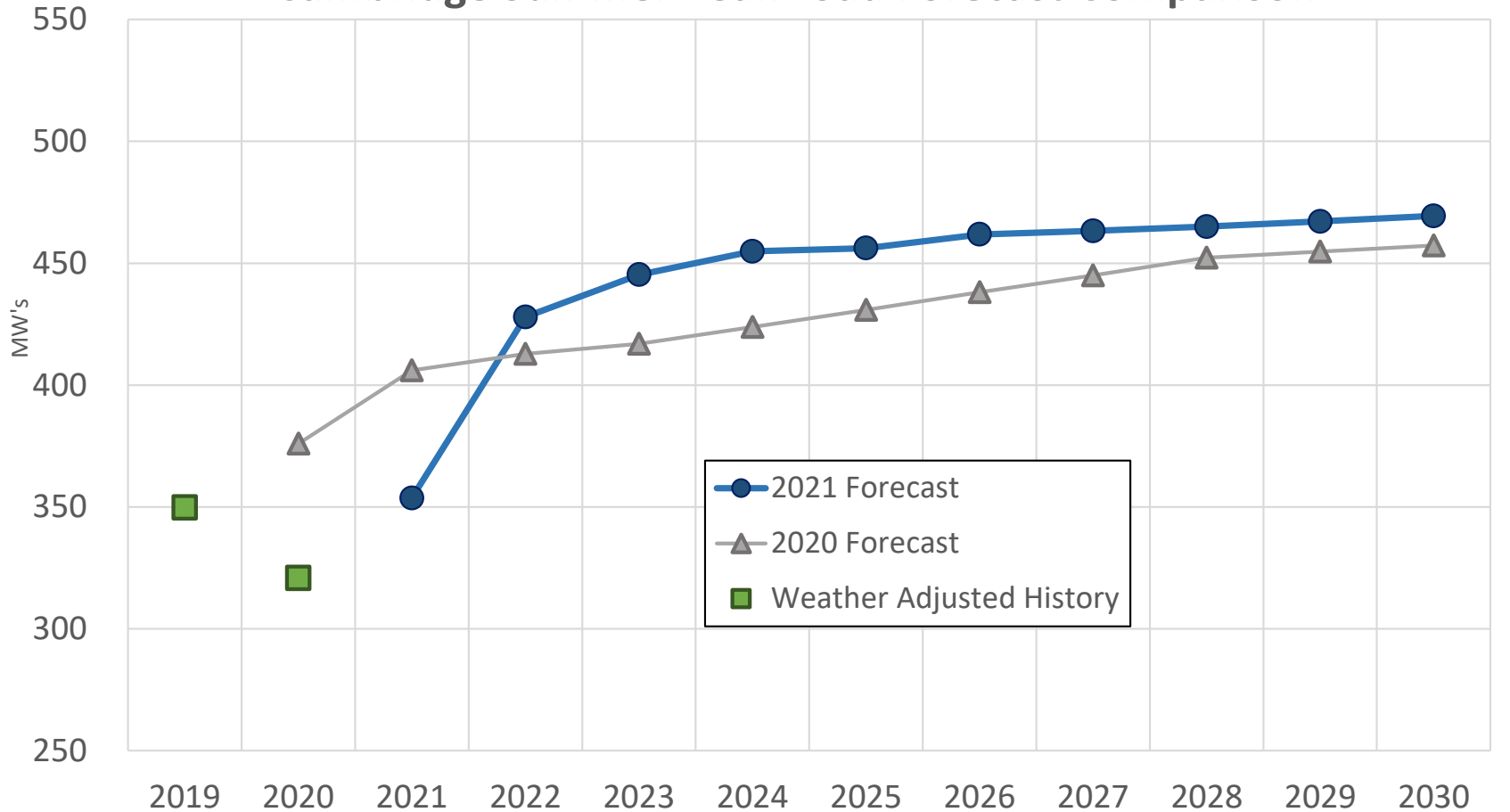
- Robust Air purification
- Adoption rate of electric cars

Cambridge Peak Day Gas Forecast (MMBTU)



- Peak day gas consumption in the City of Cambridge is forecasted to steadily increase through the 2023/2024 winter heating season primarily due to growth in the number of customers

Cambridge Summer Peak Load Forecast Comparison



- Known large customer projects remain the primary driver of long-term growth in the City of Cambridge

The Load Forecasting Team is currently evaluating and monitoring each of the items listed below:

- **Climate Change**: Rising average temperatures, frequency of 90-degree days and severity of peak day weather
- **Electrification**: Buildings that operate on 100% electricity
- **Role of Natural Gas**: The Massachusetts Department of Public Utilities opened docket D.P.U 20-80 to investigate the role of natural gas at the local distribution companies in helping the Commonwealth achieve its 2050 climate goals

Major Electric Projects

Transmission & Distribution

Todd Lanham, Project Services

An enhanced electric delivery system in Cambridge:

- Strengthens the reliability of the entire system
 - Added redundancy and flexibility makes system more resilient; less susceptible to customer outages.
- Meets growing demand for electricity
- Enables a cleaner energy future
 - A more resilient transmission grid allows delivery of power from remote clean energy resources.
 - A more flexible distribution system enables more local clean energy resources.

Transmission Projects

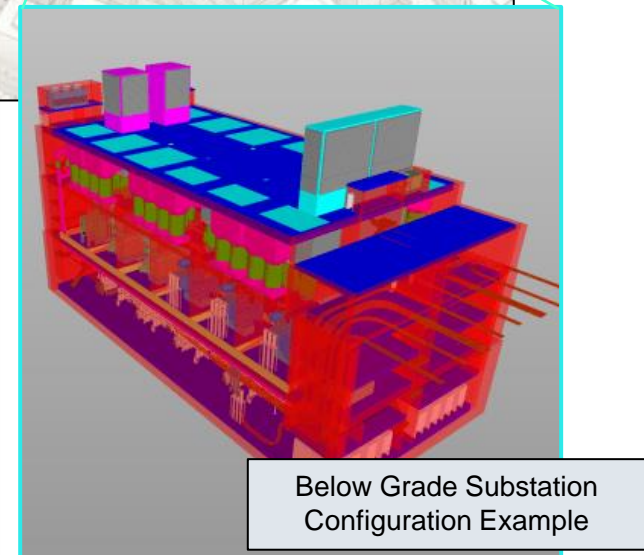
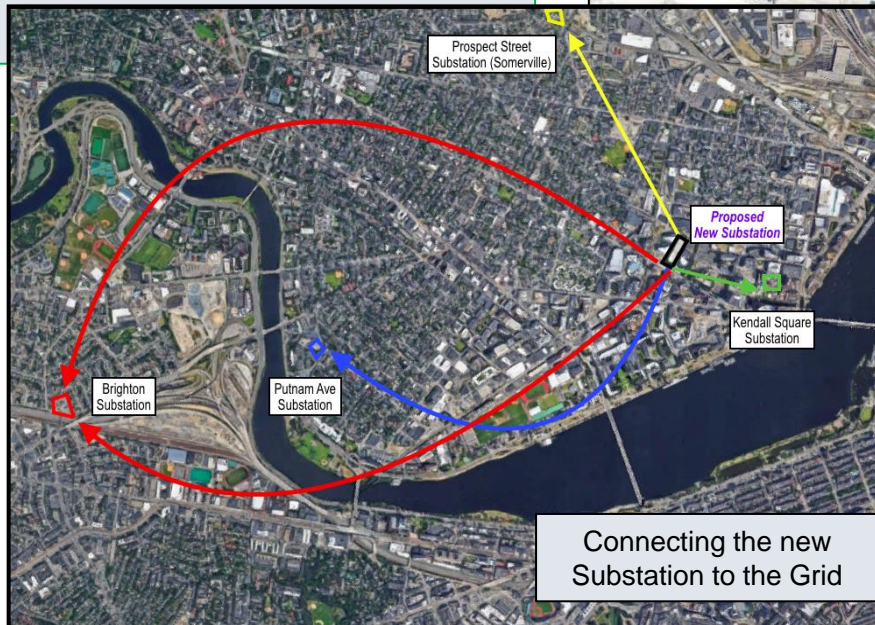
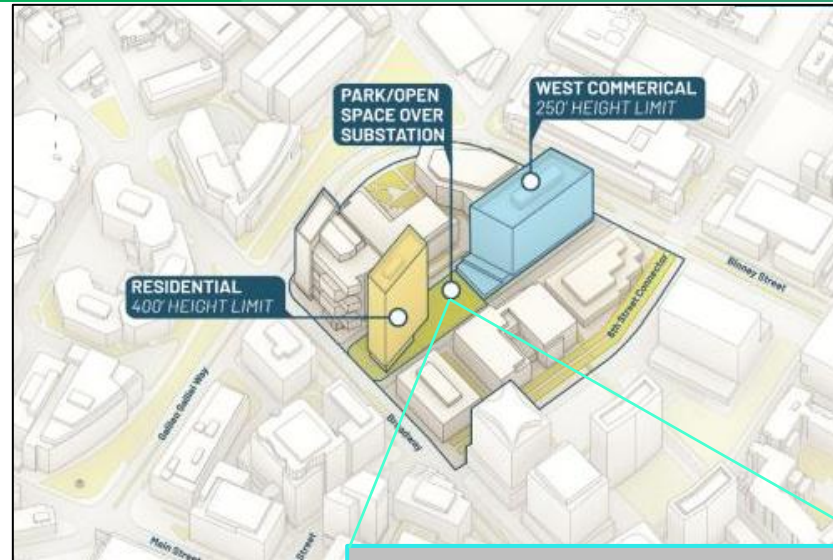
Underground Substation, New Lines Allow for More Transmission Supply

Proposed Project

- Underground Substation in Kendall Square
- Line Routes connecting to four substations across three municipalities
- Reinforces the regional grid and power supply to Cambridge, creates network to support clean energy sources.

Next Steps

- Finalize Line Routes, substation engineering
- Community Open House meetings this summer
- EFSB submittal Q4 2021



Carbon Neutral by 2030

Liz Toner, Community Relations

- **Offshore wind**
 - **Partnership with Ørsted to create a leading offshore wind platform**
- **Battery storage**
 - **Providing backup power sources to improve reliability during peak usage times**
- **Solar**
 - **Continuing to invest in and support residential and utility scale solar energy**
- **Electric vehicles**
 - **Investing \$55 million in electric vehicle infrastructure in Massachusetts; one of the largest in the country**



Energy Efficiency

Bill Stack, Energy Efficiency

Programs:

- **Cambridge Building Energy Retrofit Program**
- **Cambridge/Eversource Partnership Supporting BEUDO Net Zero Targets**
 - 165 Projects
 - 17,367,845 kWh annual
 - 877,140 therms since Oct/2019
- **Active EE Project Initiatives/Engagement**
 - Net Zero Labs initiative



Electric Vehicle Program

Sean Tully, Energy Efficiency

\$55 million capital in MA Electric Service Territory

100% of infrastructure costs covered – 50-90% of project costs

More than 450 sites, 4,000 enabled charging points

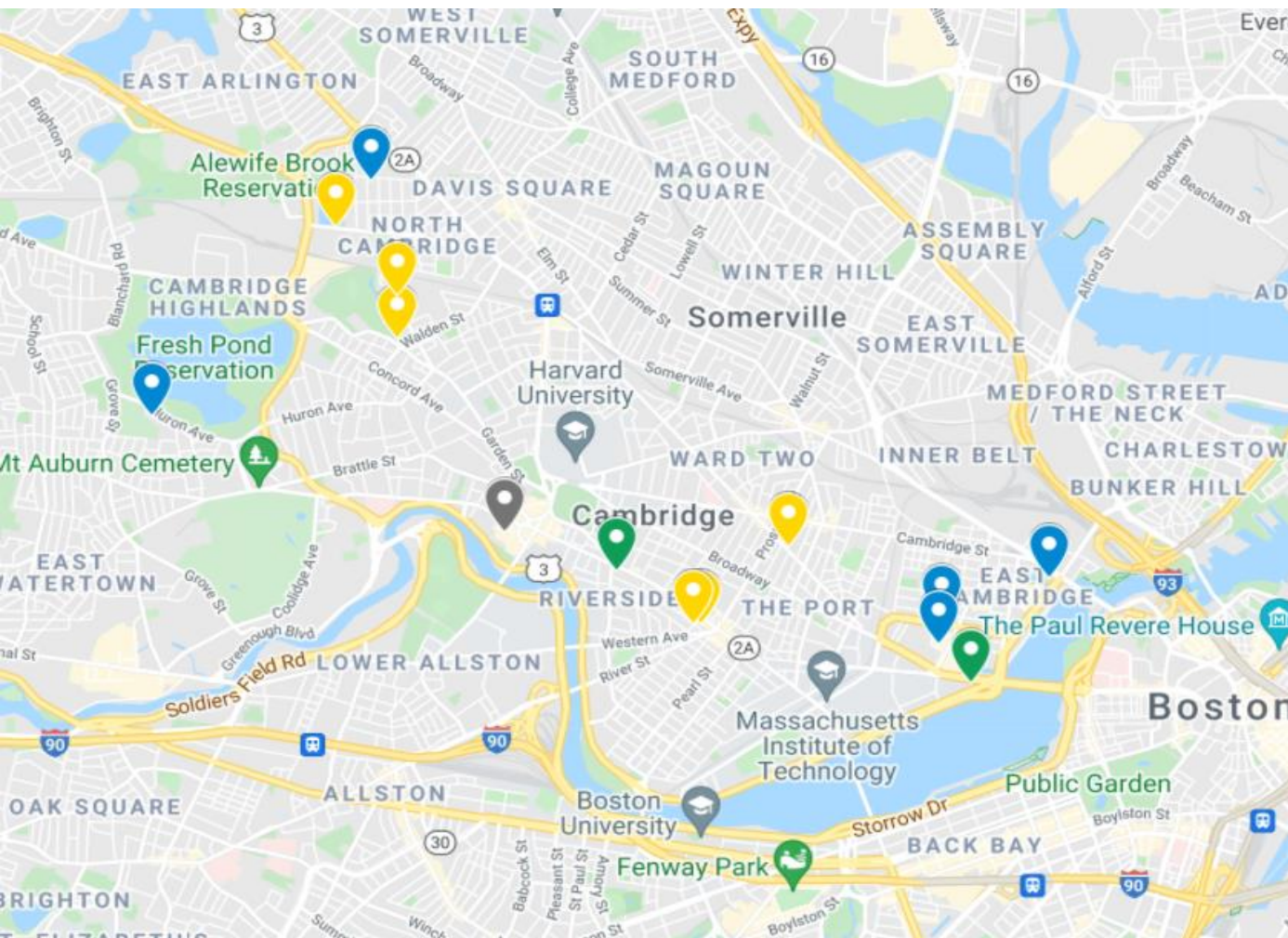
- 10% in Environmental Justice Communities







Targeting

- Public Spaces (e.g. municipal lots, state facilities)
- Workplaces
- Multi-Unit Dwellings
- Hospitality and Entertainment
- Travel corridors (for DC fast chargers)

Completed EV Make Ready Sites in Cambridge



-  Municipal (6)
-  Residential (5)
-  Workplace (2)
-  Hospitality (1)

- Completed 14 L2 sites with multiple charging points per site.
- Engaged with Cambridge on expanding residential charging opportunities for residents who park on the street.

Conclusion

Conclusion

Accommodate Load Growth, Prepare for Tomorrow

- Load growth is continuing despite highly efficient new development and many years of successful energy efficiency (EE) programs in Cambridge.
- Energy efficiency efforts provide significant benefits in Cambridge and have been factored into the load forecasts.
- The Cambridge electric delivery system continues to be a focus, ensuring a reliable, resilient and flexible system which will enable a clean energy future.
- Distribution enhancements help get power to end users, supporting continued economic growth and prosperity.
- Gas projects will maintain and strengthen the safe and reliable delivery of natural gas.



Community Relations

Liz Toner

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