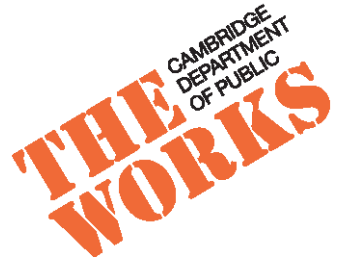




---

CITY OF CAMBRIDGE  
Community Development Department

---



July 22, 2019

To: Louis DePasquale  
City Manager

From: Katherine F Watkins  
City Engineer

Iram Farooq  
Assistant City Manager for Community Development

**Re: Awaiting Report 19-13, dated February 4, 2019  
Awaiting Report 19-71, dated June 3, 2019  
Awaiting Report 19-78, dated June 10, 2019**

**Regarding Eversource electric Substation Expansion, Energy Projections and Overall Update on Process**

In response to the above referenced awaiting reports, please see the information below.

**UPDATE ON PROCESS**

The siting process for a new substation is a long process and while we do not have full answers to all of the questions identified in the Awaiting Reports, we wanted to provide an update on the process and share the currently available information, while we continue the dialogue with Eversource Electric on this critical project.

**ELECTRIC LOAD PROJECTIONS – WHY IS EVERSOURCE PROPOSING A NEW SUBSTATION?**

According to Eversource, in August 2018, the peak electric load in East Cambridge reached 98% of all-time load. Eversource begins evaluating transmission capacity expansion once peak loads reach approximately 75% of capacity. Operating at a high level of capacity does not provide redundancy in the system, which is problematic in a connected electrical grid. If a transformer overloads during heavy summer loads and there is no available capacity as backup, portable generators would need to be brought in and / or customers would need to be disconnected.

In addition to the existing demand, Eversource has projected future demand through 2029 and describes the need for improved power transmission capacity as follows:

*“Eversource has identified an additional 20MW of new electric load in East Cambridge through 2019 and is projecting an additional 100MW during the next decade.”*

*According to Eversource, in addition to meeting additional growth, “the new substation will enhance the reliability of the electric transmission and distribution system in Cambridge and improve regional connectivity to enable access to renewable energy resources. As the region continues to reduce the use of fossil fuels and increase the amount of renewable energy, investments in the New England power grid, such as the proposed substation, will help ensure that the renewable energy can be delivered to serve the energy needs of Cambridge residents.”*

*“Access to alternative energy sources – small or large, local or remote – will be restricted without a flexible and reliable transmission and distribution network. Moreover, Massachusetts, and the other New England states, have ambitious goals for carbon reduction that will require increased use of electricity to support electric vehicles and electric building heating systems. Even when combined with dramatically increased adoption of energy efficiency and demand response programs, of which Eversource is a national industry leader, it is projected that demand for electricity in communities like Cambridge will continue to increase.”*

#### **KENDALL SQUARE ENERGY ANALYSIS (2016) AND LOW CARBON ENERGY SUPPLY STRATEGY (2018)**

As Eversource projects future demand for electricity, it is critical that the projections consider a variety of factors; energy efficiency, anticipated development, and building electrification.

In 2016, Arup analyzed energy demand in Kendall Square through 2035. The study examined anticipated trends in energy use intensity (EUI) and energy codes and concluded that the EUI of future buildings in Kendall would be 50% lower than those constructed at the time of the study. In addition, it incorporated assumptions about efficiency projects underway and anticipated future efficiency upgrades. It found that, as a result of lower EUI in new construction, and energy efficiency projects underway or planned, the total annual energy use is expected to remain about the same. Peak loads, however, were projected to increase. The study also assumed that natural gas would be the primary heating fuel, and that its use would increase.

In 2018, Ramboll built on the Arup study to project energy demand city-wide in the Low Carbon Energy Supply Strategy study. In addition to assumptions about improved energy efficiency in new construction and anticipated energy efficiency upgrades in the existing building stock, the study also took into account climate change projections and the resulting impacts on heating and cooling demand. Total annual energy demand is projected to fall significantly as a result. However, given the importance of electrification in enabling the use of renewable energy sources to achieve Cambridge’s Net Zero Action Plan goals, it is vital that building electrification projections and resulting changes in electricity demand also be incorporated into long-term planning for distribution infrastructure.

### **FINANCIAL ANALYSIS AND ENVIRONMENTAL ANALYSIS OF THE SUBSTATION**

At this early stage in the process, Eversource is indicating that the proposed Fulkerson Street project is still under conceptual engineering review and cost figures and environmental impact reports have not been finalized. If the Project advances, costs and environmental analysis will be developed and included in the required state regulatory filings including EPA, MEPA, DEP, and the Massachusetts Energy Facilities Siting Board (EFSB). These reports, as well as detailed designs of the building, will be shared with Cambridge and made publicly available once completed and available.

### **SITING OF NEW SUBSTATION**

Eversource Electric purchased the 135 Fulkerson Street property in January 2017 after several years of searching for potential properties. Colliers International conducted a search of potential properties and identified fifteen potential locations. Eversource evaluated the parcels and determined that the Fulkerson St parcel was the only viable option considering parcel size, proximity to load and availability.

Given the concerns expressed about siting a substation at the Fulkerson St site, Eversource and Colliers International conducted another search of properties in April and May 2019 but have been unable to find an alternative parcel that meets their requirements.

The City sponsored a meeting in early July with developers and larger property owners in the eastern portion of the city to facilitate additional discussions regarding potential alternative sites. Eversource has indicated that they will be continuing these discussions directly with individual property owners. The City is also working with Eversource to determine if any city properties could be viable alternatives. City staff have evaluated Binney Park Parcel (intersection of Binney St and Fulkerson St) and Triangle Park Parcel (intersection of Land Blvd and Binney St).

The Binney Park Parcel supports critical drainage, steam and telecom utilities and a portion of the future Grand Junction Path. Once these uses are accommodated, approximately 2/3-acre of land could be made available. Eversource is currently evaluating whether this could be a viable site. If the Binney Park Parcel or another city parcel is determined to be a viable site for a substation, the City would then evaluate if using the parcel for a substation is in the City's best interest. The Triangle Park Parcel is about 1/3-acre and appears to be too small a site to be viable for a substation.

### **NEXT STEPS**

City staff have a meeting in early August with Eversource staff responsible for developing peak and base load projections to better understand the basis for the projections and advocate for a robust, well-designed electric infrastructure in Cambridge to address not only immediate needs but also factor in Cambridge's plans for growth and net zero commitments for greenhouse gas emissions reductions. Many of Cambridge's net zero actions and requirements will begin implementation within the 10-year planning horizon of Eversource's infrastructure plan. The City has asked Eversource to present non-wires

alternatives, or distributed energy and conservation measures that can help reduce the need for additional distribution grid capacity, as demonstrated by other Eversource projects in Massachusetts. Eversource has indicated that such alternatives must be presented in a comparative cost-benefit analysis to state regulators as part of the substation application process.

Another Council Hearing is also being scheduled in August to review the projections, better understand the need for the new substation, and evaluate non-wires alternatives including enhanced investment in energy conservation measures and battery storage to reduce base load and demand response strategies to reduce peak load.