

To Whom It May Concern,

I am writing with responses to several questions in the Department of Energy Resources' Clean Peak Energy Standard Stakeholder Questions. MAPC's responses specifically concern the ability of municipally-owned streetlights to participate as a Demand Response Resource, particularly for winter peaks.

The Metropolitan Area Planning Council (MAPC) serves as the regional planning agency for the 101 cities and towns of Metropolitan Boston, which comprises roughly half the state's population and two-thirds of the state's jobs. MAPC's Clean Energy Department works with our municipalities to reduce GHG emissions in their communities. Since 2014, MAPC has operated a Peak Demand Notification Program, which has helped dozens of municipalities proactively reduce demand in their largest facilities to minimize capacity charges and associated GHG emissions. Additionally, MAPC has administrated DOER's *LED Streetlight Rapid Retrofit* grant program since 2017, helping nearly 60 municipalities retrofit 100,000 streetlights.

#3. What Type of Resources should be included in [the Demand Response Resource] definition?

Cobrahead-style streetlights are typically not metered and are historically controlled by a photocell. The photocell senses the presence or absence of daylight and turns the light on or off accordingly. The utility bills for usage based on the wattage of the light and an assumed number of operating hours. Today, another option exists for controlling the lights: wireless or smart controls. The wireless controls use Radio Frequency or cellular to communicate back to a Central Management System, allowing a user to program a schedule for on/off and dimming, as well as to adjust light levels on demand, via an online or software interface. As a result, any municipality with wireless controls for streetlights has the ability to act as a Demand Response Resource. This would most likely apply to winter peaks, when lights come in late afternoon/early evening.

Lighting industry research has shown that the human eye cannot detect changes in light levels under 30%. As a result, dimming by 30% can be readily achieved, and municipalities may be willing to go further if the dimming process is done somewhat gradually. For example, in the late hours of the evening, when pedestrian activity is at its lowest, the City of Cambridge dims its lights upwards of 50% in many locations.

In terms of potential, by spring 2019, over 31,000 lights – representing 12 municipalities – will have wireless controls installed through the DOER's *LED Streetlight Rapid Retrofit* grant program. An additional 70,000 streetlights will also be retrofitted through the program, all of which will be "control-ready". This means that the lights have the appropriate receptacle to support a wireless control installation in the future. Outside of the program, cities such as Worcester and Cambridge, with over 20,000 lights also have wireless controls installed. MAPC expects this

number to continue to grow as more municipalities choose to purchase their lights back from the utility and retrofit themselves.

27. Should different [metering] standards apply to different sizes and types of facilities? If so, please describe your recommendations in as much detail as possible.

Wireless controls have the capability to meter and report usage. In mid-2018, MAPC collaborated on a working group with Eversource to establish a new tariff that would bill for streetlight usage based on the reported data from these control systems. Eversource elected to allow this practice for any wireless controls that meet current ANSI C12.20 standards for accuracy and performance of meters. The language, found in Eversource's S-2 tariff (available at https://www.eversource.com/content/docs/default-source/rates-tariffs/45-tariff-ma.pdf?sfvrsn=a482c462_16) could serve as a useful model. It should be noted that the wireless controls' Central Management System provides reporting, if needed, to document the reductions.

Given the prevalence of wireless controls and their potential proliferation, MAPC would recommend that DOER allow for different standards to apply to streetlight wireless controls, if they would not meet other proposed standards.

Sincerely,



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