



City of Cambridge

Executive Department

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August 7, 2017

Samantha Meserve
Department of Energy Resources
100 Cambridge Street
Boston, MA 02114

Re: Proposed Revisions to the Alternative Energy Portfolio Standard Regulations;
225 CMR 16.00

Dear Ms. Meserve:

The City of Cambridge ("Cambridge" or the "City") appreciates the opportunity to submit the following comments to the Department of Energy Resources ("DOER") regarding DOER's amended, proposed regulations regarding the Alternative Energy Portfolio Standard ("APS"), 225 CMR 16.00.

Cambridge strongly supports the inclusion of renewable thermal technologies in the APS. The increased use of these technologies is a key element of the City's plans to meet its municipal and community-wide climate change goals. The City's Net Zero Action Plan ("NZAP") (see www.cambridgema.gov/netzero) is reliant on renewable thermal technology to replace fossil fuel-based heating in buildings. The City itself is already using clean heating technology in its own buildings, such as ground source heat pumps in the City Hall Annex, MLK Jr. School, King Open School, and 859 Mass. Avenue, and a combination ground source heat pump-VRF system is planned for the Taylor Square Fire House. To achieve the NZAP goals, however, new and existing buildings throughout the City will have to incorporate renewable thermal technologies. Currently, most building owners lack awareness of these technologies and the incentive to install them. Inclusion in the APS will help to accelerate the adoption of these technologies, as the Renewable Portfolio Standard has done for solar PV. To address the energy supply of the City and enable the necessary transition to renewable thermal technologies in City buildings



over the next 30 years, Cambridge is developing a Low Carbon Energy Supply Strategy.¹ This strategy will rely on many of the technologies addressed in the draft APS regulations. State support for these technologies through the APS will be essential for the execution of the supply strategy and the achievement of the City's climate goals, which align with the state GHG reduction targets laid out in the Global Warming Solutions Act.

Eligibility Criteria for Small Air Source Heat Pumps; 225 CMR 16.05(4)(e); draft p. 22²

Of the renewable thermal technologies included in the draft APS regulation, air-source heat pumps are particularly applicable in a dense urban setting such as Cambridge. For new construction, the draft regulations require that small air-source heat pumps ("ASHPs") supply 100% of the building's total annual heating. For retrofit applications, ASHP must supply at least 90% of total annual heating. 225 CMR 16.05(4)(e).

Cambridge certainly supports incentivizing the full electrification of heating systems. To achieve the goals of the NZAP, buildings will have to fully transition away from fossil fuels. However, we also recognize that partial systems may be a transition tool, building awareness and comfort with technology. Accordingly, we urge DOER to consider lower minimum percentages, at least initially, to help speed the adoption of ASHPs. DOER should provide clear, user-friendly guidance to building owners and contractors regarding the incentive level available for different ASHP configurations (see "Outreach and Education," below).

Heat Pumps Providing Cooling Energy; 225 CMR 16.05(1)(a)(6)(a)(i); draft p. 11 - 12

The draft regulations provide that air-source and ground-source heat pumps will receive APS Alternative Energy Attributes ("Attributes") only when "operating in a heating mode." 225 CMR 16.05(1)(a)(6)(a)(i). Cambridge encourages the DOER to make Attributes available for operation in cooling mode as well, although perhaps with a lower multiplier. While the current goal may be heating electrification, providing Attributes for cooling energy would create an additional incentive to install heat pumps, which would then be used for both heating and cooling. In addition, use of heat pumps for cooling increases energy efficiency because they are more efficient than the window air conditioning units they may replace. As climate change

¹ See Net Zero Action Plan Action 3.1:

<http://www.cambridgema.gov/CDD/Projects/Climate/~media/BF531928BB7D4526AE2D8538E025E0BA.ashx>

² Page references are to the draft regulations published at

<http://www.mass.gov/eea/docs/doer/renewables/thermal/225-cmr-16-draft-aps-regulation-redline.pdf>.

progresses, Massachusetts will see a decrease in heating degree days and an increase in cooling degree days, placing more importance on the efficiency of cooling systems.

Bonus Multipliers for Installation in Efficient Buildings; 225 CMR 16.05(1)(a)(6)(b)(ii); draft p. 15

Cambridge strongly supports the use of bonus multipliers for heat pumps installed in highly efficient residential buildings and Net Zero Energy commercial buildings. 225 CMR 16.05(1)(a)(6)(b)(ii). The definition of Net Energy buildings should explicitly allow for “Renewable Energy Certificate Zero Energy Buildings” to encourage building electrification using green electricity even when not all of that energy can be generated on-site, as is typical in dense urban settings such as Cambridge.³ DOER should consider Passive House as another standard for bonus multipliers. To incentivize on-site production and resilience, bonus multipliers could also be given to buildings that install solar PV and/or storage along with heat pumps.

Advanced Minting of Attributes; 225 CMR 16.05(4)(d); draft p. 22

Cambridge supports the option of advanced minting of Attributes for small systems. 225 CMR 16.05(4)(d)(1). This will remove the hurdle of metering for small system owners and also provide the option for an up-front rebate. However, discounting advance-minted Attributes based on the ratio of settled Attributes to the APS compliance obligation, 225 CMR 16.05(4)(d)(2), would be very confusing for small system owners and create uncertainty. DOER should modify these provisions to provide more certainty regarding the number of Attributes for which systems will be eligible.

Biomass Emissions Standards; 225 CMR 16.05(4)(g); draft p. 27

Cambridge supports the inclusion of biomass and biofuels in APS provided that high standards regarding the emissions profile of eligible biomass/biofuels and sustainable sourcing requirements are maintained. 225 CMR 16.05(4)(g).

Technology Flexibility

Given the rapidly evolving nature of renewable thermal technologies, Cambridge urges DOER to incorporate sufficient flexibility in the APS to incorporate new technologies as they become available. The Cambridge Low Carbon Energy Supply Strategy is contemplating significant reliance on district energy which utilizes a combination of renewable thermal sources, including waste heat from air and water sources. These technologies should be enabled by including

³ See “A Common Definition for Zero Energy Buildings,” U.S. Dept. of Energy, p. 10 (Sept. 15, 2015). See also the definition of “Net Zero Emissions” buildings in the Cambridge Net Zero Action Plan.

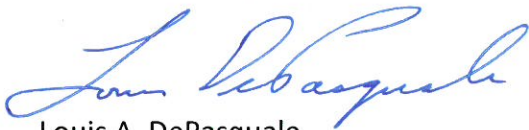
water-source heat pumps in the APS. Also, the multipliers granted to technologies such as solar thermal should be regularly evaluated and adjusted to support a cost-effective transition away from fossil fueled heating to renewable thermal sources.

Outreach and education

The APS regulation should be finalized in an expedient manner to support the needed transition to renewable thermal sources. To effectively support this transition, DOER should provide significant outreach and education to consumers, contractors, public officials, and other stakeholders so that the incentives can be clearly applied to technologies and building owners can make good decisions about their investments.

Thank you again for the opportunity to provide comments.

Very truly yours,



Louis A. DePasquale
City Manager, City of Cambridge

These comments were submitted in coordination with the City of Somerville and the City of Boston.