

December 6, 2020

Ms. Samantha Meserve  
Deputy Director, Renewable and Alternative Energy Division  
Massachusetts Department of Energy Resources  
100 Cambridge Street, 10th Floor  
Boston, MA

Dear Ms. Meserve:

I am reaching out to provide comments on behalf of Mass General Brigham on the ALTERNATIVE ENERGY PORTFOLIO STANDARD REVIEW report by Daymark Energy Advisors. Mass General Brigham is a not-for-profit, integrated health care system in Boston, Massachusetts. Founded by Brigham and Women's Hospital and Massachusetts General Hospital. Mass General Brigham includes community and specialty hospitals, a managed care organization, a physician network, community health centers, home care, and other health-related services. Mass General Brigham is the largest private employer in Massachusetts. MGB owns several combined heat and power (CHP) installations that are enrolled in the Alternative Portfolio Standards program and that are very important assets for our facilities' resilient operation enabling service continuity during extreme weather events that can cause prolong utility outages. We commend the MA-DOER for commissioning the review to ensure that the right incentives are in place to support clean energy technologies.

There might be a public misconception that each new CHP installation increases the demand for natural gas but the opposite is true, due to the high efficiency of the process, each installation lowers the use of total energy compared to grid electricity generation and use of natural gas boiler for thermal needs separately by around 35%, and it also lowers harmful Greenhouse Gas (GHG) emissions by about 30%. That total reduction in energy use also relieves demand on the gas pipeline capacity further reducing the need to build added capacity.

Our main comments regarding CHP in the study are as follow:

1. **Study's Economic Analysis.** Daymark's economic analysis for CHP are far from what we see in our installations. Installations costs are much higher, and operation and maintenance cost can be many times higher than what they carry in their assumptions. Our institutions are not-for-profit and do not benefit from the federal investment tax credit. Using blended rates on savings analysis can also be inaccurate, we know that CHP units can and do trip causing demand charges on the utility's bill reducing savings. Demand charges amounts to about 50% of the total cost of electricity. Daymark's simple payback for CHP of 1 year or less is much too optimistic, the shortest payback we have seen, not including AECs is about 8+ years, AECs can shorten the payback enough to facilitate financial approval.

2. **CO2 Emissions Reductions.** Daymark's statement that CHP don't reduce emissions is incorrect, the study points to the average marginal emission factor or All Local Marginal Units as published in the ISO-NE report. That factor is deceptively low as a reference because is driven by wind power displacing emitting generators as the marginal unit for about 15% of the time, however it was marginal for a very local congested area that did not impact the system price noticeably. Given that, the ISO-NE changed their methodology and now calculates an Emitting Local Marginal Units average emission factor as more representative for system-wide marginal emissions. Using that number and the unit efficiency in the study results in a reduction of just under 30% on GHG. More importantly, the emissions reductions come vastly from thermal energy reduction, which are challenging to reduce.
3. **Climate Resiliency.** CHP units provide most needed resiliency to hospital facilities which continued operation is crucial in extreme weather events causing prolonged utility outages. Eroding the revenue base of these systems would weaken the support they can provide to the Commonwealth's initiative for resilient communities.
4. **Infrastructure Optimization and Grid Stability.** CHPs provide grid stability and can lower growth pressure on transmission and distribution infrastructure, especially with the current push to electrification. CHP can also be instrumental on facilitating the integration of renewables to the grid mix. Reducing economic feasibility of CHPs would significantly slow that process.
5. **Recommendations.** We recognize that the APS program will potentially become significantly oversupplied. The APS program's support is valuable in helping technology to be cost effective specially overcoming first cost.
  - a. We would recommend that the department considers changes to the program that create a sunset for eligibility to gradually phase eligible resources after payback has been achieved and that ongoing operations are cost effective and without need of further incentives.
  - b. We would also recommend evaluating excluding eligible resources that may also be eligible for alternate programs from the region or other markets. As an example, liquid fuels may already enjoy support from other programs or markets that help it be cost effective compared to conventional fuels that it looking to replace.
  - c. We support the study's recommendation in considering changes to the APS demand through alteration of the required APS obligation

We appreciate the opportunity to provide comments and please feel free to reach out if you have any questions.

Respectfully yours

A handwritten signature in black ink, appearing to read 'Dennis Villanueva', with a large, stylized 'D' and a long, sweeping horizontal stroke at the bottom.

Dennis Villanueva

Senior Manager, Energy & Sustainability, Mass General Brigham