

04 December 2020

Ms. Samantha Meserve
Deputy Director, Renewable and Alternative Energy Division
Massachusetts Department of Energy Resources
100 Cambridge St #1020
Boston, MA 02114

Reference: 2020 APS Minimum Standard Review: A summary of the ongoing review of the Alternative Energy Portfolio Standard APS Study and Stakeholder Questions.

Dear Ms. Meserve,

Waldron Engineering & Construction, Inc, respectfully submits the following comments in response to the 2020 APS Minimum Standard Review. These comments address primarily our area of expertise, the cost to build and operate CHP systems in Massachusetts. Although our comments do not address any one of the specific stakeholder questions Waldron believes some of the fundamental economic facts that decisions will be based upon are flawed. We urge DOER to revisit the conclusions as to the economic viability of projects without APS that we will show are fundamentally flawed due to the economic assumptions utilized in the calculations.

As a general position Waldron puts forth the premise that an appropriately designed CHP technologies and systems are tested, proven, reliable, and clean, The State of Massachusetts was a national innovator in the development of the Alternative Portfolio Standard that has rewarded high efficiency, environmentally superior energy technologies including CHP. The APS is a “smartly” designed incentive scheme insofar as higher payments are made to the most efficient resources.

The Daymark study suggests that CHP projects do not need Alternative Energy Credits to be economically viable. This is not a correct conclusion since it was built on flawed assumptions for capital and operating cost. The assumptions are inconsistent with the reality Waldron has experienced, being involved with more than 14 CHP projects in Massachusetts. In Waldron’s experience the cost metrics for CHP systems as compared to the Daymark report are summarized below.

Large System

Assumption	Daymark	Actual (Based on Current Projects)
Installed Cost (\$/kW)	\$2,028	\$3,000 - \$4,000
Fixed O&M (\$/kW-year)	\$8	\$75+

ITC	10%	Does not apply to non-profits
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In terms of Installed Cost, \$2,028/kW may be sufficient to build a facility in a greenfield in Missouri but is at least 50% short and could even be 100% short of the true cost to build a facility that meets the Massachusetts requirements for safety, emissions and noise. Standards for construction, emissions and noise are some of the tightest in the country here in Massachusetts. Coupled that with higher labor costs and often challenging working constraints yields installed costs that are significantly higher than those published in academic papers.

A 5,800kW gas turbine generator Long-Term Service Agreement (LTSA) with the equipment provider is approximately \$50/ kW-yr. Couple that with the requirements for maintenance of the balance of plant equipment and the number can grow to be in the range of \$75/kW-yr not the stated \$8/kW-yr. The real fixed operating costs as compared to Daymarks report off by 600 to 900%.

It is also worth noting that the federal Investment Tax Credit (ITC) only applies to for-profit entities. While certainly some CHP projects have been developed by for-profit companies, the majority are not—for-profits, such as hospitals, universities, municipalities, and state agencies. In these cases, the ITC does not apply.

Daymark provided very little information as to their economic assumptions, and the information they did provide demonstrates a fundamental lack of understanding of the true costs to build and operate a CHP system. The report is a classic academic approach utilizing the internet for information without actually surveying the plants that exist in Massachusetts at the true costs to build and operate these facilities.

Based on true project economics, the APS is critical to making these projects possible. based on Waldron's experience, it is the thing that puts a project over the top from an approval standpoint.

Sincerely
Waldron Engineering & Construction, Inc.



Terence Waldron, P.E.
CEO

