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The Energy Consortium, Inc.

8/20/2021

Ms. Darchelle Petion
Massachusetts Department of Energy Resources
100 Cambridge Street, 10th Floor
Boston, MA

Subject: TEC Comments on Alternative Energy Portfolio Standard Straw Proposal released 7/20/2021

Dear Ms. Meserve,

The Energy Consortium (TEC) appreciates the opportunity to provide these comments on the proposed Alternative Energy Portfolio Standard (APS) straw proposal released by the Department of Energy Resources ("DOER") on July 20, 2021.

TEC is a non-profit association of commercial, industrial, institutional, and governmental large energy users in Massachusetts and has participated in state and regional energy regulatory matters for forty years. It advocates positions and sponsors joint actions that promote fair cost-based energy rates, diversified supplies, retail market competition, and reliable service for its member organizations, their employees and all Massachusetts ratepayers.

Many of TEC's members operate Combined Heat and Power (CHP) systems to supply complex electrical and thermal requirements for their facilities. The majority of TEC member organizations have adopted formal organizational policies focused on Greenhouse Gas (GHG) reduction in addition to environmental and sustainability goals. TEC appreciates the DOER's commitment to GHG reduction in furtherance of the Commonwealth's climate goals, but TEC has significant concerns regarding aspects of the Straw Proposal.

Background on TEC Member Facilities

TEC member organizations include critical facilities such as hospitals, higher education institutions hosting sensitive research labs, and advanced manufacturing companies that drive the state's economy. These organizations have sophisticated in house technical and engineering expertise to support mission critical activities such as providing managing hospital operating rooms, supporting tens of thousands of square feet of advanced lab research space, and making complex engineered projects in a precision environment. Energy efficiency, GHG reduction, and resiliency are paramount concerns for the TEC members who have adopted CHP systems. These CHP systems presently provide an emissions benefit versus business as usual (boiler and grid power) and will continue to do so until the New England electric grid is substantially decarbonized.

CHP Systems Continue to Provide GHG Reductions and Other Benefits and the Proposed Phase-out of CHP from the APS is Flawed

The Straw Proposal decreases the eligibility of CHP to earn Alternative Energy Credits (AECs) each year ending in 2030 when CHP would be entirely phased out of the APS. The proposed Phase-out of CHP is unsupported and premature for the reasons enumerated herein. TEC strongly urges the DOER to reconsider its approach to CHP and offers several suggestions to ensure that CHP included in the APS contributes towards the Commonwealth's climate goals.

CHP Systems Provide Emissions Benefits and Phase-out is Premature

CHP systems installed at energy intensive facilities where electrification is infeasible due to technical or financial constraints continue to provide GHG benefits to the Commonwealth.

The default energy system at an energy intensive facility that can't electrify its thermal requirements is a gas boiler and grid power. While the Commonwealth has made some ambitious commitments to offshore wind and large hydropower, these projects are significantly behind schedule and it is unclear when they will begin to deliver clean energy to the Commonwealth. In 2021 natural gas is the predominant source of fuel in the Independent System Operator of New England (ISO-NE) system and this will continue to be the case until offshore wind and large hydro resources come online at sufficient scale.[1]

TEC advises the DOER to use the marginal ISO-NE emissions rates as the basis for comparison for CHP. This makes sense since in the event where a TEC member CHP trips offline, the resulting increase in load would be met by the next generating resource in the ISO-NE dispatch order. The emissions profile of a CHP should be compared against the resources that would provide replacement power throughout the year. Using the marginal emissions rate would also be consistent with DOER practice as the current regulations use marginal emissions rates as the reference value for fuel cells and other low emitting resources.[2]

The DOER should not phase out CHP until the marginal emissions rate of the ISO-NE grid reaches CO_2 emissions parity with a highly efficient CHP system. Any phase out prior to this occurrence is based on purely speculative conjecture and will inhibit the Commonwealth from realizing additional emissions and fuel savings benefits from CHP at energy intensive facilities.

The Proposed Phase-out of CHP is Arbitrary and Lacks a Rigorous GHG Benchmark

The DOER has not supported how it arrived at its phase-out of CHP between 2023 and 2030 or how this will further the Commonwealth's GHG reduction goals. While the DOER has clearly stated its intentions to "make room" for other technologies, it is important to remember that the focus of the APS is to incentivize greater efficiency and carbon reductions over a business-as-usual case. A zero-sum game between CHP and other technologies does not serve the Commonwealth's carbon reduction goals. Instead of an arbitrary and unsupported Phase out, the DOER should adopt a data driven and transparent approach based on a comparison of CHP emissions to ISO-NE marginal emissions.

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[1] https://www.iso-ne.com/about/key-stats/resource-mix/

[2] 225 CMR 16.05(1)(a)(7)(b) and 225 CMR 16.05(1)(e)

CHP units entering service prior to the time when marginal ISO-NE GHG emissions reach parity with an efficient CHP should continue to earns AECs per the existing formula. At a future time when the ISO-NE marginal emissions rate reaches parity with the emissions from an efficient CHP system, the formulas could be changed to reflect the periods of time when CHP systems provide emissions benefits.

The technology to enable time-based emissions reporting is widely available and is currently being used in the California Self Generation Incentive Program (SGIP) to ensure that storage resources provide a CO_2 arbitrage benefit.[3] This type of change should apply prospectively only, but would provide a mechanism to align CHP participation in the APS with the Commonwealths GHG reduction goals in a future low carbon electric grid.

Among TEC membership, there are institutions that dispatch their CHP system and related facilities based on a carbon intensity signal in order to meet institutional GHG reduction goals.

The Straw Proposal Consists of Retroactive Policymaking

CHP systems are large engineering and capital-intensive projects. It takes at least two years to bring a complex CHP online from the date when the capital investment is approved. A high performing CHP system typically has a time to simple payback of five or six years with current utility efficiency incentives and AEC revenues. As a result, a CHP approved in 2019 would be commissioned in 2021 and would be expected to reach a simple payback financial metric in 2026.

The proposed Phase out of CHP retroactively changes the policy construct for all CHP systems entering service after 2018. These systems would be reliant upon AEC revenues through at least 2023 to reach simple payback. A CHP entering service in 2018 would have been approved in 2016 and these capital investments would have been predicated upon an expectation of policy stability. The DOER is now proposing to pull the rug out from underneath these systems by foreclosing upon the ability of their owners/investors to recoup their invested capital. This policy instability is compounded by the fact that AEC prices crashed in 2020 due to oversupply.

While the DOER may adjust its priorities for technology incentives over time, retroactively changing the rules upon which stakeholders relied to make large capital investments is bad policy and undermines faith in the APS, the RPS, and the commitment of DOER to the integrity of its programs. The DOER should ensure that CHPs qualified for the APS program have at least 10 years of AEC eligibility from the date of commissioning so that the regulatory compact used to incentivize the construction of new CHP is upheld.

The DOER Should Allow for New CHP Qualification in the APS

The DOER clearly recognizes that CHP systems should continue to have a place within the portfolio of energy technologies used in the Commonwealth. In its 2020 Minimum Standard Review Summary, DOER acknowledges *"the 2050 Roadmap identifies industries, such as manufacturing, as particularly challenging to decarbonize and a suitable fit for higher efficiency technologies such as CHP when other alternatives are not feasible."* (p. 8). Given TEC member experience operating complex and energy intensive facilities and the challenges of decarbonization in these environments, TEC proposes a decision making logic for the DOER to use in the qualification of new CHP systems.

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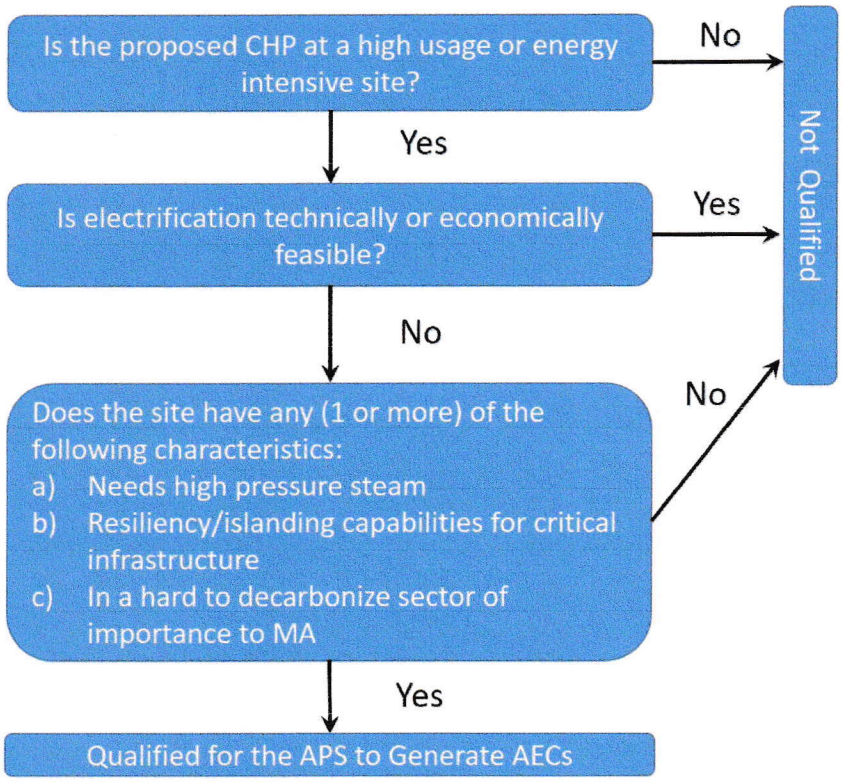
[3] https://sgipsignal.com/

TEC suggests that the DOER adopt a flow chart approach to determine APS qualification for new CHP systems. This flow chart would have several gates. To gain approval, a site would need to be energy intensive, demonstrate that electrification is technically or financially infeasible, and have complex energy requirements that include any of the following: a need for high pressure steam; or resiliency/islanding capabilities for critical infrastructure; or be in a hard to decarbonize sector of economic importance to the Commonwealth. This logic is illustrated in the following graphic.

Proposed Logic for Approval of New CHP Systems into the APS Program[4]



At the present time, CHP systems continue to offer benefits to the Commonwealth in energy intensive hard to decarbonize sectors that are vital to the regional economy. By prioritizing sites that require high pressure steam, offer resiliency to critical facilities, or supply sites that exceed size or energy intensity thresholds, the DOER can continue to realize energy efficiency gains and GHG reductions for the Commonwealth by focusing on sectors and use cases where there are no practical low carbon alternatives.

The Proposal to Increase the APS Obligation for 2023 Should be Adopted

TEC supports the increase in the APS obligation from 5.75% to 7.5% in 2023. As discussed earlier, the precipitous drop in AEC prices has presented significant financial challenges to CHP systems that were

[4] Application of this framework would require pre-determined definitions of high usage and energy intensive sites and technical and economic feasibility thresholds for electrification.

approved under the expectation of material AEC incentive revenues. These revenues have not been available due to very low AEC prices and a rebalancing of the market is warranted to ensure that the APS incentive works as intended and to minimize the financial harm to sites that require AEC revenues for economic viability.

The Daymark Report Included Several Inaccurate Statements Regarding CHP Systems

TEC is concerned that the DOER may be relying upon assertions made in the Daymark Report regarding the economics of CHP systems that are grossly inaccurate. The Daymark Report included the following unsupported and inaccurate claims:[5]

- *"Another key finding from the financial analysis is that CHP systems are currently economic without the support of the APS. These technologies receive support from the federal investment tax credit (ITC) and MassSave; given the availability of these incentives, CHP do not require the support of the APS in order to achieve net benefits over a 5-year period." (p.6)*
- *"that CHP is economic without the support of the APS for the three sizes studied. This is evidenced by the fact that all three cases modeled achieve a positive NPV in less than 5 years of operation and the payback period for CHP units is approximately 1 year." (p. 18)*
- *"CHP installed costs are $3,266/kW or less and annual operations and maintenance costs are $20/kW-year."* (p. 44)

In the experience of TEC members, the installed costs for CHP systems in Massachusetts are closer to $5,000/kW and operations and maintenance costs are at least $150/kW-yr. Many institutional and non-profit entities are unable to monetize the ITC and the MassSave program is proposing to phase out CHP incentives.[6] While TEC was unable to inspect the model created by Daymark to draw these conclusions, a simple payback of one year for a complex CHP system is not realistic. Typical time to simple payback periods for complex CHP systems at energy intensive facilities on the order of five years or higher with existing utility incentives and AECs.

Recommendations for DOER

CHP has played a vital role in helping the Commonwealth achieve its efficiency and climate goals. The DOER should build upon this success to leverage the ecosystems of CHP expertise in MA. Future changes to the CHP's role in the APS should be focused on a comparison of CHP emissions to marginal ISO-NE emissions and new CHPs should continue to be accepted into the APS using the criteria suggested by TEC in this comment letter. Policy stability is very important and DOER could undermine its credibility by proceeding with the CHP phase out included in its Straw proposal and squander the CHP expertise and know-how developed over the last decade as part of its successful APS program.

TEC strongly urges the DOER to make the following changes to its Straw Proposal

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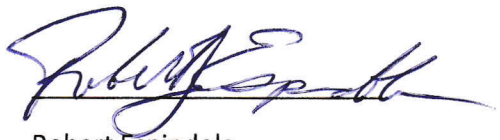
[5] Daymark Energy Advisors, Alternative Energy Portfolio Standard Review, prepared for MA DOER 10/30/2020

[6] MA Executive Office of Energy & Environmental Affairs, Letter to MassSave Program Administrators 7/15/2021 https://ma-eeac.org/wp-content/uploads/2021-07-15-Mass-Save-GHG-Goal.pdf

1. Ensure that existing CHP systems and those in advanced construction are able to earn AECs under the current rules for at least 10 years from their commissioning date to support investments made in reliance upon DOER policies.
    a. Advanced construction should be determined based upon having a signed Engineering, Procurement, and Construction (EPC) contract
    b. These systems should be grandfathered under the existing rules for at least 10 years from their commercial operation date.
2. Work with CHP industry stakeholders to devise a method to calculate and compensate CHP systems for time-based emissions benefits when the marginal emission rate of the ISO-NE grid approaches that of an efficient CHP system.
    a. This framework would only be applied prospectively after the grandfathering period described above is completed.
3. Continue to approve CHP for participation in the APS in energy intensive and hard to decarbonize sectors where the CHP systems offer clear benefits in terms of GHG reduction versus business as usual, resiliency, or support for critical facilities and industries.

Respectfully,



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