

August 20, 2021

Darchelle Petion  
Massachusetts Department of Energy Resources  
100 Cambridge St. Suite 1020  
Boston, MA 02114

**RE: APS Straw Proposal Comments**

Dear Ms. Petion:



The Massachusetts Institute of Technology (“MIT”) appreciates the opportunity to provide comment on the Alternative Energy Portfolio Standard (“APS”) Straw Proposal issued by the Massachusetts Department of Energy Resource (“DOER”) on July 20, 2021. In the Straw Proposal, DOER proposes phasing out gas-fired combined heat and power (“CHP”) cogeneration from the APS by 2030. MIT recommends that DOER adopts grandfathering provisions for certain CHP systems that maintains APS eligibility until at least 2030 and clarifies how a renewable fuel can maintain a CHP system’s ability to participate in the APS. MIT is available to respond to any questions DOER may have about the following comments and recommendations.

MIT is a research university with the mission to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century. MIT’s campus in Cambridge, MA serves over 11,500 undergraduate and graduate students, with over 1,000 faculty and nearly 13,000 employees. MIT is renowned for the academic and research activities conducted on campus, which require high-quality, uninterrupted energy and utilities service.

MIT’s Central Utilities Plant (“CUP”) produces electricity, steam, and chilled water for use on campus through a highly efficient CHP cogeneration process. Since 1995, the CUP has relied on a single 22-megawatt (“MW”) gas turbine to produce electrical and thermal energy simultaneously through cogeneration. With the turbine approaching the end of its useful life, in 2015 MIT commenced planning efforts to upgrade the CUP to enable its reliable, efficient operation to continue. The upgrade project will replace the existing gas turbine with a new 22 MW turbine and adds a second 22 MW turbine to the facility, each equipped with a heat recovery steam generator. The new CUP is expected to be fully operational by the end of this calendar year.

The CUP upgrade project will produce a variety of benefits for MIT, Cambridge, and the Commonwealth, including reducing regulated pollutant emissions generated by the CUP, eliminating the use of fuel oil on campus except for backup emergency use, increasing the CUP’s operational efficiency and the campus’ overall energy efficiency, and greatly improving the reliability and resiliency of utility services for the campus. The new CUP is configured to island and maintain uninterrupted electrical service to the campus should the local power grid experience an outage, enabling MIT to continue operating the campus without disruption to critical research activities.

MIT is deeply committed to helping the Commonwealth be a national and global leader on climate change mitigation. MIT remains on track to meet the goals set forth in our 2015 Climate Action Plan, namely to reduce the institution's net carbon emissions by 32% by 2030, and earlier this year announced plans to significantly accelerate our work on advancing global climate solutions. In May 2021, MIT released an ambitious new plan for action to address the world's accelerating climate crisis, titled "Fast Forward: MIT's Climate Action Plan for the Decade."<sup>1</sup> The plan commits MIT to net-zero emissions by 2026, with a goal of eliminating direct emissions by 2050, and charts a course to marshal MIT's full capabilities to drive and enhance decarbonization efforts across the world. The plan includes a broad array of new initiatives and significant expansions of existing programs to address the needs for new technologies, new policies, and new kinds of outreach to bring MIT's expertise to bear on this critical issue. The improved energy efficiency, emissions footprint, and utilities resiliency provided by the new CUP will play a key role in helping MIT support these critical research activities in the coming years.

MIT made a significant investment in the CUP upgrade project to meet the campus' current and future energy needs in a way that both supports the Commonwealth's energy and greenhouse gas emissions reduction goals and reflects the reality of the campus' location in a dense urban environment. The simple fact is that there is no mechanism through which the monetary value of the greenhouse gas emissions reductions from a CHP cogeneration plant like the new CUP can be realized by institutions that install such facilities and have the emissions accounting systems attribute the reduction in those emissions to the Commonwealth.

The APS was established to serve this purpose and, in the process, incentivize the adoption of alternative energy technologies that contribute to the Commonwealth's clean energy goals, including increasing energy efficiency, improving service reliability, and reducing the need for conventional fossil fuel-based power generation. The new CUP achieves these three objectives. Changing APS qualification standards for recently installed CHP systems would create uncertainty for end users considering investments in energy infrastructure moving forward. The long-term nature and horizon of energy infrastructure investments, as demonstrated by the CUP's planning and implementation effort spanning more than seven years, require clear and consistent regulatory treatment to effectively incentivize end users to adopt the energy technologies that the Commonwealth believes will advance the state's energy goals.

That being said, based on the APS Straw Proposal it seems that DOER is intent to move ahead with a phase out of all CHP systems from the APS, despite numerous commentors' objections during the 2020 APS Minimum Standard Review process. If this is the path that DOER has chosen, then DOER should grandfather certain CHP systems into the APS. MIT recommends two grandfathering criteria, either of which would qualify a system to produce AECs without any discount factors until at least 2030.

The first grandfathering criteria we recommend is for CHP systems that were commissioned after January 1, 2019. CHP owners like MIT that have recently made long-term investments in CHP systems did so in good faith assuming the APS would adhere to its original program goals. Reducing or eliminating the eligibility of recently installed CHP systems from participating in the APS would create uncertainty for end users throughout the Commonwealth. Investments in renewable thermal technologies may face similar APS eligibility uncertainties and stranded cost risks should new thermal production and distribution technologies emerge in the future. Renewable thermal technologies could very well see major advancements in the coming years, making this a real concern for end users should the wrong precedent be set by DOER in this process.

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<sup>1</sup> The plan is publicly available online: <https://climate.mit.edu/climateaction/fastforward>

The second grandfathering criteria we recommend is for CHP systems that provide resiliency benefits for end users. Specifically, systems that can island host facilities during local grid outages should be grandfathered to produce AECs without any discount factors until at least 2030. This treatment would appropriately reflect the importance of these microgrids in supporting the Commonwealth's efforts to achieve beneficial electrification in the coming decades. As ISO New England and energy stakeholders across the region have recognized in the Future Grid Initiative Key Project currently underway, the massive grid infrastructure improvements and renewable generation requirements mean that the Commonwealth's and New England's transition to beneficial electrification is not going to occur overnight even if we immediately throw ourselves headlong into the effort.

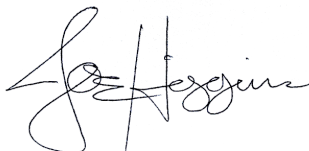
At this time, distributed renewable energy generation and battery storage technology have not progressed to the point where microgrids can be reliably run on zero-emission fuels for long-duration grid outages. Therefore, end users with critical energy needs have to either rely on CHP systems or diesel generators as a backup option for long-duration outages. If the Commonwealth is going to significantly add demand on the power grid to achieve beneficial electrification of transportation and space heating, resilient CHP systems will become all the more important as a safety net, especially with the increasing frequency of extreme weather events due to climate change. Existing CHP cogeneration that enables microgrids is going to serve as an important bridge between today's energy system and the decarbonized energy system of the future. The APS should recognize this through targeted grandfathering.

Finally, MIT recommends that DOER clarify how a renewable fuel can maintain a CHP system's eligibility to participate in the APS. In the APS Straw Proposal, DOER states that CHP systems utilizing a renewable fuel will not be subject to the proposed phase out from the APS. DOER needs to clarify that renewable fuel in this context includes RNG that is injected into a gas utility's distribution network in the U.S., Canada, or Mexico. 225 CMR 16.05(1)(a)(6)(a)(iv) states that Eligible Biogas Fuel must be conveyed directly from its source to the biogas Generation Unit in a dedicated pipeline. The term "dedicated" seems to imply that the pipeline would have a single injection point at the biogas source and a single takeoff point at the end user's facility.

To borrow a term of art from the electricity sector, the production and use of the biogas must occur behind the customer's retail natural gas meter. We presume that DOER would never propose to restrict the Commonwealth's Renewable Portfolio Standard program to only renewable electricity generators located behind-the-meter. It is equally inappropriate to impose this restriction on RNG. If this interpretation is correct, there is likely no end user in the Commonwealth that could meet these requirements. This would prevent end users from accessing the emerging RNG market, which allows end users to contract for environmental attributes and/or physical supply of RNG throughout North America and maintains the same global net emissions outcome as biogas delivered by a local "dedicated" pipeline.

MIT appreciates DOER's efforts to review the APS to ensure ratepayers are supporting investments that are in line with the Commonwealth's energy and climate goals. We look forward to seeing DOER's final updates to the APS, and we would be glad to discuss the comments and recommendations included herein further upon request.

Respectfully,

A handwritten signature in black ink, appearing to read "Joe Higgins". The signature is fluid and cursive, with the first name "Joe" and last name "Higgins" clearly distinguishable.

Joe Higgins