

August 20, 2021

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

Subject:           UMASS Memorial Health Care System Comments on APS Straw Proposal

Dear Ms. Meserve,

The purpose of this letter is for UMASS Memorial Medical Center (UMMC) and UMASS Memorial HealthAlliance-Clinton Hospital (UMHA), on behalf of the UMASS Memorial Health Care System (UMMHC), to provide comments on the Alternative Energy Portfolio Standard (APS) straw proposal recently released by the Massachusetts Department of Energy Resources (DOER).

#### **BACKGROUND**

In 2018, UMMC installed a 2.6 MW CCHP while UMHA installed a 2 MW system at the same time. These systems operate very efficiently (>70%) and both systems have the ability to “island”, which is to say that both systems have the ability to operate in the event of a grid outage. In fact, the UMMC system in Worcester has had to island more than a dozen times since it was installed. This has greatly benefited the hospital as we are able to maintain full capacity to provide uninterrupted power, therefore keeping our patients safe, as opposed to when we are forced to transfer to emergency power. This causes us to go “black” for 3-5 seconds, which compromises the safety of our patients and can cause significant damage to major equipment. Hospital patients have benefited from the CHP operations through increased service reliability and resiliency, and the need to transport patients during an extended outage is dramatically reduced.

It is also important to emphasize the communities that these hospitals serve. UMMHC serves the Central Massachusetts region, which comprises a diverse population with varying demographics and socioeconomic statuses. Worcester and Leominster, where UMMC and UMHA are based, provide healthcare services to a particularly at-risk population. Worcester and Leominster have a high poverty rate, lower than average English-speaking proficiency, and many in our communities require access to public assistance, which has been exacerbated by the COVID-19 pandemic.

UMMHC has invested more than \$20,000,000 in the two CHP systems and the hospitals energy and resiliency infrastructure has become more efficient, lowered greenhouse gases, and become more resilient. The Alternative Energy Credits (AECs) generated by the two systems were – and remain - a critical component in the financial payback of these systems. Without AECs, the projects would not have met our financial return thresholds and it is doubtful we would have moved forward with the projects.

We strongly urge the DOER to not phase CHP out of the program, so long as these systems are providing resiliency benefits to critical infrastructure like hospitals and are helping the Commonwealth meet their GHG reduction goals, they should continue to be incentivized within the program. This revenue stream is critical to a hospital system that has been stretched to its limits during COVID and is providing critical care to at-risk communities.

Please see below for our comments on specific aspects of the Straw Proposal. We are available should you want to discuss further.

#### **Comment #1 – Credit Value**

UMMHC strongly supports the DOER's proposal to increase the overall demand for APS credits by 2% beginning in January of 2023. This would raise the demand from 5.5% of retail sales of electricity in 2022 to 7.5% in 2023, with continued 0.25% increases in the years that follow. Beginning with the 2023 increase, higher load due to electrification and the increased requirement should produce the material increase in the value of CHP credits so urgently needed by CHP owners and other APS market participants.

UMMHC also supports the proposal to increase in the Alternative Compliance Payment to \$40/MWh. This aligns the APS with other incentives programs and should serve to increase the value of the credits.

#### **Comment #2 – CO2 Reductions & Natural Gas Phaseout**

We do not, however, support the complete, arbitrary phasing out of CHP. If prices do recover to ~\$30/AEC, 70% of that value would be acceptable but a complete phaseout would have significant repercussions at our hospitals. This is due to the fact that CHP provides:

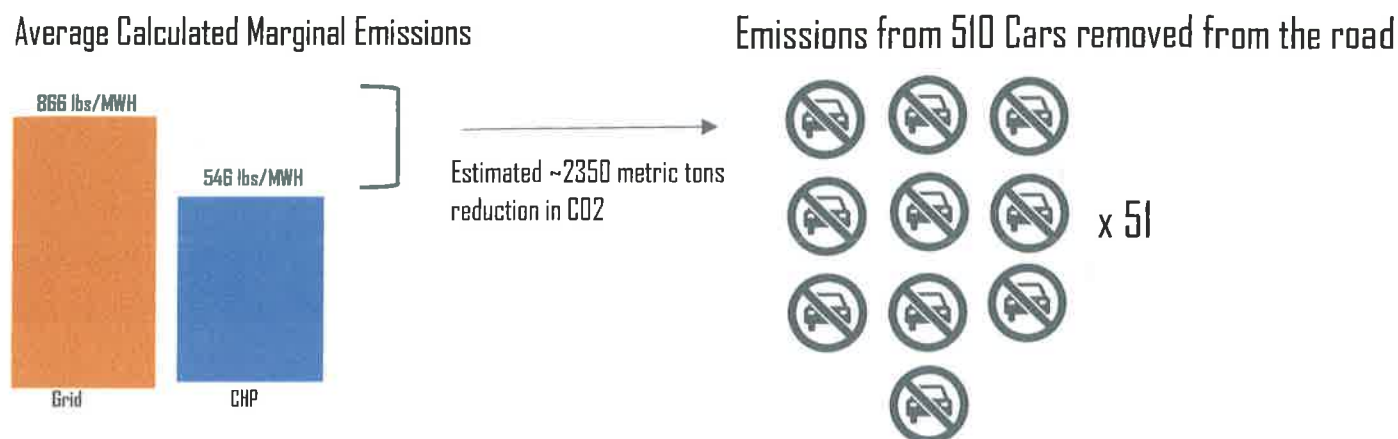
1. Immediate CO2 reductions today and into the future, especially if the systems operate as efficiently as those installed at UMMC and UMHA. See discussion below.
2. Enhanced resiliency by allowing for critical infrastructure continue to operate in the event of a grid outage.

In terms of CO2 reductions, together with our consultants, we did a detailed, hourly analysis of UMMC's operations compared to the marginal emissions of the grid. In other words, our consultant calculated:

1. The marginal emissions of the grid. by hour
2. The carbon intensity (effective electricity emissions, in lbs/CO2/MWH) of the UMMC CHP, by hour
3. The different between the two, by hour

**Of the 7713 hours the CHP was operating, the CHP was cleaner than the grid 97.5% of the time.**

The analysis compared the CHP's hourly 2019 Effective Electric Emissions<sup>1</sup> to the calculated hourly ISO NE marginal grid emissions. The results indicated that the UMMC CHP provided significant emissions reductions:

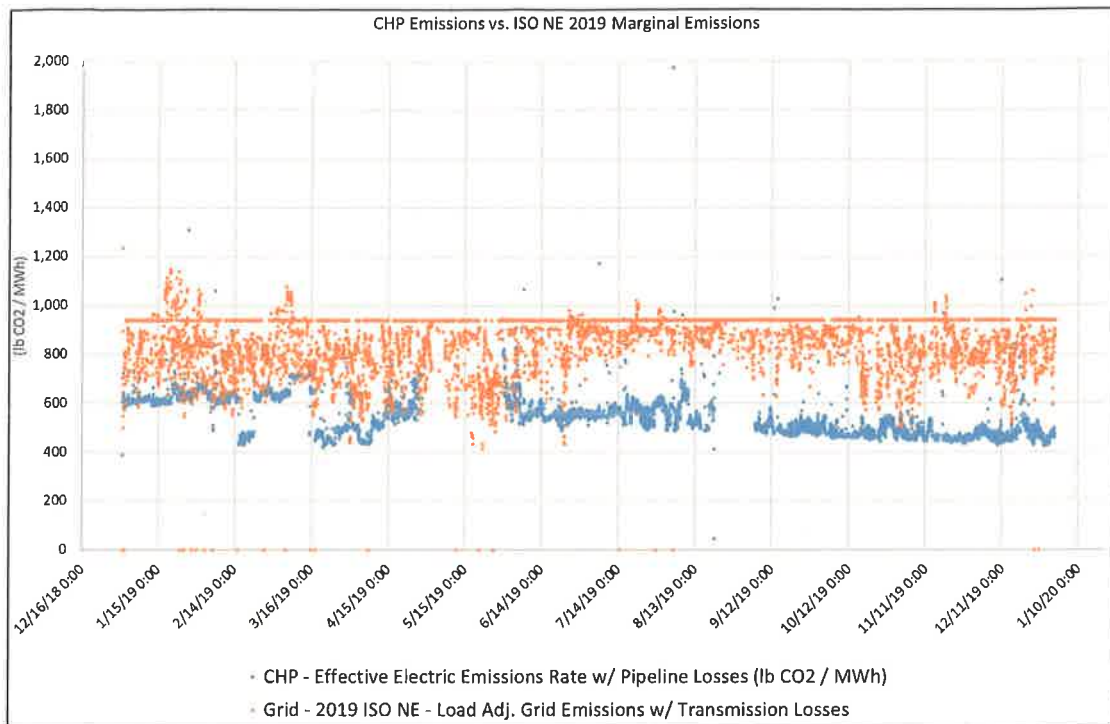


It is likely that the percentage of time in which the grid is cleaner will increase over time. As this happens, it will be incumbent on CHP operators to continue to lower the carbon intensity of the CHP systems, either by increasing efficiency and/or by blending renewable fuels.

If the grid becomes cleaner and CHP systems no longer provide a GHG benefit, then they will be phased out. But this phasing out will be based on data, not some arbitrary scheduled untethered to GHG reductions.

<sup>1</sup> Effective Electric Emissions is used as a metric to compare CHP electric emissions directly to the CO<sub>2</sub> emissions of the grid by: CHP CO<sub>2</sub> emissions (lb/hr) minus Displaced Boiler CHP Emissions (lb/hr) divided by CHP MW. I.e.  

$$\frac{((\text{MMBTU CHP fuel input} \times \text{CHP produced thermal/boiler efficiency}) \times \text{natural gas fuel factor (lbs/MMBTU)})}{\text{CHP MW Output}} = \text{lbs/MWh effective electric emissions.}$$



### Comment #3 – Price Stability

While the changes proposed in the Straw Proposal are likely to lead to an increase in credit prices, the history of the various credit markets in Massachusetts suggests this could be a temporary solution. Higher prices will ideally lead to more market participants, which will likely eventually lead to an oversupply condition similar to the current situation.

DOER has recognized this problem in other incentive programs and taken action to address it. Boom and bust pricing of Renewable Portfolio Standard (RPS) credits caused by fluctuating supply and rigid demand contributed to the agency's decision to create the SMART program. And in the version of regulations recently promulgated for the Clean Peak Standard, DOER included a ratchet that automatically increases demand when the supply of credits equals exceeds the supply.

We therefore urge the DOER to include a corrective provision in the APS regulations that would increase demand for APS credits in the event that supply equals or exceeds demand. For example, as in the case of the Clean Peak Standard, the APS regulations could have a provision that automatically increases demand for APS credits in the following year when supply has equaled or exceeded demand over the course of the prior compliance year. We believe this would lead to greater price stability.

<sup>2</sup> Note that the graph includes the grid with periods of 0 emissions, this is because renewable energy is sometimes on the margin

We appreciate the opportunity to provide input on this important process and are available should you have any questions on the comments included herein.

 8-24-21

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 8/22/21

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