



September 27, 2018

Judith Judson
Chair, Energy Efficiency Advisory Council (EEAC)
Commissioner, Massachusetts Department of Energy Resources (DOER)
100 Cambridge St, Suite 1020
Boston, MA 02114

Re: Bloom Energy Comments on 2nd draft three-year (2019-2021) energy efficiency plans

Dear Commissioner Judson and members of the EEAC:

Thank you for the opportunity to comment on the draft Three Year Energy Efficiency Plans filed by the Program Administrators on September 14, 2018. The leadership of the Department of Energy Resources (DOER) and the Energy Efficiency Advisory Council (EEAC) are vital to maintaining and expanding the Commonwealth's nation-leading energy efficiency efforts. We would also like to thank the Program Administrators (PAs) for their sustained and continuing efforts composing the draft plans. We look forward to working with all parties over the coming weeks in support of our shared goals to provide cost-effective energy savings and other benefits throughout Massachusetts.

I. Introduction

Bloom Energy is a provider of all-electric solid oxide fuel cell technology that produces clean, reliable power using a resilient and environmentally superior non-combustion process. Bloom Energy Servers efficiently convert fuel into electricity through an electrochemical process without combustion. Among the most efficient energy generators on the planet, our platform dramatically reduces greenhouse gas emissions and, by virtue of the non-combustion process, virtually eliminates emissions of criteria air pollutants including NO_x, SO_x, and particulate matter that are associated with combustion. The combination of a high efficiency non-combustion process and extremely high capacity factors results in more emissions avoided over time than other forms of distributed power generation.

Bloom's all-electric solution allows fuel cell systems to be deployed at sites where it is not necessary to match an on-site thermal load. As a result, a much broader range of facilities can

enjoy the resiliency and environmental benefits provided by distributed generation. Importantly, Bloom Energy offers a lithium-ion battery option that can be integrated into our fuel cell systems. This allows a project to provide customers with reliable baseload power *and* active load management that will benefit both customers and the wider grid.

II. All-Electric Fuel Cells are a Cost Effective Option to Expand Program Savings

We recognize that ensuring cost effective deployment of ratepayer funds is a cornerstone to the Commonwealth's leadership position in energy efficiency. While fuel cell projects have struggled to pass cost effectiveness tests in the past, recent cost reductions and sustained growth have fundamentally changed this calculation. Based on our preliminary analysis, we believe that in many situations all electric fuel cells can satisfy the BCR cost effectiveness test as it is currently implemented. We anticipate that continued cost reductions and product improvements will expand the number of cost effective offerings significantly over the course of the current Three Year Plan.

We note, however, that recently enacted legislation specifically expands the cost-effectiveness screening to include "other benefits". One important benefit of energy efficiency that has not been included in the Massachusetts BCR test to date is avoided emissions, especially avoided emissions of criteria air pollutants. Emissions of NO_x, SO₂, and PM have a significant impact on human health and have been attributed to exacerbated asthma, lung inflammation, cardiovascular disease, and even premature death¹. Numerous studies have shown that these health impacts occur most frequently among the lowest income levels of society. The American Council for an Energy-Efficient Economy identified around \$200 Million in annual health benefits that could be achieved by reducing energy consumption by 15%, among the highest in the United States². Recognizing the need for a data-driven methodology to quantify the benefits of emissions reductions, the Institute for Policy Integrity at NYU published a detailed methodology that could be used to measure the societal benefits of avoided emissions that result from energy efficiency investments³.

¹ American Lung Association, [State of the Air](#) (Washington, DC: American Lung Association, 2017).

² American Council for an Energy-Efficient Economy, [Saving Energy, Saving Lives: The Health Impacts of Avoiding Power Plant Pollution with Energy Efficiency](#) (Washington DC: American Council for an Energy Efficient Economy, 2018.)

³ Institute for Policy Integrity, [Valuing Pollution Reductions: How to Monetize Greenhouse Gas and Local Air Pollutant Reductions from Distributed Energy Resources](#) (New York City: New York University School of Law, 2018.)

III. The Need for New Technologies

In their September Draft Plan, Program Administrators note that a number of key measures will see significant declines in claimable savings during the period covered by the Three Year Plan, largely as a result of the Program's strong success to date. In the midst of these challenges, the energy industry is also experience cycles of rapid innovation and rapid change, making this an opportune time for new cost-effective approaches and technologies to continue to drive new opportunities for energy savings. We applaud the PA's commitment to "remain the nationwide energy efficiency leader⁴" and "encourage innovations and capture all cost-effective demand reductions."⁵ We further applaud the Massachusetts Legislature for authorizing the inclusion of "energy storage and other active demand management technologies" as well as "other clean energy technologies" to the list of programs that may be included in the Plan earlier this year in An Act to Promote Clean Energy. More importantly, we are eager to work with the PAs to help achieve these ambitious goals.

IV. The Impact of Inclusion in the Three Year Plan

While PAs have the authority to support cost effective all-electric fuel cell projects without any changes to the Three Year Plan, the specific inclusion of this technology option in the Plan is necessary to combat the extreme sense of regulatory risk among financiers and customers that has accompanied the recent instability in the Alternative Portfolio Standard (APS) market. The technology was only recently introduced into the Massachusetts market at the end of 2017 after its inclusion in the Alternative Portfolio Standard. The recent volatility in the APS market, which has declined by almost 30% in the past year, has created significant uncertainty and stalled investment.

V. Conclusion

Due to recent cost reductions, re-enactment of the federal Investment Tax Credit, increased efficiencies, and the incorporation of new capabilities, this ia an uniquely opportune time to open the program to Bloom Energy's efficient and cost effective all-electric distributed generation. Doing so will help Program Administrators achieve energy savings goals and build a more

⁴ September 14, 2018 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan 2019–2021, page 25

⁵ September 14, 2018 Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan 2019–2021, page 8

efficient, cleaner, and more resilient energy system in Massachusetts. We stand ready to work with the Council and Program Administrators to help implement the new legislation to expand the program in ways that are cost effective and provide multiple co-benefits.

Very truly yours,

/S/

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