

August 12, 2022

Michael Maravelias  
188 Fairview Lane  
Plymouth, MA 02360

Ian Finlayson  
Department of Energy Resources  
100 Cambridge Street, Suite 1020  
Boston, MA 02114

Dear Mr. Finlayson,

I am writing this letter on behalf of the Propane Gas Association of New England. The company I work for is an equipment and tank provider for this clean-energy industry. My position is the Northeast Sales Manager and I have two degrees in environmental engineering. In addition, I have been a resident of Massachusetts for the last 50 years and attended UMASS Boston for business school.

Propane is often called the fuel of the future. This is because it is clean burning, less carbon intense, diverse, and affordable. Propane is used across a wide range of heating and cooling technologies. The following paragraphs explain why I am asking that the Massachusetts DOER Stretch Energy Code to allow for multiple high-efficiency and environmentally beneficial energy technologies. I call it an approach of energy-choice and advanced technology-equality. I will explain my reasoning by referring to business, industry, and government information sources that provide transparent information. This information supports my recommendations and those of the Propane Gas Association of New England (PGANE).

An approach of advanced technology-equality would grant our residents and businesses the freedom to choose green energy solutions that best meet budgets and needs. There are many solutions across various industries: air conditioning, heating and hot water, refrigeration, solar, and wind. Due to the abundance of clean energy technologies, I believe that the Commonwealth should not recommend one approach over another.

Multiple sources for future energy solutions and best practices make sense. A diversified, fair-market approach to choose energy solutions for maximizing efficiencies would provide reliable and common-sense solutions to reach net zero emissions. In addition, it would create stronger energy security, control costs, and provide better availability (no electricity “blackouts”) for Commonwealth citizens.

My greatest concern is unfairly specifying the electrification of the Commonwealth. Electricity is a secondary energy source created by other fuel, energy, and mechanical sources. **The electrification of our Massachusetts will not help us reach our environmental goals.**

Please read this important article from FORBES in 2019:

<https://www.forbes.com/sites/judeclemente/2019/11/12/deep-electrification-means-more-natural-gas/>

The article discusses how a deep-electrification approach would result in more natural gas consumption and a dramatic increase in power generation requirements. This means more power plants would be required because our current energy infrastructure cannot meet the needs of a rapid demand increase. This also means that burning more natural gas to generate electricity would increase carbon emissions to the environment. Considering economics, if demand spikes and the electricity supply remains stagnant then energy costs will rapidly increase for our citizens.

The article also discusses how the Electric Power Research Institute, founded in 1972, confirms the energy assessment and that US gas usage will increase in all electrification scenarios ([www.epri.com](http://www.epri.com)). Again, deep electrification will not allow the Commonwealth to reach net zero emission targets.

Greater electricity needs directly result in higher carbon emissions through the power generation process (creating electricity by the burning of methane gas to ultimately rotate turbines). That said, please review the following website links to the United States Environmental Protection Agency. They provide important pieces of the emissions puzzle. The EPA assessed that the electric power sector accounts for almost one-third of the total greenhouse gas emissions in the United States. **A stronger reliance on electricity will not benefit the Commonwealth's environmental goals.** In addition, I am assuming that nuclear power plants will not be built in the Commonwealth to meet future electricity needs. I mention this because the Pilgrim Nuclear Power Station was recently closed.

<https://archive.epa.gov/epa/cleanpowerplan/learn-about-carbon-pollution-power-plants.html>

<https://www.mass.gov/info-details/pilgrim-nuclear-power-station>

On another note, the following links discuss greenhouse gases that affect emissions and climate change. Simply saying that a gas, fuel, or refrigerant is a greenhouse gas does not help us recognize the true environmental impacts. Understanding global warming potential (GWP) is extremely important when evaluating emissions from any energy source.

<https://www.epa.gov/ghgemissions/overview-greenhouse-gases>

<https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>

Certain gases and fuel sources are also classified as refrigerants. Methane, or CH<sub>4</sub>, has the refrigerant classification of R-50. Propane, C<sub>3</sub>H<sub>8</sub>, has the refrigerant classification of R-290. Both fuels/refrigerants are classified as having low global warming potentials. However, propane has a lower GWP than methane (the main fuel in power plants for electricity generation). Propane technologies provide sensible options across multiple industries. The following links discuss the growing role of propane for environmental correctness in the refrigerant market.

<https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane>

<https://ww2.arb.ca.gov/resources/documents/high-gwp-refrigerants>

<https://www.achrnews.com/keywords/propane%20refrigerant>

<https://www.achrnews.com/articles/94191-putting-propane-into-the-refrigerant-loop>

Furthermore, I understand that certain cities and/or towns in Massachusetts wish to completely ban fossil fuel usage. Rulings like this affect the freedoms of all Massachusetts citizens and favors specific communities. It is not an equitable way to meet our environmental goals because it shifts the responsibility for environmental correctness to communities that may not have the means to do so. **As a result, I also urge future energy codes to prohibit that practice.** This is because clean and affordable fuels (like propane) exist as environmentally friendly options for all.

Overall, I urge the Commonwealth to design a sustainable energy code that will result in the complete utilization of advanced technologies to reach our environmental goals. **Recommending only electrification is not the best approach and will increase emissions due to the need for more power generation. I endorse an approach of energy-choice and technology-equality for meeting efficiency goals.** This will give all Massachusetts residents the power to choose a successful path to net zero emissions.

If you have any questions, please feel free to contact me.

All the best and be well

Sincerely,



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