



Massachusetts Chapter

March 18, 2022

Department of Energy Resources (DOER)
100 Cambridge Street, Suite 1020
Boston, MA 02114
Attention: Nina Mascarenhas

Re: **Stretch Code Straw Proposal Comments**

Dear Commissioner Woodcock, Director McCarey, Msrs. Finlayson and Ormond, et al:

I am writing on behalf of the Massachusetts chapter of Elders Climate Action (ECA Mass). We appreciate the work and analysis that went into the Straw Proposal for the Updated Stretch Code and the Specialized Opt-in Code and agree with much of it. However, there are areas we believe should be improved. We offer the following comments.

Specialized Opt-In Code allowance of fossil fuels

As proposed, the Specialized Opt-In Code allows continued use of fossil fuels for heating, hot water, and appliances in new construction. The straw proposal does include added requirements when fossil fuels are used, resulting in higher construction costs. These additional requirements and higher costs are thought to encourage all-electric construction while “leaving the door open” for fossil fuels.

We have not been able to identify cases where fossil fuels would be required. And the use of fossil fuels essentially guarantees the building will most likely need to be retrofitted to all-electric heating, cooling and hot water in the future. According to DOER’s definition of net-zero new construction:

A building becomes net zero energy when the Massachusetts electric grid is net zero.

If the building uses fossil fuels, it will not become net zero when the electric grid is net zero. Thus when constructed under the proposed specialized opt-in code and using fossil fuel, the building violates the DOER’s own definition of net-zero new construction.

Individual communities that opt in to this new code are making a clear commitment to help the state meet its greenhouse gas emissions targets under the new climate law. We believe in making this commitment, many communities do not envision the use of fossil fuels in new buildings. They should have the option of requiring new buildings to be all electric.

If it is necessary to keep the option for fossil fuels in the specialized code, we propose the state adopt two specialized codes - one which prohibits the use of fossil fuels, and another which allows fossil fuels with additional requirements as in the current straw proposal.

The Critical Importance of New Construction Thermal Enclosure Quality

The HERS system, which while excellent for quality assurance, has a serious shortcoming due to the fact it allows 'trade-offs' between mechanical systems and thermal enclosure quality. This is demonstrated in the **DOER Summary of Stretch Code Energy Efficiency Analysis** released along with DOER's straw stretch code proposal on February 8th. This analysis shows examples of building construction changes required to go from a rating of HERS 52 to HERS 42. In some of these examples, the building's thermal enclosure is actually allowed to be degraded. For example, by allowing a change from triple pane windows at HERS 52 to double pane windows at HERS 42 as a result of a 'trade off' between mechanical systems and the quality of the thermal enclosure.

The thermal enclosure is the most long lived and expensive component to improve after initial construction, and therefore the most important to get right at the time of initial construction. We must ensure there are no trade-offs in building insulation or airtightness.

Therefore we recommend 'backstopping' a HERS 42 maximum threshold for all single family homes with some prescriptive requirements: a minimum of R30 walls, R49 roof, R5 windows and 1.5 ACH@50 Pa airtightness to be sure we get the thermal enclosure right the first time so retrofit is unnecessary down the road. This stipulation, along with all electric space and water heating, should be available for opting in by cities and towns who wish it.

The proposed definition of "net zero"

We agree with the proposed definition of "net zero new construction" as long as the specialized opt-in code is modified to prohibit the use of fossil fuels. Only without the use of fossil fuels can a building become truly "net zero energy when the Massachusetts electric grid is net zero"

We do not support the definition of "net zero new construction" that some have proposed to mean a building which generates as much energy as it uses. There are several sound reasons for this.

1. It is not clear how this definition of net zero could be implemented. It requires not only that the projected energy generation and use be calculated, but also that the actual energy generation and use be monitored after the building is constructed and occupied. This post-construction requirement is beyond the jurisdiction of building design and occupancy certification. And it is not clear who would be liable in the event that actual building energy generation was not equal to building energy use.
2. It is preferred that the generation of building energy be from on-site solar. This requirement adds additional cost. On-site rooftop solar generation is several times the cost of utility scale solar. The building owner should decide whether to install rooftop solar rather than it being mandatory. Added costs would be better used to improve the building's thermal envelope.
3. A variation of this definition of net zero allows for the purchase of renewable electricity from off-site sources such as community solar. Enforcing this requirement would require monitoring post-construction and raises the same concerns about enforcement noted in point one above.

4. While individual communities will decide whether to adopt the specialized code, it is hoped that many communities will choose to opt-in. The more communities which adopt the specialized code, the closer we come to meeting our emissions targets. Many towns will adopt a code which requires new construction to have a high quality thermal envelope and prohibits fossil fuels. But with the higher cost and uncertain design and compliance oversight of a building which must generate as much energy as it uses, it is anticipated the adoption rate will be far lower.

Thank you for considering these comments.

Sincerely,

Arnold Epstein - on behalf of Elders Climate Action Massachusetts chapter

Elders Climate Action Massachusetts is an organization of over 1000 members committed to using our experience, broad perspectives, wisdom and sense of urgency to develop and implement effective climate change policy while there is still time to avoid catastrophic changes in the earth's climate.