

August 12, 2022

Department of Energy Resources (DOER)  
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Boston, MA 02114  
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Dear Commissioner Woodcock, Director McCary, Mr. Finlayson and Mr. Ormond:

I am Patrick Hanlon, a town meeting member in Arlington, a member of Arlington's Clean Heat Steering Committee, and a participant in the Massachusetts Building Electrification Accelerator. I am submitting these comments on the proposed update to the stretch energy code and new opt-in specialized energy code as an individual, and not as a representative of any organization. These comments supplement my testimony at the August 8, 2022, virtual hearing.

My town was one of the first to enact a bylaw calling for fossil-fuel free new construction and major renovations. It was one of the first to file a home rule petition seeking authorization to implement the bylaw, and it is one of the ten cities and towns that are in line to participate in the 10-town demonstration project established by § 84 of the Climate Bill that Governor Baker signed on August 11. Our Town Meeting approved the original fossil-fuel free bylaw by an overwhelming majority, and in June it approved, by a similar majority, a resolution calling for a strong specialized stretch energy code. The resolution is appended to the comments of the Town of Arlington submitted to you on August 10. In our town, these matters have not been controversial. Nor do our residents consider an aggressive posture on building electrification/decarbonization to be somehow in conflict with affordable housing. In fact, affordable housing is leading the way in electrification in Arlington, as in many other places, and we are convinced by the data that show that electrification is not only good for the environment but good for people's pocket books as well. Judging from the prevailing tone of the public comments at the department's hearings, it appears that much of the Commonwealth agrees.

I would like to make five points.

1. Support for Comments of Others. I support the comments of the Massachusetts Net Zero Coalition, which I have signed, as well as the comments submitted to you by the Town of Arlington on August 10, 2022.
2. Existing Buildings. I commend the draft proposal for expressly including existing buildings. In Arlington, most new construction is low-rise residential, and much of that takes the form of major renovations. It is entirely reasonable to treat those renovations as new construction. The building envelope, heating and cooling systems, and appliances are all in play, and builders doing renovations of these kinds can meet strict rules just as easily as builders of new buildings can. Indeed, in Arlington some builders who specialize in renovations are leaders in relying on electricity for heating and cooling. Arlington's clean heat bylaw, like all of the other bylaws included in the 10-town demonstration project, treat major renovations like new construction. While it is important that DOER has recognized the principle of bringing additions, alterations, renovations, and the like into the ambit of the stretch energy codes, I urge you to strengthen the provisions addressing substantial (gut) renovations so that those renovations are subject to the same rules as new construction.
3. Electrification. I agree with the chorus of commenters calling for full electrification. I believe that any analysis of life cycle costs that includes the costs of retrofitting fossil-fuel buildings will show that electrification now is by far the lowest cost alternative. Since such retrofitting will be essential if the

Commonwealth is to meet its legally mandated climate objective, it is necessary to include its cost in the analysis of life-cycle costs for purposes of the updated stretch code. If, however, you continue to include a fossil fuel pathway in the updated stretch energy code, I urge you to give local governments the authority to proscribe it in the opt-in specialized stretch energy code. Electrification should be the starting premise for the opt-in code.

I do not think that there is a fundamental disagreement between commenters and the department on the importance of electrification. Our differences are about regulatory strategy. The proposed regulations promote electrification by tightening other requirements and relying on an array of external subsidies to induce builders to electrify voluntarily. This is especially evident in the rules on low-rise residential construction.

The department's indirect approach is well designed to minimize resistance to electrification. Builders still have a choice, even if the regulations strongly nudge that choice in a certain direction. As the Town of Arlington points out, this might be effective in the long term. But old ways of doing things take a long time to change.

We cannot afford the time. The recent IPCC report *Climate Change: Impacts, Adaptation, and Vulnerability* (2022) makes clear that global warming has already had severe and in some cases irreversible effects, and people everywhere are at risk for much worse unless we work aggressively to slow warming. There just isn't time to wait for incentives to overcome natural inertia and induce voluntary electrification. The costs of "deliberate speed" are prohibitive.

Beyond that, every new building with fossil fuel infrastructure is a hostage to fortune. Someday soon it will be necessary to convert that building to all-electric, at far greater cost and complexity than getting it right in the first place. This will involve large and unnecessary costs. I suggested above that those costs should be taken into account in concluding that electrification is the most cost-effective option. Because achieving the state's climate goals is a legal mandate, the department cannot properly do otherwise. But today's legal mandate may be tomorrow's political issue. When the time comes to require conversion of electric systems before the end of their useful lives, there will certainly be resistance from those on whom the burden of retrofitting will fall. That in turn may further obstruct change and ultimately saddle taxpayers with the cost of remedying harm then that could be prevented today.

4. There should not be a fossil fuel pathway in the specialized code. As noted above, if electrification is not made mandatory in the updated stretch code, it should be mandatory in the specialized code. There is no room for a fossil-fuel pathway in the specialized code. The department has made a valuable start along this line in eliminating the mixed fuel option for dwelling units larger than 4,000 square feet of conditioned floor area. Presumably the rationale is that any increased costs of electrification can easily be borne in large structures destined for the luxury housing market. Under the proposed language, such large units would have to be either all electric or zero energy. My guess is that that provision would generally result in electrification, but the zero energy option too would be a major contribution to the fight against climate change.

The rationale that supports eliminating the mixed-fuel option in the specialized stretch code would almost equally apply to smaller, but still very large, houses as well. Some commenters have argued that 3,000 square feet would be a more appropriate threshold, if there must be a threshold. In today's market, new houses that size in Arlington (by no means the most expensive suburb in the Boston area) would generally sell in the higher end of the \$1-2 million range. Even new houses with 2,500 square feet would go for more than \$1 million. Houses this size can easily support any additional costs (which I believe are small to nonexistent) of electrification. I note in passing that these floor

area figures are for conditioned floor area: gross floor area, which is what most people think of, would be substantially higher.

Most commenters on this issue have argued against any lower limit at all. I would certainly prefer that position. Nevertheless, if compromise is necessary, I would urge you to reduce the floor area threshold to at least 3,000 square feet, as Arlington has suggested. In my town that would cover more than 85% of new single family housing – maybe more in the future, given the contemporary trend to gargantuan new houses - representing a giant step forward.

5. Embodied carbon. I strongly urge you to accept the proposal of the Net Zero Buildings Coalition to take embodied carbon into account. Embodied carbon is the elephant in the room. It represents a huge source of carbon emissions that is ignored in the codes' exclusive concentration on emissions from operations. Moreover, because upfront carbon costs can be very high, many years of excellent operational performance may be needed to overcome the initial carbon debt.

The issue of embodied carbon is receiving a great deal of scrutiny nationwide, and much thought is going into how best to deal with it. A very large part of the present problem can be addressed by focusing on building materials like cement that account for a large part of the embodied carbon in new buildings. Ultimately, especially for larger buildings, Whole Building Lifecycle Assessment is an essential tool.

Some conservative measures could probably be done today. There are, for example, low carbon alternatives to the usual high-carbon cement. Just making builders aware of the alternatives would be a significant advance. Similarly, requiring WBLCA would familiarize builders of large buildings with the process and could, given market and lender pressures, enable them to take preemptive action to reduce embodied carbon. The proposed stretch energy codes will certainly not be the last word. They will have to be updated in just a few years. It's important to act now to lay the foundation of more decisive action in the future. Otherwise, the elephant in the room will stay an elephant - and stay in the room.

I am deeply appreciative of the dedication, effort, thought, creativity, and expertise that has gone into the draft stretch energy codes. The proposals now before the public will be an enormous advance over where we are today. I fear, however, that they fall short of where they need to be if they are to meet the Commonwealth's declared climate goals. If I and others sometimes sound exasperated, it is because we cannot forget Bill McKibbin's dictum that "winning slowly is the same as losing." I urge the department to push the envelope in strengthening the updated stretch code and new specialized stretch energy code in the coming months. Failure to do so would be a missed opportunity that the Commonwealth, the country, and the world can ill afford.

Respectfully submitted,

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