

March 18, 2022

Department of Energy Resources (DOER)  
100 Cambridge Street, Suite 1020  
Boston, MA 02144

Re: Stretch/Opt-In Code Straw Proposal Comments

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

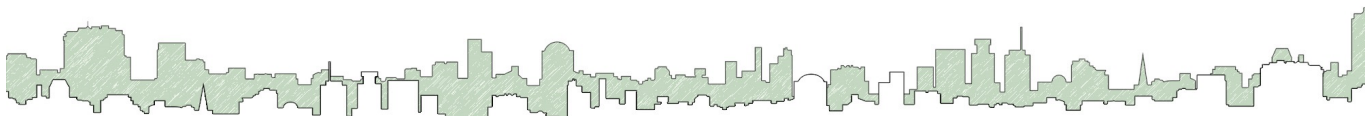
Thank you for your request for feedback on the updated Stretch Code and new Specialized Opt-In Code straw proposals that were presented by DOER on February 8th, 2022. These codes represent a critical component of the suite of regulatory, policy, and programmatic tools that will be needed for the Commonwealth to achieve its climate commitments in both the near (2030) and long (2050) term.

We applaud DOER's commitment to evaluating and updating the Stretch Energy Code to ensure that it continues to provide the cities and towns that have adopted it with a strong mechanism to promote efficiency and greenhouse gas emissions reductions. We are optimistic that many of these communities will be excited about the prospect of a Net Zero Opt-In Code to take those efforts even farther and increase their contribution to the Commonwealth achieving its emissions commitments. We believe that these changes to the energy codes will prove to be a critical component to meeting our emissions targets during the next decade of predicted unprecedented growth in the building sector.

In response, the team at New Ecology, Inc. offers the following thoughts and recommendations for consideration as these codes are further refined and developed:

### **Residential Stretch Code Update**

We recommend that DOER remove the 2023 transition year with HERS targets of 52/55, and instead move immediately to implementation of the requirement of HERS 42/45 or passive house certification. New Ecology, Inc. routinely provides HERS ratings for low-rise multifamily buildings under the Residential Stretch Code that achieve these metrics, and implementation of a standard less rigorous would be a lost opportunity to realize emissions reductions.



In addition, we highly recommend requiring that all buildings achieve Energy Star Certified Homes or Multifamily New Construction certification. This is currently one of the pathways for Stretch Code compliance, and it provides a **critical** suite of design and testing & inspection requirements that routinely result in higher performance buildings than HERS and air infiltration requirements alone. Inclusion of this requirement is in alignment with DOER's stated interest in ensuring that sufficient construction phase verification is performed for these buildings to achieve their modeled and anticipated occupant comfort, durability, and operational performance.

Electric vehicles are a foundational component to the Commonwealth's achievement of necessary emissions reduction in the transportation sector, and the Stretch Code represents an opportunity to ensure that the infrastructure to support that transition exists. We recommend leveraging this cross-sectorial opportunity by requiring EV-ready wiring sized for Level 2 or higher electric vehicle supply equipment (EVSE) for at least 20% of all parking spaces at residential buildings (with a minimum of 1).

### **Residential Specialized Opt-In Code**

The Specialized Opt-In Code represents the opportunity that progressive municipalities are looking for to accelerate/eliminate the emissions contributions of new construction development through Net Zero design, construction, and operations. As such, we recommend making this code more aggressive than the Updated Stretch Code by implementing a requirement that all buildings be fossil fuel free<sup>1</sup>, achieve an Energy Star certification and a HERS target of 40 (before renewable energy integration), and/or achieve a passive house certification.

This high performance, fossil fuel free approach should be complimented by a requirement to integrate solar to the extent possible on all feasible roof area, and the requirement of EV-ready wiring sized for Level 2 or higher electric vehicle supply equipment (EVSE) for at least 20% of all parking spaces at residential buildings (with a minimum of 1) for all residential buildings less than 6 units.

One clarification we are requesting relates to multifamily buildings that fall under the residential code, but are greater than 6 units. Can you please confirm whether the requirement to achieve Passive house certification will apply to all multifamily buildings greater than 6 units and less than 5 stories as of January 2023, regardless of whether said building triggers the residential or commercial Net Zero Opt-In Code? We support this approach, which acknowledges the similarities between multifamily projects that

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<sup>1</sup> We recommend that DOER actively investigate any legal and/or legislative actions necessary to allow the Specialized Opt-In Code to specifically require fossil fuel free construction, and actively work with the Administration to resolve these areas of concern so as to allow for inclusion of this critical component of this code.

trigger different energy code pathways (and recommend its application as it relates to the upgrades to the Stretch Code as well). We recommend that all residential buildings greater than 6 units be required to comply with the Net Zero recommendations made below under the Commercial Specialized Opt-In Code recommendations.

### **Commercial Stretch Code Update:**

The straw proposal outlined 5 pathways for code compliance for commercial buildings for the updated Stretch Code. In addition, it identifies new additional backstops/requirements around the envelope UA, air infiltration, ventilation energy recovery performance, and requires new protocols around thermal bridge accounting and partial electrification for high ventilation buildings. The 5 pathways are:

- 1) Prescriptive (<20,000 sf):** IECC 2021 plus new additional requirements
- 2) Targeted Performance Pathway (required for office & schools, option for multifamily):** Thermal Energy Demand Intensity (TEDI) by building type plus new additional requirements
- 3) Relative Performance Pathway (high ventilation and other buildings):** 2019 ASHRAE Appendix G plus new additional requirements
- 4) Passivehouse (option for all building types)**
- 5) HERS (Option for Multifamily):** HERS 42/45 option for Multifamily

We appreciate the proposed improvements in performance from the current base and stretch codes, specifically the focus on targeting areas of greatest energy impact through the additional requirements and pathway options. To clarify these requirements and avoid unintended consequences, we make the following recommendations.

If DOER will allow large multifamily properties to comply with the HERS pathway, *we highly recommend that the requirement be adjusted to match the recommendations outlined above under the residential upgraded stretch code, namely HERS 42/45 and certification under the Energy Star Multifamily New Construction program to ensure sufficient testing & verification and attention paid to non-unit spaces and systems.* This is specifically important to ensure that the common spaces and systems in large multifamily buildings are properly accounted for.

We also recommend reconsideration of the blanket accommodation for curtain wall systems in all building types. There are a number of different envelope approaches and technologies available to developers to facilitate design of aesthetically pleasing buildings with appropriate thermal performance and optimized daylighting/views. Additionally, the market currently offers high performance curtainwall assemblies. Given these options, we do not believe that this exemption/accommodation is necessary.

### **Commercial Specialized Opt-In Code:**

The straw proposal outlined 3 pathways for code compliance for commercial buildings for the Specialized Opt-In Code (Passive House, Targeted Performance, and Relative Performance) which all have the same requirements as the proposed Stretch Code Updates, with the addition of systems/EV-ready wiring and solar PV on available roof space.

We recommend that the Net Zero Opt-In Code require Passive House certification for all multifamily projects (low, medium, and high rise) starting in Jan 2023. We see this as technically and financially feasible based on the multifamily residential projects we are currently working on. We also recommend that all multifamily buildings be required to pursue fossil fuel free construction starting in Jan 2023, in alignment with a code specifically developed to achieve Net Zero emissions. We believe that compliance with this requirement is feasible given the rapid development/deployment all-electric equipment options, including those for central domestic hot water systems.

A truly Net Zero building should be built to the highest performance standard and not contribute to local or state-level greenhouse gas emissions. As such, it must be required to offset all remaining building energy load/emissions through either onsite or offsite renewable energy methods. Achieving the Commonwealth's GHG emissions limits and sub-limits will be extraordinarily difficult given existing sources of GHG emissions (which are expensive and technically challenging to abate). *New Construction buildings in communities that opt into the Net Zero Code should not be exacerbating this challenge.*

We also highly recommend that the Commonwealth develop a program that will provide incentives for all municipalities to opt into/ upgrade to the Net Zero Code. While this is not directly related to promulgation of the specific requirements of said code, it is a critical companion that should be developed in tandem.

### **Other General Recommendations:**

Utilizing the framework of the IECC approach to energy performance in existing buildings (Chapter 5), we recommend that DOER include meaningful energy performance requirements for major renovations in the Updated Stretch and Opt-In Codes. Existing buildings represent the largest and hardest to reach source of emissions in the building sector, and we need to be leveraging the significant opportunity of and investments made in these major renovations to improve existing building performance and transition away from fossil fuel heating sources. Inclusion of code requirements for improved performance and electrification of major renovations will provide a critical mechanism to target education and incentives to achieve cost-effective improvements that reduce emissions related to building heating and achieve the mandated sub-limits.

While we applaud the inclusion of prescriptive requirements to reduce the embodied carbon of curtain wall construction projects, we believe that this issue should be divorced from the use of a curtain wall, and integrated in a meaningful way for **all** Stretch Code/ Opt-In code buildings to mitigate this immediate impact on greenhouse gas emissions. We recommend that the Commonwealth investigate opportunities to influence the embodied carbon impact of the most intensive building materials through integration of these prescriptive limits in the promulgation of these codes and by “Leading by Example” by implementing a requirement that all state agency procurements moving forward meet these prescriptive requirements.

We also recommend very low GWP refrigerant requirements to ensure that team’s that are pursuing electrified building systems do so with sensitivity to the impact that refrigerants can have on GHG emissions and with required safeguards/best practices in place to minimize and mitigate the potential impact of refrigerant leakage and disposal issues.

Again, thank you for the opportunity to provide this feedback and we are happy to have additional conversations about any of the recommendations outlined above should the team at DOER find that helpful.

Sincerely,

*Lauren Baumann*

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Vice President  
New Ecology, Inc.