

## Buildings, Infrastructure & Housing (BIH) Working Group

Proposed Recommendations and Actions

DRAFT / For discussion only

Updated 5/7/24

Proposed recommendations resulting from BIH WG discussions to date:

RECOMMENDATION	ACTIONS	IMPLEMENTATION DETAILS
<p>Continue the progress on making homes and businesses more energy efficient by investing in <u>insulation weatherization</u> and heating systems</p>	<ul style="list-style-type: none"> <li>• <del>Maintain and e</del>Extend funding and financing for <u>weatherization and heating systems in homes and businesses beyond 2030 (ensure stability &amp; longevity of funding sources beyond 2030)</u></li> <li>• Encourage and expand education, outreach, and technical support for programs that increase uptake of weatherization and clean heating systems</li> <li>• Increase access for renters, low-income, and rural residents</li> <li>• <u>Engage in regional and national initiatives exploring the use of state emissions standards for heating appliances., including:</u></li> <li>• <del>Advance zero-emissions equipment standards-</del></li> <li>• PROVIDE GUIDANCE HERE ON TARGETS FOR HEAT PUMPS AND WEATHERIZATION – TBD</li> </ul>	<p>Funding/financing details</p> <ul style="list-style-type: none"> <li>• Prioritize programs that maximize carbon reduction per dollar invested <u>and provide benefits to low-income households.</u></li> <li>• <del>Idea mentioned by WG member: Pre-weatherization challenge:</del> Create a funding source for home repairs <u>necessary before weatherization and make them tied to contractors who are licensed</u></li> <li>• Extend financing to more commercial customers</li> </ul> <p>Education, outreach, and support details:</p> <ul style="list-style-type: none"> <li>• Fund <u>and support</u> community initiatives such as “navigator” programs, prioritizing low-income/disadvantaged communities <u>and households</u></li> <li>• <u>Consider the implications of the use of biomass for heating and industrial energy on Maine’s gross greenhouse gas emissions. [Need to discuss role of other/complementary strategies, such as system controls and/or renewable fuels standard]</u></li> </ul>

		<p>Increasing access details:</p> <ul style="list-style-type: none"> <li>• <u>Prioritize households enrolled in the Home Energy Assistance Program (HEAP) and other state and federal means-tested programs. HEAP-enrolled/HEAP-eligible households [Careful, this needs some nuance, because there are many low-income Mainers not on this list]</u></li> </ul> <p>Standards:</p> <ul style="list-style-type: none"> <li>• <u>Continue work with the Ozone Transport Commission– an association of 12 states and DC, including Maine – to analyze and collaborate on strategies to reduce emissions of NOx from buildings, including building appliances.</u></li> <li>• <u>Continue work with the building electrification task force led by Northeast States for Coordinated Air Use Management (NESCAUM), exchanging information on zero-emission building equipment, including model rules to address pollution from water and space heating.</u></li> </ul>
<p>Establish strong systems and processes to support rapid adoption and compliance with increasingly climate-friendly building codes and standards.</p>	<ul style="list-style-type: none"> <li>• <del>Strengthen the process for adopting</del> <u>Commit to adopt</u> new building codes to reach net-zero <del>carbon emissions</del> <u>energy</u> for new construction in Maine by 2035</li> <li>• <del>Establish sustainable funding and s</del> <u>Support</u> contractors and code enforcement officers <u>with through</u> training, <del>and</del> technical assistance, <u>and contractor licensing</u></li> </ul>	<p>Improving building code process:</p> <ul style="list-style-type: none"> <li>• Move building code adoption and <del>enforcement</del> <u>compliance</u> to the new Office of Community Affairs</li> <li>• <del>Consider amending</del> <u>Amend</u> state law to require that we not be more than one version behind current IECC code</li> </ul>

	<ul style="list-style-type: none"> <li>Leverage <del>new federal</del> <del>voluntary</del> standards and <del>voluntary</del> certifications to go “above and beyond” <del>applicable Maine state and federal</del> building codes</li> </ul>	<ul style="list-style-type: none"> <li>End exemptions: Eliminating the exemptions for enforcing code.</li> <li><del>Take steps in defining</del> <del>By 2028, define a more ambitious</del> stretch code <del>that will reach net zero emissions in new construction.</del></li> <li>Track the trajectory of IECC codes toward net-zero targets (for some or all segments) and determine which sectors might lead a more rapid transition</li> </ul> <p>Support contractor community:</p> <ul style="list-style-type: none"> <li>Licensing: <del>Explore the potential of</del> <del>Require</del> contractor licensing to accelerate adoption of and compliance with increasingly climate-smart building codes. <ul style="list-style-type: none"> <li>Build on the platform created by <del>LD 1929.</del></li> <li>Help contractors to achieve licensure with funding, education &amp; training</li> </ul> </li> </ul> <p>Voluntary standards:</p> <ul style="list-style-type: none"> <li><del>Follow the lead of Maine Housing and require data from all Maine Housing recipients. Set standard for all publicly funded buildings.</del></li> <li>Incentivize ZER standard for manufactured homes [INSERT ADDITIONAL DETAIL HERE]</li> </ul>
<p>Promote the manufacture and use of climate-friendly building products</p>	<ul style="list-style-type: none"> <li><del>Building on Maine’s designation as a federal Tech Hub for Forest Bioproducts,</del> identify and address the barriers for attracting a cross-laminated timber (CLT) plant and other future bio-based materials manufacturing in Maine.</li> </ul>	<p>Details on awareness, education, and technical assistance</p> <ul style="list-style-type: none"> <li>Provide technical assistance to municipalities and larger institutional projects specifically on these issues (via Community Resilience Partnership?)</li> </ul>

	<ul style="list-style-type: none"> <li>• Increase awareness, educate, and provide technical assistance around embodied carbon alongside operational carbon.</li> <li>• <del>Establish a funding source to address</del> Study the current cost gap between high-embodied carbon (ie steel &amp; cement) and low-embodied (ie wood and bioproducts) building products.</li> <li>• Require whole life carbon accounting for <u>all new state-owned and funded buildings, aligned with state Lead By Example Initiatives. over [a certain size], particularly buildings with state funding. [NEED TO FLESH THIS OUT]</u></li> <li>• <del>Incentivize, through the Historic Preservation Tax Credit and other sources, preserving old buildings that have large amounts of embodied carbon. [NEED TO FLESH THIS OUT OR MAKE A DETAIL POINT]</del></li> </ul>	<ul style="list-style-type: none"> <li>○ Contractor licensing can improve uptake and awareness (link to other mention in our recommendations.)</li> </ul> <p>Details on addressing the cost gap</p> <ul style="list-style-type: none"> <li>○ Invest in demonstration projects using climate-friendly building products such as cross-laminated timber (CLT)</li> <li>○ Support for Maine manufacturing firms to produce Environmental Product Declarations.</li> <li>○ <del>Incentivize low-carbon materials in retrofitting, avoid encouraging the use of</del> Gradually phase out, where feasible, high-carbon materials, such as foam insulation, in existing and future incentive programs</li> <li>○ <u>Incentivize, through the Historic Preservation Tax Credit and other sources, preserving old buildings that have large amounts of embodied carbon.</u></li> </ul>
<p>Support measures that both reduce carbon and improve resilience</p>	<ul style="list-style-type: none"> <li>• <u>Support</u> Increase funding and financing options for <u>building-scale</u> distributed energy resources, such as solar and storage (including <u>using</u> electric vehicle batteries <u>that are used</u> as <u>energy</u> storage) <ul style="list-style-type: none"> <li>○ <u>[INSERT GUIDANCE ON SETTING TARGETS FOR SOLAR, STORAGE INSTALLED IN BUILDINGS]</u></li> </ul> </li> <li>• Manage the impact of building loads on the grid, <u>as recommended by the cross-cutting working group on demand management (link to demand management recommendations)</u></li> <li>• <u>Using building codes, education and outreach, and state-run resilience programs, a</u> Assist Mainers to prepare their homes and businesses to be resilient</li> </ul>	<p>On resilience actions:</p> <ul style="list-style-type: none"> <li>○ Multiple actions in this document support more resilient homes (stronger building codes and insulation, local energy storage, etc.)</li> <li>○ Maine buildings face new challenges, such as wildfire risk.</li> <li>○ Basic steps such as having flood insurance, <del>and</del> a sump pump with a battery back-up, <u>and preparing homes for external power sources</u> are important.</li> <li>○ <del>Tax policy and energy policy can help with</del> home repair</li> </ul>

	<p>in the face of climate disasters, focusing on low-income households and Mainers with the fewest resources to prepare.</p> <ul style="list-style-type: none"> <li>• <u>Support coordination that will bring efficiency upgrades to buildings recovering from natural disasters</u></li> <li>• <u>Create a new program to mitigate risks of oil spills from basement oil tanks</u></li> </ul>	<ul style="list-style-type: none"> <li>○ Several ideas from WG members <u>are better contained overlap with topics addressed in the Community Resilience WG:</u> <ul style="list-style-type: none"> <li>○ Getting out of harm's way (flooding, and other risks)</li> <li>○ Safe spaces for communities if houses are destroyed or damaged.</li> </ul> </li> </ul>
<p><u>Accelerate decarbonization technologies in industrial processes</u> Reduce emissions from industrial sources and make them more competitive</p>	<ul style="list-style-type: none"> <li>• <u>Pilot and demonstrate new heat pump applications for industrial steam and hot water.</u></li> <li>• <u>Maximize cost-effective deployment of membrane filtration in food production and other industrial processes to displace combustion-driven separation processes.</u></li> </ul>	<p><u>Details on industrial heat pumps:</u></p> <ul style="list-style-type: none"> <li>• <u>Large water to water or air to water heat pump systems are capable of generating steam when using waste heat (or waste hot water).</u></li> <li>• <u>Heat pumps also can be combined with thermal storage, electric boilers, and/or batteries to generate industrial process steam</u></li> <li>• <u>Also, new a generation of heat pump technology is emerging that may be able to cost-effectively make steam even in the absence of an existing thermal source.</u></li> </ul> <p><u>Details on membrane filtration:</u></p> <ul style="list-style-type: none"> <li>• <u>This is proven technology with large decarbonization potential in certain heat-driven separation processes. The filtration systems can replaces heat-driven evaporative separation systems. This strategy is well-suited for food related production processes and may have for broader industrial applications.</u></li> <li>• <u>Efficiency Maine has provided financial incentives for a spiral filtration system in a food processing facility in Maine that has been very successful.</u></li> </ul>

		<ul style="list-style-type: none"> <li>• <a href="#">A type of high temperature membrane filtration technology recently received a large US DOE demonstration grant for use in a paper mill in Louisiana and may be a good fit with paper mills in Maine</a></li> <li>• <a href="#">survey Maine’s existing industrial energy users to evaluate the feasibility and/or barriers to transitioning each to electricity or clean non-fossil derived fuels</a></li> </ul>
<p>Continue to lead by example in publicly-funded buildings</p>	<p>For buildings that are owned by the State of Maine:</p> <ul style="list-style-type: none"> <li>• Starting in 2024, ensure that all new state-owned buildings and major renovations use zero-emissions heating, cooling, and water heating sources and are compliant with the most recent or stretch energy codes;</li> <li>• By 2034, reduce GHG emissions by at least 50% from existing state buildings</li> <li>• Ensure that major parking-related renovations and new builds at state owned buildings include “EV Ready” parking spaces</li> <li>• Determine what state buildings are a good fit for advanced wood products, based on criteria being developed by the end of 2024.</li> </ul> <p>For schools:</p> <ul style="list-style-type: none"> <li>• <a href="#">Ensure that 100% of new school construction receiving state funding uses zero-emissions heating and cooling</a></li> <li>• <a href="#">Establish a dedicated funding source and staff support to reduce energy costs in Maine schools through the installation of zero-emissions heating and cooling technologies in new and existing schools.</a></li> </ul>	<p><b>Lead By Example</b></p> <p>Recognizing the recent and significant federal funding for energy efficiency, transportation and clean energy investments from the Bipartisan Infrastructure Law and the Inflation Reduction Act, there is ample opportunity for the state of Maine to continue to lead by example.</p> <p><b>Schools:</b> Energy is an enormous cost for the more than 600 school buildings in Maine; by being more energy efficient, schools can help reduce GHG emissions, reduce operating costs, and improve students’ learning environment through improved air quality. The state can support school decarbonization efforts through the provision of technical assistance, state and federal funding, and creating learning opportunities for school administration, teachers, and students.</p>

### Affordable Housing:

Building on the promise of the advanced building standards adopted by MaineHousing, and on ample forthcoming federal funding provided through the Weatherization Assistance Program and various Inflation Reduction Act programs such as [HOMES](#), [HEERA](#) [Home Energy Rebate programs](#), the Greenhouse Gas Reduction Fund, and Solar For All, the BIH working group recommends:

- ~~Renovating~~ ~~Renovate~~ or building ~~650~~ \_\_\_ new clean and energy efficient affordable housing units ~~per year for~~ in the next \_\_\_ years
- ~~Promoting increased utilization of solar energy and battery storage in affordable housing projects.~~ ~~Increase the percentage of affordable housing projects that utilize solar energy and battery storage.~~
- ~~Ensuring~~ ~~Provide housing developer~~ ~~that housing organizations are aware of and provided~~ with robust guidance in accessing state and federal resources to build and renovate affordable, energy-efficient housing for low and moderate income Mainers;
- ~~Adopting~~ ~~Require~~ energy and cost savings data collection ~~requirements~~ for all affordable housing projects receiving ~~such state~~ funds, to help tell the story about the benefits of climate-friendly housing for Maine residents;