



Initial Recommendations of the Equity Subcommittee

February 2022

This report was prepared in partnership with Sara Kelemen, Masters Candidate at the University of Maine. The Governor's Office of Policy Innovation and the Future and the Equity Subcommittee offer their sincere appreciation for her work and expertise.

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Letter from the Co-Chairs

On December 1, 2020, the Maine Climate Council released *Maine Won't Wait* ([pdf](#)), the state's four-year Climate Action Plan. *Maine Won't Wait* puts Maine on a trajectory to meet its statutory targets to reduce greenhouse gas emissions by 45 percent by 2030 and 80 percent by 2050, as well as achieve carbon neutrality by 2045.

In addition to reducing greenhouse gas emissions, *Maine Won't Wait* establishes goals of:

- Creating economic opportunity as we undertake climate and energy transitions.
- Preparing our communities, people, and economy for the impacts of climate change like rising sea levels, increased flooding, and changing weather conditions.
- In recognition that climate change and equity are inextricably linked, advancing equity as we undertake this work, to ensure communities and citizens who have been excluded can benefit from climate solutions by having access to opportunities and protection from threats.

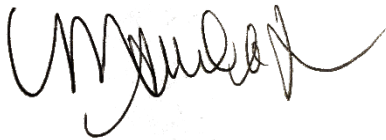
The effects of climate change will create significant hardships for disadvantaged people and communities, such as low-income residents, older adults, indigenous people, people of color, and others, who are less able to respond to them. For example, people who live in substandard housing or who are experiencing homelessness, or who lack access to reliable transportation, are more vulnerable to the impacts of extreme weather caused by climate change. Climate strategies that help Maine people, such as by reducing energy costs from installing a heat pump and home weatherization, must be accessible to all, and must ensure that shared benefits reach across Maine.

The creation of the Equity Subcommittee represents an important first step in the state's ongoing work towards addressing inequity with respect to climate change - both in acknowledging where some Maine communities have faced higher risks and burdens than others, and in creating plans for future distribution of opportunities associated with climate adaptation and mitigation.

We would like to acknowledge the dedication of the members of the equity subcommittee, representing diverse communities and industries from across the state. As a result of the work that this subcommittee has completed over the last year, we are proud to present the Maine Climate Council with these initial recommendations for improving equitable approaches and outcomes associated with the implementation of Maine's Climate Action Plan. The recommendations are organized by the strategies put forth by the Maine Climate Council in the state's Climate Action Plan, *Maine Won't Wait*. We look forward to working with the climate council and its working groups in the coming months to refine these recommendations.

In many ways, the work of the Equity Subcommittee is just beginning. Over time, policies and programs will need to be evaluated to ensure that equity goals are set and achieved. Progress should be supported by robust evaluation and community input, using fair indicators and progress measurements, which we hope to develop in partnership with the Climate Council's existing working groups over the course of the next year.

As the state takes on the enormous task of confronting climate change and its effects in Maine, the Equity Subcommittee is dedicated to ensuring an equitable and just path towards a future with reduced emissions, increased carbon sequestration, and improved resilience across the state. Together, we will create a safe and thriving future for all Maine people.



Ambassador Maulian Dana,
Penobscot Nation



Gabriela Alcalde, Executive Director,
Elmina B. Sewall Foundation

Co-Chairs, Maine Climate Council Equity Subcommittee

Introduction

Historical and systemic discrimination, underrepresentation, and isolation have made some people in Maine more vulnerable to the effects of climate change than others. Low-income populations, people of color and indigenous communities, rural and geographically isolated communities, and other marginalized or disadvantaged Mainers face the “first and worst” impacts from climate change and may be least able to adapt.

As the Intergovernmental Panel on Climate Change has written:

Differences in vulnerability and exposure arise from non-climatic factors and from multidimensional inequalities often produced by uneven development processes.... These differences shape differential risks from climate change.... People who are socially, economically, culturally, politically, institutionally, or otherwise marginalized are especially vulnerable to climate change and also to some adaptation and mitigation responses.... This heightened vulnerability is rarely due to a single cause. Rather, it is the product of intersecting social processes that result in inequalities in socioeconomic status and income, as well as in exposure. Such social processes include, for example discrimination the basis of gender, class, ethnicity, age.¹

Given this heightened and disproportionate vulnerability and increased exposure to the risks associated with climate change that certain people in Maine face, the Equity Subcommittee of the Maine Climate Council is advancing a series of recommendations which seek to emphasize equitable and just solutions to climate challenges.

In Maine and across the world, climate change poses the greatest threat to these communities who are already marginalized. Indeed, low-income communities and communities of color, among others, are often already subject to both social and environmental harm—experiencing disparities in health outcomes, and inequitable access to healthy and secure housing, potable drinking water, and reliable transportation. Due to these ongoing inequities, these communities often have a weakened capacity to respond to climate stressors and recover from climate shocks.

Equitable climate action, then, requires the thoughtful distribution of climate benefits and mitigation of climate burdens, so that policy intended to help does not instead cause further marginalization and harm. Essential to delivering these equitable outcomes is participation. To understand the needs of Maine’s impacted and frontline communities, these very same communities must have a role in creating the plans and policies that will affect their current and future well-being.

¹ IPCC, 2014: Summary for policymakers. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1-32. https://www.ipcc.ch/site/assets/uploads/2018/02/ar5_wgII_spm_en.pdf

By focusing on equitable implementation of Maine’s climate strategies, we can make our state more resilient to the impacts of climate change, while improving the lives of all people in Maine.

ABOUT THE MAINE CLIMATE COUNCIL

The 39-member Maine Climate Council (MCC) was created in law in June 2019 as proposed and signed by the Governor and supported by the Legislature. The Council is an assembly of scientists, industry leaders, bipartisan local and state officials, and engaged citizens. The Climate Council, together with more than 200 Maine people, developed a four-year climate plan, [Maine Won’t Wait](#), to put Maine on a trajectory to reduce emissions by 45% by 2030 and at least 80% by 2050, while helping ensure that Maine people, industries, and communities are resilient to the impacts of climate change. By Executive Order of Gov. Mills, the state must also achieve carbon neutrality by 2045, meaning that as much carbon as we emit each year is also sequestered or buried in our natural and working lands and waters. And lastly, the law requires that climate plans be delivered every 4 years – an ongoing process.

ABOUT THE EQUITY SUBCOMMITTEE

The Equity Subcommittee (ESC) of the Maine Climate Council was established in February 2021 to support ongoing planning and implementation of the state’s climate strategies to ensure shared benefits reach diverse populations in Maine. It has been tasked with setting equity outcomes for climate actions, monitoring progress and making recommendations to the Council to ensure programs and benefits reach diverse and isolated populations and communities.

The subcommittee’s work builds on consideration of equity by the Maine Climate Council Working Groups, and an [equity analysis of the Maine Climate Council’s climate strategies](#) that took place during the summer of 2020. That analysis, by the Senator George J. Mitchell Center for Sustainability Solutions at the University of Maine, placed an equity lens on the four-year Climate Action Plan (“Maine Won’t Wait”), and identified the need for further focus on ensuring climate equity for all Maine people. A list of the members of the ESC can be found in Appendix A.

Charge of The Equity Subcommittee

- Support **ongoing planning and implementation** of Maine’s climate strategies to ensure shared benefits across diverse populations of Maine people and to understand any concerns for implementation.
- Set **clear equity outcomes** for proposed actions, monitor progress, and make recommendations to ensure that programs and benefits reach the intended populations and communities.
- **Build on** the Equity Assessment of Working Group Recommendations, prepared by the University of Maine during the development of the climate action plan.

ABOUT THE EQUITY SUBCOMMITTEE'S WORK

The Equity Subcommittee met monthly starting in February 2021 to discuss and identify ways to equitably implement Maine's Climate Action Plan. Meetings were open for public viewing, involved the members of the Equity Subcommittee, and were facilitated by Carole Martin in collaboration with staff from the Governor's Office of Policy Innovation and the Future (GOPIF). All meetings were held on Zoom due to the ongoing COVID-19 pandemic, and the wide range of geographic locations in which committee members were located. During the first meeting of the ESC on February 26, 2021, members discussed the mission and deliverables of the subcommittee, metrics and measurability of equity outcomes, and format for future work.² The second meeting focused on creating shared definitions of equity and environmental justice for continued use by the ESC during its work. Subsequent meetings were oriented around discussing equity in the context of the subsections of *Maine Won't Wait*: Buildings, Housing and Infrastructure; Transportation; Energy; Natural and Working Lands and Waters; and Healthy and Resilient Communities, Investing in Climate Ready Infrastructure, and Engaging with Maine People and Communities about Climate Impacts and Program Opportunities, respectively. Community engagement strategies for sharing the equity recommendations were also discussed during the July and August meetings of the ESC.

The community outreach and feedback process initiated by the ESC in September of 2021 was deeply reflective of the subcommittee's conversations about how to effectively integrate procedural equity into their own work. Procedural equity requires meaningful opportunities for participation in planning and policy development by impacted communities; in this instance, the ESC hoped to reach members of their communities who had not historically participated in climate decision making and planning. Subcommittee members utilized their own social and professional networks and connections to educate community members regarding the charge of the ESC and solicit feedback related to the work of the ESC and draft recommendations they had written. Conversations with Maine people interested in advancing equity considerations during the implementation of Maine's Climate Action Plan were then able to take place in communities across the state. Some of these conversations included:

- A session at Farmer to Farmer - the Maine Organic Farmers and Gardeners.
- Association annual conference - titled "Equity, Climate and Agriculture".
- A series of conversations with folks in the marine sector, including fishermen and islanders.
- Conversations with Maine Public Health Association's Climate Member Section and at its Annual Meeting (September/October, 2021).
- A conversation with the Aroostook Community Collaborative.
- A presentation of the Equity Committee draft recommendations at: Maine Communities Climate Workshop, Climate Action Deep-Dive Workshop, Greater Portland Council of Governments, Southern Maine Planning and Development Commission and Local Governments for Sustainability, municipal climate action planning workshop (October, 2021).

² Minutes are here: <https://www.maine.gov/future/initiatives/climate/climate-council/equity-subcommittee/past-meetings>

These community conversations are contrasted with solely asking that invested community members attend certain scheduled meetings, either online or in one central location - the ESC hosted one such virtual listening session during its October meeting - recognizing that this session could be difficult to access and unfeasible for some historically underrepresented and frontline Maine communities. By centering the feedback process in Maine communities, and utilizing existing social connections and strong ties held by subcommittee members, the ESC was able to operationalize their goal of advancing procedural equity in the process of generating feedback regarding the draft recommendations.

During its November meeting, the ESC discussed all of the public feedback received to date and made suggestions for additional recommendations, as well as adjustments to their existing recommendations, which are reflected below.

And in January 2022, the ESC agreed by consensus to present this report, inclusive of a proposed process to move this work forward, to the Maine Climate Council.

Since February 2021, the Equity Subcommittee has:

- Generated an equity framework for assessing strategies in Maine’s Climate Action Plan, *Maine Won’t Wait*.
- Created shared definitions for important and often utilized terminology.
- Participated in conversations about environmental justice, and how it can be understood and operationalized in Maine. Subcommittee members also shared their experiences with environmental justice and what it means to them and the communities they are a part of.
- Brought conversations regarding climate change and equity into their communities to generate feedback related to draft recommendations.
- Produced 57 initial recommendations, contained herein, to present to the Maine Climate Council regarding the advancement of equity during the implementation of Maine’s Climate Action Plan.

This report is the interim outcome of the ESC’s work to date and serves to transmit this work for consideration by the Maine Climate Council. The ESC sees this work as the beginning of a conversation with the Climate Council and its Working Groups, focused on setting clear equity outcomes for the programs and policies proposed within *Maine Won’t Wait* and below; and supporting ongoing planning and implementation, with a focus on the development of equity metrics that will allow the state and its partners to monitor their impact over time.

The ESC proposes the following path forward to continue this important work. This timeline is explored in greater detail at the conclusion of this report.

- **March 2022:** Kick-off presentation for all members of the MCC and its Working Groups regarding equity, both generally and with respect to climate change. The ESC recommends that this presentation cover topics related to diversity, equity, inclusion, and justice, and introduce equity metrics frameworks, to guide the proposed collaboration.

- **April - September 2022:** Collaboration between ESC and MCC Working Groups, to:
 - Refine recommendations, including a focus on priority programs and actions
 - Identify metrics to collectively monitor equitable implementation of the recommendations in Maine’s Climate Action Plan, as is called for in the Council’s charge to the ESC.
 - Identify partners for implementation of priority recommendations, as well as any challenges or barriers to implementation that must be overcome.
- **October - December 2022:** development of final equity report to the Maine Climate Council, containing priority actions, implementation partners, and proposed metrics for consideration by council.

DEFINITIONS AND THE EQUITY FRAMEWORK

Many of these definitions were used by the Equity Subcommittee during its deliberations, and are terms that are used in recommendations below.

Maine’s Impacted & Vulnerable Communities - The subcommittee defines disadvantaged, marginalized, impacted or vulnerable communities as those who have experienced historical and ongoing systemic discrimination, restricted power, and underrepresentation in state policy making, inclusive of communities of color and indigenous communities, low income Mainers, rural and otherwise geographically isolated communities, older adults, LGBTQ+ people, differently abled populations, immigrants, seasonal workers, impacted industries, and other differently impacted communities. For consistency throughout this report, we refer to these communities in aggregate as “disadvantaged,” and use other more specific identifiers when appropriate.

Equity - The subcommittee has adopted an approach to equity that recognizes that equal distribution of resources (funding, pollution reduction, etc.) is insufficient for addressing climate change impacts. Rather, an equitable system seeks to provide increased resources to disadvantaged communities, noting that the risks and effects of climate change disproportionately fall upon these communities. Climate policies and programs should increase wellbeing, and address root causes of inequality, not exacerbate existing burdens.

Distributive equity - The subcommittee sees distributive equity as an equitable distribution of environmental benefits and burdens. Distributive equity starts by recognizing disparities in the allocation of resources, health outcomes, and living conditions; indeed, inequities in living conditions and lack of political power place frontline and disadvantaged communities at greater risk. Distributive equity strategies target resources to adaptation and mitigation affecting the communities and populations most impacted.³

Procedural equity - Procedural equity is often referred to as equitable planning and implementation. This means that the government must partner with disadvantaged communities to allow for meaningful opportunities to participate in policy development,

³ Vermont Climate Council, Just Transitions Subcommittee. Guiding Principles for a Just Transition; Equity and Environmental Justice Working Group (November, 2020). Equity and Environmental Justice Working Group Report, Prepared for the Governor’s Council on Climate Change.

planning, and implementation processes. This includes, but is not limited to, creating fair and accessible opportunities for public participation, access to information, and ensuring language access is not a barrier to participation.

Contextual or historical equity - Contextual equity draws attention to root causes and factors that contribute to social disparities and recognizes that differences in power and access can prevent some communities from receiving resources or from participating in the decision-making process.⁴ A contextual equity approach recognizes that socioeconomic conditions and existing injustices can serve as barriers to designing community-based adaptation strategies, and these conditions must be identified, considered, and improved.⁵

Corrective equity - Corrective equity entails recognition of the “uneven playing field” that is created for some communities as a result of pre-existing economic, social, and political inequalities, as revealed by a contextual equity approach. Further, a corrective equity approach seeks to provide solutions that will advance climate goals and contribute to righting historical and ongoing manifestations of social inequity.

Community - The subcommittee has adopted a broad and inclusive definition of community, defining it as a neighborhood, municipality, tribal nation, or effective community, which may include a group of people who share similar characteristics but are not geographically co-located.

Frontline Community - Frontline community definitions have historically included components relating to intersecting vulnerabilities, overlaying sociodemographic disadvantages with exposure to climate hazards, energy system pollution, and economic dislocation driven by climate change and resulting policies. While the ESC uses the term frontline communities to broadly encompass those “first and worst” impacted by climate change, we recognize there is an ongoing process directed by [LD 1682](#) to formalize a definition for this term.

Community Resilience - Resilience can be defined as the ability of a community to function in the face of adversity; to survive, and, perhaps, even to thrive.⁶ Community resilience reflects a community’s capacity to “bounce forward” after an event. While natural disasters may reduce a community’s resilience, strengthening social infrastructure (e.g. the number and types of organizations that help disadvantaged populations) or investing in improvements to physical infrastructure (e.g. roadways) can increase community resilience. Resilient communities intentionally develop personal and collective capacity to sustain and renew the community, and to develop new trajectories for the community’s future.

⁴ Foster, S., Leichenko, R., Nguyen, K. H., Blake, R., Kunreuther, H., Madajewicz, M., Petkova, E. P., Zimmerman, R., Corbin-Mark, C., Yeampierre, E., Tovar, A., Herrera, C., & Ravenborg, D. (2019). New York City Panel on Climate Change 2019 Report Chapter 6: Community-Based Assessments of Adaptation and Equity. *Annals of the New York Academy of Sciences*, 1439(1), 126–173. <https://doi.org/10.1111/nyas.14009>

⁵ Schlosberg, D., Collins, L. B., & Niemeyer, S. (2017). Adaptation policy and community discourse: Risk, vulnerability, and just transformation. *Environmental Politics*, 26(3), 413–437. <https://doi.org/10.1080/09644016.2017.1287628>

⁶ Hobfoll, S. E., Stevens, N. R., & Zalta, A. K. (2015). Expanding

Framework Developed by The Equity Subcommittee for Assessing Each Strategy Outlined in The Climate Action Plan

1. Who are the most **marginalized** populations affected by each issue?
2. Does the program, practice, or policy ensure both **short- and long-term** equitable outcomes?
3. Is there adequate **access to data** to understand the issue, the populations affected by it and potential ways to address it?
4. Has **public health** been fully considered?
5. What are the implications of this recommendation on **Maine's emissions**?
6. Are there barriers to **access, participation, or decision making** that have not been accounted for?
7. What **cultural or mindset considerations** are essential to the success of this recommendation?
8. Is there a way to address **historical inequities** in this recommendation?
9. If this action is taken, are the **impacts to people outside of Maine** understood and adequately factored into the recommendations?

ADVANCING EQUITY THROUGH MAINE'S CLIMATE RESPONSE

The work of the ESC represents an important first step to ensure that Maine's climate strategies benefit all people in Maine. The costs of inaction on climate change will be most acutely experienced by Maine's frontline and disadvantaged communities, whom are least able to recover from climate-driven disruptions. Maine's climate strategies will also create benefits, such as decreased heating costs from weatherizing homes, and new job opportunities in Maine's clean energy economy. It is imperative that these climate solutions reduce harm and provide opportunities for all Maine people. Two examples of Maine's ongoing approaches to equity are below:

Example 1: All of Maine is already impacted by climate change. Emergency routes and access to some communities may be cut off by sea level rise and storm surge from increased severe weather events. When a large amount of rain falls in a short amount of time, small watersheds can flood suddenly, potentially damaging culverts, roads and bridges. Flooding also puts people, homes, drinking water, and waste systems at risk. Hundreds of statewide culverts are not designed for the expected future precipitation extremes.

the science of resilience: Conserving resources in the aid of adaptation. Psychological Inquiry, 26(2), 174–180. doi:10.1080/1047 840X.2015.1002377

To adapt and create resilient infrastructure and communities, it is essential to support tools that help communities to assess their vulnerability to climate risks, such as flooding, and including the effects of social, economic, and demographic vulnerabilities. *Maine Won't Wait* found that many towns in Maine lack the capacity and resources to prepare for climate impacts.

Recently, the state launched the new [Community Resilience Partnership](#), to provide grants and support to municipal and tribal governments to reduce carbon emissions, transition to clean energy, and become more resilient to climate change effects, including extreme weather, flooding, rising sea levels, and public health impacts. The grants will support communities to identify and address locally important priorities, ensuring that all communities in Maine, including the smallest and most vulnerable, have access to resources and support to help reduce emissions and build climate resiliency.

Example 2: Extreme temperatures caused by climate change, including high heat events, will negatively impact people who are already vulnerable. The health risks associated with high temperatures significantly impact older and low-income populations, who are also less likely to be able to afford improved insulation or air conditioning.⁷ Mitigating this health risk by providing access to improved weatherization and heat pumps, which provide both clean heating *and* cooling, represents a step towards climate equity.

During Climate Week 2021, Governor Mills celebrated progress in this area as more than 28,000 heat pumps were installed in Maine buildings in the preceding year.⁸ This represents major progress toward the Governor's ambitious goal of installing 100,000 new heat pumps by 2025. Many of these heat pumps were installed in homes using rebate incentives offered through Efficiency Maine Trust (EMT; MaineHousing also offers a heat pump program for low-income residents). Improving weatherization and installing low-cost heating and cooling technology, like heat pumps, may provide cost savings and improved health impacts for those populations most vulnerable to the effects of extreme weather.

These are just two examples of climate change's unequal impacts on people in Maine and how the state's responses can identify and promote solutions that help disproportionately impacted populations. Through programs like the Community Resilience Partnership, and heat pump installation for low-income people, the state is offering solutions that support communities and individuals vulnerable to the effects of climate change, and improving resiliency and adaptation capacity.

⁷ Gibson, M., Petticrew, M., Bamba, C., Sowden, A. J., Wright, K. E., & Whitehead, M. (2011). Housing and health inequalities: A synthesis of systematic reviews of interventions aimed at different pathways linking housing and health. *Health & Place*, 17(1), 175–184. <https://doi.org/10.1016/j.healthplace.2010.09.011>

⁸ State of Maine, Office of the Governor (September 24, 2021). For Climate Week, Governor Mills Celebrates Maine's Progress Toward Installing 100,000 Heat Pumps by 2025. <https://www.maine.gov/governor/mills/news/climate-week-governor-mills-celebrates-maines-progress-toward-installing-100000-heat-pumps>

Equity Targets, Actions and Recommendations for The Maine Climate Council to Consider

LAYOUT OF THE REPORT

What follows is a series of initial equity recommendations for consideration by the Maine Climate Council, and its associated Working Groups. The recommendations are organized based on strategies put forth by the Maine Climate Council in their Climate Action Plan, *Maine Won't Wait*. For ease of reference, the recommendations are numbered consecutively across strategies and given short titles.

BROAD/TOP LEVEL EQUITY RECOMMENDATIONS

The ESC identified three key themes across all conversations:

- Prioritize Maine's disadvantaged and frontline communities.
- Ensure economic gains from climate change mitigation and adaptation flow to communities in need of support, and do not exacerbate inequality.
- Create processes that support and allow for meaningful participation by members of Maine's disadvantaged and frontline communities.

Beyond these three themes, the ESC identified four cross-cutting recommendations that apply to strategies from all categories.

- 1. Climate Communications:** The state, through its climate communications and equity work, should foster shared ownership and prosperity in the climate transition, and should give voice to diverse understandings of climate action and impacts.

The state recognizes, through ongoing and planned efforts, that effective climate communications and adaptation should be based in collaboration and dialogue and should consider stakeholders' values and experiences.⁹ The charge of the ESC is to consider the role that climate change and opportunities for climate action plays in people's lives and recognize that climate change is experienced differently by each person in the state. The state, in its efforts to combat climate change, should be clear in communicating that climate action can improve the lives of all people in Maine. Diverse ways of knowing and understanding climate change and its effects on people's lives should be recognized as legitimate. Valuing experiential, place-based, and non-scientific knowledge can bring more people into climate conversations, increase sustained engagement, and identify effective mitigation and resilience strategies.¹⁰

⁹ Fried, R. (2016, January 8). *Humanistic Communications, Climate Change, and COP21, Oh My!* Yale Center for Business and the Environment. <https://cbey.yale.edu/our-stories/humanistic-communications-climate-change-and-cop21-oh-my>

¹⁰ Rice, J. L., Burke, B. J., & Heynen, N. (2015). Knowing Climate Change, Embodying Climate Praxis: Experiential Knowledge in Southern Appalachia. *Annals of the Association of American Geographers*, 105(2), 253–262. <https://doi.org/10.1080/00045608.2014.985628>; Banks, J. A., Au, K. H., Ball, A. F., Bell, P., Gordon, E. W., Gutiérrez,

- 2. Procedural Equity:** All state policy, program, and other decision-making processes should enable equitable participation from disadvantaged and historically underserved communities. Enabling equitable participation might include:
- a. Provide stipends to frontline and disadvantaged community members for their time, which can help members of these communities take time off work or away from other critical activities to participate in decision making processes;
 - b. Providing transportation and childcare in order to allow overburdened Maine people to attend meetings and participate in climate decision processes;
 - c. Producing materials in languages other than English, and following communications guidance per the Americans with Disabilities Act, Title II;
 - d. Producing “plain language” guides that help explain decisions or decision-making processes;
 - e. Including representative participants of impacted groups in program design processes, including clean energy and resilience and adaptation planning;
 - f. Utilizing existing social networks to engage communities in state decision making, and in marketing existing programs and incentives;
 - g. Adjusting meeting times and locations including allowing for ongoing virtual participation in meetings;
 - h. Where possible, considering adoption of a consensus building approach for decision-making.

The processes for understanding climate impacts and planning climate action should include community-driven dialogue. Indeed, frontline community members should be empowered to engage with state agencies and local entities to design strategies for climate action that are focused on their local priorities and concerns. A study of planning board meetings in 97 towns in Massachusetts suggests that participants in local government public engagement forums are primarily older, male, longtime residents, voters in local elections, and homeowners.¹¹

Compensation for participation in planning and outreach has been shown to increase participation and foster positive relationship growth between marginalized communities and those running planning and outreach processes.¹² For example, in late 2020 the Maine Department of Agriculture, Conservation and Forestry worked with the Resources for Organizing and Social Change to recruit workers experiencing poverty, hunger and food insecurity to review the Interim Report on Ending Hunger in Maine By 2030, provide feedback

K. D., et al. (2007). “Learning in and out of school in diverse environments,” in *The LIFE Center and Center for Multicultural Education* (Seattle, WA: University of Washington), 36; Canfield, K. N., Menezes, S., Matsuda, S. B., Moore, A., Mosley Austin, A. N., Dewsbury, B. M., Feliú-Mójer, M. I., McDuffie, K. W. B., Moore, K., Reich, C. A., Smith, H. M., & Taylor, C. (2020). Science Communication Demands a Critical Approach That Centers Inclusion, Equity, and Intersectionality. *Frontiers in Communication*, 5, 2. <https://doi.org/10.3389/fcomm.2020.00002>

¹¹ Einstein, K., Palmer, M., & Glick, D. (2019). Who Participates in Local Government? Evidence from Meeting Minutes. *Perspectives on Politics*, 17(1), 28-46. doi:10.1017/S153759271800213X

¹² In Rochester, NY: Pan, H. (2021, May 6). *Cities Are Looking to Get Better Community Engagement By Paying for It*. Next City. <https://nextcity.org/urbanist-news/cities-are-looking-to-get-better-community-engagement-by-paying-for-it>; In Richmond, VA: Hutson, B. (2021, February 26). Paying Community Members for Their Time. *Shelterforce*. <https://shelterforce.org/2021/02/26/paying-community-members-for-their-time/>

on its priorities, and offer original ideas that may be missing. Focus group participants were reimbursed for their time, as well as incurred expenses, through stipends funded from a grant made by the Elmina B. Sewell Foundation.¹³ Other examples include the city of Austin, Texas, which paid representatives of communities that have been systematically excluded on climate-related issues to be “climate ambassadors.” The ambassadors held gatherings and interviews to discuss climate challenges, and barriers to participation. Findings from these interviews were integrated into Austin’s Climate Equity Plan.¹⁴ During Portland, Oregon’s climate action planning process, community organizations were invited to apply for a \$4,000 grant to support an organizational representative to participate in the Climate Action Plan Equity Working Group.¹⁵

Additionally, provision of childcare services improves accessibility of and participation in public engagement events.¹⁶ Finally, to improve access to planning and participatory processes, “go where the people are.”¹⁷ Ensuring accessibility means using places that are familiar and easily reachable for target groups. Spaces chosen for outreach events must be physically accessible and feel welcoming to participants.¹⁸

The ways in which information is shared is equally important to ensure equitable participation. Truly inclusive communication requires utilizing engagement strategies that recognize the voices and experiences of target communities.¹⁹ Culturally relevant expressions, metaphors,²⁰ experiences,²¹ and storytelling approaches²² can all be employed to engage communities in science-based climate action conversations. Outreach materials presented in the native

¹³ *Impacted Community Recommendations & Review on the Interim Report for Ending Hunger in Maine by 2030*. (2021). Resources for Organizing and Social Change.

<https://drive.google.com/file/d/1WTK6M22uFfRNq3nLVDTCCHYIOb6RGW2/view>
¹⁴ *Community Climate Ambassadors*. Austintexas.Gov. Retrieved January 10, 2022, from <https://www.austintexas.gov/page/community-climate-ambassadors>

¹⁵ Williams-Rajee, D., & Evans, T. (2016). *Climate Action Through Equity: The integration of equity in the Portland/Multnomah County 2015 Climate Action Plan*. <https://www.portland.gov/sites/default/files/2019-07/cap-equity-case-study-web29jul.pdf>

¹⁶ Ritzel, R. (2019, May 8). *Offering Childcare at City Meetings May Be Key to Diversifying Civic Engagement*. Next City. <https://nextcity.org/urbanist-news/offering-childcare-at-city-meetings-may-be-key-to-diversifying-civic-engage>

¹⁷ Humm, C., & Schrögel, P. (2020). Science for All? Practical Recommendations on Reaching Underserved Audiences. *Frontiers in Communication*, 5, 42. <https://doi.org/10.3389/fcomm.2020.00042>

¹⁸ Streicher, B., Unterleitner, K., & Schulze, H. (2014). Knowledge rooms—Science communication in local, welcoming spaces to foster social inclusion. *Journal of Science Communication*, 13(02), C03. <https://doi.org/10.22323/2.13020303>

¹⁹ Canfield, K. N., Menezes, S., Matsuda, S. B., Moore, A., Mosley Austin, A. N., Dewsbury, B. M., Feliú-Mójer, M. I., McDuffie, K. W. B., Moore, K., Reich, C. A., Smith, H. M., & Taylor, C. (2020). Science Communication Demands a Critical Approach That Centers Inclusion, Equity, and Intersectionality. *Frontiers in Communication*, 5, 2. <https://doi.org/10.3389/fcomm.2020.00002>

²⁰ Taylor, C., & Dewsbury, B. M. (2018). On the Problem and Promise of Metaphor Use in Science and Science Communication. *Journal of Microbiology & Biology Education*, 19(1). <https://doi.org/10.1128/jmbe.v19i1.1538>

²¹ Djonko-Moore, C. M., Leonard, J., Holifield, Q., Bailey, E. B., & Almughyirah, S. M. (2018). Using Culturally Relevant Experiential Education to Enhance Urban Children’s Knowledge and Engagement in Science. *Journal of Experiential Education*, 41(2), 137–153. <https://doi.org/10.1177/1053825917742164>

²² Dahlstrom, M. F. (2014). Using narratives and storytelling to communicate science with nonexpert audiences. *Proceedings of the National Academy of Sciences*, 111(Supplement_4), 13614–13620. <https://doi.org/10.1073/pnas.1320645111>; Hunter-Doniger, T., Howard, C., Harris, R., & Hall, C. (2018). STEAM Through Culturally Relevant Teaching and Storytelling. *Art Education*, 71(1), 46–51. <https://doi.org/10.1080/00043125.2018.1389593>

language of the target audience is critical to effective communication.²³ Communication in the native language of a target audience yields greater participation, motivation and optimism, and leads to stronger connections to concepts in the native culture.²⁴ Wording and phrasing can also present a barrier to comprehension and participation, and thus presenting plain language versions of policy or programmatic information can improve access to information.²⁵

- 3. Point of Sale Rebates:** All rebates which are offered for cleaner heating, transportation, or related goods and services should be offered point-of-sale (vs mail-in/reimbursement). Capital expenses are a barrier to the participation of low-and moderate-income households.

Point-of-sale rebates, rather than mail-in or reimbursements, allow consumers without the capital for upfront costs to access clean technologies including heat pump space and water heaters, improved weatherization, and electric vehicles (EVs), among others.²⁶

In Maine, the Efficiency Maine Trust (EMT) employs point-of-sale strategies to deliver incentives where it is safe, practical, and administratively suitable, includes all EV sales, all residential lighting (LEDs), and all measures promoted through distributors (wholesalers), such as heat pump water heaters. To make efficiency measures more accessible to low-income consumers, EMT complements the point-of-sale technique by remitting financial incentives directly to vendors or service providers who deliver these measures and also by making financing available. EMT uses this direct payment approach for heat pump and weatherization. The ESC notes that this requires a registered local vendor to be available, which may be challenging in geographically isolated parts of the state for certain interventions, such as weatherization. EMT could, thus, consider if changes to the approved vendor process or application could lead to increases in the number of approved vendors across the state – particularly in hard-to-reach areas.

- 4. Comprehensive Social Services:** The State should establish a working group to improve the coordination and provision of comprehensive social services to every low-income or otherwise vulnerable household in Maine, including weatherization services. The working group should consider the adoption of a comprehensive “Crisis to Thrive” scale and the adoption of a centralized database to enable coordinated provision of services. The state should also develop a simplified intake process for the coordinated provision of social services, including heating and weatherization services.

²³ Márquez, M. C., & Porras, A. M. (2020). Science Communication in Multiple Languages Is Critical to Its Effectiveness. *Frontiers in Communication*, 5, 31. <https://doi.org/10.3389/fcomm.2020.00031>

²⁴ Mensah, F. (2021). Culturally Relevant and Culturally Responsive: Two Theories of Practice for Science Teaching. *National Science Teaching Association*, 58(4). <https://www.nsta.org/science-and-children/science-and-children-marchapril-2021/culturally-relevant-and-culturally>

²⁵ Dyer, C., Fairbanks, J., Greiner, M. L., Barron, K., Skreen, J., Cerrillo-Ramirez, J., Lee, A., & Hinsee, B. (2013). Improving Access to Justice: Plain Language Family Law Court Forms in Washington State. *Seattle Journal for Social Justice*, 11(3). <https://digitalcommons.law.seattleu.edu/sjsj/vol11/iss3/10/>

²⁶ Higgins, T., Majumder, B., Lai, D., Matusiak, A., & Calisch, S. (2021, June 3). To Decarbonize Households, America Needs Incentives for Electric Appliances. *Center for American Progress*. <https://www.americanprogress.org/article/decarbonize-households-america-needs-incentives-electric-appliances/>

For many people, climate change and climate action are outside the realm of daily worries.²⁷ The effects of climate change, especially on marginalized populations, can manifest as job loss, housing insecurity, chronic health problems, or financial insecurity.²⁸ Managing any one of these difficult situations can be all encompassing, and the broader context of climate action can seem distant and unrelatable. Pressing concerns, including health, housing, employment, and educational worries can, and often do, supersede a perceived need to engage with climate action. Knowing this, the ESC recommends taking a holistic approach to assistance and wellness for all Maine people.

The state and its partners should look at existing resources, such as the work of [Maine's Community Action](#) Partnerships Agencies (MeCAP), which have adopted a comprehensive service delivery model, using the [Whole Family/Two-Generation approach](#). MeCAP's efforts include the adoption of a statewide "Crisis to Thrive" scale that measures participants along seven common domains including housing, home energy security, financial stability, and food security. Household progress is tracked through a database that is used to measure and report outcomes to several government and funding partners including Maine Department of Health and Human Services and MaineHousing. MeCAP uses the [empowOR](#) software, which is utilized in other states to better network community non-profit agencies and state governments so that data are accessible and presumptive eligibility for numerous programs is better facilitated.

MaineHousing has been working with MeCAP and empowOR to deliver the Emergency Rental Assistance program. Maine Department of Health and Human Services (DHHS) and MaineHousing are also currently working to develop a single-entry point for clients.

Finally, the State should coordinate with Federal elected officials and departments to advocate for better coordination of funding coming to Maine to meet the needs of individual households. Measures such as the [Two-Generation Economic Empowerment Act](#), introduced in the U.S. Senate, and others, should be further explored to better meet the needs of Mainers in a more comprehensive manner.

A. TRANSPORTATION SECTOR

In Maine, transportation accounts for 54% of state emissions.²⁹ Decarbonizing Maine's transportation sector is therefore a key step in Maine's clean energy transition and should be done in a way that equitably distributes benefits of cleaner transportation statewide. Clean transportation options may save people money through reduced vehicle operations and maintenance costs and can contribute to better public health outcomes by reducing air pollution.

²⁷ Marshall, G. (2015). *Don't even think about it: Why our brains are wired to ignore climate change*. Bloomsbury.

²⁸ Dwyer, C. (2020). *Effects of Climate Change on Marginalized Communities*.

<https://storymaps.arcgis.com/stories/bff12b5b6cb742a3a6dfb454200c3797>

²⁹ Maine Climate Council. (2020). *Maine Won't Wait: A Four-Year Plan for Climate Action*.

https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020.pdf

Access to transportation systems, and especially clean transportation including EVs, and shared transportation, including public transportation, should be accessible to all people in Maine. Rural and low-income populations in Maine are chronically unable to access affordable public transportation, or personal vehicles necessary for employment and access to essential services.³⁰ For example, 72 percent of Mainers over the age of 65 lack access to shared or flex-route transportation options,³¹ leaving them vulnerable to effects of inadequate transportation if they stop driving.³² Approximately half of Maine residents live in predominantly rural areas; while these areas tend to have higher rates of vehicle ownership, vehicles in rural areas also tend to be older, less efficient, and less reliable, and more expensive to operate than those more commonly used in urban areas.³³ Consequently, in Maine, low-income populations often spend large percentages of their income paying for transportation,³⁴ which further strains their financial burden. As such, programs that develop and incentivize clean transportation options must center equity and prioritize the needs of disadvantaged communities.

Equitable clean transportation programs can not only improve climate outcomes, they can also empower and improve the lives of community members in Maine. The ESC believes that low-income residents should have access to targeted grants, rebates, and affordable and fair financing programs that allow them to have access to new and used electric vehicles through purchases, leases or other community programs. Furthermore, low income residents should have convenient access to overnight charging regardless of whether they own or rent their homes. School districts should prioritize the purchase of zero emissions transportation vehicles including buses, vans and other appropriate conveyances, and especially in those districts with more lower income households, will likely need additional funding and support to do this. This is particularly important because children are more vulnerable to health impacts, such as asthma, caused by bad air quality.³⁵ Finally, the state should invest in better, low carbon, public transportation and safer places for active transportation, especially walking and bicycling.

5. Access to clean transportation: The state should explore opportunities to make clean light duty vehicle purchase and ownership affordable for low-income disadvantaged Mainers. Specific suggestions include:

³⁰ Mullen, C., & Marsden, G. (2016). Mobility justice in low carbon energy transitions. *Energy Research & Social Science*, 18, 109–117. <https://doi.org/10.1016/j.erss.2016.03.026>

³¹ Maine Department of Transportation. (2015). *Maine Strategic Transit Plan 2025*. <https://www.maine.gov/mdot/planning/docs/FinalStrategicPlan.pdf>

³² Schauffler, M. (2020, November 8). *The drive toward vehicle electrification in Maine*. The Maine Monitor. <https://www.themainemonitor.org/the-drive-toward-vehicle-electrification-in-maine/>

³³ Rubin, J., Ballingall, K., & Brown, E. (2021). Electric, Hybrid and High Fuel Efficiency Vehicles: Cost-Effective and Equitable GHG Emission Reductions in Maine. *Margaret Chase Smith Policy Center*. https://digitalcommons.library.umaine.edu/mcspc_transport/3

³⁴ Marcantonio, R. A., Golub, A., Karner, A., & Nelson Dyhle, L. (2017). Confronting Inequality in Metropolitan Regions: Realizing the Promise of Civil Rights and Environmental Justice in Metropolitan Transportation Planning Colloquium: Getting There from Here: An Exploration of Regionalism and Transportation in the United States. *Fordham Urban Law Journal*, 44(4), 1017–1078.

³⁵ Wargo, J., & Brown, D. (2002). *Children's Exposure to Diesel Exhaust on School Buses*. Environment and Human Health Incorporated. <http://www.ehhi.org/reports/diesel/diesel.pdf>

- a. The Department of Transportation and EMT should assess the feasibility of a loan loss reserve program pilot for qualified, low-income customers buying high efficiency vehicles, zero-emission vehicles (ZEV), or plug-in hybrid EVs (PHEVs).
- b. The Bureau of Motor Vehicles should assess the feasibility of providing a rebate/freebate for, or reduction of, the excise tax levied on new and used electric and plug-in vehicles for qualified low-income vehicle owners.
- c. EMT, in partnership with the Governor’s Energy Office, MaineHousing, and DHHS, should expand access for low-income Mainers across all clean transportation and clean heating incentive programs to include any household or individual participating in any state or federal means-tested program.
- d. EMT should identify additional barriers for low income and disadvantaged Mainers to access clean vehicle rebates and other clean transportation programs. These barriers should be identified and addressed in consultation with disadvantaged populations.

Loan Loss Reserve (LLR) programs represent one possibility for improving accessibility to EVs for low income people. LLRs provide loan loss coverage to financing partners such as local and regional banks and credit unions. LLR programs, often used in clean energy financing, are a form of credit enhancement that can be constructed to offer below-market-rate terms to increase participation by low income consumers, who often have poor or limited credit to access financing of a vehicle. If a borrower defaults on a loan, the loan loss reserve will reimburse the lender, up to an agreed amount of risk sharing with the private lender.

Another option is to provide a rebate, freebate, or reduction on the excise tax associated with the purchase of EVs. This type of incentive has been successfully implemented in other states. Maryland piloted an excise tax credit up to \$3,000 from 2017 through 2020, but the program has since lapsed as funding is no longer available.³⁶ In 2019, Washington state implemented a sales and use tax exemption for new or used EVs, clean alternative fuel or hybrid vehicles valued at less than \$45,000 (new) or \$30,000 (used).³⁷ The exemption is set to expire on July 30, 2025. In New Jersey, ZEVs sold, rented or leased are exempt from the state sales and use tax.³⁸ The sales tax exemption does not apply to hybrid electric vehicles, and only applies to vehicles which are certified pursuant to the California Air Resources Board zero emission standards for the model year.³⁹

³⁶ Maryland Department of Transportation. Titling—Excise Tax Credit for Plug-in Electric Vehicles—Pages. Maryland Motor Vehicle Administration. Retrieved January 10, 2022, from <https://mva.maryland.gov/vehicles/Pages/default.aspx>

³⁷ Washington State Department of Revenue. (2019). *Special Notice: New clean alternative fuel and plug-in hybrid vehicle sales and use tax exemption*. https://dor.wa.gov/sites/default/files/legacy/Docs/Pubs/SpecialNotices/2019/sn_19_CleanAltHybridExmpt.pdf

³⁸ Hartman, K., & Shields, L. (2021, August 20). *State Policies Promoting Hybrid and Electric Vehicles*. National Conference of State Legislatures. <https://www.ncsl.org/research/energy/state-electric-vehicle-incentives-state-chart.aspx>

³⁹ New Jersey Department of Environmental Protection. *Sales and Use Tax Exemption* [Official Site of the State of New Jersey]. Drive Green. Retrieved January 10, 2022, from <https://www.drivegreen.nj.gov/dg-sales-use-tax-exemption.html>

Finally, access to clean transportation and heating programs in the state could be improved. EMT defines a “low-income” household as one “that has qualified at any time in the prior 12-month period to receive assistance through any state or federal program in which low income and/or limited assets are criteria for eligibility.” While this definition is sufficiently broad to satisfy the recommendation, EMT continues to work with state agencies, municipalities and others to find administratively efficient ways to verify eligibility while also maintaining confidentiality. To date, EMT has principally relied on privileged access to the Low-Income Home Energy Assistance Program (LIHEAP) list as one means of validating low-income eligibility. Another means is mailing out postage-paid, business reply cards to all addresses on the DHHS list and presuming validation of eligibility for addressees who mail those cards back to EMT. EMT is working with DHHS to develop additional methods for validating eligibility of low-income individuals.

While LIHEAP eligibility is inclusive of low-and very low- income Mainers, eligibility for LIHEAP does not represent the spread of underserved people who are above the federal poverty level, but are unable to meet household expenses.⁴⁰ It will, therefore, be necessary to put forth a target goal of who should be eligible for these programs outside of LIHEAP eligibility. Other states use a third party income verification mechanism provided by the [Center for Sustainable Energy](#) to ensure equitable eligibility access to financing programs.

The ESC has identified potential barriers to accessing clean vehicle rebates including language, cultural, and time, and lack of financial ability to access EVs. Through targeted conversations with both low income and disadvantaged households and the organizations that serve/represent them, EMT should seek to overcome and significantly reduce these barriers.

While increasing ownership of high efficiency vehicles and ZEV/PHEVs has the potential to contribute to limiting emissions in Maine, equitable access to high efficiency vehicles and ZEV/PHEVs remains a challenge. Over the long term, having access through owning, renting or other use of a high efficiency vehicle or ZEV/PHEV reduces a household’s spending on transportation, but the up-front-cost of a new or used EV, as well as costs associated with vehicle registration and charging, may make these vehicles inaccessible to low- and moderate-income Mainers. EMT’s “EV Accelerator” program offers all buyers \$2,000 at purchase on new EVs and \$1,000 on new PHEVs, while also offering a higher rebate of \$5,500 and \$4,000, respectively, for new vehicles, as well as a \$2,500 rebate on used BEV or PHEVs for low-income consumers. Of the more than 1,200 rebates given since the program launched in 2019, however, few have actually gone to low-income vehicle buyers. There are many possible explanations for the disparity in rebate access; EMT should consult with low-income vehicle buyers to identify, and reduce, barriers to access.

Consumers may also be unaware of these incentive programs. A study conducted in Colorado found that “when compared to their higher-income peers, lower-income consumers report less

⁴⁰ Fass, S. (2009). *Measuring Poverty in the United States*. National Center for Children in Poverty. <https://www.nccp.org/publication/measuring-poverty-in-the-united-states/>

familiarity with EVs in general.”⁴¹ Improving communications about these programs and sharing relevant information in multiple and culturally appropriate ways could boost participation.⁴²

6. Access to EV charging: The state should increase access to EV charging in, or adjacent to, tenant-occupied spaces, including low-income housing and those serving disadvantaged communities. Strategies might include offering a targeted charging station grant program for landlords/tenants, exploring opportunities for EV ready building codes in all rental housing, and studying utility make ready programs or rate design as a source of funding for these improvements.

Access to charging that is reliable, convenient, and affordable is critical to enabling EV ownership, rental, or other use. Since an estimated 80% of charging occurs at home,⁴³ rental housing tenants often lack access to charging infrastructure due to a lack of dedicated off-street parking, an inability to afford the expense of charger installation, or a landlord’s unwillingness to install a charger. Some opportunities to supply renters with improved access to EV charging might include right-of-way charging, which involves installing chargers in parking located in the public right-of-way, such as along street curbs, or alleys; multi-use parking arrangements that promote installation of EV chargers in parking lots that are used for workplaces, retail locations, public parking, etc. during the day, and could serve residential users at night when lots would otherwise be empty; and make-ready programs, in which the Maine Public Utilities Commission (PUC) approves investments in the upgrades required to make the site ready for the customer to install an EV charger, and the site host is primarily responsible for investing in the charger itself.⁴⁴ One example of a program to support EV charger deployment is the Burlington Electric Department (BED)’s EV program, which deploys EV charging stations for free to qualifying multi-unit dwellings. BED will offer an additional \$500 per property to help cover the installation costs of each station if the owner agrees to make it publicly available from 9am-5pm.⁴⁵

In Maine, EMT has identified multi-unit dwellings as a priority charging segment in their upcoming [2023-2025 Triennial Plan](#), and has an [existing grant opportunity](#) available to partially fund charging stations in the same housing types. Concurrently, and per the direction of recent legislation, the Maine PUC [is investigating](#) utility rate design and associated programs, including a make-ready program proposal, to help ensure affordable EV charging. Finally, the mechanism to require EV charging stations to be installed in MaineHousing-funded multi-family

⁴¹Maxwell, A., LeBlanc, B., & Cooper, R. (2020). *Colorado Energy Office: Electric Vehicle Awareness Market Research*. Colorado Energy Office. <https://drive.google.com/file/d/15dmFXJ5RLT2U2Mc3b1Cfqu8xOTrCqAAi/view>

⁴² Pinto de Moura, M. C., & Reichmuth, D. (2019). *Inequitable Exposure to Air Pollution from Vehicles in the Northeast and Mid-Atlantic*. Union of Concerned Scientists. <https://www.ucsusa.org/resources/inequitable-exposure-air-pollution-vehicles>

⁴³ Office of Energy Efficiency & Renewable Energy. *Charging at Home*. United States Department of Energy. Retrieved from: <https://www.energy.gov/eere/electricvehicles/charging-home>

⁴⁴ Kneeland, K., Singh, N., Way, J., & Lynch, M. (2020). *Electric Vehicle Charging Access for Renters: A Guide to Questions, Strategies, and Possible Next Steps*. Cadmus Group. https://cadmusgroup.com/wp-content/uploads/2021/05/USDN_EVChargingAccess_UpdatedReport_Final-11.18.20-002.pdf

⁴⁵Truesdell, W. (2019, December 28). *Free EV Charging Stations From Burlington Electric Department, Plus What Other Electric Utilities Can Learn From Our Partnership*. EVmatch. <https://blog.evmatch.com/free-ev-charging-stations-from-burlington-electric-department-plus-what-other-electric-utilities-can-learn-from-our-partnership/>

housing is the Qualified Allocation Plan (QAP). MaineHousing has held three stakeholder meetings to draft a new QAP early in Q1 2022.

7. Clean School Transportation: The Department of Education (DOE), Department of Environmental Protection (DEP), Maine Department of Transportation (DOT), and local school districts, should study and recommend clean vehicle alternatives for school bus fleets in the state. Clean vehicle incentives should prioritize funding in disadvantaged school districts.

School buses are significant investments, particularly for rural Maine communities. Funding, such as grants and subsidies, as well as technical assistance, can help school districts achieve clean transportation goals – while resulting in positive health outcomes for students, staff, and community members.

The emissions from diesel fuel that school bus fleets generally rely on can have serious health impacts on children. The U.S. Environmental Protection Agency notes that

“older, more polluting school buses can lead to significant health risks for students who typically ride these buses for one-half to two hours a day. Children are more susceptible to air pollution than healthy adults because their respiratory systems are still developing, and they have faster breathing rates. Asthma, which affects 6.3 million American school children, is the most common long-term childhood disease in America, making newer, cleaner buses an urgent priority.”⁴⁶

Clean vehicle incentives should prioritize funding in disadvantaged school districts, both those without adequate financial resources to afford cleaner buses and those which may have been disproportionately impacted by pollution and climate change.⁴⁷ Examples of targeted funding include the recent [American Rescue Plan funding](#) for electric school buses in disadvantaged school districts; while 20 Maine school districts were eligible, none had buses of sufficient age, usage, or purchase plan records in vehicle inventories or annual reports to qualify for replacement under this time-limited program.

The Maine DOE School Bus Purchase Program provides subsidies to help public schools purchase new school buses. The program allocates about \$9 million annually, allows zero- and low-emission school bus purchase, and confirmed two electric school buses to be purchased during fiscal year 2022. Other clean school bus programs include Maine DEP’s administration of the EPA’s Clean School Bus program, and grants awarded through the Diesel Emissions Reduction Act, which together have replaced more than 100 school buses since 2004, including purchasing 14 compressed natural gas school buses for Portland Public Schools. The Maine

⁴⁶ United States Environmental Protection Agency. (2017, July 17). *Making School Buses Cleaner*. <https://www.epa.gov/dera/making-school-buses-cleaner>

⁴⁷ *Electric Buses are Coming Soon. Make Sure they Don’t Run on Dirty Energy*. (2021, August 17). Secure Futures: Resilient Solar Solutions. <https://securefutures.solar/electric-buses-are-coming-soon-make-sure-they-dont-run-on-dirty-energy/>

Clean School Bus program assists schools in reducing student exposure to harmful diesel emissions by promoting no-idling, alternative fuels, and accelerated fleet turnover. In addition, 72 school bus replacements, including 46 clean diesel, 25 propane and 1 electric were also funded via the Volkswagen (VW) Diesel Emissions Settlement, of which Maine received just over \$21 million to offset existing NO_x (nitrogen oxides) emissions. Finally, there are significant federal funding opportunities in the recently passed Infrastructure Investment and Jobs Act, including at least \$2.5 billion for zero emissions school buses to be awarded over the next 5 years.⁴⁸

8. Shared and Active Transportation: The state and its partners should evaluate ways to incentivize the use of shared and active transportation, including walking and biking.

Options might include:

- a. Maine DOT, working with statewide partners, should pilot innovative clean transit programs in disadvantaged communities (e.g. non-drivers, disabled, older adults, people in recovery). This could include programs like the Maine Independent Transportation Network, and other programs like first-mile/last-mile connections, rides-to-wellness, and recovery and job access rides pilot programs.⁴⁹
- b. Maine DOT, working with statewide partners, should consider designing a targeted e-bike sharing pilot for low-income and otherwise disadvantaged people.
- c. Maine DOT should update the Maine Complete Streets policy to further support active transportation and transit, while addressing existing safety concerns associated with the use of non-car transportation and for users with mobility aids. In this work, Maine DOT should build on the existing support it already provides to communities, such as conducting safety studies that assess the needs of all road users.
- d. Through its process to update Maine's Strategic Vision of Transit, Maine DOT should study opportunities for shared rides using existing transportation programs, particularly those which might be underutilized. Maine DOT should also investigate additional types of trips that Mainers would like to be able to take using transit, as well as the barriers and challenges facing non drivers, including working with DHHS to understand health considerations for those who do not drive.
- e. Maine DOT should study the total cost of operations for electric ferries, and the impact on future customer prices, as part of its commitment to considering hybrid and fully electric ferries for all new ferry purchases.
- f. Maine DOT should create public educational content about public health, active transport, shared rides, and transit to address hesitancy to participate.

The ESC recognizes the important intersection and shared priorities between public health and mobility, and seeks to ensure that safe, affordable, and reliable access to active transportation

⁴⁸ Gray, R. (2021, November 8). Infrastructure Funds for School Buses Remain Unchanged in House-Passed Bill. *School Transportation News*. <https://stnonline.com/news/infrastructure-funds-for-school-buses-remain-unchanged-in-house-passed-bill/>

⁴⁹ Rubin, J., Ballingall, K., & Brown, E. (2021). *Maine Transportation and Equity*. University of Maine. https://digitalcommons.library.umaine.edu/cgi/viewcontent.cgi?article=1003&context=mcspc_transport

is prioritized. Since the COVID-19 pandemic began, cities across the country have seen a decrease in use of shared transportation and increase in single occupant vehicle transportation.⁵⁰

As an age-friendly state, Maine engaged multiple stakeholders and community leaders throughout 2020 in drafting an Age-Friendly State Plan.⁵¹ This plan identifies shared and innovative public transportation as a key component of quality of life for older adults, reducing social isolation, increasing access to goods and services, and allowing Mainers to age in communities of their choice. The plan notes that mobility options need to include the infrastructure to provide walking or wheelchair access to downtown locations, as well as support for motor vehicle transport, and that the development of new partnerships can help ensure that Mainers know how to access transportation services in their communities.⁵²

For Maine's island communities, ferries represent critical infrastructure that is essential to all residents' ability to access work, and essential services.⁵³ The timing, cost, and availability of ferries are all key aspects of ensuring equitable transportation services are available to island residents. These can be secured via investments in new, zero emission ferries for Maine's island communities.

To improve equitable access to clean active transportation options including e-bikes and scooters, programs that target specific key populations can be implemented. Examples of this type of program can be found in Colorado (funded by the Colorado Energy Office) and in cities including Detroit, MI. Both programs target low-income essential workers during the COVID-19 pandemic.^{54, 55}

9. Remote Working: The state should encourage employers to maintain remote access capabilities and should provide support to those low-income workers who could work remotely but lack the necessary broadband, technology, infrastructure, or space to do so; this may include piloting public shared working spaces and investing in affordable and accessible childcare services statewide.

Remote work has the potential to reduce vehicle miles traveled, thus reducing emissions. Access to reliable broadband continues to be a barrier to remote work, especially for those in

⁵⁰ Solomonow, J. S.-K., Seth. (2020, June 14). *Fear of Public Transit Got Ahead of the Evidence*. The Atlantic. <https://www.theatlantic.com/ideas/archive/2020/06/fear-transit-bad-cities/612979/>

⁵¹ Office of the Governor. (2021). *Age Friendly Maine: Connecting Across Generation*. <https://www.maine.gov/dhhs/sites/maine.gov.dhhs/files/inline-files/Age-Friendly-State-Plan.pdf>

⁵² Ibid.

⁵³ Millette, L. (2021, October 25). *A lifeline for island communities*. Island Institute. <https://www.islandinstitute.org/2021/10/25/a-lifeline-for-island-communities/>

⁵⁴ Colorado Energy Office. *Can Do Colorado eBike Pilot Program*. Retrieved January 10, 2022, from <https://energyoffice.colorado.gov/zero-emission-vehicles/can-do-colorado-ebike-pilot-program>

⁵⁵ New Urban Mobility Alliance. (2020, June 29). *Detroit Mobility Pilot Provides Essential Workers with E-Bikes and E-Scooters During COVID-19 Recovery*. <https://www.numo.global/news/detroit-new-mobility-pilot-provides-essential-workers-e-bikes-and-e-scooters-covid-19>

the northern and eastern parts of the state.⁵⁶ Steps taken to reduce this barrier include the creation of the Maine Connectivity Authority, which will invest more than \$250 million worth of funds from the American Rescue Plan Act and the recently passed Infrastructure Investment and Jobs Act for broadband expansion, with goals related to affordability, speed, and equity.

This builds on Maine’s High-Speed Internet Infrastructure Bond Issue, passed in July 2020, which authorizes the issuance of \$15 million in general obligation bonds to fund projects that will expand broadband access for residents in underserved and unserved areas.⁵⁷

In addition, the Department of Economic & Community Development (DECD) has a coworking development fund, which is a grant opportunity for those interested in creating co-working spaces.⁵⁸ DECD partners with collaborative workspace businesses who are serving key roles in their local communities, creating increased opportunities for co-working spaces in Maine with reliable broadband connection. Despite this, it remains difficult to remedy a lack of home office space and technology challenges for remote employees.

B. BUILDINGS SECTOR

Housing and climate are inherently and inextricably linked — how we live affects the climate, and the climate affects how—and where—we live. This is especially true in Maine, as heating, cooling, and lighting of buildings are responsible for almost one third of the state’s greenhouse gas emissions.⁵⁹ Maine’s strategies to reduce emissions by installing heat pumps, and weatherizing homes and businesses will also reduce energy costs. Heating and cooling of older, poorly insulated homes causes energy inefficiency, and can create health problems for inhabitants.⁶⁰ Individuals who live in unhealthy, inefficient housing are more likely to face health issues associated with their living situation and are more likely to face income barriers to energy efficiency upgrades.⁶¹ In Maine, these populations are also often low-income, rural, and facing other climate change related challenges in daily life.⁶² Creating incentive structures and programs related to housing that specifically benefit disadvantaged populations can improve both health and energy outcomes.⁶³

⁵⁶ Marcattilio-McCracken, R. (2020, July 22). *Mainers Commit to Broadband Expansion with \$15 Million Internet Bond Issue*. Community Networks. <https://muninetworks.org/content/mainers-commit-broadband-expansion-15-million-internet-bond-issue>

⁵⁷ Ibid.

⁵⁸ Office of Business Development. (2019). *Maine Coworking Development Fund Award Guidelines & Program Participation 2019*. Maine Department of Economic and Community Development. <https://www.maine.gov/governor/mills/sites/maine.gov.decd/files/inline-files/Coworking%20Grant%20Announcement%20and%20Guidelines%20copy.pdf>

⁵⁹ Maine Climate Council, 2020.

⁶⁰ Rao, M., Prasad, S., Adshead, F., & Tissera, H. (2007). The built environment and health. *The Lancet*, 370(9593), 1111–1113. [https://doi.org/10.1016/S0140-6736\(07\)61260-4](https://doi.org/10.1016/S0140-6736(07)61260-4)

⁶¹ Ross, L., Drehobl, A., & Stickles, B. (2018). *The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency*. American Council for and Energy Efficient Economy. <https://www.aceee.org/sites/default/files/publications/researchreports/u1806.pdf>

⁶² Winner, B., MacDonald, S., Smith, L., & Juillerat, J. 2018. *Bridging the Rural Efficiency Gap: Expanding access to energy efficiency upgrades in remote and high energy cost communities*. Island Institute. www.islandinstitute.org/bridging-rural-efficiency-gap

⁶³ Ross, L., Drehobl, A., & Stickles, B., 2018.

Many Maine residents are renters (27.8 percent in 2019),⁶⁴ and renters often lack the ability to upgrade the homes where they live. For this reason, the ESC recommends that programs incentivize landlords to invest in clean building, heating, and renewable energy upgrades. The state should also ensure that, when income-eligible residents take advantage of clean building upgrades, energy bill assistance transfers seamlessly between energy sources. In addition, many Maine residents who are income-eligible for bill assistance do not access it; the state should work to ensure that everyone who needs assistance can get it. And finally, in order to effectively promote weatherization upgrades and help disadvantaged communities access clean building funding, the state should assess housing stock.

10. Improvements in Rental Stock: The state, working with EMT, Maine Housing, and others, should develop pilot programs and incentives targeted at landlords' adoption of clean building, heating and renewable energy solutions, particularly in rural and low-income communities.

Residential housing stock is the clearest example of how buildings can affect the health and wellbeing of community members, so this is where the subcommittee focused its recommendations. Housing stock that is energy inefficient presents both financial and health consequences to residents,⁶⁵ who are often low-income and/or live in rural communities.⁶⁶ Incentives for landlords to upgrade to more efficient and renewable solutions can help improve the quality of rental housing. EMT's newest Triennial Plan has prioritized working with multi-unit dwelling landlords.⁶⁷

11. Transfer of Heating Assistance: The state should ensure that heating assistance-eligible residents can seamlessly transfer heating assistance payments from fossil sources to electricity bills when participating in heat pump installations.

Heat pumps deliver heat to a home at a lower operating cost than oil or propane heating systems, thus leading to an overall decrease in energy bills. However, for those low-income Mainers who rely on heating assistance provided through LIHEAP, the process of switching assistance payments between heating sources during the heating season can be prohibitive. Those who are eligible for heating assistance should be able to adopt efficient heating technology, like heat pumps, without fear that their assistance payments will either not transfer easily between fuel sources or offer the same level of benefit for a new heating source.

⁶⁴ United States Census Bureau. (2019). *Demographic Characteristics for Occupied Housing Units: Maine*. <https://data.census.gov/cedsci/table?q=0400000US23&tid=ACST1Y2019.S2502>

⁶⁵ Gibson, M., Petticrew, M., Bamba, C., Sowden, A. J., Wright, K. E., & Whitehead, M. (2011). Housing and health inequalities: A synthesis of systematic reviews of interventions aimed at different pathways linking housing and health. *Health & Place*, 17(1), 175–184. <https://doi.org/10.1016/j.healthplace.2010.09.011>

⁶⁶ Winner, B., MacDonald, S., Smith, L., & Juillerat, J. 2018.

⁶⁷ Efficiency Maine. (2021, November 29). *Triennial Plan V (Fiscal Years 2023-2025)*. <https://www.energymaine.com/triennial-plan-v/>

- 12. Comprehensive Housing Assessment:** The state, in partnership with MHSA, MeCAP agencies, EMT, tribal communities, and others, should conduct an assessment to identify:
- a. those communities and individuals with unsafe, unhealthy, and energy inefficient housing in the state;
 - b. homeowners who are unable to access weatherization, home retrofit services or other energy benefits, such as owners of older (20+ year) mobile homes and structurally unfit older homes; and
 - c. the number of unhoused or inadequately housed people, including those in structurally unfit homes, to help determine necessary investment in housing stock across the state.

The state should prioritize the allocation of resources for building upgrades and weatherization services for those communities, individuals, and housing types determined most vulnerable. For homes that don't qualify for weatherization or other repair services, due to the age, type, or state of disrepair of the home, the state should assess opportunities that allow associated homeowners to access safe and efficient housing or invest in existing housing for these individuals via program exceptions. Special attention should be paid to consideration for allowances to retrofit larger properties for zoned heating and living, for changeover of heating systems to less expensive and cleaner energy options, and for the opportunity to expand the number of mobile home replacements by broadening program guidelines and expanding funding.

Maine last conducted a comprehensive housing assessment in 2009; this type of reporting is essential as the state faces challenges with housing access, pricing, and age of housing stock.⁶⁸ While current resources, such as Maine Housing's Affordability Indexes for Homeownership⁶⁹ and Rental properties,⁷⁰ and the Maine Development Foundation's Measure of Growth report,⁷¹ provide annual updates that offer valuable insights to Maine's housing market and broader economic indicators, understanding the need for adequate, healthy, and weatherized housing for renters across Maine should be a priority for the state.

The lack of supply in both the ownership and rental housing markets has driven prices up to unprecedented levels statewide, creating significant hardships for both families and Maine's economy. The statewide median sales price statewide has risen to \$310,000, an increase of approximately 15 percent from this time last year.⁷² This rapid price increase has been fueled in part by an increase in out-of-state buyers who are moving to Maine with the intention of

⁶⁸ <https://mainehousingcoalition.org/wp-content/uploads/2016/02/Housing-Affordability-in-Maine-Final.pdf>

⁶⁹ Dalton, M., Horrigan, H., & Nusser, S. (2009). *Housing Affordability in Maine: Taking Stock*. Housing Affordability Initiative at the MIT Center for Real Estate for the Maine Affordable Housing Coalition. <https://mainehousingcoalition.org/wp-content/uploads/2016/02/Housing-Affordability-in-Maine-Final.pdf>

⁷⁰ MaineHousing. *2020 Rental Housing Facts and Affordability Index for Maine* [Rental Affordability Indexes]. <https://www.mainehousing.org/policy-research/housing-data/affordability-indexes>

⁷¹ Maine Development Foundation. (2021). *2021 Measures of Growth Report*. <https://www.mdf.org/economic-policy-research/measure-of-growth-report/>

⁷² Valigra, L. (2021, October 21). September home sales in Maine declined as prices continued sharp rise. *Bangor Daily News*. <https://bangordailynews.com/2021/10/21/business/september-home-sales-in-maine-declined-as-prices-continued-sharp-rise/>

working remotely at their existing jobs.⁷³ The vastly increased competition for owned homes has driven many would-be purchasers into the rental market, which was already imbalanced due to an inadequate supply of quality units.⁷⁴ The most recent available data shows that Maine has the ninth largest gap in the United States between the average renter's wage and the cost of a typical two-bedroom rental home.⁷⁵

As the number of households seeking to rent has increased, and the number of units available to rent has stayed relatively static, prices have predictably risen. That has led to challenges for families and individuals in many areas across the state, including Greater Portland, southern York County,⁷⁶ Lewiston/Auburn,⁷⁷ and the midcoast.⁷⁸

In addition, Maine also has some of the oldest housing stock in the country, with 23% of homes built before 1940, and the fifth highest per capita energy expenditure in the country.⁷⁹ Older homes and mobile homes are often less energy efficient than newer homes,⁸⁰ and across the United States, residents of mobile homes spend 70% more per square foot on energy than those living in site-built homes.⁸¹ These high energy expenditures are often compounded by the conditions of poverty that make accessing services more difficult. Barriers to weatherization are often also health and safety hazards for inhabitants—structural damage, roof leaks, mold, pests, and unsafe electrical wiring can all be causes of application deferral.⁸²

An example of a more comprehensive approach to supporting those seeking to gain access to weatherization programs comes from states including Indiana, Delaware, Pennsylvania, and Ohio. These states all have Pre-Weatherization Programs (Pre-WAP) that serve customers who would otherwise be deferred by WAP due to the condition of their home.⁸³ Many potential WAP customers cannot afford the repairs that would be required to be eligible for the program, and therefore do not receive WAP assistance. By participating in Pre-WAP, however, customers gain funding to repair structural issues. Pre-WAP inspects homes, hires contractors, schedules repair work, and performs a quality assurance post-inspection, and then re-admits these units

⁷³ Maine Public. (2021, June 21). *Moving to Maine: Influx of People from Other States Settling in Maine During the Pandemic*. <https://www.mainepublic.org/show/maine-calling/2021-06-21/moving-to-maine-influx-of-people-from-other-states-settling-in-maine-during-the-pandemic>

⁷⁴ Our View: Maine's housing shortage will survive the pandemic. (2021, June 26). *CentralMaine*. <https://www.centralmaine.com/2021/06/26/our-view-maines-housing-shortage-will-survive-the-pandemic/>

⁷⁵ National Low Income Housing Coalition. (2021). *Out of Reach 2021*. <https://reports.nlihc.org/oor>

⁷⁶ Fine, C. (2021, July 22). York County, Maine, homes 'unaffordable for working class families,' report concludes. *Seacoastonline*. <https://www.seacoastonline.com/story/news/local/2021/07/22/york-county-maine-homes-unaffordable-working-class-families/8040410002/>

⁷⁷ Rice, A. (2021, September 19). Housing shortage, high rents vex Lewiston-Auburn market. *Sun Journal*. <https://www.sunjournal.com/2021/09/19/housing-shortage-high-rents-vex-lewiston-auburn-region/>

⁷⁸ Abbate, L. (2021, September 12). Desperate for affordable housing, 2 midcoast communities look to zoning for help. *Bangor Daily News*. <https://bangordailynews.com/2021/09/12/news/midcoast/desperate-for-affordable-housing-two-midcoast-communities-look-to-zoning-for-help/>

⁷⁹ Winner, B., MacDonald, S., Smith, L., & Juillerat, J. 2018.

⁸⁰ NMR Group. (2015). *Maine Single-Family Residential Baseline Study*. Submitted to Efficiency Maine. <https://www.efficiencymaine.com/docs/2015-Maine-Residential-Baseline-Study-Report-NMR.pdf>

⁸¹ Ross, L., Drehobl, A., & Stickles, B., 2018.

⁸² Bratburd, J. (2021). *Increasing Access to Energy Efficiency: Options for Improving Weatherization Assistance*. MOST Policy Initiative. https://mostpolicyinitiative.org/wp-content/uploads/2021/10/MOST_WX_report_2021.pdf

⁸³ National Association for State Community Services Programs. *Pre-WAP Program Examples*. <https://nascsp.org/wp-content/uploads/2019/08/Pre-WAP-Programs.pdf>

into WAP.⁸⁴ In Indiana, Pre-WAP is funded by mortgage settlement funds and administered by the State WAP Office, and served 198 homes in 2016; in Delaware, the program is funded by Regional Greenhouse Gas Initiative (RGGI), administered by Delaware Sustainable Energy Utility in partnership with the State WAP Office, and served 104 homes in 2017.⁸⁵

In Vermont, the Champlain Housing Trust offers a specific low-interest loan product for low-income Vermonters looking to replace their unfit homes with newer, energy efficient models.⁸⁶

Currently, MaineHousing provides data on housing characteristics of homes across Maine by county and town.⁸⁷ This information could be used to assess spoor housing stock in the state, especially when overlaid with demographic data. By identifying communities and individuals in need of upgrades and weatherization services, the state and its partners can more effectively target energy efficiency and weatherization upgrades, and promote available programs, thus reducing both emissions, energy costs, and health burdens.

13. Access to Weatherization and LIHEAP: Some low-income Maine residents who are eligible for weatherization and energy bill assistance, including LIHEAP, are currently not receiving it. In order to promote program awareness and uptake, decrease households' overall energy burden, and reduce reliance on subsidies, the state, in partnership with EMT, the Office of the Public Advocate, Maine State Housing Authority (MSHA), municipalities, and other partners, should:

- a. Publish a baseline assessment of the number of homes that need weatherization assistance, and based on the report, develop an outreach and implementation plan to ensure that all households receiving heating and other energy bill assistance have access to retrofit, weatherization and other energy demand reduction services.
- b. Identify and address access barriers in disadvantaged populations who are eligible for LIHEAP or other energy benefits but who are not currently accessing those benefits. The ESC identified that such barriers might include linguistic isolation, literacy, cultural hesitancy to apply for benefits, and challenges related to understanding the application process, amongst others.
- c. Assess opportunities to improve in the administration of LIHEAP funding, including barriers to total expenditure of funds each year. These barriers might include access to approved contractors, and the ability to fund year-round administrative positions in MeCAP agencies, amongst others.

A baseline assessment of the homes in need of weatherization improvements could be generated via the reporting suggested in the prior recommendation. This type of reporting would allow for a more comprehensive and holistic understanding of the resources necessary to support homeowners and renters in securing access to programs for both weatherization

⁸⁴ Delaware Energy Efficiency Advisory Council. (2020, January 8). *2020-2022 Energy Efficiency Plans*. <http://www.dnrec.delaware.gov/energy/information/otherinfo/Documents/EEAC/2020-01-08/EEAC%202020-2022%20Energy%20Efficiency%20Plans%2020200108.pdf>

⁸⁵ National Association for State Community Services Programs. *Pre-WAP Program Examples*.

⁸⁶ Champlain Housing Trust. *Manufactured Housing Down Payment Loan*. Retrieved January 10, 2022, from <https://www.getahome.org/manufactured-housing-loan/>

⁸⁷ MaineHousing. *Housing Characteristics* [Housing Data]. Retrieved January 10, 2022, from <https://www.mainehousing.org/policy-research/housing-data>

and clean energy updates. This type of holistic approach to assistance with both weatherization and energy efficiency has been adopted in Connecticut, which has set a goal of weatherizing 80 percent of homes at all income levels by 2030, and ensuring equitable access to energy efficiency and solar energy for all households.⁸⁸ A study of Missouri’s weatherization program, access found that a lack of interaction between organizations promoting weatherization and LIHEAP offices created conditions where information for target populations lacked transparency.⁸⁹

Populations who have been historically marginalized or excluded from access to assistance programs may require additional enrollment outreach. Barriers including uncertainty about eligibility, lack of awareness of programs, and perceived difficulty in the application process, have kept eligible low-income people from accessing heating and weatherization assistance.⁹⁰ Improved outreach efforts could include heating assistance and weatherization video testimonials⁹¹ and fliers or brochures promoting integrated heating assistance and weatherization programs⁹² in several languages, and targeted traditional and social media advertising, including transit and outdoor ads.⁹³ The U.S. Office of Community Services has also recently released a list of recommended actions for improved outreach to potential LIHEAP-eligible households.⁹⁴ A report by the U.S. Department of Health and Human Services’ Administration for Children and Families identifies strategies for outreach to families living in rural or remote areas, which is particularly relevant in Maine.⁹⁵

MaineHousing is planning focus groups with LIHEAP households in early 2022, with the goal of obtaining feedback on strategies for program improvements from those who use it. In addition, MaineHousing meets with the Energy Council, comprised of the Community Action Agencies (CAAs), and which regularly administers heating and weatherization programs to break down barriers to accessing heating assistance. Among the steps already taken is contracting with translation services of materials and applications for high volume programs’ applications and materials. Each CAA has an outreach plan that may also include some include video testimonials.

⁸⁸ Better Buildings. *Case Study: Connecticut’s Efforts to Scale Up Integrated Energy Efficiency and Renewable Energy for Low-Income Homes*. United States Department of Energy. https://betterbuildingssolutioncenter.energy.gov/sites/default/files/CS_CT%20Efforts%20to%20Scale%20Up%20EE%20LI%20Homes_FINAL_1.pdf

⁸⁹ Bratburd, J. (2021). *Increasing Access to Energy Efficiency: Options for Improving Weatherization Assistance*.

⁹⁰ Ibid.

⁹¹ Ed & Nancy. Missouri Ozarks Community Action.

<http://www.mocaonline.org/Weather%20documents/Ed&Nancy.mp4>

⁹² *Weatherization is a win-win for Miltona man, Minnesota* (Energy Success Stories). Minnesota Commerce Department. <https://mn.gov/commerce-stat/pdfs/wap-success-story-miltona.pdf>

⁹³ Bratburd, J. (2021). *Increasing Access to Energy Efficiency: Options for Improving Weatherization Assistance; Human Service Solutions. Fuel Assistance (LIHEAP) Marketing Outreach Campaign*. Retrieved January 10, 2022, from <https://www.hswsolutions.com/work/featured-projects/fuel-assistance-campaign/>

⁹⁴ Office of Community Services. (2021). *LIHEAP Fact Sheet—Outreach*.

https://www.acf.hhs.gov/sites/default/files/documents/ocs/TTA_LIHEAP_Grantee%20One-Pager_093021.pdf

⁹⁵ National Center on Parent, Family, and Community Engagement. (2020). *Strategies for Outreach to Families Living in Rural Areas* [Family Outreach Series]. <https://childcareta.acf.hhs.gov/sites/default/files/public/strategies-outreach-series-strategies-for-outreach-families-living-rural-remote-areas-eng.pdf>

The Maine LIHEAP benefit matrix already provides the highest benefit to households with the greatest need; on average, it covers more than 40% of a household’s heating costs. The application process for LIHEAP prioritizes households that have members that are children, older adults, or individuals suffering from hypothermia. While Maine consistently spends down LIHEAP funds within the program guidelines, if the heating benefit is not fully expended, the funds are rolled over to the following program year and may be used for weatherization.

14. Building Code Enforcement: The state should collaborate with municipalities across the state to provide increased access to (and coordination of) shared services for building code development and enforcement, as well as increased training opportunities for builders/contractors, architects/designers, and local officials.

Energy efficiency standards are included in all Maine building codes regulating new construction. It is important to extend access to this information to all building trades and professionals involved in design, equipment specifications, construction, and municipal code enforcement. Maine is experiencing a lack of municipal employees, including code enforcement officers, which can cause delays in building and construction, among other issues. To deal with this shortage, some municipalities have taken measures including “leasing” code enforcement officers from neighboring towns. Others take advantage of qualified Third-Party Inspectors (TPI), as allowed under Maine law. Further, there should be increased access to training for all involved in the planning and building process. EMT hosted several trainings regarding the International Energy Conservation Code (IECC), and best practices for meeting the Maine Uniform Building and Energy Code (MUBEC), which governs building construction in Maine.⁹⁶ Improved training can create conditions for easier and more accurate implementation of the new codes, which can prevent construction delays.

15. Sustainable Affordable Housing: Maine Housing should incentivize, or require, as appropriate, the construction and renovation of affordable and available housing that meet Enterprise Green Community, Passive House, or comparable standards.

Often, new efficient construction is outside of the price range accessible for middle- and low-income populations. However, living in green housing is associated with improved health outcomes, as well as decreased spending on energy bills⁹⁷. By providing incentives for middle- and low-income households for construction of (or renovation to) efficient housing, this recommendation seeks to improve equitable access to housing options that improves equitable access to healthier housing for more people in Maine.

⁹⁶ Efficiency Maine and Maine’s Office of State Fire Marshal Offer Training on Changes to Maine’s Building Energy Code. (2021, April 12). *Efficiency Maine*. <https://www.energymaine.com/efficiency-maine-and-maines-office-of-state-fire-marshal-offer-training-on-changes-to-2015-international-energy-conservation-code/>

⁹⁷ Colton, M. D., Laurent, J. G. C., MacNaughton, P., Kane, J., Bennett-Fripp, M., Spengler, J., & Adamkiewicz, G. (2015). Health Benefits of Green Public Housing: Associations With Asthma Morbidity and Building-Related Symptoms. *American Journal of Public Health*, 105(12), 2482–2489. <https://doi.org/10.2105/AJPH.2015.302793>

In 2021, Efficiency Maine Trust launched a pilot project to provide incentives for multifamily affordable housing built to Passive House standards.⁹⁸ And in Vermont, an Efficiency Vermont program works on identification of effective integration of energy efficiency services during the predevelopment and development phases of affordable multifamily housing projects, provides support to private multifamily property owners to integrate energy efficiency into long-term capital improvement planning, and integrates an income eligible adder incentive on qualifying new construction projects.⁹⁹

At the federal level, through the Low-Income Housing Tax Credit (LIHTC) program, U.S. states are granted federal funding to leverage investment in affordable rental housing. In Maine, this funding is leveraged with new Maine Affordable Housing Tax Credits allocated through MaineHousing.¹⁰⁰ To effectively allocate this funding, the federal government requires that each state's housing financing authority outline criteria to determine funding priorities in the form of a Qualified Allocation Plan (QAP).¹⁰¹ As of 2017, 32 states had incentivized third-party green building certification programs in their QAPs. Maine Housing is currently undergoing a revision of its QAP, which currently exceeds all Maine Uniform Building and Energy Code standards for energy efficiency and incentivizes the adoption of projects that attain Passive House Certification by increasing the Total Development Cost Index Caps.

Finally, existing MaineHousing programs, such as the Landlord Repair Grant, may also be expanded, pending funding, to encompass certain weatherization and energy efficient upgrades.

16. Clean Energy in Affordable Housing: Maine Housing should coordinate with other state agencies and partners that provide access to, funding for, and educational resources about, clean energy technologies and services (e.g. solar energy, heat pumps, EVs, weatherization) to promote adoption of those technologies and services in affordable housing developments, and to market such opportunities.

This type of collaboration and coordination can improve conditions for the adoption of clean energy technologies and services that benefit affordable housing residents. In Massachusetts, the “Affordable Access to Clean and Efficient Energy Initiative” is a successful collaboration between the Department of Energy Resources (DOER), the Department of Housing and Community Development (DHCD) and the Massachusetts Clean Energy Center (MassCEC).¹⁰²

⁹⁸ Executive Director's Summary Report to the Board of Trustees of the Efficiency Maine Trust. (2021). https://www.efficiencymaine.com/docs/ED-Report_2021-09-30.pdf

⁹⁹ Efficiency Vermont. (2019). *Savings Claim Summary*. <https://www.efficiencyvermont.com/Media/Default/docs/plans-reports-highlights/2018/2018-savings-claim-summary.pdf>

¹⁰⁰ MaineHousing. (2021, March 16). Mainehousing Invests \$30.4 Million, Generating \$74 Million in Funds, to Build Affordable Housing. *National Council of State Housing Agencies*. <https://www.ncsha.org/hfa-news/mainehousing-invests-30-4-million-generating-74-million-in-funds-to-build-affordable-housing/>

¹⁰¹ Blackwelder, A. (2019, February 26). U.S. states increasingly embrace green affordable housing. *United States Green Building Council*. <https://www.usgbc.org/articles/us-states-increasingly-embrace-green-affordable-housing>

¹⁰² Massachusetts Energy Efficiency Division. *Affordable Access to Clean and Efficient Energy Initiative*. Retrieved January 10, 2022, from <https://www.mass.gov/service-details/affordable-access-to-clean-and-efficient-energy-initiative>

17. Gentrification and Displacement: The state should conduct a study on gentrification and associated displacement in the state and should develop anti-displacement policy options for managing these and other unintended consequences associated with state programs, including options for municipalities.

Gentrification is “a process of neighborhood change that includes economic change in a historically disinvested neighborhood —by means of real estate investment and new higher-income residents moving in – as well as demographic change – not only in terms of income level, but also in terms of changes in the education level or racial make-up of residents,”¹⁰³ and can affect both urban and rural areas.¹⁰⁴

Working waterfront gentrification often occurs as seasonal residents purchase waterfront properties, displacing fishermen and year-round community members.¹⁰⁵ In Maine, the Working Waterfront Access Protection Program protects strategically significant working waterfront properties whose continued availability to commercial fisheries businesses are essential to the long-term future of the fisheries sector.¹⁰⁶

Other anti-displacement strategies come from community land trusts and cooperative housing, many of which have formed to empower community residents to build and renovate housing that is community controlled, so that it doesn’t lead to displacement and foreclosure. Examples include [Dudley Street](#) in Boston’s Roxbury neighborhood and the [Champlain Housing Trust](#) in Burlington, VT.

18. Equitable Access to Accelerator Funding Opportunities: EMT, through the newly established [Clean Energy and Sustainability Accelerator](#), should incorporate incentives for low- and moderate-income users (or similar mechanisms, including asset-tied financing) that reduce barriers to access, particularly in tenant-occupied housing. The Accelerator should also explore partnerships with community service organizations, such as MaineHousing and MeCAP, to coordinate services and programs.

Incentives for low-and middle-income users are key to improving equitable adoption of clean building and energy technologies. In Connecticut, the state Department of Energy and Environmental Protection and other partners worked with the U.S. Department of Energy Clean Energy for Low-Income Communities Accelerator to identify opportunities to scale up energy

¹⁰³ What Are Gentrification and Displacement. *Urban Displacement Project*. Retrieved January 10, 2022, from <https://www.urbandisplacement.org/about/what-are-gentrification-and-displacement/>

¹⁰⁴ Guimond, L., & Simard, M. (2010). Gentrification and neo-rural populations in the Québec countryside: Representations of various actors. *Journal of Rural Studies*, 26(4), 449–464. <https://doi.org/10.1016/j.jrurstud.2010.06.002>

¹⁰⁵ Carey, M. (2021). *The Critical Nature of Maine’s Working Waterfronts and Access to the Shore*. Island Institute. https://www.islandinstitute.org/wp-content/uploads/2021/11/WWF-Report_web.pdf

¹⁰⁶ *Maine Working Waterfront Access Protection Program: Proposal Workbook*. (2018). Land for Maine’s Future. Maine Department of Agriculture, Conservation and Forestry. https://www.maine.gov/dacf/lmf/docs/wwapp/WWAPP_Workbook_2018.pdf

efficiency and renewable energy programs for low-income households.¹⁰⁷ This effort resulted in five programs that increase low-cost adoption of clean energy technologies and improved public health in low-and middle-income communities in the state.¹⁰⁸

In New York, [EmPower NY](#) provides no-cost energy efficiency services to households at or below 60% of the state median income, and is available to homeowners and renters. Eligible measures include in-home energy education, comprehensive home assessment, electric load reduction, air sealing, insulation, and health and safety improvements. Additionally, the [Multifamily Performance Program](#) is New York State Energy Research and Development Authority's program to address cost barriers experienced by owners of low- to moderate-income properties when implementing clean energy upgrades. The program provides incentives from \$700 to \$1,500 per unit for improvements and is available for affordable housing buildings with more than five units.¹⁰⁹

The American Council for an Energy Efficient Economy reviewed state strategies for successful low-income energy efficiency programs, and provides a useful guide of successful program summaries, including how programs can be targeted to ensure effective outreach to low-income and otherwise marginalized populations.¹¹⁰ In addition, the Clean Energy States Alliance hosts a directory of state low and moderate income clean energy programs.¹¹¹

C. ENERGY SECTOR

Maine is transitioning toward an increasingly clean and electrified future economy, with a goal of 100% renewable electricity powering Maine's grid by 2050.¹¹² As the state makes this transition, access to renewable power must be attainable for all Mainers. Policymakers should pay particular attention to engaging with low-income and disadvantaged communities to ensure that all people have opportunities to participate in and benefit from this clean energy transition and the economic opportunity it presents. The state should also consider sources other than utility revenues to fund clean energy initiatives. Low-and moderate-income customers pay a disproportionate share of their income for electricity and other fuels as compared to other income groups

¹⁰⁷ Better Buildings.

¹⁰⁸ *Home Energy Solutions—Income Eligible*. Energize Connecticut. <https://energizect.com/your-home/solutions-list/save-energy-and-money-all-year-long>; *Weatherization Assistance Program*. Connecticut Department of Energy and Environmental Protection. <https://portal.ct.gov/DEEP/Energy/Weatherization/Weatherization-in-Connecticut>; *Residential Solar Investment Program*. Energize Connecticut. <https://energizect.com/your-home/solutions-list/residential-solar-investment-program>;

Solar for All. Connecticut Green Bank. <https://www.ctgreenbank.com/2018-slice-award-solar-for-all/>;

Smart E Loans. Energize Connecticut. <https://energizect.com/your-home/solutions-list/smarte>

¹⁰⁹ *Multifamily Performance Program*. New York State Energy Research and Development Authority. Retrieved January 10, 2022, from <https://www.nyserda.ny.gov/All-Programs/MPP-Existing-Buildings>

¹¹⁰ Gilleo, A., Nowak, S., & Drehabl, A. (2017). *Making a Difference: Strategies for Successful Low-Income Energy Efficiency Programs* (No. U1713). American Council for an Energy-Efficient Economy.

https://www.puc.nh.gov/EESE%20Board/EERS_WG/062018_pi_wg_successful_low_income_programs.pdf

¹¹¹ Directory of State Low- and Moderate-Income Clean Energy Programs. *Clean Energy States Alliance*. Retrieved January 10, 2022, from <https://www.cesa.org/resource-library/resource/directory-of-state-low-and-moderate-clean-energy-programs/>

¹¹² Maine Climate Council. (2020).

Research has demonstrated that renewable energy sources may provide energy at a cost lower than or comparable to non-renewable sources. The growth of a new clean-energy economy, including the creation of thousands of high-quality jobs, creates economic opportunity across the state. Maine must ensure that the benefits of transitioning to clean energy are available to all people.

When new energy infrastructure is sited in rural or low-income communities, the ESC recommends ensuring that host communities benefit from the new clean power. Benefits might include access to jobs, payments in the form of taxes, energy discounts, and other community-identified goods and services. Additionally, the ESC recommends that the process of siting new clean energy infrastructure meaningfully engage, and account for impacts in, disadvantaged and frontline communities; recognizing that, without intervention, siting decisions for new energy can raise environmental justice concerns.¹¹³

The state should also consider future waste associated with solar photovoltaic installations and offshore wind decommissioning, especially battery disposal or reuse. Responsible waste management and recycling can prevent future environmental burdens on disadvantaged communities.

Low-and moderate-income customers may need additional assistance and incentives for accessing clean energy. The ESC recommends considering opt-out structures as opposed to opt-in because they reduce registration barriers to accessing lower energy rates. On-bill financing offers ratepayers the opportunity to invest in new clean energy technology without a potentially insurmountable upfront cost. Finally, the state should consider options for ensuring equitable access to shared distributed generation projects, including community solar.

19. Community Benefits for Renewable Energy: Communities that host large scale renewable projects should be engaged at the beginning of the infrastructure design and planning process, and should receive local, community-identified benefits from those projects. The state should publish guidance to help communities and natural heritage industries directly impacted by this development access consistent and equitable community benefits; this guidance should include a mechanism for racial and equity analyses.

Siting of large-scale renewable energy projects can present challenges and opportunities for communities where these projects are located. A Michigan study about the siting of wind turbines found, “residents who perceived a fair planning process tended to perceive greater benefits of wind turbines, job creation, and revenues for landowners specifically, while residents who perceived an unfair process perceived significantly greater negative impacts, including visual and noise problems, reduction of nearby property values, and human health problems.”¹¹⁴

¹¹³ Outka, U. (2010). *Siting Renewable Energy: Land Use and Regulatory Context* (SSRN Scholarly Paper ID 1567077). Social Science Research Network. <https://doi.org/10.2139/ssrn.1567077>

¹¹⁴ Mills, S. B., Bessette, D., & Smith, H. (2019). Exploring landowners' post-construction changes in perceptions of wind energy in Michigan. *Land Use Policy*, 82, 754–762. <https://doi.org/10.1016/j.landusepol.2019.01.010>

In Maine, there is a significant history of ensuring community benefits accrue to the local community, such as in Maine State Law, Title 35-A, subsection 3454¹¹⁵ Further, recent clean energy procurements, required by the legislation that increased Maine’s renewable requirements, requires project scoring to include a weight of 70% for project benefits to ratepayers and a weight of 30% for benefits to the economy (e.g. employment, excise, income, property and sales taxes).¹¹⁶ Other states have made benefits a component of energy procurements, including payments directly to local ratepayers.¹¹⁷

20. Renewable Energy Siting: The DEP, PUC, and other responsible agencies should develop a process for reviewing equity considerations for siting large scale renewable energy projects, as well as associated energy infrastructure improvements.

Like the prior recommendation, the ESC recognizes that siting of new energy infrastructure can lead to adverse outcomes for host communities without attention and or intervention. The Office of Renewable Energy Siting in New York requires an Environmental Justice review for large scale renewable project siting to ensure disproportionate adverse environmental impacts are not borne by potential host communities.¹¹⁸ In Maine, while the PUC does not have regulatory oversight over large scale renewable projects, it has considered environmental issues (such as GHG emissions) when proposed transmission projects are reviewed. Recent legislation additionally allows the PUC to consider equity issues in the context of the proposals for a northern Maine transmission line.¹¹⁹

21. Opt-Out Models: The state should work with utilities to explore the shift from opt-in to opt-out models for participation in cleaner and less expensive electricity projects, such as community solar (and similar programs).

In Maine, community solar project participation requires users to opt-in (e.g. the consumer must actively choose to join the program). Research finds people tend to stick with the default power option rather than joining new programs; in similar cases, adoption rates have been around 80 percent when customers chose to opt out, versus 15 percent participation for opting in.¹²⁰ For populations that are overburdened, or are unfamiliar with a clean energy program like community solar, opting-in to a renewable energy project can present a barrier to participation even when participation in a renewable energy project can lower energy costs.¹²¹ Thus, the ESC

¹¹⁵ Public Utilities, 35-A. § 34-A, 3454. <https://www.mainelegislature.org/legis/statutes/35-a/title35-Asec3454.html>

¹¹⁶ Public Utilities, 35-A. § 32, 3210-G. <https://www.mainelegislature.org/legis/statutes/35-a/title35-Asec3210-G.html>

¹¹⁷ Puchner, T. (2021, February 15). *New York State Public Service Commission Establishes Host Community Benefit Program*. Renewable Energy Post. <https://www.renewableenergy.com/public-service-commission/new-york-state-public-service-commission-establishes-host-community-benefit-program/>

¹¹⁸ Title 19 of NYCRR Part 900, Chapter 18. § 900-1. <https://ores.ny.gov/system/files/documents/2021/03/chapter-xviii-title-19-of-nycrr-part-900-subparts-900-1-through-900-15.pdf>

¹¹⁹ An Act to Require Prompt and Effective Use of the Renewable Energy Resources of Northern Maine. L.D. 1710. <http://www.mainelegislature.org/legis/bills/getPDF.asp?paper=SP0563&item=5&snum=130>

¹²⁰ Todd, A., Cappers, P., & Goldman, C. A. (2013). *Residential Customer Enrollment in Time-based Rate and Enabling Technology Programs: Smart Grid Investment Grant Consumer Behavior Study Analysis*. <https://emp.lbl.gov/publications/residential-customer-enrollment-time>

¹²¹ Better Buildings.

recommends exploring automatic enrollment in less expensive renewable energy projects with the option to opt out, a practice which has recently been piloted in the northeast.¹²² In the program, all eligible residents are automatically enrolled in the program without having to sign a contract, undergo a credit screen, or have solar panels installed on their homes. Residents can opt-out at any time without a penalty.

22. On-Bill Financing: Efficiency Maine Trust should continue to work with Governor’s Energy Office (GEO), the legislature, the PUC, and utilities, to assess the viability of on-bill financing programs to allow homeowners to borrow money for energy, weatherization, and heating systems upgrades and make repayments over time via their utility bill.

Financial barriers often keep homeowners from accessing energy upgrades.¹²³ On-bill financing can benefit families who are unable to access traditional energy upgrade programs due to upfront expenses, households who cannot easily access traditional financing programs for energy upgrades, and customers with a good utility bill payment history but bad or no credit.¹²⁴ On-bill financing that allows for a change in ownership of repayment obligation can even incentivize landlords and tenants to participate. Green Mountain Power in Vermont is piloting an on-bill financing program in partnership with the NeighborWorks of Western Vermont Heat Squad program. The pilot is integrating finance thermal efficiency measures (including weatherization) on customer bills, which allows customers to pay for upgrades overtime.¹²⁵

23. Renewable Energy Procurement Equity: The PUC and GEO should examine emerging best practices for incorporating equity into community solar and other community-owned distributed energy programs. Specifically, future renewable energy procurement processes should explore requirements for supplier and workforce diversity.

Barriers to participation in community solar and other community-owned distributed energy programs for LMI customers range from being a renter rather than a homeowner, to language barriers, lack of Internet access, and constraints on resources and time.¹²⁶ Policy measures can address these barriers and create opportunities for LMI customers to participate, allowing for energy bill reduction. The Interstate Renewable Energy Council has produced a [report](#) that identifies these barriers and proposes possible solutions.

The [Community Renewables Pilot Program](#) in Rhode Island is administered by the Commerce Corporation, and acts as a first-come-first-served, rolling-basis application process for owners of community solar projects to pass discounted rates on to LMI and basic residential

¹²² Joule Community Power. (2021, September). *Finger Lakes, NY Activates First Opt-Out Community Choice Solar Program in the U.S.* <https://www.prnewswire.com/news-releases/finger-lakes-ny-activates-first-opt-out-community-choice-solar-program-in-the-us-301366788.html>

¹²³ Better Buildings.

¹²⁴ *EESI’s On-Bill Financing (OBF) Project*. Environmental and Energy Study Institute. Retrieved January 10, 2022, from <https://www.eesi.org/obf/main>

¹²⁵ Winner, B., MacDonald, S., Smith, L., & Juillerat, J. (2018).

¹²⁶ Interstate Renewable Energy Council. *Shared Renewable Energy for Low- to Moderate-Income Consumers: Policy Guidelines and Model Provisions*. https://www.energy.gov/sites/default/files/2016/04/f30/IREC-LMI-Guidelines-Model-Provisions_FINAL.pdf

customers.¹²⁷ In New York, the Solar For All program provides income-eligible households with monthly credits on electricity bills up to \$15/month, with no up-front costs to participate in community solar projects; and New York Sun offers an Inclusive Community Solar Adder, an incentive available for community solar projects metered as community distributed generation serving LMI households, regulated affordable housing, and nonprofits serving disadvantaged and environmental justice communities.¹²⁸ Other states' community solar programs featuring equity considerations or low-income carve-outs include Illinois' [Solar for All](#), New Jersey's Community Solar Energy Pilot Program, which ensures disadvantaged communities can access the health and financial benefits of renewable energy,¹²⁹ New Mexico's legislation to establish a community solar program with a requirement that 30 percent of output go to low-income customers or service organizations,¹³⁰ and Delaware's community solar legislation that requires each system serve at least 15 percent low-income customers.¹³¹

24. Renewable Decommissioning: DEP, in partnership with other state departments, should work with the legislature and with other northeastern states to study opportunities and challenges associated with PV (photovoltaic) and offshore wind decommissioning, with a specific focus on battery disposal and the development of secondary battery markets in Maine. These studies should consider location of, and impacts from, potential future disposal facilities within marginalized communities and communities of color.

To ensure disposal of material related to solar PV and offshore wind does not disproportionately harm already disadvantaged populations, the ESC recommends assessing decommissioning and recycling practices for batteries and solar panels. Effective October 18, 2021, Maine law requires developers of solar power projects that occupy three or more acres to have an approved decommissioning plan and accompanying financial assurance sufficient to cover the cost of decommissioning as outlined in the plan. The law applies to projects on which construction starts on or after October 1, 2021, as well as to projects that undergo a transfer of ownership after October 1, 2021.¹³²

In addition, when the Maine Legislature created the Maine Wind Energy Act, they included requirements that wind energy projects must be either decommissioned or removed, after the useful life of the turbines, and that decommissioning costs be funded by the project owner. These decommissioning provisions provide a level of protection to the State of Maine and taxpayers if project owners fail to remove unwanted turbines. In 2018, the Maine DEP created a

¹²⁷ Rhode Island Commerce Corporation. (2018). *Community Renewables Request for Projects*. <https://commerceri.com/wp-content/uploads/2018/05/Community-Renewables-Requests-5.11.18-1.pdf>

¹²⁸ *Inclusive Community Solar Adder*. Retrieved January 10, 2022, from <https://www.nyserda.ny.gov/All-Programs/NY-Sun/Contractors/Dashboards-and-incentives/Inclusive-Community-Solar-Adder>

¹²⁹ *Governor Murphy Celebrates Completion of First Community Solar Project Energized in New Jersey*. (2021, January 28). Office of the Governor. <https://nj.gov/governor/news/news/562021/approved/20210128a.shtml>

¹³⁰ Community Solar Act. § SB 84 (2021). <https://www.nmlegis.gov/Legislation/Legislation?chamber=S&legtype=B&legno=84&year=21>

¹³¹ An Act to Amend Titles 6, 26, and 29 of the Delaware Code Relating to Community Owned Energy Generating Facilities and Renewable Energy. § SB 2 (2021). <https://legis.delaware.gov/BillDetail/78777>

¹³² *Solar Decommissioning*. Maine Department of Environmental Protection. Retrieved January 10, 2022, from <https://www.maine.gov/dep/land/solar-decommissioning/index.html>

new rule chapter to provide further definition to the Maine Wind Energy Act standards. The Maine DEP’s Chapter 382 Rule—Wind Energy Act Standards—includes sections that define decommissioning, specify what is required in a decommissioning plan, describe when decommissioning would be triggered, lay out what types of financial assurance are required, and other matters. Finally, given the ban on the development of offshore wind in Maine state waters, it is important to note that the U.S. Department of the Interior’s Bureau of Ocean Energy Management has regulatory authority over decommissioning of offshore wind projects in federal waters bordering Maine. Their regulations require a Construction and Operations Plan that includes decommissioning, and provide several requirements regarding the decommissioning, including financial assurance requirements and removal obligations.

With regards to the siting of waste disposal facilities, a 2020 addition to Maine DEP’s Chapter 400 rules on landfill siting incorporates explicit consideration of environmental justice in impacted communities.¹³³

At the federal level, the U.S. Department of Energy’s Office of Energy Efficiency & Renewable Energy [created the first R&D center for lithium ion battery recycling in the nation](#). “ReCell” will test new recycling practices in battery manufacturing, with the aim of piloting and eventually bringing successful methods to industry-scale. Maine is coordinating with other states through the Northeast Recycling Council and the Product Stewardship Council to develop a model program for EV battery recycling. States including Massachusetts, California and New York have also set up study groups to discuss safe handling of EV battery decommissioning.¹³⁴ The ESC recognizes the potential for negative impacts on communities outside of Maine associated with the mining and extraction of materials for lithium-ion batteries.¹³⁵

25. Comprehensive Assessment of Energy Burden: GEO, EMT, the PUC, OPA, MaineHousing, and other partners should conduct a comprehensive assessment of energy burden and energy reliability across Maine. This assessment should identify actions that reduce energy burden and increase energy reliability for disadvantaged Mainers and for those experiencing disproportionate energy burden, such as through the revision of existing programs and the adoption of new programs. Any programmatic changes should establish measurable targets for reducing energy burden and the improving reliability over time.

A household’s energy burden can be understood as the percentage of income spent on energy bills. Maine has one of the highest average energy burdens in the country, but the burden is not equitably distributed—poorer and rural households spend a much larger proportion of their income on energy bills.¹³⁶ Census data shows that nationally, on average, low-income

¹³³ Chapter 400: Solid Waste Management Rules: General Provisions. In *Rule Chapters for the Department of Environmental Protection*. State of Maine. <https://www.maine.gov/sos/cec/rules/06/chaps06.htm>

¹³⁴ Tyrrell, K. Electric Vehicle Batteries Pose Powerful Recycling Challenge. *National Conference of State Legislatures*. Retrieved January 10, 2022, from <https://www.ncsl.org/research/transportation/electric-vehicle-batteries-recycling-magazine2020.aspx>

¹³⁵ Lithium-ion batteries need to be greener and more ethical. (2021). *Nature*, 595(7865), 7–7. <https://doi.org/10.1038/d41586-021-01735-z>

¹³⁶ Winner, B., MacDonald, S., Smith, L., & Juillerat, J. (2018).

households have an energy burden three times higher than non-low-income households.¹³⁷ This results in less money for these low-income households to spend on other essential needs, such as food, transportation and healthcare. A 2019 study for the Maine Office of the Public Advocate studied Maine’s Low-Income Energy Burden and found that several counties in Maine had low income energy burdens at or above 20 percent of income.¹³⁸ And while the Maine PUC and the MSHA currently administer a statewide Low-Income Assistance Program (LIAP), which disburses more than \$7 million annually to assist qualified low-income customers with their electric bills, the state is considering a significant increase in funding due to persistent energy burdens.

In Oregon, the Department of Energy, PUC and Oregon Housing and Community Services partnered on a ten-year plan to reduce the energy burden on low-income households and prioritized energy efficiency to achieve that reduction.¹³⁹ An index was generated to determine areas with high energy burden; factors in the index included “affordability hardship due to low household income (economic driver); poor home energy efficiency due to older home vintage (physical driver); and housing inequity issues due to ethnicity/race (systemic driver).”¹⁴⁰

D. GROW MAINE’S CLEAN ENERGY ECONOMY

Overall, the ESC recommends ensuring that the workforce opportunities associated with Maine’s transition to clean energy are equitably distributed. Additionally, there is a focus on ensuring that Maine’s natural heritage industries, including farming and agriculture, fisheries and aquaculture, and forestry and forest products are supported by the state as they confront the impacts of climate change on their industries, and are economically viable and welcoming to diverse new potential workers. The ESC frames these recommendations under the ideal of a **just transition**.¹⁴¹ This means seeking just pathways to transition away from jobs and economies that pollute the air and the environment, and strengthening the health and adaptive capacity of workers and uplifting their communities.¹⁴² It also means leaving no one behind. The recommendations presented here represent the needs of those most underprivileged. By committing to a just transition, benefits and burdens associated with climate change and resulting policy can be distributed equitably.

¹³⁷ *Low Income Energy Affordability Data Tool*. Office of Energy Efficiency and Renewable Energy. Retrieved January 10, 2022, from <https://www.energy.gov/eere/slsc/maps/lead-tool>

¹³⁸ Allison, A., Napoleon, A., & Kallay, J. (2019). *Maine Low-Income Home Energy Burden Study: Final report*. Prepared for Maine Office of the Public Advocate. <https://www.maine.gov/meopa/sites/maine.gov/meopa/files/inline-files/Maine%20Low%20Income%20Energy%20Burden%20Study%20June%202019.pdf>

¹³⁹ <https://www.oregon.gov/energy/Get-Involved/Documents/2018-BEEWG-Ten-Year-Plan-Energy-Burden.pdf>

¹⁴⁰ Beaulieu, S., Buylova, A., Hannoosh, M., & Schaffer, P. (n.d.). *Ten-Year Plan: Reducing the Energy Burden in Oregon Affordable Housing*. Oregon Department of Energy, Oregon Public Utility Commission, Oregon Housing and Community Services. <https://www.oregon.gov/energy/Get-Involved/Documents/2018-BEEWG-Ten-Year-Plan-Energy-Burden.pdf>

¹⁴¹ What is Just Transition?. *Just Transition Alliance*. Retrieved January 10, 2022, from <http://jtalliance.org/what-is-just-transition/>

¹⁴² Schlosberg, D., Collins, L. B., & Niemeyer, S. (2017). Adaptation policy and community discourse: Risk, vulnerability, and just transformation. *Environmental Politics*, 26(3), 413–437. <https://doi.org/10.1080/09644016.2017.1287628>

The ESC recommends that farming, fishing, forestry jobs, and clean energy jobs¹⁴³ are made available to diverse Mainers including people of color, older adults, women, people with disabilities, New Mainers, people living in rural areas, and those with low-paying jobs who are switching careers. A strong workforce requires both good training and support. Training for jobs in the clean energy sector should be provided for free or offered as paid training to ensure access isn't cost prohibitive. In addition, students should be able to learn about clean energy jobs in school, especially well-paying jobs that might not require a college education. Additionally, where needed, the state should provide free or affordable transportation and childcare for people to support their participation in training and job opportunities.

Further, climate change is making aspects of natural heritage professions more difficult, and the state should help workers in these industries adapt. New clean technology, like electric tractors and outboard engines, and solar arrays for businesses, rare one such adaptation pathway that can assist workers in natural heritage industries. These technologies are often expensive, and workers can be unsure if they will work for their business; the state should assist these industries in piloting climate-friendly technology. Where adaptation cannot overcome the barriers presented by a changing climate, the state should offer training and assistance to workers who might lose their jobs due to climate change, ensuring that they can access new well-paying jobs.

26. Diversity in Natural Heritage Industries: The state should study the current demographics of Maine's natural heritage industry workers and should identify opportunities and drivers of change that support increased diversity, while building job security for existing workers. The state should study barriers to New Mainers and other marginalized farmers, fishers, and foresters who wish to enter heritage industries, including lack of access to capital and land, and immigration/visa requirements that may limit relocation ability with family members. The state should also identify, recognize, and leverage unique skills that New Mainers may bring to these critical state industries. Finally, the state should help workers, land managers, and business owners understand and mitigate the impact of climate change and associated hazards, such as extreme heat, on current workers.

The state should identify and support key partners, that work with immigrant communities, black and indigenous communities of color, older people, people with disabilities, and women to ensure access to vital support systems as part of Maine's efforts to attract and support diverse perspectives and workers in natural heritage industries.¹⁴⁴ Already, growth in Maine's farming industry is driven by younger farmers and New Mainers, with local programs such as Maine Farmland Trust's offering educational services and low-cost financing to new farmers;¹⁴⁵ and Cultivating Community's New American Sustainable Agriculture Project providing a refugee and

¹⁴³ Clean energy jobs include a wide range of well-paying jobs such as installing solar panels, auditing energy efficiency, developing electric vehicles, advanced manufacturing, and upgrading utility lines, amongst others.

¹⁴⁴ Governor's Economic Recovery Committee. *Recommendations to Sustain and Grow Maine's Economy*. (2020). https://www.maine.gov/future/sites/maine.gov/future/files/inline-files/Maine%20ERC%20Report_FINAL_11242020.pdf

¹⁴⁵ Beginning Farmer Services. *Maine Farmland Trust*. Retrieved January 10, 2022, from <https://www.maineFarmlandtrust.org/farmland-access-new/beginning-farmer-services-2/>

immigrant farmer training program, based out of two incubator farms in Lisbon and Falmouth.¹⁴⁶

Additionally, the state should evaluate credentialing pathways, including license and work experience reciprocity for new and returning Mainers and requirements for individuals entering clean energy and natural heritage industries, to ensure Maine can and retain diverse and experienced workers.¹⁴⁷

With respect to those entering fisheries, some fishermen in southern New England have addressed challenges with crew shortages by hiring recent immigrants or H2B visa workers. In many coastal communities, this type of hiring requires supporting services and infrastructure that do not currently exist.

27. Diversity in Clean Energy Sector: The state should study the current demographics of clean energy sector workers, and opportunities to increase access to these jobs for underserved communities. Clean energy workforce training opportunities should recruit women and people of color and should be accessible to people from across the state. Such training opportunities should decrease barriers to entry for disadvantaged workers, through the provision of wrap-around services, payment for training opportunities, and other opportunities. Additionally:

- a. The Governor’s Office of Policy Innovation and the Future (GOPIF) and GEO should partner with Department of Labor (DOL) to provide information on clean energy career and job training opportunities to unemployed/underemployed Mainers.
- b. The state should explore barriers to entry into clean energy careers related to licensure and should align with best practices informed by both industry partners and other states and jurisdictions.
- c. The state, in partnership with Career and Technical Education centers, community colleges, and other training and industry partners, should conduct a statewide study of workforce availability to meet current and projected needs for energy assessments, audits, electricians, and weatherization technicians. This study should assess any projected workforce shortages across the state and should recommend training programs/pathways and other mechanisms designed to increase access to well-paying jobs in these fields for historically disadvantaged or underemployed workers, like the approach being taken in other state programs, such as California’s High Road Training Partnerships.^{148 149}

New employment opportunities created in the clean energy sector should be available to all workers and should specifically seek to create employment opportunities for diverse people.

¹⁴⁶ *Farmer Training*. Cultivating Community. Retrieved January 10, 2022, from <https://www.cultivatingcommunity.org/programs/farmer-training/>

¹⁴⁷ Governor’s Economic Recovery Committee. (2020).

¹⁴⁸ *The Maine Jobs & Recovery Plan*. State of Maine Covid-19 Response. Office of the Governor. Retrieved January 10, 2022, from <http://www.maine.gov/covid19/maine-jobs-and-recovery-plan>

¹⁴⁹ High Road Training Partnerships. *California Workforce Development Board*. Retrieved January 10, 2022, from <https://cwdb.ca.gov/initiatives/high-road-training-partnerships/>

National data on employment in the clean energy sector show that intervention is needed to make this happen. For example, within the solar workforce in the United States in 2018, 26.3% of workers were women and 7.6% of workers were black or African American, both percentages that are well below the national average for all occupations.¹⁵⁰ Similarly, women, and black or African Americans, respectively, represent 24% and 8% of the U.S. energy efficiency workforce.¹⁵¹

Promisingly, this work is already underway in Maine. For example, BW Research is currently conducting an analysis for the Offshore Wind Roadmap process on the clean energy sector workforce, and opportunities specific to the offshore wind industry; GEO expects to expand this type of analysis to the clean energy sector in 2022. In addition, in November 2021, Governor Mills unveiled a new Clean Energy Partnership, backed by \$5.5 million from the Maine Jobs and Recovery Plan, to provide career training opportunities, like apprenticeships, that will equip workers with the skills needed to fill good-paying jobs in Maine’s growing clean energy sector.¹⁵² Finally, the Franklin and Somerset counties’ STEM Pilot Project, funded by the New England Clean Energy Corridor Stipulating Agreement with the state, kicked off in the spring of 2021. This program represents the launch of the state’s career exploration program, which encourages education and training opportunities in clean energy and advances the goals of the [Children’s Cabinet](#). The project supports vocational and innovative programs in science, technology, engineering and math (STEM) for students in the Franklin and Somerset counties’ school districts. Programs include career exploration programs, STEM camps, paid internships and scholarships for Maine Community Colleges and other higher education institutions serving students from these counties. If successful, similar programs could be implemented across the state.

Critical wrap-around mental and behavioral health support services for worker training programs include treatment for substance abuse disorder and trauma-informed care for workers, in addition to services previously identified by the ESC.

28. Just Transition: In partnership with the Department of Labor, DECD, private industry, and others, the state should develop a comprehensive just transition approach, including adopting a comprehensive definition of a “just transition approach” and prioritizing workforce retraining initiatives, especially in those industries and communities most threatened by climate change. These retraining programs must be developed in close collaboration with impacted communities and industries.

¹⁵⁰ National Solar Jobs Census 2020. *Interstate Renewable Energy Council*. Retrieved January 10, 2022, from <https://irecusa.org/resources/national-solar-jobs-census-2020/>

¹⁵¹ 2017 U.S. Energy and Employment Report. (2017, January). Energy.Gov. <https://www.energy.gov/downloads/2017-us-energy-and-employment-report>

¹⁵² Governor Mills Announces Maine Jobs & Recovery Plan Initiatives to Cut Energy Costs for Maine Families, Reduce Carbon Emissions, and Strengthen Clean Energy Workforce. (2021, November 4). Office of Governor Janet T. Mills. <http://www.maine.gov/governor/mills/news/governor-mills-announces-maine-jobs-recovery-plan-initiatives-cut-energy-costs-maine-families>

Vulnerability of jobs in certain industries threatened by climate change can be addressed through “just transition” initiatives. For example, Chicago will invest in companies that hire and retain displaced fossil fuel workers and traditionally marginalized workers to manufacture clean energy infrastructure at a prevailing wage with comprehensive benefits, while Colorado has created both a [Just Transition Office](#) and [Just Transition Advisory Committee](#).¹⁵³ ¹⁵⁴ Minnesota established an Energy Transition Office at the Department of Employment and Economic Development to assist communities and workers in areas with retiring electric generation facilities,¹⁵⁵ and New Mexico established a Sustainable Economy Task Force to strategize diversification of the economy and replacement of jobs and revenue from extractive industry.¹⁵⁶ ¹⁵⁷

29. Climate Impacts on Fishing: The state should study how climate-driven uncertainty will continue to impact the fishing industry, and should identify current and potential opportunities for diversification (aquaculture, shellfish, etc.) within this industry for those workers at risk of losing their jobs/livelihoods. The state should prioritize investments in economic diversification in the most climate vulnerable communities first, with a focus on increasing diverse participation in at-risk industries.

Climate driven effects will continue to impact Maine’s fishing industries. The lobster industry may face challenges including expanding market pressures, unpredictable changes in market prices, and warming waters in the Gulf of Maine.¹⁵⁸ Additionally, climate driven changes are likely to cause vulnerability to over-fishing, which can drive price volatility.¹⁵⁹ ¹⁶⁰ The University of Maine published a 2014 report, “In Their Own Words,” which provides fishermen-identified recommendations to boost resilience.¹⁶¹

¹⁵³ Support for implementation of clean energy transition plan. R2019-157 (2019).

<https://chicago.legistar.com/LegislationDetail.aspx?ID=3886265&GUID=081AC4BD-E6F4-4789-AD80-53BF25764855&Options=Advanced&Search=>

¹⁵⁴ Governor signs landmark energy legislation, establishing New Mexico as a national leader in renewable transition efforts. (2019, March 22). *Office of the Governor Michelle Lujan Grisham*.

<https://www.governor.state.nm.us/2019/03/22/governor-signs-landmark-energy-legislation-establishing-new-mexico-as-a-national-leader-in-renewable-transition-efforts/>

¹⁵⁵ Establishing an Energy Transition Legacy Office. (2021, March 11). *Senate DFL*. <https://senatedfl.mn/establishing-an-energy-transition-legacy-office/>

¹⁵⁶ Sustainable Economy Task Force. SB 112 (2021).

<https://www.nmlegis.gov/Legislation/Legislation?Chamber=S&LegType=B&LegNo=112&year=21>

¹⁵⁷ Bristol Bay Community College, UMass Dartmouth Public Policy Center, Massachusetts Maritime Academy, & Massachusetts Clean Energy Center. (2018). *2018 Massachusetts Offshore Wind Workforce Assessment*.

<https://files.masscec.com/2018%20MassCEC%20Workforce%20Study.pdf>

¹⁵⁸ Henry, A. M., & Johnson, T. R. (2015). Understanding Social Resilience in the Maine Lobster Industry. *Marine and Coastal Fisheries*, 7(1), 33–43. <https://doi.org/10.1080/19425120.2014.984086>

¹⁵⁹ Dayton, A. (2018). Assessing Economic Performance of Maine’s Lobster Fleet Under Changing Ecosystem Conditions in the Gulf of Maine. *Electronic Theses and Dissertations*, 2881.

<https://digitalcommons.library.umaine.edu/cgi/viewcontent.cgi?article=3994&context=etd>

¹⁶⁰ Ibid. pg. 132.

¹⁶¹ Johnson, T. R., Henry, A., & Thompson, C. (2014). *In Their Own Words: Fishermen’s Perspectives of Community Resilience*. University of Maine School of Marine Sciences. <https://seagrant.umaine.edu/wp-content/uploads/sites/467/2019/03/2014-in-their-own-words-fishermens-perspectives-community-resilience.pdf>

Aquaculture is one new and potentially viable diversification strategy.¹⁶² As of 2017, 24% of aquaculture businesses in Maine started operating in the past 2 years and 45% started in the past 5 years, investing \$10.8 million in the sector in the last 3 years.¹⁶³ L.D. 1438 (128th Legislature),¹⁶⁴ ¹⁶⁵ reduced the regulatory constraints on aquaculture to allow for further diversification. Barriers to aquaculture include business start-up costs, environmental permitting costs, time and labor, delayed returns on investment, cultural differences (and public stigma) between wild-capture fisheries and aquaculture, hands-on training and business planning, and competition with Maine's primary fishery, lobster, which remains highly valuable.¹⁶⁶ To address some of these challenges, Maine's Department of Marine Resources is currently funding programming to support business development in the aquaculture sector, supported by seafood-specific relief funds in the 2021 Consolidated Appropriations Act. In addition, Maine has a variety of educational programs available through many partners for those considering aquacultural businesses.¹⁶⁷ ¹⁶⁸

Seaweed harvesting represents another potentially viable diversification strategy. Harvest activity along Maine's rocky-intertidal zone of rockweed and seaweed was found to have minimal impact on blue carbon sinks at its current harvest rate (5.4-6.8 tons/year), although the overall preservation and health of these ecosystems is crucial to maintaining this sink.¹⁶⁹ An additional challenge associated with seaweed harvesting is the need to develop an expanded market for the product. Professional membership-based organizations, such as the Maine Seaweed Exchange provides education, advocacy, and support to seaweed growers at all stages to help expand opportunities.¹⁷⁰

30. Sustainable Agriculture: In partnership with University of Maine Cooperative Extension and the private sector, and in recognition of the Resolve To End Hunger in Maine by 2030, the state should explore agricultural opportunities associated with sustainably growing new crops in a changing Maine climate. In addition, the state should further consider the way that climate risks will affect the food supply chain in Maine and should explore opportunities to ensure that Maine grown food can mitigate supply chain risks while improving access to food for all people, especially disadvantaged communities.

¹⁶² [Stoll, J. S., Leslie, H. M., Britsch, M. L., & Cleaver, C. M. \(2019\). Evaluating aquaculture as a diversification strategy for Maine's commercial fishing sector in the face of change. *Marine Policy*, 107, 103583. <https://doi.org/10.1016/j.marpol.2019.103583>](https://doi.org/10.1016/j.marpol.2019.103583)

¹⁶³ Cole, A., Langston, A., & Davis, C. (2016). *Maine Aquaculture Economic Impact Report*. University of Maine. <https://umaine.edu/aquaculture/wp-content/uploads/sites/572/2017/01/Aquaculture-Econ-Report.pdf>

¹⁶⁴ An Act to Improve the Aquaculture Leasing and Licensing Laws. L.D. 1438 (2017).

<https://legislature.maine.gov/legis/bills/getPDF.asp?paper=HP0993&item=3&num=128>

¹⁶⁵ *FocusMaine*. <https://focusmaine.org/focusmaine-2-2-2-2/>

¹⁶⁶ [Stoll, J. S., Leslie, H. M., Britsch, M. L., & Cleaver, C. M. \(2019\).](https://doi.org/10.1016/j.marpol.2019.103583)

¹⁶⁸ *Educational Resources*. Maine Aquaculture Innovation Center. Retrieved January 10, 2022, from <https://www.maineaquaculture.org/educational-resources/>

¹⁶⁹ [Phillippi, A., Tran, K., & Perna, A. \(2014\). Does intertidal canopy removal of *Ascophyllum nodosum* alter the community structure beneath? *Journal of Experimental Marine Biology and Ecology*, 461, 53–60. <https://doi.org/10.1016/j.jembe.2014.07.018>](https://doi.org/10.1016/j.jembe.2014.07.018)

¹⁷⁰ *Maine Seaweed Exchange*. <http://www.maine seaweedexchange.com/>

As the state’s agricultural sector experiences climate change, the viability of crop species will also change.¹⁷¹ To ensure that Maine farms can continue to produce food for Maine people, the ESC found that it will be necessary to ensure that farmers are aware of opportunities for growing new crops that will benefit from a longer growing season, which Maine is expected to experience more often. Region-wide opportunities for northeastern sustainable farming in a warming climate include expanding vine fruit production, small grain crops, and apple orchards, especially as the western U.S. becomes increasingly impacted by the effects of climate change.¹⁷² A 2015 report by the Northeast Hub of the United States Department of Agriculture identifies needed adaptation strategies for each crop category and corresponding research and extension needs.¹⁷³ New York, Pennsylvania, and Connecticut have piloted projects exploring new crop production in partnership with Extension networks.¹⁷⁴ Currently, University of Maine Cooperative Extension partners with Sustainable Agriculture Research and Education (SARE) which pilots opportunities to grow new crop varieties like melon production.¹⁷⁵ Other programs that work to further climate adaptation for new crops include the Maine Climate and Ag Network¹⁷⁶ and the Maine Climate Change Adaptation Providers Network.¹⁷⁷ Maine’s recently passed L.D. 437 (130th Legislature, 2021), establishes a Maine Healthy Soils Program, which seeks to improve the health, yield, and profitability of the state’s agricultural soils and commodities by promoting use of soil health practices. Improved soil health can increase yield,¹⁷⁸ which both improves economic gains for farmers and increases distribution of Maine-grown food.

31. Environmentally Friendly Certifications: The state should support natural heritage industries in pursuit of value-added environmentally friendly certifications, such as Benefit Corporations and Certified Organic, as well as ownership structures, including cooperatives.

Lack of information and technical support, and increased perceived risk are barriers to farmers pursuing organic certification.¹⁷⁹ The state should continue to support research, extension, and technical assistance that trains farmers on the basics of organic production and makes a

¹⁷¹ Prasad, R., Gunn, S. K., Rotz, C. A., Karsten, H., Roth, G., Buda, A., & Stoner, A. M. K. (2018). Projected climate and agronomic implications for corn production in the Northeastern United States. *PLOS ONE*, 13(6), e0198623. <https://doi.org/10.1371/journal.pone.0198623>

¹⁷² Tobin, D., Janowiak, M., Hollinger, D. Y., Skinner, H., Swanston, C., Steele, R., Radhakrishna, R., & Chatrchyan, A. (2015). *Northeast and Northern Forests Regional Climate Hub Assessment of Climate Change Vulnerability and Adaptation and Mitigation Strategies*. Northeast Climate Hub. <https://naldc.nal.usda.gov/download/6965350/PDF>

¹⁷³ Ibid.

¹⁷⁴ Ibid.

¹⁷⁵ SARE in your state: Maine. Northeast Sustainable Agriculture Research and Education. Retrieved January 10, 2022, from <https://northeast.sare.org/sare-in-your-state/maine/>

¹⁷⁶ Tools & Resources. *Maine Climate and Ag Network*. Retrieved January 10, 2022, from <https://umaine.edu/climate-ag/tools/>

¹⁷⁷ *Maine Climate Change Adaptation Providers Network*. Retrieved January 10, 2022, from <https://extension.umaine.edu/climatesolutions/who-we-are/>

¹⁷⁸ Nunes, M. R., van Es, H. M., Schindelbeck, R., Ristow, A. J., & Ryan, M. (2018). No-till and cropping system diversification improve soil health and crop yield. *Geoderma*, 328, 30–43. <https://doi.org/10.1016/j.geoderma.2018.04.031>

¹⁷⁹ Duram, L. A., & Larson, K. L. (2001). Agricultural Research and Alternative Farmers’ Information Needs. *The Professional Geographer*, 53(1), 84–96. <https://doi.org/10.1111/0033-0124.00271>

transition to organic less burdensome.¹⁸⁰ This could be done in collaboration with the Northeast Sustainable Agriculture Research and Education (SARE) program or University of Maine Cooperative Extension.

Benefit corporations (“B Corps”) adopt a shared framework of responsible environmental practices and ethical workforce development. In June, 2021, [L.D. 846](#) directed the Department of the Secretary of State to develop website information to promote B Corps in Maine. The resolution is intended to increase awareness of benefit corporation status, the framework and its meaning and intention, and to provide transparent and easy-to-use directions to support businesses exploring B Corps status.¹⁸¹

Democratic ownership structures, including cooperatives, are a prevalent business model in the seafood industry, primarily among lobster harvesters. Cooperatives allow for joint ownership, engagement in company decision making, and often can facilitate improved working conditions.¹⁸² The state should support businesses interested in cooperative business models, including *Employee Stock Ownership Plans, which have a long history in Maine.*¹⁸³

32. Clean Tech Pilots in Natural Heritage Industries: The State should continue to provide incentives for clean technology and clean fuels transitions in natural heritage industries, particularly for small businesses and self-employed individuals who otherwise lack the necessary resources to transition to new technology. The state should also pilot programs that educate business owners to learn about appropriate and available clean technology, and should facilitate peer-to-peer learning.

Those in Maine’s natural heritage industries are both vulnerable to the effects of climate change and are often motivated to move towards solutions. One example of this recommendation in action already is the use of biofuels by some Maine lobstermen,¹⁸⁴ and solar panels on the roofs of wharfs, seafood distribution centers, and farm buildings across the state.¹⁸⁵ Continued financial and technical support is needed for increased implementation of clean technology and clean fuels by natural heritage industries across the state. California led a successful state-wide agricultural technology demonstration program, though it was not

¹⁸⁰ Bloom, S., & Duram, L. A. (2007). *A Framework to Assess State Support of Certified Organic Farming*. https://opensiuc.lib.siu.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1018&context=gers_pubs

¹⁸¹ Resolve, Directing the Department of the Secretary of State To Develop Website Information Related to Promoting Benefit Corporations. L.D. 846. (2021).

<https://legislature.maine.gov/legis/bills/getPDF.asp?paper=HP0614&item=3&snum=130>

¹⁸² *What Is a Co-op? - Definition of a Cooperative Business*. National Cooperative Business Association. Retrieved January 10, 2022, from <https://ncbaclusa.coop/resources/what-is-a-co-op/>

¹⁸³ Employee ownership works for Maine. (2019, June 15). *Bangor Daily News*.

<https://bangordailynews.com/2019/06/15/opinion/employee-ownership-works-for-maine/>

¹⁸⁴ Fisheries in Maine Rally to Reduce Their Carbon Footprint and Increase Sustainability. *How We Respond*. Retrieved January 10, 2022, from <https://howwerespond.aas.org/community-spotlight/fisheries-in-maine-rally-to-reduce-their-carbon-footprint-and-increase-sustainability/>

¹⁸⁵ *Bumbleroot Organic Farm*. Retrieved January 10, 2022, from

<https://www.facebook.com/bumblerootorganicfarm/posts/pfbid025JRLjkBqLq86pErmFgpH55FkvZEDBYPzx2HDXJaEKbLlHQ9oDJ9J5d59QVaTUzqGI>

selective to clean technology.¹⁸⁶ At a regional level, New England Sustainable Agriculture Research and Education issues grants which could be specified for clean technology.¹⁸⁷

E. NATURAL AND WORKING LANDS AND WATERS

Maine’s natural and working lands and waters represent livelihoods and recreational opportunities for many Maine people, and climate change and development are threatening the forests, fields, and waters that are so essential to the state. Maine’s natural and working lands also sequester significant amounts of carbon and are key to achieving the state’s carbon neutrality goals. One of the priorities of the ESC in considering Maine’s natural and working lands is ensuring equitable access to the bountiful natural resources and places in the state, improving the lives and health of people in Maine. Additionally, low income or disadvantaged communities should receive preference in funding related to expanding or preserving natural areas, especially if they currently have less access to natural areas than better resourced communities.

The state’s natural resource agencies should continue to explore opportunities for repatriation, cooperative ownership and management of land with tribal nations. Data about climate change risks and outcomes should be co-collected, analyzed, and reported with tribes, foresters, landowners, loggers, farmers, fishermen, and communities. Data sharing and mutual benefit from data collection supports policymakers, industries, communities, and other stakeholders in making proactive, informed decisions to combat climate change. Finally, future policies related to carbon should not disproportionately impact workers in these important heritage industries.

33. Access to Green Space and Parks: The state should explore the distribution of green space and access to it, especially in historically disadvantaged communities. This should include assessing the diversity of visitorship at state owned parks and other sites, access to working and recreational waterfronts, and equitable participation in the [Land for Maine’s Future](#) program. The state should also explore offering a sliding-scale state park pass program to increase affordability for low-income families.

Access to greenspace improves mental and physical wellbeing, enhances immunity, and improves social capital and community.¹⁸⁸ When disadvantaged communities have access to greenspace, these benefits can lessen the health equity gap understood to exist between those with and those without access to greenspace.¹⁸⁹ In Maine, according to the Trust for Public

¹⁸⁶ *The California Farm Demonstration Network Building California’s Sustainable Bioresource Economy.* (2017, November 1). https://www.epa.gov/sites/default/files/2017-11/documents/cba2017-ca_farm_demo_network.pdf

¹⁸⁷ *Grants.* Sustainable Agriculture Research and Education. Retrieved January 10, 2022, from <https://www.sare.org/grants/>

¹⁸⁸ James, P., Banay, R. F., Hart, J. E., & Laden, F. (2015). A Review of the Health Benefits of Greenness. *Current Epidemiology Reports*, 2(2), 131–142. <https://doi.org/10.1007/s40471-015-0043-7>

¹⁸⁹ Kabisch, N., Korn, H., Stadler, J., & Bonn, A. (2017). Nature-Based Solutions to Climate Change Adaptation in Urban Areas—Linkages Between Science, Policy and Practice. In N. Kabisch, H. Korn, J. Stadler, & A. Bonn (Eds.), *Nature-Based Solutions to Climate Change Adaptation in Urban Areas* (pp. 1–11). Springer International Publishing. https://doi.org/10.1007/978-3-319-56091-5_1

Land, 89% of Portland residents live within a 10 minute walk to a park; in Augusta, 14%; 55% in Lewiston, 55% in Bangor; and 44% in Auburn.¹⁹⁰ The Land for Maine’s Future program does not currently have a mechanism to address equitable access to the program for a diversity of participants.

While the Maine Bureau of Parks and Lands tracks visitorship, it does not track diversity or demographics of visitors, or access-related metrics such as location from which the visitor travelled or means of travel/access. While the 2020-2025 Maine State Comprehensive Outdoor Recreation Plan identified race and diversity as important in planning state park recreational opportunities, BPL has not yet established a diversity and inclusion goal or criteria for increasing access to parks for all Maine people.¹⁹¹ In this effort, Maine could look to the Diversity, Equity, and Inclusion plan at the Vermont Agency of Natural Resources,¹⁹² the Connect Kids to Parks program, which provides higher levels of funding for parks visits by students in disadvantaged New York school districts,¹⁹³ and park-specific demographic studies in other state parks.¹⁹⁴ Other possibilities the ESC identified include considering a sliding fee scale for park entry and partnering with organizations trusted by disadvantaged people to market state parks.

The Maine Department of Inland Fisheries and Wildlife (MDIFW) has focused on improved water access near population centers for the past several years, recognizing their relatively high populations of New Mainers and underserved communities. The Water Access Program’s long-term goal is to provide a fully accessible water access facility within 10 miles of each of the state’s sixteen county seats. The most recent example is the new Togus Pond Family Fishing Facility in Augusta (completed fall of 2021).¹⁹⁵ The Togus facility is fully ADA-compliant and includes parking, hand-carry launch sites, and casting platforms on Togus and Lower Togus Ponds. The facility also includes an ADA trailer launch on Togus Pond. Additionally, MDIFW has recently completed a similar facility on Lily Pond in New Gloucester located within 10-miles of the Lewiston/Auburn population center; and is working with a commercial landowner to develop a family fishing area in Greene, approximately 6.5 miles from Lewiston/Auburn.

Similarly, MDIFW has a goal of providing accessible Wildlife Management Areas within an hour’s drive of Maine’s population centers. Recent land acquisitions in Livermore and Augusta have directly contributed to this goal and ongoing strategic land acquisition planning will better enable MDIFW to serve other communities soon.

¹⁹⁰ *Which city is best for parks?* (The Trust for Public Land. Retrieved January 10, 2022, from <https://www.tpl.org/parkscore>

¹⁹¹ *2020-2024 Maine State Comprehensive Outdoor Recreation Plan.* (2019). Maine Department of Agriculture, Conservation, and Forestry Bureau of Parks and Lands. https://www.maine.gov/dacf/parks/publications_maps/docs/2020_ME_SCORP_final_1_2_2020.pdf

¹⁹² *Diversity, Equity and Inclusion.* Agency of Natural Resources. Retrieved January 10, 2022, from <https://anr.vermont.gov/diversity-equity-inclusion>

¹⁹³ *Field Trip Grant Program.* New York State Parks, Recreation and Historic Preservation. Retrieved January 10, 2022, from <https://parks.ny.gov/environment/connect-kids/grant-program.aspx>

¹⁹⁴ <https://www.openspaceinstitute.org/news/lakefront-park-attracts-culturally-diverse-visitors-from-throughout-region>

¹⁹⁵ Edwards, K. (2020, May 13). New state boat launch, accessible family fishing area approved for Togus Pond in Augusta. *Kennebec Journal and Morning Sentinel.* <https://www.centralmaine.com/2020/05/13/new-state-boat-launch-accessible-family-fishing-area-approved-for-togus-pond-in-augusta/>

34. Collaboration with Tribal Nations on Natural Resource Management: Working together with tribal representatives, the state’s natural resource agencies should continue to explore opportunities for repatriation, cooperative ownership and management of land with tribal nations. Tribal stewardship of lands can help the state achieve its land and climate goals.

The ESC supports continued collaboration between the State of Maine and Tribal Nations. Examples of ongoing collaboration with natural resource agencies include:

- MDIFW staff collaborate regularly with tribal biologists on wildlife conservation and management programs. These efforts include joint research efforts on deer, data and information sharing for bear, furbearers, and other species, coordinated efforts to prevent and respond to emerging wildlife diseases, and collaborative wildlife survey efforts for a variety of species.
- Restoring Sea-Run fish species through active restoration (e.g. fish passage at dams) and supplementation of Atlantic salmon and alewives within tribal lands or in culturally significant waters with the Department of Marine Resources.
- Collaborative management and research with the Department of Marine Resources and Tribal fisheries staff to improve Sea-Run fish resources and build tribal capacity.
- Department of Agriculture, Conservation and Forestry (DACF) Bureau of Parks and Lands staff have consulted tribal representatives regarding outreach and interpretation of tribal history at State Parks and historic sites.
- DACF is participating in a working group to identify and rename offensive place names that are in violation of the Maine Revised Statutes, 21 Title 1, chapter 27¹⁹⁶. In addition, DACF recently worked to correct the offensive names of several islands in the Coastal Island Registry.

35. Equitable Access to Natural Resource Grants: The state should incorporate equity considerations into grant scoring for all natural-space related grants, such as criteria which prioritize use of funding for street trees in town centers and urban areas, particularly in low income or otherwise disadvantaged communities.

In Maine, Project Canopy¹⁹⁷ is a grant program available to state, county, and municipal governments, educational institutions, and non-profit organizations for developing and implementing community forestry projects and programs. However, this grant program does not yet distinguish between differently resourced communities.

In New York, the State Office of Parks, Recreation & Historic Preservation’s Environmental Protection Fund Grants Program for Parks, Preservation and Heritage has put forth grant selection criteria that explicitly accounts for potential impact of the project and community need. Scores are based on whether the project will primarily serve a densely populated area, an

¹⁹⁶ 2005 Maine Code - Chapter 27, Names of Places. (2020).
<https://legislature.maine.gov/statutes/1/title1sec1101.html>

¹⁹⁷ 2021 Project Canopy Assistance Grants. Project Canopy. Retrieved January 10, 2022, from https://www.maine.gov/dacf/mfs/policy_management/project_canopy/grants/index.html

area where a substantial proportion of the population is of low-income, and/or a population that is otherwise disadvantaged or underserved with respect to existing recreational opportunities.¹⁹⁸ The Michigan Department of Natural Resources' Urban and Community Forestry Program gives priority consideration to low-income communities, distressed communities as defined by the [Economic Innovation Group's Distressed Communities Index](#), and low tree equity areas as defined by the [Tree Equity Score](#).^{199 200 201}

36. Disproportionate Impact of Carbon Pricing: Future consideration of carbon pricing mechanisms by the Maine Climate Council should consider potential opportunities and challenges for Maine-based industries, particularly natural heritage industries and others heavily dependent on high-carbon fuels and/or highly vulnerable to climate changes.

Maine Won't Wait does not recommend a carbon pricing mechanism. If Maine considers such a mechanism in the future, the ESC recommends assessing potential for disproportionate impacts of future local, state, or federal carbon pricing regimes on industries heavily dependent on fossil fuels, including fisheries, particularly where those industries might have an important role in Maine's culture, and for carbon sequestration. Following the precedent of the Canadian government, Maine could consider including a provision that exempts commercial fisheries (not recreational fishers) in any future carbon tax or fee imposed. Canada's current GHG Pollution Pricing Act lists exemptions for fishers under Division 2 Subdivision A General Application of Charge to Fuel and Combustible Waste.²⁰² Similar consideration should be given to forestry and agricultural industries.

37. Just Data Collection and Management: The state should encourage just principles for climate, environmental, and socioeconomic data collection and ownership through the climate research and monitoring hub and in state agency climate research and monitoring work, and should prioritize community participatory approaches to data collection that ensure transparency and build trust. Data principles might include but are not limited to:

- a. Disaggregating of data by age, race, ethnicity, gender, disability, geography, and other sociodemographic factors.
- b. Collecting of climate and environmental data at scales relevant to Mainers, and sharing of data in an accessible way, for example through the establishment of a coastal and marine information exchange.
- c. Valuing and honoring the role of traditional ecological knowledge, especially from tribal nations.

¹⁹⁸ 2021 Grant Selection Criteria, NY State Office of Parks, Recreation & Historic Preservation (OPRHP) Environmental Protection Fund Grants Program for Parks, Preservation and Heritage (EPF). New York Parks, Recreation and Historic Preservation. <https://www.parks.ny.gov/documents/grants/GrantSelectionCriteria2021.pdf>

¹⁹⁹ FY2022 Urban and Community Forestry Program Grant Application and Information. (2021). Michigan Department of Natural Resources. https://www.michigan.gov/documents/dnr/PR4107_731104_7.pdf

²⁰⁰ Tree Equity Score. American Forests. Retrieved January 10, 2022, from <https://treeequityscore.org/>

²⁰¹ Distressed Communities Index. Economic Innovation Group. Retrieved January 10, 2022, from <https://eig.org/dci>

²⁰² Greenhouse Gas Pollution Pricing Act. S.C. 2018, c. 12, s. 186. (2018). <https://laws-lois.justice.gc.ca/eng/acts/G-11.55/index.html>

Data collected for monitoring climate change, both in communities and in natural resource contexts, should be made available to interested parties for community decision making. Where personal data is collected, the state should emphasize best practices for personal data security and should be transparent about personal data that will be shared with other parties. The Maine Office of GIS (MEGIS) maintains an online GeoLibrary Data Catalog, including online maps, to provide geographic information collected by all state agencies in a single, publicly accessible repository. Outside of Maine, Sonoma County, California operates SoCo Data, which is a collaborative process that brings decision makers and scientists together in a bottom-up approach where public stakeholders make connections between the database climate goals and projects in the county.²⁰³

Specific to indigenous knowledge and data, “Indigenous data sovereignty is the right of a nation to govern the collection, ownership, and application of its own data. It derives from tribes' inherent right to govern their peoples, lands, and resources.”²⁰⁴ Data governance is the process by which a tribal nation enacts data sovereignty.²⁰⁵ Frameworks for understanding indigenous data sovereignty are spearheaded by the [United States Indigenous Data Sovereignty Network \(USIDSN\)](#). Additionally, The University of Arizona published a research report with more than a dozen recommendations for building a trusted database, with the central theme being the tribal partnership and oversight in the data collection and monitoring processes.²⁰⁶

F. BUILD HEALTHY AND RESILIENT COMMUNITIES

Climate change impacts the health and safety of all people in Maine, including through exposure to extreme heat, drought, poor air quality, increased allergens, sea level rise, storms and flooding, and food security, among other impacts.²⁰⁷ Due to historic and ongoing disempowerment and lack of access to resources, these health impacts will disproportionately affect frontline communities, since they are often both more exposed and more sensitive to climate health risks.²⁰⁸ Limited capacity to respond to these health risks, such as an inability to invest in air conditioning to escape heat, or have resources to rebuild after a disaster event, often exacerbates existing problems and causes further harm.²⁰⁹

Resilience planning is a key step towards mitigating potential health impacts, and communities who know best about their health concerns should be involved in these resilience planning

²⁰³ *County of Sonoma | Open Data*. Sonoma County. Retrieved January 10, 2022, from <https://data.sonomacounty.ca.gov/>

²⁰⁴ *Indigenous Data Sovereignty and Governance*. Native Nations Institute. Retrieved January 10, 2022, from <https://nni.arizona.edu/programs-projects/policy-analysis-research/indigenous-data-sovereignty-and-governance>

²⁰⁵ Rainie, S. C., Rodriguez-Lonebear, D., & Martinez, A. (2017). *Policy Brief (Version 2): Data Governance for Native Nation Rebuilding*. Native Nations Institute, The University of Arizona.

https://static1.squarespace.com/static/5d2633cb0ef5e4000134fa02/t/5d72d78216365660a9ce856c/1567807363174/policy_brief_data_governance_for_native_nation_rebuilding_version_2.pdf

²⁰⁶ Carroll, S. R., Rodriguez-Lonebear, D., & Martinez, A. (2019). Indigenous Data Governance: Strategies from United States Native Nations. *Data Science Journal*, 18(1), 31. <https://doi.org/10.5334/dsj-2019-031>

²⁰⁷ American Public Health Association. *Health Impacts of Climate Change*. https://www.apha.org/-/media/Files/PDF/topics/climate/Guide_Section4.ashx

²⁰⁸ American Public Health Association. *Health Equity and Climate Change*. https://www.apha.org/-/media/Files/PDF/topics/climate/Guide_Section2.ashx

²⁰⁹ Ibid.

processes. Because climate change can feel abstract, involving all community members, even those who do not have high level climate knowledge, is important; no Maine community should be left behind. This is also true in the event of a natural disaster—hazard alert systems should be updated to consider differing abilities to respond in the face of immediate climate hazards. The ESC also recognizes that air quality impacts the health of all people, and recommends idling reduction, improved air quality monitoring for allergens, and assessments of health outcomes associated with heating fuel options in homes and at work.

38. Climate Resilience Planning: The state should continue to support development of climate resilience planning guidance for communities. This guidance should include the development of a consolidated list of organizations that provide resources for community resilience and climate action; and all guides and process assistance should be made available in languages other than English. To ensure equity and that all communities can engage, regional entities should be encouraged and enlisted alongside communities to run these planning processes; planning processes should seek to ensure both maximum feasible participation and participation of diverse and broad cross-sector voices in the work.

Recently, the state launched the new Community Resilience Partnership, which provides grants and supports municipal and tribal governments in reducing carbon emissions, transitioning to clean energy, and becoming more resilient to climate change effects, such as to extreme weather, flooding, rising sea levels, and other public health impacts. The grants will support communities in identifying and addressing locally important priorities, ensuring that all communities in Maine, including the smallest and most vulnerable, have access to needed resources and support to help them reduce emissions and prepare for the effects of climate change.

Massachusetts provides another example of a climate resilience planning guide in its [Municipal Vulnerability Preparedness Program](#) created through Executive Order 569: Establishing an integrated Climate Change Strategy for the Commonwealth.²¹⁰ This program provides planning and “action” grants that support frontline communities. Eighty-two percent of municipalities have participated in the program and have received a total of \$33 million in planning and action grants during the first three years of the program.²¹¹ The Rhode Island Department of Health’s Health Equity Zone Initiative has directed more than \$10.4 million in funding from the federal Centers for Disease Control to nine community-led [Health Equity Zones](#) designed to promote the building of healthier, more resilient communities. They have also created a [Toolkit for Building Healthy and Resilient Communities](#). As part of the program, the state identified nine communities with high rates of health disparities and is collaborating with local officials and community-based partners to develop community-specific action plans.²¹² Three of the nine

²¹⁰ Establishing an Integrated Climate Change Strategy for the Commonwealth. Executive Order No. 569. (2016). <https://www.mass.gov/executive-orders/no-569-establishing-an-integrated-climate-change-strategy-for-the-commonwealth>

²¹¹ Runsten, K., Meklenburg, C., & Rowden, M. *Municipal Vulnerability Preparedness Program*. <https://www.mass.gov/doc/mvp-webinar-recording-fy21-funding-round/download>

²¹² *Health Equity Zones: Building healthy and resilient communities across Rhode Island*. Rhode Island Department of Health. <https://health.ri.gov/publications/brochures/HealthEquityZones.pdf>

zones also have focused efforts on assessing climate change impacts to public health. California's Resilient California website contains numerous tools, resources, guides to aid in local and community adaptation planning.²¹³

The University of Maine's Climate Change Adaptation Providers Network hosts a website that offers information and best practices to assist communities in building local climate resilience.²¹⁴ Additionally, MDIFW hosts the [Beginning with Habitat Program](#), a landscape conservation planning program collaboratively coordinated by Maine's natural resource agencies and non-governmental organization partners. The program is free and open to all Maine municipalities, landowners, and organizations seeking to increase resiliency and sustainability of local land use decisions. Beginning with Habitat offers participants detailed information about local lands and waters, and provides example approaches and tools employed to best balance growth needs with preservation of ecosystem services and equitable public access.

39. Equitable Access to Climate Resilience Funding: State funding opportunities which address climate vulnerability should establish equity metrics to ensure that equitable amounts of funding and other assistance reach communities across Maine. At a minimum, to establish such metrics, programs should track participation by demographics, including age, race, ethnicity, gender, disability, geography, and other factors, at both the community and individual scale.

Maine communities have both variable experience and staff capacity to access state climate-related funding, and different prioritization of climate and environmental action. Given this, some communities may be unable or unwilling to access state climate vulnerability funding programs, even though those programs will greatly benefit them. The ESC recommends partnering with trusted local entities in these communities, and establishing metrics, goals, and targeted outreach to ensure equitable distribution of funds. Many federal grants already prioritize building climate resilience in disadvantaged communities,²¹⁵ with additional targeted funding allocated through the Biden administration's recovery programs in 2021.²¹⁶

40. Citizen Climate Action: Citizen climate action groups should be supported and empowered to access climate planning and funding opportunities.

²¹³ ResilientCA. Retrieved January 10, 2022, from <https://resilientca.org/>

²¹⁴ Maine Climate Change Adaptation Providers Network. Retrieved January 10, 2022, from <https://extension.umaine.edu/climatesolutions/>

²¹⁵ Quenemoen, M. *Federal Grants Can Impact State and Local Policy to Build Climate Change Resilience in Vulnerable Communities*. Georgetown Law. Retrieved January 10, 2022, from <https://www.law.georgetown.edu/salpal/federal-grants-can-impact-state-and-local-policy-to-build-climate-change-resilience-in-vulnerable-communities/>

²¹⁶ *Fact Shee: Biden Administration Announces Nearly \$5 Billion in Resilience Funding to Help Communities Prepare for Extreme Weather and Climate-Related Disasters*. (2021, August 9). The White House. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/09/fact-sheet-biden-administration-announces-nearly-5-billion-in-resilience-funding-to-help-communities-prepare-for-extreme-weather-and-climate-related-disasters/>

Through the State of Maine’s recently launched Community Resilience Partnership, communities and municipalities can access grant funding and other support to pursue climate mitigation, adaptation, and resiliency projects.²¹⁷ To be eligible for the program, municipalities or tribal governments must establish or designate either a citizen committee or a municipal or tribal government employee to coordinate activities to reduce energy use and costs, transition to clean energy, and improve community resilience to climate change.

The ESC supports citizen climate action groups, such as the [municipal climate change advisory committee in Dover Foxcroft](#), and the Vinalhaven [Sea Level Rise Committee](#), in their work towards climate action. Municipalities are often overburdened; thus citizen climate action groups can advance local efforts without more demands on municipal staff. The state should build partnerships with these citizen climate action groups and committees to increase access, and promote inclusive decision-making and outreach around climate adaptation, mitigation, resilience opportunities, and support peer-to-peer learning and networking.

California’s EJ4Climate Grant Program provides funding directly to community-based organizations to help them develop community-driven solutions to adapt to the impacts of climate change, with a focus on disadvantaged communities.²¹⁸

41. Natural Hazard Emergency Alerts: The state’s natural hazard emergency alert system should consider variability in people’s ability to respond, and should offer a menu of options for risk reduction. The state should increase information about accessing this program in disadvantaged communities, and add climate-related alerts to the Maine Health Alert Network System, when relevant.

Frontline communities are at higher risk of exposure to natural hazards, and due to systemic oppression possess limited ability to respond to these natural hazards.²¹⁹ In Maine, there are currently three different types of alert messaging platforms: television, radio, and wireless; these represent the most direct ways to receive natural hazard related alerts.²²⁰ A current project in the midcoast aims to strengthen connections between emergency management, conservation, social service, and municipal sectors to better prepare, respond, and recover from storms, and to better serve residents whose circumstances make them more vulnerable to storm impacts.²²¹

²¹⁷ *Community Resilience Partnership*. State of Maine Governor’s Office of Policy Innovation and the Future. Retrieved January 10, 2022, from <http://www.maine.gov/future/climate/community-resilience-partnership>

²¹⁸ *2021 Call for Proposals. EJ4Climate: Environmental Justice and Climate Resilience Grant Program*. Commission for Environmental Cooperation. http://www.cec.org/files/documents/ej4climate/2021_ej4climate_call_for_proposals.pdf

²¹⁹ *In the Eye of the Storm: A People’s Guide to Transforming Crisis & Advancing Equity in the Disaster Continuum*. (2021, May 20). The National Association for the Advancement of Colored People. <https://naacp.org/resources/eye-storm-peoples-guide-transforming-crisis-advancing-equity-disaster-continuum>

²²⁰ State of Maine EAS. (2017). *Emergency Alert System Plan for the State of Maine*. http://www.mab.org/wp-content/uploads/2021/10/Maine-EAS-State-Plan-2017_FCCapproval.pdf

²²¹ Cox, A. *Social Resilience Project*. Wells Reserve at Laudholm. Retrieved January 10, 2022, from <https://www.wellsreserve.org/project/social-resilience-project>

In September of 2021, the United States Department of Labor’s Occupational Safety and Health Administration (OSHA) of the United States Department of Labor announced enhanced and expanded measures to protect workers from hazards of extreme heat.²²² On days when a recognized heat temperature can result in increased risks of heat-related illnesses, employers are encouraged to implement intervention methods, including regularly taking breaks for water, rest, and shade, training workers on how to identify common symptoms of heat exhaustion and what to do when a worker suspects a heat-related illness is occurring, and taking periodic measurements to determine workers’ heat exposure. There is still more to do to strengthen alert systems so that non-English speakers and people who don’t have access to computers are still receiving and understanding alerts. Drexel University hosts the National Resource Center on Advancing Emergency Preparedness for Culturally Diverse Communities, and has resources related to alert system challenges and solutions.²²³

Demographic factors, such as age, gender, race/ethnicity, and socioeconomic status are associated with differences in perceived and actual risk of harm from natural disasters, and how individuals obtain and react to information about natural disasters, extreme weather and environmental conditions.²²⁴ Previous research on broadcast warnings about extreme weather events and natural disasters identifies target audiences by demographic characteristics that are associated with increased vulnerability to health impacts (e.g. age, race/ethnicity).²²⁵ Delivery channels for these messages have included internet-based interventions, traditional media sources (e.g. television, radio, newspaper) and printed materials.²²⁶ Qualitative research among residents of cities with racial/ethnic- and socioeconomic-related disparities in heat-related morbidity and mortality described how cooling practices during heat waves may vary according to differences in risk perceptions, resources and social norms.²²⁷ Another qualitative study conducted among low-income racial and ethnic minorities observed that respondents were especially attuned to the effects of local and acute environmental health risks (e.g. sanitation).²²⁸

²²² Occupational Safety and Health Administration. (2021, September 20). *US Department of Labor announces enhanced, expanded measures to protect workers from hazards of extreme heat, indoors and out*. United States Department of Labor. <https://www.osha.gov/news/newsreleases/national/09202021>

²²³ Drexel University. (2007). *The National Resource Center on Advancing Emergency Preparedness for Culturally Diverse Communities*. Diversity Preparedness. <https://diversitypreparedness.org/>

²²⁴ Phillips, B. D., & Morrow, B. H. (2007). Social Science Research Needs: Focus on Vulnerable Populations, Forecasting, and Warnings. *Natural Hazards Review*, 8(3), 61–68. [https://doi.org/10.1061/\(ASCE\)1527-6988\(2007\)8:3\(61\)](https://doi.org/10.1061/(ASCE)1527-6988(2007)8:3(61))

²²⁵ Ibid.

²²⁶ Frumkin, H., Hess, J., Luber, G., Malilay, J., & McGeehin, M. (2008). Climate Change: The Public Health Response. *American Journal of Public Health*, 98(3), 435–445. <https://doi.org/10.2105/AJPH.2007.119362>; Lowe, D., Ebi, K. L., & Forsberg, B. (2011). Heatwave Early Warning Systems and Adaptation Advice to Reduce Human Health Consequences of Heatwaves. *International Journal of Environmental Research and Public Health*, 8(12), 4623–4648. <https://doi.org/10.3390/ijerph8124623>

²²⁷ Sampson, N. R., Gronlund, C. J., Buxton, M. A., Catalano, L., White-Newsome, J. L., Conlon, K. C., O’Neill, M. S., McCormick, S., & Parker, E. A. (2013). Staying cool in a changing climate: Reaching vulnerable populations during heat events. *Global Environmental Change*, 23(2), 475–484. <https://doi.org/10.1016/j.gloenvcha.2012.12.011>

²²⁸ Taylor-Clark, Kalahn., Koh, Howard., & Viswanath, K. (2007). Perceptions of Environmental Health Risks and Communication Barriers among Low-SEP and Racial/Ethnic Minority Communities. *Journal of Health Care for the Poor and Underserved*, 18(4A), 165–183. <https://doi.org/10.1353/hpu.2007.0113>

42. Community Health Readiness Assessments: ME Center for Disease Control (CDC) should study the use of community health readiness assessments in the context of climate vulnerability, and the inclusion of climate risk in a hospital’s hazard vulnerability analysis.

The Community Readiness Model is a tool that helps communities assess their level of readiness to address a particular issue and implement actions to increase readiness levels. The model defines stages of readiness from the lowest (1 = no awareness about the issue) to the highest (9 = high level of community ownership).²²⁹ Understanding a community’s level of readiness can help identify the most effective actions to successfully address the issue at hand. This model was successfully used by the city of Missoula, Montana to determine one specific climate risk, Missoula’s readiness to address the health impacts of wildfire smoke on sensitive groups.²³⁰ These assessments could be conducted with public health district partners.

43. Assessing Cumulative Impact: MECDC, in partnership with Maine DEP, should consider developing guidance for evaluating multi-pollutant cumulative impacts in environmental justice populations and mixed-use zones.

As directed by recent legislation, GOPIF is currently undergoing work to define environmental justice, environmental justice populations, and frontline communities and to apply those definitions to decision-making at the Maine DEP and PUC. The ESC recognizes there is overlap with work at MECDC; for example, this work could inform consideration of cumulative health impacts from multiple pollutants.

The evaluation of cumulative impact (e.g. an analysis, characterization, and possible quantification of the combined risks to health or the environment from multiple agents or stressors) can help identify whether and how proposed development might impact already disadvantaged populations.²³¹ There are many approaches to cumulative risk assessment;²³² the Massachusetts Department of Environmental Protection is currently developing guidance for new air permits,²³³ New Jersey’s new environmental justice law requires cumulative impact analysis in environmental justice communities,²³⁴ and Minnesota’s Pollution Control Agency

²²⁹ Community Readiness Model. *National Center for Community & Organizational Readiness*. Retrieved January 10, 2022, from <https://communityreadiness.org/>

²³⁰ Goen, R. (2016). *Community Readiness Report for Climate Smart Missoula*. https://www.missoulaclimate.org/uploads/4/3/2/6/43267085/communityreadinessreport_climatesmartmsla_spring2016.pdf

²³¹ United States Environmental Protection Agency. (2014, November 23). *Framework for Cumulative Risk Assessment*. <https://www.epa.gov/risk/framework-cumulative-risk-assessment>

²³² Barzyk, T., Wilson, S., & Wilson, A. (2015). Community, State, and Federal Approaches to Cumulative Risk Assessment: Challenges and Opportunities for Integration. *International Journal of Environmental Research and Public Health*, 12(5), 4546–4571. <https://doi.org/10.3390/ijerph120504546>

²³³ *Cumulative Impact Analysis in Air Quality Permitting*. (n.d.). Massachusetts Department of Environmental Protection. Retrieved January 10, 2022, from <https://www.mass.gov/info-details/cumulative-impact-analysis-in-air-quality-permitting>

²³⁴ Jhaveri, H. (2021, May 7). *New Jersey Strives to Address Cumulative Impacts of Pollution in Environmental Justice Legislation*. Environmental and Energy Study Institute. Retrieved January 10, 2022, from <https://www.eesi.org/articles/view/new-jersey-strives-to-address-cumulative-impacts-of-pollution-in-environmental-justice-legislation>

already considers additive impacts, and provides clear explanations to the public.²³⁵

In addition to developing guidance for evaluation of project impact in disadvantaged communities, procedural equity requires that those communities be notified about such impact and invited to participate in decision making. One approach to this is seen in Massachusetts. Per the [Transition Rules for Public Involvement Requirements for Environmental Justice Populations](#), “all Environmental Notification Forms (ENFs) and Expanded Environmental Notification Forms (EENFs) filed with the Massachusetts EPA Office must provide a narrative identifying environmental justice (EJ) populations within 1 mile of the project site and describing whether the project is reasonably likely to negatively affect such EJ populations. If the project is anticipated to affect air quality, the ENF/EENF shall identify EJ populations within 5 miles of the project site and describe whether the project is reasonably likely to negatively affect such EJ populations.”²³⁶ The new EJ law in New Jersey, referenced above, has similar procedural requirements.²³⁷

44. Air Quality Data: MEDEP, MECDC, the University of Maine, and other partners should work together to gather increasingly local air quality data across Maine communities; and to provide additional information about the relationship between pollutant exposure and health impact.

Maine has one of the highest rates of asthma in the country: 12% compared to 9% nationally.²³⁸ Currently, air quality monitoring data are unavailable in Franklin, Lincoln, Piscataquis, Sagadahoc, Somerset and Waldo counties.²³⁹ However, these areas carry the most significant burdens of lung-related illness, and disparities in health care access.²⁴⁰ Additionally, investments in air quality monitoring often correlate with population density rather than measured air quality.

Prior to 2021, Maine lacked pollen data. Due to longer warm seasons caused by climate change, pollen seasons in North America have lengthened by 20 days and pollen concentrations have increased 21% since 1990.²⁴¹ Maine CDC recently received a grant that provides resources for increased allergen monitoring, which will provide necessary information about pollen count to

²³⁵ *Cumulative impact analysis*. Minnesota Pollution Control Agency. Retrieved January 10, 2022, from <https://www.pca.state.mn.us/air/cumulative-impact-analysis>

²³⁶ *Transition Rules for Public Involvement Requirements for Environmental Justice Populations Effective as of June 24, 2021*. <https://www.mass.gov/doc/transition-rules-for-public-involvement-requirements-for-environmental-justice-populations-june-2021/download>

²³⁷ Jhaveri, H. (2021, May 7).

²³⁸ Lundy, R. (2021, October 24). *Maine’s pollen problem is nothing to sneeze at*. The Maine Monitor. <https://www.themainemonitor.org/maines-pollen-problem-is-nothing-to-sneeze-at/>

²³⁹ *Maine Climate Council Public Health Subgroup Strategies*. (2020).

https://www.maine.gov/future/sites/maine.gov/future/files/inline-files/PublicHealthSubgroup_FinalStrategyRecommendations_June2020.pdf

²⁴⁰ Ibid.

²⁴¹ Lundy, R. (2021, October 24).

those experiencing respiratory illness.²⁴² The US EPA also recently made more grant funding available for enhanced air monitoring through the American Recovery Plan.^{243 244}

45. Reduce Vehicle Idling: Maine DEP should encourage idling restrictions and promulgate model municipal policy in densely populated urban and village areas, and in other areas determined to experience disproportionate exposure to and harm from transportation emissions (schools, hospitals, etc.). MEDEP should increase enforcement and education related to existing initiatives.

According to the U.S. Department of Energy, heavy- and light-duty vehicles waste 6 billion gallons of fuel each year through idling.²⁴⁵ Many states, including Colorado, Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, Texas and Vermont limit idling to between three and five minutes for most vehicles.²⁴⁶ Idling restrictions are especially important for school buses and in areas around schools since vehicle emissions are more concentrated near the ground, where children breathe, and poor air quality can contribute to asthma and other ailments, especially in children.²⁴⁷

While Maine does have both school bus-specific²⁴⁸ and general idling policies for commercial vehicles,²⁴⁹ these policies are often not as protective as in other states, have many exemptions, and are in practice difficult if not impossible to enforce. The enforcement challenges plague many jurisdictions, though some promising results have been seen in jurisdictions like New York City and Washington, D.C., which have both empowered citizens to report idling violations, in some cases in exchange for receiving a percentage of the penalty assessed.^{250 251} Other promising enforcement approaches include the potential for automated enforcement, provision of data to help change driver behavior, and increasing the quantity of no/low emissions zones in dense vehicle areas.²⁵²

²⁴² An Act Concerning the Regulation of Air Emissions at Petroleum Storage Facilities. L.D. 163. (2021).

<https://legislature.maine.gov/bills/getPDF.asp?paper=HP0119&item=7&snum=130>

²⁴³ United States Environmental Protection Agency. (2021, September 27). *Enhanced Air Quality Monitoring Funding under the ARP*. <https://www.epa.gov/arp/enhanced-air-quality-monitoring-funding-under-arp>

²⁴⁴ Governor Hochul Announces New Statewide Community Air Monitoring Initiative, First of Its Kind in The U.S. (2021, September 21). Office of the Governor Kathy Hochul. <https://www.governor.ny.gov/news/governor-hochul-announces-new-statewide-community-air-monitoring-initiative-first-its-kind-us>

²⁴⁵ *Idling Reduction for Personal Vehicles*. United States Department of Energy.

https://afdc.energy.gov/files/u/publication/idling_personal_vehicles.pdf

²⁴⁶ Hutchings, R., & Tyrrell, K. (2018). Putting the Brakes on Idling Vehicles. *National Conference of State Legislatures*, 26(34). <https://www.ncsl.org/research/environment-and-natural-resources/putting-the-brakes-on-idling-vehicles.aspx>

²⁴⁷ https://afdc.energy.gov/files/u/publication/idling_personal_vehicles.pdf

²⁴⁸ *School Bus No Idling Policy*. Maine Department of Energy.

<https://www.maine.gov/doe/sites/maine.gov.doe/files/inline-files/SchoolBusNoIdlingPolicy.pdf>

²⁴⁹ Title 38: Waters and Navigation. Chapter 4. Protection and Improvement of Air. §585-L (2020).

<http://www.mainelegislature.org/legis/statutes/38/title38sec585-L.html>

²⁵⁰ Surico, John. (2021, August 10). Can Cities Finally Win the War on Vehicle Idling? *Bloomberg CityLab*.

<https://www.bloomberg.com/news/features/2021-08-10/can-cities-finally-win-the-war-on-vehicle-idling>

²⁵¹ *Engine Anti-Idling Law*. DC Department of Energy and Environment. Retrieved January 10, 2022, from <https://doee.dc.gov/service/engine-anti-idling-law>

²⁵² Surico, John. (2021, August 10).

46. Health Impacts of Home Heating: The state should study health outcomes in low-income and rural communities that are primarily dependent on either fossil fuel or wood combustion for heating.

Maine leads the nation in use of fossil fuel-based heating sources, with 61.3% of the population using heating oil.²⁵³ Since heating oil prices can change drastically, and upfront payment costs for oil delivery are often high, this heating source is unstable and often expensive, particularly for low-income users. Combined with the effects of living in poorly weatherized homes, this fuel source can create health risks for residents.²⁵⁴ In addition, both oil heat and wood heat are associated with declines in air quality, which can lead to negative health effects.²⁵⁵ Health effects associated with wood heat include “burning eyes, runny nose, and illnesses, such as bronchitis. Fine particles can make asthma symptoms worse and trigger asthma attacks. Fine particles can also trigger heart attacks, stroke, irregular heart rhythms, and heart failure, especially in people who are already at risk for these conditions.”²⁵⁶

Education about indoor air quality associated with wood stoves—and continued promotion of cleaner energy source and weatherization programs—can help address these health effects. Another promising strategy is a wood stove exchange program. This type of program would reduce carbon and other greenhouse gas emissions, and limits emissions.²⁵⁷ In Maine, the American Lung Association is currently administering a wood stove changeout program in Cumberland County. Vouchers valued between \$300 and \$5,000 are available to homeowners for the retrofit or replacement of non-EPA certified wood stoves (2000 or older) with new, cleaner burning devices.²⁵⁸ Vermont provides low-income rebates on clean advanced wood heat through a heating assistance fee on new high-GHG heating systems. The first version of the program (2016-2017), run by the Vermont Clean Energy Fund (VCEF) in 2016-2017, spent \$300,000 resulting in 247 old wood stoves being switched out for new.²⁵⁹ Since then, VCEF has added a low-income component to the program, and improved outreach to low-income people.

47. Health Impacts of Industrial Sites: The state should study health impacts associated with industrial facility siting decisions in frontline communities.

Investigation and remediation of existing contamination at and surrounding industrial facilities is guided by health-based screening levels developed by the U.S. EPA and Maine CDC.

²⁵³ Winner, B., MacDonald, S., Smith, L., & Juillerat, J. (2018).

²⁵⁴ Jackson, R. J., Dannenberg, A. L., & Frumkin, H. (2013). Health and the Built Environment: 10 Years After. *American Journal of Public Health*, 103(9), 1542–1544. <https://doi.org/10.2105/AJPH.2013.301482>

²⁵⁵ *The Inside Story: A Guide to Indoor Air Quality*. U.S. Consumer Product Safety Commission. Retrieved January 10, 2022, from <https://www.cpsc.gov/Safety-Education/Safety-Guides/Home/The-Inside-Story-A-Guide-to-Indoor-Air-Quality>; Navarro, M. (2009, December 31). Studies Link No. 4 and No. 6 Heating Oil to Poor Air Quality. *New York Times*. <https://www.nytimes.com/2010/01/01/science/earth/01pollute.html>

²⁵⁶ United States Environmental Protection Agency. (2013, May 28). *Wood Smoke and Your Health*. <https://www.epa.gov/burnwise/wood-smoke-and-your-health>

²⁵⁷ United States Environmental Protection Agency. (2013, May 28).

²⁵⁸ *Woodstove Changeout Program*. American Lung Association. Retrieved January 10, 2022, from <https://www.lung.org/clean-air/at-home/indoor-air-pollutants/woodstove-changeout-program>

²⁵⁹ Kolb Noyes, A. (2019, May 17). “Did It Work?”: Vermont’s Wood Stove Change-Out Program. Vermont Public Radio. <https://www.vpr.org/vpr-news/2019-05-17/did-it-work-vermonts-wood-stove-change-out-program>

However, these activities are often limited to locations where there are viable responsible parties to pay the costs, while the sites of bankrupt operators languish. Maine should develop a comprehensive study of, and approach to remediation of, potential toxic contamination around past, current, and future industrial sites.²⁶⁰

G. CLIMATE READY INFRASTRUCTURE

Functioning infrastructure in Maine is a basic requirement for public safety and health, thriving state and local economies, and the flow of people, goods, and information. As the state improves the climate resiliency of roadways, bridges, and waterfronts, the distribution of these improvements must be equitable. All Maine communities, regardless of their population or finances, deserve climate-ready, working infrastructure that will keep them safe and provide a secure foundation for health, and economic success. Disadvantaged communities often lack financial capital and other resources to improve infrastructure,²⁶¹ leading to negative outcomes after natural disasters and compounding the effects of systemic disinvestment.²⁶² Financial assistance programs, outreach, and preemptive support are particularly impactful and meaningful for helping these communities respond, adapt and prepare for climate change. The state can be of further assistance by helping to identify vulnerable infrastructure. The ESC also recognizes that the process of accessing funding for climate resilience projects requires start-up money for planning and engineering and recommends that the state support municipalities in acquiring that initial investment. The state should adopt programs and guidance to help citizens better understand climate risk.

48. Prioritizing Climate Vulnerable Infrastructure: The state should compile a list of vulnerable infrastructure identified through prior, current, and future planning processes at the local and regional levels and associated funding needs for resiliency upgrades. When determining which infrastructure to upgrade first, the state should prioritize infrastructure that is both critical to community emergency response, connectivity, and other factors identified as important to the host community.

Critical infrastructure includes telecommunications, energy, transportation, and water, and is essential for economic and social functioning of a community. Climate change can directly damage infrastructure via sea level rise, intense precipitation, extreme heat and increases in hurricane intensity,²⁶³ and critical infrastructure should be upgraded first to ensure that it does not fail during an emergency, leaving people without access to critical services.

²⁶⁰ Miller, K. (2021, July 18). Trail of 'forever chemicals' leads to Maine paper mills. *Portland Press Herald*. Retrieved January 10, 2022, from <https://www.pressherald.com/2021/07/18/trail-of-forever-chemicals-leads-to-maine-paper-mills/>

²⁶¹ Vajjhala, J. K. and S. (2020, December 17). Prioritize people, not projects: Addressing the harms of legacy infrastructure in the COVID-19 recovery. *Brookings*. <https://www.brookings.edu/research/prioritize-people-not-projects-addressing-the-harms-of-legacy-infrastructure-in-the-covid-19-recovery/>

²⁶² Ryder, S. (2017). A Bridge to Challenging Environmental Inequality: Intersectionality, Environmental Justice, and Disaster Vulnerability. *Social Thought and Research*. <https://doi.org/10.17161/1808.25571>

²⁶³ USGCRP. (2018). *Fourth National Climate Assessment* (pp. 1–470). U.S. Global Change Research Program, Washington, DC. <https://nca2018.globalchange.gov>

One source of information about existing vulnerabilities might be the state’s Hazard Mitigation planning process. The Maine Emergency Management Agency (MEMA) assists communities with developing and updating Hazard Mitigation Plans; these documents include information about community vulnerabilities to various natural hazards and mitigation actions that they propose to reduce their long-term risk. This information is originally collected by communities and their counties based on their own interpretation of vulnerability to floods, severe storms, wildfire, drought, landslides, and other prominent hazards in Maine. MEMA is currently developing a digital database of these mitigation actions. The database will contain information about the type of project, its location, the hazard being mitigated, expected costs and time frame, responsible agencies, available funding sources, progress towards completion, and a brief description of project scope. Projects listed in these Hazard Mitigation Plans are eligible for financial support through mitigation assistance grants distributed by the Federal Emergency Management Agency.

49. Assessing Climate Vulnerability of Groundwater and Wells: *Maine Won’t Wait*

recommends that, by 2023, the state complete a statewide infrastructure-vulnerability assessment. Assets identified in the plan include transportation infrastructure (including roads, bridges, culverts, airports, railroads, ferries, ports and wharfs, maintenance facilities, and public transit systems); water infrastructure (including drinking-water systems, wastewater treatment facilities, and dams and stormwater management assets); energy infrastructure (including electricity generation, storage, and transmission; and fuel supply infrastructure); communications infrastructure (including landline, mobile, and broadband); and community infrastructure (including health systems; public housing; state, tribal, and municipal government buildings; food systems; solid-waste systems, etc.). The ESC recommends that, in addition to the water infrastructure identified above, the state assess the climate vulnerability of groundwater systems and wells in disadvantaged communities where there exists potential exposure to increased rates of salinization (due to sea level rise or coastal storms) or increased levels of arsenic (due to more frequent drought).

It is important that areas that are geographically vulnerable to salinization due to sea level rise, or flooding from extreme weather events, are aware of the threats and have access to solutions. On Maine’s islands, saltwater intrusion is already occurring; island communities need more information and clarity on responsibility and opportunities to address the problem.²⁶⁴ Furthermore, extreme weather events can produce flood waters that can increase sewer overflows, carry soil erosion particles, agricultural runoff, chemical contaminants, and bacteria into surface waters and wells; this can lead to gastrointestinal illness and chemical exposures from recreational contact or consumption of untreated drinking water.²⁶⁵ While *Maine Won’t Wait* requires comprehensive climate vulnerability analyses to be completed on certain classes of water infrastructure, they are all public sources. According to data from MECDC, 56.7% of

²⁶⁴ Journo, T. (2019, December 5). Water harvesting as a solution for island communities—Island Institute. *Island Institute*. Retrieved January 10, 2022, from <https://www.islandinstitute.org/working-waterfront/water-harvesting-as-a-solution-for-island-communities/>

²⁶⁵ *Maine Climate Council Public Health Subgroup Strategies*. (2020).

Maine households obtain their drinking water from a residential well;^{266 267} this is the highest percentage of any state.²⁶⁸ Most of these residences are in rural areas, where they are also less likely to have access to quality medical care, broadband internet, and other positive determinants of health. Given these considerations, the ESC recommends that wells be added to the vulnerability assessment list. The [Maine Rural Water Association](#) could serve as a partner for this element of program implementation. The University of Nebraska, Lincoln hosts a “Well Water Safety” website, which shares resources for private well users in the event of a flood emergency, including water treatment options, and strategies to protect wells from floodwater.²⁶⁹

50. Equitable Access to Infrastructure Adaptation Funding: The state should identify priority communities for piloting the infrastructure adaptation fund, as well as prioritization criteria to apply to competing projects and other proposals. Prioritization should be given to factors such as climate vulnerability and risk, but also sociodemographic factors, income level, planning and engineering capacity, and cultural/historic significance of infrastructure, amongst other factors.

Coastal and low-income communities often face barriers to updating infrastructure including limited project funding, and lack of expertise for seeking additional funding.²⁷⁰ Given these challenges, the ESC recommends state prioritization of adaptation funds for infrastructure that is relied upon by underserved communities. In order to identify areas to prioritize for public investment in climate-ready infrastructure, communities should be ranked based on their level of capacity to adapt, and their level of disadvantage (as understood by demographic variables).²⁷¹ Some processes for identifying priority communities for infrastructure adaptation include the American Society of Civil Engineers’ [Infrastructure Report Card](#), which does not include equity considerations but points to specific situations in which infrastructure needs repair; and GIS analysis of factors, including social vulnerability, green space, air quality, storm-water runoff mitigation capacity, flood sensitive areas, and flood sensitive buildings, all of which were used to make recommendations for new infrastructure placement in Ghent, Netherlands and Detroit, Michigan.²⁷²

²⁶⁶ *Private Well Water Metadata: Homes on Well Water and Testing Behavior.* Maine Tracking Network. Retrieved January 10, 2022, from <https://data.mainepublichealth.gov/tracking/home>

²⁶⁸ [Estimated Use of Water in the United States County-Level Data for 2010.](#) United States Geological Survey. Retrieved January 10, 2022, from <https://water.usgs.gov/watuse/data/2010/>

²⁶⁹ *Well Water Safety | Disaster Education.* University of Nebraska - Lincoln. Retrieved January 10, 2022, from <https://disaster.unl.edu/well-water-safety>

²⁷⁰ Barriers to adapting to climate change. (2017, April 27). *CoastAdapt.* <https://coastadapt.com.au/barriers-to-adapting-climate-change>

²⁷¹ Mandarano, L., & Meenar, M. (2017). Equitable distribution of green stormwater infrastructure: A capacity-based framework for implementation in disadvantaged communities. *Local Environment*, 22(11), 1338–1357. <https://doi.org/10.1080/13549839.2017.1345878>

²⁷² Li, L., Uyttenhove, P., & Van Eetvelde, V. (2020). Planning green infrastructure to mitigate urban surface water flooding risk – A methodology to identify priority areas applied in the city of Ghent. *Landscape and Urban Planning*, 194, 103703. <https://doi.org/10.1016/j.landurbplan.2019.103703>; Meerow, S., & Newell, J. P. (2017). Spatial planning for multifunctional green infrastructure: Growing resilience in Detroit. *Landscape and Urban Planning*, 159, 62–75. <https://doi.org/10.1016/j.landurbplan.2016.10.005>

51. Supporting Infrastructure Planning and Design: In addition to providing project funding, the state’s new infrastructure adaptation fund should identify funding for risk assessment, planning, and engineering design, particularly in communities with limited resources.

Maine currently has a backlog of 1,798 infrastructure adaptation projects listed across all sixteen counties at a proposed cost of \$325 million.²⁷³ The ESC is interested in assisting communities with limited resources (e.g. financial and human capacity) in accessing funding for infrastructure adaptation and achieving the steps that come before infrastructure adaptation (including risk assessment, planning, engineering design). In both funding and pre-development assistance, attention must be directed toward communities where high social and climate vulnerability overlap with low capacity to develop project pipelines and limited access to funding.

52. Long Term Infrastructure Funding: The state should help communities raise long term funding for long-term infrastructure projects.

Funding for climate-adaptive infrastructure projects often comes in the form of one-year grants. However, many essential resilience-focused infrastructure projects (e.g. bridge replacement or dam upgrades) are long-term projects. Thus, communities and municipalities often face difficulties in funding these longer-term projects. Currently, the Maine Municipal Bonds Bank offers longer-term, low-cost financing for municipalities for projects including school renovation, and safe drinking water.²⁷⁴ The state should work with the Maine Municipal Bonds Bank to enhance lending opportunities for multi-year infrastructure projects that support community resilience. In New York, the Environmental Facilities Corporation (EFC) offers a number of financing programs including both short- and long-term financings and interest-free financing and grants for qualifying communities with demonstrated financial hardship.²⁷⁵ The EFC also offers grants for green stormwater infrastructure projects which can cover up to 90% of eligible project costs in a municipality that meets the median household income criteria, or that serves, protects, or benefits an environmental justice area.²⁷⁶

53. Identifying Climate Resilient Infrastructure Project Opportunities: The state should explore the development of a menu of resilient infrastructure project recommendations, and expand existing centralized lists of vendors who provide vulnerability assessment, planning, design, and construction services.

²⁷³ Maine Climate Council. (2020). *DRAFT Detailed Maine Climate Action Plan Outline*.

https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MCC_DRAFT_DetailedOutlineClimateActionPlan_Oct19_2020.pdf

²⁷⁴ *Maine Municipal Bond Bank*. Retrieved January 10, 2022, from [http://www.mainebondbank.com/\(X\(1\)S\(tocrjzqobuodyg4ftdg3loif\)\)/Programs.aspx](http://www.mainebondbank.com/(X(1)S(tocrjzqobuodyg4ftdg3loif))/Programs.aspx)

²⁷⁵ *Drinking Water State Revolving Fund*. New York State Environmental Facilities Corporation. Retrieved January 10, 2022, from <https://efc.ny.gov/dwsrf>

²⁷⁶ *Green Stormwater Infrastructure*. New York State Environmental Facilities Corporation. Retrieved January 10, 2022, from <https://efc.ny.gov/green-stormwater-infrastructure>

Due to limited capacity and/or funding, communities may experience difficulty identifying partners for adaptive infrastructure work from assessment through building. The ESC recommends developing a list based on the approach taken by existing EMT or MDOT approved vendor lists, and/or the creation of prequalified resiliency vendor lists by Maine’s Department of Administrative and Financial Services, which may choose to follow models of other jurisdictions like New York City.²⁷⁷

54. Climate Risk Disclosure: The state should consider mandating a climate risk disclosure requirement for certain investments.

This recommendation applies to both consumers and insurers. For consumers, disclosures are recommended for borrowing decisions and loans for both homes and businesses and capital investments subject to climate risk. This might include [flood zone risk disclosure requirements](#) during home sales, or information about potential income diversification for workers in natural heritage industries affected by climate change. Currently, many states, including Maine, have no statutory or regulatory requirement that a seller must disclose a property’s flood risks or past flood damages to a potential buyer.²⁷⁸ California recently launched its Climate-Related Risk Disclosure Advisory Group, led by the Governor’s Office of Planning and Research in partnership with Stanford University’s Sustainable Finance Initiative. The group will support the State of California through the development of a climate risk disclosure standard, and will work to identify best practices associated with climate risk disclosure.²⁷⁹ The New York Department of Financial Services has also recently released guidance that outlines expectations that New York insurers integrate the consideration of climate risks into their governance frameworks, risk management processes and business strategies, and develop their approach to climate-related financial disclosure.²⁸⁰

Maine could also consider offering an optional financial literacy course, including state-secured loans or insurance products (such as a loan loss reserve for vehicle loans). This could be modelled after MaineHousing’s hoMEworks Homebuyer Education classes.²⁸¹ Several other states have passed legislation to support financial literacy programs for low-income residents, and seek to expand banking services and lending options for underserved communities^{282 283}

²⁷⁷ NYC DDC *Establishing List of Pre-Qualified Bidders for East Side Coastal Resiliency Project*. (2019, July 1). New York City Department of Design and Construction. <https://www1.nyc.gov/site/ddc/about/press-releases/2019/pr-070119-es-cr.page>

²⁷⁸ *Flood Disclosure Scorecard*. National Resources Defense Council. Retrieved January 10, 2022, from <https://www.nrdc.org/flood-disclosure-map>

²⁷⁹ *Press Release: State of California Launches Advisory Group on Climate Risk Disclosure—Office of Planning and Research*. (2021, April 5). California Governor’s Office of Planning and Research. <https://opr.ca.gov/news/2021/04-05.html>

²⁸⁰ Laceywell, L. (2020, October 29). *Industry Letter—Climate Change and Financial Risks*. Department of Financial Services. https://www.dfs.ny.gov/industry_guidance/industry_letters/il20201029_climate_change_financial_risks

²⁸¹ *HoMEworks Homebuyer Education Classes*. MaineHousing. Retrieved January 11, 2022, from <https://www.mainehousing.org/education/home/homeworks-homebuyer-education-classes>

²⁸² *Press Release—The Department of Financial Services and Empire State Development Award \$5 Million in Grants to Expand Affordable Banking Services in Underserved Communities*. (2021, October 7). Department of Financial Services. https://www.dfs.ny.gov/reports_and_publications/press_releases/pr202110071

²⁸³ California Financial Literacy Initiative. AB-2123. (2008). https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200720080AB2123

For insurers, this recommendation involves climate literacy training for lenders. The [Task Force on Climate Related Financial Disclosures](#) published a comprehensive report describing voluntary, consistent climate-related financial disclosures useful to investors, lenders, and insurance underwriters in understanding material risks.²⁸⁴

H. ENGAGE MAINE PEOPLE AND COMMUNITIES

The ESC discussed engaging with Maine people and communities about climate impacts and program opportunities using a **social resilience framework**.²⁸⁵ In this context, resilience can be defined as the ability of a person or a community to function in the face of adversity, to survive, and, perhaps, even to thrive.²⁸⁶ The ability of a community, city, neighborhood, or town to be resilient depends on the community's capability to learn from past shocks, and incorporate learning into plans for better future protection and improved risk reduction measures.²⁸⁷ Information gathered from past shocks must be responsibly mobilized to inform equitable and impactful interventions so that communities that experience a shock once are not also subject to repeat experiences.

Though Maine communities are already resilient in many ways, much can be done to increase the resilience capacity, particularly in response to climate change. Factors that enhance resilience range from personal action to community programs, and beyond. Supporting personal mental health resilience, engaging communities in resilience planning, and creating education and outreach materials in multiple languages, are strategies the state can adopt to support a robust physical and social infrastructure for improved resilience across the state.

55. Equitable Climate Engagement: Climate engagement opportunities offered by the state and its partners should be accessible across all forms of media and should be delivered through trusted partners to reach frontline populations. In designing and offering programs to reach these target populations (e.g. neighborhoods with relatively high levels of low literacy, high linguistic isolation, and older adult or youth populations), the state should work in close partnership with on-the-ground organizations.

The ESC recommends that climate information come from trusted sources, and be understandable to target audiences. Trusted partners, including churches and other faith-based organizations, and non-profits can act as 'bridge' organizations to facilitate engagement and

²⁸⁴ *Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures*. (2017). Task Force on Climate Related Financial Disclosures. <https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf>

²⁸⁵ Faulkner, L., Brown, K., & Quinn, T. (2018). Analyzing community resilience as an emergent property of dynamic social-ecological systems. *Ecology and Society*, 23(1). <https://doi.org/10.5751/ES-09784-230124>

²⁸⁶ Hobfoll, S. E., Stevens, N. R., & Zalta, A. K. (2015). Expanding the science of resilience: Conserving resources in the aid of adaptation. *Psychological Inquiry*, 26(2), 174–180. doi:10.1080/1047840X.2015.1002377

²⁸⁷ *Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters*. (2005). International Strategy for Disaster Reduction. <https://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf>

convey messages about climate change to frontline communities.²⁸⁸ Using places and buildings that are familiar and easily reachable can improve accessibility, and receptiveness.²⁸⁹ Climate change information should be shared communities' preferred languages; research has shown that sharing scientific information in the native language of a target audience yields greater participation, motivation and optimism, and leads to stronger connections to concepts in the native culture.²⁹⁰ In 2021, Nevada enacted legislation to require state agencies to collaborate with minority groups to ensure agency policies and programs are accessible and inclusive, including adding information about programs in multiple languages where possible.²⁹¹

56. Psychological Resilience: The state should explore opportunities to use climate communications to build psychological resilience to climate change. This should include access to free psychological resilience resources related to climate-driven trauma for community members, municipal officials, businesses, healthcare systems, schools, and other entities about the effects of climate change.

Since the effects of climate change are disproportionately felt by frontline communities, so will the effects of climate-driven trauma. Climate change can affect mental health directly, through personal experience of living through a disaster, or facing climate-driven unemployment, and losses of familiar and important outdoor spaces or cultural centers; and indirectly, through experiences of climate disaster storytelling and “doom and gloom” reporting.

Barriers to mental health resources, and specifically mental health resources related to climate change and building psychological resilience, such as stigma, and even general lack of awareness, can prevent people from having the resources they need to be more resilient in the face of climate change impacts.²⁹² Building psychological resilience is a part of the process of engaging people in creating resilient communities.^{293 294}

57. Equity in the Maine Climate Corps: Volunteer Maine should incorporate equity into plans for the Maine Climate Corps program. Equitable measures might include multilingual or otherwise targeted outreach, provision of wrap-around services to

²⁸⁸ *Fighting Redlining & Climate Change with Transformative Climate Communities*. (2021). The Greenlining Institute. <https://greenlining.org/wp-content/uploads/2021/10/Fighting-Climate-Change-and-Redlining-with-Transformative-Climate-Communities-Final-Report.pdf>

²⁸⁹ Humm, C., & Schrögel, P. (2020). Science for All? Practical Recommendations on Reaching Underserved Audiences. *Frontiers in Communication*, 5, 42. <https://doi.org/10.3389/fcomm.2020.00042>

²⁹⁰ Márquez, M. C., & Porras, A. M. (2020). Science Communication in Multiple Languages Is Critical to Its Effectiveness. *Frontiers in Communication*, 5, 31. <https://doi.org/10.3389/fcomm.2020.00031>

²⁹¹ SB 222. (2021). https://www.leg.state.nv.us/Session/81st2021/Bills/SB/SB222_R1.pdf

²⁹² *Mental Health and our Changing Climate: Impacts, Inequities, Responses*. (2021). American Psychological Association. <https://www.apa.org/news/press/releases/mental-health-climate-change.pdf>

²⁹³ Ojala, M. (2012). How do children cope with global climate change? Coping strategies, engagement, and well-being. *Journal of Environmental Psychology*, 32(3), 225–233. doi:10.1016/j.jenvp.2012.02.004; Van Zomeren, M., Spears, R., & Leach, C. W. (2010). Experimental evidence for a dual pathway model analysis of coping with the climate crisis. *Journal of Environmental Psychology*, 30(4), 339–346. doi:10.1016/j.jenvp.2010.02.006

²⁹⁴ Phadke, R., Manning, C., & Burlager, S. (2015). Making it personal: Diversity and deliberation in climate adaptation planning. *Climate Risk Management*, 9, 62–76.

ensure equitable participation, and intentional recruitment of Corps members from communities experiencing marginalization.

If the Maine Climate Corps is developed as a program through AmeriCorps, the benefits that AmeriCorps offers to those who serve should be equitable. Health care, and accommodations for individuals with disabilities are all aspects of paid support for AmeriCorps members, as are mental health care and an annual living allowance of between \$16,000 and \$21,000.²⁹⁵

Conclusion and Next Steps

This report is the interim outcome of the Equity Subcommittee’s work to date. It is the beginning of a conversation between the subcommittee, the Maine Climate Council, and its working groups, focused on setting clear equity outcomes for the programs and policies proposed within *Maine Won’t Wait* and above; and supporting ongoing planning and implementation, with a focus on the development of equity metrics that will allow the state and its partners to monitor impact over time.

After the Maine Climate Council receives these recommendations in February (2022), the ESC proposes a continuation of this work in partnership between its members and the MCC Working Groups. Refinement of recommendations presented herein will be a primary task of the collaboration, as we work to focus on top priorities within each Working Group. Equally important will be the establishment of metrics for ensuring measurable change; the ESC will work with Working Group members to propose metrics that will allow us to collectively monitor successful implementation of equity recommendations. Such metrics may relate to incentive programs, clean energy investments, program participation, and funding strategies for climate-focused incentives that prioritize disadvantaged populations. Finally, to the extent possible, the ESC and Working Groups should identify responsible state, quasi-state, and non-state partners for implementation of priority recommendations, as well as any challenges or barriers to implementation that must be overcome.

The ESC suggests that the outcome of this collaboration be a final report to the climate council, containing collective priority recommendations, implementation partners, and recommended metrics, by December 2022.

This collaboration will be supported at the outset with a joint presentation for all members of the MCC and its Working Groups regarding equity, both generally and with respect to climate change. The ESC recommends that this training cover topics related to diversity, equity, inclusion, justice, and implicit bias; as well as introduce equity metrics frameworks, to guide the collaboration moving forward. The ESC recommends that such training continue to be offered, to help ensure that disadvantaged and historically underserved communities remain centered

²⁹⁵ *VISTA Benefits*. AmeriCorps. Retrieved January 11, 2022, from <https://americorps.gov/members-volunteers/vista/benefits>

throughout Maine’s ongoing climate planning process. Additionally, both as it relates to the ongoing work of the council and otherwise, the ESC recommends that, to the extent possible, membership on climate decision-making bodies should be diverse and representative of Indigenous populations, people of color, limited English proficient residents, New Americans, and low-income residents. Moreover, these decision-making bodies should strive to include membership of these demographic groups that is at least as high as the general population within the state.

We recognize that the ESC’s work is occurring in parallel with other important, equity-driven work in the state. One key piece of legislation is [LD 1682](#), which proposes a stakeholder process to define environmental justice, environmental justice populations, and frontline communities, and which focuses on the intersections between social vulnerability and environmental and climate risk. The legislation will inform guidance to help state agencies assess whether and how agency actions lead to equitable distribution of resources and equitable outcomes, while reducing disproportionate burdens, by using cumulative impact analyses where applicable.

The [Permanent Commission on the Status of Racial, Indigenous and Maine Tribal Populations](#) (“Permanent Commission”) represents another critical process occurring parallel to the work of the ESC. As an independent entity, the Permanent Commission, which was established in 2019, has a mission to examine racial disparities across all systems and to specifically improve the status and outcomes for historically disadvantaged racial, Indigenous, and tribal populations in Maine. In providing recommendations, the Permanent Commission is empowered to advise all branches of state government.²⁹⁶ Where the focus of the ESC is on the intersections of climate change and equity, the focus of the Permanent Commission is across a broader set of areas. They are examining possible impacts of racial disparities in 10 policy areas including education, criminal justice, and tribal sovereignty, among others.²⁹⁷ Efforts undertaken by the ESC, LD 1682, and the Permanent Commission will help support a more just and secure future for all people in Maine.

²⁹⁶ Permanent Commission on the Status of Racial, Indigenous, and Maine Tribal Populations. (2020). *Recommendations to the Legislature*. https://www.maine.gov/labor/pcrit/reports/2020_LegReport.pdf

²⁹⁷ Ibid.

Appendices

APPENDIX A: MEMBERS OF THE MAINE CLIMATE COUNCIL EQUITY SUBCOMMITTEE

Co-chairs of the Subcommittee are Ambassador Maulian Dana of the Penobscot Nation and Gabriela Alcalde, Executive Director of the Elmina B. Sewall Foundation. Members of the Equity Subcommittee represent the entire State and a variety of communities, industries, and interests. The full member list is below:

Maine Legislators

Senator Craig Hickman, D-Winthrop
Senator Jeffrey Timberlake, R-Androscoggin
Representative Tom Martin, R-Greene
Representative Rachel Talbot Ross, D-Portland

Co-Chairs

Ambassador Maulian Dana, Penobscot Nation
Gabriela Alcalde, Executive Director of the Elmina B. Sewall Foundation

Additional Members

Becca Boulos, Maine Public Health Association; Maine Climate Council Community Resilience Planning, Public Health, and Emergency Management Working Group
Curt Brown, Ready Seafood
Shanna Cox, Lewiston Auburn Chamber of Commerce
Lesley Fernow, Central Hall Commons
Steve Golieb, Maine Climate Council; Town Councilor for the Town of Millinocket
Corey Hinton, Drummond Woodsum
Amara Ifeji, Maine Environmental Education Association
Melissa Law, Maine Climate Council; Owner of Bumbleroot Organic Farm
Suzanne MacDonald, Island Institute
Matt Marks, Maine Climate Council; Executive Director of the Associated General Contractors of Maine
Gabe McPhail, Town of Vinalhaven
Fortunat Mueller, Revision Energy
Jason Parent, Aroostook County Action Program
Ambureen Rana, Maine Equal Justice
Darren Ranco, University of Maine
Isaiah Reid, University of Maine at Farmington Student; Permanent Commission on the Status of Racial, Indigenous and Maine Tribal Populations
Jonathan Rubin, University of Maine
Matt Schlobohm, Maine Climate Council; Executive Director of the Maine AFL-CIO
Adelaide Taylor, Revision Energy
Claudette Townsend, Dead River
Ania Wright, Maine Climate Council Representative of Maine Youth; Sierra Club Maine