



Minnesota's climate is changing, impacting the health and well-being of our communities. With support from the U.S. Climate Alliance and Great Plains Institute, Minnesota Housing created the Agency's [Climate Resilience and Housing Decarbonization Roadmap](#) to guide how we lower greenhouse gas emissions in housing and prepare homes for climate change. Rooted in the governor's Climate Action Framework, the Roadmap sets targets, provides recommendations and establishes measures for tracking progress toward building and maintaining efficient, resilient buildings and homes.

Decarbonization means lowering greenhouse gas emissions. In homes and buildings, this means increasing energy efficiency and switching to carbon-free electricity — steps that move us toward net-zero buildings. Examples include improved insulation and air sealing, LED lighting, electric air source heat pumps and rooftop solar. Climate resilience means helping people and buildings withstand and recover from extreme weather and other climate impacts. In homes and buildings, this includes upgrades that improve safety and durability, like hail and high wind resistant roofing, flood resilient elevators, air conditioners and battery storage. By advancing decarbonization and climate resilience, the Agency strengthens long-term housing affordability and stability, directly supporting its mission to create and preserve homes that enable individuals and communities to thrive.

Responding to Opportunities in a Changing Climate

As the climate has changed, Minnesota has seen frequent and intense storms, heat waves and declining air quality, damaging homes and costing owners and residents millions of dollars in cleanup and repairs.

Housing plays a substantial role in energy consumption and greenhouse gas emissions, in part because most existing buildings predate current efficiency standards. Since 2005, emissions from residential buildings have risen 38%. At the same time, rising home energy bills disproportionately affect low-income households. Renters and Minnesotans with fewer financial resources lack the means to implement money-saving home energy and climate resiliency upgrades, maintain their indoor air quality and affordably heat and cool their homes. Housing insurance costs are also rising due in part to climate impacts, leaving Minnesota's most vulnerable populations in buildings that face the greatest climate-related risks. Housing finance agencies play a key role in addressing these climate challenges by incorporating decarbonization and climate resilience strategies.

Recent state action on climate has created momentum and opportunity for Minnesota Housing. The Minnesota Legislature passed several climate-focused laws driving the move to decarbonized and resilient affordable housing. New building codes will require new multifamily and single-family housing to be near net zero by the mid-2030s. Other legislation requires utilities to provide 100% clean energy by 2040 and sets a statewide goal of net-zero emissions sector-wide by 2050.

In 2026, Governor Walz's Climate Change Subcabinet, comprised of 15 state agencies and departments, including Minnesota Housing, released an updated Climate Action Framework. This statewide plan addresses climate change in Minnesota through advances in many sectors including housing. Goal 7 of the Climate Action Framework specifically outlines actions to build and maintain healthy, comfortable,

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Category: Special Achievement – New Practice

safe, efficient and resilient buildings and homes that are cheaper to operate, pollute very little and support grid stability.

The Agency's own Strategic Plan outlines a key strategy to provide owners, developers and property managers equitable access to information, financial support and incentives to make energy and climate resiliency improvements. This strategy includes providing technical assistance, incentives and financing for energy and resiliency technologies.

These factors all influenced Minnesota Housing's decision to release the Climate Resilience and Housing Decarbonization Roadmap now to guide Agency staff, external partners and housing finance agencies across the nation to build and rehabilitate homes that are decarbonized and climate resilient.

Driving Innovation

Minnesota Housing recognizes its role in mitigating climate change by constructing energy efficient housing powered by clean energy and ensuring Minnesotans have resilient homes that are affordable, safe, healthy and comfortable in the face of extreme climate impacts. By advancing decarbonization and climate resilience, the Agency strengthens long-term housing affordability and stability, supporting its mission to create and preserve homes that help individuals and communities thrive.

As a national leader in the state's housing industry for embracing energy-efficient building standards, Minnesota Housing saw the opportunity to make further progress in addressing climate change with the Climate Resilience and Housing Decarbonization Roadmap. The Agency received technical assistance from the U.S. Climate Alliance, a bipartisan coalition of governors advancing state-led, high-impact climate action. This assistance allowed us to work with the Great Plains Institute (GPI), an organization supporting the transition to net-zero carbon emissions for the benefit of people, the economy and the environment. GPI helped Minnesota Housing craft a detailed work plan, facilitate monthly working group meetings, learn from experts in the field and ultimately identify Roadmap targets, challenges and opportunities. After incorporating input from the public, the Roadmap was released in March 2026.

The Roadmap guides the Agency to address housing decarbonization and prepare homes for climate change. It identifies targets for Minnesota Housing, recommendations for achieving those targets and measures for tracking the Agency's progress, including:

- **Target 1: Decarbonized and Resilient New Construction:** By 2032, new single-family and multifamily buildings applying for funding are net-zero and climate resilient.
- **Target 2: Decarbonized and Resilient Existing Housing:** By 2035, single-family and multifamily properties applying for funding for Substantial Rehabilitation and Moderate Rehabilitation shall include building upgrades that incorporate decarbonization and climate resiliency.
- **Target 3: Comprehensive Climate Integration:** By 2030, climate will be an integral part of all equity, communications, technical assistance and planning efforts across the Agency.

The Roadmap also discusses outputs, outcomes and implementation considerations, including staff and financial resources, owner needs and preferences, coordination with partners and workforce limitations.

Achieving Intended Results

Pathways for individual properties to achieve these targets will vary by building location, type, size and age. New construction often offers an easier way to reduce emissions, and the Agency is beginning to fund new multifamily buildings that choose net-zero building standards such as Passive House.

For existing buildings, the International Panel on Climate Change anticipates that buildings can expect reductions in greenhouse gas emissions of 50%-75% following a substantial rehabilitation. The Department of Energy's National Blueprint for the Building Sector says that fossil fuel combustion accounts for 83% of on-site emissions. As a result, cost-effective energy efficiency projects such as air sealing and insulation are a priority, followed by electrification and renewable energy initiatives.

The ability for individual properties to pursue onsite renewable energy will vary based on location, site characteristics and size; some properties may consider Renewable Energy Certificates in lieu of or alongside onsite renewable energy. Additionally, as utilities in Minnesota meet the 2040 clean energy requirement, properties will be able to access carbon-free electricity directly from the grid, helping meet net-zero goals. Lastly, climate resilience upgrades for homes and buildings will need to be individualized, due to the nature of differing climate risks in various areas of the state.

The Agency will make progress towards its targets program by program, rather than a one-size-fits-all approach. To measure and track progress, the Agency will establish a data collection and reporting strategy on both the property and Agency level. Construction projects will continue to follow program specific processes and requirements. Program and lending changes resulting from the Roadmap will go through typical approval channels specific to each program, including the Qualified Allocation Plan and Requests for Proposal. The Agency will also follow typical public engagement processes, timelines, cost considerations and Board approval for each program.

Providing Benefits that Outweigh Costs

The benefits and costs of decarbonization and climate resilience vary across Minnesota, based on local climate risks, utilities and community needs. Some owners may prioritize projects like solar with battery storage that have higher upfront costs for long-term operational and resident savings and resilience to electric grid disruptions. Others may focus on building envelope and efficiency upgrades that improve indoor air quality and resident health.

Upfront incremental costs are likely in the short term, but studies show these projects become more cost effective as they become more common for owners, design teams and contractors. Over time, owners can expect cost savings through operations, maintenance, utility bills and insurance premiums.

Focusing on overall building performance will help balance costs and ensure housing availability and affordability throughout the state.

As a national leader in the state's housing industry in embracing energy-efficient building standards, Minnesota Housing saw an opportunity to go further in addressing climate change. The Climate Resilience and Housing Decarbonization Roadmap, one of the first of its kind for a housing finance agency, advances existing sustainability priorities to include climate impacts and targets. We hope housing finance agencies across the nation pursue similar efficiency and resiliency efforts. For states early in this journey, our Climate Roadmap serves as a model for developing their own path forward.

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Appendix

Appendix A: Roadmap



CLIMATE RESILIENCE AND HOUSING DECARBONIZATION ROADMAP





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EXECUTIVE SUMMARY

Minnesota's changing climate poses significant challenges to our communities. Frequent and intense storms, heat waves and declining air quality are becoming more common than ever, causing extensive and expensive damage to homes and communities. These changes stem from human activities that release greenhouse gas emissions, gases that warm the planet.

Housing is a significant contributor to energy usage and greenhouse gas emissions.¹ Since 2005, net greenhouse gas emissions from residential buildings have increased by 38% and net emissions from commercial buildings have increased by 27%.² At the same time, higher home energy bills disproportionately affect people with low incomes and those with fewer financial resources are unable to make money-saving home energy and climate resiliency upgrades.³ Additionally, housing insurance costs are becoming more expensive for Minnesotans, in part due to the historic costs associated with more frequent and intense storms.

Several statutory goals are also driving the move to decarbonized and resilient affordable housing. In recent years, the Minnesota Legislature passed a series of climate-focused requirements. These include a requirement for investor-owned utilities to provide 100% clean energy by 2040.⁴ Additionally, the Minnesota Legislature passed building code revisions that will require new commercial buildings, including large multifamily buildings, to be near net-zero by 2036 and new residential buildings, including smaller multifamily buildings and single-family homes, to be near net-zero by 2038.⁵ Finally, Minnesota has a statutory goal of 50% emissions reductions statewide by 2030 and 100% net-zero emissions across all sectors, including both new and existing buildings, in Minnesota by 2050.⁶

Since 2005, net greenhouse gas emissions from the residential sector have increased by

38%

and net emissions from the commercial sector have increased by

27%.

Minnesota has a statutory goal of

50%

emissions reductions statewide by 2030 and

100%

net zero emissions across Minnesota by 2050.

While Minnesota Housing (Agency) is a leader in the state's housing industry in embracing energy-efficient building standards, the Agency recognizes opportunities to make further progress. The Minnesota Housing Climate Resilience and Housing Decarbonization Roadmap (Roadmap) serves as a guide for the Agency to address housing decarbonization and prepare homes for climate change. The Roadmap identifies targets for Minnesota Housing, provides recommendations for achieving those targets and establishes measures for tracking the Agency's progress.

PROCESS

Minnesota Housing worked with the Great Plains Institute to develop and prepare the Roadmap. The development process included a series of meetings with groups of Minnesota Housing staff that each included external expert presenters and facilitated discussions to identify targets, challenges and opportunities. When suggesting possible recommendations, staff were encouraged to think big and be ambitious. Please refer to the Appendix for further information about the process of developing the Roadmap.



TARGETS & RECOMMENDATIONS

The Roadmap is founded on three targets set by Minnesota Housing. The below targets are high-level, Agency-wide aspirations intended to be achieved as an average across the whole of the Agency's work. While these targets provide a valuable framework, they may not be attainable for every individual home or building project.



Decarbonized and Resilient New Construction

By 2032, new single-family and multifamily buildings applying for funding are net-zero and climate-resilient.



Decarbonized and Resilient Existing Housing

By 2035, single-family and multifamily properties applying for funding for substantial and Moderate Rehabilitation shall include building upgrades that incorporate decarbonization and climate resiliency.

- For Substantial Rehabilitation, improvements shall meet Agency standards for greenhouse gas (GHG) emissions and climate resiliency, with the aim of 50% reduction in GHG emissions in aggregate for impacted properties.
- For Moderate Rehabilitation, improvements shall meet Agency standards for GHG emissions and climate resiliency, with the aim of a 20% reduction in GHG emissions in aggregate for impacted properties.



Comprehensive Climate Integration

By 2030, climate will be an integral part of all equity, communications, technical assistance and planning efforts across the Agency.



Minnesota Housing staff developed the following recommendations for how the Agency can reach these targets. The recommendations are organized by the three targets. Under targets 1 and 2, the recommendations are further divided into two categories: multifamily and single-family housing. Recommendations under Target 3 are broadly applicable to Minnesota Housing and all building types and programs.

TABLE 1: RECOMMENDATIONS

Initiative	Recommendation
TARGET 1. DECARBONIZED AND RESILIENT NEW CONSTRUCTION	
1.1 New Decarbonized and Resilient Multifamily	1.1.1 Increase incentives, requirements and scoring criteria for existing internal programs Minnesota Housing will update building standards and relevant documents to more deeply decarbonize and make climate resilient the new construction multifamily housing funded through the Consolidated Request for Proposals (Consolidated RFP). Minnesota Housing will require net-zero multifamily new construction by increasing minimum requirements and adding additional incentives in a phased approach.
	1.1.2 Boost financial leveraging by incorporating external sources Minnesota Housing will continue to consider how the Consolidated RFP should encourage financial leveraging from multiple different external sources of energy financing, including utility incentives, rebates, tax credits and programs from local units of government.
	1.1.3 Create new programs to fill gaps Minnesota Housing will consider new financing programs for developers to leverage additional sources of funding and implement clean energy technologies, which may include bridge lending to facilitate access to federal tax credits.
1.2 New Decarbonized and Resilient Single-Family Homes	1.2.1 Increase incentives, requirements and scoring criteria for existing internal programs Minnesota Housing will add climate-focused scoring criteria to the Impact Fund and update building standards and documents to more deeply decarbonize and make climate resilient the new single-family housing that is funded through the Agency's existing financing programs. Minnesota Housing will move toward requiring net-zero single-family new construction by increasing minimum requirements and adding additional incentives in a phased approach.
	1.2.2 Boost financial leveraging by incorporating external sources Minnesota Housing will continue to consider how the Impact Fund should encourage financial leveraging from multiple different external sources of energy financing, including utility incentives, rebates, tax credits and programs from local units of government.
	1.2.3 Create new programs to fill gaps Minnesota Housing will consider new financing programs for single-family developers to leverage additional sources of funding and implement clean energy technologies, which may include bridge lending or transferability of tax credits.

TABLE 1: RECOMMENDATIONS

Initiative	Recommendation
TARGET 2: DECARBONIZED AND RESILIENT EXISTING HOUSING	
2.1 Decarbonized and Resilient Existing Multifamily Buildings	2.1.1 Increase incentives, requirements and scoring criteria for existing programs Minnesota Housing will update building standards and documents to more deeply decarbonize and make climate resilient existing multifamily housing through existing multifamily preservation programs. Minnesota Housing will promote whole-building energy performance, incentivize Passive House rehabilitation programs, and strengthen prescriptive energy and resiliency requirements. 2.1.2 Boost financial leveraging by incorporating external sources Minnesota Housing will continue to consider how the Consolidated RFP and existing preservation programs can encourage financial leveraging from multiple different external sources of energy financing, including utility incentives, rebates, tax credits and programs from local units of government. 2.1.3 Create new programs to fill gaps Minnesota Housing will consider new programs and pathways to incentivize decarbonization and resiliency for properties making upgrades within the Agency’s asset management portfolio. Minnesota Housing will consider new financing opportunities for developers to leverage additional sources of funding and implement energy technologies, which may include bridge lending to facilitate access to federal tax credits.
2.2 Decarbonized and Resilient Existing Single-Family Homes	2.2.1 Increase incentives, requirements and scoring criteria for existing internal programs Minnesota Housing will update relevant building standards and documents to more deeply decarbonize and make climate resilient existing single-family housing through existing home improvement programs. Minnesota Housing will update existing single-family financing programs to allow for different levels and types of investments in climate resiliency and decarbonization. From small, individual replacements, to technology bundles, to large whole house retrofits, Minnesota Housing will take a customer-based view to design programs with loan terms and concierge assistance offerings that allow customers to complete their decarbonization and climate resiliency projects. 2.2.2 Boost financial leveraging for existing programs Minnesota Housing will continue to consider how existing home improvement programs can encourage financial leveraging from multiple different external sources of energy financing, including utility incentives, rebates, tax credits and programs from local units of government. 2.2.3 Create new programs to fill gaps Minnesota Housing will consider new single-family financing programs to allow for different levels and types of investments in climate resiliency and decarbonization. Minnesota Housing will consider new financing opportunities for homeowners to leverage additional sources of funding and implement energy technologies.

TABLE 1: RECOMMENDATIONS

Initiative	Recommendation
TARGET 3: COMPREHENSIVE CLIMATE INTEGRATION	
3.1 Agency- Wide Climate Integration	3.1.1 Ground climate work in equity and human-centered design Minnesota Housing will design and implement decarbonization and climate resiliency programs that center equity and are grounded in human-centered design.
	3.1.2 Communicate and engage effectively Minnesota Housing will update the Agency website, create a Climate eNews newsletter and use social media to clearly communicate about the Agency’s climate work and share case studies.
	3.1.3 Increase technical assistance offerings Minnesota Housing will increase technical assistance offerings in partnership with other state agencies, utilities and organizations, including one-on-one concierge-level assistance on energy technologies, financing and funding opportunities.
	3.1.4 Track and report data Minnesota Housing will establish an informed strategy to collect, track and report on energy metrics to create a baseline and show progress toward meeting Agency climate targets.
	3.1.5 Climate review and long-term planning Minnesota Housing will implement a climate review into program planning and implementation to ensure a “climate lens” is intentionally included in all program strategy discussions.

A full-page background image of a winter scene. In the foreground, several bare, dark trees with intricate branch structures are silhouetted against a lighter sky. The ground is covered in a layer of snow. In the background, a calm body of water, possibly a lake or river, is visible, reflecting the colors of the sky. The sky is a mix of deep blue at the top and bottom, with a vibrant orange and yellow glow from the setting or rising sun in the middle. A semi-transparent grey circular graphic with a dashed yellow line is positioned in the lower right quadrant, partially overlapping the trees and the water.

INTRODUCTION

MINNESOTA HOUSING

For more than 50 years, the Minnesota Housing (Agency) has worked to provide access to safe, decent and affordable housing and build stronger communities across the state. Minnesota Housing is a state agency that finances housing that low and moderate-income Minnesotans can afford while helping Minnesotans buy and fix up their homes.

Along with fostering strong communities, the Agency provides resources to stabilize neighborhoods, communities and families. Minnesota Housing works cooperatively with others to support the development and preservation of affordable rental housing. In 2025, we distributed \$1.8 billion in resources and served 73,000 households.

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Minnesota Housing Vision: Everyone needs a home they can afford in a community of their choice because housing is foundational to a full life and thriving state, supporting educational achievement, stable employment, health and well-being.

Minnesota Housing Mission: Housing is foundational to a full life and a thriving state, so we equitably collaborate with individuals, communities and partners to create, preserve and finance housing that is affordable.

Advancing decarbonization and climate resilience is integral to this mission, as ensuring housing remains affordable, safe and sustainable in a changing climate is essential to long-term housing stability and community well-being.

CLIMATE WORK AT MINNESOTA HOUSING

Minnesota's climate has changed and will continue to change, impacting the health and well-being of our communities. Frequent and intense storms, heat waves and declining air quality are now occurring more than at any time on record, damaging Minnesota homes and costing owners and residents millions of dollars in cleanup and repairs. These changes stem from human activities that release greenhouse gas emissions, gases that warm the planet.

Housing development and rehabilitation play a substantial role in energy consumption and greenhouse gas emissions, in part because most existing buildings predate current efficiency standards. Since 2005, net greenhouse gas emissions from residential buildings have increased by 38% and net emissions from commercial buildings have increased by 27%.⁷ At the same time, rising home energy bills disproportionately affect low-income households. Renters and Minnesotans with fewer financial resources lack the means to implement money-saving home energy and climate resiliency

upgrades, maintain their indoor air quality and affordably heat and cool their homes. Additionally, housing insurance costs are becoming more expensive for Minnesotans, in part due to the historic costs associated with more frequent and intense storms. Minnesota's most vulnerable populations are therefore disproportionately living or sheltering in buildings that face the greatest

environmental and climate-related risks.⁸

Minnesota Housing recognizes its role in mitigating climate change by constructing energy-efficient housing that is powered by clean energy while also ensuring Minnesotans have resilient homes that are affordable, safe, healthy and comfortable in the face of extreme climate impacts.

By advancing decarbonization and climate resilience, the Agency strengthens long-term housing affordability and stability, directly supporting its mission to create and preserve homes that enable individuals and communities to thrive. Future climate-related home improvements should focus on two core principles: decarbonization and climate resilience, as defined below.

DECARBONIZATION

Decarbonization is the process of lowering greenhouse gas emissions that contribute to climate change. For homes and buildings, this means reducing energy usage through energy efficiency and switching to carbon-free electricity. This is also known as net-zero buildings. Examples of decarbonization investments in buildings include insulation and air sealing, LED lighting, fuel switching from natural gas furnaces to electric air source heat pumps, rooftop solar and more.



CLIMATE RESILIENCE

Climate resilience is the capacity of individuals, communities, buildings, infrastructure or the natural environment to prevent, withstand, respond to and recover from disruptive events and continue to perform despite persistent stresses imposed by climate change. For homes and buildings, this means taking steps to ensure safety from severe weather and other climate impacts. Examples of climate-resilient investments in buildings include hail and high wind resistant roofing, flood resilient elevators, air conditioners, battery storage and more.



Minnesota Housing is aligned with broader state energy goals, building codes and resiliency efforts centered around climate change. In Executive Order 19-37, Governor Tim Walz established the Climate Change Subcabinet, of which Minnesota Housing is a member. The Subcabinet works together to identify policies and strategies to reduce statewide greenhouse gas emissions across all sectors as well as identify policies and strategies that will enhance the climate resiliency of Minnesota's natural resources, working lands and communities.⁹ In 2022, the Climate Change Subcabinet released Minnesota's Climate Action Framework. Goal 4 of the Framework, Clean Energy and Efficient Buildings, outlines actions to create healthy, comfortable buildings that are cheaper to operate and pollute less. In 2026, an updated Climate Action Framework was released with Goal 7: Efficient and Resilient Buildings outlining actions to build and maintain healthy, comfortable, safe, efficient and resilient buildings and homes that are cheaper to operate, pollute very little and support grid stability.

Several statutory goals are also driving the move to decarbonized and resilient affordable housing. In recent years, the Minnesota Legislature passed a series of climate-focused requirements. These include a requirement for investor-owned utilities to provide 100% clean energy by 2040.¹⁰ Additionally, the Minnesota Legislature passed building code revisions that will require new multifamily buildings to be near net zero by 2036 and new single-family homes to be near net zero by 2038.¹¹ Finally, Minnesota has a statutory goal of 50% emissions reductions statewide by 2030 and 100% net zero emissions across Minnesota by 2050.¹²

Minnesota Housing continues to support and implement these statutory requirements using the recommendations outlined in this roadmap and other key documents to ensure that its policies contribute to the state's climate commitments and timelines. Minnesota Housing's 2024–2027 Strategic Plan outlines a key strategy to provide owners, developers and property managers equitable access to information, financial support and incentives to make energy and climate-resiliency improvements. This strategy includes providing technical assistance, incentives, and financing for energy and resiliency technologies.

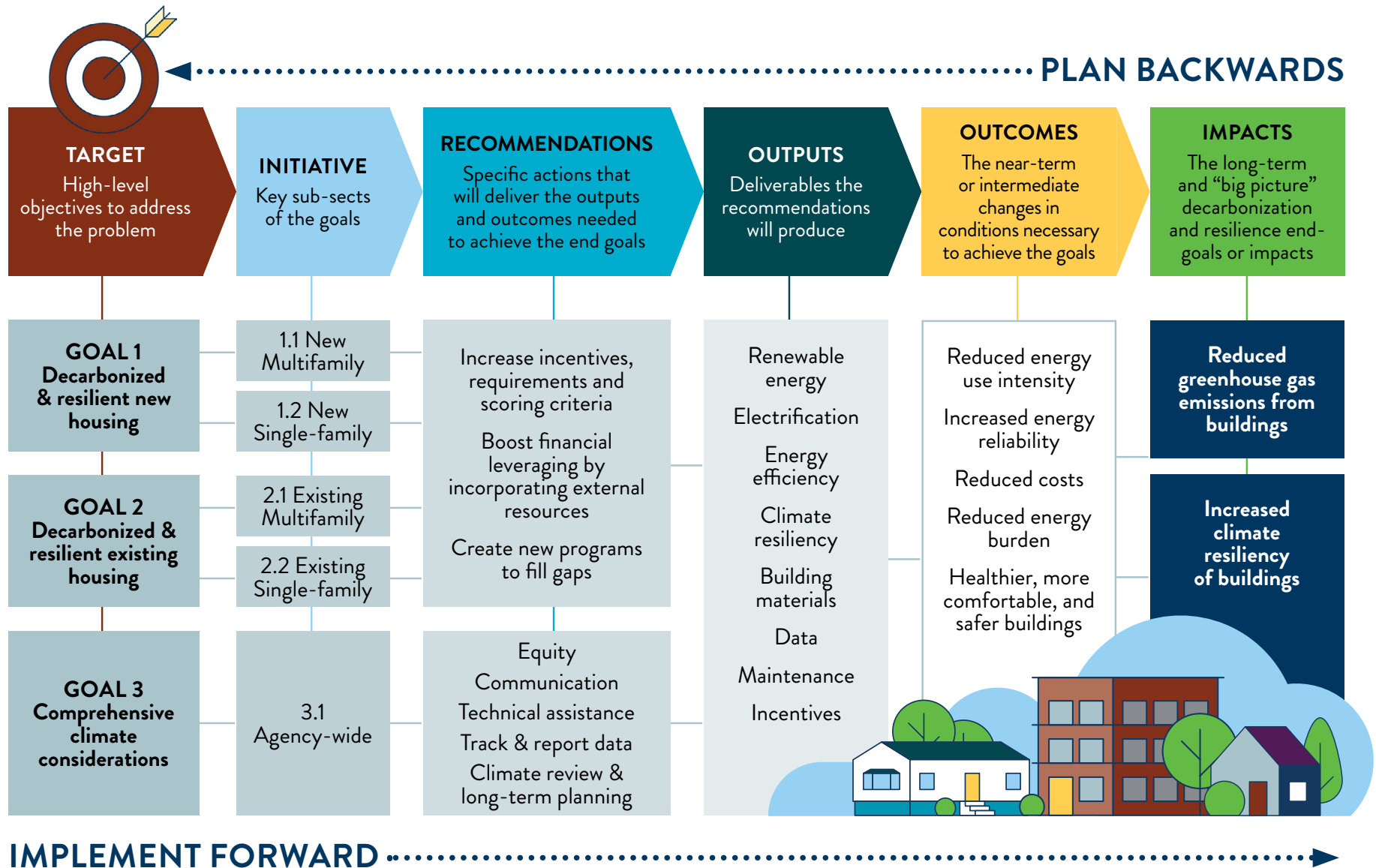
Other Minnesota Housing documents and plans outline additional incentives and requirements for implementing energy efficiency, clean energy, and climate resiliency technologies in housing finance programs across the Agency. Examples of these include the Affordable Housing Plan, the Qualified Allocation Plan, the Minnesota Overlay & Guide to the Enterprise Green Communities Criteria, and the Limited Scope Sustainability Standards. These efforts have traditionally required buildings funded by Minnesota Housing to be built to a higher standard than the Minnesota Commercial and Residential Building and Energy code requires.

UNDERSTANDING THE ROADMAP

The purpose of the Minnesota Housing Climate Resilience and Housing Decarbonization Roadmap is to provide a strategic framework for the Agency's efforts to decarbonize housing and prepare communities for the challenges posed by climate change.

The Roadmap uses the following logic model to show the theory of change from the overarching targets to the broad initiatives and finally to the recommendations.

MINNESOTA HOUSING CLIMATE RESILIENCE AND HOUSING DECARBONIZATION ROADMAP





VISION AND TARGETS

MINNESOTA HOUSING'S CLIMATE VISION

For all Minnesotans to live and thrive in a stable, safe, accessible and affordable home that is powered by clean energy and is resilient against extreme climate impacts.

TARGETS

Minnesota Housing's targets with respect to climate resilience and building decarbonization are as follows. These were developed in alignment with existing state goals in the Minnesota Climate Action Framework, Sustainable Building 2030, updated building and energy codes, and other legislative requirements. They are meant to provide transparency into how the Agency will be approaching climate priorities in the future:



Decarbonized and Resilient New Construction

By 2032, new single-family and multifamily buildings applying for funding are net-zero and climate-resilient.



Decarbonized and Resilient Existing Housing

By 2035, single-family and multifamily properties applying for funding for substantial and Moderate Rehabilitation shall include building upgrades that incorporate decarbonization and climate resiliency.

- For Substantial Rehabilitation, improvements shall meet Agency standards for greenhouse gas (GHG) emissions and climate resiliency, with the aim of 50% reduction in GHG emissions in aggregate for impacted properties.
- For Moderate Rehabilitation, improvements shall meet Agency standards for GHG emissions and climate resiliency, with the aim of a 20% reduction in GHG emissions in aggregate for impacted properties.



Comprehensive Climate Integration

By 2030, climate will be an integral part of all equity, communications, technical assistance and planning efforts across the Agency.



The above targets are high-level, Agency-wide aspirations intended to be achieved as an average across the whole of the Agency's work. While these targets provide a valuable framework, they may not be attainable for every individual home and building project. For instance, some owners may require financing for limited or moderate rehabilitation efforts or for projects addressing critical health and safety needs, such as fire sprinkler systems, that do not address decarbonization or climate resiliency. Additionally, the Agency will ensure that investments in housing to meet the climate targets will minimize unnecessary disposal of functional materials or systems. The end of useful life will be thoughtfully considered, prioritizing sustainability without wastefulness.

Existing building can expect reductions in greenhouse gas emissions of

50%-75%
following Substantial Rehabilitation.

Pathways for individual properties to achieve these targets may vary by building location, type, size and age. New construction may be able to follow existing building standards such as Passive House or DOE's Efficient New Homes Program. For existing buildings, the International Panel on Climate Change anticipates that existing buildings can expect reductions in greenhouse gas emissions of 50% to 75% following Substantial Rehabilitation.¹³ According to the Department of Energy's National Blueprint for the Building Sector, on-site GHG emissions from buildings primarily result from combustion of fossil fuels, which accounts for 83% of on-site emissions.¹⁴ As a result, cost-effective energy efficiency projects, such as air sealing and insulation, should be prioritized first, followed by electrification and renewable energy initiatives once energy efficiency upgrades are completed. Upfront cost premiums will vary based on project type, but a study completed by the Center for Sustainable Building Research shows that incremental cost premiums are decreasing, with current estimates showing a 5% cost premiums for large multifamily buildings to be built to Passive House standards in Minnesota.¹⁵

The ability for individual properties to pursue onsite renewable energy will vary based on location, site characteristics and size; some properties may need to consider Renewable Energy Certificates in lieu of or alongside onsite renewable

energy. Additionally, as utilities meet the 2040 clean energy requirement, carbon-free electricity will be able to be sourced directly from the grid, which will help properties meet net-zero goals. Lastly, the ability for homes and buildings to pursue climate resilience upgrades will be individualized, due to the nature of differing climate risks in various areas of the state.

Progress towards meeting the Targets will be made on a program-by-program basis, rather than a one-size-fits-all approach. Construction projects will continue to follow program specific processes and requirements. Any specific programmatic or lending changes made as a result of the Agency's progress on the Roadmap will be made and approved through typical channels specific to each Agency program. This includes updates to the Qualified Allocation Plan and changes to Requests for Proposal. Typical public engagement processes, timelines, cost considerations, and board approval for each program will be followed. In addition, existing waiver processes for projects demonstrating a financial, product or workforce availability, or other hardship will remain available.

To measure and track the Agency's success in meeting these targets, Minnesota Housing will need to establish an informed data collection and reporting strategy on both the property and Agency level as outlined in Recommendation 3.1.4 Track and report data

OUTPUTS AND OUTCOMES

The Minnesota Housing Climate Resilience and Housing Decarbonization Roadmap will initiate efforts to build and maintain healthy, comfortable, efficient and resilient buildings that are cheaper to operate and pollute very little.

The recommendations of the Roadmap address several significant challenges, including:

- High energy burdens of under-resourced households;
- Rising greenhouse gas emissions from buildings;
- Increasing severity of weather events, including extreme storms and heatwaves; and
- Inequitable access to housing upgrades including efficiency improvements, electrification, onsite renewable energy with battery storage and climate resilience.

By achieving the targets of the Roadmap, Minnesota Housing will facilitate significant physical upgrades to buildings and produce tangible results. Key outputs will include:

- Optimized energy efficiency of buildings;
- Increased utilization of onsite renewable energy with battery storage;
- Decreased reliance on natural gas and delivered fuels;
- Enhanced climate resiliency of buildings;
- Greater use of healthy and environmentally preferable materials, products and appliances;
- Improved condition and maintenance of homes;
- Increased data tracking and utility benchmarking of energy bills and greenhouse gas emissions; and
- Increased technical and financial support for decarbonization and climate resilience.

These upgrades will lead to immediate and near-term outcomes that will benefit building owners and residents, including the following:

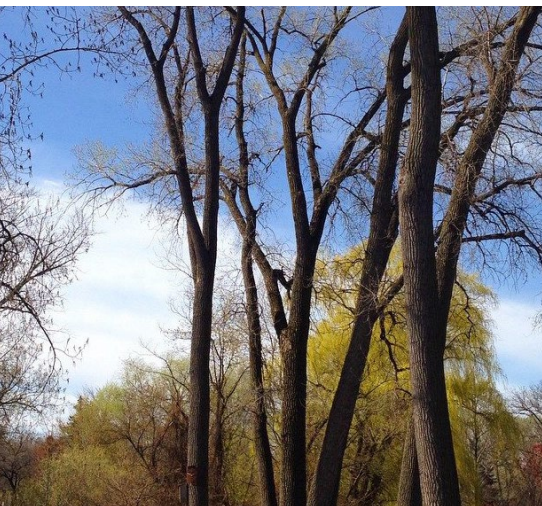
- Equitable participation in and access to building upgrades;
- Reduced operating costs for homes and buildings;
- Reduced energy burden for residents;
- Increased energy reliability, resulting in fewer power outages; and
- Improved occupant health and safer, more comfortable homes to live in.

These upgrades and their associated short-term benefits will contribute to significant long-term reductions in greenhouse gas emissions from buildings. This effort will not only help prevent future contribution to climate change but will also create climate-resilient buildings capable of withstanding the impacts of a changing climate.



IMPLEMENTATION CONSIDERATIONS

Minnesota Housing's Roadmap is designed to be ambitious, but it does not fully account for current funding and staffing realities. The Agency will need to make significant investments to effectively design, fund and implement these recommendations. Designing and implementing these recommendations successfully may require unique consideration of housing or construction type, as well as geographic and demographic context. However, there will be common challenges and opportunities that can be considered across the Agency. The Agency may consider forming a climate team where staff of different program areas may work together to tackle these issues.



Internal Resources

There is a critical need for further funding to support projects and ensure the long-term viability of this Roadmap through adequate staffing and resources.

While the future of Minnesota Housing financing is unknown, potential funding sources that could come directly to Minnesota Housing could include state general fund and bonding sources, the Minnesota Climate Innovation Finance Authority, or other future federal sources through the Department of Energy, Environmental Protection Agency, or Housing and Urban Development.

There are also additional funding sources that could be implemented directly by homeowners or building owners, including the Weatherization Assistance Program, energy tax credits, federal energy rebates, utility incentives, and local city/county matching programs such as the Minneapolis Green Cost Share program. While potential funding sources exist, their timelines and requirements do not always align seamlessly with Agency financing programs.

In addition to supporting investments in homes, administrative support is also needed to ensure adequate staffing is available to research, design, and implement changes to existing programs and to create new programs. Current staffing restrictions limit the ability of current staff to pursue climate-related development opportunities, think innovatively and plan deliberately for the future.

External Environment

In addition to internal resources, the implementation of this Roadmap will also be impacted by external partners and other entities, including the federal government.

Resident behavior and owner preferences are at the center of any new construction or rehabilitation. Minnesotans have valuable lived experience that will inform how programs are implemented and which construction design components will be prioritized. Residents and building owners should continue to have flexibility to choose designs and upgrades that work for their individual needs. Decarbonization and climate resilience in buildings will look different across both the metro and throughout Greater Minnesota, based on climate zone, likely climate hazards, utility territory, and community needs. For example, some owners may prioritize projects such as solar with battery storage that have a higher upfront construction cost but that will have other benefits such as long-term

operational and resident savings and resilience to electric grid disruptions. Others may choose projects more focused on building envelope and efficiency upgrades that improve indoor air quality and support resident health benefits. Similarly, different building standards may have different requirements, such as promoting onsite renewable energy or allowing the use of offsite renewable energy through the purchase of carbon-free electricity directly from the grid or through the purchase of Renewable Energy Certificates.

This Roadmap outlines generational and systemic shifts in financing and construction. Therefore, coordination with and support from external partners, Tribal Nations, local units of government and other state agencies will help align implementation strategies with local priorities and capacities. Different levels of government will need to coordinate program timelines and requirements, and investors and other funders will need to feel comfortable accepting new and different changes to ensure initiatives are all moving forward in the same direction. In addition, the future state and federal political climate could impact what direction initiatives are heading and at what speed.

The ability for the Agency to implement this Roadmap and for individual buildings to realize decarbonization targets will also be impacted by external staffing considerations. The availability of contractors, Home Energy Rating System (HERS) raters, architects,

engineers and affordable housing organizations who have the training and technical abilities to understand new requirements and incorporate them into new construction and rehabilitation construction will be key to success, especially in Greater Minnesota. Construction cannot be planned and completed without a full understanding of how design requirements and incentives may be impacted by supply chain and workforce issues. Building materials, mechanicals, and incentives are impacted by national and global supply chains. Market supply, product limitations, utility grid interconnection processes, and other factors may impact construction timelines and total development costs. While having adequate products is important, so is ensuring there is a well-trained contractor workforce that is knowledgeable about new products and is available to install, repair and maintain them. Supporting equitable access to workforce development opportunities will ensure that all regions of the state can participate fully in achieving the Roadmap's targets.

Upfront incremental cost premiums are likely in the short term but decarbonization projects will become more cost effective as they become more common for owners, design teams, and contractors. Upfront cost premiums will vary based on project type, but a recent study completed by the Center for Sustainable Building Research shows that incremental cost premiums are decreasing, down from

13% in 2017 to 5% in 2025 for large multifamily buildings built to Passive House standards in Minnesota.¹⁶ Upfront costs will also be balanced by long-term lifecycle cost savings through operations, maintenance, utility bills and insurance premiums. Focusing on building performance over prescriptive upgrades will be key to help balance and navigate these cost considerations and to ensure housing availability and affordability throughout the state.

The Roadmap outlines generational and systemic shifts in financing and construction.





RECOMMENDATIONS



The Recommendations are organized around the three primary targets. For Targets 1 and 2, the recommendations are further divided into two Initiatives: Decarbonized and resilient multifamily housing and Decarbonized and resilient single-family housing. Recommendations under Target 3 are designed to be broadly applicable to Minnesota Housing and all building types and programs.

While some Recommendations may seem repetitive, the organization of these Targets, Initiatives and Recommendations are deliberately designed so that Agency teams and staff can identify and prioritize the Recommendations that are specific to their area of work.

Each Recommendation includes essential information for effective implementation:

- **Rationale:** This section outlines the significance of the recommendation.
- **Action Steps:** Key initial steps needed for implementation are identified here.
- **Responsible Parties:** This identifies the internal leads and teams responsible for execution.

For a visual representation of how the targets, initiatives and recommendations connect, please refer to Understanding the Roadmap in the Appendix.



TARGET 1: DECARBONIZED AND RESILIENT NEW CONSTRUCTION

INITIATIVE 1.1: NEW DECARBONIZED AND RESILIENT MULTIFAMILY HOUSING

RECOMMENDATION 1.1.1

INCREASE INCENTIVES, REQUIREMENTS, AND SCORING CRITERIA FOR EXISTING INTERNAL PROGRAMS

Minnesota Housing will update the Minnesota Multifamily Overlay and Guide to Enterprise Green Communities Criteria, the Qualified Allocation Plan and other building standards and relevant documents to more deeply decarbonize and make climate resilient the new construction multifamily housing funded through the Consolidated RFP.

Minnesota Housing will move toward requiring net-zero multifamily new construction for projects funded in or after 2032. This will be done by increasing minimum requirements and adding additional incentives in a phased approach until all funded multifamily new construction is net-zero energy.

RATIONALE:

Increasing incentives, requirements and scoring criteria is a key step for achieving net-zero for multifamily new construction. By building on established standards and requirements and providing additional support, Minnesota Housing will ensure developers understand the new requirements.

ACTION STEPS:

The Qualified Allocation Plan and the Minnesota Multifamily Overlay and Guide to Enterprise Green Communities Criteria are updated in a phased approach, with the next update anticipated to be released in spring 2028. As part of the document revision process, the Agency will create a timeline outlining a phased approach for requiring net-zero. Each subsequent document revision will refer to this timeline.

RESPONSIBLE PARTIES:

The construction team supervisor and climate policy director will lead these efforts. They will coordinate as needed with the multifamily programs manager and additional architecture staff.



TARGET 1: DECARBONIZED AND RESILIENT NEW CONSTRUCTION

INITIATIVE 1.1: NEW DECARBONIZED AND RESILIENT MULTIFAMILY HOUSING

RECOMMENDATION 1.1.2

**BOOST
FINANCIAL
LEVERAGING BY
INCORPORATING
EXTERNAL
SOURCES**

Minnesota Housing will continue to consider how the Consolidated RFP should encourage financial leveraging from multiple different external sources of energy financing, including utility incentives, rebates, tax credits and programs from local units of government. This includes considering how to coordinate program timelines, income eligibility requirements, underwriting standards, required document submittals and program workbooks.

RATIONALE:

By leveraging additional external financial resources, Minnesota Housing can extend funding opportunities for projects, amplifying efforts to promote decarbonized and resilient housing. Coordinating timelines, requirements and standards will streamline processes to more efficiently support decarbonized and resilient housing.

ACTION STEPS:

Minnesota Housing will create a resource document outlining additional federal, state and local financing that could be included in the capital stack of a Consolidated RFP application. The Agency will also update Underwriting Standards and Consolidated RFP application materials to provide clarity on how applicants should include and document these sources of financing in their applications.

**RESPONSIBLE
PARTIES:**

The multifamily underwriting manager and climate policy director will lead these efforts. They will coordinate as needed with the multifamily programs manager and construction team supervisor.



TARGET 1: DECARBONIZED AND RESILIENT NEW CONSTRUCTION

INITIATIVE 1.1: NEW DECARBONIZED AND RESILIENT MULTIFAMILY HOUSING

RECOMMENDATION 1.1.3

CREATE NEW PROGRAMS TO FILL GAPS

Minnesota Housing will consider new financing programs for developers to leverage additional sources of state and federal funding and implement clean energy technologies.

RATIONALE:

New financing programs will help reduce financial barriers for developers to pursue new and innovative climate projects that require upfront capital.

ACTION STEPS:

Minnesota Housing will create a research memo outlining innovative housing finance agency and state green bank multifamily new construction programs across the country that could serve as a model for Minnesota Housing. The memo will identify sources of state and federal funds that could support this work. Community engagement staff will engage on this topic with local external partners.

RESPONSIBLE PARTIES:

The multifamily programs manager and climate policy director will lead these efforts. They will work with the director of planning, research, and evaluation to plan and execute the research.



TARGET 1: DECARBONIZED AND RESILIENT NEW CONSTRUCTION

INITIATIVE 1.2: NEW DECARBONIZED AND RESILIENT SINGLE-FAMILY HOMES

RECOMMENDATION 1.2.1

INCREASE INCENTIVES, REQUIREMENTS AND SCORING CRITERIA FOR EXISTING INTERNAL PROGRAMS

Minnesota Housing will add climate-focused scoring criteria to the Impact Fund. This will prioritize decarbonization and climate resilience in project selection and increase the likelihood that projects pursuing climate investments will be funded.

Minnesota Housing will update the Minnesota Single Family Overlay and Guide to Enterprise Green Communities Criteria and other building standards and documents to more deeply decarbonize and make climate resilient the new single-family housing that is funded through the Agency's existing financing programs. Minnesota Housing will move toward requiring net-zero single-family new construction for projects funded in or after 2032. Minnesota Housing will increase minimum requirements and add additional incentives in a phased approach until all funded single-family new construction is net-zero energy.

RATIONALE:

Increasing incentives, requirements and scoring criteria is a key step for achieving net-zero for single-family new construction. By building on established standards and requirements and providing additional support, Minnesota Housing will ensure developers understand the new requirements.

ACTION STEPS:

Minnesota Housing will begin community engagement around potential updates to the Minnesota Single Family Overlay and Guide to Enterprise Green Communities Criteria. As the document is updated, Minnesota Housing will develop a timeline outlining a phased approach for meeting the net-zero target.

RESPONSIBLE PARTIES:

The community lending team supervisor and climate policy director will lead these efforts. They will coordinate with the construction team supervisor.



TARGET 1: DECARBONIZED AND RESILIENT NEW CONSTRUCTION

INITIATIVE 1.2: NEW DECARBONIZED AND RESILIENT SINGLE-FAMILY HOMES

RECOMMENDATION 1.2.2

**BOOST
FINANCIAL
LEVERAGING BY
INCORPORATING
EXTERNAL
SOURCES**

Minnesota Housing will continue to consider how the Impact Fund should encourage financial leveraging from multiple different external sources of energy financing, including utility incentives, rebates, tax credits and programs from local units of government. This includes considering how to coordinate program timelines, income eligibility requirements, underwriting standards, required document submittals and program workbooks.

RATIONALE:

By leveraging additional external financial resources, Minnesota Housing can extend funding opportunities for projects, amplifying efforts to promote decarbonized and resilient housing. By coordinating timelines, requirements and standards, Minnesota Housing will streamline processes to more efficiently support decarbonized and resilient housing.

ACTION STEPS:

Minnesota Housing will create a resource document outlining additional federal, state and local financing that could be included in the capital stack of an Impact Fund application. Minnesota Housing will update program documents to provide clarity on how applicants should include and document these sources of financing in their applications.

**RESPONSIBLE
PARTIES:**

The community lending team supervisor and climate policy director will lead these efforts.



TARGET 1: DECARBONIZED AND RESILIENT NEW CONSTRUCTION

INITIATIVE 1.2: NEW DECARBONIZED AND RESILIENT SINGLE-FAMILY HOMES

RECOMMENDATION 1.2.3

CREATE NEW PROGRAMS TO FILL GAPS

Minnesota Housing will consider new financing programs for single-family developers to leverage additional sources of state and federal funding and implement clean energy technologies. These new financing programs may include bridge lending or transferability of tax credits.

RATIONALE:

New financing programs will help reduce financial barriers for developers to pursue new and innovative climate projects that require upfront capital.

ACTION STEPS:

Minnesota Housing will create a research memo outlining innovative Housing Finance Agency and State Green Bank single-family new construction programs across the country that could serve as a model for Minnesota Housing. The memo will identify sources of state and federal funds that could support this work. Community engagement staff will engage on this topic with local external partners.

RESPONSIBLE PARTIES:

The community lending team supervisor and climate policy director will lead these efforts. They will work with the director of planning, research and evaluation to plan and execute the research.



TARGET 2: DECARBONIZED AND RESILIENT EXISTING HOUSING

INITIATIVE 2.1: DECARBONIZED AND RESILIENT EXISTING MULTIFAMILY BUILDINGS

RECOMMENDATION 2.1.1

INCREASE INCENTIVES, REQUIREMENTS AND SCORING CRITERIA FOR EXISTING INTERNAL PROGRAMS

Minnesota Housing will update the Minnesota Multifamily Overlay and Guide to Enterprise Green Communities Criteria, the Limited Scope Sustainability Standards and other building standards and documents to more deeply decarbonize and make climate resilient existing multifamily housing. Minnesota Housing will do this through existing multifamily preservation programs. Through these updates, Minnesota Housing will promote whole-building energy performance, incentivize Passive House rehabilitation programs and strengthen prescriptive energy and resiliency requirements for projects funded in or after 2035.

RATIONALE:

Increasing incentives, requirements and scoring criteria is a key step for ensuring decarbonization and climate resiliency upgrades in existing multifamily housing. By building on established standards and requirements and providing additional support, Minnesota Housing will ensure developers understand the new requirements.

ACTION STEPS:

The Qualified Allocation Plan and the Minnesota Multifamily Overlay and Guide to Enterprise Green Communities Criteria are updated regularly, with the next update anticipated to be released in April 2028. These documents will be updated, as well as other standards such as the Limited Scope Sustainability Standards. As part of the document revision process, Minnesota Housing will create a timeline outlining a phased approach for requiring building performance upgrades. Subsequent document revisions will refer to this timeline.

RESPONSIBLE PARTIES:

The construction team supervisor and climate policy director will lead these efforts. They will coordinate as needed with the multifamily programs manager and additional architecture staff.



TARGET 2: DECARBONIZED AND RESILIENT EXISTING HOUSING

INITIATIVE 2.1: DECARBONIZED AND RESILIENT EXISTING MULTIFAMILY BUILDINGS

RECOMMENDATION 2.1.2

BOOST FINANCIAL LEVERAGING BY INCORPORATING EXTERNAL SOURCES

Minnesota Housing will continue to consider how the Consolidated RFP and existing preservation programs can encourage financial leveraging from multiple different external sources of energy financing, including utility incentives, rebates, tax credits and programs from local units of government. This includes considering how to coordinate program timelines, income eligibility requirements, underwriting standards, required document submittals and program workbooks.

RATIONALE:

By leveraging additional external financial resources, Minnesota Housing can extend funding opportunities for projects, amplifying efforts to promote decarbonized and resilient housing. By coordinating timelines, requirements and standards, Minnesota Housing will streamline processes to more efficiently support decarbonized and resilient housing.

ACTION STEPS:

Minnesota Housing will create a resource document outlining additional federal, state and local financing that could be included in the capital stack of the Consolidated RFP, Publicly Owned Housing Program and Rental Rehabilitation Deferred Loan applications. Minnesota Housing will update application materials to provide clarity on how applicants should include and document these sources of financing in their applications.

RESPONSIBLE PARTIES:

The multifamily underwriting manager and climate policy director will lead these efforts. They will coordinate as needed with the multifamily programs manager, preservation supervisor and construction team supervisor.



TARGET 2: DECARBONIZED AND RESILIENT EXISTING HOUSING

INITIATIVE 2.1: DECARBONIZED AND RESILIENT EXISTING MULTIFAMILY BUILDINGS

RECOMMENDATION 2.1.3

CREATE NEW PROGRAMS TO FILL GAPS

Minnesota Housing will consider new programs and pathways to incentivize decarbonization and resiliency for properties making upgrades within the Agency's asset management portfolio.

Minnesota Housing will consider new financing opportunities for developers to leverage additional sources of state and federal funding and implement energy technologies. These new financing opportunities may include bridge lending to facilitate access to federal tax credits.

RATIONALE:

New programs can incentivize climate-related financing needs for properties that may not fit well into Minnesota Housing's existing programs. New financing programs will help reduce financial barriers for developers to pursue new and innovative climate projects that require upfront capital.

ACTION STEPS:

Minnesota Housing will create a research memo outlining innovative Housing Finance Agency and State Green Bank multifamily rehabilitation programs across the country that could serve as a model for Minnesota Housing. The memo will identify sources of state and federal funds that could support this work. Community engagement staff will engage on this topic with local external partners.

RESPONSIBLE PARTIES:

The multifamily programs manager, the preservation supervisor, the multifamily portfolio supervisor and climate policy director will lead these efforts. They will work with the director of planning, research and evaluation to plan and execute the research



TARGET 2: DECARBONIZED AND RESILIENT EXISTING HOUSING

INITIATIVE 2.2: DECARBONIZED AND RESILIENT HOME IMPROVEMENT FOR EXISTING SINGLE-FAMILY HOMES

RECOMMENDATION 2.2.1

INCREASE INCENTIVES, REQUIREMENTS AND SCORING CRITERIA FOR EXISTING INTERNAL PROGRAMS

Minnesota Housing will update relevant building standards and documents to more deeply decarbonize and make climate resilient existing single-family housing through existing home improvement programs for projects funded in or after 2035.

Minnesota Housing will update existing single-family financing programs to allow for different levels and types of investments in climate resiliency and decarbonization. From small, individual replacements, to technology bundles, to large whole house retrofits, Minnesota Housing will take a customer-based view to design programs with loan terms and concierge assistance offerings that allow customers to complete their decarbonization and climate resiliency projects.

RATIONALE:

Increasing incentives, requirements and scoring criteria is a key step for ensuring decarbonization and climate resiliency upgrades in existing single-family housing. By building on established standards and requirements, Minnesota Housing will ensure homeowners, developers and lenders understand the new requirements.

ACTION STEPS:

Minnesota Housing will update the Minnesota Single Family Overlay and Guide to Enterprise Green Communities, as well as other relevant program standards such as the Limited Scope Sustainability Standards. As part of the document revision process, Minnesota Housing will create a timeline outlining a phased approach for requiring building performance upgrades. Subsequent document revisions should refer to this timeline.

RESPONSIBLE PARTIES:

The home improvement team supervisor, the community lending team supervisor, and the climate policy director will lead these efforts.



TARGET 2: DECARBONIZED AND RESILIENT EXISTING HOUSING

INITIATIVE 2.2: DECARBONIZED AND RESILIENT HOME IMPROVEMENT FOR EXISTING SINGLE-FAMILY HOMES

RECOMMENDATION 2.2.2

**BOOST
FINANCIAL
LEVERAGING BY
INCORPORATING
EXTERNAL
SOURCES**

Minnesota Housing will continue to consider how existing home improvement programs can encourage financial leveraging from multiple different external sources of energy financing, including utility incentives, rebates, tax credits and programs from local units of government. This includes considering how to coordinate program timelines, income eligibility requirements, underwriting standards, required document submittals and program workbooks.

RATIONALE:

By leveraging additional external financial resources, Minnesota Housing can extend funding opportunities for projects, amplifying efforts to promote decarbonized and resilient housing. By coordinating timelines, requirements and standards, Minnesota Housing will streamline processes to more efficiently support decarbonized and resilient housing.

ACTION STEPS:

Minnesota Housing will create a resource document outlining additional federal, state and local financing that could be included as additional financial resources.

RESPONSIBLE PARTIES:

The home improvement team supervisor, the community lending team supervisor, and the climate policy director will lead these efforts.



TARGET 2: DECARBONIZED AND RESILIENT EXISTING HOUSING

INITIATIVE 2.2: DECARBONIZED AND RESILIENT HOME IMPROVEMENT FOR EXISTING SINGLE-FAMILY HOMES

RECOMMENDATION 2.2.3

CREATE NEW PROGRAMS TO FILL GAPS

Minnesota Housing will consider new single-family financing programs to allow for different levels and types of investments in climate resiliency and decarbonization. From small, individual replacements, to technology bundles, to large whole house retrofits, Minnesota Housing will take a customer-based view to design programs with loan terms and concierge assistance offerings that allow customers to complete their decarbonization and climate resiliency projects.

Minnesota Housing will consider new financing opportunities for homeowners to leverage additional sources of state and federal funding and implement energy technologies. These new financing opportunities may include bridge lending and transferability of tax credits.

RATIONALE:

New programs can incentivize climate-related financing needs for properties that may not fit well into Minnesota Housing's existing programs. New financing programs will help reduce financial barriers for developers to pursue new and innovative climate projects that require upfront capital

ACTION STEPS:

Minnesota Housing will create a research memo outlining innovative Housing Finance Agency and State Green Bank single-family home improvement programs across the country that could serve as a model for Minnesota Housing. The memo will identify sources of state and federal funds that could support this work. Community engagement staff will engage on this topic with local external partners.

RESPONSIBLE PARTIES:

The home improvement team supervisor, the community lending team supervisor, and the climate policy director will lead these efforts. They will work with the director of planning, research and evaluation to plan and execute the research.



TARGET 3: COMPREHENSIVE CLIMATE INTEGRATION

INITIATIVE 3.1: AGENCY-WIDE CLIMATE INTEGRATION

The following recommendations are cross-cutting in that they are broadly applicable to all building types and programs. Some of the crosscutting recommendations may not align directly with a specific Minnesota Housing program but instead contribute to the overall success and implementation of the Roadmap.

RECOMMENDATION 3.1.1

GROUND CLIMATE WORK IN EQUITY AND HUMAN- CENTERED DESIGN

Minnesota Housing will design and implement decarbonization and climate resiliency programs that center equity and are grounded in human-centered design. This includes centering tenant protections and housing and energy burden considerations. The Agency will hold itself accountable by tracking and reporting on the equitable outcomes for each community it serves.

RATIONALE:

Effective climate action requires supporting under-resourced groups and those most harmed by climate change. Designing and implementing programs that prioritize equity and human-centered design is essential for addressing the unique needs of diverse communities. Tracking equitable outcomes promotes accountability and continuous improvement.

ACTION STEPS:

The climate policy director will present this plan to the Equity Action Team and Innovation Team to discuss potential action steps.

RESPONSIBLE PARTIES:

The director of equity and inclusion and climate policy director will lead these efforts. They will work with the manager of continuous improvement.



TARGET 3: COMPREHENSIVE CLIMATE INTEGRATION

INITIATIVE 3.1: AGENCY-WIDE CLIMATE INTEGRATION

RECOMMENDATION 3.1.2

**COMMUNICATE
AND ENGAGE
EFFECTIVELY**

Minnesota Housing will update the Agency website and create a Climate eNews newsletter to clearly communicate about the Agency’s climate work, including: targets, timelines, RFPs and other resources, costs and other data. In addition, Minnesota Housing will engage with external partners, share case studies and use social media to help Minnesotans understand the benefits of a climate transition as well as potential strategies for Minnesotans to pursue, such as home energy and climate resiliency upgrades.

RATIONALE:

Effective communication can enhance public understanding of the impacts of climate change and benefits of a transition, provide strategies and opportunities for Minnesotans to reduce negative impacts and capture benefits and drive the development of decarbonized and resilient housing.

ACTION STEPS:

The climate policy director will compile programs and resources to share via the website.

**RESPONSIBLE
PARTIES:**

The communications director and the climate policy director will lead these efforts.



TARGET 3: COMPREHENSIVE CLIMATE INTEGRATION

INITIATIVE 3.1: AGENCY-WIDE CLIMATE INTEGRATION

RECOMMENDATION 3.1.3

INCREASE TECHNICAL ASSISTANCE OFFERINGS

Minnesota Housing will increase technical assistance offerings in partnership with other state agencies, utilities and organizations. These offerings may include technical assistance for both internal Minnesota Housing staff and external partners, including one-on-one concierge-level assistance on energy technologies, financing and funding opportunities.

RATIONALE:

Providing technical assistance and education is vital in ensuring partners and customers have access to financial and technical support. Without technical assistance, partners and customers are unlikely to take action in support of Minnesota Housing's climate targets.

ACTION STEPS:

The climate policy director will review existing state, federal and local resources to determine where supplementation and partnership could best occur.

RESPONSIBLE PARTIES:

The climate policy director will lead these efforts.



TARGET 3: COMPREHENSIVE CLIMATE INTEGRATION

INITIATIVE 3.1: AGENCY-WIDE CLIMATE INTEGRATION

RECOMMENDATION 3.1.4

TRACK AND REPORT DATA

Minnesota Housing will establish an informed strategy to collect, track and report on cost, energy and resiliency metrics. Clear metrics and data sources will allow Minnesota Housing to create a baseline and show progress toward meeting Agency climate targets. Greenhouse gas emissions may be difficult to directly measure, and a proxy measure may be needed to estimate reductions. For multifamily buildings, energy modeling and post-construction benchmarking may provide the information needed to verify these targets are being achieved. For single-family homes, data may rely on estimated or calculated utility bill savings reductions from established sources. The strategy should include the following:

- An explanation of how to track and understand an existing building's historical average utility expenses and greenhouse gas emissions reductions,
- Direction on where modeled or estimated emissions reductions will be used and where actual emissions reductions shall be tracked and verified,
- Tools that will be used to make informed estimates and modeled emissions where actual verified data is difficult to obtain, and
- An explanation of how property-level information aggregates towards Agency-level targets.

RATIONALE:

Tracking and reporting energy metrics is vital for establishing a baseline and demonstrating progress toward meeting the climate targets. This data can be used to verify alignment with the targets and inform future improvements.

ACTION STEPS:

Minnesota Housing will determine which metrics need to be tracked and reported to verify whether new construction buildings are meeting the Agency's climate targets. Minnesota Housing will update the Minnesota Multifamily Overlay and Guide to Enterprise Communities Criteria and other relevant documents to include new benchmarking requirements.

RESPONSIBLE PARTIES:

The construction team supervisor, director of research, planning and evaluation, and climate policy director will lead these efforts.



TARGET 3: COMPREHENSIVE CLIMATE INTEGRATION

INITIATIVE 3.1: AGENCY-WIDE CLIMATE INTEGRATION

RECOMMENDATION 3.1.5

CLIMATE REVIEW AND LONG-TERM PLANNING

Minnesota Housing will implement a climate review into program planning and implementation to ensure a “climate lens” is intentionally included in all program strategy discussions. Long-term strategy discussions will address how to support building upgrades that are cost-effective in the long term for both building owners and residents. Discussions will also include incentivizing upgrades that will lead to property insurance discounts and/or upgrades that are intended to prevent increases to tenant utility bills.

RATIONALE:

Implementing a climate review into program planning and implementation is essential for ensuring climate is intentionally incorporated into all strategic discussions.

ACTION STEPS:

To be determined.

RESPONSIBLE PARTIES:

The climate policy director will lead these efforts.



MOVING FORWARD



The Minnesota Housing Climate Resilience and Housing Decarbonization Roadmap is a crucial guide toward realizing our ambitious climate vision: to ensure that all Minnesotans can live and thrive in a stable, safe, accessible and affordable home that is powered on clean energy and resilient against extreme climate impacts. This Roadmap outlines clear targets, actionable recommendations and measurable steps that reflect our commitment to a sustainable future.

Progress towards meeting the Targets will be made on a program-by-program basis, rather than a one-size-fits-all approach. Any specific programmatic or lending changes made as a result of the Agency's progress on the Roadmap will be made and approved through typical channels specific to each Agency program. This includes updates to the Qualified Allocation Plan and changes to Requests for Proposals. Typical public engagement processes, timelines, cost considerations and board approval for each program will be followed.

As we move forward, it is essential to recognize that meaningful climate action requires collaboration, robust partnerships and a steadfast commitment to equity. The actions outlined in this Roadmap represent just a few of the many steps needed to achieve a sustainable and equitable future for our communities.

Minnesota Housing would like to thank the Agency staff and external partners who contributed their expertise and insights during the development of this Roadmap and appreciates their continued support in its implementation.

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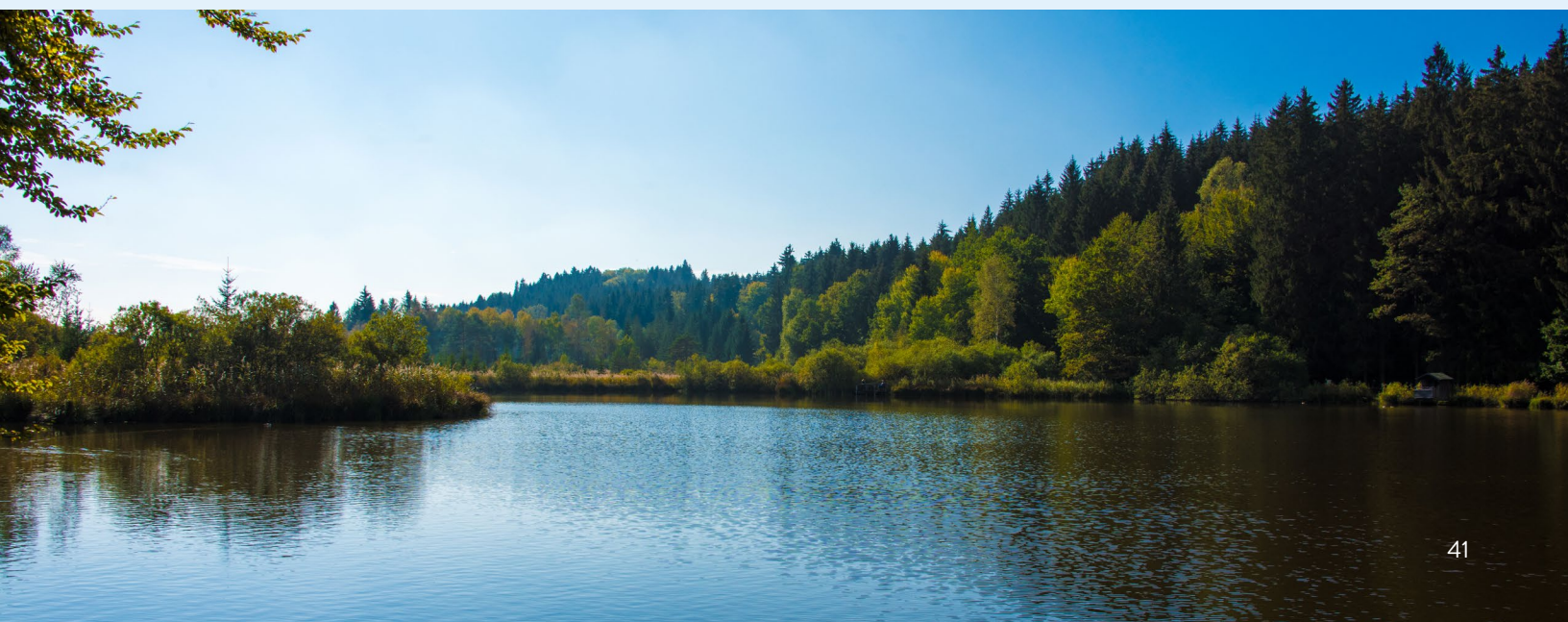
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APPENDIX

GLOSSARY

Agency

Minnesota Housing Finance Agency

Board

Minnesota Housing's seven-person board of directors that ensures the independence of decision making and maintaining financial assets.

Clean energy

Energy generated from renewable or carbon-free sources, as well as energy saved through energy efficiency measures.

Climate change

A change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere and is in addition to natural climate variability observed over comparable time periods.

Climate impacts

Changes to our environment and threats to our safety caused by climate change. Refers to the direct effects of climate change (warmer winter temperatures, heavier precipitation, etc.) and the outcomes of these effects (property damage, negative health outcomes, etc.).

Climate resilience

The capacity of individuals, communities, buildings, infrastructure or the natural environment to prevent, withstand, respond to and recover from disruptive events and continue to perform despite persistent stresses imposed by climate change. Both mitigation and adaptation are necessary for long-term resilience.

Community

Refers to the people and groups with whom one interacts and/or identifies; could include but is not limited to cities, neighborhoods or other geographical boundaries.

Decarbonization

The process of lowering greenhouse gas emissions that contribute to climate change.

Energy burden

The percentage of gross household income spent on residential energy costs.

Energy efficiency

Using less energy to achieve the same outcome.

Electrification

The converting of buildings, devices, systems or sectors from non-electric such as natural gas, propane and fuel oil to electric energy sources.

Equity

The proactive reinforcement of policies, practices, attitudes and actions that produce fairness in power, access, opportunities, treatment, impacts and outcomes for all. Equity addresses historically imbalanced systems, ensuring all people, particularly those with marginalized identities, have access to opportunities to develop to their fullest potential.

Greenhouse gas (GHG)

Gases in the earth's atmosphere that trap heat produced both naturally and through human activity. Excess greenhouse gas emissions cause climate change. Carbon dioxide (CO₂) is the primary greenhouse gas emitted through human activities, such as burning fossil fuels. Nitrous oxide (N₂O) and methane (CH₄) are also potent greenhouse gases emitted through human activities. The Minnesota GHG Emissions Inventory accounts for the six GHGs originally covered by the Kyoto Protocol of the United Nations Framework Convention on Climate Change: CO₂, N₂O, CH₄, sulfur hexafluoride, and two types of compounds called hydrofluorocarbons and perfluorocarbons.

Mitigation (of climate change)

A human intervention to reduce emissions or enhance the removal of a greenhouse gas from the atmosphere (e.g., through carbon sequestration in plants).

Moderate Rehabilitation

A project: (1) that does not fall into Substantial Rehabilitation; or (2) where the work is limited to the 2015 Minnesota Conservation Code for Existing Buildings definition of Section 502 Repairs, Section 503 Level 1 Alteration or Section 504 Level 2 Alteration. Note: This definition may vary by program and is subject to change.

Multifamily

Rental housing which can include common corridor apartment style buildings, townhomes and/or scattered site developments.

Net-zero buildings

A highly energy-efficient building that generates or purchases as much energy through renewable energy as it consumes in its operation over the course of one year.

Passive House

A set of design principles for attaining a rigorous level of energy efficiency which can be applied to all buildings, including single-family homes, multifamily apartment buildings and more.

Renewable energy

Energy collected from resources that are naturally replenished on a human timescale. Examples include wind, wood, solar, hydropower and geothermal energy.

Renewable Energy Certificate

A market-based instrument that represents the property rights to the environmental, social and other non-power attributes of renewable electricity generation. RECs are issued when one megawatt-hour (MWh) of electricity is generated and delivered to the electricity grid from a renewable energy resource.

Single Family

Owner occupied housing units which can include duplexes, triplexes and owner-occupied townhomes.

Substantial Rehabilitation

A project: (1) that includes the replacement and/or improvements of at least two major systems of the building, including its envelope. Major building systems include roof structures, wall or floor structures, foundations, plumbing, heating ventilating and air conditioning (HVAC) and electrical systems. The building envelope is defined as the air barrier and thermal barrier separating exterior from interior space; or (2) where the work area exceeds 50% of the aggregate area of the building per the 2015 Minnesota Conservation Code for Existing Buildings, Section 505 Level 3 Alteration. Note: This definition may vary by program and is subject to change.



PROCESS OVERVIEW

In early 2024, Minnesota Housing and Great Plains Institute (GPI) launched the process for developing the Climate Resilience and Housing Decarbonization Roadmap, structured into three distinct phases:

PHASE 1

PROCESS DEVELOPMENT January 2024–February 2024

During this phase, GPI and the Agency formed a core Planning Team that met regularly to assess progress, review completed work and outline next steps. This team was responsible for creating a process plan for the Working Group meetings.

PHASE 2

WORKING GROUP MEETINGS March 2024–August 2024

GPI coordinated and facilitated monthly Working Group meetings under the guidance of the Planning Team. The Working Group was comprised of selected Agency staff representing diverse teams and roles within the organization.

The process started with an introductory meeting for the entire Working Group designed to provide foundational knowledge about the Roadmap and the role of climate in housing. This meeting informed future meeting topics and discussions.

Meetings 2-5 included two sessions for the Multifamily team and two for the Single-Family team — each with one focusing on new construction and one focusing on preservation, rehabilitation and asset management.

Each of these meetings followed a consistent structure:

- An introduction to Minnesota Housing's climate targets, including background on relevant state policies and how the Agency developed these targets.
- Presentations by guest speakers on pertinent topics, intended to inspire participants and showcase potential actions and impacts of the Roadmap.
- A group discussion centered on the question: "What would need to be true in [meeting topic/your area of work] to meet our climate targets?"

Prior to each meeting, participants received pre-reading materials or videos to prepare for discussions. After each meeting, the Planning Team summarized key discussion points and drafted recommendations, which were then circulated to participants along with a survey for feedback.

Meeting 6 was held for the Supplemental Team to address issues relevant to other work within the Agency that fell outside the Multifamily and Single-Family teams. Prior to the meeting, the Supplemental Team received a draft of all recommendations developed from Meetings 2-5. Discussion focused on the key question, "What would need to be true in [your area of work] to meet our climate targets?" and "What additional recommendations are necessary for the Climate Resilience and Housing Decarbonization Roadmap?"

For further details on each meeting, please refer to the table on the next page.

WORKING GROUP MEETINGS (MARCH 2024–AUGUST 2024)

Meeting	Topic	Speaker(s)	Date
1	Introductory Scoping Meeting	Esther Toporovsky, <i>Community Sustainability Partners</i>	March 29, 2024
2	Multifamily New Construction and Consolidated RFP	Anne Claflin, <i>Minnesota Pollution Control Agency</i> Madeleine McCullough and Todd Nedwick, <i>National Housing Trust</i>	April 26, 2024
3	Single-Family New Construction	Elizabeth Turner, <i>Precipitate</i> Azad Lassite, <i>Urban Homeworks</i>	May 20, 2024
4	Multifamily Preservation Programs and Asset Management	Rebecca Olson, <i>Center for Energy and Environment</i>	June 17, 2024
5	Single-Family Preservation and Rehabilitation	Maggie Super Church and Steve Payson, <i>Massachusetts Community Climate Bank</i>	July 23, 2024
6	Supplemental	None	August 15, 2024

DISCUSSION

To inform development of the Roadmap, the Great Plains Institute convened Minnesota Housing staff for six meetings to hear from experts on a variety of topics and to discuss what was important to include or consider in the Roadmap. Staff were encouraged to think big and be ambitious in these discussions. Throughout these meetings, the following key themes consistently emerged during discussions. These provide context to the recommendations that follow.

EQUITY

Within each meeting, Agency staff stressed that the Roadmap must be rooted in equity, starting with under-resourced communities most affected by climate change. Staff emphasized that effective climate action requires supporting the most under-resourced and historically harmed groups. These discussions considered offsetting costs for communities most under-resourced and harmed by climate change; tracking equitable outcomes for communities the Agency serves; and partnering with Black-, Indigenous- and People of Color-owned and Women-owned Business Enterprise

(BIPOCBE/WBE) contractors. Staff also discussed differences in needs across Minnesota, including a lack of available contractors outside of the Twin Cities metropolitan area as well as considerations around climate change related property insurance impacts for different building types.

RELATIONSHIP BUILDING AND PARTNERSHIPS

Staff felt that prioritizing relationships would be integral to successfully implementing the Roadmap. They noted the importance of (1) building and maintaining strong relationships with external

partners critical to the Agency's work, including funders, contractors and developers; and (2) coordinating and partnering with other Minnesota state agencies. Collaborating with other state agencies could help Minnesota Housing meet, implement and measure its climate targets through efforts such as measuring and tracking GHG emissions, developing educational programs and platforms, and expanding workforce development initiatives.

TECHNICAL ASSISTANCE AND EDUCATION

Agency staff noted the importance of providing assistance and education to partners and customers to more

effectively enact the Roadmap. Below are some specific ideas around technical assistance and education that staff raised:

- Develop a resource hub for developers, funders and partners to access vital information and support.
- Offer pre-development assistance tailored to individual project needs.
- Launch a public education campaign to broadly inform customers and developers on the Roadmap, potentially featuring case studies that showcase successful projects.
- Create a resource to connect developers and customers with financing opportunities.

- Support developers and workforce throughout Minnesota, particularly in rural areas that may lack the necessary workforce to implement the Roadmap.

To the extent that customers and developers will need to take action to meet the targets of the Roadmap, Minnesota Housing should provide effective education and assistance to support those actions.

COMMUNICATION

Agency staff emphasized the critical role of effective communication in implementing the Roadmap. Support from stakeholders is essential, as is clear communication about the direction Minnesota Housing is moving and the specific expectations and requirements for its partners moving forward.

Staff noted the importance of directly outlining what is required versus optional for partners and sharing timelines for when changes will take effect. Additionally, to secure support, Minnesota Housing should demonstrate the importance of meeting climate and decarbonization targets and should shift the narrative from focusing solely on upfront costs to considering long-term economic, social, environmental and health impacts.



STRENGTHENING AND
BROADENING EXISTING
REQUIREMENTS

Agency staff noted the importance of building upon the existing Minnesota Housing requirements related to decarbonization and climate resilience. Requirements and incentives for new construction and rehabilitation of all housing types should be increased over time, using mechanisms that are already familiar to both staff and external partners.

PHASE 3

ROADMAP DEVELOPMENT
September 2024–January 2025

In fall 2024, GPI developed the Roadmap by incorporating insights from the previous six Working Group meetings. The GPI team and the core Planning Team maintained continuous coordination to refine the Roadmap’s structure and content through ongoing revisions. Feedback sessions in Meetings 7 and 8 allowed Working Group members to review and comment on the draft Roadmap, with additional feedback integrated after each meeting.

WORKING GROUP MEETINGS
(SEPTEMBER 2024–OCTOBER 2024)

Meeting	Topic	Date
7	Draft #1 Feedback Session	September 30, 2024
8	Draft #2 Feedback Session	October 30, 2024

PHASE 4

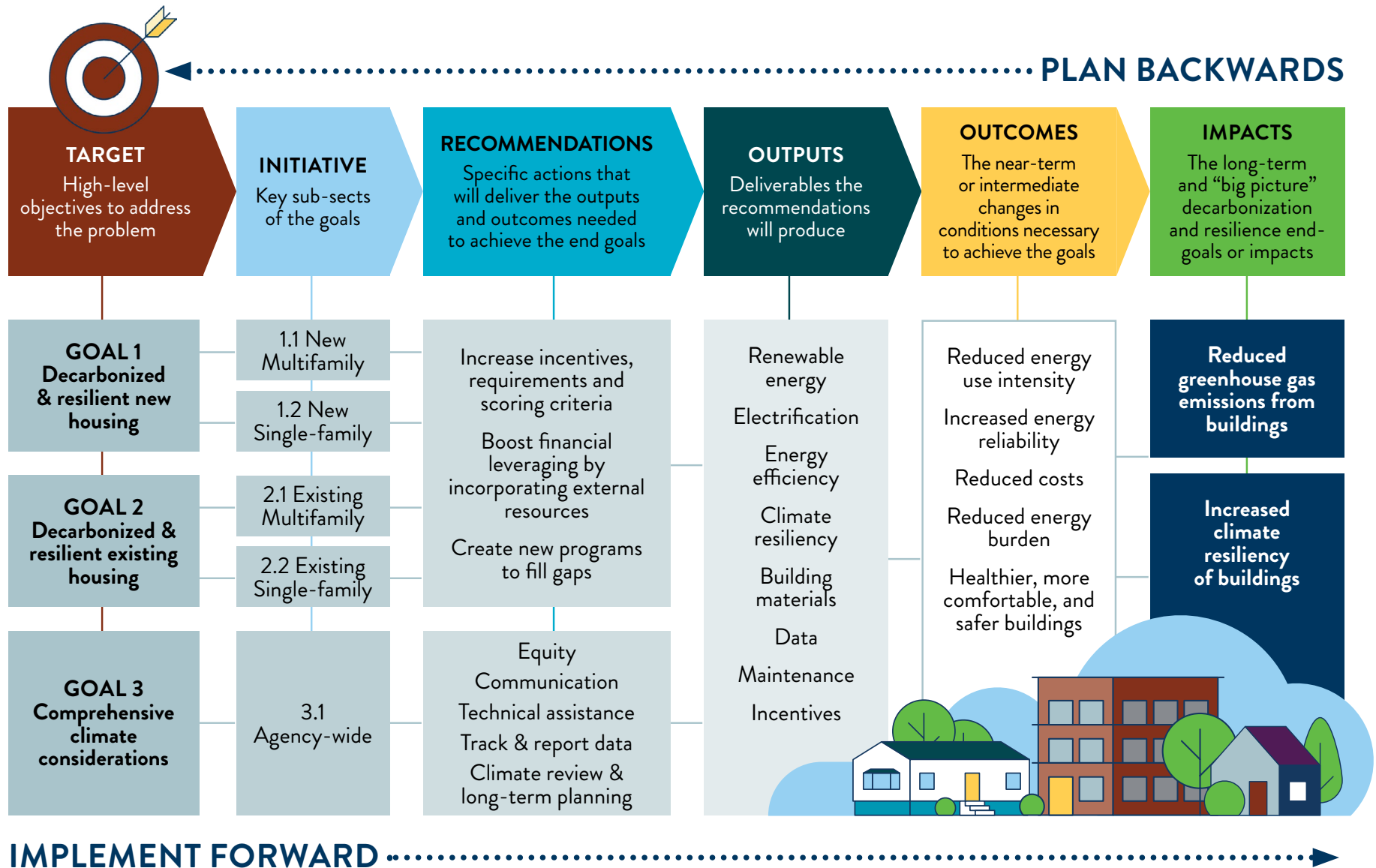
ROADMAP ALIGNMENT
January 2025–present

In 2025, Minnesota Housing decided to align the release of the Climate Resilience and Housing Decarbonization Roadmap with the development and release of the 2026 Minnesota Climate Action Framework in February 2026. This alignment speaks to the coordination of state agencies across the Climate Change Subcabinet.

A draft of the Climate Resilience and Housing Decarbonization Roadmap was released for public comment on February 3, 2026. The Agency received 16 written public comments, as well as meetings with advocates about the draft. Feedback was received from both individuals and organizations spanning both the affordable housing, labor and energy sectors. Comments were considered and used to inform final revisions to the Roadmap. Common themes spanning multiple comments included:

- Support for the general direction of the Roadmap and its goals of decarbonization and climate resilience.
- Both concern about the impact the Roadmap may have on upfront construction costs as well as support for a long-term focus on resident and operational cost savings.
- General concern about the electrification of buildings and use of solar as it relates to grid impacts, heating costs and workforce.
- A need for additional support for affordable housing developers including access to technical assistance and financial incentives.
- A request for continued flexibility to take into account individual building and community needs across the state.
- A request for continued engagement with key partners to ensure fair and effective implementation of the Roadmap.

MINNESOTA HOUSING CLIMATE RESILIENCE AND HOUSING DECARBONIZATION ROADMAP



MODELS OF SUCCESS

Innovative programs from state housing finance agencies, green banks and local governments can serve as models for Minnesota Housing in designing and implementing climate programs. The following case studies highlight specific funding programs and administering agencies that specialize in energy and housing programs. These examples provide best practices that the Agency can adopt or learn from to achieve its decarbonization and climate resilience targets.

STATE PROGRAMS

Massachusetts



The Massachusetts Community Climate Bank (MCCB), the first climate bank in the nation to launch with a specific focus on decarbonizing affordable housing, invests public and private resources in financing products and services that advance the Commonwealth's 2050 climate goals and affordable housing commitments.¹⁷ MCCB aggregates and deploys state, federal, private and philanthropic funds to support the integration of decarbonization, energy efficiency and clean energy technologies into existing and new buildings statewide. Located within the State's Housing Finance Agency, MCCB leverages MassHousing's existing capabilities and infrastructure.

New York



The Clean Energy Initiative (CEI) Program is an example of a housing agency, New York State Homes and Community Renewal (HCR), partnering with an energy program administrator, NYSERDA, to design a program that mixes energy and housing project funds through existing loan and financing structures.¹⁸ The program aligns the development and preservation of affordable housing with the state goal of 85% greenhouse gas emissions reduction by 2050. The initiative emphasizes building efficiency and transitioning from fossil fuels to efficient electric solutions.

Maryland



The Multifamily Energy Efficiency and Housing Affordability Program (MEEHA) promotes energy efficiency and housing affordability in the State's multifamily rental housing developments.¹⁹ The Maryland Department of Housing and Community Development designed and implemented the program to fund opportunities for energy efficiency measures in new and previously developed affordable housing projects using Maryland Public Service Commission funds and utility ratepayer dollars. The program offers flexibility in fund allocation, utilizing both subordinate loans and grants at the discretion of the recipient.



LOCAL UNITS OF GOVERNMENT

Saint Paul



SAINT PAUL
MINNESOTA

Saint Paul's Electric Heat Affordable Rental Pilot (EHARP) aims to reduce cost, energy use and bill variability for under-resourced renters in the area.²⁰ Participants were identified in Areas of Concentrated Poverty as having high electrical bills and likely heating their homes with electric resistance heating. The pilot's primary goal is to reduce emissions by reducing reliance on resistance electric heat by installing efficient cold climate air source heat pumps (ccASHP), performing envelope measures and installing heat pump water heaters (HPWH). The program also collects utility data to inform savings calculations for ccASHP and HPWH installations.

Minneapolis



Minneapolis
City of Lakes

Minneapolis' 4d Green Cost Share Program offers property tax breaks, solar incentives and funding for energy efficiency upgrades to Minneapolis property owners who meet the program's affordable housing standards.²¹ Projects include LED lighting upgrades, insulation improvements, high-efficiency boiler replacements and high-efficiency water heat upgrades. Since 2018, the program has served 54 rental properties, generated \$43,000 annual reduction in energy bills, and offset 645,000 pounds in CO2 emissions.

TECHNICAL RESOURCES

The following documents serve as valuable resources to guide Agency staff in achieving the outlined targets and adhering to the recommendations above. The Agency recognizes that further information may be necessary to effectively meet these targets and encourages staff to utilize these materials.

Resource	Description
STATE RESOURCES	
Minnesota: <i>Climate Action Framework</i>	Sets a vision for how the state will address and prepare for climate change, identifying immediate, near-term actions the state shall take to achieve its long-term goal of a carbon-neutral, resilient and equitable future for Minnesota.
Minnesota Department of Commerce: <i>Technical Reference Manual</i>	Standard set of methodologies, inputs and assumptions that Energy Conservation and Optimization (ECO) program administrators may reference when developing, implementing and reporting on ECO programs.
Minnesota Department of Commerce: <i>Home Energy Guide</i>	Comprehensive guide on improving energy efficiency, prioritizing upgrades, conducting home energy assessments and accessing financing options for upgrades.
Minnesota Department of Commerce: <i>New Energy Programs</i>	Website linking to the department's energy programs including Heat Pump Rebate Program, Residential Electric Panel Grants, Pre-weatherization and Weatherization Program, and more.
Minnesota Pollution Control Agency: <i>Greenhouse Gas Emissions Report</i>	Biennial report to the Minnesota Legislature tracking the state's contribution to emissions contributing to climate change.
Minnesota Pollution Control Agency: <i>Greenhouse Gas Inventory</i>	Data visualization tool released in companion to the report that track's the state's contribution to emissions contributing to climate change.

Resource

Description

OTHER RESOURCES

Department of Energy:
*Decarbonizing the U.S. Economy
by 2050 - A National Blueprint
for the Buildings Sector*

Report released by the Department of Energy outlining a comprehensive strategy to significantly reduce greenhouse gas emissions from the buildings sector by 2050.

Electrify Everything MN

A website that provides education on electrification projects in Minnesota.

IPCC: *Sixth Assessment Report,
Chapter 9: Buildings*

Chapter 9 focuses on the role of buildings in climate change mitigation and strategies for reducing greenhouse gas emissions.

Rewiring America: Website

Provides access to technical tools and information about energy and home upgrades. Rewiring America is a leading electrification nonprofit working to electrify homes, businesses and communities.

RMI: *The Economics
of Zero-Energy Homes Report*

Report released by RMI analyzing cost trends, financing options, cost-optimal building projects and long-term savings associated with zero-energy homes.



ENDNOTES

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