

Message from the Future: Equitable Building Decarbonization by 2050 Will Require Systemic Change and Rapid Market Transformation

Poppy Storm, 2050 Institute

Jeanne Currie, Clean Energy Transition Institute

ABSTRACT

Fully decarbonizing the building stock in Washington state by 2050, which is essential to meet the state’s commitment to net-zero greenhouse gas emissions by 2050, requires scaling zero emission appliances by 2030. This scale and pace require systemic change and mobilization not in place with current policies, programs, or funding. Relying largely on voluntary programmatic and incentive-driven approaches is too complex, time consuming, and costly to transition all buildings. Washington has until 2030 to design and jumpstart the building-sector market interventions required to equitably decarbonize the entire building stock by 2050. This will require a significant shift in how building sector actors and policy and program staff plan and implement the transition.

This paper presents SCALE 2030, a project to implement transformative strategies and investments bold enough to fully scale up the clean buildings transition in Washington by 2030. The paper presents highlights from two white papers—the Clean Buildings Ecosystem Assessment for Washington and the Clean Buildings Transition Framework for Washington—but it primarily focuses on the next step of the project: the Clean Buildings Transition Roadmap. The Roadmap connects Washington’s ambitious climate and clean energy goals with a long-term vision and whole-system implementation approach to clean buildings. It recognizes that the clean buildings transition requires changing the complex building sector ecosystem and the larger policy, utility, and market context influencing decision making at every level.

Introduction

Washington policy commits the state to achieve net-zero greenhouse gas (GHG) emissions by 2050 (Limiting GHG Emissions 2020) and to use 100% renewable or non-emitting electricity by 2045. Decarbonizing the state’s building sector and reducing energy use are critical to achieving these policies as residential and commercial buildings accounted for 26% of total emissions in 2021, which is the most recent available emissions data in Washington state as of the writing of this paper (Anthony Abbott, “Request for Assistance”).

In the 31 years between 1990 and 2021, residential and commercial buildings in Washington increased emissions by 62%, or an average of 1.56% annually (Abbott, “Request for Assistance”). To meet Washington’s statutory, economywide, net-zero emissions limits by 2050, the building sector must reduce emissions to nearly zero in just 25 years (Figure 1). However, at the current pace of national retrofits, it will take 300 years to retrofit all residences and 50 years to retrofit all commercial buildings (Nadel and Hinge 2023). Retrofit data for Washington is not tracked, so it is difficult to estimate a state-specific retrofit pace.

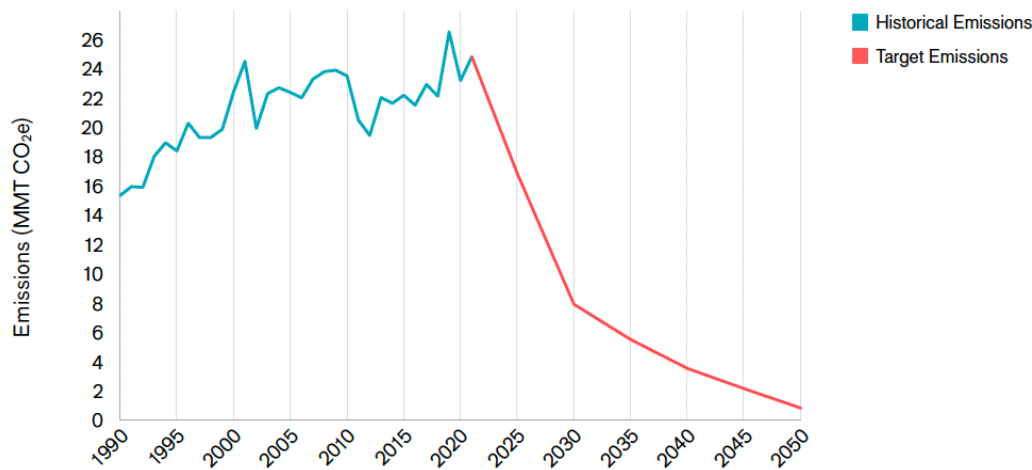


Figure 1. Washington building sector emissions trajectory. *Source:* 2050 Institute and Clean Energy Transition Institute analysis using Washington Greenhouse Gas Emissions Inventory data; and projected energy use from deep decarbonization modeling performed for the Washington 2021 State Energy Strategy by Evolved Energy Research. Target emissions for 2021-2024 are adjusted to reflect updated emissions published after the State Energy Strategy.

Past work by 2050 Institute and Clean Energy Transition Institute shows that installing zero-emission appliances for most building end uses when existing fossil fuel appliances reach the end of their useful life is the most strategic and lowest-cost path to scale clean buildings (2050 Institute and Clean Energy Transition Institute 2022). Furthermore, to ensure that space- and water-heating equipment is fully zero emissions across the building stock by 2050, Washington’s building sector must steadily shift the market to a 100% sales share of zero emission equipment between 2030 and 2035.

Reversing the building sector emissions trend and bending the curve down to rapidly transition the building stock will require a dramatic transformation of the building sector ecosystem. To achieve this, all regions across Washington must have the tools, resources, tailored design strategies, and implementation capacity to successfully decarbonize buildings at the necessary pace and scale. However, that will be difficult as the building sector’s ecosystem lacks the programs, policies, funding, equipment, and workforce that need to be in place by 2030.

Washington must plan for a permanent market transition to a resilient, clean building sector. This means moving from a mainly voluntary and incentive-focused paradigm to one with strong mandates and market signals focused on rapid cost reduction and market transformation. To accomplish this, Washington needs more institutional and market capacity to deliver clean buildings at the necessary pace. The scale of this challenge is also an opportunity for policy makers, utilities, lenders, the real estate industry, service providers, regulators, community-based organizations, and advocates to maximize the benefits for businesses and communities as we ensure a modern building stock for current and future generations.

Beyond meeting climate targets, modernizing our residential and commercial buildings is necessary to provide Washingtonians with essential, resilient infrastructure necessary to thrive in the 21st century. Washington faces multiple building sector energy challenges, including decarbonizing electricity, electrifying end uses, withstanding impacts on global energy markets, and adapting to a changing climate with more extreme weather and wildfires. Changing how we use energy in buildings can support healthier environments, save energy and money, make buildings a resource that responds to grid stress, reduce reliance on imported natural gas, and

create high-quality jobs in the building sector. A new framework and roadmap are required to decarbonize the building sector while ensuring equity and grid reliability.

SCALE 2030 is an ongoing project to identify and implement transformative strategies and investments bold enough to fully scale up the clean buildings transition in Washington by 2030. This paper provides an overview of the first three initiatives, including the Clean Buildings Ecosystem Assessment, the Clean Buildings Transition Framework, and the Clean Buildings Transition Roadmap. The Ecosystem Assessment and Transition Framework ground the project in existing work and present a new vision for Washington's clean buildings transition. The Roadmap proposes key levers for systemic change and recommends detailed actions to implement by 2030.

Clean Buildings Ecosystem Assessment

The Ecosystem Assessment compiles existing data and research from state, regional, and federal sources to develop a holistic view of the existing building ecosystem in Washington (Storm et al. 2025a). The paper also provides a clean buildings policy gap analysis. It was critical to understand the current state of the building ecosystem before developing a framework and a roadmap for clean buildings. This section includes highlights of building stock and ecosystem gaps to address in the Transition Framework and Roadmap.

92% of housing units in Washington are single-family or low-rise multifamily (NEEA 2024), meaning that transition solutions that apply to these building types can have an outsize impact within the residential segment. 55% of residential units (US Census Bureau 2023) and 2/3 of commercial floor area are in the Puget Sound region (Day and Department of Energy Open Energy Data Initiative 2020). This four-county area can therefore address more than half of the state's clean buildings transition. Washington's residential and commercial buildings account for 77% of the state's electricity consumption, so how they use power has significant impacts on the grid (US Energy Information Administration 2024). Residential and commercial buildings also account for 43% of the state's natural gas consumption, making them the state's largest end use for natural gas (US Energy Information Administration 2025). Shifting away from natural gas in buildings can greatly reduce the state's natural gas emissions.

The state has no sector-specific energy or emissions reduction targets for the building sector or individual segments, no publicly disclosed building benchmarking for any segments, and no zero-emissions appliance standards. There is also no state-level tracking mechanism for measuring progress against building sector targets and there are no state-level published reports on progress against building sector targets.

While the state has a Clean Building Performance Standard that applies to commercial and multifamily buildings over 20,000 square feet, the targets do not directly apply to GHG emissions, only buildings over 50,000 square feet have energy use intensity (EUI) targets, no buildings have targets beyond 2028, and the only regulation of energy use in buildings under 20,000 square feet is the energy code (Washington State Department of Commerce, n.d.).

The scale and pace of change currently supported by utility programs is out of sync with state emissions reduction goals. The current regulatory framework for utility programs must adapt to procure whole-building performance and the large-scale and fast-paced changes that are required to transition every building and home in 25 years.

While many of the pieces needed for market transformation in Washington exist, there are substantial gaps. Many clean building technologies (e.g., commercial and residential heat

pumps for space and water heating) are not yet price-competitive with gas or less efficient equivalents. We lack the policy and funding for market transformation focused on the widespread adoption of existing building decarbonization technologies and solutions, which is needed in addition to market transformation focused on emerging technologies. Overall, Washington lacks a large-scale funding source to support a fast-paced clean buildings transition.

Clean Buildings Transition Framework

The Transition Framework proposes a new framework rooted in five core strategies, based on the findings of the Ecosystem Assessment. The five strategies are specific to the Washington context and build on existing programs, policies, and funding (Storm et al. 2025b).

The five Transition Framework strategies include:

1. **Performance as a Resource Ecosystem.** Develop a high-functioning building performance ecosystem that reorients policies, programs, and reporting to focus on whole-building performance as a resource for society and the electricity grid. We call this ecosystem Performance as a Resource (PAR). PAR also aligns the transition of all building segments with statutory building sector targets supported by tracking, policies, programs, and market transformation efforts. PAR ensures that all buildings have a clear regulatory and programmatic trajectory to meet 2050 emissions reduction goals.
2. **Rapid Market Transformation (Rapid MT).** Complement the PAR strategy by accelerating market transformation with a focus on increasing market development and investment in supply chains for key technologies, such as heat pumps. It is essential that both the upfront and lifecycle costs of zero-emission, low-energy, flexible equipment become competitive with less efficient, fossil fuel-powered options. Workforce development that creates high-quality jobs is also a crucial component of Rapid MT that can support an equitable clean energy transition.
3. **Strategic Transition Funding.** Develop new sources of funding that address the need for large investments in the building sector. Washington must scale funding well beyond current levels coming from utility customer surcharges, federal funding, the general fund, or the Climate Commitment Act to create dedicated funding streams that modernize and decarbonize the building sector while ensuring equity and grid reliability.
4. **Coordinated Planning.** Coordinate planning to align state, regional, and utility energy and emissions planning efforts, timing, and interconnectivity. A coordinated planning strategy ensures all planning, policy development, and utility planning and program requirements support Washington's 2050 emissions limits and the Washington 2021 Energy Strategy's 10 recommended actions for the clean buildings transition. It clarifies the targets and timelines for electrification, efficiency, rooftop solar, demand flexibility, and virtual power plants statewide and integrates them into relevant utility, state, and regional plans.
5. **Clean Energy Regions.** Implement a regional approach to clean buildings implementation by breaking out eight regions across Washington that group counties, utility service territories, and air quality agencies. In addition to organizing areas of similar characteristics, jurisdictions, and geography, this strategy recognizes that most towns and cities in Washington do not have resources to support large-scale clean buildings activities. Regions could adapt strategies that work for their specific building ecosystems and communities, lead implementation, and provide a one-stop shop for

information and resources on clean buildings for building owners, occupants, contractors, local government entities, utilities, etc.

The Transition Framework does not propose specific actions or timelines for these strategies. Rather, it focuses on how these strategies together can form a targeted, holistic, systemic approach to decarbonizing Washington's buildings.

Clean Buildings Transition Roadmap

To advance the Transition Framework into a set of implementable actions, the Roadmap includes additional research on specific policies and programs, criteria for defining critical actions, and input from an advisory group to solidify priorities, ground truth, and fine tune proposed actions.

Above all, the focus of the Roadmap is actions that can make a significant increase in the pace of Washington's clean buildings transition. All actions identified had to be primarily state led because these had much more potential for impact than actions at the local level. Actions also needed to meet one or more of the following three criteria:

1. **Cover a critical gap in the current building ecosystem.** For example, actions fill a policy gap for smaller buildings or fill a funding gap.
2. **Focus on developing the institutional and market capacity necessary to scale clean buildings.** Actions do not need to be directly implemented at the building level. Rather, they can increase the state's ability to transition a larger portion of the building stock each year. For example, actions could align utility resources with clean buildings or develop new financial tools that can leverage state funding.
3. **Drive change for a significant portion of the residential and commercial building stock.** Actions need to impact more than just one building type, such as grocery stores or high-rise apartments, and would ideally impact an entire segment or tier as described below.

With the goal of transitioning buildings of all sizes, the Roadmap used the existing two "tiers" from Washington's Building Performance Standard and added a proposed third tier:

- Tier 1 Buildings
 - Commercial Buildings > 50k sq. ft.
- Tier 2 Buildings
 - Commercial Buildings > 20k sq. ft. and ≤ 50k sq. ft.
 - Multifamily Buildings > 20k sq. ft.
- Proposed Tier 3
 - Commercial Buildings ≤ 20k sq. ft.
 - Multifamily Buildings ≤ 20k sq. ft.
 - Single-family Homes ≤ 20k sq. ft.

Using Tier 1 and Tier 2 as defined by the state aligns the Roadmap with existing state policies. Proposing a Tier 3 allows the Roadmap to conceptualize solutions for buildings that are not specifically included in current state-level policy. Together, the three tiers include all residential and commercial buildings.

The Roadmap includes six levers with 16 high-impact, high-leverage actions to transform the building sector (Figure 2). The levers are mutually reinforcing, and we consider these to be the essential leverage points for systemic change. Clear **building sector goals** and accountability provide a North Star for syncing all levers and actions. Comprehensive **codes and standards** ensure each building segment has a regulated path to meet building sector goals by 2050. Modernized **utility regulation** aligns utility programs and policies with the building sector goals and ties earnings to building performance outcomes and grid modernization. More **investment in market transformation** and **innovative financing models** provide strong market signals and scale support for compliance with codes and standards. **New funding sources** allow the state to invest in this network of levers to rapidly scale the clean buildings transition. In the following subsections, we describe each of the actions across the six levers.

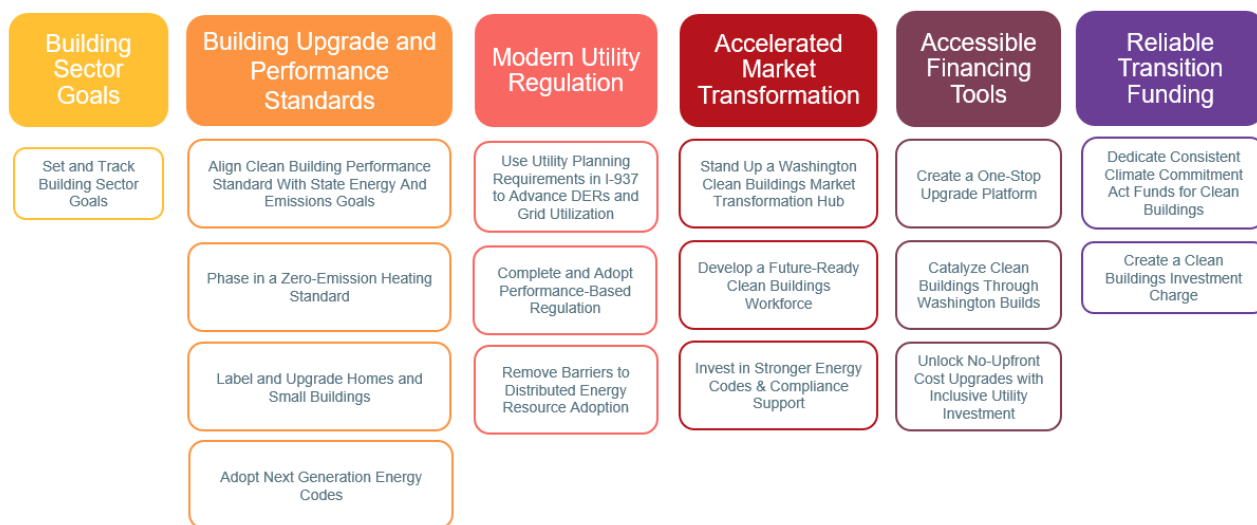


Figure 2 Recommended Roadmap actions organized by lever.

Lever 1: Building Sector Goals

Washington has ambitious statutory goals for economy-wide emissions reductions by 2050. However, the state does not have specific reduction targets for buildings, transportation, industry, or agriculture. Setting sector-specific goals is critical to align clean buildings transition efforts with specific deadlines and to create accountability.

Action 1.1: Set and track building sector goals. Establish statewide building sector goals and targets for key metrics such as energy use, emissions, and sales shares for key technologies. Set final goals and targets for 2050, with five-year milestone goals through 2050 to guide progress. Track key metrics on an annual basis and publish progress online with an interactive dashboard.

Building sector goals and targets will help ensure planning, policy, and program design align with the state's economy-wide energy and emissions goals. Annual tracking against those goals will provide timely feedback to state agencies and the clean buildings ecosystem to support accountability and inform course corrections and future funding decisions.

Targets that specify achievements in highly impacted communities (i.e., the share of heat pump installations or energy savings achieved) could help ensure that building upgrade benefits are equitably distributed.

Lever 2: Building Upgrade and Performance Standards

Along with financing and market transformation that drive access to clean energy solutions for buildings, policy and regulatory levers are critical tools to increase demand for those solutions. Each building sector segment needs a clear regulatory path—including a comprehensive set of mandates—to maximize energy reductions, build out load flexibility, and transition off fossil fuels by 2050. The paths must be tailored for each building segment. The following actions together provide a complete policy and regulatory path for all segments.

Action 2.1: Align clean building performance standard with state energy and emissions goals. Washington’s Clean Building Performance Standard (CBPS) is a powerful tool driving reduced energy use and emissions in the state’s largest buildings (Washington State Department of Commerce, n.d.). The Roadmap proposes changes that would make the CBPS even more effective. Specific recommendations include:

- Adopt and publish Tier 1 and Tier 2 final performance targets and all interim targets for each five-year cycle of the CBPS.
- Structure the final performance targets and milestones to correspond with Washington’s statutory 2050 emissions limits and the 2021 State Energy Strategy. This would include technical analysis to determine the lowest EUI that can be reasonably achieved by 2050 for each property type and working backwards to set five-year milestone targets based on percentage reductions from the EUI targets in the initial CBPS cycle (2026-2028).
- As an alternative to using standardized EUI targets, allow property owners to generate custom milestone targets based on incremental percentage reductions from their buildings’ baseline EUIs and the final performance standard for their property type.
- Add emissions intensity, peak demand, and/or demand flexibility as additional metrics.
- Require public disclosure and publish CBPS benchmarking across all metrics on a statewide platform. Standardize benchmarking into an official building performance report (“label”) to support informed real estate transactions.

Buildings with limited financial and staff resources need additional and tailored compliance support for building performance standards. Modifying the existing CBPS to adopt and publish interim and final targets through 2050 would provide more transparency to support retrofit decisions and timing, which is particularly important for buildings with limited resources.

Action 2.2: Phase in a zero-emission heating standard. Adopt a statewide zero-emission heating standard that sets allowable pollution limits for space and water heating equipment in residential and commercial buildings. A statewide standard would phase out the sale and installation of high-emitting appliances, including gas furnaces and water heaters, by establishing thresholds based on nitrogen oxide (NOx) emissions. This approach aligns Washington with emerging standards in other states, like California and Maryland.

A zero-emission heating standard would complement the energy code and building performance standards and fortify the regulatory paths for residential and small commercial buildings that currently lack strong mandates. Creating a clear, statewide transition timeline gives manufacturers, distributors, and contractors market certainty, which in turn enables economies of scale for clean appliances, a smoother supply chain, and can improve installation practices.

Compliant appliances must be affordable and widely available, with financial assistance for overburdened communities and vulnerable populations and small businesses. Where electrification increases bills, the impact must be addressed through gas and electric rate design and incentives. Owners should not be able to pass costs to tenants. Dedicated funding must be available for health, safety, or electrical readiness upgrades needed before installing zero-emission heating equipment. All these elements should be in place to ensure that all households and businesses can benefit from the health and comfort improvements of compliant appliances.

Action 2.3: Label and upgrade homes and small buildings. Establish mandatory statewide building performance labeling for residential and small commercial buildings not covered by the CBPS. The labeling would require a Home Energy Score for residential buildings and Energy Star Benchmarking for small commercial buildings at the time of sale or rental listing. Scores would be publicly available through a statewide database, enabling consistent progress tracking and support to buildings. Over time, this labeling framework should evolve into a formal “Tier 3” of the CBPS for buildings not covered under Tier 1 or Tier 2, with upgrade requirements at time of sale, providing a more complete regulatory pathway for smaller buildings and homes to complete clean buildings upgrades.

To avoid unintended burdens, the state should provide free or low-cost energy score assessments for homeowners who qualify for income assistance and small business owners in overburdened communities, offer a help desk for compliance support, and consider exemptions to upgrade requirements. To maximize the benefit of energy scores, labels should be consumer-friendly and help renters and buyers understand energy cost implications of choosing a particular home or building.

Action 2.4: Adopt next generation energy codes. Continue to strengthen Washington’s energy code requirements for both new construction and existing buildings to accelerate emissions reductions, align with the state’s CBPS, and develop buildings that are efficient, comfortable, healthy for occupants, and a resource to the electric grid. For new buildings, this includes adopting Net-Zero Energy-Ready requirements in the 2030 energy code, consistent with Washington’s statutory mandate to reduce new building energy use 70% in the 2030 energy code. For existing buildings, updates should increase the stringency of requirements applied during permitted equipment replacements and major alterations, ensuring that retrofits contribute to statewide emissions and energy goals.

The energy code influences design and equipment decisions for all new construction and remodels of existing buildings, making it a highly impactful lever to make Washington’s building stock more efficient and lower emissions. However, more stringent codes may increase upfront construction or retrofit costs, making investments in market adaptation support essential. This should include training for smaller builders, contractor upskilling and coordination with the Market Transformation Hub (see Action 4.1).

Lever 3: Modern Utility Regulation

Modernizing utility regulation is required to align utility actions with clean energy and building decarbonization goals. Utilities have significant financial resources and technical expertise that could greatly accelerate clean buildings progress with the right regulatory structures in place. A central objective is to ensure that utilities invest in clean buildings and their

distributed energy assets with the same commitment and consistency they bring to large, supply-side infrastructure. Massively expanding distributed energy resources (DERs) and effectively integrating them as grid assets can defer distribution upgrades and reduce the need for new generation resources or transmission capacity. The actions in this section focus on three of the most promising ways to establish a system in which utilities are a driving force of the clean buildings transition.

Action 3.1: Use utility planning requirements in I-937 to advance DERs and grid utilization.

I-937, or the Energy Independence Act, is a key piece of Washington legislation that guides utility requirements for acquiring energy efficiency. Enacted in 2007, the current framework in I-937 focuses on energy efficiency and a 15% renewable portfolio standard requirement (Energy Independence Act 2007). Updating the legislation could align utility requirements with current needs like emissions reductions and load flexibility. The Roadmap proposes a workgroup to consider options for updating I-937. A workgroup could look at frameworks from other states, like Virginia's recent legislation on grid utilization (HB434 2026), or create a more Washington-specific solution that would boost clean buildings, modernize the grid, and promote affordability.

In planning for and implementing increased demand-side resources and grid utilization, utilities should:

- Ensure that measures such as heat pumps, weatherization, electrification bundles, and storage are accessible to overburdened communities, vulnerable populations, renters, and small businesses through financing and rebates.
- Strive to include all benefits in cost-effectiveness tests to fully capture health, comfort, resilience, and energy burden reduction benefits.
- Fund community organizations to support outreach, enrollment, and program design.
- Monitor distribution of program benefits across income groups, building types, geographic areas, etc.

Action 3.2: Complete and adopt performance-based regulation (PBR) for clean buildings.

Adopt PBR to align utility financial incentives with Washington's clean buildings and grid flexibility goals by completing and implementing the [PBR docket underway](#) at the Utility and Transportation Commission. Implementing the completed framework would reward utilities for measurable progress on outcomes that advance clean buildings, such as load flexibility, emissions reductions, electrification, DER deployment, and virtual power plant performance.

A PBR framework should integrate equity-centered performance incentive mechanisms that reward utilities for actions such as:

- Delivering electrification or efficiency upgrades to income-qualified customers, small businesses, and renters.
- Reducing energy burden.
- Prioritizing upgrades that improve indoor air quality.
- Partnering with community organizations to design and deliver customer programs.

Action 3.3: Remove barriers to DER adoption. DERs can reduce peak load, improve grid flexibility, defer infrastructure upgrades, increase reliability for homes and businesses, and provide revenue streams for their owners. They are a powerful tool to accelerate building

decarbonization and meet growing demand for electricity without raising rates. Developing consistent valuation methods, standardized interoperability and interconnection, and visibility into utility distribution systems are all pieces of recognizing the full value of DERs in utility planning. With more of the value of DERs enabled, market clarity emerges for utilities, aggregators, contractors, and Original Equipment Manufacturers (OEMs) to develop business models and programs that treat DERs as integral grid assets. This shift could reduce utility costs and align utility resource acquisition in Washington with the realities of a changing electricity system and the goal of decarbonizing buildings.

Regulators and utilities should ensure that DER value signals do not disadvantage customers in older buildings, which means making upgrades for electrification infrastructure available to all customers. In their planning, utilities should prioritize the deployment of DERs in highly impacted communities where those DERs could reduce energy burdens, improve resilience in extreme weather, or provide other non-energy benefits. Utilities, regulators, and additional entities should provide training to small contractors and community organizations to enable their participation in the DER ecosystem.

Lever 4: Accelerated Market Transformation

Washington should accelerate market transformation efforts to increase adoption of clean buildings technologies by improving their cost and performance, boosting awareness, removing supply chain barriers, increasing workforce training, and innovating incentive and funding structures. Market transformation strategies will need a split focus on emission reductions, efficiency, and DERs.

Accelerated market transformation should focus on identifying the technologies required to transition the building sector and implementing strategies and targeted market interventions to ensure Washington state building owners and tenants can access these technologies easily, at competitive prices. Key outcomes include cost reduction, training and resources, high-performing supply chains, and reduced risk of adopting and maintaining new technologies.

Action 4.1: Stand up a Washington clean buildings market transformation hub. Launch a Washington-specific market transformation hub within the Department of Commerce's Energy Division to support the Northwest Energy Efficiency Alliance's (NEEA) work and fill gaps. The Market Transformation Hub would coordinate closely with NEEA on initiatives to reduce costs and increase access to clean buildings technologies, with a focus on achieving Washington's emissions goals. For example, it could fund public education campaigns on heat pumps or coordinate bulk buys of electrified equipment. The Market Transformation Hub could also provide funding to NEEA to expand and tailor its current Northwest market transformation initiatives to increase impact in Washington. It could also pursue additional partnerships with Washington Builds (Washington's green bank), utilities, local governments, labor organizations, and others to ensure initiatives align with Washington's building decarbonization and DER imperatives.

It will be critical that the Market Transformation Hub includes equity goals in market transformation priorities, engages community organizations and tribes in designing initiatives, and coordinates with weatherization and affordable housing programs to ensure that retrofit packages can reach overburdened communities, vulnerable populations, and rural households. Market transformation must include a focus on accelerated access and adoption for buildings that currently have limited access to clean buildings upgrades.

Action 4.2: Develop a future-ready clean buildings workforce. A skilled and adequately staffed workforce is critical to scale the adoption of clean buildings upgrades and ensure quality installations and maintenance that build confidence in the availability and quality of services. By supporting training, certifications, and market-aligned skills development, the state can ensure reliable, well-paid career opportunities. The state should increase funding for workforce readiness initiatives included in Washington’s Comprehensive Climate Action Plan (CCAP) and Clean Energy Technologies Workforce Advisory Council (CETWAC) recommendations.

The CCAP Workforce Planning Analysis highlights a need for more energy auditors, technical experts to assist with meeting building performance standards, and technicians for electrical appliance installation and maintenance (Washington Climate Partnership 2026). CETWAC’s 2025 legislative report calls for strengthened registered apprenticeship and career and technical education for clean energy, expanding employment opportunities by accelerating deployment of clean energy projects, and advancing workforce development for under-represented groups (Munk and Wilcox 2025). Washington should also reinstate higher levels of funding for CETWAC itself to continue as a primary coordinating body for clean energy workforce development in Washington, including the clean buildings workforce.

Washington should partner with community colleges, apprenticeship programs, and existing community-based workforce organizations to recruit and train workers from underserved communities. Providing business development assistance and access to training for small and minority owned contractors will ensure all communities share in the economic benefits of the clean buildings transition.

Action 4.3: Invest in stronger energy codes & compliance support. Through the Market Transformation Hub (See Action 4.1), provide targeted funding and technical expertise to strengthen Washington’s energy codes and standards by significantly increasing existing support for code development, market adaptation, and on-the-ground compliance. Investing in technical and financial support during code development and enforcement can ensure that proposed code changes are feasible, strong, and grounded in Washington’s specific goals, building practices, and market conditions. Strengthening support after adoption helps builders, contractors, and jurisdictions understand and meet new requirements, resulting in more efficient and lower-emission buildings statewide. Together, these efforts improve code effectiveness, lower long-term energy costs, and enhance comfort and health in new or updated buildings.

Washington should work with rural jurisdictions and small builders to understand barriers to meeting new code requirements and should develop accessible compliance tools and provide targeted training to smaller builders and rural jurisdictions to ensure that stronger codes benefit all communities.

Lever 5: Accessible Financing Tools

A major barrier to upgrading buildings is the upfront cost (American Council for an Energy-Efficient Economy 2017). Scaling existing tools for clean buildings financing and creating new ones would address the upfront cost barrier and enable many more buildings to take on energy upgrades that reduce emissions, improve health and comfort, and save money over time. With market transformation reducing overall costs of key technologies and accessible financing reducing the hurdle of upfront costs, limited public funds can be used for the most cost-constrained households and businesses, and for upgrading additional electrification

infrastructure such as panels, transformers, and vaults that buildings would not need if they weren't electrifying. Innovative financing can also be used to help contractors grow their businesses.

Action 5.1: Create a one-stop upgrade platform. Develop a statewide, user-friendly app- or web-based platform that allows contractors and customers to input details of energy upgrade projects and automatically identify all applicable incentives, rebates, and financing options. The platform would use details about the project and customer to scan federal, state, utility, and local incentives; deduct eligible rebates upfront; and apply for applicable loans from Washington Builds or other entities offering low-cost financing for clean buildings upgrades.

Washington Builds would pay rebates directly to contractors, and the appropriate utility or program administrator would reimburse Washington Builds. This model draws on a similar platform developed by Michigan Saves to streamline financing and incentive access in a way that benefits building owners and contractors (Michigan Saves, n.d.).

With a single statewide platform centralizing access to incentives and financing, the complexity of navigating many different programs and financing channels is dramatically reduced. This can ensure that building owners and occupants have access to projects at the lowest possible cost and reduce burden on contractors. By simplifying sales for contractors, the platform can turn contractors into advocates for clean energy upgrades that are aligned with clean building goals, which is critical as homeowners cite contractors as a top trusted advisor for home repairs and energy upgrades.

The platform should prioritize matching people with no-cost upgrade programs whenever possible, followed by rebates and loan options. To ensure widespread use of the platform, the Department of Commerce and Washington Builds should work with utilities and trade associations on contractor awareness and training and with utilities and community organizations on consumer awareness. Contractor training in rural areas and overburdened communities is particularly important to ensure that no communities are left out of accessing rebates or low-cost financing. For consumer protection, contractors should meet specific requirements or be part of an approved contractor network to access payment through the platform.

Action 5.2: Catalyze clean buildings through Washington Builds. Provide consistent funding for Washington Builds to enable the launch and expansion of clean buildings financing tools statewide. Continued investment will allow Washington Builds to deploy affordable financing to building owners and tenants at scale, attract private capital by de-risking clean buildings investments, and coordinate clean buildings financing efforts. Per capita funding from successful green banks in New York and Connecticut points to a target of \$400 million–\$1 billion for Washington Builds.

Critically, the green bank model breaks the cycle of time- or funding-limited rebates and incentives by providing certainty to the market, which allows market actors to invest in business capacity to meet demand and potentially reduce customer acquisition costs through a reliable pipeline of projects. It can also support market transformation initiatives and engage contractors through loan products that benefit their business development efforts or by developing a contractor network.

Green banks have a track record of attracting nearly \$7 in private investment with each \$1 of public funding (Connecticut Green Bank 2025). Washington Builds' potential to leverage public funds for much greater total impact makes it a uniquely effective use of state

dollars. It also offers a self-sustaining model that recycles initial capital to permanently scale access to financing for building upgrades and other clean energy projects in Washington.

To ensure that the benefits of clean buildings financing extend to households and businesses that are often excluded from traditional lending, Washington Builds can:

- Set targets for the share of capital dedicated to projects serving highly impacted communities.
- Offer programs like loan-loss reserves that reduce the cost of loans.
- Coordinate with grant, rebate, and no-cost upgrade programs to ensure that those are used to finance projects wherever possible, before a loan option.
- Partner with community organizations to deliver outreach to households, business owners, and contractors.
- Look for investments in affordable housing, rental housing, and community spaces.

Action 5.3: Unlock no-upfront cost upgrades with inclusive utility investment. One tool to address high upfront costs for residential and small commercial buildings is Inclusive Utility Investment (IUI), also known as tariffed on-bill financing (American Council for an Energy-Efficient Economy 2017). While it is not a replacement for low- or no-cost rebate programs, IUI could be a core financing mechanism to enable energy upgrades for moderate income households across the state. Washington should require utilities to offer IUI.

With IUI, the cost of an upgrade is paid on a utility bill over time, with a monthly payment that is smaller than the energy savings produced by the upgrade. The customer benefits from slight savings overall and improved comfort from the upgrade. The repayment is tied to the electric meter rather than to an individual, which avoids credit issues and makes the model work for renters. An IUI program could be run through individual utilities or potentially through Washington Builds.

IUI programs must be designed to protect and benefit low- and middle-income households, businesses, and renters. Programs should:

- Prioritize no-cost or deeply subsidized upgrades for income-qualified households before offering financed options.
- Require bill neutrality (i.e., the monthly savings from the upgrade exceed the monthly repayment) to prevent increased energy burden.
- Safeguard customers by prohibiting shutoffs connected to IUI repayments.
- Be transparent, with clear terms and consumer-friendly outreach.
- Protect renters from rent increases due to upgrades.
- Engage community organizations to support outreach and enrollment.

Lever 6: Reliable Transition Funding

Reliable transition funding is needed to increase Washington's institutional and market capacity to scale clean buildings. With a greater focus on the broader clean buildings ecosystem, the state can harness market forces and maximize the impact of incentives and subsidies for individual projects and installations. Several elements require funding to encourage and support the development of this new ecosystem, notably Washington Builds, a new accelerated market transformation strategy, and the establishment of targets and tracking mechanisms. A new

funding source could reduce funding uncertainty tied to legislative appropriations and instead build permanent, reliable capacity for building sector transformation.

Action 6.1: Dedicate consistent climate commitment act funds for clean buildings.

Washington's transition to highly efficient, zero-emission buildings requires predictable and durable funding. Current reliance on competitive biennial appropriations creates uncertainty that slows planning and limits scaling of programs and initiatives. Dedicating a consistent share of cap and invest funds from the Climate Commitment Act (CCA) revenue to clean buildings via the Department of Commerce's Energy Programs in Communities (EPIC) fund would help ensure long-term funding stability, allowing the Department of Commerce to better coordinate investments across programs and prioritize structural, market-shaping efforts rather than just one-off grants.

State funding must ensure that Washington's most impacted communities are the first to benefit from the clean buildings transition. EPIC should commit a defined share of resources to overburdened communities and vulnerable populations in accordance with the Healthy Environments for All (HEAL) Act; integrate energy burden reduction, indoor air quality improvements, and health and safety outcomes into its offerings; fund community organizations to conduct outreach and technical support; and support workforce development pathways that ensure the clean buildings sector creates quality jobs.

Action 6.2: Create a clean buildings investment charge. Many of the actions in the Roadmap, such as continuing to capitalize Washington Builds or launching a Market Transformation Hub, require investment from the state. With steep competition for CCA revenue, and an expected future decline in CCA revenue, a dedicated funding source is needed to invest in clean buildings. The Roadmap proposes a utility bill surcharge.

The Roadmap does not propose a specific amount but recommends excluding lower-income households and avoiding major bill impacts. For example, we estimate a charge of \$.003 per kWh to raise \$246 million annually in Washington when applied to commercial and industrial customers and 80% of households (excluding 20% of households by income), while adding \$3 to the average monthly residential bill. Funding could also be used for direct community benefit through grant and rebate programs like Washington's Home Electrification and Appliance Rebates (HEAR) program.

To ensure that a utility bill surcharge does not deepen affordability issues, customers on a bill assistance program should be excluded. Renewing the surcharge every five years would also add an accountability mechanism to protect customers.

Conclusions and Next Steps

The current pace of emissions reductions in the building sector does not align with Washington's 2050 emissions limits. The Roadmap offers concrete steps for getting Washington on course to achieve resilient, affordable, clean buildings across the state by 2050. While the Roadmap is designed for Washington, it is applicable to other Northwest states and beyond given its focus on comprehensive regulatory pathways for all buildings, accelerated market transformation aligned with ambitious state energy goals, and modern utility regulation.

Washington is well-positioned to implement the Roadmap and fully scale the clean building transition by 2030. The state can build upon existing policies, leverage its robust

community of experienced state agency leads and seasoned clean buildings advocates, and deepen collaboration with transformational organizations like NEEA and Washington Builds.

The next step for SCALE 2030 is to catalyze efforts to implement the 16 actions from the Roadmap. This includes supporting existing work and collaborating with clean building actors to advance early-stage actions such as envisioning a framework to use utility planning requirements in I-937 to advance DERs and grid utilization, standing up a Clean Buildings Market Transformation Hub, and establishing dedicated, sustainable funding sources for the clean building transition.

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