

*To ensure a coordinated approach from Washington state, proposal development has been coordinated with three other applications: **Tier A** led by the Washington State Department of Ecology for various transportation measures, organic materials management, and grocery store refrigeration management; **Tier B** led by Puget Sound Regional Council focusing on electrifying regional transportation; **Tier C** led by Washington State Department of Commerce for transformative tribal and local projects outside the MSA.*

Accelerating Equitable Building Decarbonization Throughout the Building Lifecycle

Section 1. Overall Project Summary and Approach

Climate pollution from the building sector is growing at a faster rate than any other source in the Seattle-Tacoma-Bellevue MSA, representing 39% of greenhouse gas (GHG) emissions in 2019. Recent ambitious federal, state, and local climate policies and investments are transforming the region's economy but have left gaps in the building measures outlined below. King County submits this proposal to reduce emissions throughout the building lifecycle on behalf of and in collaboration with the cities, counties, and regional organizations in four Washington state counties (King, Kitsap, Pierce, Snohomish), which represent 56% of Washington state's population and 73% of its economic production.¹

This proposal seeks to reduce GHG emissions throughout the building lifecycle with targeted benefits to low-income and disadvantaged communities (LIDACs) by (1) reducing operational emissions of **existing multifamily and small commercial buildings**; (2) reducing **embodied carbon in new building construction** through government procurement practices and local building codes, and (3) creating **systems to reuse wood at scale** at the end of a building's life to avoid emissions. The proposal also makes small but strategic crosscutting investments to scale up emerging regional workforce development initiatives, ensure the region is prepared to take advantage of new clean energy financing products, and coordinate equitable and coordinated program implementation. Programs will prioritize LIDAC populations, maximize energy efficiency, and other non-energy benefits, including reducing energy burden, providing cooling benefits during extreme heat and wildfire smoke events.

Existing Buildings: Addressing Existing Building Decarbonization Gaps, Focused on Community Benefits

By 2030, regional building sector emissions will be dominated by the direct combustion of gas in residential and commercial buildings for space heating, water heating and cooking.² Recent state policy will significantly reduce new building emissions and will quickly clean up regional electrical grids, as described under *Background*. However, the anticipated influx of state and federal rebates and tax credits skews towards small residential electrification, leaving a gap of policy drivers and investments to reduce multifamily and smaller commercial building emissions. *King County and partners can build on recent regional partnerships to increase electrification investments where low-income communities live and work, demonstrate success in retrofitting these buildings, and scale up workforce training efforts.*

New Buildings: Advancing Regional Embodied Carbon Procurement and Policies

For new buildings, the Washington State Building Code Council (SBCC) recently adopted some of the nation's most ambitious energy codes that will significantly reduce new building operational emissions. Worldwide, the manufacturing, transportation and assembly of building materials in new construction (embodied carbon) account for 11% of GHG emissions and have received less policy attention and investments than operational building emissions.³ *King County and partners can build on our national leadership in advancing energy codes—and lessons learned from federal and state Buy Clean procurement initiatives—to transform the market for low carbon building products across the state.*

¹ See Washington Office of Financial Management, "April 1 Official Population Estimates." [\[LINK\]](#); and U.S. Department of Commerce Bureau of Economic Management, "GDP by County, Metro, and Other Areas," [\[LINK\]](#).

² Seattle-Tacoma-Bellevue Metropolitan Statistical Area (MSA), "Priority Climate Action Plan," 2024.03.01. [\[LINK\]](#). Pg. 21.

³ EPA, "What is Embodied Carbon?" last updated February 15, 2024. [\[LINK\]](#).

Building Deconstruction: Transforming the Salvaged Lumber Market to Reduce Emissions

Thoughtful deconstruction and reuse of wood products at the end of a building's life can reduce the embodied carbon of new building products by capturing clean wood, reusing it in new building products, and locking carbon into those building products. *King County and partners can use strategic investments along with direct control of waste streams at transfer stations and existing programming efforts at King County Solid Waste and Seattle Public Utilities to spur the market for low carbon building products.*

Our Approach: King County is the lead applicant and will deploy proposal programs among the four counties in direct coordination with a steering committee of cities and counties. This model of collaborative program delivery, with King County leading coordination, funding streams, contracting, and program management, has been deployed successfully in two other regional climate initiatives: the Puget Sound Regional Emissions Analysis ([PSREA](#)) and the Washington Switch is On campaign ([SIO](#)). This proposal includes staff position funds to support specific measures and coordinate grant administration.

King County proposes five measures, summarized in Table 1, that together represent over **335,578 MTCO2e of GHG emissions reductions through 2050** across the building lifecycle. The [Background](#) section below provides context for the proposed programs. Major features, tasks, milestones, potential risks, reason for selection, and relation to PCAP priority measures are under [Measure Details](#).

Table 1. Summary of King County CPRG Tier D Proposal in the Seattle-Tacoma-Bellevue MSA	
Sector	Measure
Addressing Gaps in Existing Building Decarbonization	Measure 1 – Existing Multifamily Electrification and Efficiency: A program to electrify and weatherize 500-750 units of naturally occurring affordable housing (NOAH); provide incentives for installation of 300 heat pump water heaters (HPWHs); benchmark 130 buildings; and provide support to electrify and weatherize 25 buildings through external grant funds and financing products.
	Measure 2 – Small Community Building Electrification and Efficiency: A program to electrify and weatherize 150 family care facilities; and a grant program to electrify 55 community or municipal buildings that provide a public benefit.
Advancing Regional Embodied Carbon Procurement and Policies	Measure 3 – Embodied Carbon: A program to establish and adopt requirements for lower-carbon materials in governmental capital projects; to support the introduction of embodied carbon in local and state building codes; and support industry readiness to respond to meet requirements.
Transforming the Salvaged Lumber Market to Avoid Emissions	Measure 4 – Circular Economy Salvaged Lumber and Reuse: A program to establish businesses and support market transformations that successfully divert wood from landfills and as industrial fuel to reuse, including establishing 3 distribution sites and up to 11 processors and manufacturers, supporting product testing, and supporting deconstruction workforce development.
Preparing the Region for Scaled Financing	Measure 5 – Scaling Financing for Building Retrofits: A program to provide technical support to help approximately 30 multifamily buildings and 30 community and commercial buildings decarbonize using existing and new decarbonization financing options, as well as research and development of additional financing options for decarbonizing the private sector.

Background - This proposal is informed by consideration of existing policy; funding streams and projected building electrification rebates; and energy planning in the state and four-county area, some of which broadly affect grant measure selections. **As noted above, leading state energy codes reduce emissions from new buildings and the state Clean Energy Transformation Act (CETA) cleans up electricity emissions, with** utility-provided electricity GHG-neutral by 2030. Additionally, the state Clean Buildings Performance Standard (CBPS) requires commercial buildings larger than 50,000 sf to meet

energy performance targets and for others (commercial buildings 20k-50k sf and multifamily 20k sf or larger) to benchmark energy use and develop energy management plans. While these policies will drive energy improvements in buildings, they do not require GHG emissions reductions. This leaves existing buildings and converting onsite fossil fuel combustion to clean electricity as the core challenges in reducing building emissions.

Building Decarbonization Landscape and Gaps – A recent analysis estimated that the state would need 110,000 residential units and 2,400 commercial buildings zero net carbon retrofits annually by 2030 to meet state GHG reduction targets.⁴ The four counties represent 55% of the state housing stock and 60% of its civilian labor force, suggesting that by 2030, 191,225 residential unit and 5,370 commercial building zero net carbon retrofits must occur in the MSA to keep pace with state GHG reduction targets.⁵

- For the residential sector, adding the anticipated rebates from the IRA (28,663 rebates), Climate Commitment Act (CCA) (13,682) and weatherization funds (3,964) equals 46,308 anticipated rebates statewide through 2030. Assuming a proportionate amount of state rebates are utilized in the four counties results in 25,470 rebates or only 11.8% of the residential decarbonization need in the four counties, leaving a gap of 165,755 needed zero net carbon residential retrofits.
- For the commercial sector, the state's CBPS will drive efficiency improvements in buildings over 20,000 sf, but does not require onsite fossil fuel combustion reductions and doesn't cover small commercial and multifamily buildings. If the MSA mirrors the commercial building pattern of the Western Census region, 87% of commercial buildings will not be affected by the CBPS.⁶ Applying this 87% ratio to the 5,370 commercial building retrofits needed means that 4,671 commercial building retrofits need to occur in the four counties by between 2025 and 2030.

a. Detailed Description of GHG Reduction Measures

Measure #1. Existing Multifamily Electrification and Efficiency (Multifamily Program)

Description: The Multifamily Program is a one-stop, wrap-around program that will directly retrofit a targeted population of buildings, and will provide technical assistance, incentives, and support for independent retrofits for a larger building group. The program will electrify and weatherize 50 NOAH buildings, representing 500-750 residential units; replace 300 gas water heaters with HPWHs; benchmark 130 affordable housing buildings and support 25 building retrofits via external funds. The program will prioritize units using gas fuel for both water- and space-heating, and work directly with local electric utilities that have pledged to coordinate delivery of energy efficiency incentives.

PCAP Relationship: This measure is encompassed in the Seattle-Tacoma-Bellevue MSA PCAP under measures #4. Water heating "tank swap" for multifamily buildings and units, #6. Whole-building decarbonization for multifamily buildings, and #7. Multifamily technical assistance.

Selection Reasoning & CPRG Alignment: NOAH multifamily buildings were selected because they have concentrated LIDAC benefits, are harder to electrify, require more direct support, have received less investment, and have greater cost-effectiveness for level of effort versus single family programs.

- **LIDAC Benefits** - Nationally, 75% – 80% of low-income households live in unsubsidized or NOAH housing.⁷ Half of multifamily renters nationally spend more than 30% of their incomes on utilities and rent, with an energy use intensity and energy cost per sf that is 10% to 35% higher in rental

⁴ CETI. "Operation 2030: Scaling Building Decarbonization in Washington State." [\[LINK\]](#). pg. 19 (PDF pg 26).

⁵ See Section 1.b for details on how rebate estimates were estimated.

⁶ 71% of commercial buildings are 10,000 sf or smaller, and another 16% are between 10,000 to 25,000 sf. See Energy Information Administration (EIA), "2018 Commercial Buildings Energy Consumption Survey (CBECS) Building Characteristics Highlights," Revised September 2022. [\[LINK\]](#). Pg 9.

⁷ Based on Harvard's Joint Center for Housing Studies (JCHS), cited by the Preservation Compact in NOAH Preservation Strategies, [\[LINK\]](#); see also, Corso, Abigail, et al., "Making Naturally Occurring Affordable Housing More Efficient: Outreach to Upgrade," [\[LINK\]](#); and McKinsey, "Preserving the Largest and Most At-Risk Supply of Affordable Housing." [\[LINK\]](#).

units versus owner-occupied housing when accounting for vintage and typology.⁸ These burdens also fall disproportionately on non-white populations. In the Puget Sound region, only 35% of white households are renters while 62% of Hispanic and 67% Black households are renters.⁹

- **Difficult to Electrify** - Multifamily buildings generally face more electrification challenges, including challenging electrical infrastructure, extended utility coordination, coordinating construction impacts with multiple households, as well as split incentive issues – where, if the building owners do not cover utility costs, they have little incentive to invest in energy efficiency to reduce renter bills.¹⁰
- **Economies of Scale** - Multifamily programs may yield more benefits per residential unit as electrifying buildings with 10+ units achieves economies of scale in outreach and implementation.

As noted in the background section, additional decarbonization is needed as federal and state rebate funds are projected to only meet 11.8% of the residential decarbonization need in the MSA, leaving a gap of 165,755 needed zero net carbon residential retrofits. According to 5-year Census ACS data, approximately 10% of multifamily buildings run on gas with increasing rates of consumption.¹¹

Features: The program will contract with an administrator as well as electrification and weatherization installers to install heat pumps, HPWHs, electric clothes dryers, weatherization, ventilation, electrical upgrades, as well as health and safety repairs in NOAH buildings, covering 80% to 100% of installation costs. Installations will occur in low-income multifamily buildings, defined as buildings where at least at least 50% of households have incomes less than 80% area median income (AMI); the program will provide income verification services to reduce building owner barriers. The program will also prioritize installations and target at least 40% of building retrofits in LIDACs. The program will require multifamily building owners to certify that they agree to measures ensuring they do not indiscriminately increase rents, displace or evict tenants as a result of the improvements; the program will enforce tenant protections. The program will also offer energy benchmarking, both for NOAH and subsidized housing, with a target of benchmarking 130 buildings. This program will pair with the options of technical assistance, and the 300 HPWH replacements for gas water heaters, as incentives to support building owner participation in the benchmarking program. Technical assistance will focus on supporting uptake of external incentives and financing to achieve added retrofits with funds outside of the CPRG proposal. One Multifamily Program staff person is proposed to oversee and ensure program deliverables are met.

- **Task 1: Hire Staff.** Hire a Multifamily Program Manager.
- **Task 2: Contracting.** Develop RFQs to secure a NOAH program administrator, preferably with electrification and weatherization subcontractors, and for benchmarking services. It is projected that technical assistance will be provided under the NOAH program contract, though a separate contract may be required. In addition to partner government staff from the MSA, this proposal anticipates 4 community members participating in the selection committees for these contracts.
- **Task 3: Program Design and Outreach.** Develop program outreach plan, participant agreement forms, including rental protection. Design workshop or other recruitment materials, and conduct outreach to stakeholders, candidate building owners, and community groups to recruit participants.
- **Task 4: Program Activation.** Receive and possibly score applications. Execute phase (ph.) 1 agreements with building owners for income verification, plus site, financial, and utility rebate evaluations. Provide technical assistance for independent electrification and HPWH replacements for buildings not proceeding to ph. 2. For those proceeding, develop scopes of work (SOWs), execute ph. 2 agreements, issue work orders and schedule work with installers. Complete first retrofits.

⁸ Caliner, Michael, “Reducing Energy Costs in Rental Housing: The Need and the Potential,” JCHS, America’s Rental Housing. Research Brief 13-2, December 2013. [\[LINK\]](#).

⁹ Puget Sound Regional Council (PSRC), “Regional Housing Strategy, Regional Housing Needs Assessment,” January 2022. [\[LINK\]](#)

¹⁰ ACEEE, “Building Decarbonization Solutions for the Affordable Housing Sector,” [\[LINK\]](#). Page 15, 21 (PDF 26, 33).

¹¹ See NEEA. “Residential Building Stock Assessment,” 2019. [\[LINK\]](#). Page 31 (PDF pg 17).

- **Task 5: Maintain.** Repeat to secure additional building retrofits, conduct tenant protection checks.

Milestones:

- 2025: Hire Multifamily Program staff; advertise RFQs and execute contracts.
- 2026: Outreach launch; receive applications; select candidates; conduct assessments; issue technical assistance reports and conduct assistance meetings; execute candidate agreements; first retrofits.
- 2030: Complete 50 NOAH building retrofits, 300 HPWHs rebates, 130 building benchmark reports, and support 25 independent multifamily building retrofits

Risk	Mitigation
Over-subscription or under-subscription to program	If excessive building owners apply, the program has built in time to score and prioritize applications with criteria that will be developed based on CPRG and community priorities. Additionally, original program design planned on requiring 20% of project costs from building owners, but MSA staff expressed concern with undersubscription. As such, the program built in the option of 100% cost coverage in budget and adjusted program targets.
Cost increases	The budget assumed 3% annual inflation for the installation program. If there are still additional costs, the program has the option for Financing Program staff under Measure #5 to help contribute technical assistance to reduce administrative costs and adjust project funds to ensure deliverables are met.

Measure #2. Small Community Building Electrification and Efficiency (Community Program)

Description: The Community Program has two primary subcomponents: 1) The Family Care Program, a wrap-around program to directly electrify and weatherize 150 Family Care Center daycares and Adult Family Homes. 2) Community Grants Program, which will issue grants and technical support for electrifying 55 community buildings that provide a community gathering space or a community service.

PCAP Relationship: This measure is encompassed in the Seattle-Tacoma-Bellevue MSA PCAP under measures #3. Whole-home decarbonization for single-family homes, which includes prioritizing single-family homes that house community service businesses such as daycare and senior care services; and measure #8. Community decarbonization grants, for buildings that provide a community gathering space or a community service whether under private, public, or nonprofit ownership.

Selection Reasoning & CPRG Alignment: As noted under *Background*, roughly 4,671 commercial building retrofits need to occur in the MSA from 2025 to 2030 to keep pace with state GHG reduction targets. Family Care homes and community buildings were selected because they have concentrated LIDAC benefits, and can improve resilience and health outcomes for vulnerable populations. These buildings have also received less investment, have less access to incentives, and delayed maintenance – which suggests more opportunities for energy and emission reductions.

- The Family Care program will electrify, weatherize and provide minor repair rebates for approximately 150 Family Care Center (FCC) daycares and Adult Family Homes (AFHs), or services for youth and seniors that operate out of single-family home structures – many of whom are low-income or serve low-income populations. Approximately 60% of the state licensed childcare facilities are Family Home Providers, also known as Family Care Centers (FCCs).¹² Of Washington’s 3,420 FCCs, 62% are located in the MSA (2,130 FCCs), with 36-38% of children receiving service with financial aid.¹³ Nearly half of FCC operators providers are multilingual, suggesting diverse cultural origins and immigrant statuses, with almost 50% of FCC operators home-based providers identifying as people of color (POC).¹⁴ Many FCC providers are low-income, with surveys showing that 44% of

¹² WA Department of Children, Youth & Family (DCYF), “Licensed Capacity.” [\[LINK\]](#); “Guidance on Operating a Licensed Child Care Program.” [\[LINK\]](#).

¹³ Child Care Aware (CCA) of WA, county profiles: King [\[LINK\]](#), Kitsap [\[LINK\]](#), Pierce [\[LINK\]](#), Snohomish [\[LINK\]](#).

¹⁴ Home Grown Childcare, “Home-Based Child Care Fact Sheet.” [\[LINK\]](#).

childcare providers have difficulty paying for basic needs and have concerns with paying rent or mortgage, with 1 in 3 providers experiencing hunger.¹⁵ Senior care facilities show similar needs and issues among service-users and service providers. There are 4,660 state AFHs, of which 69% are in the MSA (3,240 AFHs); 65% of AFHs are funded by Medicaid, which does not cover capital upgrades.¹⁶ AFH owners have similar BIPOC owner/operator rates as FCCs, with non-agency based home aides providing elderly care showing a 35.5% age gap compared to other workers, with greater likelihood of living below the poverty line.¹⁷ Additionally, AFHs are not required to provide cooling, though some homes have window AC units with other safety issues due to blocked windows and long cords among a fall-prone population. Lastly both FCCs and AFHs operators are typically in older (1970's to 1980's) construction, with little to no insulation, and below-average rates of cooling access. Operators may be more likely to live in rental housing as well, providing less security for the community members that depend on their services. By retrofitting these businesses, there are multiple potential community benefits, such as more BIPOC businesses – serving a higher proportion of LIDAC community members – achieving decarbonization, reduced energy costs, improved indoor air quality, access to cooling, and increased rental household protections in rented spaces.

- The Community Grants funds will offer incentives and technical assistance to help electrify and weatherize 55 buildings that provide a public gathering space or a community service. These types of buildings have structures and energy usage patterns similar to commercially occupied spaces, but that ultimately provide community services and may have smaller available capital pools. Examples of such buildings include Community Based Organization (CBOs) or nonprofit buildings that provide community services or host community meetings; community kitchens and food banks; designated cooling centers; houses of worship; community centers; and libraries. Senior centers and daycares could also apply, though the program will prioritize different facility types than those covered in the Family Care program. The program will include rental protections for community leases as well.

Features: Similar to Multifamily, the *Family Care Program* will contract with an administrator as well as electrification and weatherization installers to install heat pumps, HPWHs, induction stoves, air sealing, weatherization, ventilation, air filtration and electrical upgrades, with rebates for health and safety repairs. The program will cover 100% of install costs, and target care homes with low-income operators or where 50% of service recipients have incomes less than 80% AMI; the program will provide income verification to reduce building owner burden. The program will also prioritize retrofits, and target that at least 40% of improvements occur, in LIDACs. For family care rental homes, the program will require building owners to formally certify they agree to measures ensuring they do not indiscriminately increase rents, displace or evict tenants as a result of the improvements, and will enforce tenant protections. *Grants Program* design will incorporate funding for buildings that are privately-owned, owned or leased by nonprofit organizations, and publicly owned or operated; the number of projects by building type, and projected program cost coverage percentage and caps are shown in Table 2. The program builds in technical assistance for non-publicly owned buildings to provide engineering designs or financial assessments. One Community Program staff person is proposed to oversee and ensure program deliverables are met.

Table 2: Summary of King County's CPRG Tier D Proposal in the Seattle-Tacoma-Bellevue MSA			
Building Type	Anticipated Number of Projects	Percent of Project Costs Covered / Cost Cap	
		<i>Outside CEJST or EJSscreen geography</i>	<i>Inside CEJST or EJSscreen geography</i>
Publicly Owned	15	30% / \$300k	50% / \$500k

¹⁵ Carman, Cristi, Natalie Renew, Meghan Salas Atwell, "We Can and Should Provide for Providers." [\[LINK\]](#).

¹⁶ John Ficker, [Adult Family Home Council](#), March 11, 2024 interview; and WA Department of Social and Health Services. [\[LINK\]](#).

¹⁷ Wolfe, Julia et. Al, "Domestic Workers Chartbook," May 14, 2020. [\[LINK\]](#).

Non-publicly Owned	40	75% / \$80k	100% / \$100k
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- **Task 1: Hire Staff.** Hire a Community Electrification Program Manager.
- **Task 2: Contracting.** Develop RFQs to secure a Family Care Program administrator, as well as electrification, weatherization and technical assistance contractors. In addition to government staff from the MSA, this proposal anticipates 4 community members participating in the selection committees for these contracts.
- **Task 3: Program Design and Outreach.** Develop program outreach plan, participant agreement forms, including rental protection. Design workshop or other recruitment materials, and conduct outreach to stakeholders, candidate operators, and community groups to recruit participants. Design criteria for Family Care home repair rebates, and for the Community Grants program.
- **Task 4: Program Activation.** Review and score applications. Execute ph. 1 agreements with building owners, allowing for income verification, followed by site, financial and utility rebate assessments. Provide technical assistance for non-publicly owned buildings selected for the grant program. For those selected to receive capital funding develop SOWs, execute ph. 2 agreements for funding. For the Family Program, issue work orders and schedule installer work. Complete first retrofits.
- **Task 5: Maintain.** Repeat to secure additional building retrofits; conduct tenant protection checks.

Milestones:

- 2025: Hire program manager; advertise RFQs, execute contracts. Design grants program
- 2026: Outreach launch; receive applications; select candidates; conduct assessments; issue technical assistance reports and conduct assistance meetings; execute candidate agreements; first retrofits.
- 2030: Complete 150 Family Care building retrofits, and support electrifying 55 community buildings.

Risk	Mitigation
Over-subscription to program	If excessive building owners apply, the program has built in time to score and prioritize applications with criteria that will be developed based on CPRG and community priorities.
Community building Assessments	Four-county MSA staff expressed concern that owners of non-public community buildings may not have the capacity to address building assessments of funding assessment to electrify community building. As such, the program built in the technical assistance for these building owners.
Cost increases	The budget assumed 3% annual inflation for the installation program. If there are still additional costs, the program has the option for Financing Program staff under Measure #5 to help contribute technical assistance to reduce administrative costs and adjust project funds to ensure deliverables are met.

Measure #3. Embodied Carbon Program

Description: The Embodied Carbon Program will create capital project low embodied carbon requirements for King County government projects County; pursue embodied carbon requirements for private construction in King County and in state building codes; and support industry participation in these efforts to reduce embodied carbon related to construction.

PCAP Relationship: This measure matches the Seattle-Tacoma-Bellevue MSA PCAP measure #9. Embodied Carbon Program.

Selection Reasoning & CPRG Alignment: King County is a leader in sustainable building codes and capital projects. In 2022 King County adopted [code amendments](#) limiting fossil fuels in new commercial and large multifamily buildings, and has required all its capital projects to strive for LEED Platinum since [2014](#). Last year County staff supported state code changes successfully limiting fossil fuels in new

construction, with the new [Washington State Energy Code](#) recognized as a leading national code.¹⁸ Adopting these codes at the county and state level were major efforts that will limit new building operational GHGs, aligned with the County commitment to achieve net-zero new buildings by 2031 ([2020 SCAP](#)). King County can build on these efforts to address an often-overlooked emissions source, by adopting an embodied carbon policy for its capital projects, and pursuing building local and state code amendments to reduce embodied carbon in large commercial and multifamily projects.

Embodied carbon refers to GHGs emitted from materials extraction, manufacturing and transportation. The building industry drives a large portion of GHG emissions associated with materials production; globally the buildings sector contributes to 50% of cement and 30% of steel demand.¹⁹ Cement and steel production is estimated to release up to 15% of global GHG emissions.²⁰ Locally, Washington's industrial sector accounts for 28% of state GHG emissions, with some of the highest energy-consuming industries being cement, forest products, and glass.²¹ Despite this sector's GHG contributions, state law has few regulations on Emissions-Intensive Trade-Exposed (EITE) facilities to reduce their GHG emissions. For example the CCA, reviewed under Section 1.B, provides free emission allowances to EITEs through 2026 equal to their 2015-2019 emissions baseline, with these free allowances reduced by only 3% from 2027 – 2030, and 6% from 2031 – 2040, and potentially onward.²² Although this reduces the potential for industry migration to lower-regulation states, it also means local manufacturers have few incentives to lower their GHGs. However, embodied carbon reduction requirements can reduce construction GHGs and incentivize manufacturers to explore developing lower-emission product lines, reducing industrial GHGs. It is estimated that construction building material GHGs could be reduced by 19% to 46% depending on the material source selected.²³ Embodied carbon requirements are a relatively new policy option. Notably, in 2023 the City of Seattle explored incorporating embodied carbon in building codes but did not achieve consensus on the code language in time for proposed building code amendments. In 2024, Washington state adopted the Buy Clean Buy Fair bill (HB [1282](#)) for state-funded capital projects, a reporting-only bill that requiring Environmental Product Declarations (EPDs) submittals for specific products. Building on recent state and local activity on embodied carbon, this proposal would add local momentum to advance embodied carbon policy and code for public and private construction projects in King County, other local jurisdictions, and in state building codes.

Features: Products and deliverables for this measure will primarily be provided through one Embodied Carbon Program staff person and contracted consultant assistance. Primary targeted policy materials are cement, concrete and steel, possibly wood, as well as gypsum board and other finishes or products as deemed feasible through program research. The staff position will focus first on formalizing an embodied carbon program for King County government capital projects; requiring EPD submissions for identified materials; conducting stakeholder meetings; benchmarking current procurement; setting Global Warming Potential (GWP) limits; then establishing draft and final capital contract procurement policy and building codes. King County, the 12th most populous county in the nation, is the second largest provider of public services in Washington state and has a large capital portfolio that can achieve

¹⁸ Clean Energy Transition Institute (CETI), "Washington Passes Nation-Leading Residential Energy Codes," 2022. [\[LINK\]](#); and, The Columbian, "Washington's updated building codes seen as vital tool...", 2023. [\[LINK\]](#).

¹⁹ United Nations Environment Program (UNEP), "2020 Global Status Report for Buildings...", 2020. [\[LINK\]](#). Page 23.

²⁰ Rempher, Audrey and Victor Olgyay, "Colorado Passes Embodied Carbon Legislation," Rocky Mountain Institute (RMI), July 20, 2021. [\[LINK\]](#); OpenAirCollective, "The New York (A2591/S542) and New Jersey (A5223) Low Embodied Carbon Concrete Leadership Act," last updated August 17, 2021. [\[LINK\]](#); and Swalec, Caitlin and Christine Shearer, "Pedal to the Metal," Global Energy Monitor Report, June 2021. [\[LINK\]](#). Page 3; and Peplow, Mark, "Can industry decarbonize steelmaking?," Chemical & Engineering News (c&en), Volume 99, Issue 22. [\[LINK\]](#).

²¹ Commerce, "Washington 2021 State Energy Strategy," December, 2020. [\[LINK\]](#). Pg 85.

²² WA Legislature, "Final Bill Report E2SSB 5126," Ibid. [\[LINK\]](#). Page 5, 9.

²³ Esau, Rebecca, Matt Jungclaus, Victor Olgyay, and Audrey Rempher, "Reducing Embodied Carbon in Buildings," Rocky Mountain Institute (RMI), July 2021. [\[LINK\]](#).

significant GHG reductions. The staff person will collaborate and support integration of capital project programs among jurisdictions enrolled in the King County Cities Climate Collaboration ([K4C](#)) and among the MSA, acting as a regional resource for embodied carbon programs. The program would also pursue an update to local building codes to incorporate embodied carbon in the commercial code – affecting commercial buildings and multifamily buildings over three stories tall – support code amendments in other jurisdictions, and advocate for embodied carbon reductions in state building codes.

- **Task 1: Hire Staff.** Hire an Embodied Carbon Program Manager.
- **Task 2: Contracting.** Develop RFQs to secure embodied carbon program assistance supporting establishing and executing an embodied carbon management system for King County government and 1-2 additional cities' capital projects, and assistance in integrating embodied carbon requirements in the building code.
- **Task 3: Program Design and Outreach.** Research embodied carbon capital and building code structures. Benchmark current procurement outcomes. Develop outreach plan and collateral. Meet with stakeholders on draft program concepts and revise design per stakeholder feedback.
- **Task 4: Program Activation.** Finalize, publish and support adoption of the capital program structure and building code. Establish sequence of voluntary EPD submittals, mandatory EPD submittals, and then capital projects require products meet GWP limits with gradual projected GWP reductions.
- **Task 5: Maintain.** Revise GWP limits for products and conduct submittal quality checks.

Milestones:

- 2025: Hire Embodied Carbon Program staff; advertise RFQ and execute contract; establish EPD and compliance tracking; initiate voluntary capital project EPD submittal request. Recommend building code at state level (pursue in following code round if not adopted).
- 2026: Outreach launch; benchmark procurement outcomes; publish draft capital project program structure; initiate mandatory capital project EPD submittals; adopt capital program requirements.
- 2027: Require capital projects comply with maximum GWPs for identified products; publish draft building code amendment; State Environmental Policy Act (SEPA) review of code proposal; final review, adoption, and implementation of embodied carbon building code amendment.
- 2028: Issue recommend building code at state level if not adopted in previous code cycle.
- 2030: Embodied carbon reductions from capital projects for at least 3 years and anticipated adoption in state building codes.

Risk	Mitigation
Industry not prepared for embodied carbon regulation	Industry may require support in developing EPDs to comply with program requirements. This program will integrate the option of EPD development support for industry into contract services to mitigate this impact.
Staff support beyond 2030	Maintaining an embodied carbon program after 2030 will require ongoing staff support. In program design the project manager will research funding options, including funding staff from modifying the King County climate cost share program, ²⁴ or shared position support with other jurisdictions.
Cost increases	Preliminary research indicates that GWP limits should have little to no cost impacts for concrete, steel rebar and finish materials. ²⁵ The program will conduct additional research to affirm this indication.

Measure #4. Circular Economy Salvaged Lumber and Reuse (Circular Lumber Program)

Description: The Circular Lumber Program seeks to capture and reuse a majority of the 101,500 tons/yr of unpainted and untreated (clean) wood in building demolition to avoid as much as 290,000 MTCO₂e in

²⁴ King County, "Policy Paper: Strategic Climate Action Plan," September 26, 2016. [\[LINK\]](#). Page 13.

²⁵ Esau, Rebecca, Matt Jungclaus, Victor Olgyay, and Audrey Rempher, "Reducing Embodied Carbon in Buildings," Rocky Mountain Institute (RMI), July 2021. [\[LINK\]](#).

annual GHG emissions. To do this, the Circular Lumber Program will establish 3 distributors, and up to 11 processors and manufacturers; support testing and EPD tool use; and workforce development.

PCAP Relationship: This measure matches the Seattle-Tacoma-Bellevue MSA PCAP measures #10. Circular economy salvaged lumber program.

Selection Reasoning & CPRG Alignment: The Circular Lumber program focuses on waste diversion at the end-of life of buildings by supporting businesses, markets and workforce development centered on reclaiming, processing, and re-purposing salvaged lumber. This reduces GHGs by diverting wood waste-streams away from landfilling and burning as fuel, both of which release significant emissions, and by reducing demand for virgin lumber products (with greater embodied carbon) by increasing supply of, and demand for, salvaged wood products. A [2022 waste characterization](#) study indicated that 61,500 tons/year of clean wood enter King County transfer stations on their way to landfill disposal, while another 40,000 tons flow through private construction and demolition (C&D) facilities to end up as hog fuel at industrial boilers. A [2021 Cascadia Wood Sampling](#) study showed that most of this clean wood could be processed into new building products. Clean wood is considered highly valuable with the potential for repurposing into products such as cross-, dowel-, or glue-laminated timber (CLT/DLT/GLT), finger-jointed salvaged lumber, wood fiber insulation, and engineered wall systems. Were all 101,500 tons of clean wood to enter reuse it would represent a 290,000 MTCO₂e/year savings, per the EPA WARM v16 calculator. A circular wood economy requires materials storage; stable distribution and transportation; a building deconstruction workforce able to harvest usable materials; operators that can receive, process, and refine salvaged wood into usable materials; and stable market values for salvaged wood products for a self-sustaining economic circuit. King County Solid Waste Division (SWD) has been collaborating with partners on developing a salvaged wood circular economy through various measures, including a 2015 [clean wood disposal ban](#), and pioneering state [building code changes](#) to accept reclaimed lumber for structural reuse without regrading (the only other state that currently allows this is Oregon).²⁶ SWD is also tracking a recent state Department of Commerce application to develop a structural wood EPD generator tool, anticipated for 2025 launch. In 2023, partners achieved a large step forward when the City of Seattle was awarded a \$4 million (M) EPA Solid Waste Infrastructure for Recycling (SWIFR) grant to establish the salvaged lumber warehouse (SLW). With the SLW funded, the circular lumber economy requires startup funds to become self-sustaining, with outcomes reducing GHGs and air pollutants, and support workforce development.

Features: The Circular Lumber measure proposes several efforts to build momentum on the above progress, supporting distribution, operator buildout and market development for salvaged lumber:

- Establish 3 distribution sites for salvaged wood, funding supply purchases to existing County-owned properties including purchase of lumber racks, signage and sorting equipment.
- Establish 3 processors with 2-year grants; there are 2 working clean wood processors in the region, with a goal of 5 operational processors total. Funds would help support location expenses such as equipment purchasing (nail guns, planers), and possibly transport vehicles.
- Establish 4-8 manufacturers using salvaged wood products with supporting manufacturer grants, with a focus on minority or women owned business enterprises ([MWBE](#)) and CBOs.
- Support 8 product testing rounds, coordinating protocols with the Pacific Lumber Inspection Bureau and Engineered Wood Association, and technical assistance to generate 20 salvaged wood EPDs.
- Host 3 trainings and establish 2 CBO partnerships for deconstruction workforce development.

Tasks to support these program features would be as follows:

- **Task 1: Hire Staff & Assess.** Hire one Circular Lumber Program Manager. Assess potential salvaged wood distribution sites.

²⁶ Brandt, Lotta, et. Al, "Projected Cross-Laminated Timber Demand and Lumber Supply Analysis," Bio Resources, 2021. [\[LINK\]](#)

- **Task 2: Contracting & Equipment.** Develop RFQs for workforce trainings, CBO partners administration, EPD support, and product testing. Purchase distribution site equipment.
- **Task 3: Program Design and Outreach.** Develop program outreach plan, participant agreement forms. Design workshop or other recruitment materials, and conduct outreach to stakeholders, candidate operators, and community groups to recruit participants. Design criteria for Processor and Manufacturer grant programs.
- **Task 4: Program Activation.** Receive, review and score applications. For those selected to receive grant funding, negotiate scopes of work (SOWs) and execute contracts.
- **Task 5: Maintain.** Repeat future grant rounds; monitor and support grantees in reporting.

Milestones:

- 2025: Hire Circular Lumber Program staff; advertise RFQs and execute contracts. Design grants program. Purchase & install first year of distribution equipment. First EPDs issued. First deconstruction workforce training. Outreach launch for grants programs.
- 2026: Receive grant applications; select grantees; execute first round of grant contracts & projects.
- 2030: Establish 3 distribution sites, 3 processors and 4 – 8 manufacturers; support 8 testing rounds and up to 20 EPDs; 3 workforce development trainings; and 2 CBO workforce partnerships.

Risk	Mitigation
Salvaged lumber warehouse does not receive bids to adapt an existing warehouse site	If the SLW does not receive proposals to adapt an existing site via lease, a warehouse would be scouted, purchased and outfitted, delaying the SLW for 1-2 years into 2026. A few locations have been scouted in south King County that could be suitable. Such actions may necessitate delay of Manufacturer grants, as these would hopefully support locations proximal to the SLW. These funds are concentrated in 2026-2027, allowing for SLW establishment, and providing time to accomplish tasks in future years if needed.
Community awards result in challenges for grantees	The program has also built in 1.8 FTE to assist with grant tracking and deliverables, with the intent that these positions could contribute capacity to help assist CBOs with developing reporting and tracking systems if needed.

Measure #5. Scaling Financing for Building Retrofits (Financing Program)

Description: The Financing Program will help 30 multifamily buildings and 30 small commercial buildings decarbonize by connecting building owners to existing financing options or newly-developed finance tools (e.g. such as from the EPA’s Greenhouse Gas Reduction Fund).

PCAP Relationship: This measure is in the Seattle-Tacoma-Bellevue MSA PCAP as measure #11. Innovative financing program.

Selection Reasoning & CPRG Alignment: As noted in the background section, roughly 165,755 residential units and 4,671 commercial building retrofits need to occur in the four counties by 2030 to keep pace with state GHG reduction targets. Although other proposal measures will fund additional electrification in the region, and some households and building owners will finance zero net retrofits on their own, support is needed at scale. Financing options are inadequate in the commercial sector; one survey showed 39% of executives saying that access to capital has been a significant barrier in implementing decarbonization plans, and that only 1 in 4 executives reported their organizations as using available financing structures for commercial scale decarbonization.²⁷ Commercial Property Assessed Clean Energy and Resilience (C-PACER) programs across the region are new and the multifamily and commercial building sectors have low awareness of their offerings. Additionally, smaller buildings face barriers to using C-PACER as lenders prefer large project for greater returns and lower transaction

²⁷ Ameresco, “2030 is approaching: Survey reveals that innovative financing could fast track decarbonization plans,” ESGDive, November 6, 2023. [\[LINK\]](#).

costs, while local lenders and small businesses lack capacity and expertise to navigate the programs.²⁸ The EPA’s National Clean Investment Fund (NCIF) and Clean Communities Investment Accelerator (CCIA) will deploy accessible, affordable financing across the country and this program can support early uptake in those offerings. These gaps indicate a need for added capacity to advance equitable financing and help achieve independent building decarbonization.

Features: Measure products and deliverables will be provided by a Financing Program staff person, who will develop a program to: raise awareness of new and emerging financing options among small and medium size building owners; build capacity among local lenders to participate in CPACER programs or NCIF/CCIA offerings; provide support for individual building owners to increase uptake of existing financing programs such as C-PACER; and explore development of additional financing options to accelerate private commercial and residential building decarbonization (e.g. include interest rate buy down programs; consolidated private financing of lease-to-own electric appliance programs with on-bill repayment; local GHG offset programs; and funding options to decarbonize food service, with natural gas use intensity typically four times the commercial building average nationally).²⁹

- **Task 1: Hire Staff.** Hire a Building Retrofit Financing Program Manager.
- **Task 2: Program Research, Design and Outreach.** Research new policy or program options. Meet with stakeholders on draft policy or program concepts; revise policy or program design per stakeholder feedback. Finalize new financing program offerings. Develop program outreach plan, and outreach collateral. Implement outreach to recruit candidate building owners.
- **Task 3: Program Activation.** Identify building owners and projects for targeted collaboration. Support owners in utilizing existing and newly developed financing tools to conduct decarbonization projects by supporting meetings with financing entities, utilities, and building evaluation services. Technical analysis of financial applications. Support owners through project financing completion.
- **Task 4: Maintain.** Repeat to secure additional building retrofits.

Milestones:

- 2025: Hire program manager; New financing program design complete.
- 2026: Outreach launch; select candidates for targeted support; secure candidates for financing use.
- 2027: First projects completed from existing tool support or using new financial tools.
- 2030: 30 multifamily buildings and 30 community and commercial buildings have achieved decarbonization using financing program tools and services.

Risk	Mitigation
Additional staff or skills are needed to establish new financing products identified in research process.	Integrating promotion of existing tools such as C-PACER provides the option to expand outreach for existing tools for private sector decarbonization. If additional financing tools are identified that exceed staff capacity, it provides an option for that staff to research the program costs. The MSA could pursue alternative funding streams for newly identified products, while still fully deploying existing products to achieve targeted private projects.

b. Demonstration of Funding Need

This section reviews broad and measure-specific funding constraints. Like many Washington counties, King County revenues will be restricted in the coming biennium. By voter initiative in 2001, levied county property taxes can increase by only 1% per year, resulting is a “structural gap” restricting county revenue growth to a slower rate than inflation. As a result, the General Fund is projected to be out of balance by \$80M to \$100M for 2025-2026. Counties across Washington face the same issues – which makes securing county funds for new climate initiatives and staff unlikely.³⁰ An additional challenge is

²⁸ National Association of State Energy Officials (NASEO), “Improving Access to C-Pace for Smaller Businesses,” 2021. [\[LINK\]](#).

²⁹ EIA, “2018 CBECS Principal Buildings Activities: Food Service.” [\[LINK\]](#).

³⁰ King County, “Understanding the County Budget.” [\[LINK\]](#).

there are not typically large bodies of grant funds available for these types of proposed measures save for the recent, one-time influx of IRA funds. Specific Measure funding needs are reviewed below.

Measures #1 Multifamily and #2 Community Programs

Prior to pursuing this proposal, building decarbonization needs and available funding were assessed in MSA [PCAP](#). As noted in Section 1.a Background, federal IRA and state rebate funds are projected to only meet 11.8% of the MSA residential decarbonization need. This is based available fund sources review (summarized below) that project a gap in the MSA of 165,755 residential and 4,671 commercial building zero net carbon retrofits needed from 2025 to 2030 to keep pace with state GHG reduction goals.

Federal Inflation Reduction Act (IRA): will provide \$132.7M³¹ for electrification rebates in Washington for an anticipated total of 28,663 IRA rebates per the below. Roughly \$64.2M are for low-income households, and \$62M is in the “maximum open electrification fund,” each split almost evenly to HOMES and HEEHRA rebates. Rebates numbers can be estimated based on projected rebate amounts.

- This proposal assumed maximum low-income HOMES/HEEHRA rebates of \$8,000/\$14,000, and minimum low-income rebates of \$4,000/11,250.³² Assuming 20% of homes achieve the maximum and 80% achieve the minimum rebate, this yields 10,490 low-income rebates from the \$64.2M.
- For “maximum open electrification” HOMES/HEEHRA funds (i.e., not restricted to low-income), this proposal assumed maximum HOMES/HEEHRA rebates of \$4,000/\$14,000, and minimum rebates of \$2,000/ \$8,795.³³ Assuming 20% of homes achieve the maximum and 80% of homes achieve the minimum rebate, this yields 18,173 “open electrification fund” rebates.
- Adding 10,490 low-income rebates and 18,173 open electrification rebates = 28,663 IRA rebates.

Climate Commitment Act (CCA): instituted a large-scale GHG emitter market-based cap and invest system. CCA has resulted in two main building decarbonization investments: \$77.6M for residential and small business electrification; and \$54M for subsidized affordable multifamily electrification.³⁴

- This proposal conservatively assumes that 100% of CCA electrification funding goes to the residential sector with a similar distribution pattern as IRA low-income HEEHRA rebates.³⁵ For the \$80M electrification appropriation and the \$50M projected multifamily allocation, this yields 8,420 and 5,262 CCA rebates, respectively – or 13,682 total.

Weatherization: The state appropriated \$35M for low-income housing weatherization in FY 2023 – 2024.³⁶ Similar 2025 – 2030 appropriations would mean \$87.5M in weatherization funding. However, 57% of Washington homes are electrically heated per Census 5-year ACS data; weatherizing these households would not substantially reduce onsite fossil fuel use. Assuming weatherization occurs

³¹ Assumes the state will use, and hence subtracts, the 20% administration cap from the total \$166M WA state allocation.

³² HEEHRA combines a \$8,000 heat pump rebate, \$1,750 HPWH rebate to approximate a net zero carbon outcome; and a \$1,500 electric panel upgrade, assuming older housing stock; for rebate options see DOE, “Inflation Reduction Act Home Energy Rebates,” Version 1.1, October 13, 2023. [\[LINK\]](#). Pg 11, 51 (PDF Pg 18, 56)

³³ HEEHRA covers half the cost of an installation, up to a cap, for moderate income homes. The HEEHRA estimate includes \$1,750, the full rebate allowed for a HPWH, which typically cost \$4,000; \$750, covering 50% of an electric panel upgrade; and \$6,295, covering 50% of a ductless heat pump (DHP) install cost of \$12,695. For retrofit cost estimates, see Opinion Dynamics, “California Heat Pump Residential Market Characterization and Baseline Study,” for the California Public Utilities Commission, 2022. [\[LINK\]](#). Pg 8, 9. Also, DHP costs adjusted for inflation using a Jan. 2022 baseline, as data was presumably sourced from before 2022, to a December 2023 cost using the U.S. Bureau of Statistics Consumer Price Index (CPI) Inflation Calculator. [\[LINK\]](#).

³⁴ The \$54M investment in affordable multifamily projects is subject to voters upholding the CCA in the November election.

³⁵ Namely, a max./min. rebate of \$14,000 /\$11,250 with 20%/80% of homes achieve the max./min. rebates. This proposal assumes the state will allocate CCA funds similar to HEEHRA to reduce administrative burden, as HEEHRA rebates do not require energy modeling (unlike HOMES).

³⁶ Connolly, Chris, “2023 Washington Legislative...,” NWECC, [ibid.](#) [\[LINK\]](#). In line with projected request per Commerce, “Weatherization Plus Health 2022 report” [\[LINK\]](#). Pg 11 (PDF 13).

proportionate to the state fuel mix, applying the non-electrically heated homes ratio (43%) to \$87.5M means that \$37.5M could contribute to zero net carbon retrofits of fossil fuel households in 2025-2030.

- The typical per-household weatherization cost would fall below the discussed maximum rebates thus far, as it would only fund weatherization (not fuel-switching or electrification). However, weatherization funds could functionally displace IRA and CCA rebates, increasing the funding available for electrification by a proportionate ratio. As such, assuming similar allocations as CCA funds and IRA HEEHRA rebates means the \$37.5M weatherization funds would yield 3,964 rebates.³⁷

In addition to evaluating current funding streams, several jurisdictions in the MSA have been pursuing building electrification program funding where available, though most programs to date have focused on single-family heat pump installations. This has provided staff with the necessary experience to establish building electrification programs, but not sufficient budget or breadth to secure transformative impacts in the region. Applied for, awarded and unawarded funds to date are as follows:

King County: Secured decarbonization funds so far have been for single-family homes, namely \$1.95M King County capital bond funds, and \$1.2M from a Washington State University Community Energy Efficiency Program (CEEP) grant, to install heat pumps in LIDACS. The 2023-25 CEEP statewide budget is \$5M and,³⁸ while it will support electrification if awards continue, will not be at a level sufficient to support transformative impacts. King County has also applied for but not received two other funding sources to support single family heat pump installations, namely a one-time state grant for \$650,000, and a Federal DOE Buildings Up Prize of \$400,000.

Local Government Partners: Have funded small-scale single-family home electrification pilots or programs, including Seattle's Clean Heat program and the Energy Smart Eastside (ESE) program. The ESE program secured a one-time \$1M grant from the State to install heat pumps in the cities of Bellevue, Issaquah, Kirkland, Mercer Island and Redmond. Several jurisdictions have dedicated one-time EECBG formula grants to municipal building projects (Bellevue \$204,000 and Seattle \$681,000) or advancing building electrification awareness (Tacoma \$246,000 and King County \$475,000).

Aside from financial constraints, this proposal represents urgent funding needs due in part to critical health, safety and equity interventions. Proposal Measures #1 and #2 were selected in part for their potential to provide cooling services for LIDACs and vulnerable populations. Currently, 53% of homes have air conditioning in Washington, below the 67% U.S. average, with even lower percentages for low-income homes and rentals – homes with typically higher proportions of vulnerable community members.³⁹ The lack of cooling poses a health risk for at-risk populations in the face of growing climate impacts. The 2021 Pacific Northwest heat wave caused 1,000 heat-related emergency room and in-patient admissions just in the City of Seattle (3,500 in DHHS Region 10), and over 160 confirmed deaths in Washington and Oregon state,⁴⁰ including at least 6 deaths in long term care facilities for seniors. In addition to funds reviewed above, \$5M was allocated in the 2023 capital budget to fund AFH heat pumps partially in response to the 2021 heat dome deaths. While useful, these funds fall short of local need; assuming a heat pump cost of \$25,000/home for central systems would equate to 200 installs statewide, of which 69% or 139 retrofits could likely occur in the MSA (4.3% of the 3,240 AFHs in MSA).

³⁷ Max./min. rebates of \$14,000/\$11,250 rebate; 20% of homes achieving the max. and 80% of homes achieving the min. rebate
³⁸ WA House of Representatives, "Proposed 2023-25 Biennial & 2023 Supplemental Budget." [\[LINK\]](#). Pg 7.

³⁹ EIA, "Highlights for air conditioning in U.S. homes by state, 2020," March 2023. [\[LINK\]](#). Pg. 2.

⁴⁰ Wettstein, Zachary, et. Al, "Impacts of the 2021 heat dome on emergency department visits, hospitalizations, and health system operations in three hospitals in Seattle, Washington," Journal of the American College of Emergency Physicians Open, February 2024. [\[LINK\]](#). Section 3.1; and Wittenberg, Ariel, "Deadly Heat Wave's Lesson," Climate Wite, June 23, 2022. [\[LINK\]](#).

Measure #3 Embodied Carbon. Reducing embodied carbon associated with construction materials is an emergent opportunity that lacks sufficient existing funding. King County has been advancing this work as resources allow: for example, King County’s Strategic Climate Action Plan ([SCAP](#)) established capital project goals for embodied carbon, including requesting/requiring concrete EPDs in 2022/2023, and setting maximum concrete GWPs in 2024. While some projects have requested or required EPDs and set GWP limits, no organization-wide policies have been established due to lack of resources and staff capacity; no ongoing, dedicated County staff are available to do this work. State and federal resources to support local governments in reducing embodied carbon have also been limited. For example, local jurisdictions were not an eligible applicant to apply for the EPA [grant](#) supporting EPD-development. While King County leadership is pursuing means to support this work, local embodied carbon policy will stall without additional resources, making this proposal an important catalyst for this work.

Measure #4 Circular Lumber. King County C&D fees support development of a local circular wood economy , but these funds are limited and cannot scale initial efforts; the King County SWD C&D program has an operating budget of approximately \$1M per year for all programs. The Re+ Circular Economy initiative has broadly issued grants of \$429,000 in 2023-2024, some of which supported circular lumber, and invested \$56,000 in a 2023 SWD Deconstruction Training, both of which have been sustained with King County funds. In 2023 King County applied for an EPA SWIFR grant of \$4M, including \$3.2M towards SLW acquisition; \$0.65M for collection and distribution contracts; and EPD development. This proposal was submitted in coordination with Seattle Public Utilities (SPU), with the intent that if both applications were awarded, it would fund operational expansion. While the SWD application was not awarded, the Seattle SWIFR grant secured \$4 million in EPA funding for the SLW. This a key component for circular lumber economy, however there are multiple vital components to a successful circular economy, including operational support, material processing, business development, and adding market value to salvaged lumber. Additional capital is needed to establish public/private partnerships supporting these features.

Measure #5. Financing Program. This program will help the four-county region build successful and equitable CPACER programs, take advantage of emerging financing opportunities from the EPA’s NCIF and CCIA programs, and explore new, innovative financing options to scale climate work. Newly established CPACER programs in King, Snohomish, and Pierce Counties are in the early stages of building general awareness of CPACER as a tool in the region and do not have staff capacity to ensure that C-PACE financing is available for small-to-medium sized projects and businesses due to the general fund challenges outlined above. According to a report by the National Association of State Energy Officials (NASEO), “common barriers impeding the ability of small businesses to utilize C-PACE financing include a relative lack of financial expertise about how the C-PACE financing process works” as well low understanding of C-PACE processes among mortgage holders, local lenders, and contractors.⁴¹

c. Transformative Impact

These measures were selected for their potential for transformative impacts in the building sector: to bring replicable, scalable programs to two hard to decarbonize subsectors of the built environment; to pioneer inclusion of embodied carbon requirements in codes that can be replicated across the country; and to demonstrate creative ways building material reuse programs can reduce emissions and waste.

Measure #1 Multifamily Program: Most local electrification programs have focused on single family homes. When pursued, multifamily projects have focused on subsidized housing with electric heating sources. This new, scalable model focuses on multifamily buildings under a single program administrator with electrification and weatherization subcontracts to streamline deliverables. Additionally, based on

⁴¹ NASEO, “Improving Access to C-Pace for Smaller Businesses,” 2021 [\[LINK\]](#). Pg 3.

community feedback, the program targets NOAHs with built-in support for income verification, advancing reductions in a sector where GHG reductions are typically harder to achieve. These efforts build on local electrification program experience, while advancing a new replicable regional approach with the potential for easier administration, a fossil fuel focus, and deeper equity outputs. The broad geography and partnerships increase the potential for widespread adoption of this new program model.

Measure #2 Community Program: Directing focus to commercial structures similar to single family homes with care provider services is a new local approach that could build on existing electrification programs, but with outcomes that improve homes with higher occupancies and vulnerable populations. The ownership of these businesses by individuals that are, themselves, often from or serving LIDACs increases the chances of deeper equity outcomes. This program could significantly change regional home care and is scalable to other regions. Combining the 3,240 AFHs and 2,130 FCCs yields 5,370 care homes; the 150 retrofits in this proposal combined with anticipated AHF state funds reviewed in Section 1.b yields 289 care homes retrofits, which means the program could retrofit 5% of care homes in the MSA. This achievement would spur excitement locally, potentially attracting additional funding for future GHG reductions. Similarly, community electrification projects have the potential to provide additional cooling in existing community gathering places, an emerging approach for cooling centers or neighborhood resilience hubs that could attract an additional infusion of GHG reduction funding with better equity outcomes overall.

Measure #3 Embodied Carbon Program: Embodied carbon policies are still new and have typically been implemented in public capital projects by states, including Colorado, New York, and Oregon, or in local government capital programs such as the Port Authority of New York and New Jersey, Portland, and Sound Transit in Washington state.⁴² Two outliers are California which, in August 2023, adopted embodied carbon requirements for commercial buildings over 100,000 sf,⁴³ and Marin County, which has requirements for concrete that apply to both private and public development projects.⁴⁴ As reviewed in Section 1.a, the Buy Clean Buy Fair [bill](#) advances state capital project policy, but currently only requires reporting. In 2023, the City of Seattle explored but did not adopt embodied carbon building code amendments, demonstrating that there is growing policy interest, but that more support is needed. This proposal could have ripple effects in local and state policy, build momentum on embodied carbon in building codes, and transform material markets to accelerate GHG reductions across the supply chain – from raw material sourcing to industrial manufacturing to improved recycled material markets. It will support the development of innovative materials and processes, while incentivizing suppliers and the building market to reduce their manufacturing GHGs.

Measure #4 Circular Lumber Program: This proposal provides an important second step to expand on the funded SLW by catalyzing the growth of salvage reuse businesses. Surveys of regional deconstruction and wood salvage businesses in Seattle and Portland have stated they struggle to find affordable, urban locations to run or grow their businesses. King County is similarly in discussions with CBOs under tenuous leases, supporting growing salvage-reuse programs for tiny homes and transitional housing for non-housed individuals. Supporting development of these and other salvaged wood programs and businesses will enable potential cost-saving from co-location or shared support contracts (hauling, shared forklift staff), while product testing and certification will improve product incomes. This measure will help shift the regional value of salvaged wood from \$20/ton (current wood fuel price at a

⁴² Lewis, Meghan, et al., “Implementing Buy Clean,” Carbon Leadership Forum, 2022. [\[LINK\]](#). Pages 4,7; also, Dyl, Shelby, “Los Angeles Continues its Push to Find Carbon-Neutral Ground,” JD Supra, February 24, 2020. [\[LINK\]](#).

⁴³ Roche, Daniel, “California Becomes the First State to Tackle Embodied Carbon...,” the Architect’s Newspaper, 2023. [\[LINK\]](#).

⁴⁴ Marin County Code Chapter 19.07, “Low Carbon Concrete Requirements,” [\[LINK\]](#)

paper mill) toward \$1,000/ton, the [current price](#) of wood fiber insulation. This shift would have ripple effects in local job creation, spurring growth of wood salvage with dramatic GHG reductions.

Measure #5 Financing Program: As noted in Section 1.a, existing financing structures are currently not sufficient to support private decarbonization efforts for many Washingtonians. Roughly 28% of Washington households do not have incomes to meet the minimum cost of living in Washington state and likely cannot assume additional debt payments, and it is estimated that most commercial owners do not have access to sufficient capital or capital programs to decarbonize. There are known potential solutions that could fundamentally shift GHG reduction outcomes if only supported by additional staff capacity, such as multifamily forgivable loans, on-bill repayment, or a small-scale CPACER. By researching, activating and providing outreach on these opportunities, staff would unlock capital in private markets, accelerating the replacement fossil-fueled appliances with GHG-reducing technologies.

Section 2. Impact of GHG Reduction Measures

Table 3 addresses guidance sections 2a, 2b, and 2c, representing the total GHG impact these measures will have in the near and long term; refer to the GHG Appendix for 2d GHG reduction assumptions.

Table 3. Impact of GHG Reduction Measures				
Measure	Cumulative MTCO ₂ e GHG Reductions		Cost <i>Incorporates Measure Proportion of Admin</i>	Cost Effectiveness (\$/MTCO ₂ e)
	2025 – 2030	2025 – 2050		2025-2030
#1 Multifamily Program	7,592	37,663	\$19,889,700	\$2,520.28
#2 Community Program	6,957	43,408	\$24,356,264	\$3,367.95
#3 Embodied Carbon Program	59,213	90,355	\$1,307,509	\$21.24
#4 Circular Lumber Program	25,005	161,394	\$3,560,303	\$136.97
#5 Financing Program	2,758	2,758	\$886,198	\$309.11
Total	101,525	335,578	\$49,999,975	\$492.49/MTCO₂e

As shown in Table 3, the total cost-effectiveness of the GHG emissions reductions across all five measures included in this application is \$492.49/MTCO₂e.

Section 3. Environmental Results – Outputs, Outcomes, and Performance Measures

a. Expected Outputs and Outcomes

Onsite natural gas combustion releases, “nitrogen oxides (NO_x), carbon monoxide (CO), and carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), volatile organic compounds (VOCs), trace amounts of sulfur dioxide (SO₂), and particulate matter (PM).”⁴⁵ Additionally, “NO₂ along with other NO_x reacts with other chemicals in the air to form both particulate matter and ozone.”⁴⁶ Lastly, although VOCs are not outright listed on the EPA HAP list, several potential types of VOCs – such as formaldehyde, toluene and methyl chloride – are listed as HAPs.⁴⁷ As such the following Outputs and Outcomes are anticipated:

#1. Multifamily Electrification and Efficiency Program

Outputs: 1 Multifamily Program staff person hired. 50 NOAH buildings retrofitted, or between 500-750 residential units. 300 HPWHs installed. 130 buildings benchmarked. 25 multifamily buildings retrofitted through external funding. 52 persons complete workforce training (with more under #2).

Outcomes: 7,592 MTCO₂e reduced from 2025 through 2030, and 37,663 MTCO₂e reduced 2025 through 2050. Increased staff capacity to implement building decarbonization measures. Reduced CAP outputs of ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. Reduced

⁴⁵ US EPA, “AP 42, Fifth Edition, Vol. 1 Ch 1: External Combustion Sources, 1.4 Final Selection –Supplement D,” July 1998. [\[LINK\]](#).

⁴⁶ U.S. EPA, “Basic Information about NO₂,” last updated July 25, 2023. [\[LINK\]](#).

⁴⁷ See US EPA, “Technical Overview of Volatile Organic Compounds,” last updated March 5, 2024. [\[LINK\]](#); and US EPA, “Initial List of Hazardous Air Pollutants with Modifications,” last updated December 7, 2023. [\[LINK\]](#)

potential HAP outputs through reduced VOCs. Reduced energy bills for residents in LIDACs (by number of buildings, units, and residents). Increased resilience to climate change impacts as measured by the number of buildings and occupants that receive added cooling through heat pumps and/or improved weatherization.

#2. Community Electrification and Efficiency Program

Outputs: 1 Community Electrification Program staff person hired. 150 Family Care Centers and Adult Family Homes retrofitted. 55 community building retrofits. 63 persons complete workforce training (with more under #1)

Outcomes: 6,957 MTCO₂e reduced from 2025 through 2030, and 43,408 MTCO₂e reduced 2025 through 2050. Increased staff capacity to implement building decarbonization measures. Reduced CAP outputs of ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. Reduced potential HAP outputs through reduced VOCs. Reduced energy bills for businesses in LIDACs (by building number, unit number, and number of residents and/or typical occupants). Increased resilience to climate change impacts as measured by the number of buildings and occupants that receive added cooling through heat pumps and/or improved weatherization.

#3 Embodied Carbon Program

Outputs: 1 Embodied Carbon Program staff person hired. Low embodied carbon policy requirement for capital projects in King County. Local low embodied building code amendment adopted in King County. Low embodied building code amendment adopted at the state.

Outcomes: 59,213 MTCO₂e reduced from 2025 through 2030, and 90,355 MTCO₂e through 2050. Increased staff capacity to implement embodied carbon measures. Reduced exposure to CAPS and HAPS near manufacturers of construction materials and supplies. Reduced industrial sector energy demand.

#4 Circular Economy Salvaged Lumber Program

Outputs: 1 Circular Lumber Program staff person hired. 3 Distribution sites retrofitted. 3 processors and 4-8 manufacturers established, relocated, or expanded to produce salvaged wood products. 8 testing rounds completed of salvaged wood products. 20 EPDs completed of salvaged wood products. 3 Deconstruction Workforce trainings with 35-45 training certifications issued. 2 CBO workforce partnerships that help train 5 – 8 deconstruction crews (30 – 50 persons total).

Outcomes: 25,005 MTCO₂e reduced from 2025 through 2030, and 161,394 MTCO₂e through 2050. Increased staff capacity to implement circular lumber GHG reduction measures. Reduced CAP outputs of particulate matter (PM 2.5) and lead. Reduced HAP outputs through reduced VOCs. Reduced unpainted and untreated lumber landfilled. Reduced unpainted and untreated lumber incinerated as a fuel. Reduced virgin lumber harvested. Increases in labor hours and wages. New businesses and jobs created.

#5 Financing Program

Outputs: Building Retrofit Financing Program Manager hired. 30 multifamily buildings retrofitted through external funding sources via technical assistance. 30 community and/or commercial buildings retrofitted through external funding sources via technical assistance. 1-3 new financing programs, or expansion of existing financial option to new geographies or building sectors.

Outcomes: 2,758 MTCO₂e tons reduced from 2025 through 2030, and the same through 2050. Increased staff capacity to implement circular lumber GHG reduction measures. Reduced CAP outputs of ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. Reduced potential HAP outputs through reduced VOCs. Reduced energy bills for residents or businesses in LIDACs. Increased resilience to climate change impacts as measured by the number of buildings that receive added cooling through heat pumps and/or improved weatherization.

Administration. King County CPRG program administration yields additional outputs and outcomes.

Outputs: 1.8 staff persons to coordinate measures and ensuring grant requirements are met. 12 community meetings on CPRG program designs and criteria.

Outcomes: Increased staff capacity to support CPRG deliverables and coordination. Enhanced level of community engagement. 50 high-quality jobs created throughout the 4 county MSA.

b. Performance Measures and Plan

Grant measures and progress will be tracked through contract management, intentional project design and dedicated staffing. These facets support coordination and monitoring subrecipients, contractors and vendors; project progress and expenditures; as well as clear documentation and communication of accomplishments, timelines, and milestones for reporting.

Output tracking will be achieved through contracting and staff time. Standard contract management monitors expenditures and outcomes by task, requiring progress reporting on contract deliverables with each invoice. Invoices and reporting are reviewed by two persons prior to execution for payment. Save for the Financing Program, all measures have at least one contractor helping advance deliverables, and will support tracking outputs such as building retrofits, benchmark reports, and HPWH installs. This monitoring is also used in grantee management, and would be applied in community building retrofits (measure #2) and progress of awardees from circular lumber grants (measure #4). Staff for each measure will manage and track contractor progress, as well as programmatic elements independent of contractor action, such as embodied carbon code progress (measure #3), new financing program development (measure #5), and ongoing community engagement in program administration.

Outcome tracking will be achieved through intentional program design and staff management. Measure #1 and #2 participation agreements will request energy bill access to support tracking bill cost and fuel use reductions. King County will also work with the Puget Sound Clean Air Agency (PSCAA) to develop GHG, CAP and HAP emission reduction factors by fuel; in lieu of bill access, staff will develop default emissions by outcome unit (per residential unit weatherization or fossil fuel appliance replacement). For Measure #3 embodied carbon, PSCAA emission factors would also be used with EPD submittals and estimated fuel reductions to estimate reduced GHGs, reduced industrial sector energy, and reduced CAPS and HAPS exposure near material manufacturers. Additionally, MSA manufacturers will be identified through assessor data, to inventory local material use in projects. For measure #4 circular lumber, some tools will be used to provide outcomes – specifically, the EPA [WARM](#) tool would be used to estimate GHG reductions, labor hours and wages generated from actual lumber tonnage reductions, and the [Green Halo](#) reporting system to track deconstruction activity and lead-paint lumber reductions.

Staff managers of the individual Measures will track and report on accomplishments, timelines, and milestone progress by measure, reporting on progress to grant coordination staff. The proposal includes 1.8 FTE to ensure grant invoicing, reporting, and contractual obligations are met.

c. Authorities, Implementation Timeline, and Milestones

King County is the proposal applicant and will be responsible for implementing all measures, including contractor procurement. While contractors will be responsible for executing their scopes of work (SOWs), King County will be responsible for contractor payment, management and oversight and tracking that SOWs are completed satisfactorily. For workforce development in King County, stipends and trainings will be paid by the County. For workforce development in Kitsap, Pierce and Snohomish counties, King County is proposing to contract with Climate Careers Coalition (C3) for implementation and stipend issuance. No funding is proposed to flow to other jurisdictions for execution.

King County has authority to implement all measures in this proposal primarily from two sources, namely support to the poor and infirm, and exercising a fundamental purpose of government, both of which relate to constitutional gifting restrictions. Washington Constitution Article VIII, Section 7, prohibits the gift of public funds except for the necessary support of the poor and infirm; multiple measures in this proposal are authorized by this clause. Expenditures that fall outside of Article VIII,

Section 7's exception are not considered a gift of public funds if such expenditures carry out a fundamental governmental purpose.⁴⁸ GHG reduction programming is a fundamental government purpose both as an exercise of police power, and by itself. The exercise of police power, provided in State Constitution Article XI, Section 11, is broadly construed by the State Supreme Court to include preservation of the public welfare, an inherent outcome of GHG mitigation and adaptation.⁴⁹ Additionally, the Supreme Court held that "combating global warming is a general government purpose, albeit a meritorious one," and that mitigating the effects of GHG emissions must therefore "be borne by general taxpayers..."⁵⁰ Similarly, the state Attorney General's Office has relied on legislative findings in concluding that mitigating climate change is within the general authority of local governments.⁵¹

It is worth noting additional authority for Measure #4, Embodied Carbon Program, namely amending the local building code to add embodied carbon requirements for commercial buildings, and multifamily buildings over three stories (i.e., the commercial code). Revised Code of Washington (RCW) 19.27.060 states that counties may amend the building codes as they apply within their respective jurisdictions, so long as the amendments do not result in a code that is less than the state's minimum performance standards.⁵² RCW 19.27.060 also states that, with few exceptions, local building code amendments may not affect single-family or multifamily residential units.⁵³ However, the chapter definition of multifamily is "common wall residential buildings that consist of four **or fewer** units..."⁵⁴ Code amendment authority is retained as proposed amendments to the local building code focus on commercial buildings and multifamily buildings outside the RCW 19.27.015 definition. However, local jurisdictions may pursue embodied carbon requirements in the residential code at the state level, as the state has the authority to amend residential building codes, which is also one of the tasks of proposed Embodied Carbon staff.

Table 4. Timeline Gantt Chart

Tasks	Programs	2024	2025				2026				2027		2028	2029
		Quarters 4	1	2	3	4	1	2	3	4	1	2+		
Hire Staff	Program Admin & All Measures													
Procure Contractors <i>Does not apply to #5 Financing</i>	#1 Multifamily Program													
	#2 Community Program													
	#3 Embodied Carbon Program													
	#4 Circular Lumber Program													
Program Design & Outreach	#1 Multifamily Program													
	#2 Community Program													
	#3 Embodied Carbon Program													
	#4 Circular Lumber Program													
	#5 Financing Program													
Program Activation	#1 Multifamily Program													
	#2 Community Program													
	#3 Embodied Carbon Program													
	#4 Circular Lumber Program													
	#5 Financing Program													

⁴⁸ See *CLEAN v. State*, 130 Wn.2d 782, 797, 928 P.2d 1054 (1996); and *City of Tacoma v. Taxpayers of City of Tacoma*, 108 Wn.2d 679, 702, 743 P.2d 793 (1987).

⁴⁹ See Washington State Constitution, Art. XI, § 11. [\[LINK\]](#). Also, *Hudson*, 94 Wn. App. at 995-96.

⁵⁰ *Okeson v. City of Seattle*, 159 Wn.2d 436, 439, 445, 448-52, 150 P.3d 556 (2007).

⁵¹ 2008 Op. Att'y Gen. No. 6, 2008 WL 1847185, at *1-3.

⁵² RCW 19.27.060. [\[LINK\]](#).

⁵³ RCW 19.27.060. [\[LINK\]](#).

⁵⁴ Emphasis added. RCW 19.27.015. [\[LINK\]](#). 3/14/24.

- Measure #1 Multifamily buildings will all be affordable housing, and Family Care retrofits under Measure #2 Community Program will target either low-income homes, or homes where 50% of those receiving services are low-income. These programs would benefit communities at higher-than-average risk for experiencing climate-impacts, and that often experience disproportionate negative health outcomes associated with environmental exposure. Specific benefits include improved home energy efficiency; reduced air pollution (GHGs, CAPs); improved indoor air quality; reduced energy and utility burden on cost-burdened communities; increased climate resilience for LIDAC and vulnerable populations during climate emergencies including heat waves (cooling) and wildfire smoke (air filtration); and increased number of jobs, job access and skills development.⁵⁵ Potential program disbenefits were discussed, and mitigations integrated, per the below:
 - Building improvements can cause building owners to seek increase rents, leading to increased evictions or displacement. This program will provide rent protection to mitigate.⁵⁶
 - Converting gas to electric appliances can sometimes lead to tenant bill increases due to different electric and gas rates and, for multifamily tenants, conversion of bills borne by the building owner (gas usage) to the tenant (electrical usage). All retrofit projects will model bill impacts, and ensure proposed improvements achieve neutral (or positive) bill impacts. For multifamily buildings, solar may sometimes be needed to offset bill impacts. For such cases, the program will pursue state solar funds such that CPRG funds will not be expended on solar installations.
- Measure #2 Community grants would provide opportunities for additional cooling centers during climate emergencies and health hazards. Such grants would provide essentially the same benefits as those listed above, though in these cases the provision of cooling would be accessible to the larger community, with bill reductions for community service providers.
- Measure #5 Financing Program, which would help both multifamily and community building owners find funding solutions for retrofits, would provide the same benefits as the above sections. Mitigating Disbenefits: Technical analysis for items under Measure #2 and #5 above would also ensure that there are no negative bill impacts associated with electrification.
- Measure #3 Embodied Carbon could reduce air pollution (GHGs and CAPs), notably reducing exposure to CAPs and HAPS near manufacturers of construction materials and supplies.
- Measure #4 Circular Lumber would reduce air pollution (GHGs, CAPs and HAPS), support business creation or expansion, increase the number of jobs, job access and skills development in LIDACs. King County is also in discussion with CBOs under tenuous leases that support salvage-reuse programs for tiny homes and transitional housing for non-housed individuals. As such, this program measure could also support housing affordability and non-housed individuals in LIDACs.

The above benefits are captured in the Outcomes listed in Section 3.a. The plan to assess, quantify, and report a quantitative analysis of associated community benefits, including co-pollutant (CAP and HAP) emission reductions, is outlined in Section 3.b. The primary mechanisms for data tracking are vendor and grantee billing and progress reports, intentional program design, and staff oversight. Additional benefits may be identified through ongoing community engagement efforts, detailed below.

b. Community Engagement

A wide range of potential proposal measures were initially developed through a scan of existing climate plans, equity strategies and resources from King, Pierce, Kitsap, and Snohomish counties, many of which

⁵⁵ See Casola, Joe, et. al, "An Unfair Share: Exploring the Disproportionate Risks from Climate Change Facing Washington State Communities," University of Washington (UW) Climate impacts Group, UW Department of Environmental and Occupational Health Sciences, Front and Centered, 2018. [\[LINK\]](#). Also, FEMA, "A Whole Community Approach to Emergency Management," FDOC 104-008-1, December 2011. [\[LINK\]](#); and Puget Sound Sage, "Powering the Transition: Community Priorities for a Renewable and Equitable Future," June 2020. [\[LINK\]](#).

⁵⁶ Palmeira, Monica, "Bluelining: Climate Financial Discrimination on the Horizon," The Greenlining Institute, 2023. [\[LINK\]](#).

were developed in partnership with frontline communities.⁵⁷ This review identified themes that shaped proposed application measures, including health equity; community capacity; climate resilience; community-driven policymaking; housing security; anti-displacement; energy justice; and green jobs. Based on this review, preliminary measures were identified with jurisdiction staff, identifying features to maximize benefits and LIDAC participation, and minimize disbenefits, and then reviewed in individual meetings with jurisdictions, nonprofits and CBOs. This process culminated in a Buildings & Climate Resilience Funding workshop for community members and CBOs from frontline communities to review and garner feedback on proposed measures. Over 25 community members attended and were provided a \$150 stipend, recognizing the value of their contributed time. Community feedback was integrated in the proposal, included an emphasis on anti-displacement, language support and continual engagement.

Various strategies are proposed to continue this approach of meaningful engagement with low-income and disadvantaged communities during the implementation of GHG reduction measures. This includes:

- Hosting 12 community meetings (3 groups of meetings, one per county each time) during program design (year 1), activation (year 3), and on program transitions (year 4). Translation and interpretation services will be provided. These meetings will identify risks, disbenefits, and mitigations early; prioritize what LIDACs value most; and align program design with local context.
 - Paid community member participation in contractor or consultant selection committees.
 - Engagement with existing CBO conveners for geographies or specific groups during implementation.
- In addition to the above outreach on the overall program, the individual programs will include outreach that anticipates a wide audience within LIDACs, including interpretation and translation services to support program applications from various linguistic, cultural, and geographic backgrounds.

Section 5. Job Quality

With more than 2.1 million workers and growing, the energy efficiency (EE) sector represents the largest source of employment in the clean energy economy, adding nearly [58,000 jobs](#) in 2021. In King County alone, HVAC installer/insulation/plumbing businesses are expected to grow by 4%, and electrical wiring contractor businesses are expected to grow by 3.2%. Many of these positions are considered green jobs.

King, Kitsap, Pierce, and Snohomish counties are collaborating with the Coalition for Climate Careers (C3) to support workforce development, a public-private partnership for the equitable distribution of workforce development resources C3 supports collaboration between training institutions, unions, industry sectors, CBOs, educational institutions, and registered apprenticeship programs. An example of C3 partnership is the King County JumpStart program for clean energy careers. Jump-Start, in collaboration with King County [Youthsource](#), supports entry of 18 – 24-year-olds to Seattle Central College’s Pre-Apprenticeship Construction Training ([PACT](#)), providing stackable certifications in OSHA-10, OSHA-30, flagger, forklift, plus College credits in trades math, industrial safety, and power tool use. Industry partners have validated these certifications as the building blocks for an HVAC or electrical career before entering apprenticeships. While the JumpStart program is only in King County, C3 will develop workforce partnerships in the three remaining counties using the JumpStart program model.

This proposal funds 115 persons completing C3 workforce programs for Measures #1 and #2, receiving certifications, training, and placement in a 240-hour work-based learning opportunity in HVAC or electrical work. C3 and county-affiliated programs will provide a stipend, offer case management and provide participants resources supporting training, transportation and childcare. Participants receive job

⁵⁷ Frontline communities are defined as those disproportionately impacted by climate change, facing historic and current inequities, often experiencing the earliest and most acute climate change impacts, and with limited resources to adapt. This includes Black, Indigenous, and People of Color (BIPOC) communities; immigrants and refugees; people living with low incomes; communities with disproportionate pollution exposure; women, gender non-conforming and LGBTQIA+ people; people who live/work outside; those with existing health issues; people with limited English skills; and those experiencing pregnancy.

readiness and soft skills training, support connecting to paid union apprenticeships, and direct hire opportunities following training. Other measures include additional workforce development programs. For Measure #3 Embodied Carbon, program staff will evaluate the new state Buy Clean, Buy Fair labor reporting requirements for replication in local capital programs to support high labor standards. Measure #4 Circular Lumber includes additional workforce development training aimed specifically at disadvantaged communities. Past CBO participants in these programs include those specializing in supporting second-chance/ex-offender community members, including Hope for Homies (legal name [Second Chance Outreach](#)), [Freedom Project](#), and [Community Passageways](#). Future specialized trainings anticipate working with these CBOs again, as well as the Muckleshoot Tribe.

King County has standard contracting practices that support high labor standards, job quality, equity, and diversity. For instance, for service contracts over \$100,000, Ordinance [17909](#) requires contractors to pay a living wage. In promotion of equitable treatment in the local workforce, Ordinance [14823](#) requires services contractors awarded over \$25,000 to not discriminate employee benefits between those with spouses and those with domestic partners. Competitive contracts also award additional points to state-registered [MWBEs](#), which helps small businesses owned by minorities, women, and veterans obtain more contracts and support a diverse workforce. For contracts procured with this proposal, 20% of the points will be awarded for MWBE status, and up to another 10% of the points will be awarded to contractors committed to using qualified apprentices for 5% to 10% of total labor hours.

Section 6. Programmatic Capability and Past Performance

a. & b. Past Performance and Reporting Requirements

Executive Dow Constantine leads the King County Executive Department (ED) which has management responsibility for all county departments. Financial reporting and management for agreements SLFRP0152 and SLT0181 below were managed by the Office of Performance, Strategy, and Budget (PSB), in collaboration with the Finance, Business, and Operations Division in Executive Services. Public assistance funding and services are distributed by various departments including ED, Public Health, Community and Human Services, Metro Transit, Local Services, and Natural Resources & Parks. Agreements WA-2020-063, WA-2021-040, and WA-2022-002 below provided operating support for King County Metro Transit Department, which conducted financial management and reporting requirements.

Table 5. Past Performance Examples			
Project Title	Agreement (CDFA)	Contact	Description
Coronavirus State & Local Fiscal Recovery Funds	SLFRP0152 (21.027)	Jacob Leibenluft, jacob.leibenluft@treasury.gov	Funds supporting efforts to decrease spread of the Coronavirus, replace lost revenue for public services and retain jobs. Support for household and business economic stability, and necessary water, sewer, and broadband infrastructure investments.
Coronavirus Relief Fund	SLT0181 21.019)	Jacob Leibenluft, jacob.leibenluft@treasury.gov	Small business grants to reimburse business interruption due to required closures, establish temporary public medical facilities to increase COVID-19 treatment capacity, and homeless population care to mitigate COVID-19 effects and enable public health precaution compliance.
CARES, CRSSA & ARP - Transit Operating Assistance	WA-2020-063; WA-2021-040; WA-2022-002 (20.507)	Mark Stojak, mark.stojak@dot.gov	CARES, CRSSA and ARP Act provide funds for Coronavirus prevention, preparation and response. Urbanized Area Formula Funding makes federal funds available to local and regional government authorities and states for transit capital, operating assistance, and transportation planning in urbanized areas.

SLFRP0152: Ongoing agreement; funds must be obligated by 12/31/24 and expended by 12/31/26. King County submits quarterly financial and program reports, and an Annual Recovery Plan report, to the Department of Treasury portal. King County has provided all required reports on time and with accuracy.

SLT0181: Agreement was successfully completed, and funding exhausted in 2021. King County completed accepted interim and final reports under this agreement. Quarterly financial reporting was submitted via Treasury's GrantSolutions reporting tool, including final reporting deliverable submitted to Treasury in January, 2022. King County provided all required reports on time and with accuracy.

WA-2020-063, WA-2021-040: King County provided quarterly Financial Status and Milestone Progress reports in the FTA's TrAMS grant management system. King County provided all required reports on time and with accuracy. FTA reviews did not result in requests for clarification or more information.

WA-2022-002: King County Metro is delayed in drawing down the final \$94,330,508 of its ARPA funds through FTA grant WA-2022-002 pending the finalization of its Indirect Cost Rate Plan for staff benefits. King County Metro has, however, timely reported these delays via its financial and milestone progress reports and has discussed finalization of the Indirect Cost Rate Plan extensively with the FTA Region X office. King County provided all required reports on time and with accuracy. FTA reviews of the submitted reports did not result in requests for clarification or additional information.

c. Staff Expertise

Program Administration will be supported by staff from the King County Climate Office and PSB:

- Marissa Aho, Climate Director, will oversee staff and proposal implementation. She has over 25 years' experience in the public, private, and nonprofit sectors. Prior to King County, she was Policy Director and Chief Resilience Officer for the Washington State Department of Natural Resources.
- Nicole Sanders, the Building Decarbonization Program Manager, will lead grant coordination and program design. She has over 13 years' experience advancing sustainability initiatives, leading multi-entity collaborations, and managing grant-funded programs.
- Andrew Larson, Grants and Contracts Manager, will lead on grants reporting and invoicing. Andrew has over 12 years of experience in government contracting, grants management, and administration of federal, state, and locally funded small business inclusion programs.
- Terence Sullivan, the Climate and Energy Program Manager, will lead on procurement. Terry is an energy, climate, and data expert with 15 years' experience in climate policy, program management, data analysis, energy efficiency consulting, and commercial construction management.
- Michael Carter, the Climate and Workforce Development Program Manager, will lead workforce development. Michael has over 10 years' experience in workforce development, including federally-funded programs and workforce partnerships prioritizing historically underserved populations.
- Vicky Raya, the Climate Equity Program Manager, will lead equitable implementation. Vicky has over 18 years' experience nationally and locally working with racially and culturally diverse communities, with expertise in community-led programs and inclusive engagement.
- Emily Coleman, Senior Sustainability Specialist, will support establishing the Embodied Carbon Program. Emily has 7 years of experience in the sustainable materials management field, focused on environmental impact mitigation and embodied carbon of purchased materials and goods.
- Kinley Deller, the King County C&D Program Manager, will support establishing the Circular Lumber program. Kinley has over 29 years of experience in the waste reduction field, with 22 of those years focused on C&D recycling, deconstruction, and building salvage.

MSA staff will also provide dedicated time to support program design and support guidance on measure implementation within the MSA; their resumes, and resumes for the above staff, are attached.

The Budget Narrative Attachment addresses guidance sections 7a, 7b, and 7c.