



ACCELERATING BUILDING DECARBONIZATION

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Buildings account for about 30% of US energy use and greenhouse gas emissions, and it is estimated that 2/3 of buildings that will exist in 2040 already exist today. To meet local climate goals, cities must accelerate the decarbonization of existing buildings. New federal funding provides opportunities to cut emissions, create high-quality green jobs, improve the housing stock, and save constituents money on their energy bills. From net zero municipal operations to community-wide initiatives that center equity, this session will highlight innovative ways cities are accelerating their commitments to building decarbonization.



RESOURCES

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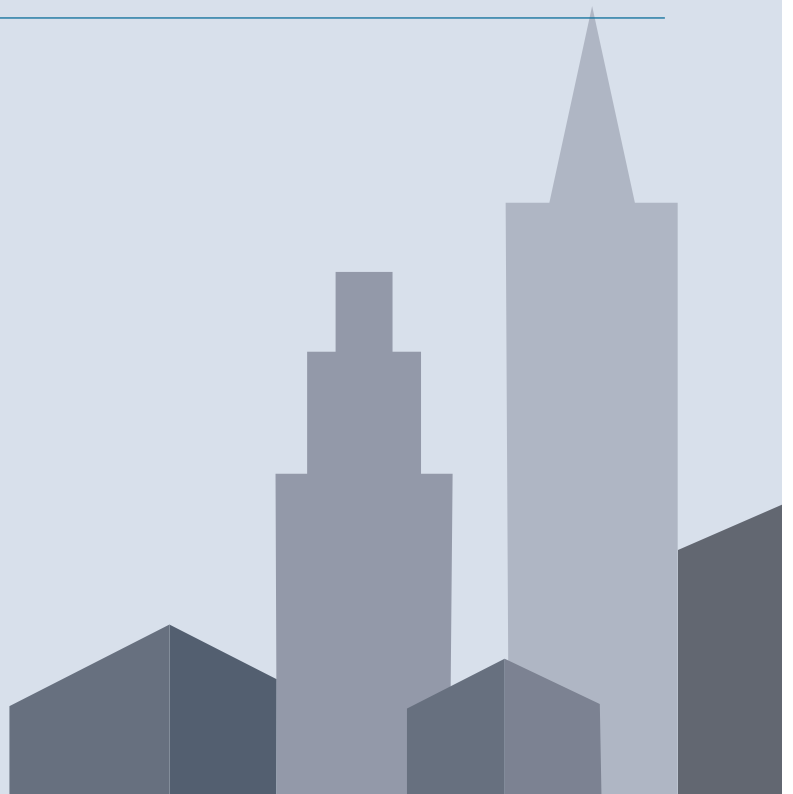
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Rewiring America's Electrification Policy Menu for Local Leaders

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SECTION 1: LOCAL RULES

Local decision makers often have the authority and ability to write local rules governing building codes, performance standards, permitting, and zoning. All of these rules can impact the level of friction or grease that electric buildings face compared to fossil fuels.

1. Update building codes for new construction and renovations

Building codes are laws that set the minimum requirements for how buildings should be constructed, including their structural systems, plumbing, heating, ventilation, and air conditioning.

The most widely recognized and followed model building codes are published by the International Code Council (ICC). The main ICC codes are the International Building Code (IBC), International Existing Building Code (IEBC), and International Residential Code (IRC), which serve as the foundation and coordinate with other codes. Along with specific codes for fire safety, plumbing, and mechanical systems, they create a comprehensive set of rules. Model building codes themselves do not have the force of law but need to be explicitly chosen and adopted by the Authorities Having Jurisdiction (AHJs), that is, via legally enforceable state law or local ordinance and accompanying regulations.¹ Amending building codes can ensure new buildings have efficient systems, and new standards can be enforced by local jurisdictions.² The following building and energy code policies all promote electrification:

- The best way to implement building codes that prioritize electric usage is by adopting all-electric building codes (section a, below). These codes require new buildings to be designed and constructed using electric heating, appliances, and water heating systems.
- Electric-ready building codes (section c) and EV Infrastructure Building Codes (section e) make it

easier and more affordable to electrify buildings and support electric vehicles, although they don't automatically ensure building electrification without additional measures.

Localities can apply for IRA funds administered by DOE to provide resources to update their building codes. The IRA will provide \$1 billion to support state and local governments to adopt updated building codes until September 2029.³

→ a. All-electric building codes for new buildings and renovations

All-electric building codes require all newly constructed buildings to be equipped with electric space heating, hot water heating, and efficient electric appliances like induction stoves and electric clothes dryers. These building codes exclude gas piping and other fossil fuel infrastructure. These codes can also require renovations, remodeling, or equipment replacements to be all-electric.

Requiring new buildings to be all-electric should be a straightforward step towards electrification, given that there is often no up-front cost to all-electric new construction compared to building with both wires and gas pipes. But unfortunately, a recent Ninth Circuit decision, *California Restaurant Association v. City of Berkeley*, held that federal law preempts states and local governments from prohibiting the use of natural gas appliances in new buildings. Unless the Supreme Court of the United States overturns this decision, all-electric building codes are not an option in the Ninth Circuit, which includes Alaska, Arizona, California, Washington, and Hawaii. Other localities outside of these districts may still

pass all-electric building codes. And all state and local legislators may still pursue other policies, including electric-ready building codes, stretch codes, and performance standards for buildings and appliances. See more information in the Berkeley example below.

Examples of local jurisdictions with all-electric building codes

Montgomery County, Maryland, passed legislation in 2022 requiring new construction and major renovations of residential, commercial, industrial, and public buildings to be all-electric and to be equipped with electric hot water systems, heat pumps for space heating and cooling, and electric stoves. The bill does not itself create the all-electric standards but orders a process and framework for the county executive to issue these standards as well as inclusions and exemptions. The legislation requires the all-electric standards to be developed in cohesion with the next building code adoption cycle and to be issued by January 1, 2024. The new building standards kick in no later than December 31, 2026, with the option for the county executive to move more quickly for most building types.

In October 2022, the **Town of Portola Valley, California** adopted an ordinance requiring all new construction and all equipment replacements to be all-electric in commercial, industrial, institutional, public/municipal, and multi-family and single-family residences. This ordinance stands out for the breadth of buildings it covers and its application to equipment replacements, not just new construction. There are currently only two other municipal ordinances with all-electric requirements for equipment replacements. The Town's reach code was filed with the California Building Standards Commission and the California Energy Commission.⁴

In 2019, **Berkeley, California** became the first city to require all-electric new residential and commercial buildings through Ordinance No. 7672-N.S.,

which amends the Berkeley Health Code. The ordinance also establishes energy use and energy efficiency standards for furnaces, stoves, and other appliances and complements other actions Berkeley has taken, including a 2019 reach code for new construction.

In April 2023, the Ninth Circuit invalidated the Berkeley local ordinance in *California Restaurant Association v. City of Berkeley*. This lawsuit was supported and financially backed by the fossil fuel industry in an attempt to keep households reliant on fossil fuels. The court held that the federal Energy Policy and Conservation Act (EPCA) took precedence over the local ordinance. The U.S. Department of Energy, which is tasked with implementing the federal EPCA, supports Berkeley's policy and disagrees with the 9th Circuit's interpretation of this law.

This decision may impact other state and local regulations in the Ninth Circuit's jurisdiction, including in California and Washington. Other Circuits, and potentially the Supreme Court, may take a different view. Berkeley is allowed to continue enforcing its law until appellate decision (until it is officially instructed to do so by the district court), but the 25 or so other cities within the 9th circuit who have ordinances modeled on Berkeley's gas prohibition are at risk if they try to enforce them. In addition to the cities that used Berkeley's approach, there are 76 additional cities in California that implemented model reach codes⁵ which are so far considered to not be impacted by the *Berkeley* decision. Local reach codes (see more in section c, below) are allowed by Part 11 of the California Building Code which sets out a Green Building Code, that is voluntary and flexible, requiring the local jurisdiction to make a finding that these amendments are necessary for climate reasons, but does not have a cost-effectiveness requirement. Ongoing lawsuits could establish a potentially important precedent for future municipal regulatory actions, pending court rulings.

Policymakers can safely use two possible approaches to pass electrification-friendly codes and avoid preemption⁶

1. Use an emissions standard or building performance standard approach (see the section on building performance standards).

2. Ensure the code meets the “7-Factor Test:”

- A builder can fulfill a building’s energy consumption or conservation objective by selecting items with combined energy efficiencies that meet the objective, according to the code.
- The code doesn’t mandate that Covered Products exceed federal energy efficiency standards, unless they receive a waiver from the secretary of energy.
- Compliance options in the code are based on a “one-for-one equivalent energy use or equivalent cost basis.”
- The code sets the baseline building design using covered products that don’t exceed federal standards, unless a waiver is granted by the secretary of energy.
- The code includes at least one optional combination of energy consumption-related items that don’t surpass federal standards for any covered product (provided that the code offers such combinations).
- The code expresses any energy target as the total energy consumption for the entire building.
- The code employs test procedures from EPCA to assess the energy consumption of covered products.

Despite the *Berkeley* decision, municipalities in other states continued to adopt all-electric building ordinances. In June 2023, the Village Board of **Oak Park, Illinois** passed an all-electric new construction ordinance, which has been incorporated into their building code. This landmark decision establishes Oak Park as the first municipality in Illinois, as well as the entire Midwest region, to enact such an electrification ordinance. This follows the adoption of a benchmarking ordinance approved in February 2023. Effective January 1, 2024, the new ordinance encompasses both residential and commercial buildings in Oak Park. Unlike most municipalities in Illinois, which adhere to the state-wide energy code as a minimum requirement (and maximum for low-rise residential structures), Oak Park has the authority to implement more stringent energy codes. Presently, Illinois operates under the amended 2018 International Energy Conserva-

tion Code (IECC) and is in the process of adopting the 2021 IECC. Additionally, the Village has shown keenness to adopt the Illinois Stretch Code once it becomes accessible.⁷

→ b. Electric-ready building codes for new buildings

Electric-ready building codes require that new buildings have the necessary electric service, breakers, wiring, and plugs to easily give the option to use all-electric appliances, but leave open the choice for developers to equip the building with gas-fired appliances or electric. These codes give more flexibility, but may result in developers becoming more familiar with all-electric construction and choosing to go that route, especially if more people prefer an electric lifestyle.

Examples of local jurisdictions with electric-ready building codes

In April 2023, **Boston** adopted Massachusetts' [Stretch Energy Code](#) to limit the use of fossil fuels in new buildings and prepare new buildings for electrification. The ordinance requires all new buildings that have fossil-fuel systems and appliances to install solar panels and supplementary wiring that can accommodate electrification. The objective of this regulation is to prepare for future conversion to electric end uses and aim for the majority of new construction to be all-electric. Earlier in 2023, Brookline and [Watertown](#) were the first municipalities to approve the code, and since then, Boston has followed suit and become the largest city in Massachusetts to adopt the code.⁸

The **Chicago** City Council passed the [Energy Transformation Code](#) in September 2022 to advance the City's decarbonization commitments. One of its major requirements is for most new buildings to be built with the electrical capacity and wiring necessary to accommodate all-electric appliances for cooking, clothes drying, and water heating. These electric-ready buildings make it so when upgrades to appliances occur, there will be no need to alter walls or upgrade the electrical service. According to the Chicago Mayor's Office, the code was estimated to result in approximately 40% improvement in energy efficiency for residential and commercial buildings compared to their 2001 ordinance. This is due to the inherent efficiency of modern electric appliances, even compared to the most efficient gas appliances.

→ c. Stretch/reach codes

Stretch codes, also known as "reach codes," allow municipalities to exceed their state's base building and energy code in terms of efficiency and electrification. Localities can either opt-in to their state's "stretch codes" which are more aggressive than the state's base code or adopt their own stronger code if the state allows. This results in buildings that achieve higher energy savings. Stretch codes allow local jurisdictions to exercise leadership without forcing reluctant cities to go electric.

Examples of local jurisdictions with stretch codes

California allows local jurisdictions to implement stricter energy efficiency ordinances that surpass the Building Energy Efficiency Standards *as long as* they are both cost-effective and compliant with the energy consumption limits set by Title 24. The Energy Commission and Building Standards Commission (BSC) are responsible for approving and enforcing these local ordinances that require new mid-rise residential buildings to exceed the minimum state requirements and evaluating and reporting on their performance every three years. The state's most recent report found that, for mid-rise multifamily buildings, considering both upfront costs and operational costs for both mixed-fuel and all-electric scenarios, the stretch codes resulted in overall savings.⁹ [The Statewide Reach codes program](#) is funded by investor-owned utilities and does cost-effectiveness studies for each locality in California by climate zone, removing a barrier for localities adopting reach codes, ensuring they comply with Part 6 of model state code requiring cost-effectiveness. California's newest state code went into effect Jan 1, 2023 so cities updated their local reach codes to align.

In California, Peninsula Clean Energy (PCE), Silicon Valley Clean Energy (SVCE), East Bay Community Energy (EBCE), **Alameda County, Santa Clara County and the San Mateo County Office of Sustainability** (OOS) joined together to develop building and transportation electrification reach codes for localities within their service territories. Peninsula Clean Energy (PCE) will provide San Mateo County jurisdictions a \$10,000 grant to enable their adoption of building and electric vehicle Reach Codes. In addition to the \$10,000, PCE is offering support to local governments in the form of technical assistance from TRC Engineers and DNV-GL for the development of model Reach Codes, facilitation support by the County Office of Sustainability, as well as implementation and adoption support such as consultant participation at Commissions and Council meetings, model staff reports, staff trainings, check lists or other support needs.

In 2021, **San Jose, California** passed its [building electrification ordinance](#). The reach code requires all new low-rise residential buildings (up to three stories) to be built with only-electric systems and appliances. The ordinance also requires new buildings to be designed to accommodate the eventual installation of solar PV and EV charging.

The Massachusetts [Climate Act of 2021](#) required the Department of Energy Resources (DOER) and the Board of Building Regulations and Standards (BBRS) to issue a new municipal [Specialized Opt-in Stretch Code](#) in line with the state's strict carbon pollution reduction requirements. In January 2023, the cities of **Watertown, Brookline, Cambridge,** and **Somerville** voted to adopt the new Specialized Opt-in Code. The updated Stretch Code further emphasizes energy efficiency and electrification. For example, it establishes that at least 20 percent of parking in new multifamily parking lots must have dedicated EV charging.

The Town of **Brookline, Massachusetts** is under the state's [Stretch Energy Code](#) for low-rise residential. This residential stretch code allows applicants to take different paths to energy code compliance depending on the building's energy efficiency features, it does not necessarily restrict the installation of fossil fuel appliances. Additionally, the Town approved participation in a [Fossil Fuel Free Demonstration Program](#) which will likely take effect between January and March of 2024 and will require all new buildings and major renovations to be all electric.¹⁰

→ d. Solar building codes, mostly for new construction

Solar building codes require new construction to include solar energy systems, or be ready to install solar in the future. Codes can mandate solar, solar plus storage, or solar readiness and apply to residential or commercial buildings, even certain retrofits. Beyond these requirements, cities can streamline permitting timelines (see the section on permitting) and waive fees for solar installers, as well as **adopt zoning codes** (see the section on

zoning) that allow solar energy across all districts.

Examples of local jurisdictions with solar building codes

Lancaster, California was the first city in the U.S. to [mandate solar](#) energy systems for new single-family homes, requiring two watts of power per square foot for all buildings permitted in or after January 2014. Superseding local building codes, the California Energy Commission introduced a statewide mandate in Title 24 of the 2019 Energy Code requiring solar for all new single-family homes and multi-family homes under three stories. The [2022 Energy Code](#) updates the California mandate to include a first-in-the-nation solar and storage requirement for new commercial properties like grocery stores and offices.

In 2019, **St. Louis, Missouri** became the first city in the Midwest to adopt a solar-ready requirement for new construction. [The ordinance](#) applies to residential, multifamily, and commercial buildings. It ensures that buildings are provisioned for solar in the design phase, saving households money when they decide to install solar in the future. New buildings must have adequate electrical panel capacity, an electrical conduit to the roof, and unobstructed roof area to house future solar panels.

→ e. Electric vehicle infrastructure building codes for new construction

Electric vehicle (EV) infrastructure building codes require parking in new buildings to include the electrical equipment necessary to enable the easy and low-cost installation of electric vehicle (EV) charging stations. Done right, these codes can play a critical role in equitable access to EVs, because they make EV charging accessible to those living in multi-family housing, including renters. EVs are often the first introduction to the benefits of electric machines, and can draw people along the path to electrifying more machines.

Examples of local jurisdictions with electric vehicle building codes

In April 2017, the City of **San Francisco, California** passed an [ordinance](#) requiring new construction projects to include a certain amount of electric vehicle (EV) charging infrastructure, depending on the size of the project. The ordinance amends the city's Green Building Code and Environment Code to establish requirements for the installation of EV charger infrastructure in new buildings and buildings undergoing major alterations.

In April 2020, The **Chicago** City Council approved an [ordinance](#) requiring at least 20 percent of parking spaces to have or be ready for EV charging equipment. This applies to all new construction of residential buildings with five or more units and commercial buildings with 30 or more parking spaces. At least one of the EV-ready spaces in applicable properties must be accessible to people with disabilities.¹¹ One of the major benefits of this policy approach is reducing future costs for electric vehicle supply equipment installations, which are about four times lower compared to retrofitting costs.¹²

In September 2022, **Santa Monica** City Council adopted the [EV Charger Reach Code](#), which amends California's Green Building Code (CALGreen) to increase the number of EV charging stations in new building projects, including multifamily buildings. The new reach code requires at least 60 percent of parking spaces in new building projects to be EV-ready so that they will not require permits for EV chargers. Five percent of the spaces must have EV chargers installed during construction, and an

additional 10 percent of the parking spaces must have the electrical capacity to serve future charging stations. The concept began as part of Santa Monica's Climate Action and Adaptation Plan, which has the goal of reducing carbon pollution by 80 percent [by 2030](#).

→ f. Require all air conditioning units to be heat pumps

Requiring all air conditioning units to be heat pumps is a change that can be made through a locality's building code.

Examples of local jurisdictions requiring all new buildings with AC units to be heat pumps

In January 2023, **Aspen, Colorado** City Council passed [Ordinance #1, 2023](#) which adopted the 2021 International Building Codes, along with local building and energy code amendments. Notably, these changes require that all new buildings that are installing air conditioning units install heat pumps to provide both heating and cooling. This is advantageous for a region like Aspen, Colorado that experiences both hot summers and cold winters. The updates also include an expansion to the Renewable Energy Mitigation Program (REMP) and other measures focused on energy conservation, wildfire resiliency, and reducing pollution. The new codes apply to new residential and commercial permits submitted after March 31, 2023. Expedited permit review was added to incentivize all-electric buildings.

2. Building and appliance performance standards for new and existing buildings

Building performance standards (BPS) establish specific performance levels that both new and existing buildings must achieve. They can require buildings to reduce either their pollution or their energy use. Strong standards may be costly or

logistically difficult for buildings with fossil fuels to meet, nudging owners toward all-electric buildings. This policy approach can be designed to incentivize the adoption of electric heating and cooling systems, and the installation of rooftop solar. Building performance standards are not at risk of preemption per the Berkeley decision.

→ a. Building emissions standards for new and existing buildings

Building emissions standards regulate the performance of buildings by setting targets or limits on air pollution like greenhouse gas emissions. Emissions standards would not be subject to preemption under the Ninth Circuit's reasoning in the *Berkeley* case, so local jurisdiction with lower tolerance for legal risk should be safe pursuing emissions standards.

Examples of local jurisdictions with building emissions standards

New York City's Local Law 97 was included in the Climate Mobilization Act, passed by the City Council in April 2019 as part of the Mayor's New York City Green New Deal. Under the law, most buildings over 25,000 square feet will be required to meet new energy efficiency and greenhouse gas emissions limits by 2024, with stricter limits beginning in 2030. The law creates a Local Law 97 Advisory Board and Climate Working Groups to advise the city on how best to achieve these limits. With some exceptions, Local Law 97 covers: buildings that exceed 25,000 gross square feet; two or more buildings on the same tax lot that together exceed 50,000 square feet; and two or more buildings owned by a condo association that is governed by the same board of managers and that together exceed 50,000 square feet. Local Law 97 sets pollution-specific limits based on how buildings are used and the amount of space allocated to each use. The law takes a strategic approach that ensures it is not affected by the preemption consequences mentioned in the *Berkeley* decision.

In 2021, the **New York City** Council passed Local Law 154 becoming the largest city in the United States to establish a prohibition on new fossil fuel hookups in buildings for space and water heating and kitchen stoves. The ordinance requires construction projects to use electric appliances starting in 2023 for some buildings under seven stories and in 2027 for taller buildings, with exemptions for hospitals, commercial kitchens, and laundromats. Local Law 154 prohibits the combustion of "a substance that emits 50 kilograms or more of carbon dioxide per million BTUs of energy in any new building or any building that has undergone a major renovation." This includes natural gas, fuel oil, coal, and other fossil fuels.

The **Boston, Massachusetts** Building Emission Reduction and Disclosure Ordinance establishes a building performance standard for large commercial and multifamily buildings. The ordinance sets limits on carbon pollution for these buildings, with compliance dates varying based on building size. Building owners who fail to comply with the emissions limits are required to pay a fee and the fees collected are directed to the environmental justice fund, which supports populations disproportionately impacted by climate pollution. This community-led compliance solution replaces the use of traditional carbon offsets, which had been criticized by local community groups as a flawed approach that allows pollution to persist. The policy developed with the input of over 80 local community members and organizations, such as ACE, City Life/Vida Urbana, and Chinese Progressive Association, alongside Clean Water Action.

→ b. Building energy standards for new and existing buildings

Building energy standards establish requirements or guidelines for energy efficiency measures, systems, and technologies in buildings.

→ Examples of local jurisdictions with building energy standards

Montgomery County, Maryland's Building Energy Performance Standard (BEPS) establishes energy use reduction requirements for buildings larger than 25,000 square feet that ratchet down to interim targets starting in 2028, reaching final targets starting in 2033. With support from NRDC's City Energy Project and the Institute for Market Transformation (IMT), Montgomery became the first county in the United States to pass a BEPS policy, which builds on the county's previously established Building Energy Benchmarking policy.

Denver, Colorado passed the Energize Denver Ordinance in November 2021 for buildings 25,000 square feet and larger. The ordinance requires covered building owners to benchmark building

energy performance, and to make such energy performance information publicly available. The key piece to this ordinance is its requirement for covered building owners to address existing building performance through energy efficiency, renewables, and/or renewable heating and cooling (electrification). The city uses three main strategies to reach its climate goals for buildings: a building performance standard with energy efficiency requirements; prescriptive efficiency requirements for small commercial and multifamily buildings; and electrification requirements for space and water heating equipment. Any covered building owner who violates the ordinance or rules or regulations adopted pursuant to the ordinance, is subject to a civil penalty amount of up to seventy cents (\$0.70) per year for each *required kBtu reduction that the owner's covered building fails to achieve in that year*.

→ c. ero-pollution standards for local appliance sales

Zero-pollution standards for local appliance sales are guidelines or regulations that require new appliances sold in a certain area to emit little or no pollutants during their operation. These standards can allow a phased approach, giving suppliers, contractors, and building owners time to adjust, while ensuring that, after a certain date, no new gas appliances will be installed in that area

Examples of local jurisdictions with zero-pollution appliance standards

In March 2023, the California **Bay Area Air Quality Management District**¹³ passed a zero-pollution standard applying to any new water heaters, furnaces, and other appliances sold. The air district estimates that water heaters and furnaces alone account for 90 percent of in-home gas combustion pollution. Homeowners would be required to replace these appliances starting as early as 2027 based on equipment type, size, and use. For example, water heaters for large residential and commercial buildings would need to be replaced starting in

2031. The new rules will apply only to new appliances and will not mandate immediate replacements, nor will they apply to gas stoves used for cooking. The regulations are estimated to prevent around 15,000 asthma attacks and 85 premature deaths in the region each year.

Examples of local jurisdictions with building energy disclosures

The **Minneapolis Building Energy Rating and Disclosure Ordinance** (BERDO) model integrates energy disclosures with code compliance requirements. The 2013 ordinance requires owners of commercial and multifamily buildings over 50,000 square feet to benchmark their buildings' energy usage using the ENERGY STAR Portfolio Manager tool, which calculates an energy score based on consumption, size, and other factors. It requires annual disclosures as early as possible in the real estate transaction (e.g. time of listing rather than the time of sale) to better influence home buyer decision-making. The City of Minneapolis enforces BERDO compliance and invests in information systems to reduce costs and collect key performance data. The Energy Benchmarking Program is intended to spur efficiency improvements and benchmarked buildings get a higher percentage of funding in the city's Green Cost Share grant program. Based on the city's annual scorecards and dashboard the program is on track to help achieve Minneapolis' climate action plan goals.

Seattle, Washington adopted an Energy Benchmarking Law through its municipal code that requires commercial and multifamily buildings over 20,000 square feet to track and report their energy performance annually through the Energy Benchmarking Program. Buildings that perform poorly may be required to make energy-efficient upgrades, including HVAC systems and heat pumps. Every year, the City of Seattle publishes building energy performance data from more than 3,500 of Seattle's largest commercial and residential buildings.

Indianapolis, Indiana adopted the Benchmarking and Transparency Ordinance requiring city-owned

buildings greater than 25,000 square feet and non-city-owned buildings greater than 50,000 square feet to benchmark and report their energy consumption on an annual basis. With support from the American Cities Climate Challenge, this ordinance was developed out of a robust stakeholder engagement process throughout the lockdown of 2020. Despite the stakeholder engagement process looking different from normal, the policy language reflected a number of decisions that stakeholders weighed in on – most notably, the phased-in approach for implementation. This ‘win’ still serves as an exemplary best practice for the City and demonstrates that climate action can take place, even in difficult circumstances.

Honolulu, Hawai‘i has implemented the [Better Buildings Benchmarking Program](#) which mandates annual benchmarking and transparency of energy and water usage for public buildings above 10,000 square feet and commercial and multifamily buildings larger than 25,000 square feet, starting with the largest ones in 2023. The American Cities Climate Challenge supports

this initiative. Given that around one-third of O‘ahu’s carbon pollution comes from the building sector, benchmarking is a crucial step to achieving the city’s climate goal of net-negative emissions by 2045. The program is expected to reduce large buildings’ electricity consumption by almost 7 percent by 2030 and contribute to greenhouse gas emissions reduction on the island.

The **City of Bend, Oregon** has launched the [Home Energy Score Program](#) to promote energy efficiency in homes and provide transparency regarding their energy costs. This program is based on the federal Home Energy Score Program initiated by the U.S. Department of Energy (DOE) in 2012. The DOE developed a standardized methodology and tools for assessing and reporting the energy efficiency of homes. Starting from July 1, 2023, all publicly listed homes in Bend must include a Home Energy Score report, allowing potential buyers to compare the efficiency of different homes and make informed decisions. Homes listed before July 1, 2023, but still active after that date, are exempt from this requirement.

3. Permitting

In many places, building owners or developers must apply for a permit from the local government to build or retrofit a building, including installing a new space heating or cooling system, or water heater. Local governments have the power to change permitting rules — to make them stricter and slower for fossil fuel building construction and retrofits while streamlining and expediting permits for electric building construction and retrofits. Rooftop solar permitting and expedited all-electric building permitting are both essential building decarbonization tools. Permit discounts are an innovative way to incentivize electrification retrofits.

→ a. Streamline and standardize electrification permitting

Expedited all-electric building permitting means

making it faster, easier, and/or less costly to get a permit for electric appliances, electric vehicle charging, and rooftop solar.

Examples of local jurisdictions with expedited electric permitting

Palo Alto, California provides homeowners with both a subsidy and a streamlined service to facilitate the replacement of their gas water heater with an energy-efficient electric alternative. In October 2022, the Palo Alto City Council approved the Advanced Hot Water Heat Pump Program, which aims to install 1,000 heat pump water heaters by the end of 2023. This was made possible through a partnership with Synergy, an energy and water efficiency contractor. The process is as follows: The homeowner fills out a brief online form and then sets a time for an assessor to come by, the asses-

sor determines what's needed for the installation and goes over options for electrifying space heating if there is interest. Homeowners can expect an assessment to be scheduled within just one week of contacting the city. In total (including permitting) \$2,700 is due upon completed installation or if preferred, \$1,500 due upon completed installation and the remainder of payments of \$20/month for 5 years can be included in the utility bill, also known as on-bill financing. As of May 2023, at least 200 assessments were completed or scheduled. Before the program, 90 percent of homes in Palo Alto had gas-powered water heaters and natural gas used in buildings contributed to about 35 percent of the city's carbon pollution.¹⁴

Cupertino, California has a dedicated "[Alternative Energy](#)" permit application for solar, electric vehicle charging equipment, and battery storage permit applications. Cupertino developed specific application materials for electrification that streamline the permit application process and accelerate plan reviews. Standardized internal protocols ensure consistent enforcement and help customers understand the requirements for successful applications and inspections.

In January 2023, the **Denver, Colorado** City Council adopted a new building code to help reach its goal of zero emissions by 2040. Regulations *based on the building code* add requirements for permit applicants seeking to install gas equipment. Permit applicants not willing to use electric systems and appliances will have to go through a more complicated permitting process to replace their units with fossil fuel versions, a reversal of the previous permitting process. The applicants must now furnish additional details regarding the viability of using electric equipment. They are obligated to demonstrate to the city that they have thoroughly assessed the feasibility of utilizing electric-powered equipment, conducted checks for gas line leaks, and verified that gas equipment is appropriately sized and operating efficiently, adhering to the prescribed regulations. Starting 2027 the city will no longer issue any permits for gas heating and cooling

equipment in commercial buildings. To incentivize building owners to plan for electrification and make the switch to electric systems and appliances before the building code requires them to, the city's Office of Climate Action, Sustainability, and Resiliency (OCASR) is offering the [Building Electrification Pilot Program](#), funded with \$7 million, to fund up to 70 electrification program.

→ b. Streamline and standardize rooftop solar permitting

Rooftop solar makes electric buildings even more cost-effective and can nearly zero out an electric building's carbon emissions. Unfortunately, compared to a solar-friendly country like Australia, the permitting and approval processes in the U.S add 2 to 6 months of delivery time and \$0.47/W in system costs, exceeding the cost of the solar panels themselves.¹⁵ **Streamlined rooftop solar permitting** can significantly reduce the costs of rooftop solar installation by simplifying the application process, reducing the time it takes to get permits approved through automation, and eliminating unnecessary requirements. Streamlined approaches include digitizing application systems, reducing the number of inspections, automating permit approvals with an app like SolarApp+, and/or offering pre-approved designs and installation requirements.

[SolarAPP+](#) is an online web portal that streamlines the permitting process to install code-compliant residential photovoltaic (PV) systems. It automates the plan review process and performs a compliance check based on inputs provided by the contractor, ensuring that the proposed system is safe and meets the requirements of model building, electrical, and fire codes. After the system is installed, the authority having jurisdiction (AHJ) conducts inspections to verify adherence to the approved design and installation practices. SolarAPP+ has been adopted by 34 communities, resulting in over 15,000 permits issued, 100,000 kilowatts approved, and an estimated 15,000 hours of review time saved. SolarAPP+ communities tend to be more racially diverse, have less owner-occupied housing, and

have greater median home values than non-SolarAPP+ communities.

The Department of Energy's (DOE) [SolSmart program](#) is now endorsing SolarApp+, a user-friendly tool that assists local governments in streamlining the solar permitting process. SolSmart offers step-by-step guidance and provides technical assistance to help communities adopt SolarApp+.

Examples of Streamline and standardize rooftop solar permitting

Pima County, Arizona, was one of the early adopters of SolarAPP+ in late 2020 with the aim of streamlining the approval process for the approximately 3,600 solar permit requests they receive each year. Prior to implementing SolarAPP+, reviewing each permit used to take around 45 to 90 minutes. The software is capable of determining whether a proposed solar energy system complies with the building codes in just about 15 minutes. If a system is found to be non-compliant, SolarAPP+ promptly identifies the specific reason for the application's rejection, allowing the contractor to make the necessary revisions. they anticipate a remarkable 90% reduction in the workload associated with solar permits.¹⁶

Salt Lake City, Utah collaborated with local organizations and neighboring jurisdictions to create a [streamlined solar PV permit process](#) in 2017. The [permit application](#) is modeled off of the industry standard "Expedited Permit Process for PV Systems" by Bill Brooks, PEI, also known as the "Solar ABCs." Salt Lake City now ranks among the nation's top cities for solar.

The Town of **Southold, New York** adopted a solar permitting fast-track program for standard residential installations of solar electric and solar hot water systems (last updated 2022). Adopting this program was part of Southold's journey to becoming a designated NYS **Clean Energy Community** and was a part of the Long Island Unified Solar Permitting Initiative which eliminated unnecessary requirements imposed by some towns as part of their solar permit application such as the completion of a new property survey. The Fast Track Permit shortened the time period for approving a submitted application to 14 days or fewer. The model permit capped the application at \$50 and suggests that municipalities consider waiving the fee. New York State also has a [Unified Solar Permit Toolkit](#) with step-by-step guidance and a model resolution that can be adopted by municipalities.

→ c. Permit discounts

Permit discounts are designed to incentivize electrification retrofits during a limited period. If the permit discount leads to a decrease in permit revenue, this strategy may require city council approval.

Examples of Permit discounts

St. Helena, California's [Energy-Friendly Permit Sale](#) is a time-limited incentive program that encourages property owners to reduce their carbon pollution through reduced permit fees for water heater/heat pump replacement, HVAC replacement, window/door replacement, EV charging stations, or solar PV and battery storage systems.

4. Zoning laws

Zoning laws are rules and regulations applied to specific areas in a municipality, such as specific neighborhoods or commercial districts. Local governments can establish zoning regulations that require electric

heating and appliances in new buildings. Overlay districts and electric vehicle (EV) zoning codes are two proven tools at the disposal of local leaders. Both can serve to allow forward-looking neighborhoods to lead the way, in effect piloting electrification ideas that city leaders might later adopt city-wide.

→ a. Overlay districts

Overlay districts are zoning tools that allow for land use regulations beyond the underlying zoning requirements in a specific area of a neighborhood within a municipality. These additional regulations, often tailored to specific goals of the community, lay over the existing zoning regulations and apply to all properties within the overlay district. Local leaders could use this as a tool for electrification, but requiring a higher level of building performance inside a certain zone. The impetus for the overlay may come from neighborhood residents, offering a way for local leaders to respond to eager constituents.

Overlay districts can serve as effective tools to promote environmental justice, by restricting or prohibiting the siting of identified polluting facilities within their boundaries.¹⁷ The New Buildings Institute (NBI) has developed model language for municipalities interested in adopting all-electric building overlay zoning codes.¹⁸ Overlay districts could also serve as a first step towards neighborhood electrification and gas decommissioning.

Examples of overlay districts

In **Northampton, Massachusetts**, the zoning code creates an overlay district requiring new buildings to meet certain requirements. Buildings 1,200 sq. ft. or less must have a Home Energy Rating System (HERS) rating of 47 or lower. Buildings larger than 1,200 sq. ft must have a HERS rating of 41 or lower. Alternatively, buildings must be LEED New Construction Gold or LEED Neighborhood Development Gold certified. At least 20 percent of housing units constructed must be affordable housing. For an affordable rental unit, the monthly rent including utilities and parking cannot exceed 30 percent of the maximum monthly income permissible for an eligible household.

→ b. Electric vehicle zoning codes

Electric vehicle (EV) zoning codes are regulations that govern the installation and use of electric vehicle

infrastructure. They define the requirements for charging station placement, design, and operation, aiming to support the adoption of electric vehicles. These codes address factors like location, permits, and integration into existing areas. They play a vital role in facilitating the growth of electric mobility. For a comprehensive list of EV readiness policies, please see the Mayor's Caucus checklist.¹⁹

EV-Installed spaces include everything needed for charging an electric car, including the infrastructure and the actual charging station. EV Installed parking space is ready to charge an electric car as soon as the building permit is approved.

EV-Ready spaces refer to both the infrastructure and a wired outlet. An EV Ready parking space allows for the electric car driver to simply plug their portable charger into the outlet.

EV-Capable spaces refer to installing the necessary infrastructure (like conduit, breaker space, junction box, etc.) in place for a future EV charging station installation but at the time of permitting, there is no requirement to install the charging equipment itself. The advantage of EV Capable stalls is that they allow for easy installation of a charging station, saving a significant amount of money and avoiding tasks like cutting and patching concrete or asphalt.²⁰

Depending on how your zoning ordinance is written, consider adding EV charging stations as an accessory use.

Example of electric vehicle zoning codes

In 2019, the City of **San Luis Obispo, California** passed an ordinance mandating the installation of electric vehicle (EV) charging stations at all new developments. Going beyond the State of California building code, which initially required 2% of parking stalls to be EV-Capable in 2017, San Luis Obispo increased this requirement to 10% in 2020. The number of required spaces is dependent on whether the new development is multi-unit residential with five

or more units or non-residential (commercial, office, industrial mixed use) and the total number of spaces. One year after the ordinance was adopted there were 294 EV charging plugs approved— tripling the EV charging station count²¹

In 2020, the City of **Boston, Massachusetts** began to require approval from the Boston Transportation Department's TAPA or the Article 80 Large Project Review, there are specific requirements for parking spaces. They need to have 25% of the total parking spaces equipped with EV charging stations already installed, and the remaining 75% of spaces should be ready for future installation of charging stations. If a development project falls under TAPA or Article 80 review, they must ensure that 75% of their parking spaces are ready for Level 2 Chargers or similar charging services. If they plan to install chargers

other than Level 2 Chargers in the future, they need to use the City-approved EV Requirement Equivalent Calculator.²²

The City Council of **Portland, Oregon** unanimously voted to amend their zoning laws with an Electric Vehicle (EV) Ready Code Project, which went into effect in March 2023. All new residential and mixed-use buildings with five or more units and onsite parking must ensure 50 percent of available parking spaces have EV-ready infrastructure. Parking areas with six or fewer spaces must be 100 percent EV-ready. This ordinance surpasses the Oregon Department of Land Conservation and Development's administrative rule requiring electrical conduit and charging capacity options in urban areas to supply 40 percent of parking spaces in new buildings.

SECTION 2: FINANCING ELECTRIFICATION

Local budgets are often strapped. But local leaders have many options for leveraging a small amount of cash into a bigger private sector investment, or lending their credit-worthiness to back financing efforts.

1. Green banks

Green banks are financial institutions that provide loans, grants, other types of financing, and technical assistance. Green banks enable the wide range of other financial mechanisms in this section, including energy savings performance contracts, efficiency-as-a-service, and funding retrofits or all-electric buildings pilots. **As of January 2023, there were 23 green banks in the United States, and many more are being created.**²³

Local green banks are often established by cities or local governments and commonly receive funding from state or local governments. In many cases, green banks are established as public-private partnerships with government support, allowing them to

leverage public funds to attract additional private investment. Cities or local governments often provide seed money, such as grants or loans, to establish a local green bank, covering initial costs like salaries, office space, and marketing. This funding attracts additional private investment, helping the green bank become self-sustaining and repay the initial seed money. Local green banks are primarily government-funded but may also receive support from private investors, philanthropic organizations, or other sources.

Green banks differ from government grants or tax credits as they loan to clean energy or energy-efficiency projects with an expected return on investment. Green banks leverage a relatively small amount of public funds to make these projects more appealing to private investors through low-interest

loans, green liberty bonds, credit enhancements such as loan-loss reserves and loan guarantees, and highly concessional finance.²⁴ State and local green banks in the US have demonstrated the effectiveness of this model, with 99.62% of loans repaid, making the model self-sustaining and creating value through profitable investments.

Examples of green banks

In 2018 the Montgomery County Green Bank became the first county-level green bank in the U.S. It's a 501(c)3 nonprofit dedicated to accelerating clean energy investment and partnering with the private sector to offer affordable financing for energy-efficient, climate-resilient projects in **Montgomery County, Maryland**. The Green Bank began with two lenders, a board, a management team, and contractors who brought the first commercial loan product to market. Since their inception, they've created a residential energy efficiency and renewable energy loan program, launched a technical assistance pilot for affordable rental housing owners to assess energy needs, and developed a \$600K community solar development pilot to benefit low- and moderate-income households. The Green Bank's funding comes from public and private sources to enable flexible lending and investment funds for County residents and businesses.

2. Energy service contracts

→ a. Energy savings performance contracts

Local governments can use **Energy Savings Performance Contracts (ESPCs)** to cover the upfront cost of electrifying public buildings such as schools, community centers, and affordable housing. Under an ESPC, an energy service company (ESCO) puts up the capital to install energy efficiency retrofits and offers measurement, maintenance, repair, and upgrade services for an agreed-upon contract term, typically 15 to 20 years. An ESPC also sets out an energy savings threshold or performance guarantee. In return, building owners make regular payments — either fixed amounts or a proportion

of realized savings — to the ESCO to pay back the initial investment and for ongoing services. When the contract ends, building owners assume maintenance responsibilities for the equipment and can keep all energy savings going forward. ESPCs are a common strategy for local governments pursuing larger retrofits across multiple sites.

Examples of energy savings performance contracts

The public housing authority in **Rockford, Illinois** implemented a \$7.5 million, 15-year ESPC to reduce energy use across nine of its 11 housing developments. Rockford Housing Authority started by utilizing a HUD-provided template to create an RFP, then signing an Energy Performance Contract with an ESCO who conducted an energy audit and estimated project costs. RHA finalized the plan and submitted it to HUD for approval. RHA also provided training to local lenders to encourage their participation in financing the project.

Rockford Housing Authority saved a total of \$100,000 per year between 2014 and 2015 or an average of 13 percent of costs per building. The energy and water efficiency upgrades include a prominent rooftop solar array. Notably, the housing authority won multiple awards in 2017 for its resident engagement efforts to create a culture of energy efficiency and boost energy literacy.²⁵

3. Grants or Rebates

Local governments can use **grant or rebate programs** to provide financial assistance to developers or building owners that can help offset the upfront costs associated with transitioning to all-electric systems. Grant or rebate programs can also help encourage innovation and experimentation with new technologies and approaches to building electrification, which can help drive down costs and improve the efficiency and effectiveness of these systems over time.

Households that install electric equipment like EV chargers may need to upgrade their electrical panels.

New panels are safe and efficient — but also expensive. To help residents electrify their homes, cities can offer panel and wiring rebates paired with the installation of electric appliances such as heat pumps, EV chargers, and solar.

→ a. Electric Retrofit Rebates

Examples electric Retrofit Rebates

In October 2022, **Peninsula Clean Energy** began offering the Appliance Rebate Program. Peninsula Clean Energy is a Community Choice Aggregator formed by San Mateo County and serving several Bay Area cities. The program offers a \$3,000 rebate toward an upgrade from a gas water heater to a heat pump water heater, a \$500 rebate toward an upgrade from an electric resistance water heater to a heat pump water heater, and a \$3,500 rebate toward an upgrade from a gas heater/furnace to a heat pump HVAC system. There are additional bonus rebates including \$1,500 toward an electrical panel upgrade and \$1,000 for CARE/FERA customers. The rebates can stack with regional rebates and federal incentives in the Inflation Reduction Act. In San Mateo County, Peninsula Clean Energy's Appliance Rebate Program is integrated with the BayREN Home+ program which offers rebates for energy efficiency and electrification upgrades to residents of the Bay Area's nine counties. This allows customers who work with BayREN contractors to apply for rebates from both agencies through BayREN's single application process.²⁶

In 2020, **Burlington Electric Department (BED)** Green Stimulus program launched to boost both the City's economic recovery from the pandemic and its transition to a Net Zero Energy city. BED is Vermont's largest municipality-owned electric utility, serving over 19,600 customers. The Green Stimulus program and its local rebates are funded from \$800,000 in carry-forward energy efficiency funds. Since its launch, residential cold climate heat pump installations have increased by approximately 20 times (as of January 2023). These local rebates provide up to 75 percent of the installed cost

on ductless mini-split heat pumps and a \$500 rebate for a second heat pump. BED incentives can be combined with state and federal incentives.

In 2022, Palo Alto Utilities in **Palo Alto, California** initiated a Water Heater Upgrade Program, subsidizing the cost of water heaters with revenues from the sale of cap-and-trade allowances and the Utility Department's Electric Special Projects Reserve. The process begins with a free call to their Efficiency Advisor to determine if a heat pump water heater is the right pathway and answer other home energy questions. The program offered by the City of Palo Alto Utilities provides rebates to eligible residential customers who receive utility services from them. To qualify, individuals must pay residential rates for electric and/or gas utility services and complete an online application, which must be approved prior to purchasing the equipment. The rebate is specifically intended for the replacement of existing water heaters and does not apply to new construction projects. In order to receive the rebate, participants must select a new heat pump water heater (HPWH) that meets at least Product Tier 3 or a higher tier from the Northwest Energy Efficiency Alliance (NEEA) Qualified Products List. For those replacing a natural gas water heater, projects with final inspection permits dated on or after October 4, 2022, are eligible for a rebate of \$2,300. However, if the final inspection permit is dated on or before October 3, 2022, the rebate amount for replacing a natural gas water heater is \$1,500. Program participants can stack the city's incentive with the federal Energy Efficiency tax credit of up to \$2,000.²⁷

The Department of Water and Power in **Pasadena, California** offers a \$1,000 rebate for electric panels upgraded to 200 amps or higher. To qualify for the rebate, households need to have a newly installed Level 2 EV charger or a heat pump water heater. Households can receive an additional \$500 if enrolled in the utility's income-qualified bill assistance program at the time of application submission.

Residents of **Denver, Colorado** can take advantage of a suite of Home Energy Rebates, including an

add-on electric service upgrade. Newly electrified households in need of a load capacity boost can use this rebate to help cover costs of a new electrical panel, associated wiring, or a new circuit required to install new equipment. The rebate covers 80 percent of the project cost up to \$2,000, and must be paired with another rebate – such as those for solar, EV charging, or a heat pump.

4. Tools to raise capital

Local governments may use tools such as loans, bonds, grants, and other financial instruments to secure funding for projects.²⁸

A local government can use **low-to-zero interest loans** for building electrification when they need to provide immediate funding for a project that requires upfront capital. These loans are often provided by green banks, economic development entities, and private climate finance companies and may have more flexible repayment terms compared to other financial instruments.

Green bonds are used by local governments to fund public infrastructure projects. They are often issued with fixed interest payments and are repaid over a longer period (e.g. 10 to 30 years). Local governments may issue green bonds when they need to raise large amounts of capital for long-term projects and tap into the growing pool of investors interested in climate-friendly projects.

Tariffed on-bill financing allows utilities to invest in electrification upgrades and collect repayment from utility bill charges. This approach is often used to expand access to electrification for renters and credit-constrained customers, as it does not require credit checks or building owner investment. Local governments may use this tool to provide low-cost, on-bill financing options to residents that spread the cost of upgrades out over time.

→ a. Zero-to-Low- interest loans

Low- to zero-interest loans offered by green banks,

economic development entities, and private climate finance companies can help finance all-electric building construction. These loans can also finance retrofits that upgrade to electric appliances, including but not limited to electric panels, induction stoves, and heat pumps.

Examples of Zero-to-Low- interest loans

Commercial Property Assessed Clean Energy (C-PACE) programs offer a low-interest loan model for electrification upgrades in retail, industrial, office, nonprofit, and multifamily buildings. Enabled by states and enacted by local governments, C-PACE programs fully finance the upfront cost of projects, often through green banks and third-party financiers typically provide the capital for PACE projects. Property owners save money with increased energy efficiency and pay off the loan through property taxes over an extended period of 15 to 20 years. Over 2,000 cities in the United States offer commercial PACE programs for businesses, nonprofits, and multifamily units, including nearly 140 of Connecticut's 169 towns and cities. Other C-PACE examples include Columbus, Ohio, and Atlanta, Georgia.

New York City's Green Housing Preservation Program aims to lower utility costs and greenhouse gas emissions in New York City's affordable housing sector. The program offers low- and zero-interest loans of up to \$50K or \$80K depending on project scope to small- and mid-sized building owners for energy efficiency work. Eligible efficiency projects include solar electricity, insulation, and heating upgrades.

In October 2022, Peninsula Clean Energy, a Community Choice Aggregator serving several Bay Area cities, began offering Zero Percent Loan program to homeowners in **San Mateo County** and the **City of Los Banos, California**. The loans are in addition to its substantial rebates for heat pumps, heat pump water heaters, and electrical panel upgrades (see the rebates section for more information). Their Zero Percent Loan program provides interest-free

financing up to \$10,000 per home for projects such as installing electric heat pump equipment, including water heaters and HVAC units. Gas-powered equipment is not eligible for this financing and the loan duration ranges from two to 10 years, with repayment made through monthly electric bills. No credit check is required, but customers must have a zero past-due balance on their previous three PG&E billing statements. Peninsula Clean Energy is a not-for-profit, community-controlled agency established in 2016 as a Community Choice Aggregation (CCA) program. It was formed by San Mateo County, along with all 20 of its cities and towns. In 2020, the City of Los Banos also joined the program.

→ b. Green bonds

Green bonds function like regular municipal bonds, in which a city borrows money from investors to fund public infrastructure and pays down its debt with fixed interest payments. Green bonds are limited to projects with a positive environmental impact, like reducing carbon pollution. By issuing green bonds, local governments can tap into an expanding group of financiers prioritizing investments in climate mitigation projects which could include lowering the cost of electric building projects.

Examples of green bonds

Burlington, Vermont is using green bond revenue to finance efficient electrification without raising costs for ratepayers. In December 2021, Burlington voters approved the country's first Net Zero Energy Revenue Bond, which proposed to raise \$20 million over three years to help electrify the city. The Burlington Electric Department plans to use the funds in part to expand its Green Stimulus incentives for clean electric technologies like heat pumps, electric vehicles, and induction stoves. These rebates can stack with state and federal incentives. Notably, the Net Zero Energy Revenue Bond is designed to be cost-neutral: as customers use rebates to switch to electric appliances, they will purchase more electricity from the municipal utility, and the utility can in turn use the added revenue to pay down debt.

This financing strategy is a useful model for all local governments with municipal utilities.

The **Port of Los Angeles** has issued over \$50 million in green bonds since 2016. These bonds have supported renewable energy and green building projects, including a solar array at the World Cruise Ship Terminal, and a LEED-Gold certified port police headquarters building.

→ c. Tariffed on-bill financing

Tariffed on-bill financing enables utilities to invest in electrification upgrades and collect repayment from utility bill charges. Tariffs are tied to a utility meter, not a resident, and do not require credit checks or building owner investment. Further, energy savings from the upgrade lower the cost of residents' utility bills, despite the charge. This is a great approach for expanding electrification access to renters and credit-constrained customers. Local governments and utility regulators may need to put forth legislation or regulations to support on-bill loan programs.

Boulder, Colorado submitted a tariffed on-bill financing program proposal from Xcel Energy, Colorado's largest investor-owned utility, for consideration by the Colorado Public Utilities Commission in 2023. Boulder, in partnership with the Building Electrification Institute, engaged a large coalition of stakeholders over multiple years to design an inclusive program that would meet the city's ambitious climate goals and serve lower- and moderate-income residents and renters.

→ d. Local Sales and Use Tax

Denver, Colorado has a Climate Protection Fund, funded by a 0.25% rise in local sales and use taxes to be put toward climate change mitigation. This funding was approved by Denver voters through Ballot Initiative 2A on November 3, 2020. The fund has an annual budget of \$40 million and aims to allocate over half of this fund to support communities disproportionately affected by the impacts of climate

change. \$7 million of this fund is being put toward the [Building Electrification Pilot Program](#). The intent of this funding is to “demonstrate the feasibility and benefits of all-electric buildings with local examples, show the process of how all-electric buildings can be designed, built, and operated in Denver, and pair

local examples with case studies and other resources to assist with the shift to all-electric buildings for new construction. This program is also intended to incentivize building owners to plan for electrification and make the switch to electric systems and appliances before the building code requires them to.

SECTION 3: LOCAL LEADERSHIP

1. Climate Goals and Electrification Plans

If a city wants to take action on climate, the first step is to establish climate goals and create a climate action plan. To be most effective, the plan should include building electrification targets and offer detailed strategies that advance equity and lower carbon pollution. Plan content should be developed through an inclusive process informed by diverse community and industry stakeholders. Each strategy in the plan should include specific actions the city can begin to develop and implement right away. Consideration of equity, implementation, estimated costs, financial resources, potential partners, emissions impact, and timeline will help lawmakers prioritize strategies. Plans should prioritize the collection of electric use and consumption data, which will in turn improve planning for all electrification programs.

Plans should consider including the addition of local clean energy resources, such as local solar and battery storage, in order to improve local energy resiliency and reliability to meet new electrified loads, while reducing the need for expensive grid projects. EV chargers should also be paired with local solar and batteries when possible, to reduce the impact on the electric grid.

Examples of Climate Goals and Electrification Plans

Longmont, Colorado’s Electrification Plan was created after the city’s establishment of a Climate

Emergency. The locality had already established a Sustainability Plan in 2016, a 2018 City Council Resolution committing to 100 percent renewable energy by 2030, and a Climate Action Recommendations Report (which included Recommendation BE.2, Electrification, incorporating equity and housing affordability). The next step in Longmont’s climate planning was a city-convened Building Electrification Feasibility Committee tasked with guiding and informing the planning process and the plan content. This committee focused on community and equity priorities, workforce considerations, communication strategies, and implementation details. The City’s starting points for beneficial building electrification include strategies for partnerships, policies, programs and financing.

In 2019 the **City of Alexandria, Virginia** declared a Climate Emergency and adopted its [Environmental Action Plan](#) (EAP) 2040. The plan aims to reduce greenhouse gas pollution by 50 percent by 2030, and 80 to 100 percent by 2050, with a focus on addressing local priorities. It includes order-of-magnitude cost estimates, impact analysis, and references to other documents for more detailed guidance and policy. The plan includes building electrification actions, including community deep-energy efficiency retrofit programs and the transition to electric power from fossil fuels for existing private buildings to achieve the city’s mid- and long-term goals.

Ann Arbor, Michigan initiated its 10-year journey to a carbon-neutral future in 2020, outlined in its [carbon neutrality plan](#). The plan’s third strategy is

for all new construction to have net-zero carbon pollution between 2022 and 2030. [Some local developers](#) in small- and middle-scale housing developments are voluntarily implementing these recommendations. For example, a quadplex “passive house” apartment building in the Ann Arbor Old Fourth Ward neighborhood is designed to generate more on-site energy than it consumes. A 79-unit apartment building to be constructed on North Maple Street in Ann Arbor will solely rely on electric energy and geothermal heating, and 15 percent of units will be priced more affordably. The reduced cost of energy allows for more affordable units in the building while maintaining full electrification. In 2021, the **Salt Lake City** School District in Utah launched the student-led [Sustainability Action Plan](#). The plan requires that all school buildings transition from gas-powered equipment to electric by 2040. The first two schools undergoing retrofits begin construction in the summer of 2023.

2. Workforce development programs

The Heating, Ventilation, and Air Conditioning (HVAC) sector has limited familiarity with heat pumps. As a result, customers face difficulties trying to find experienced contractors and installers. This creates a market barrier for heat pumps, and electrification more broadly. Addressing this problem will help facilitate building electrification and create family-sustaining jobs.

As much as possible, building electrification policies should include labor provisions that protect prevailing wages, create project labor agreements or labor peace agreements, include Buy American incentives or requirements, create best value procurement, create apprenticeship and pre-apprenticeship programs, preserve workers’ collective bargaining agreements and rights, and/or prioritize hire for disadvantaged and displaced workers.

Examples Workforce development programs

[RichmondBUILD](#) is a public-private partnership launched in 2007 by the **City of Richmond, California**

aimed at providing workforce training in renewable energy or construction industries to local low-income households. Over 800 residents have been trained in the renewable energy and construction sectors. Almost all graduates are minorities (90 percent) and a significant proportion have a history with the justice system (30 percent). The program runs for 16 weeks and offers sector-specific training in carpentry, waste removal, and green-collar positions. Participants are required to complete an apprenticeship in carpentry, after which they can choose from various elective courses, including solar energy, energy efficiency, electrical wiring and theory, and eco-literacy. As part of the solar program, students assist in the installation of at least two solar energy systems for low-income homeowners financed by low-interest loans. The job retention rate for program graduates is 85 percent, with an average starting salary of over \$18.00 per hour.

The **City of Ann Arbor** partnered with Michigan Saves in 2022 for an [Electrification Badging program](#) to help homeowners find knowledgeable contractors in electrification, solar, and efficiency. Contractors must complete five training modules to earn the badge and can then offer exclusive energy financing to customers. Michigan Saves offers eligible homeowners unsecured, personal loans for prequalified energy measures or improvements recommended by a whole-home energy assessment. They partner with authorized residential lenders to offer low-interest financing up to \$50,000. Homeowners are eligible for below-market interest rates with flexible terms of up to ten to 15 years with no penalty for early repayment.

The **City of Baltimore, Maryland** is a partner of the [Center for Sustainable Careers](#), operated by Civic Works, which offers various training programs for unemployed and underemployed residents of Baltimore. The training focuses on utility infrastructure, solar energy installation, stormwater management, brownfield remediation, and home energy efficiency. Participants receive industry-recognized certifications and job placement assistance after completing the program. The initiative is funded through a grant from the State

In August 2022, **Chicago, Illinois** Mayor Lightfoot and the Department of Assets, Information, and Services (AIS) announced an agreement with retail electricity supplier Constellation, in collaboration with Swift Current Energy, to help meet the Mayor's commitment to purchase renewable energy for all City facilities and operations by 2025. The City allocated funds from the Chicago Recovery Plan to accelerate energy retrofits and renewable energy generation, beginning with libraries in historically underserved communities on the South and West sides. The City's procurement process evaluated proposals based on community benefits and the ability to construct new renewable energy in Illinois. The companies will work towards compliance with the utility-scale renewables diverse workforce and labor requirements of the state Clean

The Energy Coordinating Agency, a nonprofit in **Philadelphia, Pennsylvania**, opened a heat pump training lab in May 2023. The new heat pump lab supplements ECA's existing HVAC training facility with heat pump systems from multiple manufacturers. Appliances in the lab include a heat pump clothes dryer, heat pump water heater, and numerous home heating and cooling systems, including ductless mini splits. The program aims to train 500 people each year — from high school students to experienced HVAC installers. The Philadelphia Energy Authority has committed \$100,000 to sending 30-40 individuals through the training program. ECA will also prioritize lower-income residents, Black and other people of color, women and the formerly incarcerated for training spots, as well as offer the courses for free to these groups.

Annual Savings: Replacing Propane or Fuel Oil Heating with a Heat Pump											ME \$152 73%
									VT \$329 60%	NH \$431 61%	MA \$198 28%
									NY \$843 24%	CT \$250 44%	RI \$450 33%
									PA \$1,115 20%	NJ \$1,480 9%	
CA \$382 3%	NV \$841 3%	UT \$1,114 2%	CO \$900 4%	KS \$917 7%	MO \$1,202 9%	KY \$1,401 6%	WV \$1,100 8%	DC \$664 2%	MD \$1,722 11%	DE \$1,620 21%	
		AZ \$575 2%	NM \$702 7%	OK \$1,289 6%	AR \$1,233 6%	TN \$1,535 4%	VA \$1,528 8%	NC \$1,431 10%			
			TX \$884 3%	LA \$897 2%	MS \$1,111 11%	AL \$1,299 6%	GA \$1,100 4%	SC \$1,175 4%			
							FL \$963 1%				

3. Target Delivered Fuels

One of the highest-impact residential decarbonization actions local governments can take is switching to electric heat pumps from delivered fuels, like propane and heating oils. This swap improves indoor air quality and health outcomes while significantly lowering heating costs. **Switching to heat pumps from delivered fuels would save 87% of U.S. households money on their utility bills.** Local leaders should focus efforts on low- and moderate-income households dependent on delivered fuels.

According to [Atlas Building Hub](#), the U.S. Northeast Census Region is home to nearly 80 percent of all U.S. households reliant on fuel oil for space heating, and more than 90 percent of all U.S. households dependent on fuel oil for water heating. The price per gallon of fuel oil in November 2022 in New England was 67 percent higher than the year prior (<\$3.50 vs. \$5.50), sending energy bills skyrocketing. In the Mid-Atlantic states (NJ, PA, and NY), fuel oil prices per gallon that November increased 64 percent year over year (<\$3.50 vs. \$5.74).

→ B. Develop fuel-switching programs

Households that currently rely on fuel oil and propane for space and water heating can reduce pollution and save on their bills by switching to efficient electric heat pumps. Cities can offer targeted programs that make it easier and cheaper for low- and middle-income households to replace their fossil fuel furnaces and water heaters.

Examples of develop fuel-switching programs

In 2023, **Seattle** City Council approved \$2.6 million in funding to convert homes using fuel oil for heating to convert to heat pump heating. The 2023/2024 budget allocates \$1.7 million to fully cover 125 low-income home conversions and \$800,000 for the rebate program to fund approximately 400 homes. Seattle's [Clean Heat Program](#) offers a \$2,000 instant rebate when households switch from fuel oil to a Mitsubishi Electric Heat Pump. Seattle's Office of Sustainability and Environment estimates that there

are only about 10-12k homes in Seattle still heating with oil, whereas there were 18k households back in 2017. The office's goal is to assist in transitioning residents away from oil-based heating systems by 2028. Since the program was launched, the number of heating oil companies in the city has decreased from 5 to 2 and based on the program's progress, they anticipate that there will be no remaining heating oil used in Seattle by 2028.

→ C. Simultaneous weatherization and electrification

The federal Weatherization Assistance Program (WAP) has supported home upgrades since the 1970s. But WAP funds can't always be used for electrical upgrades, and homes with issues like faulty wiring, lead-based paint, or mold might be deferred. This makes it harder for low-income households with overlapping burdens to access the program. Local governments can address this gap by offering holistic, whole-home retrofits that weatherize and electrify homes at the same time.

Examples of Simultaneous weatherization and electrification

In 2021, the "[Built to Last](#)" program in **Philadelphia, Pennsylvania** launched its first pilot to deliver whole-home retrofits to 50 low-income homeowners — the program is now in its second pilot phase. Built to Last offers a benefits assessment, holistic property assessment, and streamlined construction management. Service providers can deliver energy efficiency, electrification, and solar where appropriate. This program is a strong fit for cities like Philadelphia, which has a high rate of home ownership (49 percent) and more than 60,000 homeowners living in poverty. With many old homes in need of multiple repairs, Philadelphia has over a 25 percent WAP denial rate.

The **Beneficial Electrification League (BEL)**, a national non-profit, is working with cooperative electric utilities across the U.S. to pilot joint weatherization and electrification for low-income homes. Launched

in 2022, BEL's [Weatherization/Electrification Together](#) initiative partners with electric cooperative utilities such as La Plata Electric Association in Colorado, Flint Energies in Georgia, and Anza Electric Cooperative in California. [Initial results](#) of their demonstration projects show that traditional weatherization combined with advanced metering, wiring upgrades, heat pump and induction stove installation delivered dramatically lower energy consumption.

In 2022, Elevate Energy, Project Home, and the Community and Economic Development Association of **Cook County, Illinois** received [\\$2 million](#) in DOE Enhancement & Innovation (E&I) funding to pair WAP-administered weatherization with building electrification. This "one stop shop" program plans to deliver retrofits to 900 low-income multifamily housing units across Cook County, Illinois and Dane County, Wisconsin. This project could serve as a model for deep energy retrofits in other underserved communities.

4. Local government procurement

Local governments can lead by example by using their building management and purchasing decisions to walk the walk on electrification. Clean procurement makes government buildings and budgets healthier. It also accelerates the local market because there will be more experienced contractors, lower energy rates in many states, and possibly lower-cost equipment available as manufacturers and distributors are able to take advantage of economies of scale.

- To help electrify their operations and their communities, local governments can make the following procurement decisions:
- Electrify local government buildings, including offices, community centers, and, if applicable, schools and city-run affordable housing.
- Electrification efforts can include procurement requirements that ensure any government-owned building replacing a piece of fossil fuel-powered equipment does so with an electric machine.

- If the local government is already purchasing electric equipment for their buildings, they can expand their order to make a bulk purchase at a lower cost, then allow residents to access the equipment at the negotiated bulk rate.

→ a. Bulk purchasing

Bulk purchasing, or buying a product in large quantities, reduces the cost per unit. Local governments can aggregate demand and negotiate with suppliers to get better prices for new technologies like heat pumps, then pass savings on to residents. Bulk purchasing campaigns can also increase awareness and adoption of new technologies and create economies of scale for installation and maintenance services.

Examples Local government procurement

The **City of Portland, Maine** is using a [bulk purchasing program](#) to offer lower-cost solar panels, heat pumps, and electric vehicle chargers for homeowners and businesses as part of an initiative to lessen fossil fuel use. The 2021 "Electrify Everything" campaign began as part of the city's goal to reduce community-wide greenhouse gas emissions by 80 percent by 2050. The city released requests for proposals to energy efficiency providers and solar partners soliciting discounted pricing for equipment in September 2021.

Localities in **Oregon** and **Washington**, including **Coos County, Bellevue, Issaquah, Kirkland, Mercer Island**, and **Redmond**, campaigned for heat pump collective purchasing through [Energized South Coast](#) and [Energy Smart Eastside](#). The groups have partnered with heat pump wholesalers and community organizations to offer heat pumps at a discounted rate. These programs offer rebates of \$500 to \$2,400 for heat pump upgrades to residents who attend a free, one-hour online workshop. Further, these rebates can be stacked with other incentive programs like utility rebates, state programs, and federal tax credits for heat pumps. The Eastside Climate Collective applied for a grant and received

it, and is now administering it in partnership with the King County Housing Authority.

→ b. Procurement requirements

Procurement requirements are policies that require local government agencies to purchase goods from specific sources. They exist to ensure that governments make purchasing decisions based on the public good. Clean procurement can increase demand for electrification technologies and promote their adoption. To spur building electrification, local governments may require agencies and contractors who do business with the city to purchase heat pumps and other electric appliances when older, fossil-fueled technologies need replacement.

Procurement requirements primarily influence the purchasing decisions of local governments and contractors who do business with them, but they also have spillover effects. For example, procurement requirements may increase local contractors' knowledge of and comfort with electric technologies, making contractors more likely to talk up the benefits of electrification with other customers. To maximize spillover benefits, local procurement decisions should include a focus on contractor training.

Examples of procurement requirements

In December 2022, New York's Governor released the first state-led green purchasing program for local governments. The program is administered by the Department of Environmental Conservation and the Office of General Services. All local governments in New York State are eligible to participate in the program if they update their policies to require purchasers to follow the state's GreenNY purchasing specifications and submit an application. GreenNY specifications for heating and cooling equipment cover air-source heat pumps, ground-source heat pumps, heat pump water heaters, and variable refrigerant flow systems.

→ c. Community choice aggregation

Local governments can use **Community Choice Aggregation** (CCA) to purchase and provide clean

electricity to their residents and businesses while still relying on the existing power grid. CCAs allow a community to choose a higher percentage of renewable energy sources than the default utility provider offers. This boosts the climate benefit of every building electrification project because the power comes from a zero- or low-carbon mix. CCAs can also offer lower-cost power, which means a faster payback on investments in all-electric buildings. This can be especially beneficial for low-income communities that are often disproportionately impacted by high energy bills. CCAs should include local clean energy resources (ie. in-state). Otherwise, a CCA could rely on RECs and/or far-away, large-scale renewables.

Localities can reduce costs by utilizing the Clean Electricity Investment Tax Credit. The Clean Electricity Investment Tax Credit (CEITC) is available for any investment in a qualified facility and storage facility that is placed in service after December 31, 2024, and produces or stores electricity with a greenhouse gas emissions rate of zero.

Examples of Community choice aggregation

As of April 2018, the majority of **Contra Costa, California** residents are buying renewable electricity from Marin Clean Energy (MCE), a not-for-profit clean energy provider. On March 24, 2020, the Board of Supervisors voted to go Deep Green with MCE, or 100 percent renewable, for the majority of the County's accounts. This decision went into effect for the County's 2021-2022 fiscal year budget and is expected to eliminate over 1,500 metric tons of carbon pollution each year. On January 18, 2022, the Board of Supervisors adopted its [All-Electric Building Ordinance](#) requiring new construction of all residential, hotel, office, and retail buildings to be all-electric. This process was cost-effective in part due to CCA. MCE and PG&E have teamed up to compare electric rates, monthly bills, and where electricity comes from for their customers. [A chart](#) illustrates how their rates and bills compare, as well as what types of energy sources are used to generate electricity for different types of customers. The chart shows that MCE Light Green (61 percent renewable) is slightly cheaper than PG&E rates, while MCE Deep Green is slightly higher.

High-Road Workforce Guide for City Climate Action

APRIL 2021



PREPARED FOR THE
American Cities
Climate Challenge



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II. IMPLEMENTING A HIGH-ROAD WORKFORCE PLAN

Implementing a high-road workforce plan as part of a city's climate efforts requires carefully planned policy and program design to ensure both job quality and equitable job access. Some climate-related jobs—such as installation of utility-scale renewables, transit infrastructure, or deep energy retrofits of large commercial buildings—require highly skilled and trained workers. To attract and retain a qualified workforce, higher pay and better benefits are typically required. In public works construction, there may be a prevailing wage standard, ensuring the higher pay that attracts workers with more skills. Even outside of public contracts, large or aggregated small projects can create the economies of scale necessary to adopt more stringent contracting conditions.

In contrast, in smaller scale and less centralized or disaggregated work—such as residential retrofits or rooftop solar—skills, training, and safety standards are typically lower or not enforced. Under these conditions, worker pay tends to be lower, retaining a skilled workforce is difficult, and pathways to career advancement are lacking.²³

Low job quality and barriers to access and advancement can have political ramifications for community buy-in to climate strategies. Unionized workers in the high-skill, high-job-quality utility sector may be worried about distributed rooftop solar installation eroding labor standards throughout the industry. Without levers to improve career-track job access, underrepresented or disadvantaged individuals may not see their future in a low-carbon economy. Community organizations advocating for employment for unemployed city residents may come to view green jobs training programs as merely another low-wage, dead-end opportunity that fails to deliver upward mobility.

Fortunately, city staff have many opportunities to improve both quality and equitable access to jobs in the climate landscape. Cities can leverage their contracting and procurement processes to ensure that construction contractors provide access to high-quality jobs for disadvantaged city workers. They can partner with utilities to help establish efficiency rebate programs that rely on contractors with a proven track record of providing high-quality work and good jobs. They can partner with city and state agencies to generate demand for climate jobs through low-income solar installation programs that provide on-the-job experience for individuals engaged in particular training programs. They can fund clean energy and construction training programs for city workers to get started on a career path. Cities can establish skill standards for clean energy and climate projects within city limits. They can work with employers to commit to interviewing or hiring workers from specified training programs.

The range of workforce interventions is vast. Some solutions work to “pull” workers into training opportunities and jobs by conditioning investments or incentives on specific workforce criteria. These are demand-side interventions. Other solutions work to “push” workers into the labor market by providing education, training, and support services. These are supply-side interventions. Optimally, cities will undertake a coordinated approach to demand- and supply-side interventions, as depicted in Figure 7 in Part 1, engaging a range of organizations and partners to coordinate their programs and activities around the city's climate ambitions. The sections below detail and provide examples of demand- and supply-side interventions to inform and inspire cities to develop their own solutions.

23 Betony Jones and Carol Zabin. July 2, 2015. ([See p.14](#))

A.

DEMAND-SIDE SOLUTIONS: CREATING GOOD JOBS AND ENSURING EQUITABLE ACCESS

1.

POLICIES, PROGRAMS, AND INVESTMENTS THAT DRIVE PRIVATE-SECTOR WORKFORCE DEMAND AND CREATE JOBS

Cities can adopt policies to stimulate demand for low-carbon technologies or services using their regulatory power and public investment portfolio. For example, changes to building codes, benchmarking ordinances, and municipal retrofits all stimulate investments in better buildings. Cities can adopt new standards for buildings that require private entities to make investments to reduce emissions or install EV charging infrastructure. These investments create demand for the workers needed to install new systems and equipment, construct new facilities, retrofit buildings, and maintain efficient systems. Please note that while these policies and investments create jobs, they do not automatically create high-quality jobs or jobs that are equitably accessible.

a.

BENCHMARKING AND TRANSPARENCY ORDINANCES

Benchmarking and transparency ordinances require building owners to track and report their energy (and sometimes water) consumption and share that information with local government and the public. These initial metrics act as a “benchmark” and allow building owners to compare their building’s energy use to similar buildings in the region and understand the scale of opportunity for energy improvements in their buildings.

Benchmarking and transparency ordinances create few direct jobs, but they generate demand for building retrofits, which in turn creates jobs.

b.

BUILDING PERFORMANCE STANDARDS

Cities have also passed ordinances that require building owners to increase energy efficiency through prescriptive actions that reduce energy consumption over time until they meet a threshold considered to be efficient for their building type and size.²⁴ These policies create immediate demand for energy auditors and engineers to perform audits, as well as for construction workers, lighting technicians, and building energy system managers. Large building retrofits create four to six jobs per \$1 million spent.

²⁴ For local ordinance examples see: California Energy Commission. Exempted Local Benchmarking Ordinances. Retrieved January 6, 2021 from <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-benchmarking-program/exempted-local-benchmarking>.

In **Washington D.C.**, Building Energy Performance Standards (or BEPS) require private buildings greater than 50,000 square feet and city buildings over 10,000 square feet to meet specific energy targets, which will stimulate market demand for energy auditing, retrofit, and inspection services. For work on their own buildings, cities have direct influence over the quality of jobs created and who can access them.

c.

CHANGES TO BUILDING CODES

Updating building codes to encourage or require more efficient construction standards generates demand from construction employers for workers with building skills related to energy efficiency or building energy performance. These policies generally do not generate demand for new jobs, but rather require workers already in the labor market to upgrade their skills to meet new demands or become adept in working with new technologies and building equipment.

d.

RENEWABLE PORTFOLIO STANDARDS OR ELECTRICITY PROCUREMENT

Renewable portfolio standards require utilities to generate or procure a certain percentage of their electricity from renewable sources like wind and solar. City renewable electricity procurement standards are similar but undertaken at the level of local government rather than by the utilities. These policies generate demand for investments in the construction, installation, and maintenance of renewable energy generation resources. This approach creates demand for workers in the construction and utility sectors. If the renewable development occurs locally and with targeted hire standards, these policies can create local jobs and other economic benefits. In fact, local economic analysis shows that the local

economic benefits exceed the negative economic impacts of more expensive energy.

The clean energy procurement plan of the **City of Chicago** requires a minimum of 50 percent of the renewable electricity delivered by 2025 to be from newly built projects, a requirement that ensures new energy projects are built. In addition, the plan prioritizes proposals that include local projects, support local suppliers, leverage the local workforce for construction and operations, encourage diversity in developer and supplier leadership teams, and support other community benefits. The more local development there is, the more clean energy jobs there will be for city workers.

Beyond prioritizing local projects, cities can establish set-asides for local projects, cooperative ownership structures, and projects that commit to union labor and targeted hire criteria. These types of quantifiable targets generate good and inclusive local jobs.

e.

MARKET TRANSFORMATION PROGRAMS

In addition to the above-mentioned regulatory policies, cities can partner with utilities and state agencies to create programs that provide incentives, rebates, and no-to-low-cost services for individuals to invest in clean energy and other climate solutions. For example, cities can work with utilities to establish programs that provide customers with appliance rebates, retrofit incentives, or no-to-low-cost weatherization services. Cities can also partner with utilities and state agencies to create and fund programs that create jobs through low-income solar installation, building electrification, EV charging infrastructure, or energy efficiency improvements. In order to ensure that these programs achieve efficiency goals and provide good jobs, program designers can require participants to use pre-approved contractors with a proven track record of delivering high-quality work with high-quality working standards.

These types of downstream programs need a ready supply of local workers to perform the work. They offer an ideal opportunity to either create or partner with a local training organization to provide a pipeline of trained workers that meet the city's equity goals. Training organizations often provide these training opportunities to residents from target populations (i.e., low income, underrepresented, unemployed/underemployed, women, returning citizens, opportunity youth, etc.), providing more equitable access to local clean energy jobs.

In 2018, the Mayor's Office of **Nashville, Tennessee**, announced the launch of the [NES Home Energy Uplift \(HEU\) Program](#), a weatherization program for limited-income homeowners in Davidson County. The program was created through a collaboration with Nashville Electric Service (NES) and the Tennessee Valley Authority (TVA) and receives funding from the TVA and the Federal Home Loan Bank of Cincinnati.²⁵ The City of Nashville was awarded a \$300,000 grant from the Southeast Sustainable Communities Fund (SSCF) to create an energy efficiency workforce training program at the Nashville Career Advancement Center (NCAC). The program addressed the need for retrofit technicians for the Home Energy Uplift Program, while providing low-income or unemployed/underemployed Nashvillians with training, industry-recognized certification, and career pathways in the energy efficiency sector.²⁶

25 Mayor Briley, TVA and NES Celebrate 200th Home Weatherized Through Home Energy Uplift Program. August 8, 2019. Metropolitan Government of Nashville and Davidson County, Tennessee. Retrieved January 6, 2021 from <https://www.nashville.gov/News-Media/News-Article/ID/8808/Mayor-Briley-TVA-And-NES-Celebrate-200th-Home-Weatherized-Through-Home-Energy-Uplift-Program.aspx>.

26 Thomas Mulgrew. December 2, 2018. Mayor Briley Announces Funding to Support Workforce Training for NES Home Energy Uplift Weatherization Program. Metropolitan Government of Nashville and Davidson County, Tennessee. Retrieved January 6, 2021 from <https://www.nashville.gov/News-Media/News-Article/ID/8137/Mayor-Briley-Announces-Funding-to-Support-Workforce-Training-for-NES-Home-Energy-Uplift-Weatherization-Program.aspx>.

[PUSH Green](#), a nonprofit community-based energy efficiency program in **Buffalo, New York**, is working with local residents and contractors to create an equitable, community-controlled energy efficiency retrofit economy. In order to ensure demand for skilled energy efficiency retrofit providers, PUSH Green provides opportunities for workforce volunteers to engage in customer outreach campaigns in neighborhoods across Erie County to educate residents about the benefits of energy efficiency improvements.²⁷ PUSH Green is funded by People United for Sustainable Housing (PUSH Buffalo) and the New York State Energy Research and Development Authority (NYSERDA).

In **Washington, D.C.**, the Department of Energy & Environment (DOEE) and the Department of Employment Services (DOES) partnered in 2017 to create [Solar Works D.C.](#), a solar installation and job training program targeting low-and moderate-income residents. The DOEE and DOES awarded a \$950,000 grant to GRID Alternatives Mid-Atlantic to administer Solar Work's job training program. Participants in the 12-week training program complete GRID Alternative's Installation Basics Training (IBT) program and earn industry-relevant skill certificates by demonstrating competency in real-world solar installations. Solar Works D.C. is financed through the District of Columbia's Renewable Energy Development Fund by utility-compliance fees (fees that utilities have to pay if they do not reach city-mandated renewable energy goals).²⁸

27 People United for Sustainable Housing (PUSH) Buffalo. PUSH Green. Retrieved January 6, 2021 from <https://www.pushbuffalo.org/push-green/>.

28 Nicole Javorsky. December 26, 2018. *Inside the Bill That Set the 'Strongest Clean Energy Requirement in the Nation.'* Washington, D.C., is on track to set a more ambitious timeline for fighting climate change than any state. Bloomberg CityLab. Retrieved January 6, 2021 from <https://www.bloomberg.com/news/articles/2018-12-26/inside-washington-d-c-s-ambitious-climate-change-bill>.

f.

EXPANSION OF WALKING AND BICYCLING INFRASTRUCTURE

Expanding the city's active transportation infrastructure, enhancing the safety of active transportation, and reducing barriers for individuals to depend on active transportation can drive demand for non-motorized transportation vehicles like bicycles and scooters. This demand, in turn, supports local bicycle shops and bike mechanics and can even signal a friendly environment for entrepreneurs making and selling related accessories. It may be more accessible for small businesses to produce accessories and clothing for active transportation than for cars and trucks.

g.

PUBLIC INVESTMENTS, SUCH AS FOR BUILDING RETROFITS, EV CHARGING, TRANSIT INFRASTRUCTURE, OR ELECTRIC BUS PURCHASES

Local governments can design public investments in clean energy and climate action in ways that promote high job quality and job access for disadvantaged workers. It's important to be aware that public spending creates jobs, but without intention, local governments can inadvertently create jobs elsewhere or support the creation of low-road dead-end jobs. Often state and local governments fail to extract as much local economic value out of their spending as they could. Utilizing the demand mechanisms outlined below will ensure this does not happen. Whether cities are upgrading their own buildings to use less energy, installing EV charging stations, expanding transit infrastructure, or even electrifying public buses, these efforts can support good jobs and equitable access to them when designed intentionally.

2.

DEMAND MECHANISMS TO IMPROVE JOB QUALITY IN THE PRIVATE AND PUBLIC SECTORS

a.

CREDENTIALING AND OTHER SKILL STANDARDS

Establishing skill requirements and demonstrated achievement of an industry-recognized credential for workers on clean energy and energy efficiency projects is one lever within the city toolkit that can improve job quality, work performance, and ultimately, market transformation. While most job-quality levers require the use of public money, credentialing or skill standards can be used regardless of the source of funding. Even for private-sector investments, cities or utilities can establish skill standards to ensure adequate and public and worker safety and consumer protection.

Credentialing systems can achieve a variety of purposes in labor markets and workforce development ecosystems. Effective systems operate industry-wide and are designed based on input from employers, providing clear signals to workers about the skills employers need and that will also help advance their careers.²⁹

Some industries and occupations will already have an existing system of credentials. In these instances, policies to "green" the sector may want to consider how these credentialing systems, as well as the curriculum for the educational and training institutions that support them, can be updated to reflect new skills needs. Current workers may need to re-enter

29 Sarah White, Laura Dresser, and Joel Rogers. 2012. *Greener Reality: Jobs, Skills and Equity in a Cleaner U.S. Economy*. Madison, WI: Center on Wisconsin Strategy. Retrieved January 6, 2021 from <https://www.cows.org/greener-reality-jobs-skills-and-equity-in-a-cleaner-us-economy>. 1.

training programs and “upskill” to meet shifting labor market demands. Even when industries do have such credentialing systems, however, they can often be complex and disorganized.³⁰ There may be overlapping or competing credentials. Some employers may value and use existing credentials in their hiring and promotion decisions, while others may not. Industry partnerships can help bring order to these systems by standardizing systems among employers and offering workers clarity on how to acquire the skills necessary to advance their careers.

In addition to adopting skill standards, cities can promote credentialing systems by encouraging their use among contractors (either as a type of contract standard or as an incentive in a “best value contracting” system) and recipients of public monies in the form of tax credits or rebates.

[Building Skills Partnerships in Los Angeles](#), California, convenes industry leaders—including SEIU United Service Workers West, the Building Owners and Managers Association of Los Angeles, the National Green Building Council, and janitorial service companies—to develop, implement, evaluate, and modify a standardized credential and career pathway system. Workers gain English-language skills, marketable skills, and opportunities for advancement. Building owners and managers get a workforce with the skills necessary to meet the region’s mandatory and voluntary high-performance building standards.³¹

30 Sarah White, Laura Dresser, and Joel Rogers. 2010. *Greener Skills: How Credentials Create Value in the Clean Energy Economy*. Madison, WI: Center on Wisconsin Strategy. Retrieved January 6, 2021 from <https://www.cows.org/greener-skills-how-credentials-create-value-in-the-clean-energy-economy>.

31 California Workforce Development Board. 2018. *The High Road to Janitorial Services*. California Workforce Development Board website. Retrieved January 6, 2021 from <https://cwddb.ca.gov/wp-content/uploads/sites/43/2019/11/High-Road-to-Janitorial-11-25-2019.pdf>.

b.

CONTRACTOR PRE-QUALIFICATION OR RESPONSIBLE CONTRACTOR CRITERIA

In order to streamline the bidding process, cities may choose to pre-qualify firms based on: demonstrated evidence of a skilled workforce (using skill standards or credentials); a history of quality workmanship; no citations or evidence of wage, labor, or building code violations; and other responsible employer criteria. Providing a pre-approved list of vendors is also useful for private-sector consumers seeking qualified contractors. Having contractors pre-qualify can save time and money for both city staff and contractors and point private consumers to qualified firms. Pre-qualification can include being added to a list of approved vendors so that city staff do not have to assess whether they meet established standards. It can also be coupled with a fee waiver to encourage contractors to devote the time up front to qualifying. Cities must be proactive in providing the resources for small, minority-, and women-owned business enterprises (MWBs) to pre-qualify to bid on contracts.³²

The [Washington State Department of Transportation \(WSDOT\)](#) requires contractor pre-qualification to bid on highway construction projects. In addition to the list of prequalified contractors, WSDOT also maintains a “small business roster” of contractors certified to bid on small works projects of \$300,000 or less. This system, which also tracks whether businesses are small and minority- or women-owned, allows smaller businesses that would not be competitive for large public contracts to benefit from public works projects.

32 Denise Fairchild and Kalima Rose. 2018. *Inclusive Procurement and Contracting: Building a Field of Policy and Practice*. PolicyLink / Emerald Cities Collaborative. Retrieved January 6, 2021 from <https://www.policylink.org/resources-tools/inclusive-procurement-and-contracting>.

○ The Delaware Sustainable Energy Utility has a [Responsible Contractor Policy](#) requiring contractors and subcontractors that perform work valued at more than \$25,000 on any public facility or public works project to meet 15 specific criteria indicating employer responsibility and evidence of a skilled workforce. The goal of the policy is to ensure that firms receiving public contracts provide adequate wages and benefits to their employees; utilize fair business, employment and training practices; and have a positive impact on local communities.

3.

PUBLIC SECTOR MECHANISMS TO IMPROVE JOB QUALITY

Leveraging city contracts and procurement processes can take many forms, but the most common are wage requirements, procurement standards, and best value contracting.³³

a.

WAGE REQUIREMENTS

Wage requirements establish a minimum wage and specified fringe benefits for all workers on a particular project or in a particular locale. Two examples include living-wage ordinances, which set a minimum wage for all employees at firms doing business with the city, and prevailing wage ordinances, which operate like living-wage ordinances but establish minimum wages by occupation based on area standards.³⁴

33 Joel Rogers and Satya Rhodes-Conway. 2014. *Cities at Work: City Policies to Rebuild the Middle Class*. Center on Wisconsin Strategy (COWS)/Center for American Progress (CAP) Action Fund. Retrieved January 6, 2021 from <https://community-wealth.org/content/cities-work-progressive-local-policies-rebuild-middle-class>.

34 Prevailing wage ordinances can be extended beyond municipal contractors to also include firms that receive public subsidies and firms that provide services to buildings where the city leases space. For more, see *Cities at Work: Progressive Local Policies to Rebuild the Middle Class*.

b.

CONTRACTING AND PROCUREMENT STANDARDS

Contracting and procurement requirements are standards to which all firms must adhere in order to do business with the city. Cities can require contractors to hire city residents, members of apprenticeship programs, or graduates of other training programs to fill a certain portion of the work hours associated with the contracted project. Such standards establish labor or environmental standards for firms from which a municipality buys goods or procures services. Because cities often purchase goods manufactured far away, enforcement can be challenging. Policies that encourage municipalities to purchase goods manufactured locally or regionally not only makes enforcement easier, but can also improve local economies and reduce a city's environmental footprint.

○ The organization [Jobs to Move America](#) has developed a fully customizable public procurement policy called the [U.S. Employment Plan](#), which has been used by city governments and transit agencies to attach labor standards to procurement of buses and other transit vehicles. In 2017, the **Los Angeles** Department of Transportation (LA DOT) committed to electrify its transit fleet by 2030 and to condition its purchases on local hire criteria specified in the U.S. Employment Plan. Following this demand commitment, a training partnership has been established among the Los Angeles County Workforce Department, bus manufacturer Proterra, United Steelworkers (USW) Local 675, Jobs to Move America, and Citrus College to provide a nine-week training program for electric bus manufacturing jobs.

C.

BEST VALUE CONTRACTING

Under a best value contracting system, contracts are awarded based on a determination of which firms provide the most value in terms of cost and additional criteria. RFPs (requests for proposals) ask firms to submit information relating to their environmental, social, and governance (ESG) performance, including their hiring, employment, and labor practices. Firms receive points based on their answers. Cities may choose, for example, to allocate one point to a firm that has never violated wage and hour law and five points to a firm that pays workers a living wage and provides health insurance. Firms may also receive points for adopting hiring and promotion criteria based on relevant skills certification systems.

The Performance Based Studies Research Group at Arizona State University has tracked hundreds of projects across 41 industries that have used their best value contracting tools and has found consistent cost savings and added value over traditional delivery models.³⁵

d.

SUPPLIER DIVERSITY PROGRAMS

Cities can support equity and increase the number of small, minority-, and women-owned contractors that they do business with by instituting preferences for contractors who meet this definition. For small projects, cities may give preference to small MWBEs as part of a best value contracting program. Larger projects often encourage primary contract

recipients to set targets for the number of minority- and women-owned subcontractors they will hire over the course of the project. The Emerald Cities Collaborative and PolicyLink produced a comprehensive guide to [Inclusive Procurement and Contracting: Building a Field of Policy and Practice](#) that details specific strategies to streamline city procurement to increase participation of small MWBEs.³⁶ Minority contractors are more likely to hire minority workers, so supplier diversity at the firm level can increase diversity in the workforce.

The [Chicago Anchors for a Strong Economy](#) connects small businesses to large anchor institutions, such as utilities, hospitals, universities, and corporations that invest, purchase, and hire from local businesses across the **Chicago** area to support neighborhood economic vitality. The network has committed \$50.6 million in revenue to 236 small businesses and created 180 jobs.

As part of a multi-billion-dollar investment into upgrading the city's water and sewer infrastructure, the **San Francisco** Public Utility Commission established the [Contractor's Assistance Center](#) where contractors can gain access to information about projects and the technical and financial resources needed to compete for subcontracts.

In 2010, **Seattle** Mayor Mike McGinn signed the [Outreach to Women and Minority Businesses Executive Order](#), which required every department in the city government to publish annual plans and voluntary goals for inclusion of MWBEs in consulting and purchasing contracts every year. In 2014, Mayor Ed Murray signed the [Equity in City Contracting Executive Order](#), which strengthened Seattle's efforts to include MWBE participation in city contracts and made it easier for MWBEs to pursue city contracts. The order required departments to promptly pay invoices, support MWBEs by providing technical assistance, and increase accountability and coordination to ensure fair and

³⁵ Dean Kashiwagi. 2011. Case Study: Best Value Procurement/Performance Information Procurement System Development. Journal for the Advancement of Performance Information and Value 3, no. 1 (January). Retrieved January 6, 2021 from <http://journal.cibw117.org/index.php/japiv/article/view/104/103>.

³⁶ Denise Fairchild and Kalima Rose. 2018 ([See p.58](#))

equitable treatment among all businesses competing for public works, purchasing, and consulting contracts.

High standards in terms of safety and work quality create barriers that prevent some contractors from competing for city projects. Meeting high standards in terms of insurance and bonding needed to compete for city RFPs can be especially challenging for small contractors, contractors of color, and veteran-, disabled-, and women-owned contractors. Rather than lower standards that endanger the safety of workers on city contracts, cities can support these contractors to acquire the insurance and bonding necessary to be eligible for city contracts.

○ [Merriwether & Williams Insurance Services](#) in **Oakland, California**, supports small, local, minority- and women- owned contractors to obtain insurance and bonding and help them navigate the process of applying to compete for public works contracts.

4.

DEMAND MECHANISMS TO IMPROVE JOB ACCESS IN THE PRIVATE AND PUBLIC SECTORS

a.

LOCAL AND TARGETED HIRE

In addition to supporting businesses owned by women and people of color, cities may wish to increase the number of city residents hired to perform work by city contractors through local hire agreements.

In order to prioritize equitable job access, cities can take local hire agreements a step further through targeted hire initiatives. Targeted hire initiatives create institutional mechanisms to ensure that a fair share of jobs created by public dollars benefit disadvantaged workers, who often have trouble accessing the renewable energy and energy efficiency workforce pipeline. Targeted hires can refer to a range of worker characteristics, such as veteran status, gender, race, ethnicity (if allowed—some states have policies prohibiting racial quotas), residency in a low-income zip codes, prior incarceration, disability, or long-term unemployment.³⁷ Targeted hire initiatives can be implemented through policy tools such as community workforce agreements, workforce participation goals, project labor agreements, and contract provisions, or institutional structures such as executive orders, resolutions, and ordinances.

37 Lucero E. Herrera, Saba Waheed, Tia Koonse, and Clairen Ovando-Lacroux. 2014. *Exploring Targeted Hire: An Assessment of Best Practices in the Construction Industry*. UCLA Labor Center. Retrieved January 6, 2021 from <https://www.labor.ucla.edu/wp-content/uploads/2018/06/Exploring-Targeted-Hire.pdf>.

The State of Minnesota set [Workforce Participation Goals](#) for publicly funded construction contracts that exceed \$100,000 and have more than 40 full-time employees. The workforce participation goals are expressed in percentages of the total hours of employment and training of women and minorities used on the project. Each region of Minnesota has different workforce participation goals, depending on the demographics of the region. The goals were last updated in 2017 with guidance from an advisor taskforce, comprised of contractors, unions, members of the various trades, and the public.³⁸

b.

SETTING PROJECT STANDARDS THROUGH AGREEMENTS

Cities can also leverage public subsidies, zoning, and other approval processes to encourage private developers and related employers to enter into agreements with community organizations or labor unions. These agreements are often known as:

- **Project Labor Agreements (PLAs)**—between developers, contractors, and unions;
- **Community Workforce Agreements (CWAs)**—generally between developers, contractors, and unions, but expanded to include local or disadvantaged worker hiring targets; and
- **Community Benefits Agreements (CBAs)**—between developers, contractors, unions, or community-based organizations, covering a wider array of issues.

³⁸ Minnesota Department of Human Rights. 2017. 2017 Minnesota Workforce Goals Report. Minnesota Department of Human Rights. Retrieved January 6, 2021 from http://thealliancet.org/wp-content/uploads/2017/07/2017-Workforce_Goals_Report_Final_MDHR-c2.pdf.

All the various agreements create equitable access to jobs while ensuring that projects are completed by skilled workers, are not interrupted by labor disputes, and do not significantly raise project construction costs.³⁹

“There’s a lot of construction going on, but if it’s not union construction or under a PLA, we don’t have the leverage for placing underserved populations on construction sites. If the agreement doesn’t come with a prevailing wage requirement and language that prioritizes local workforces and populations, it makes it harder for us to place folks.”

– Rayna Lehman, Director, AFL-CIO Community Services, San Mateo Trades Introduction Program

Project Labor Agreements (PLAs) are made between project developers, building and construction trades unions, and all relevant contractors and subcontractors. The agreements generally cover wages and benefits for employees. They may also set target percentages of apprentices or journeyperson trades workers. They may also include commitments to “set aside” a certain number of subcontracts for women- or minority-owned contractors.

In 2014, the **Boston Housing Authority (BHA)** facilitated a project labor agreement (PLA) between Ameresco, Inc., and the Building and Construction Trades Council of the Metropolitan District (Metro BTC) for the \$66.7 million energy efficiency rehabilitation of 13 public housing properties.⁴⁰

³⁹ Joel Rogers and Satya Rhodes-Conway. 2014. 131. (See p.52)

⁴⁰ Ameresco. 2014. City Celebrates Largest Public Housing Energy Efficiency Project in Nation’s History. City of Boston, Massachusetts – Office of the Mayor. Retrieved January 6, 2021 from <https://www.ameresco.com/city-celebrates-largest-public-housing-energy-efficiency-project-nations-history/>.

○ This PLA created approximately 600 jobs for local union workers and public housing and low-income city residents and helped establish the [Building Pathways Program](#), a free, six-week pre-apprenticeship program aimed at connecting those underrepresented in the construction industry with opportunities in the building trades.⁴¹

○ A 2011 Bay Area Rapid Transit (BART) [Project Stabilization Agreement](#) contained local and targeted hire provisions and supported the engagement of pre-apprenticeship and apprenticeship programs in **Alameda County, California**.

○ The [Cleveland University Hospital PLA](#) includes provisions requiring participating contractors and unions to use “commercially reasonable” efforts to provide the graduates of the Max Hayes High School’s construction training program with employment opportunities and entry into a labor-management apprenticeship program.

Community Workforce Agreements (CWAs) are similar to project labor agreements but may include local or disadvantaged worker hiring targets. They are generally negotiated among project developers, building and construction trades unions, as well as local community organizations representing low-income or otherwise disadvantaged city residents. As with project labor agreements, cities often encourage or require their use on public works projects or development projects benefiting from public subsidies.

CWAs typically contain the following provisions:

- Goals to hire workers or contractors from specific populations that are underrepresented in the industry (women, minorities, low-income communities, returning citizens, opportunity youth, and veterans);
- Job-quality standards (family-sustaining wages, health care and other benefits, opportunities for advancement);
- Support for minority- and women-owned business enterprises during the project bidding process; and
- Compliance enforcement mechanisms.⁴²

In addition to the apprenticeship requirements included in many project labor agreements, many CWAs include requirements that local contractors hire a certain portion of their workforce from among the graduates of a local training program. These types of interventions are a great way for cities to create pathways to employment from training programs to career-track construction jobs. CWAs can also create set-asides for women- and minority-owned subcontractors.

42 Art Lujan, Lyle A. Balistreri, and Loree K. Soggs. 2013. *Community Workforce Agreements: Pathway to Career Opportunities*. Jobs for the Future. GreenWays / Jobs for the Future. Retrieved January 6, 2021 from https://jfforg-prod-new.s3.amazonaws.com/media/documents/CommunityWorkforceAgreements_030413.pdf.

41 Building Pathways. *Free Building Trades Apprenticeship Preparedness Training*. Retrieved January 6, 2021 from <https://buildingpathwaysboston.org/programs/>.

The **City of Seattle, Washington**, has used executive orders, community workforce agreements, and city ordinances to increase the diversity of the workers hired for city-funded public construction projects. In 2015, the city entered into a [CWA](#) with Seattle King County Building and Construction Trades Council and Northwest National Construction Alliance to ensure stable and consistent working conditions for construction laborers. The CWA created a [Priority Hire program](#), which requires a percentage of the labor hours on city projects worth \$5 million or more be performed by workers from economically distressed neighborhoods and sets aspirational goals for project hours performed by women and people of color (a 1998 referendum instituted “race-neutral” language that prohibits public agencies in Washington State from setting legally binding hiring quotas by race or gender). In addition, 15 percent of labor hours on city construction projects must be performed by apprentices.⁴³

In 2009, the [Clean Energy Workforce Portland \(CEWP\)](#) project, a pilot funded by the American Recovery and Reinvestment Act of 2009, provided energy efficiency improvements to 500 homes in **Portland, Oregon**. It was the first home retrofit program to include a community workforce agreement. CEWP’s CWA required that contractors: hire 80 percent of their employees locally; have 30 percent of work hours completed by employees of color, women, and low-income residents; and have 20 percent of contracts go to businesses owned by women or people of color.⁴⁴ The CWA also required that workers be paid a family-sustaining wage and receive either health insurance coverage or additional wages.

43 City of Seattle. *Priority Hire*. Department of Finance and Administrative Services Purchasing and Contracting website. Retrieved January 6, 2021 from <https://www.seattle.gov/city-purchasing-and-contracting/priority-hire>.

44 Green For All. 2010. *Clean Energy Works Portland: A National Model for Energy-Efficiency Retrofits*. Green For All. Retrieved January 6, 2021 from http://www.reimagineore.org/files/9_29_VC_Clean%20Energy%20Works%20Portland%20-%20policy%20brief%20-%201-10-7.pdf.

Community Benefits Agreements (CBAs) can include elements of PLAs or CWAs but also cover issues related to a firm or development’s relationship with the community. CBAs are often community led and derived from community campaigns. CBAs can include a variety of elements to support community needs. For instance, an agreement may stipulate that a housing development build a park nearby for public use. They may include remediation of a nearby Superfund site or they may involve agreements to pay permanent employees certain wages or offer certain benefits at retail stores on a commercial development site. Community and labor coalitions negotiating CBAs with developers then agree to support and promote the project.⁴⁵

The [Nashville Soccer Stadium Development](#) CBA is the first such agreement in Tennessee to protect community priorities in a private development. It covers the redevelopment of a mixed-use parcel adjacent to the proposed Major League Soccer stadium. [Stand-Up Nashville](#), a coalition of labor and community-based organizations, negotiated the agreement with Nashville Soccer Holdings. The CBA establishes a Joint Committee with community representatives to oversee implementation and ensure compliance. The CBA includes a 20-percent set-aside of all housing units built for affordable and workforce housing and a commitment to build a childcare facility, provide retail space for small businesses, and offer community outreach to support and resource local soccer coaches. Labor standards include a wage floor for stadium workers, a commitment to establish a hiring program for stadium workers targeted to individuals with barriers to employment, and numerous criteria to support responsible and minority contractors in construction.⁴⁶

45 Ibid. 129.

46 Stand-Up Nashville. *Community Benefits Agreement*. September 4, 2018. Stand-Up Nashville website. Retrieved January 6, 2021 from <https://standupnashville.org/historic-community-benefits-agreement-reached/>.

B.

SUPPLY-SIDE SOLUTIONS: TRAINING AND PREPARING A QUALIFIED, INCLUSIVE WORKFORCE

Successful supply-side workforce development initiatives train and prepare workers to meet the demands of local employers while prioritizing equity. Critically, a number of studies have found an overabundance of workforce training programs relative to current demand for clean energy and energy efficiency jobs.⁴⁷ Governments often establish clean energy workforce training programs without first assessing the need and labor market demand for such programs. Cities must assess both the needs of employers and the roles being filled by existing workforce development institutions, as well as the ability of those institutions to achieve training goals.

But simply training a specific number of workers in clean energy is not enough. Instead, cities should have goals that emphasize the skills development of a broad set of workers who often are not specialized clean energy workers, but whose actions impact energy use.

The most successful training programs will focus on broad, career-oriented occupational training, rather than training for a single job. Training to prepare workers to become solar installers, for example, should be oriented toward a longer-term career path, such as electrician or sales manager. This focus is also useful for interventions aimed at increasing access to clean energy careers for disadvantaged workers.

An understanding of the existing workforce development infrastructure—including labor market intermediaries, government agencies, and employer–labor partnerships—is important to prevent program duplication and to leverage existing programs rather than circumvent them.⁴⁸

47 Carol Zabin et al. 2014. [\(See p.41\)](#)

48 Worker-owned cooperatives are not specifically mentioned in the guide, but the principles of high-road workforce development apply, regardless of the ownership structure of a firm.

1.

CREATING INDUSTRY-LED SKILLS-BASED PARTNERSHIPS

Creating a workforce with the skills necessary to build a sustainable economy is primarily about leveraging existing workforce development institutions in order to “green” existing occupations and less about training workers for specific new occupations in clean energy and energy efficiency. The majority of the occupations needed to create a sustainable, low-carbon economy are blue-collar occupations in the building and construction trades.



HIGH-ROAD WORKFORCE GUIDE FOR CITY CLIMATE ACTION

a.

INDUSTRY-RECOGNIZED CREDENTIALING SYSTEMS

Training students to achieve relevant, industry-recognized credentials is one way to ensure that training provides participants with skills that are valued in the labor market. The Center on Wisconsin Strategy (COWS) report [Greener Skills: How Credentials Create Value in the Clean Energy Economy](#) created a list of best practices for credentialing systems.

Credentialing systems that create the highest returns for both employers and workers are:

1. meaningful in the labor market;
2. transparent;
3. embedded in a pathway to future employment;
4. standardized; and
5. portable (not limited to a particular region or city).

Whenever possible, training providers should seek to provide students with industry-recognized credentials that meet the needs of local employers.

b.

SUPPORT CURRENT WORKER TRAINING TO MEET CLEAN ENERGY GOALS

Building a clean, low-carbon economy mostly requires workers from existing occupations, primarily blue-collar construction workers. The creation of specific new occupations in clean energy and energy efficiency is relatively small proportionally in terms of the impact of climate and energy policies on existing labor markets. Achieving emission reductions and energy savings goals requires current workers to incorporate an understanding of alternative energy systems, appliances and technologies, and efficiency practices into their current job skills.

One challenge in this process is that most construction workers receive on-the-job training with few opportunities for continuing education currently built into the career track. There may be opportunities, however, for cities to assist existing workforce development institutions to develop curriculum and to train incumbent workers to receive industry-recognized credentials in emerging clean energy and energy efficiency technologies.

After **New York City** passed [Local Law 87](#), which requires building owners to complete an energy audit and undertake retro-commissioning measures every 10 years, the city's Office of Sustainability created the [NYC Accelerator](#). The [NYC Accelerator Training Resources](#) include free and low-cost courses for building owners, operators, and managers to learn how to operate their buildings more efficiently.⁴⁹ The NYC Accelerator Trainings webpage also directs people toward other, more specialized building efficiency courses in the city offered by partner organizations like the Urban Green Council.

⁴⁹ NYC Accelerator. *Ways to Save Energy and Water*. New York City website. Retrieved January 6, 2021 from <https://www1.nyc.gov/site/nycaccelerator/ways-to-save-energy-water/ways-to-save-energy-water.page>.

In 2015, the cities of **San Francisco** and **San Jose, California**, in partnership with the investor-owned utility Pacific Gas and Electric (PG&E), launched a community-based energy savings initiative called [Step Up and Power Down](#). The goal of the initiative was to collaborate with businesses to inspire employees to adopt energy-saving actions in the workplace. PG&E offered free [Enhanced Operation and Maintenance Training](#) to building operators who wanted to seriously improve their building's energy performance.⁵⁰

C.

STACKABLE CREDENTIALS LEAD TO CAREER ADVANCEMENT

When offering technology-specific training, it is important to think about how that training interacts with broad occupational training systems. One-time training on specific technology is more effective when built into broad occupational training, but it should complement, not replace, broad occupational training. For this reason, designing specific training to “stack” on top of occupational licensing and credentialing systems is better than offering one-time training that may not lead to career advancement.

50 Pacific Gas & Electric Company (PG&E). *PG&E and California Cities Surpass Energy-Saving Goals for Step Up and Power Down Initiative*. April 06, 2017. Pacific Gas & Electric Company (PG&E) website. Retrieved January 6, 2021 from https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20170406_pge_and_california_cities_surpass_energy-saving_goals_for_step_up_and_power_down_initiative.

// *Solar is not a stand-alone career. A kid coming out of here might funnel into being an electrician so they could do electrical and solar [and] work as lineman or inside wireman, for example. With our training, a contractor can keep the same person working in different facets of work.”*

– Art Shanks, Cypress Mandela, Oakland, CA

Stackable credentials are an interlocking series of credentials that demonstrate a worker has accomplished a greater specificity of skills within a particular trade. They are often designed to be achieved sequentially and “stack” on top of broad occupation-wide credentials or licenses, such as an electrician’s license. Training current workers to receive stackable credentials equips them with demonstrable skills needed to advance in their career and provides employers with necessary skills to construct, install, and maintain clean energy and energy efficiency technologies.

[California Advanced Lighting Controls Training Program](#) (CALCTP) is a partnership among the California utilities, IBEW, and industry partners. Licensed electricians are eligible to participate in CALCTP, which certifies workers to install and conduct inspections on advanced lighting control systems. Several thousand workers statewide have attained their certification, which is required for state building code inspections and for utility-administered, ratepayer-funded commercial lighting projects.

[Electric Vehicle Infrastructure Training Program](#) (EVITP) is a training program for licensed electricians to learn how to properly and safely install EV charging infrastructure.

Building Skills Partnership developed a [Green Janitor Certification Program](#) (GJEP), an environmental education program for janitors. The program provides a hands-on energy management and green cleaning training to address the Operations and Maintenance (O&M) practices that enable buildings to meet green performance standards. The Green Janitor Certification Program was designed and piloted in collaboration with the U.S. Green Building Council-Los Angeles chapter (USGBC-LA), the Building Owners and Managers Association of Greater Los Angeles (BOMA-GLA), industry experts, building owners, and SEIU-United Service Workers West at Constellation Place in **Century City**, California. Its mission is to improve the quality of life for low-wage property service workers and their families by increasing their skills, access to education, and opportunities for career and community advancement and participation. Since 2007, BSP has trained more than 4,000 low-wage janitors in the following regions: **Los Angeles**, Orange County, San Diego, **San Jose**, **Oakland**, and **Sacramento**. It has recently expanded to cities outside of California.

2.

BUILDING THE WORKER PIPELINE: FROM PRE-APPRENTICESHIP TO REGISTERED APPRENTICESHIP

a.

REGISTERED APPRENTICESHIP PROGRAMS: THE GOLD STANDARD

Registered apprenticeship programs are the gold standard of supply-side workforce development initiatives. Apprenticeship programs provide participants with an earn-as-you-learn paid training opportunity to get hands-on training working on actual public works and other construction projects. Apprenticeship programs train workers on all of the skills they need to be successful journeypersons in a specific construction trade. These programs set workers on a direct career trajectory and provide them with the concrete skills, on-the-job training, and industry-recognized certifications they need to succeed in a specific field.⁵¹ Participants in registered apprenticeships typically receive family-sustaining wages, healthcare coverage, and retirement benefits from day one. Typically, applicants to apprenticeship programs must be 18 years of age and in good physical health, possess a high school diploma or a GED, pass a drug test, and be legally able to work in the United States.

Since registered apprenticeships are extremely competitive, have complex entry requirements, and can be difficult to navigate, pre-apprenticeship training programs are an effective way to support disadvantaged workers' access to apprenticeship programs.

51 U.S. Department of Labor. Apprenticeship Toolkit: Advancing Apprenticeship as a Workforce Strategy. U.S. Department of Labor website. Retrieved January 6, 2021 from <https://www.dol.gov/apprenticeship/toolkit/toolkitfaq.htm#1a>.

Pre-apprenticeship programs provide training and support services to prepare disadvantaged workers for apprenticeship programs. They are usually offered without charge to participants by nonprofit organizations, community colleges, or unions. The most successful pre-apprenticeship programs collaborate with industry and unions to design curricula according to industry needs.

This partnership can facilitate a strong transition for participants into apprenticeship, often through direct entry agreements. Pre-apprenticeship programs are particularly effective when coupled with articulation agreements with registered apprenticeship programs. These arrangements help provide unions with a supply of qualified workers and help union contractors to be more competitive when bidding on projects that require proportions of their workforce to come from disadvantaged communities.

b.

PRE-APPRENTICESHIP PROGRAMS CREATE EQUITABLE ACCESS TO HIGH-ROAD JOBS

Quality pre-apprenticeship programs have significant potential to provide a sustainable pathway out of poverty and raise the skill level of disadvantaged or underrepresented workers. Pre-apprenticeship programs promote equitable access to careers that have historically been inaccessible to women, returning citizens, and people of color, including immigrants, who have been disproportionately affected by structural racism.

Most pre-apprenticeship programs are designed to prepare individuals to enter and succeed in a registered apprenticeship program. Pre-apprenticeship programs usually teach fundamental skills including math, science, writing, and computer literacy, as well as soft skills like resume building and interview prep and more occupation-specific skills such as elements of weatherization or solar installation. By aligning pre-apprenticeship training programs with actual registered apprenticeship positions, workers greatly increase their likelihood of having a career rather than just a short-term job.



photo: Rising Sun Center for Opportunity

NEWS

Homepage (<https://www.thinkgeoenergy.com/>) / Technology (<https://www.thinkgeoenergy.com/category/technology/>)

Geothermal heating and cooling system being built in Rochester, Minnesota

The city of Rochester, Minnesota has started drilling for a geothermal heating and cooling system, made feasible by design innovations and the IRA.

Two geothermal wells are being drilled right in front of the City Hall of Rochester in Minnesota, U.S. These wells will be the foundation of a planned geothermal heating and cooling system that will serve at least 1 million square feet of downtown space including the City Hall, the Mayo Civic Center, and the public library.

"After it's completed and the project's done, we'll have the second city hall in Minnesota that is electrically heated and cooled with geothermal, which is pretty exciting," said Kevin Bright, former director of housing and sustainability and one of the people who helped launch the geothermal project.

The development of geothermal is part of the city's strategy to reduce greenhouse gases by 100% over the next three decades. The long-term plan would be to create an underground network of pipes that will efficiently supply heating and cooling to the new residential and commercial buildings downtown.

The initial phases of this project is expected to be completed by 2025, officials say.

Joe Dammel, Managing Director of the advocacy group Fresh Energy, described how such a system becomes more efficient when more buildings are linked together. *"You use the heat that's stored there as a way to heat a building so you're pulling heat from the ground and putting it into buildings. In cooling mode, you're pulling heat from buildings and putting it back to the ground for storage."*

Federal financing paved the way for geothermal

The geothermal project in Rochester has become financially feasible because of new federal financing options incentivizing project that result in large-scale carbon emissions. As Dammel said, the Inflation Reduction Act (<https://www.thinkgeoenergy.com/geothermal-the-hot-topic-of-the-electric-energy-transition/>) that Congress passed about a year ago has removed the usual cost barriers of geothermal.

The projected cost of Rochester's geothermal system is about USD 34 million. About half of that cost will be covered by incentives under the Inflation Reduction Act, as well as smaller public funding sources.

"The state and federal policy is really shifting towards a different way of heating. And we think in Minnesota that network geothermal is a really promising technology to accomplish that," Dammel further commented.

The benefit of homegrown technology

Technology has also been one of the key drivers for the realization of this project. The system only requires the drilling of two wells thanks to the design innovations developed in the University of Minnesota and commercialized by Darcy Solutions (<https://darcysolutions.com/>).

"What we do is instead of exchanging energy with just the ground and soil and rock, we exchange energy with groundwater in the aquifers below us," said Andrew Steiner, chief operating officer for Darcy Solutions.

By tapping into naturally occurring aquifers, the geothermal heat pumps do not need to do a lot of work for heating and cooling. This means that geothermal systems can have smaller footprints and require the drilling of fewer wells, thus also reducing capital and operating costs.

Source: MPR News (<https://www.mprnews.org/story/2023/09/05/rochester-bets-on-geothermal-to-power-a-green-future>)

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BUILDING ELECTRIFICATION INSTITUTE

Burlington, Vermont

Population: 44,740

Burlington is Vermont's largest city, with a population of over 44,000 residents. The Burlington Electric Department (BED), Vermont's largest municipally-owned electric utility, serves more than 20,000 customers in the Burlington area and has delivered innovative energy efficiency programs for nearly 30 years. In 2014, Burlington became the first city in the country to source 100% of its electricity from renewable sources, thanks to BED. Burlington has committed to a goal of Net Zero Energy by 2030, which will reduce and eventually eliminate fossil fuels from buildings and transportation. Since nearly all of Burlington's existing buildings use natural gas, this will require substantial effort to transition buildings away from gas and toward high efficiency electrification.

In 2017, Burlington became one of the first cities in the country to launch a cold-climate heat pump rebate program, which provides incentives for a combination of weatherization and high-efficiency electric heat pumps. The program prioritizes funding for low- and middle-income customers so they can be first to benefit from energy savings and will gain access to the cooling that heat pumps provide. Since 2017, BED has expanded its incentive program offerings and has helped more than 1,170 customers install heat pumps through these programs as of 2023.

Recognizing that recent improvements to heat pump technologies have made them a viable option for cold climates, particularly in new construction, BEI worked with Burlington to analyze the economics of electrification for new buildings and review policy options to phase out fossil fuel use in both new and existing buildings. Building on this analysis, in 2020 Burlington updated its existing housing code to require the installation of weatherization and other "heat pump-ready" measures in rental properties to ensure lower bills for customers and help prepare the existing building stock for electrification.



In 2021, Burlington passed a \$20 million Net Zero Energy Revenue Bond to support the expansion of its incentives, which helped hundreds more Burlingtonians switch to cold-climate heat pumps. In 2021, Burlington also tackled new construction by enacting a renewable heating ordinance, which requires nearly all new buildings to be constructed with at least 85% of the heating load met by a renewable source, which includes electricity. Burlington also enacted the Thermal Energy Charter Change, which required approval from both Burlington voters and the state legislature, enabling Burlington to develop additional policies and fees to reduce fossil fuel use in buildings. Burlington now has a powerful new tool to achieve its goal of becoming a Net Zero Energy city.

To begin exploring new policies and fees for existing buildings, in 2022 BEI provided Burlington with case studies of existing building policies in other cities, developed a set of policy options to consider, and analyzed different carbon fee structures. Burlington used these resources in discussions with stakeholders to develop the Carbon Pollution Impact Fee, which will require all commercial buildings over 50,000 square feet in size to install electric equipment at the time of system replacement or pay a carbon fee. Next, Burlington will begin developing policies for residential buildings, using the revenue from the carbon fee to help develop supportive programs for under-resourced buildings to help ensure an equitable transition away from fossil fuels for all Burlington buildings.

Resolution Relating to

IMPLEMENTATION OF A CARBON POLLUTION IMPACT
FEE FOR NEW CONSTRUCTION AND LARGE EXISTING
COMMERCIAL AND INDUSTRIAL BUILDINGS 50,000
SQUARE FEET OR LARGER

RESOLUTION 8.09

Sponsor(s): Transportation, Energy &
Utilities Committee

Introduced: 1/9/2023

Referred to: _____

Action: Adopted

Date: 1/9/2023

Signed by Mayor: 01/17/23

CITY OF BURLINGTON

In the year Two Thousand Twenty-Three

Resolved by the City Council of the City of Burlington, as follows:

1 That WHEREAS, The City of Burlington has declared a climate emergency exists, and on September 5th,
2 2019 the City and Burlington Electric Department issued the Net Zero Energy Roadmap (“the Roadmap”) to
3 guide progress in reducing greenhouse gas emissions in buildings and ground transportation; and

4 WHEREAS, the Roadmap identified emissions from buildings as the second largest source of
5 greenhouse gas emissions in the city; and

6 WHEREAS, the City enacted new ordinances in 2021 to address rental weatherization standards, and
7 require primary renewable heating systems in new construction; and

8 WHEREAS in 2022 Burlington’s neighboring community, the City of South Burlington, adopted a
9 similar primary renewable heating system ordinance and also include requirements for renewable domestic
10 water heating as well, aligning the two cities in both requiring the use of renewable systems and fuels for new
11 construction; and

12 WHEREAS, on March 2, 2021, Burlington voters approved a proposed change to the City charter that
13 would allow the City to create policies to regulate greenhouse gas emissions in buildings, and an advisory
14 ballot question focused on providing equity in the development of such policies; and

15 WHEREAS, on April 20, 2022, the Governor signed the charter change into law after it was approved
16 by the Vermont Legislature; and

17 WHEREAS, on May 9th, 2022, the City Council passed a Resolution seeking policy recommendations
18 under the charter change from Burlington Electric Department and the Department of Permitting and
19 Inspections; and

20 WHEREAS, The Burlington Electric Department and Department of Permitting and Inspections issued
21 an interim report July 18th, 2022, and final report December 5, 2022 to the City Council; and

22 WHEREAS, the Departments recommended proposed requirements to reduce fossil fuel use and
23 greenhouse gas emissions in buildings, including starting in 2024 for new construction to use renewable
24 energy systems or renewable fuels for all thermal energy uses (with the exception of using 2026 as a start date

for larger multi-family buildings for domestic water heating), and for large existing buildings and City buildings to install renewable energy systems or conventional systems with renewable fuels when seeking a permit to replace a space conditioning system or domestic water heating system; and

WHEREAS, the Departments proposed the use of an upfront carbon pollution impact fee that would account for the environmental, health and societal impacts from greenhouse gas emissions from fossil fuel-based systems, as a means of alternative compliance for new construction buildings and large existing commercial and industrial buildings with 50,000 square feet or more of space conditioned area as one option to meet the proposed policy requirements when the building chooses to use fossil fuel systems; and

WHEREAS the charter change approved by voters in March of 2021 and subsequently approved by the Legislature and signed by the Governor requires the City to seek additional voter approval when it proposes to utilize a carbon impact or alternative compliance fee;

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby requests, pursuant to the City Charter Section 48(66), that the following question be placed before the voters on the ballot of the Annual City Meeting to be held on March 7, 2023:

“Shall the City Council, in order to reduce greenhouse gas emissions in the City, be authorized starting January 1, 2024, to implement a carbon pollution impact fee in the permitting process, with the fee to be set by resolution starting at up to \$150 per ton and rising annually at the rate of regional inflation but capped at no more than a 5 percent annual increase, for:

- **new construction buildings that install fossil fuel thermal energy systems instead of using renewable energy systems or renewable fuels, with the exception that the fee would not be implemented until January 1, 2026 for domestic water heating systems in new construction multi-family residential buildings with more than 4 units; and**
- **for existing commercial and industrial buildings 50,000 square feet or larger when the building is installing fossil fuel thermal energy space conditioning or domestic water heating systems instead of using renewable systems or renewable fuels?”**

The fee proceeds could support one or more of the following: capital investments in converting the City’s vehicle fleet to electric vehicles; a new City fund to support clean heating technology installations for low-income Burlington households and renters; and/or in the case of existing building payors, greenhouse gas emissions reductions projects at their building or facilities in Burlington.

Iowa City Press-Citizen

LOCAL

Iowa City Council puts TIF districts' unused funds to work on meeting city's climate action goals



Zachary Oren Smith

Iowa City Press-Citizen

Published 11:26 p.m. CT Aug. 4, 2020 | Updated 11:33 p.m. CT Aug. 4, 2020

Iowa City Council amended three urban renewal area plans Tuesday that could translate into millions in green financing. The city plans to use property taxes from each area to finance energy efficiency improvements through a system of matching funds for eligible properties.

After the organizing efforts of the Climate Strikers, Iowa City committed to reducing citywide carbon emissions by 40% from 2010 levels by 2030 and reach net-zero emissions — sequestering more carbon than it is producing — by the year 2050. Early on, city staff pointed out that reducing citywide emissions would require collaboration with groups like the University of Iowa, whose power plant produces 14% of the city's emissions.

Industrial users — like those in the three urban renewal areas — account for 27% of the city's carbon emissions, according to a November 2019 Accelerating Iowa City Climate Actions report. Commercial users account for another 20%.

After Tuesday's vote, applicants from the Heinz Road, Scott Six and Sycamore and 1st Avenue Urban Renewal Districts are eligible for up to a 50% match on energy efficiency improvement projects.

The funds are made possible through tax increment financing. In these instances, the city will identify an area for improvements and set a period to generate additional value. The city will continue to receive the taxes based on the original value of the area. But as the taxable value of the area increases, new taxable value is created. That value can be diverted to any number of quality of life and infrastructure improvements in the urban renewal area.

In this case, that additional value, or tax increment, is diverted toward matching funds for energy efficiency improvements.

The Heinz Road Urban Renewal Area was established in 2002 and has increased the taxable valuation of the area by \$21 million. Its TIF district sunsets in FY 2025 and currently is generating an unused tax increment of \$640,000 a year.

The Scott Six Industrial Area was established in 1997 and has increased the taxable valuation of the area by \$45 million. Its TIF district sunsets in FY 2023 and currently is generating an unused tax increment of \$1.36 million a year.

The Sycamore and First Avenue Urban Renewal Area was established in 2000. The district sunsets in FY 2022 and, after an Iowa City Marketplace project defaulted on their agreement, there is still \$440,000 left of the tax increment for the district.

FOR IMMEDIATE RELEASE

Date: 02/25/2021 (**Updated 12/20/23*)

Contact: Rachel Kilburg, Economic Development, 319-356-5248
Sarah J. Gardner, Climate Action & Outreach, 319-887-6162

Matching grants now available for Energy Efficiency Improvements for industrial area businesses

Applications for a new matching grant program targeted to local businesses in our industrial areas are now being accepted.

The City of Iowa City is offering an energy efficiency incentive program designed to save your firm money while helping achieve the [City's emission reduction goals](#). Improving energy efficiency can be costly, which is why we are offering 50/50 matching grants in our commercial and industrial areas to assist in the improvements.

If your business is located in an urban renewal area shown on [this map](#), you may be eligible. These areas include:

- Sycamore & First Avenue
- City-University Project 1
- Highway 6 Commercial

These grants are available on a first come, first served basis, with up to \$250,000 to qualifying applicants pursuing projects in the following categories:

- Advanced heating & cooling systems
- Lighting system upgrades
- Building automation controls
- Solar power & water heating systems
- Insulation, high performance glass, & cool roofs
- Mechanical upgrades
- Alternative refrigerant systems

Both property owners and businesses that rent their facilities are eligible for this funding. An owner consent form is required for applicants who do not own the property they are seeking to upgrade.

In order to participate in this grant opportunity, applicants must be tax-paying entities. Nonprofits, churches, and other tax-exempt entities are encouraged to apply for Community Action Grants or Innovation Grants for energy efficiency or other climate related projects.

More information about these grant opportunities is available at icgov.org/ClimateActionGrants.

Date: November 28, 2023

To: Climate Action Commission

From: Sarah J. Gardner, Climate Action Coordinator

Re: Whole Home Electrification/Housing Choice Voucher Pilot Program

Background

The purpose of this memo is to outline a pilot program to launch in January 2024 that will incentivize energy efficiency, weatherization, and electrification upgrades in single family and duplex residences operated as rental units. Under this program, landlords will be offered a grant to cover the cost of whole home upgrades and in return will accept Housing Choice Vouchers (often referred to as Section 8 vouchers) for the following five years at the property.

This program flows from action items in the *Accelerating Iowa City's Climate Actions Plan*, that call for financial incentives to accelerate electrification and likewise to rehabilitate public housing units into net-zero properties. It also builds on previous successes under a program pilots in 2021, which provided energy efficiency and electrification upgrades to duplex properties in the South District Homeownership Program.

Program Description

This pilot program was developed as a collaboration between the Climate Action and Outreach Division and the Housing Authority of Iowa City. Under the program, staff propose to offer grants to cover the cost in full for both equipment and installation of a number of energy efficiency and electrification upgrades within a single rental property. Eligible property improvements under the grant would include:

- Increased attic insulation, up to R-60, combined with air sealing and ventilation
- Replacement of exterior doors and windows as needed
- Replacement of a gas or electric water heater with an air source heat pump water heater
- Replacement of air conditioning unit and gas or electric furnace with an air source heat pump
- Replacement of gas stove with an electric stove or induction range
- Electrical service panel upgrade

Based on the property upgrades under the South District Homeownership Program, these grants are estimated to total between \$20,000 and \$25,000 per property. Staff propose to administer the grants using a process established through other Housing Authority programs. The grants will be structured similarly to a forgivable loan in which 20% of the balance will be retired for each of the five years in which the participating landlord accepts Housing Choice Vouchers at the property. Should a landlord cease to do so, the remaining portion of the grant

would be repaid to the City. A legal agreement between the City and landlord establishing these terms will be enacted at the time the grant is awarded.

Under this program, both landlords currently accepting Housing Choice Vouchers at other properties and landlords who have previously not accepted Housing Choice Vouchers would be eligible to participate, so long as the property receiving the energy efficiency and electrification benefits has not previously been rented to tenants using Housing Choice Vouchers.

Goals

The aim of this program is to reduce the energy burden born by renters in Iowa City, contribute to the comfort and health of occupants of these homes, and increase access to safe, affordable housing within the community. Housing Authority staff identified single family residences as the focus of this program specifically because such residences are more likely in Iowa City to house families with young children.

A frequent point of discussion in Climate Action Commission meetings has centered on how to improve the energy efficiency of the city's rental housing stock without simultaneously catalyzing an increase in rents. By pairing the grant incentives with a requirement to accept Housing Choice Vouchers, staff seek to address that question. This program is built on the principals of targeted universalism. As such, the pilot program offers multiple benefits. Tenants benefit from lower energy bills, new efficient appliances, and the stable pricing of electricity. Landlords benefit from assistance to improve their properties and, because there are lower rates of turnover in units rented to those using Housing Choice Vouchers, secure longer-term tenants, which helps reduce operational costs. Finally, the City of Iowa City benefits from the acceleration of household electrification that capitalize on the significant investments made by MidAmerican Energy into clean, renewable grid energy, which supports the city's greenhouse gas reduction goals.

In addition, this pilot project offers a possible tool to aid in addressing another hurdle encountered by the City in recent years. Following the passage of Senate File 252 in 2021 by the state legislature, the ability of Iowa cities and counties to adopt and enforce regulations that prevent landlords from refusing to rent to those using a Housing Choice Vouchers was preempted by the state. Iowa City was one of three communities impacted by this legislation and has since sought alternate means of increasing the availability of rental properties to those using Housing Choice Vouchers. This pilot program can effectively act as a significant incentive to do so.

Funding

For the last two quarters of fiscal year 2024 and first two quarters of fiscal year 2025, \$125,000 of the Climate Action Emergency Levy funds have been identified to support the pilot. Climate Action staff are actively exploring additional funding avenues to help expand the program, including possible Climate Pollution Reduction Grant funds under the Inflation Reduction Act. Staff additionally have the option of drawing upon the balance of funds in the Emergency Levy as appropriate.

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