

Improving Energy Efficiency in Rental Housing

Lessons from Cities Pursuing Energy-Efficiency Incentives and Requirements

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Renters across the country are feeling the strain of higher energy bills as aging homes become less energy efficient. Buildings already account for a substantial portion of emissions, with older, unweatherized homes—those lacking insulation, air sealing, and efficient appliances—contributing disproportionately. Improvements to residences, where Americans spend almost 70 percent of their time,¹ can deliver meaningful health, financial, and quality of life benefits for renters (Bird and Hernández 2012; Coleman 2011; Fadali et al. 2025; Hernández and Phillips 2015; Klepeis et al. 2021). However, landlords are often unmotivated to pay for energy upgrades they will not directly benefit from when renters pay utility bills—a phenomenon known as the split incentive problem (Bird and Hernández 2012). As such, cities are seeking solutions to incentivize or require upgrades, especially for smaller, one-to-four-unit rentals. To support cities pursuing more energy-efficient rental housing, we examine incentive programs and requirements for energy-efficiency upgrades in Boulder, CO, Cincinnati, OH, Gainesville, FL, and Rochester, NY, and draw on experiences from additional towns and cities in New York state including Albany, Bedford, Ithaca, and New York City.

Weatherization and energy-efficient features are especially important because housing quality ultimately impacts renters' health. Housing that has poor ventilation can lead to poor indoor air quality and respiratory diseases, while housing with poor insulation is linked to extreme indoor temperatures and cardiovascular and respiratory impacts (Howden-Chapman et al. 2023). Low thermal comfort—both hot and cold—has negative health impacts and can cause or exacerbate cardiovascular and respiratory issues, including asthma (Hampo, Schinasi, and Hoque 2024; Kang et al. 2022; Schwartz and Patz 2004). When it comes to heat, housing characteristics such as building age, design, and air conditioning and occupants' abilities to pay for energy costs create large differences in heat exposure and vulnerability (Samuelson et al. 2020; Gabbe and Pierce 2024). Renter households tend to be more vulnerable than other households to the health burdens of heat. They are twice as likely to keep their homes at unhealthy temperatures compared with owner-occupied households; and three times as likely to need medical attention related to heat in their homes. The same relationship is true for insulation: households with inadequate insulation are more likely to keep homes at unhealthy temperatures and to need medical attention (Gabbe and Pierce 2024). In cold environments, residents without adequately air-sealed and insulated homes and with old heating equipment are at risk of using unsafe warming methods. Around 19 percent of reported fire deaths are caused by home heating equipment—the leading cause of fires in homes;² and old electrical wiring and panels are responsible for 14 percent of fire-related deaths (Campbell 2021). In addition, residents without properly warm homes face severe discomfort. For example, low-income tenants in New York City living in drafty homes with no hot water or heat during the winter reported feeling cold, stressed, and uncomfortable. Some turned on the oven or used space heaters to cope with the cold. But after their units were upgraded with window replacements or sealing, boiler replacements, and door sealing, tenants said that they felt warmer and more comfortable (Hernández and Phillips 2015).

Beyond health, housing conditions impact residents' energy use and finances. On average, rental buildings consume 20 percent more energy per square foot than owner-occupied buildings (Carliner 2013), and properties with two to four units are the least energy-efficient of all (Martin et al. 2023). Living in energy inefficient houses causes renters to consume more energy, face higher energy bills, and have a higher chance of experiencing poverty and housing insecurity (Webb 2020). But building envelope improvements, energy system upgrades, and more efficient appliances reduce energy use. For example, there was an 8 percent reduction in peak summer energy use after buildings in Westchester County, NY, were renovated with heat pumps. This reduced stress on the grid during extreme temperatures and neighborhoods with more heat pumps experienced fewer hours of power outages (Fadali et al. 2025). Similarly, monthly electricity consumption in Gainesville, FL, decreased more than 7 percent after grants were made for energy upgrades in rental housing, with the largest savings occurring in the summer (8.4 percent) and winter (8.9 percent) (Hancevic and Sandoval 2022). An analysis of national energy expenditure data from 2009 to 2011 found that weatherization led to a 20 percent reduction in energy and utility costs (Bird and Hernández 2012). And in Berkeley, CA, the city estimated that a single-family home that installed an improved heating system, efficient lighting, ceiling insulation, weather stripping, and a water heater blanket could save around \$698 annually (Coleman 2011). Energy-efficiency improvements are particularly critical now as communities have faced steep

increases in energy costs: average US retail electricity prices rose 9 percent from February 2025 to February 2026.³

Implementing energy-efficiency upgrades can be challenging for a variety of reasons. First, smaller-scale landlords often lack the financial resources to pay for energy-efficiency upgrades (Jarrah and Tanabe 2022), and property owners generally tend to push back against new requirements (Coleman 2011). At the same time, local governments often face competing policy priorities that make prioritizing and funding energy-efficiency programs and requirements difficult.⁴ Funding for federal programs such as the Low-Income Home Energy Assistance Program (LIHEAP) has declined, and the program has been threatened with elimination altogether (OMB 2026). Meanwhile, guidance around funding for rebate programs such as the High-Efficiency Electric Home Rebate has become more restrictive.⁵ With limited funding to support households with energy costs and upgrades, energy efficiency program implementers often face difficult decisions about what supports to prioritize and for whom (Samarripas and Jarrah 2021). Aside from expenses, some upgrades are simply infeasible to install because of the structure, material, and age of housing units—or the workforce may lack the expertise to make certain upgrades (Bastian and Cohn 2022; Coleman 2011). Through an examination of approaches to addressing renter energy burden in a sampling of cities across the country, we highlight how localities might think about addressing some of these challenges in how they design, communicate, and implement programs, incentives, and requirements around energy efficiency.

Methods

This brief was adapted from a longer feasibility study to help stakeholders in Rochester, NY, assess opportunities to incentivize or require energy-efficiency upgrades in one-to-four-unit rental housing. The feasibility study featured case studies of requirements and incentive programs in Boulder, CO, Cincinnati, OH, and Gainesville, FL; and gathered lessons from New York towns and cities including Albany, Bedford, Ithaca, and New York City that have implemented or are considering energy-efficiency solutions for their renters.

These lessons draw primarily on stakeholder interviews, supplemented by a document review of existing programs. Because of the structure of the feasibility study, the most interviews (32) were conducted in Rochester, NY, where we also received input and feedback on early finding via a public event (referred to as a “data interactive” throughout the brief). We conducted three to five interviews in each “comparison city” (Boulder, Cincinnati, and Gainesville), and one interview in a subset of towns and cities in New York with policy contexts that are comparable to Rochester.

- **Comparison city analysis:** We studied requirements and programs in three cities that are comparable to Rochester (Boulder, CO, Cincinnati, OH, and Gainesville, FL), reviewed program documentation, and conducted semi-structured interviews with city staff, housers, and advocacy stakeholders (three to five interviews per city). Additionally, we spoke to one professional with knowledge about this topic from each of four cities across New York state, including Albany, Bedford, Ithaca, and New York City.

- **Rochester stakeholder interviews:** We conducted semi-structured interviews with 22 Rochester stakeholders including local government staff, developers and contractors, housing advocates and nonprofit organizations, affordable housing providers, landlords, and utilities to learn about stakeholder views on existing programs and policies to support energy-efficiency upgrades in Rochester; and about potential opportunities, barriers, benefits, tradeoffs, and stakeholder implications of pursuing enforceable energy standards for rental housing providers.
- **Rochester data interactive:** We convened a data interactive in November 2025 as a facilitated, in-person community engagement and data collection activity. The research team presented preliminary findings from stakeholder interviews and a review of existing energy and residential programs through a series of visual posters featuring summarized findings, quotes, charts, and graphics. Participants rotated among four stations, reviewed the materials, and provided written and verbal input in response to guided discussion prompts to validate and extend emerging findings.
- **Rochester renter interviews:** We interviewed ten renters in the Rochester area about their experiences with housing in Rochester, including its quality and affordability; perceived upgrade needs, benefits, and unintended consequences; and any experiences with existing programs that support energy-efficiency upgrades.

Lessons from Cities Addressing Renter Energy Burdens

To understand the breadth of possibilities for how cities might encourage energy efficiency in rental housing, we studied programs and requirements in Boulder, CO, Cincinnati, OH, Gainesville, FL, and Rochester, NY, drawing on program documents reviews and at set of stakeholder interviews for each city. We also spoke to stakeholders located in Albany, NY, Bedford, NY, Ithaca, NY, and New York City to understand how other cities throughout New York state are addressing the challenge of energy efficiency and affordability in housing (table 1). Interviews with Rochester stakeholders provided detailed insights into energy-efficiency upgrade needs, gaps in their existing outreach, programs or requirements, and ideas for expanding existing programs and requirements to meet renters' needs.

TABLE 1

Energy Efficiency Programs and Requirements*Case city overviews*

City	Summary	Requirements	Voluntary and other supportive programs
Boulder, CO	Binding energy-efficiency policy specific to renters. Rental housing stock: A lot of small mom-and-pop landlords. Half of Boulder rents. It's an expensive market. Many homes are old.	SmartRegs is an enforceable policy specifically targeted at landlords and renters where compliance requires all licensed rental housing to be inspected to meet a basic energy standard. Housing is assessed on a points system (100 points needed to pass) or using the Home Energy Rating System (HERS) to model energy performance.	Rebate programs in the city (EnergySmart) and county incentivize upgrades.
Cincinnati, OH	Pilot programs focused on tenants and landlords that are attached to research measuring outcomes in multifamily rental housing that has had energy-efficiency upgrades. Rental housing stock: A dense city that has old housing stock, including some historically preserved housing. It has recently become more expensive.	Upgrades are voluntary.	The WarmUp Cincy Tenant and Matching Grants Programs are completed pilots that helped tenants to improve energy efficiency and matched landlords' upgrade spending. The Whole Buildings Program involved building retrofits / weatherization and has an associated research project. The Renter Landlord Energy Efficiency Engagement supports landlords and tenants.
Gainesville, FL	Binding standards for 1–4 unit rentals that were ultimately overturned; but the city continues to operate rebate programs. Rental housing stock: Older single-family homes and new apartments for a large student population.	The Rental Housing Ordinance targeted 1–4 unit rentals. Landlords obtained permits based on safety inspections that included energy-efficiency standards formatted as a y/n checklist. The ordinance was forced to end about two years after passing when the power to regulate landlord–tenant relations was given to the state.	The city has a program that loans up to \$15,000 at 0% interest to landlords for energy-efficiency upgrades in rental units. Landlords who accept the loan agree to an affordability clause (a cap on raising rent).

City	Summary	Requirements	Voluntary and other supportive programs
Rochester, NY	Grant programs through the city, NYSEDA, and community-based organizations Rental housing stock: Old with a large share of single-family housing.	Upgrades are voluntary but Rochester has an existing Certificate of Occupancy for rental housing.	New York state offers upgrades through Empower+ and Rochester receives funding from the Weatherization Assistance Program. RENEW also runs a pilot program providing flexible gap financing.
Other towns or cities in New York	- Albany, NY—smaller city with programs that support landlords making upgrades. - Bedford, NY—small town outside of NYC with a reporting and housing quality grading system. - Ithaca, NY—smaller city exploring similar questions about rental housing energy efficiency. - New York City—much larger city with energy-efficiency requirements for large buildings.	- Albany: None. - Bedford: Required energy efficiency and housing quality reporting. - Ithaca: None. - New York City: Requires most buildings over 25,000 sq. ft. to adhere to emissions limits through Local Law 97.	Interviewees referenced experiences with NYSEDA and navigating access to EmPower+.

Source: Authors' analysis based on interviews.

Our examination of programs in Rochester and other case cities reveals insights into potential interventions that could lead to higher quality rental housing, lower energy expenses, and improved safety for renters. We focus on four overlapping and reinforcing pathways, with strategies that together could lead to necessary rental housing improvements:

- Assessment:** Assessments of housing quality help stakeholders better understand upgrade needs and technical barriers to upgrades. They can also increase transparency around housing quality to inform residents making lease or purchase decisions about their full housing costs (including energy bills)—and about what comfort or safety issues they might expect.
- Education and engagement:** Targeted education and outreach tailored for different audiences can promote understanding of what's at stake in relation to housing quality and energy efficiency and build support for adopting measures that address safety, health, and affordability challenges. Renters, landlords, and contractors can all benefit from information about what interventions might best reduce energy bills, and about what programs are available to support improvements to building envelopes or purchases of more energy efficient equipment and appliances. Those pursuing upgrades also benefit from information about vetted contractors to carry out the work.
- Incentives:** Programs designed to encourage upgrades and retrofits to existing rental stock through improved insulation, air sealing, more energy efficient appliances, and better HVAC systems, for example, are typically supported by monetary incentives for upgrades, whether

capped grants or matching grants. Incentive programs themselves can be helpful guides to how property owners might prioritize investing in improvements as incentives may be designed to encourage the most cost-effective or most efficient improvements. Some schemes focused on rental properties incorporate affordability clauses to prevent grant recipients from raising rents.

- **Energy-efficiency requirements:** Energy-efficiency requirements are enforceable standards with which builders and property owners must comply. They are often enforced through inspections and penalty fees. They can be designed prescriptively to require specific upgrades or can be performance-based where emissions are limited. Requirements are usually accompanied by incentives to support upgrades.

Across cities, there are valuable lessons related to assessment, education and engagement, energy-efficiency incentives, and energy-efficiency requirements that towns and cities can consider in designing incentive programs and requirements to increase energy efficiency in rental housing.

Assessments

Assessments of housing quality and energy burden help stakeholders better understand upgrade needs and technical barriers to upgrades and can build transparency around housing quality to help tenants and buyers make informed decisions. The following recommendations related to housing assessment emerged based on lessons learned across cities.

Understand the Local Housing Stock Before Designing Programs or Requirements

Stakeholders from multiple cities noted the importance of conducting comprehensive evaluations of rental housing stock to document existing conditions, characteristics, and ownership. Assessments of current housing stock help stakeholders better understand upgrade needs and potential barriers to upgrades. In Cincinnati, knowing the building stock and its inefficiencies was part of the design process for their WarmUp Cincy incentives program. Interviewees shared that the program was designed after the Greater Cincinnati Energy Alliance published a report showing that 16 out of 52 neighborhoods were severely energy-burdened, meaning they spend more than 6 percent of their incomes on energy costs.⁶ Staff implementing the program created detailed energy models for individual projects they planned to pursue to ensure that installations for buildings were actually feasible.

Comparisons of similar cities revealed the importance of understanding the housing stock for the long-term implementation of energy efficiency requirements. For example, when Boulder, CO, began enforcing requirements, some property owners discovered unexpected technical difficulties while making upgrades, such as inadequate space for insulation, thick plaster walls, grid capacity limitations, and inability to make changes in registered historic homes. As a result, the City of Boulder created a policy for property owners to apply for exemptions,⁷ but owners said they would have preferred if the City had consulted with more construction experts in advance of establishing requirements versus retroactively adjusting for technical infeasibilities. Similarly, Gainesville interviewees said the city retroactively added exemptions to their ordinance after property owners faced technical barriers to

upgrades, such as chimneys and fireplaces that were not sealed or roof structures that were too flat for insulation.

Measure and Communicate Results to Build Transparency and Uptake

Collecting data before and after building upgrades creates an evidence base to garner buy-in for energy-efficiency interventions and to propose long-term programs or regulatory requirements. Collaborations with community groups, utilities, property owners, and tenants can make it possible to develop data collection systems capable of tracking the impacts and outcomes of building interventions related to housing affordability, emissions reductions, and tenant quality of life over time. Interviewees in Cincinnati shared that a third-party research team is gathering information from residents of multifamily rental housing where energy-efficiency upgrades are happening about the effectiveness of upgrades for improving safety and reducing energy costs. Researchers review utility bills and monitor both indoor and outdoor air quality, and tenants write weekly or bi-weekly journal entries about their experiences that allow researchers to explore how affordable housing conditions affect tenant health and overall quality of life. Collected data could inform future program improvements. In Bedford, NY, the town asks landlords to annually report energy and water use via ENERGY STAR Portfolio Manager, and posts public ratings of multifamily rental stock online, based on inspections. These public ratings allow tenants to better assess the energy efficiency of a building and may encourage landlords to improve their properties (box 1). Without public data, residents may be skeptical about the need for upgrades. For example, in Boulder, there is no city-wide, post-upgrade energy tracking, making some interviewed residents skeptical about whether energy-efficiency requirements are reducing emissions as expected.

BOX 1

Building Health and Performance Law in Bedford, NY

In 2022, Bedford, NY, updated its Landlord Registry Law to include a Building Health and Performance Law.⁸ The updated law requires building inspections every five years to rate multifamily housing on health and safety; building emissions and intensity; energy utility cost; and indoor air quality. In addition, landlords are required to annually report energy and water use via ENERGY STAR Portfolio Manager. These factors all contribute to an overall building performance rating, and both building inspection and energy-efficiency data are made available online. Tenants can use it to better understand the quality of their housing and their energy costs compared to other renters. Meanwhile, the public nature of the data may encourage owners to make their buildings more energy efficient. Bedford city staff want more data before they might consider mandating what building owners should do to improve their ratings. The climate advocacy group Bedford 2030⁹, the Building Health and Performance Committee, and the Bedford Town Board were the primary drivers of this new law.

Account for Long-Term Policy Goals When Prioritizing Short-Term Actions

It is important to assess how programs or requirements align with both current and future policy goals to avoid investments and physical changes that impede future goals. For example, in Boulder, some interviewees believed that short-term actions to upgrade gas appliances clashed with their longer-term electrification goals. Earlier policies encouraged property owners to upgrade gas appliances (e.g., rebates for new furnaces), whereas more recent efforts through Boulder’s Healthy Buildings initiative, a new ten-year roadmap,¹⁰ aim to transition buildings away from gas altogether in support of decarbonization goals. Some households who already made significant investments in more efficient gas appliances were frustrated by the misalignment with long-term policy goals, shared an interviewee.

Education and Engagement

Education and engagement with property owners, renters, and contractors is important, whether you are trying to encourage voluntary upgrades or enforce compliance with energy-efficiency requirements. The following recommendations related to education and engagement emerged based on lessons learned across cities.

Frame Benefits of Reporting, Inspections, and Upgrades Around Safety and Cost Savings

Emphasizing the health, safety, and financial benefits of interventions such as upgrades and inspections may be more attractive framing for renters and landlords than energy efficiency and emissions reduction. In Rochester, the concept of energy efficiency did not strongly resonate with renters we interviewed, but having a more comfortable living environment and lower energy bills did. Gainesville interviewees reported observable improvements in renter safety as a direct result of requisite inspections that addressed “deplorable conditions with mold, floors separating, and damage to walls,” according to a city interviewee, who recommended advertising the safety benefits of inspections over their energy efficiency benefits to increase support for them. Bedford municipal staff also reported cost benefits of its Building Health and Performance Law, emphasizing the opportunity to save money and citing hyper local data about pollution and illnesses.

Invest in Hubs to Support Program Navigation and Mediation Between Property Owners and Renters

City staff, community-based organizations, and other trusted partners can assist residents in navigating requirements (if applicable) and available financial assistance programs that enable housing upgrades. For example, in Bedford, New York, if properties receive low quality scores after inspections, interviewees said that inspectors help building owners identify addressable issues and navigate applications for the EmPower+ Program—New York State’s program designed to provide low-income and moderate-income residents living in one- to four-family homes with no-cost home energy assessments¹¹ and funding for upgrades such as air sealing, insulation, electrical wiring, heat pump hot water heaters, and more. In addition, the NYC Accelerator offered navigation support to make Local Law 97 understandable to property owners.¹² An interviewee described how they simplified information about the law into ten building components that needed to be updated and offered advice on how to apply for relevant incentives. They also hosted informational webinars, partnered with the

Housing and Preservation Department to offer educational programming, and facilitated a contractor showcase for property owners. In Albany, an interviewee shared that the Albany Affordable Housing Partnership ensures landlords are aware of code requirements and existing incentive programs.¹³ They also help homeowners and renters apply for EmPower+, including by facilitating the necessary communication from tenants to prove income eligibility for EmPower+. Rochester stakeholders similarly said that they want help identifying which programs they may qualify for and direct support navigating application processes. Several renters also expressed the desire for a program that would provide landlord and tenant mediation to help them navigate upgrades together.

Engage Property Owners Early with Clear Information About Program Requirements

Cities that intend to implement energy-efficiency requirements in the long term will need to engage landlords early on so that they have an idea of what to expect, the requirements, and the resources available to support upgrades. Interviewees in Gainesville described the extensive outreach to owners they conducted when they were first forming their Rental Housing Ordinance.¹⁴ They sent mailers to more than 15,000 rental units and property owners and hosted six virtual workshops to gather feedback about the ordinance. Direct landlord engagement built an understanding of the benefits of energy-efficiency upgrades and options for how to approach them. The Town of Bedford also offered multiple ways for owners to engage with their new law in its proposal phase, including through “scoping sessions,” one-on-one calls, multiple notifications to owners, and letters, according to an interviewee. Bedford spent four years doing outreach before officially implementing their requirement for housing quality inspections and reporting. An interviewee believed that the long lead time before launching inspections ensured that anyone affected had a say and that nobody was caught off guard.

Inform Renters About Approaches to Energy Efficiency, Existing Programs to Support Upgrades, and Their Rights as Tenants

Information campaigns that clearly tie energy-efficiency upgrades to safety, health, comfort, and financial outcomes may gain attention from renters. The campaigns can include educational programming to teach tenants about ways to be more energy efficient, and what upgrades could increase energy efficiency in their residences. They can also inform renters about existing programs that support energy efficiency and tips on how to engage with their landlords about applying for them. For example, an organization in Cincinnati (Strategies to End Homelessness),¹⁵ who already worked with tenants prior to partnering with WarmUp Cincy, showed their rental clients videos with tips for being energy efficient and for saving money on utilities as renters. Renters who attended educational sessions were given a credit on their utility account. Renter outreach has also been important for ensuring that tenants know their rights. In Gainesville, for example, community organizers ran a renters’ rights campaign and gathered renters to testify about their living conditions to increase support for inspection requirements and raise awareness among renters.¹⁶ An Ithaca interviewee emphasized the belief that that renters should know how their leases work, how their homes function, their rights as tenants, and the pathways for recourse if those rights are infringed upon.

Build Capacity and Support Connections with Qualified Local Contractors

Contractors are the people who engage in the physical work of building upgrades and who frequently field questions from building owners. As such, educating contractors on the existence of supportive

programs, how to apply for them, and the energy efficiency and comfort benefits of upgrades may lead to more program uptake among clients and increase the availability of contractors qualified to make upgrades. In New York City, an interviewee viewed contractors as important middlemen between residences, electric providers, and incentive programs. Therefore, the NYC Accelerator made it a priority to keep contractors up to date on building requirements under Local Law 97, shared the interviewee. The interviewee said that while designing the Renter and Landlord Energy Efficiency Engagement Program (RALEE) program, Cincinnati's procurement office created metrics to assess which service providers to engage based on their qualifications, not just their cost. They described procurement and contract structures as "one of the hardest parts." Stakeholders who participated in the data interactive in Rochester also acknowledged that contractor availability is sometimes a challenge and believed it would be helpful if more contractors were informed about potential upgrades and incentive programs. To help connect residents to contractors, the Climate Solutions Accelerator (a New York regional clean energy hub), assembled a portal of vetted contractors and installers that were selected based on quality, experience, and commitments to sustainability and equity,¹⁷ and some stakeholders believed this could be expanded upon. The NYC Accelerator in New York City also assembles lists of vetted contractors who understand the landscape and are willing to provide "a good temperature check" on buildings (as opposed to a full energy audit) to help building owners prioritize actions, according to an interviewee. They thought that giving awards to capable and trustworthy contractors could further help building owners navigate who to hire to implement their upgrades and believed that vetted contractors were important because some contractors took advantage of uninformed building owners.

Energy-Efficiency Incentives Programs

Incentives for voluntary upgrades encourage households and property owners to pursue upgrades to building envelopes such as insulation and air sealing and may fully or partially fund energy-efficient equipment, including more energy-efficient appliances or better HVAC systems. The following recommendations related to energy efficiency incentives programs emerged based on lessons learned across cities.

Make Programs Easier to Access and Navigate

Interviewees across most cities are trying to make programs more accessible to residents. Rochester stakeholders who were interviewed or participated in the public data interactive reported that existing programs in the city are not well advertised, and are too piecemeal, administratively burdensome, underfunded, and oversubscribed. Stakeholders felt challenged by having to navigate multiple programs and braid together a patchwork of programs to make the set of updates they need. In addition, several landlords and property managers shared that small landlords often do not have the time or staff to handle the paperwork involved in qualifying for programs. To solve for some of these access barriers, Rochester residents suggested centralizing program information and applications, though some acknowledged that with low capacity and frequent changes in programs this could be challenging to keep up to date. Beyond an informational website, some stakeholders advocated for a "one-stop shop" — somewhere with a comprehensive program database and universal form (like a common app) where

homeowners or renters could enter their information (e.g., income, address) and “auto-qualify” for multiple programs at once rather than having to submit documents for each program individually. There is already a resource in Rochester where users can enter their address to see what programs they qualify for, but most people were not aware of it. Stakeholders in Rochester also suggested expanding public education and awareness of programs and increasing program navigation, advising support, and mediation.

Create Tiered Incentives to Encourage High-Impact, Cost-Effective Upgrades

Grant structures that reward more efficient upgrades can encourage their implementation. As such, cities can consider offering larger grants for upgrades deemed to support the most efficient and cost-effective upgrades (e.g., insulation). For example, after completing two pilot programs separately focused on supporting renter and landlord upgrades, the city of Cincinnati developed a follow-up program that incentivized what they view as the most impactful energy upgrades by covering a larger share of their costs (box 2). The city of Boulder is also considering how to incentivize impactful upgrades and early compliance with energy efficiency standards as they design the Healthy Homes initiative, according to an interviewee.

BOX 2

WarmUp Cincy and Tiered Incentives

Cincinnati has incentivized energy efficiency in rental housing through its WarmUp Cincy pilot programs¹⁸ (funded in 2019 and launched in 2020) that originally supported tenants and landlords through different programs. These programs emerged to decrease the huge energy burden faced predominantly by low-income and Black families:

- The WarmUp Cincy Tenant Program is a completed pilot that helped 218 households improve energy efficiency through free retrofits, such as insulation or upgraded appliances.
- The WarmUp Cincy Matching Grants Program is a completed pilot that matched landlords' spending on energy-efficiency upgrades. It partnered with 40 landlords of low-income, multifamily buildings in highly energy burdened census tracts. 272 households were reached, 70 buildings improved, \$290,472 invested. Matching grants were limited to \$5,000.
- The Whole Building Program is a research project with a goal of retrofitting 20 buildings. One group of buildings is the control; another group will receive deep weatherization and retrofits; and a third group will undergo electrification.

The WarmUp Cincy Renter and Landlord Energy Efficiency Engagement (RALEEE) Program launched in 2025 combines the aspirations of the Tenant Program and the Matching Grants program into one program that serves both tenants and landlords. When this program was formed, the city devised strategies to incentivize the adoption of the most cost-effective and impactful energy upgrades. As shared by a city interviewee:

- Tier 1 upgrades are the upgrades that have the highest impacts on energy efficiency which include insulation and air sealing. The RALEE program will cover 75 percent of the cost of these upgrades, up to \$15,000.
- Tier 2 upgrades such as appliance replacement do not have as high of an energy efficiency return for their cost, so can only receive 50 percent reimbursement.

Window replacement is not one of the RALEE offerings because they are believed to increase energy efficiency relatively less than other improvements compared to how expensive they are, according to interviewees.

Design Programs with Clauses to Ensure That Upgrades Benefit Low-Income Renters

To ensure low-income residents benefit from energy-efficiency upgrades, programs can incorporate affordability clauses (where landlords agree or are required to maintain defined affordability standards), and design thoughtful eligibility criteria. For example, interviewees said Gainesville created an affordability clause for the Rental Housing Ordinance asking landlords to maintain defined affordability standards proportional to the level of funding they received for property improvements, with incentives up to \$15,000. Programs run through the New York State Energy Research and Development Authority (NYSERDA) also include a clause that landlords will be liable to repay the cost of all upgrades if they do not rent to income-eligible tenants in the future—but this is not enforced, according to an interviewee (NYSERDA 2025). In addition, landlords who receive funds through the RALEE program in Cincinnati agree to limit rent increases significantly. An interviewee explained that property owners sign a two-year affordability covenant saying they will not raise rent by more than three to five percent; however, the city does not have a way to enforce this agreement. Most Rochester stakeholders who were interviewed or participated in the public data interactive believed that incentives should be paired with restrictions on raising rents or evicting tenants for a set period after upgrades are made.

Eligibility requirements are another way to target benefits toward low-income renters. The RALEE program, for example, is specifically targeted toward landlords that rent to low-income renters through requirements that half of the beneficiary tenants are at 200 percent of the federal poverty line or below.¹⁹ Landlords have to attest that they rent to low-income renters and include income demographics in their applications, but do not have to show income verification, explained an interviewee. In other cities, including Rochester, programs require paperwork to verify tenant income eligibility, but some interviewees and data interactive participants viewed these requirements as burdensome and a deterrent to using programs. Some suggested expanding or adjusting eligibility criteria for existing programs—for example, by automatically qualifying neighborhoods designated as disadvantaged communities.²⁰ Some Rochester interviewees also believe that properties should be eligible for renovations while they are vacant to reduce disruption to tenants and improve the feasibility of completing them; but still wanted to ensure that the benefits of vacant unit upgrades, if allowed, would ultimately flow to renters.

Implement Programs That Fund Foundational Repairs and Fill Gaps in Available Funding

Communities often rely on a mix of federal, local, utility, and philanthropic programs, but most programs are highly prescriptive in how they can be used and leave significant funding gaps—especially for general repairs that are essential to energy-efficiency upgrades. In Rochester, only some programs are designed specifically for rental housing, while others target owner-occupied properties (but may apply

to multi-unit buildings in which the owner occupies one unit and rents the others).²¹ They identified gaps in funding for roof improvements in particular, which may be foundational to other improvements such as better insulation and, in turn, improved HVAC systems. Rochester interviewees who used the Rental Property Improvement Program (RPIP) piloted by the local organization RENEW appreciated the program for its flexibility (RENEW 2024).²² RENEW funding made it possible to use more prescriptive models, such as programs that cover insulation and new furnaces by funding some of the fixes those upgrades depend on—fixing leaks before installing insulation or rewiring to accommodate a new furnace. “RENEW’s gap funding model was huge,” shared one interviewee.

Energy-Efficiency Requirements

Energy-efficiency requirements are enforceable standards with which builders and property owners must comply. They are typically enforced through inspections, and noncompliance is penalized with fees. The following recommendations related to energy-efficiency requirements emerged based on lessons learned across cities.

Build on and Strengthen Rental Licensing and Inspection Processes

Cities with existing licensing and established inspection processes may have a leg up in integrating new energy-efficiency standards. For example, Boulder has had minimal housing standards since 1968 and began operating a rental licensing system with required inspections shortly after, with renewals on a four-year cycle.²³ The introduction of the SmartRegs ordinance simply added an energy-efficiency requirement to the existing system, and landlords were given two full license cycles, or eight years, to bring their properties into compliance. In contrast, Gainesville’s implementation of energy-efficiency standards involved the extra hurdle of introducing regular inspections, which drew pushback from landlords citing privacy concerns.²⁴ Although the city had an existing rental licensing framework, inspections were previously complaint-driven, placing the responsibility on tenants to request inspections. This approach was largely ineffective, as many renters were hesitant to report issues due to concerns about potential retaliation. Under the revised ordinance, inspections became mandatory to obtain a business license to operate a rental property and a four-year rotating inspection schedule was established. A group of landlords sued the city in December 2022, calling the ordinance and inspections unconstitutional and, not long after, House Bill 1417 signed in mid-2023 pre-empted most forms of rental housing regulation in Florida.²⁵ As such, Gainesville is no longer able to enforce the Rental Housing Ordinance. In Rochester, where obtaining Certificates of Occupancy (CofO) already requires inspections, community members are exploring how energy-efficiency standards might be added to obtain CofOs. However, some stakeholders think code enforcement staff are already spread too thin and existing housing standards should be enforced before adding energy-efficiency requirements.

Implement Housing Inspections and Communicate Requirements Consistently

Timely, clear, and consistent processes for inspections are important to gain buy-in from landlords and renters in places that hope to implement more in-depth inspections that include energy-efficiency components. In Gainesville, interviewees explained that the initial implementation of inspections was not smooth. Because the city set a short timeframe to implement the inspections, the city needed to

outsource them to an external firm which relied heavily on university students. Inspectors were recruited and trained quickly. The arrangement resulted in logistical difficulties for the city and raised questions about quality and consistency. Ultimately, the city terminated the contract and brought inspections in-house. They hired five to ten extra staff to conduct inspections that involved two people: one in the field to conduct inspections and take videos, and a second person to review the files. The process reportedly improved once the city assumed direct oversight of inspections. Rochester interviewees also emphasized the importance of consistency in inspections and communicated requirements. “The worst thing that can happen is, ‘oh there’s this other thing you have to do and that will cost ‘xyz.’ Goal posts moving is really unsettling. Consistency, communication, if there will be deviation allowed, make sure that it’s clearly understood and it feels fair,” shared an interviewee.

Tailor Requirements to Local Housing Characteristics, Prioritize Simplicity and Flexibility in Designs, and Finalize Language Well Before Implementation

Requirements can be most effective if they are tailored to local housing characteristics and to owner and renter contexts. Depending on the local housing stock, cities can consider whether to adopt performance-based or prescriptive systems. If adopting a prescriptive system, there may be tradeoffs to using a points-based framework versus a checklist model. In Gainesville, a “yes/no” checklist system for upgrades was chosen for its simplicity. Checklist items included R-19 minimum insulation (6.25-inch insulation), a screen on windows, water saving plumbing fixtures, and weather stripping on exterior doors and windows, among others. Boulder provided options: either a points-based prescriptive pathway, or a performance-based pathway (box 3).

BOX 3

SmartRegs: Multiple Approaches to Assessing Energy Efficiency

SmartRegs is an enforceable policy specifically targeted at landlords and renters where SmartRegs compliance requires all licensed rental housing to be inspected to meet a basic energy standard.²⁶ Property owners could choose between two compliance paths under the SmartRegs policy:

- **A prescriptive points-based pathway** that requires a minimum of 100 points, with points awarded for specific improvements. For example, adding insulation could earn a high number of points, while replacing windows might earn fewer. Those who could not feasibly gain 100 points had to apply for an exemption and pay the difference into a carbon offset fund.
- **A performance-based pathway** using the Home Energy Rating System (HERS). The performance-based option, though more technical, allowed flexibility for multifamily buildings where prescriptive scoring was harder to apply. However, very few owners used the performance approach. As an interviewee shared: “They’re just people that rent out the house ... You had to get a home energy rating system ... whenever you make it super complicated it’s not going to be what people use.”

Exemption policies may be needed to address cases where compliance is technically infeasible. In both Boulder and Gainesville, procedures for flexibility around technically infeasible upgrades were not thought about until after the fact, according to interviewees. In Boulder, the city did not develop a policy to address technical impracticalities until 2017 after property owners trying to comply with the 2018 deadline pushed for one. Property owners who were unable to achieve 100 points under the city's points-based system could apply for an exemption from completing prescribed upgrades but were required to contribute to a carbon offset fund in lieu of compliance. While it was important to account for technical limitations, interviewees observed that those seeking technical exemptions were a minority of the households. In Gainesville, the ordinance was amended to provide exemptions for property owners facing common technical barriers to implementation such as chimneys or fireplaces that were not sealed or roof structures that were too flat for insulation. Unlike in Boulder, CO, the city did not require contributions to a fund in cases where upgrades were deemed technically infeasible.

In New York City, where Local Law 97 passed in 2019, an interviewee who was knowledgeable about the implementation process observed that there was a long time between regulation passing and the compliance date, but that it was important for building owners to have that time to work toward compliance. However, a comprehensive guide was not available until 2023, and residents did not want to act until the language surrounding the requirements was final. "One thing people respond to is feeling like they have access to information," shared the interviewee.

Pair Requirements with Supportive and Intentional Resources

Incentives programs can complement energy-efficiency standards and promote earlier compliance. They are a must-have if upgrade requirements are adopted, according to most Rochester interviewees and data interactive participants. In Boulder, SmartRegs requirements are paired with an incentives program administered by Boulder County—EnergySmart—that offers rebates and advisory services to building owners and renters.²⁷ Interviewees described this program as a comprehensive, one-stop shop for landlords to access funding and resources to comply with SmartRegs' energy-efficiency requirements. However, Boulder interviewees noted that a significant number of households delayed compliance with the energy-efficiency requirements until the final year of the eight-year implementation window, culminating in 2018. To encourage more proactive compliance in future initiatives, the city is exploring strategies to incentivize earlier action, such as offering higher financial incentives during the initial years of long compliance timelines to motivate earlier participation. In New York City, the NYC Accelerator offers assistance to building owners to comply with Local Law 97 which requires most buildings over 25,000 square feet to adhere to greenhouse gas emissions limits.²⁸ Energy experts work with building owners to find energy-efficiency upgrades that work for the building, and to access financing options from NY State, NYC, and local lenders, explained an interviewee. Since 2020, NYC Accelerator has helped around 8,500 buildings achieve energy savings.

FIGURE 1

A Roadmap and Onramp Framework for Rochester, NY

A sample set of strategies for cities pursuing energy-efficiency requirements

	Near-term (1–2 years)	Mid-term (2–4 years)	Long-term (4–8 years)
Assessment	1. Update housing quality assessments of rental housing in Rochester. 2. Establish data collection with new or expanded pilot programs. 3. Establish a digital survey for voluntary reporting on energy expenses and quality of life. 4. Assess alignment with possible future policy goals.	5. Partner with RG&E to use utility data to track outcomes. 6. Implement a system to publicly grade rental stock. 7. Support third-party household-focused research.	8. Support mandatory reporting and ongoing assessment.
Education & engagement	1. Launch tailored information campaigns. 2. Support smart meter troubleshooting. 3. Expand advertising and program navigation support for existing incentive programs. 4. Learn from and coordinate with other municipalities on incentives, program design, and advocacy.	5. Establish tenant-landlord mediation programs. 6. Expand and promote use of a vetted contractor portal. 7. Develop tiered certification programs.	8. Support ongoing education and program consulting.
Incentive programs	1. Improve the infrastructure for applying for incentive programs. 2. Consider expanding or adjusting eligibility for existing programs. 3. Improve energy audit follow-up. 4. Establish an “affordability clause” and monitoring for programs that fund upgrades.	5. Expand programs with flexible funding for upgrades. 6. Replace reimbursement-based programs with upfront grants and on-bill financing options. 7. Explore offering tiered grants to landlords based on meeting higher energy efficiency standards. 8. Explore establishing a revolving loan fund.	9. Offer grants or other incentives that complement energy efficiency requirements.
Requirements	1. Expand inspection capacity. 2. Enforce existing CofO safety requirements. 3. Establish a more regular CofO inspection cycle. 4. Develop an energy efficiency assessment system (point-based, checklist, or other). 5. Design an energy efficiency reporting system.	6. Add energy audits to the CofO inspections. 7. Develop clear policies for “technical impracticalities” for housing that cannot feasibly be updated. 8. Develop accountability mechanisms to receive grants. 9. Require energy efficiency reporting for rental stock. 10. Phase in energy efficiency requirements for new builds.	11. Consider enforcing CofO requirements through CofO inspections.

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Source: Authors’ analysis.

Notes: Interventions are numbered consecutively within each pathway to represent ordering over time. This roadmap was drafted for a Rochester, NY-specific feasibility study and represents what near-term, mid-term, and long-term strategies across the four pathways might look like in a city. Some strategies are only relevant to the Rochester context.

Conclusions for Cities Considering New Energy-Efficiency Programs or Requirements

Strategies to implement new incentives programs or requirements to increase the energy efficiency of rental housing will be highly contextual and vary from city to city. They will hinge on a location's renters (socio-demographic and geographic dispersion throughout the city), its building stock (age, size, conditions, and owner types), and available coordination and funding resources. Strategies along assessment, education and engagement, incentives, and requirement pathways will involve overlapping and reinforcing activities, and span near-term, medium-term, and long-term timelines, as illustrated in the sample roadmap and onramp framework for Rochester (see figure 1, above). These pathways complement one another and converge over time.

Where there is strong interest in improving the energy performance of rental housing stock, stakeholders can assemble the ecosystem of actors to drive, support, and enable actions that build energy efficiency in rental housing. Together, they can evaluate long-term priorities to determine what foundational activities should be pursued along the assessment, education & engagement, incentives, and requirement pathways. They will need to identify and answer critical questions about barriers and available resources that successful implementation hinges upon, including around capacity or physical constraints and potential unintended impacts on housing affordability. As partners step forward to champion prioritized actions, leaders can establish governance bodies to oversee cross-sector coordination, monitor outcomes, and advance multi-partner initiatives that improve housing conditions (Enterprise 2025). Lastly, as there is retrenchment in federal funding, a blend of funding sources and financing mechanisms involving federal, state, local, and private parties such as community development financial institutions, utility companies, and philanthropy will need to be assembled to support activities along the pathways (Ross et al. 2016; Samarripas and Jarrah 2021).²⁹ For inspiration on how they might design, communicate, and implement incentive programs and requirements around energy efficiency, communities can look to examples from towns and cities like Albany, Bedford, Boulder, Cincinnati, Gainesville, Ithaca, New York City, and Rochester that have started to address the split incentive problem and tackle the challenge of improving energy efficiency in rental housing.

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