

MARCH 2024

The Case FOR A
Green New Deal
FOR **Public Housing**

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MARCH 2024

The Case for a Green New Deal for Public Housing

Kira McDonald CLIMATE & COMMUNITY PROJECT

Daniel Aldana Cohen CLIMATE AND COMMUNITY PROJECT AND
THE UNIVERSITY OF CALIFORNIA, BERKELEY

Ruthy Gourevitch CLIMATE & COMMUNITY PROJECT

Acknowledgments: The authors are grateful to Ramona Ferreyra and Save Section 9 advocates; Bomee Jung; Carlos Martín; Iziah Thompson; and James Hanlon for their review and feedback of this report. Thank you to Joy Metcalf and Areanna Egleston for copyedit and design support. The authors also thank Johanna Bozuwa and Laurel Chen of Climate and Community Project for their support.

Suggested citation: Kira McDonald, Daniel Aldana Cohen, and Ruthy Gourevitch. "The Case for a Green New Deal for Public Housing." *Climate and Community Project*, March 2024.



The Climate and Community Project (CCP) is a progressive climate policy think tank developing research at the climate and inequality nexus. Learn more at climateandcommunity.org.



The Climate and Community Project's housing work is done in partnership with the Socio-Spatial Collaborative, or (SC)², based at UC Berkeley. To learn more, visit sc2.berkeley.edu.

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Executive Summary

THE CASE FOR A GREEN NEW DEAL FOR PUBLIC HOUSING

The massive backlog of deferred maintenance for public housing in the United States demands a comprehensive, holistic solution that brings every unit in the country up to the highest health and environmental standards: A Green New Deal for Public Housing. This plan would deliver healthy green upgrades and deep-energy retrofits of the nation's public housing stock to massively increase residents' health and quality of life, finally remedy the long backlog of repairs in public housing, and eliminate all carbon pollution from public housing buildings, while creating badly needed, high quality jobs in the green economy for people in public housing communities. In so doing, a Green New Deal for Public Housing would also build on successful models in the US and abroad that have leveraged investments in public housing to accelerate green technologies throughout the buildings sector—benefiting consumers and hastening decarbonization well beyond only public housing.

At a time when the housing crisis has become an urgent national issue, public housing in the US is one of the few remaining options for deeply affordable housing. Public housing is home for 1.7 million residents, roughly 1 in 200 Americans, providing a long-term housing option outside of the increasingly expensive private rental market. Public housing residents are disproportionately Black and brown renters, and 24% of public housing residents are living with a disability.¹ We cannot afford housing or climate policy that leaves these communities behind.

¹ <https://www.huduser.gov/portal/datasets/assthsg.html>

² A variety of forms of subsidized housing are sometimes referred to as public housing; in this report, the phrase refers specifically to Section 9 public housing, which would see increased funding and other reforms through a Green New Deal for Public Housing.

Public housing is facing an existential crisis. Chronic underfunding has created the conditions for a rapid decline of units, with the loss of one out of every four public housing units in just over a decade. Our original analysis shows that **between 2009 and 2022, the public housing stock has shrunk from 1.2 million units to just over 900,000 as a result of demolition, privatization or other conversions from Section 9.**² In the context of decades-long underfunding of public housing, the Rental Assistance Demonstration (RAD) emerged as an option to address the large and growing capital repairs backlog. RAD mandates a transfer of ownership or management from PHAs to other entities, who can then

The Green New Deal for Public Housing would end the era of the demolition, fragmentation, and privatization of public housing and invest \$16.2 to \$23.4 billion a year for 10 years to transform the US public housing stock, upgrading every single unit into safe, healthy, beautiful, and climate-resilient places to live.

circumvent restrictions associated with traditional public housing funding streams and access additional funding from which PHAs are excluded. RAD can often entail the privatization of public housing, although the new managing entity can also be a tenant association, non-profit, or a public subsidiary of the PHA. RAD has accelerated—but did not initiate—the loss of Section 9 public housing in the United States. Since RAD began in 2012, 230,000 public housing units have already been converted or are in process to convert to this alternate ownership model.

The delivery of green retrofits and repairs would restore safe, habitable, and comfortable homes for the 1.7 million Americans currently in Public Housing, laying the foundation for renewed investments in expanding this essential housing supply. And a Green New Deal for Public Housing would create an estimated 280,000 jobs over its 10-year spending period. Decarbonizing homes would often go hand-in-hand with increased health and comfort for residents, as when a new induction stove eliminates the need for cooking fuel, lowers emissions, and drastically improves indoor air quality.³ In some cases, benefits for resident health and comfort may be more pronounced than benefits in terms of emission reductions. Improving a building envelope—repairing cracks, replacing windows, and/or installing overcladding—would lower utility costs, but also help eliminate mold, which is currently a major health issue for many public housing residents.⁴ The repairs proposed would address urgent issues of resident health and safety while retrofits would decarbonize public housing, massively reduce energy needs, and also contribute to better living conditions. As a whole, the

Green New Deal for Public Housing is an investment in public health, community resiliency, housing security, and eliminating carbon pollution, and its benefits would be diffuse across these areas.

The window of opportunity to save public housing is rapidly closing, as each year low-income renters find themselves with fewer public housing units to live in. Federal policymakers must urgently pass legislation to fully fund and improve public housing.

Where comprehensive, green upgrades of public housing have been planned or implemented, their benefits have extended beyond public housing alone—and have helped build a fair, green economy that tackles inequality and climate change in the same places, at the same time.

In the last few years alone, Public Housing Authorities (PHAs) have begun confronting the combined climate and public health crises through deep energy retrofits and resiliency upgrades in public housing properties. In many cases, these programs have helped create initial demand for cutting-edge green building techniques and technologies,—laying the groundwork for accelerated decarbonization throughout the broader housing market while creating new, green jobs. Existing programs domestically and abroad show the strong promise of public housing providers *in particular* to drive these innovations. A Green New Deal for Public Housing is designed to protect public housing in the United States, implement comprehensive, modern upgrades that support residents' health and quality of life, while also accelerating building decarbonization practices through these practices.

3 Oliver Milman, "One in Eight Cases of Asthma in US Kids Caused by Gas Stove Pollution – Study," *The Guardian*, January 6, 2023, sec. Environment, <https://www.theguardian.com/environment/2023/jan/06/us-kids-asthma-gas-stove-pollution>.

4 Annemarie Cuccia, "DCHA Is Promising Operational Reform. What Does That Mean for Residents?," *TheDCLine.Org* (blog), December 7, 2022, <https://thedcline.org/2022/12/07/dcha-is-promising-operational-reform-what-does-that-mean-for-residents/>; Greg B. Smith, "NYCHA's Decade of Court-Monitored Mold Cleanup Starts to Show Results," *THE CITY - NYC News*, June 29, 2023, <http://www.thecity.nyc/2023/06/29/nycha-mold-cleanup-progress-baez-monitor/>.

A GREEN NEW DEAL APPROACH TO FULLY SAVE PUBLIC HOUSING

Other approaches—namely the Rental Assistance Demonstration (RAD)—are being held as solutions to the long-term funding shortfalls facing public housing. RAD can provide needed capital for repairs by making projects eligible for additional subsidies, grants, and loans for which Section 9 public housing is ineligible. However, while RAD has provided a mechanism for PHAs to address some urgent capital needs, it also entails large drawbacks. The complexity of RAD conversions entails large, hidden transaction costs, which have been recognized by policy analysts, independent evaluations of the program, and even consultants who specialize in RAD conversions. While RAD does mandate tenant protections and affordability requirements, those protections can vary based on the specifics of the RAD conversion and are not watertight. RAD may be offered as a solution—but the far better approach is the simpler one: funding public housing through Section 9 and removing unnecessary restrictions on PHAs.

Crucially, while RAD can make capital available to address repair backlogs, a huge portion of the funding “unlocked” through RAD are public grants and subsidies, which are often siphoned from other housing programs, comprising further hidden costs and hindering efforts to address our multifaceted housing crisis. In lower-cost areas, RAD conversions will tend to require even larger public subsidies, if those areas are not to be left out entirely from investments entirely. Our analysis shows that the large majority—nearly 75%—of financing made available through RAD are direct grants from other public programs, equity from tax credits or other funds, or federally-insured or subsidized loans. In other words, the majority of the financing “unlocked” through RAD stem from public resources—with a large portion comprised of funds siphoned from other housing programs.

Finally, while RAD is preferable to deterioration and demolition, it isn’t actually saving public housing because we’re still losing units, beyond what are converted through RAD. From 2012 to 2023, 174,000 public housing units were converted through RAD — and the number of public housing units in the US declined by 274,000, suggesting that a substantial number — up to 100,000 — were still demolished or otherwise disposed of during that period.⁵

Chronic underfunding is not the only obstacle that has accounted for the decline of public housing. PHAs are subject to a range of cumbersome rules or requirements that raise costs or otherwise obstruct them in the mission of providing housing. This includes financing restrictions that can limit PHA’s ability to finance energy-efficiency repairs and expensive and overly restrictive spending and contracting requirements that hinder capital improvements. Again, while RAD can allow some of these restrictions to be circumvented, the simpler approach—simply reforming or removing these impediments on PHAs—will be the better one, and doing so will be essential to implementing a Green New Deal for Public Housing.

RAD may be offered as a solution —but the far better approach is the simpler one: funding public housing through Section 9 and removing unnecessary restrictions on PHAs.

5 HUD, “Picture of Subsidized Households”; HUD, “RAD Program Data.” See methodological appendix, “RAD Conversions and Public Housing Unit Loss.”

THE BENEFITS OF A GREEN NEW DEAL APPROACH

The Green New Deal for Public Housing would realize major public health benefits, including lower asthma rates, reduced fatalities and health impacts from extreme heat,⁶ and improved mental health for public housing residents. The association between these public health outcomes and specific building repairs and retrofits—such as lead and mold removal, installation of heat pumps and induction stoves, and other steps to improve state of repair and habitability—are empirically well established. Children growing up in homes with gas stoves have a 42% increased asthma risk compared to those growing up without a gas stove in their home; replacing gas stoves with induction will therefore reduce both emissions and asthma prevalence. Extreme heat poses a major public health risk, and rising temperatures increase the urgency and benefit from installing heat pumps that could provide cooling in the summer, as well as replace fossil-fuel heating systems that would be active during the winter. A Green New Deal for Public Housing would involve flood-proofing public housing developments in vulnerable areas. Meanwhile, increased greenspace and decreased paved area will help mitigate local heat island effects and absorb more water during heavy rain, which lowers risk of both extreme heat and flooding.

The Green New Deal for Public Housing would end the era of the demolition, fragmentation, and privatization of public housing and invest \$16.2 to \$23.4 billion a year for 10 years to transform

our public housing stock, upgrading every single unit into safe, healthy, beautiful, and climate resilient places to live. The Green New Deal for Public Housing would create an estimated 280,000 jobs over its 10-year spending period in high-paying, family-sustaining sectors, with hiring preference going to public housing residents. This would create clear pathways for residents themselves to get good, family-sustaining jobs for residents at the same time as they help alleviate rising construction costs for PHAs.

The time is past due for a Green New Deal for Public Housing. Decades of deferred maintenance mean building systems are desperately due for replacement. While programs like the Rental Demonstration Program (RAD) are being scaled up as solutions to the massive public housing maintenance backlog, relative to simply funding public housing directly and removing or reforming other rules that currently hamstring public housing management, RAD only introduces new costs, risks, and complexity—all while making the work of decarbonization harder and less direct. With a Green New Deal for Public Housing, Congress would mobilize the resources needed to fight climate change and massively improve the health and living conditions of 1.7 million Americans, and continue to provide—or begin again to grow—this major stock of stable and affordable housing in the midst of a worsening national housing crisis.

6 “An estimated 350 New Yorkers die prematurely because of hot weather in New York City (NYC). These heat-related deaths account for about 2% of all deaths over the warm season months of May through September.” [“2023 NYC Heat-Related Mortality Report,” Environment & Health Data Portal, 2023.](#)

A GREEN NEW DEAL FOR PUBLIC HOUSING

By The Numbers

Public housing is one of few remaining options for deeply affordable housing, providing homes for

1.7 million

residents, roughly 1 in 200 Americans.

But since 2009, the United States has lost

over 25%

of its public housing units to conversions, demolitions, or dispositions.

A Green New Deal for Public Housing would reverse course on decades of underfunding and neglect, creating

280,000

high-paying jobs.

This proposal will invest **\$16.2 to \$23.4 billion a year for 10 years** to preserve, upgrade, and expand public housing stock.

Delivering comprehensive unit upgrades and decarbonizing public housing buildings would:

LOWER EMISSIONS:

Eliminate an estimated

5.7 million

metric tonnes of carbon emissions.

This is the equivalent of

1.26 million

fewer cars on the road every year.

ACCELERATE DECARBONIZATION:

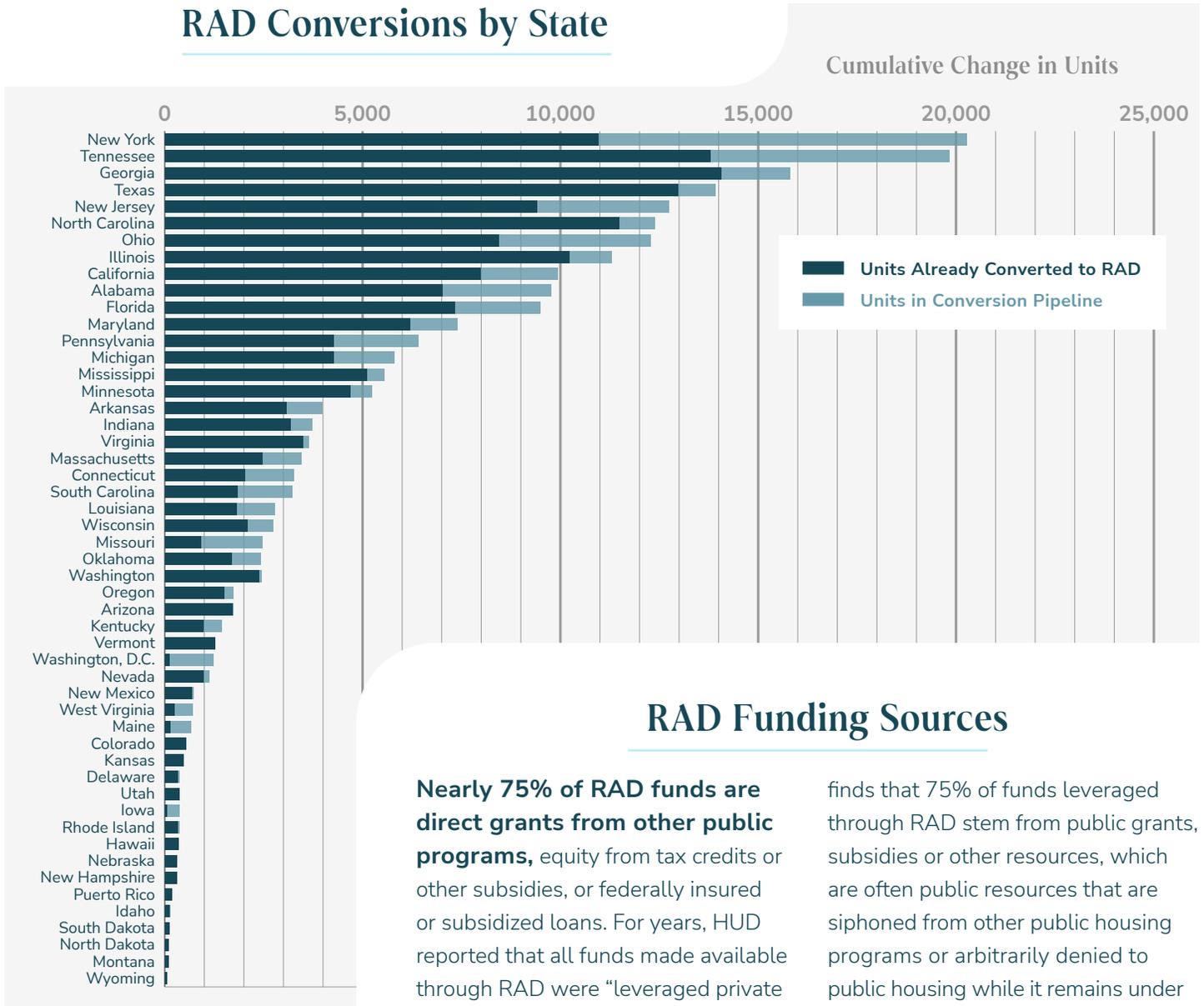
This proposal would broadly benefit the US manufacturing and construction sectors by bringing new technologies to market and spurring innovation.

PROVIDE HEALTH BENEFITS:

Green repairs to public housing would lower asthma rates and improve cardiovascular health for public housing residents.

The Rental Assistance Demonstration has been a major part of the decline in public housing, with 230,000 public housing units already converted or in the pipeline to convert since RAD began in 2012.

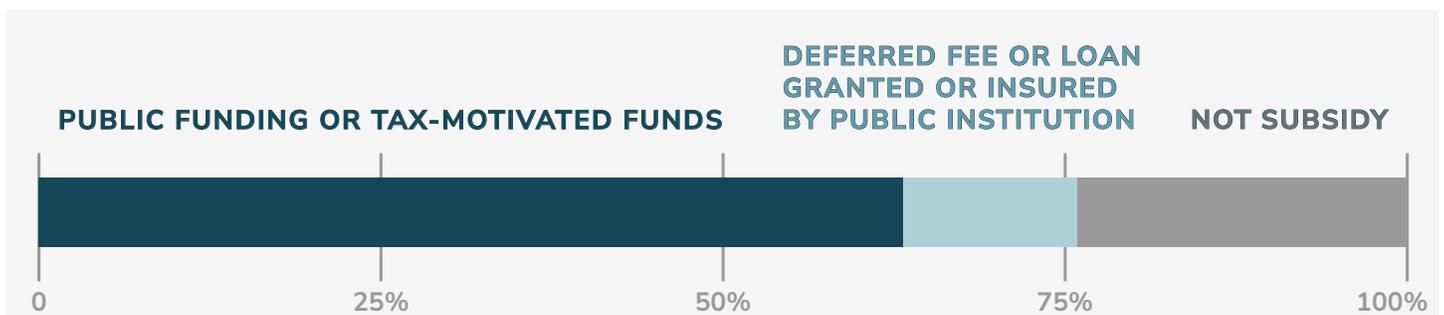
RAD Conversions by State



RAD Funding Sources

Nearly 75% of RAD funds are direct grants from other public programs, equity from tax credits or other subsidies, or federally insured or subsidized loans. For years, HUD reported that all funds made available through RAD were “leveraged private sector investment.” But our analysis

finds that 75% of funds leveraged through RAD stem from public grants, subsidies or other resources, which are often public resources that are siphoned from other public housing programs or arbitrarily denied to public housing while it remains under Section 9.



Source for both graphs: RAD Program data. More detailed breakdown of RAD funding sources on [page 28](#).

Introduction

When the Green New Deal for Public Housing Act was originally introduced in November 2019,⁷ advocates, public housing residents, and tenant organizers joined Representative Alexandria Ocasio-Cortez and Senator Bernie Sanders in Washington, D.C., with a simple message regarding public housing: “clean this place, don’t displace.”⁸

Just two years later, after the bill was reintroduced and improved,⁹ thanks in large part to public housing advocates and allied policymakers’ tireless work, the US House of Representatives voted to repeal the Faircloth Amendment that limits new public housing construction, and virtually every Democrat in Congress agreed to invest \$60 billion in public housing as part of the Build Back Better passage. While just a couple of senators ultimately blocked these reforms, it was clear that there is already strong support for saving public housing that advocates can build on to win a Green New Deal for Public Housing.

Beyond the halls of Congress, there is a growing consensus among advocates and organizers in the United States that we need massive new investments in genuinely affordable housing, and there is a groundswell of support for social housing that shelters low and middle income Americans from the turbulence of the private market. This is an exciting moment for housing movements, and we can’t afford to leave public housing behind. The majority of public housing units are home to Black and Brown renters with incomes below the poverty line, and these renters deserve to have the safe, high-quality housing they have been organizing around for generations. By putting public housing residents back at the center of housing, social, and climate policy, we affirm that no one can be left behind as we build up our economy and infrastructure in the decades ahead.

7 Kaufman, “Sanders, Ocasio-Cortez”; Cohen, et al., “Green New Deal.”

8 Budds, “Green New Deal.”

9 Cochrane, “Progressives”; Cohen, et al. “Green New Deal.”

10 Zaveri, “Almost \$80 Billion.”

The need for a Green New Deal for Public Housing has never been more urgent. Our new analysis finds that the United States has lost fully one-quarter of its public housing units in the past decade to demolition, neglect, and privatization and other conversions from Section 9. The biggest concentration of public housing in New York City is crumbling. New York City alone is facing a capital backlog of nearly \$80 billion.¹⁰ The United States will lose even more units in the decade ahead if it doesn’t act now. Meanwhile, low-income people cannot find affordable places to live in any county in the country. We cannot afford to let public housing collapse, and the window for saving this precious resource is closing.

Saving public housing will energize the battle for housing as a human right and for subsidized housing protected from markets as a crucial pillar of social and climate justice.

The Green New Deal for Public Housing is the type of transformative housing and climate policy that will deliver the long overdue capital improvements that public housing residents deserve and ensure public housing can thrive in the long term. In this report, we outline the Green New Deal for Public Housing approach and its benefits and then provide an overview of key policy and decarbonization updates in the public housing field.

By putting public housing residents back at the center of housing, social, and climate policy, we affirm that no one can be left behind as we build up our economy and infrastructure in the decades ahead.

Green New Deal for Public Housing as an Integrated Policy Approach

A Green New Deal for Public Housing would address the crisis of living conditions and vanishing units in public housing by providing all public housing residents with healthy housing and the modern, green upgrades they deserve, from clean and functional electric appliances to carbon-free buildings that can withstand climate disasters. It would decarbonize public housing structures while situating them to provide safe, reliable shelter as the climate changes. It would deliver good green jobs and give public housing residents an opportunity to take part in the investments in their communities while improving Public Housing Authorities (PHA) governance and contracting processes around conducting repairs and retrofits.¹¹

In short, a Green New Deal for Public Housing would be a housing policy, public health policy, workforce development policy, decarbonization policy, and resiliency policy. Rather than diluting a core set of goals, this would allow integrated planning to efficiently pursue a number of ends simultaneously.

The benefits from this integrated approach are manifold. Full funding for a Green New Deal for Public Housing would entail lead and mold abatement, including fixing leaks and remedying poor bathroom ventilation. It would improve the resiliency of public housing structures, especially those facing increased flood risk or extreme temperatures as climate change progresses, and situate those structures as resiliency centers where others in the community could find shelter during extreme weather events. It would remove excessive blacktop surfaces on many public housing properties, creating green community spaces to improve children's health, mitigate local heat island effects, and help absorb floodwater. Rather than demolish public housing units—many of which were originally built with high-quality standards in the mid-20th century¹²—the Green New Deal for Public Housing would invest in rehabilitating these buildings to improve residents' health at the same time that it stabilizes the housing stock and lays the groundwork for decarbonization. It would improve upon and expand existing programs to help public residents find jobs and increase their income, while the investment itself creates 280,000 jobs over its 10-year spending period centered around public housing communities.

Green New Deal for Public Housing would be a housing policy, public health policy, workforce development policy, decarbonization policy, and resiliency policy.

11 Long-term, much public housing is threatened by sea-level rise, another reason that a Green New Deal approach is urgent: first, to ensure resilience, and ultimately, by building far more green public housing in safer areas. See Fleming, et al., "Public Housing."

12 Ferré-Sadurní, "New York Public Housing."

OVERVIEW OF INVESTMENT & BENEFITS

- **Realize major public health benefits, including lower asthma rates, reduced fatalities and health impacts from extreme heat,¹³ and improved mental health.** The association between these public health outcomes and specific building repairs and retrofits—such as lead and mold removal, installation of heat pumps and induction stoves, and other steps to improve the state of repair and habitability—are empirically well established.¹⁴
- **Accelerate the adoption of green building technologies, construction techniques, and commercial and consumer appliances throughout the US economy.** Investments in public housing retrofits will accelerate decarbonization and broadly benefit the US manufacturing and construction sectors by bringing new technologies to market; spurring innovation; and helping grow the new, zero-carbon economy.
- **Create an estimated 280,000 jobs over its 10-year spending period in high-paying, family-sustaining sectors** such as construction and manufacturing. The estimate of 280,000 jobs includes direct, indirect, and induced jobs from a proposed investment of \$23.4 billion per year. Jobs directly created through this spending would include an estimated 42,000 jobs in construction or maintenance and repair over the spending period; 19,000 in various construction sectors; and additional direct jobs in architecture, engineering, management, and other sectors. This spending program would create these jobs and sustain them throughout the 10-year spending period, after which trained and experienced workers with new knowledge of cutting-edge green building techniques would help expand the growing green economy beyond public housing.
- **Pair the Green New Deal for Public Housing with apprenticeship and career development programs that support public housing residents and surrounding communities,** this would help extend these economic benefits to disinvested communities while growing the labor force in these sectors and helping loosen currently tight market conditions.
- **Eliminate an estimated 5.7 million metric tonnes of CO2 emissions,** a reduction of carbon pollution equivalent to taking 1.26 million cars off the road each year as public housing buildings are electrified, made more energy efficient, and eventually fully decarbonized.
- **Create resiliency centers to reduce vulnerability to extreme weather, both for public housing residents and members of surrounding communities.** Improved green space on public housing developments would reduce local heat island effects and flood vulnerability while benefiting residents' health and happiness; flood-proofing structures would allow larger public housing structures to function as community resiliency centers; on-site renewable generation will help supplement the grid during periods of high energy need; while increased energy efficiency will reduce energy requirements and consumption during these periods, decreasing grid strain and blackout risk.
- **Decades of underfunding have left public housing on the brink of collapse; a Green New Deal for Public Housing would reverse this harmful pattern.** A Green New Deal for Public Housing would invest \$16.2 to \$23.4 billion a year over ten years. For context, the high end of this estimate is less than one-third of the missed revenue

13 "An estimated 350 New Yorkers die prematurely because of hot weather in New York City (NYC). These heat-related deaths account for about 2% of all deaths over the warm season months of May through September." Environment & Health Data Portal, "Heat-Related Mortality."

14 Bikomeye, Balza, and Beyer. "Schoolyard Greening"; Seals, "Reality Check"; Wright and Phipatanakul, "Environmental Remediation"; Gradziuk, et al., "Heat Pump"; Hinson, "The Relationship."

from Trump-era changes to *corporate taxes* alone, or roughly equal to the annual cost of the regressive Mortgage Interest Deduction.¹⁵ Additionally—as is discussed further in the subsequent section—because alternate strategies to address public housing maintenance backlogs, such the Rental Assistance Demonstration (RAD), function in large part by pulling subsidies

from existing programs like Low Income Housing Tax Credits (LIHTC) and state/local housing programs to address deferred public housing needs—the actual costs of a Green New Deal for Public Housing will be lower than its sticker price in comparison because funds will not be siphoned from other housing programs to RAD-converted developments.

PUBLIC HEALTH BENEFITS

Given the established relationship between housing quality and health outcomes, these retrofits will result in concrete and substantially improved health outcomes. Children growing up in homes with gas stoves have a 42% increased asthma risk compared to those growing up without a gas stove in their home; replacing gas stoves with induction will therefore reduce both emissions and asthma prevalence.¹⁶ Homes with leaks and mold are similarly associated with elevated asthma risk; fixing leaks and abating mold in public housing will similarly have real public health impacts, even if their direct climate impacts are limited.¹⁷ Extreme heat is an emergent, rapidly worsening public health issue, which resulted in over 1,500 deaths in the United States in 2022,¹⁸ improving airflow and installing heat pumps in public housing will save lives, take stress off the US healthcare system, and improve resident comfort—while also contributing to decarbonization. Considering the public and private costs of healthcare and lost productivity from these conditions—extreme heat alone costs the US healthcare system an estimated \$1 billion a year, with this slated to worsen as extreme heat becomes more common¹⁹—

indicates some additional economic and fiscal benefits of a Green New Deal for Public Housing. Other aspects of housing conditions, including maintenance deficiencies, are associated with behavioral or mental health issues including hostility and depressive symptoms.²⁰

The benefits for addressing the maintenance backlog in our public housing and implementing deep-energy retrofits stretch far beyond emissions reductions. In this context, it is worth noting that a large portion of the estimated costs of addressing public housing maintenance backlogs look more like fixing leaks, repairing floors, replacing apartment fixtures, and abating mold and lead as opposed to only measures, like replacing fuel- and oil-based heating systems with heat pumps, that have larger impacts from a climate or energy-efficiency perspective.²¹ Given that nearly one out of every four public housing residents are living with a disability, it is also essential that the investments in units include accessibility upgrades and investments that make public housing a more comfortable living environment for residents with disabilities.

15 For the comparison with the Mortgage Interest Deduction, we used estimates that reflect changes to this program under the Tax Cuts and Jobs Act, which lowered the cost substantially from over \$70 billion per year to about \$25 billion. For comparison with the Trump-era corporate tax cuts, we look at the Congressional Budget Office's ten-year cost of \$750 billion over ten years, or \$75 billion per year on average. CBO, "Monthly Budget Review"; Hendricks and Hanlon, "The TCJA"; Gale, "Chipping Away."

16 Seals, "[Reality Check](#)."

17 Hinson, "[The Relationship](#)."

18 Milman, "'Silent Killer'."

19 Woolf, Morina, and French. "Health Care Costs"; Erdenesanaa, "Health Risks."

20 Chambers, et al., "Depressive Symptomology."

21 Some of the highest-cost repairs noted in the report are associated with fixing leaks, abating mold, and repairing flooring. See STV and AECOM, "Physical Needs Assessment 2023."

Public health and public safety go hand in hand, and the Green New Deal for Public Housing will help deliver the safe living communities that public housing residents deserve. We believe that safe communities mean communities that have the resources and infrastructure

individuals need to live happily and out of harm's way. In this research process, public housing advocates emphasized that true safety means investing in community infrastructure and comprehensive repairs instead of surveillance and over policing.

RESILIENCY UPGRADES

As climate change progresses, so do risks from extreme weather events including extreme heat and flooding. The retrofits proposed under a Green New Deal for Public Housing offer resiliency benefits that gain increased importance in this context. Increased rainfall with climate change increases the regularity and severity of leaks from unsealed building exteriors, which makes repairs to building envelopes all the more important. Extreme heat poses a major public health risk, and rising temperatures increase the urgency and benefit from installing heat pumps that could provide cooling in the summer as well as replacing fossil-fuel heating systems that would be active during the winter. **A Green New Deal for Public Housing would involve flood-proofing public housing developments** in flood-

vulnerable areas. Large, flood-proofed public housing structures could then function as community resiliency centers during disasters, serving not only public housing residents but also surrounding communities more broadly. On-site renewable generation such as rooftop solar would provide backup generation during power outages and heat waves, when energy use can often peak and buildings may face blackout risk. Renovating paved areas, such as blacktop playgrounds, to decrease paved areas and increase green space can have real consequences for residents' health and happiness, particularly for children.²² Meanwhile, increased green spaces and decreased paved areas will help mitigate local heat island effects and absorb more water during heavy rain, which lowers risk of both extreme heat and flooding.

WORKFORCE DEVELOPMENT & MORE PUBLIC HOUSING

A Green New Deal for Public Housing would also create workforce development and union apprenticeship programs. This would create clear pathways for residents to get good, family-sustaining jobs at the same time as they help alleviate rising construction costs for PHAs. Rising resident incomes through access to new union jobs could also potentially decrease the subsidies necessary for PHAs, as residents' incomes and

therefore the rents they may pay increase.²³ New low-income units could be built while current residents would be able to increase their incomes without leaving their long-term homes.²⁴ Workforce development will help residents of public housing and surrounding communities who are interested in new jobs develop skills and attain them while identifying strategies for overcoming any barriers to participation. As the United States reinvests in

22 Bikomeye, Balza, and Beyer, "Schoolyard Greening."

23 Income limits in Section 9 public housing are enforced in different ways in different jurisdictions, and there are debates about the role of these limits in new nonmarket housing, which are beyond the scope of this report. We do believe, however, that some additional flexibility is needed to ensure that public housing residents who gain good-paying jobs via the Green New Deal for Public Housing—or in other contexts—can stay in their homes.

24 Some histories of public housing emphasize how income limits were a major tool used to segregate and worsen the quality of public housing in the United States. Rothstein, *The Color of Law*.

public housing as an important public asset, that will also set the stage for more intensive use of public housing as an important existing public resource. Particularly in the absence of Faircloth Limits, the United States could also build new public housing when feasible and appropriate. Indeed, that would support a massive increase in new

public housing construction. New businesses, which may be paired with workforce development programs, may also be built alongside or in public housing. These businesses may also help address community needs, such as a new grocery store opening where a food desert currently exists.

INTEGRATED PROJECT MANAGEMENT FOR BETTER OUTCOMES

This broad scope of benefits is realizable through integrated project management so that repairs and retrofits are planned and implemented together to minimize the cost of each.

Other public agencies conducting large-scale residential retrofits have found this approach invaluable in efficiently implementing deep retrofits.²⁵ This approach takes a whole-building or whole-development approach to plan repairs and retrofits in concert: If a wall has to be heavily altered to fix a leak, insulation may be added at the same time. By planning at the building level, work can be minimized and costs can

be reduced. Rather than a narrow approach that focuses on *only* public health, resiliency, climate, or habitability, an integrated approach can take maximum advantage of this type of integrated planning to realize the greatest possible benefits at the lowest possible costs.

In the final section of this report, “Letting Public Housing Thrive,” we discuss additional reforms to public housing rules and governance to further increase the capability for PHAs and partners to manage public housing and implement repairs and retrofits.

25 TAF, “Retrofit Recommendations.”

Healthy, Green Home Improvements to Low-Income Housing Are Already Best Practice

OVERVIEW

- **Like much of the country’s low-income housing stock, public housing units need comprehensive, modern home improvements** to improve living conditions and upgrade to modern appliances and amenities, as is happening in other countries around the world. Modern upgrades emphasize health and environmental improvements.
- **Numerous programs at the federal and local levels have already recognized the suitability of public housing for the type of green upgrades and energy retrofits proposed in a Green New Deal for Public Housing and have begun decarbonization efforts.** These programs are typically strategically oriented to quickly scale up the development of green industries, techniques, and technologies that are necessary for the work of addressing climate change.
- **Existing programs domestically and abroad show the strong promise and precedent of this bundled approach and establish the suitability of public housing providers in particular to drive these innovations.** Beginning with public or other subsidized housing, retrofits and energy-efficiency programs in the United States and abroad have achieved repeated success bringing new products to market, nurturing green industry, and fostering innovation.
- **As we recognize these broad benefits, we also emphasize that efforts to green housing without improving living conditions are unacceptable.** This is why a Green New Deal for Public Housing prioritizes essential repairs and maintenance, from mold and lead abatement to repaired floors and replacement of crumbling fixtures as well as new energy-efficient appliances and green building technologies.
- **Failure to fund a Green New Deal for Public Housing would not only perpetuate a decades-long human-rights failure in public housing—it would also entail a massive missed opportunity** to modernize building technologies in the United States and rapidly bring to the US market products that are necessary for decarbonization.

It may seem bold to propose a massive set of upgrades to the country’s public housing stock on climate-friendly lines. But in fact, this is the most pragmatic option available, and it draws on best practices and current technology in the United States and other countries.

The technology is ready to provide the sorts of deep retrofits that can massively reduce energy use, set the stage for decarbonization, improve residents’ health and comfort, and replace crumbling building systems to continue to provide stable housing for over 1.7 million Americans. The suitability of public housing for these sorts of deep retrofits is recognized by the number of public-housing retrofit programs already underway—even while funding is still required to execute many of these plans, and no plans or plausible paths forward exist for the scale of the problem or opportunity.

Clear historical precedents in the United States and similar policies abroad show how funding public housing retrofits can create demand for low-carbon building technologies, help the domestic construction sector hone building techniques, and bring new products to the market to build foundations for the budding green economy—while also finally addressing the worsening human rights catastrophe created by chronic underfunding of the US public housing stock.²⁶ Finally, the age of many public housing structures and the massive scale of deferred maintenance has led to very high energy use intensities, which means there is also the most room to increase efficiency and cut emissions with retrofits.

PROGRESS IN THE US AND ABROAD

Various federal and local programs have recognized the technical feasibility and climate necessity of deep retrofits of the public housing stock. At the federal level, the US Department of Energy (DOE), through its Advanced Building Construction (ABC) initiative, is pursuing deep retrofits of public housing structures as part of its efforts to modernize the construction sector in the United States.²⁷ This program's purpose is twofold: to immediately lower emissions and increase health and quality of life in retrofitted buildings and to spur the development and adoption of new, green products and building techniques, which are required for the transition to a zero-carbon economy. The DOE selected multiple public housing projects to nurture rapid growth of a domestic green industry and simultaneously improve living conditions and energy performance in those structures. Currently, this program is funding retrofits of public housing structures in Knoxville, Tennessee, and Albany, New York, and a previous grant through this program also helped fund a deep retrofit in Boston.²⁸ The two program goals are complementary: while immediately lowering emissions and increasing health and quality of life in retrofitted buildings, the program is also set to spur the development and adoption of new green products and building techniques, which are required for the transition to a zero-carbon economy.

Also at the federal level, the Inflation Reduction Act included \$1 billion funding for The Green and Resilient Retrofit Program at the US Department of Housing and Urban Development, which will provide loans and grants for energy and water efficiency retrofits for HUD-assisted multifamily buildings. This program is similarly oriented toward improving living conditions, resiliency, and efficiency of lower-income housing while also speeding adoption of new greener technologies.²⁹ However, public housing is excluded from this program, limiting the type of coordination that can accelerate growth of green building technologies and doing nothing to address the worsening conditions of public housing buildings or reduce their emissions. It's precisely because even modest programs like this exclude public housing that we need a focused, distinctive policy project to save this essential form of housing and spur decarbonization more broadly.

In the United States and abroad, other programs with the dual purpose of immediately addressing resident needs and lowering emissions while spurring green building technologies have achieved enormous success. In France and the United Kingdom, green retrofits to public housing and zero-carbon new public housing have won top British, European, and global architecture prizes.³⁰ Greening affordable housing is one of the most exciting spaces in global architecture.

26 Gandour, "A Place to Live."

27 DOE, "DOE Awards"; Fialka, "Public Housing."

28 In Boston, the DOE funding through this initiative was combined with RAD and LIHTC to finance the deep retrofits, which were managed by a tenant organization. See: DOE, "Transforming Public Housing."

29 HUD, "FY 2023 Green."

30 Kimmelman, "Edge of Paris"; Slessor, "Grand Parc"; Wainwright, "A Masterpiece"; "Capps, "Can America."

PUBLIC HOUSING RETROFITS ARE INDUSTRIAL POLICY

This is also a key plank of industrial policy. Beginning with public or other subsidized housing, retrofits and energy efficiency programs have brought new products to market, nurtured industries, and fostered innovation. Due to the initial demand spikes that large, public institutions' bulk purchases created, these greener, higher-quality products were made available for the broader consumer base, extending the benefits of these programs beyond public housing.

Programs in New York City in the 1990s and currently show how this strategy can achieve success in the United States. In the 1990s, the New York City Housing Authority (NYCHA) created a contest for a mass purchase of low-cost, energy-efficient, apartment-sized refrigerators. At the time, no such refrigerators were available for purchase in the United States. So, NYCHA brought them to the market: a US manufacturer won the bid and began manufacturing the refrigerators in Newton, Iowa. The more efficient refrigerators lowered emissions; saved NYCHA money on utility costs; and brought new, lower-cost, higher-efficiency refrigerators to the broader US market.³¹ A green investment in public housing stimulated developments in private industry that spurred further reductions in emissions and benefited the climate and entire consumer market.

NYCHA is already replicating this success with a new generation of building technologies. In the last year, the authority has brought 120-volt window-unit heat pumps onto the market, which are able to provide both heating and cooling to residents.³² Space heating currently accounts for 41% of NYCHA's electricity needs, and heat pumps provide more comfortable heating than existing

systems six to ten times more efficiently.³³ Window heat pumps promise to radically reduce the capital cost necessary to electrify heating and provide cooling, compared to other heat pump technologies. In the context of warming temperatures and the health risks associated with extreme heat, heat pumps' ability to provide cooling during the summer would also provide major benefits in terms of public health and resident comfort.³⁴ In 2022, the state and city of New York came together to provide enough funding for heat pumps for 24,000 NYCHA units—about 15% of the total.³⁵ While larger orders could lower costs per unit further, this funding from the state and city was adequate for an initial bulk order that brought such window heat pumps to market, where they are already seeing broader utility for retrofits and new units in and out of public housing. The window heat pumps that NYCHA is helping to commercialize will now help provide a path to more comfortable, lower-carbon living for countless Americans outside of public housing as well.³⁶ Now, NYCHA is planning to repeat its original success with refrigerators for a third time—next with apartment-size, 120-volt induction stoves. If successful, such stoves would again be a boon for lower-carbon, higher-comfort homes in and out of public housing.³⁷

Some PHAs' achievements in driving decarbonization have been astounding. But without significant federal support, PHAs will continue to struggle to achieve the scale of decarbonization that the climate crisis demands or restore public housing's health and habitability. What's more, fully holistic investments that tackle all health, environment, and other resident needs are essential to ensuring comprehensive upgrades to residents' living conditions—in short, an investment-forward Green New Deal approach.

31 Cohen et al., "Green New Deal"; Sisson, "The Future."

32 Jung, Christian, and Sahagian, "NYCHA Climate"; Sisson, "The Future."

33 Jung, Christian, and Sahagian.

34 "Each summer, on average, an estimated 350 New Yorkers die prematurely because of hot weather in New York City (NYC). These heat-related deaths account for about 2% of all deaths over the warm season months of May through September." Environment & Health Data Portal, "Heat-Related Mortality"; Jung, Christian, and Sahagian, "NYCHA Climate."

35 New York State Energy and Research Development Authority, "NYCHA"; HUD, "Picture of Subsidized Households."

36 Maldonado, "Not Just Hot Air."

37 New York State Energy and Research Development Authority, "Induction Stove"; Jung, Christian, and Sahagian, "NYCHA Climate."

In the absence of this kind of serious policy, we see that in many cases, housing authorities lack the funds to do proactive repairs, resorting to emergency fixes that perpetuate dependence on fossil fuels and worsen residents' health.

Technologies necessary for building decarbonization are not yet available on the US market. While NYCHA has been able to over-come this obstacle in some cases (and has improved entire sectors of the US building or appliance industries in doing so), there will be limitations and delays to what NYCHA and other authorities can do on their own, without requisite funding and support. NYCHA's electrification roadmap notes in particular another market gap—for heat pumps suitable for water heating in larger structures. These air-to-water heat pumps would be necessary to decarbonize the NYCHA portfolio's hot-water heating. The roadmap notes that, while such heat pumps are “pervasive” in other countries, it is not clear that any products currently available in the United States are up to task.³⁸ The roadmap notes that NYCHA hopes to again replicate its success with refrigerators and bring suitable hot-water heat pumps to the US market. But without additional funding, the authority will be unlikely to accomplish this goal. Instead, it would install new boilers to replace deteriorated old ones—locking in years or decades of higher carbon emissions not only in New York's public housing but also in every built or yet-to-built structure in the United States that would have been able benefit from the air-to-water heat pumps that NYCHA requires.

Successful programs abroad similarly provide strong, clear precedent and rationale for funding retrofits of public and affordable housing.

Programs in the United States—including the DOE ABC Initiative, the California Energy Commission REALIZE initiative, and New York State Energy Research and Development Authority's RetrofitNY program in New York, which are supporting deep retrofits of public and other affordable housing in the US—are modeled in large part after a successful model in Europe called Energiesprong

that has taken this same approach. It orchestrates retrofits, especially of public and affordable housing, to rapidly develop products, approaches, and technologies that are applicable to decarbonization of housing stock more broadly. As commentators on this program note, Energiesprong's massive successes were contingent on governments' willingness to provide the initial funding for retrofits of public and affordable housing stock.³⁹

Existing programs show not only the feasibility of deep retrofits in US public housing but also the potential of retrofits of public housing in particular to rapidly accelerate the pace of decarbonization across the US housing stock at large.

Notably, Energiesprong retrofits take as a goal the conversion of structures to *zero-energy buildings*, which means they have net-zero energy consumption. Through extreme energy efficiency, typically paired with on-site renewables, zero-energy buildings produce at least as much energy as they use. In the context of a new generation of green building technologies, the goal of a Green New Deal for Public Housing will be to similarly achieve zero net-energy or passive house standards—reducing energy use by from 75% to 100% as opposed to the 20–30% energy savings common in conventional, less ambitious retrofit approaches. Passive house retrofits

38 Jung, Christian, and Sahagian, “NYCHA Climate.”

39 “A key component of [Energiesprong's] success has been governments' willingness to fund such upgrades for subsidized and public housing, typically postwar towers and townhomes in desperate need of improvement.” The author also notes relative standardization of building codes as another major boon to this program's success. See Sisson, “The Future.”

of public housing developments are already planned or completed in New York City and Syracuse, New York.⁴⁰

In Europe, these massive reductions in energy use have been paired with remarkable achievement in architecture, indicating how a reprioritization of public housing as an essential pillar of social, housing, and climate policy can both drive green innovation and create top-tier living conditions for residents. In 2021, the French architects Anne Lacaton and Jean-Philippe Vassal won the global Pritzker Architecture Prize, the equivalent of the Nobel Peace Prize in that field for their work on healthy green upgrades to public and other affordable housing across Europe. In Vienna, Austria, the city's extensive stock of public and social housing offers stable, high-quality, and beautiful residences for more than half of its population.⁴¹

With steady, federal funding, the successes of NYCHA and DOE's ABC Initiative could be replicated, scaled up, and safeguarded. Larger housing providers and more coordination between buyers mean more buying power to lower costs and bring new products and approaches to market. In contrast, isolated, smaller-scale projects are

unlikely to muster the large shocks of demand necessary to bring new products to market in the manner that NYCHA has repeatedly accomplished.

Existing programs show not only the feasibility of deep retrofits in US public housing but also the potential of retrofits of public housing in particular to rapidly accelerate the pace of decarbonization across the US housing stock at large. Public housing has been underfunded and hamstrung in the United States for decades. Despite these conditions, the institution has not only provided a huge stock of stable and affordable housing during a worsening national housing crisis but also repeatedly improved living conditions and lowered carbon emissions for countless Americans both in and out of public housing. By combining comprehensive capital improvements and energy-efficiency efforts, the United States has the potential to transform its public housing stock in a comprehensive manner that will help ensure its longevity and residents' health.

40 Jung, interview; NYCHANow, "Betances."

41 Oltermann, "The Social Housing Secret."

Addressing Public Housing's Capital Needs: RAD or the Green New Deal for Public Housing

OVERVIEW

- **In the context of chronic underfunding, RAD has emerged as an option to address the large and growing capital repairs backlog in public housing.** RAD mandates a transfer of ownership or management from PHAs to other entities that can then circumvent restrictions on traditional public housing funding streams and access additional funding from which PHAs are excluded. RAD can often entail the privatization of public housing, but the new managing entity can also be a tenant association, nonprofit, or a public subsidiary of the PHA.
- **Nearly 230,000 public housing units have already been converted or are in pipeline to convert through RAD—nearly 20% of the country's total public housing stock.** RAD accelerated, but did not initiate, the loss of public housing in the United States. HUD rules also allow PHAs to demolish public housing, and RAD conversions, demolitions, and other dispositions have caused public housing supply to decline from a total 1.2 million units in 2009 to just over 900,000 thousand units in 2022, a decline of 25% in just over a decade. The existing public housing supply continues to face a large capital repair backlog.
- **Despite attempts to address the capital funding backlog with \$65 billion in investments through the Build Back Better Act of 2021,⁴² the US Senate has not passed this legislation,** and Congress has not provided the needed resources for public housing repairs or retrofits.
- **While RAD has provided a mechanism that PHAs have been able to use to address some urgent capital needs, it is also a convoluted and costly process.** An analysis of this program demonstrates why directly funding public housing through a Green New Deal for Public Housing is the superior option to addressing public housing's capital needs.

42 National Low Income Housing Coalition, "Historic Housing."

THE LOSS OF PUBLIC HOUSING AND THE RISE OF RAD

Federal policy has hamstrung public housing in the United States in an array of large and small ways. Most notably, PHAs are dependent on federal funding to cover costs, but Congress has repeatedly neglected funding public housing, leaving federal subsidies far below need for decades.⁴³ The status quo of HUD policy also allows PHAs to demolish or dispose of public housing units that they believe are no longer serving residents, instead of directly funding preservation efforts.⁴⁴

Instead of funding public housing directly through Section 9, the RAD program has been authorized as an alternative route for PHAs to meet their massive unmet capital needs. RAD functions by allowing a PHA to partner with another entity—which may be private for-profit, public, or nonprofit—that will take over and manage public housing developments converted through RAD while the PHA maintains an ongoing stake in the development. As units are transferred, so are the federal funds associated with those units, shifting from Section 9 public housing funding to project-based vouchers or rental assistance under Section 8.

RAD can help finance capital needs because the introduction of a new managing partner and conversion of funds to Section 8 can open up new subsidies, loans, or other sources of funding from which PHAs using Section 9 funding are excluded. For example, RAD conversions will often entail transferring management or ownership of public housing units to for-profit entities, who will then be able to attain LIHTC and other subsidies, which they can use to address the repair backlog that has accumulated in public housing due to chronic underfunding. Due to

restrictions on the use of Section 9 funding and the perceived stability of Section 8 funding relative to Section 9, this shift can also allow access to new loans that were not previously feasible.⁴⁵ Tax credits and other subsidies available to RAD conversions but not Section 9 housing can also be used both to attract loans and provide funding directly. Finally, other restrictions on PHAs can raise costs and restrict financing options, and RAD conversions can allow many of these restrictions to be circumvented.

In the current institutional context, characterized by chronic underfunding of Section 9 and other restrictions, RAD provides PHAs a feasible path to raise the capital needed to repair and preserve housing units. However, even with RAD in effect, we are still losing public housing units beyond what is converted through RAD: From 2012 to 2023, 174,000 public housing were converted through RAD — while the number of public housing units in the US declined by 274,000, suggesting that up to 100,000 units were still demolished or otherwise disposed of during that period.⁴⁶ This potentially massive loss merits further investigation and would benefit from more direct, public data on demolitions and dispositions as well as RAD conversions.

RAD has scaled up quickly. When RAD was introduced in 2012, nearly 116,000 units of public housing existed in the United States.⁴⁷ Congress authorized RAD in 2012, with a cap of 60,000 units. Since RAD began, Congress has lifted the cap to 455,000 units, and 230,000 public housing units have already been converted or are in pipeline to convert—nearly 20% of the country’s total public housing stock in 2012.⁴⁸

43 Rothstein, *The Color of Law*; Hanlon, “The Origins.”

44 While the Obama Administration attempted to tighten requirements on this process, the Trump Administration reverted back to the more lenient 2006 rules and the Biden Administration has not changed course. Shanker, “How Biden’s HUD Can Tackle the Housing Crisis.”

45 The NYCHA mitigation road map notes specifically how inability to combine federal public housing funding with energy performance contracts constitutes an obstacle to retrofits of public housing. The ability to take loans off future income with Section 8 funding, which is not possible for Section 9, is also a major source of financing unlocked with RAD. Hanlon, “The Origins”; Jung, Christian, and Sahagian, “NYCHA Climate.”

46 HUD, “Picture of Subsidized Households”; HUD, “RAD Program Data.” See methodological appendix, “RAD Conversions and Public Housing Unit Loss.”

47 HUD, “Picture of Subsidized Households.”

48 HUD, “RAD Program Data.” As of March 2024, 174,000 units have already converted through RAD and another 53,000 are currently in the pipeline to convert.

The figures below indicate how the public housing stock has fallen at an accelerated pace since RAD's beginning

and show how public housing and RAD conversions have proceeded by state.

FIGURE 1

Cumulative Change in Public Housing and Project-Based Section 8, 2009-2022

Source: HUD Picture of Subsidized Households

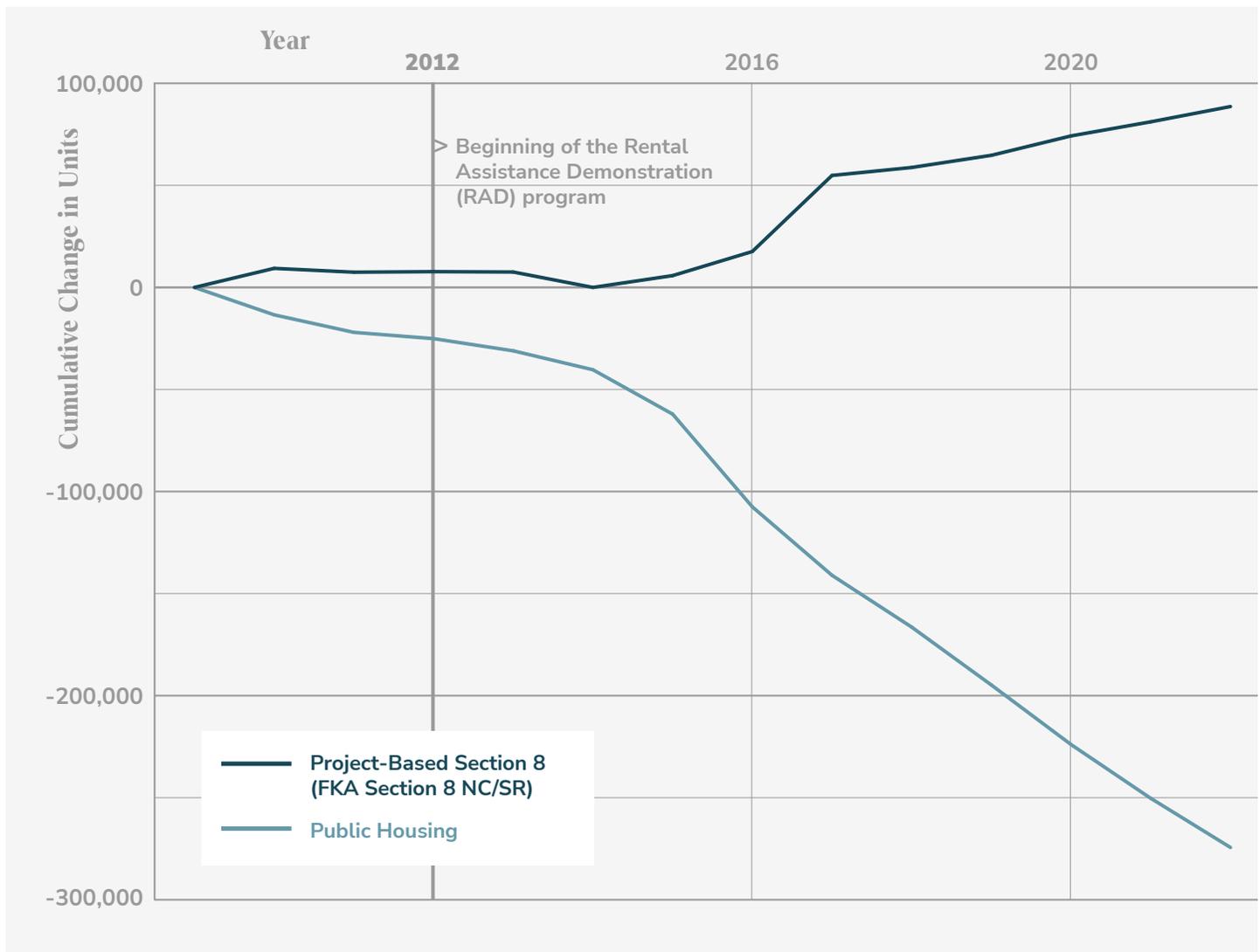


FIGURE 2

Decline in Public Housing Stock by State/Territory, 2014-2022

Source: HUD Picture of Subsidized Households

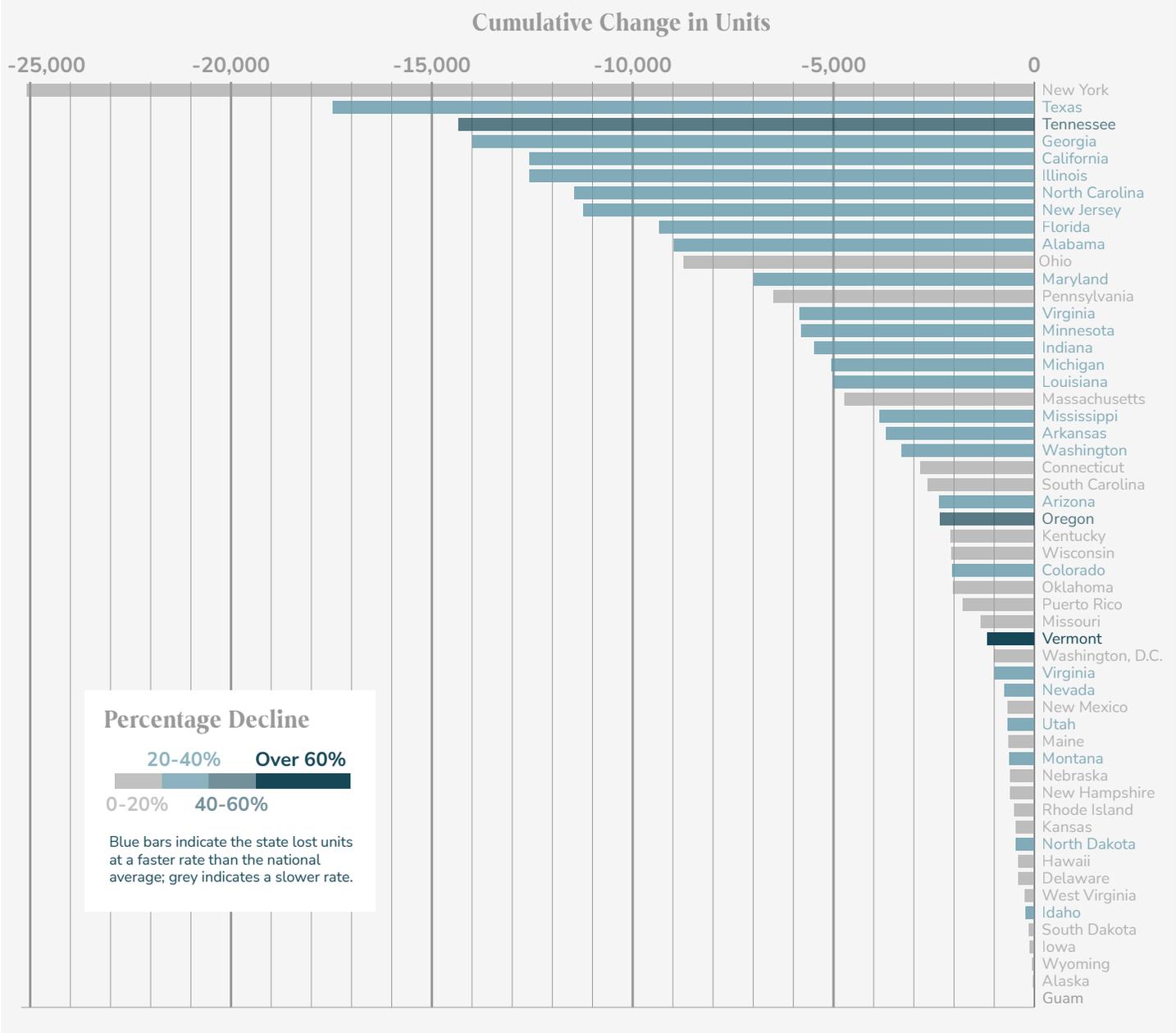
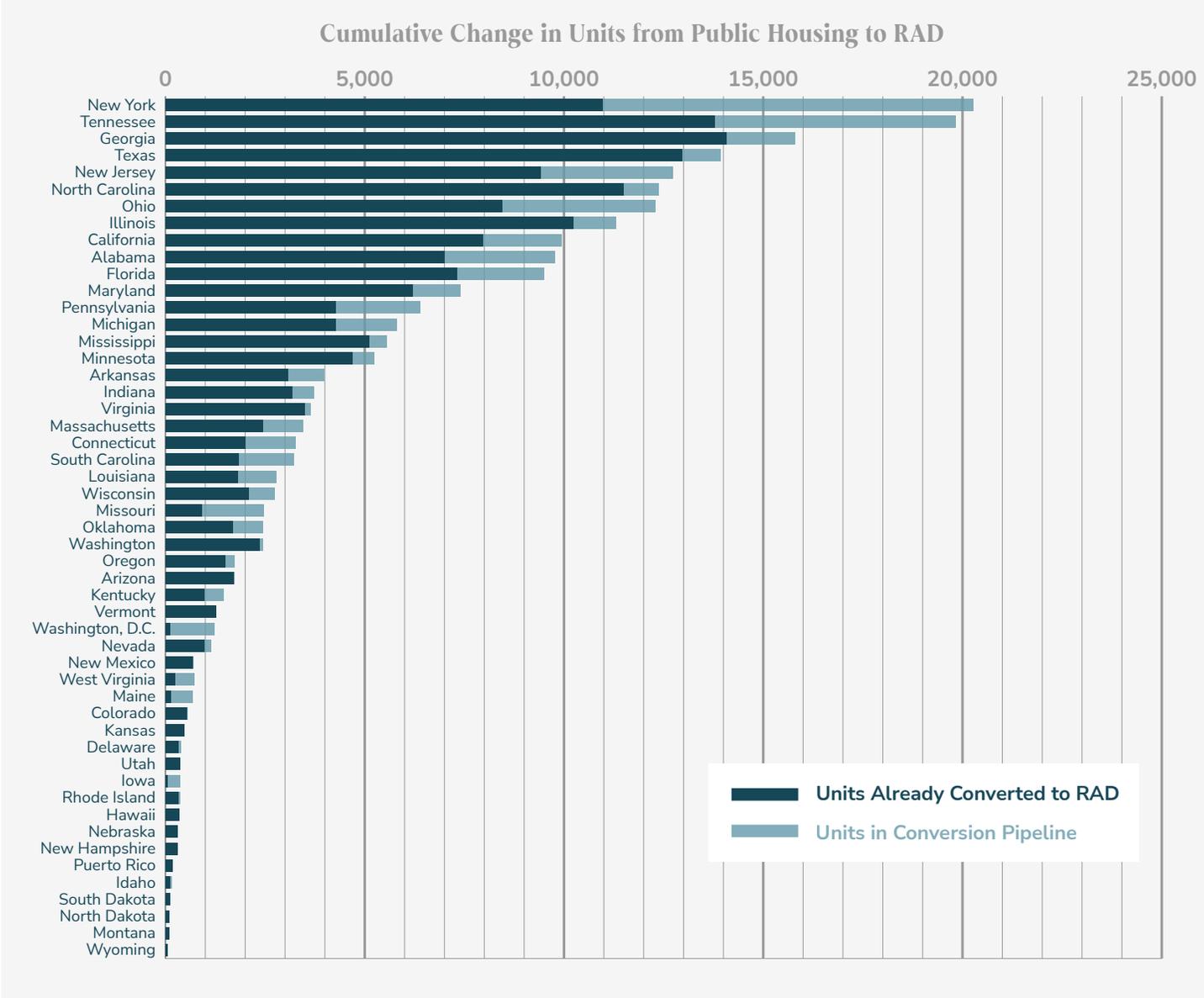


FIGURE 3

RAD Conversions by State

Source: RAD Program data



In the context of decades of underfunding and other policies that hamstring PHAs, RAD has emerged as the only solution that HUD and Congress permit to allow PHAs to address public housing’s enormous outstanding capital needs.

However, while RAD opens up new subsidies and financing options for PHAs, there are clear reasons why the simpler approach—funding Section 9 directly—is also the superior one.

RAD creates risk for residents that a Green New Deal for Public Housing would avoid.

RAD-converted units are subject to a baseline set of tenant protections and affordability requirements, but these have limitations that can create disruptions for tenants or undermine long-term affordability. RAD requires that PHAs must “preserve an interest in the property,” and agreements require a certain level of affordability over time.⁴⁹ These protections are meaningful but not watertight. The National Housing Law Project outlines how protections associated with RAD could fail to deliver long-term affordability, particularly if debt or Section 8 appropriations were to become unsustainable or insufficient and in the absence of strong, local protections, beyond what is federally required through RAD.⁵⁰ Governmental entities, including the Government Accountability Office (GAO), have also noted this risk to

Instead of siphoning funds from other housing programs to pay for repairs in RAD conversions, we can fund public housing directly. Instead of creating a convoluted system to allow burdensome rules to be circumvented, the federal government can simply reform or remove those rules. Fundamentally, RAD allows PHAs to compensate for underfunding or restrictive requirements while introducing new complexity, hidden public costs, and risks for tenants. We expand on these issues below.

long-term affordability in RAD developments.⁵¹ Notably, some of the local protections to increase affordability safeguards after RAD conversions, such as very long-term ground leases, may be more feasible in large cities, where the PHA may have more negotiating power with potential RAD partners. Given the large share of RAD conversions happening in smaller localities, concerns are likely warranted.⁵² Finally, apart from rent increases, some advocates have raised concerns that building managers after RAD conversions may be quicker to evict tenants in arrears rather than helping develop payment plans or forgiving late rents,⁵³ although public data on evictions from public housing and RAD-converted developments would be needed to better assess this potential issue.

49 Cassella, 2017. “Webinar Recording: Don’t Get RAD-Dled.” *National Housing Law Project*

50 Jessie Cassella, “Don’t Get RAD-Dled: 30 Minute Trainings for Tenant Advocates on What You Need to Know about the Rental Assistance Demonstration (RAD),” *NHLP* (blog), April 12, 2017, <https://www.nhlp.org/webinars/dont-get-rad-dled-30-minute-trainings-tenant-advocates-need-know-rental-assistance-demonstration-rad/>; NHLP, “Rental Assistance Demonstration”; Hanlon, “The Origins.”

51 US Government Accountability Office, “Rental Assistance Demonstration.”

52 Hanlon, “The Origins.”

53 Gandour, “‘The Tenant Never Wins.’”

The complexity of RAD conversions entails additional, unexpected costs and reorients PHAs away from their primary purpose of managing public housing.

The complexity of RAD forces PHAs to incur unnecessary costs and takes focus away from residents' well-being. In one history of RAD, the author characterizes the program as furthering a “shift in the role of PHAs from managing public housing to brokering complex real estate deals.”⁵⁴ These “complex real estate deals” create needless risk for public housing tenants and needless costs for government. A report from the Center on Budget and Policy Priorities notes that these “complex transactions...can add costs and delays.”⁵⁵ Even consultants who work heavily in RAD conversions note

that it “costs a lot to leverage” funds through RAD, due to new needs for attorneys, consultants, third-party reports, etc.⁵⁶ A 2019 report from Econometrica, commissioned by HUD to evaluate the RAD program, similarly highlights the “complexity” and “high transaction costs” that can be associated with RAD conversions.⁵⁷ Notably, the complexity of RAD conversions directly create these significant costs, which simpler strategies to repair public housing developments via funding Section 9 directly would not incur.

RAD hides costs, siphons funds from other public programs, and requires more public funding—or will not be feasible—in some parts of the county.

RAD requires large amounts of public funds to operate, often taking these from other housing programs. In lower-cost areas, RAD conversions will tend to require even larger public subsidies, if those areas are not to be left out from investments entirely. Explanations of RAD often note that RAD conversions allow PHAs to “leverage” or “unlock” additional funds or financing for necessary capital repairs.⁵⁸ HUD claims a 17:1 leverage ratio across RAD conversions—meaning that for every dollar of public

housing funding shifting to Section 8 through RAD conversions, an average of \$17 are made available for public housing repairs and retrofits. However, the large majority—nearly 75%—of these funds are direct grants from other public programs, equity from tax credits or other subsidies, or federally insured or subsidized loans. In other words, our research finds that the majority of funding unlocked through RAD are public funds from other housing programs that are denied to public housing while it remains under Section 9 (figure below).

54 Hanlon, “The Origins.”

55 Fischer, Acosta, and Bailey, “An Agenda for the Future of Public Housing.”

56 Knight, Rooney, and Cassella, “Novogradac RAD Public Housing Conference.”

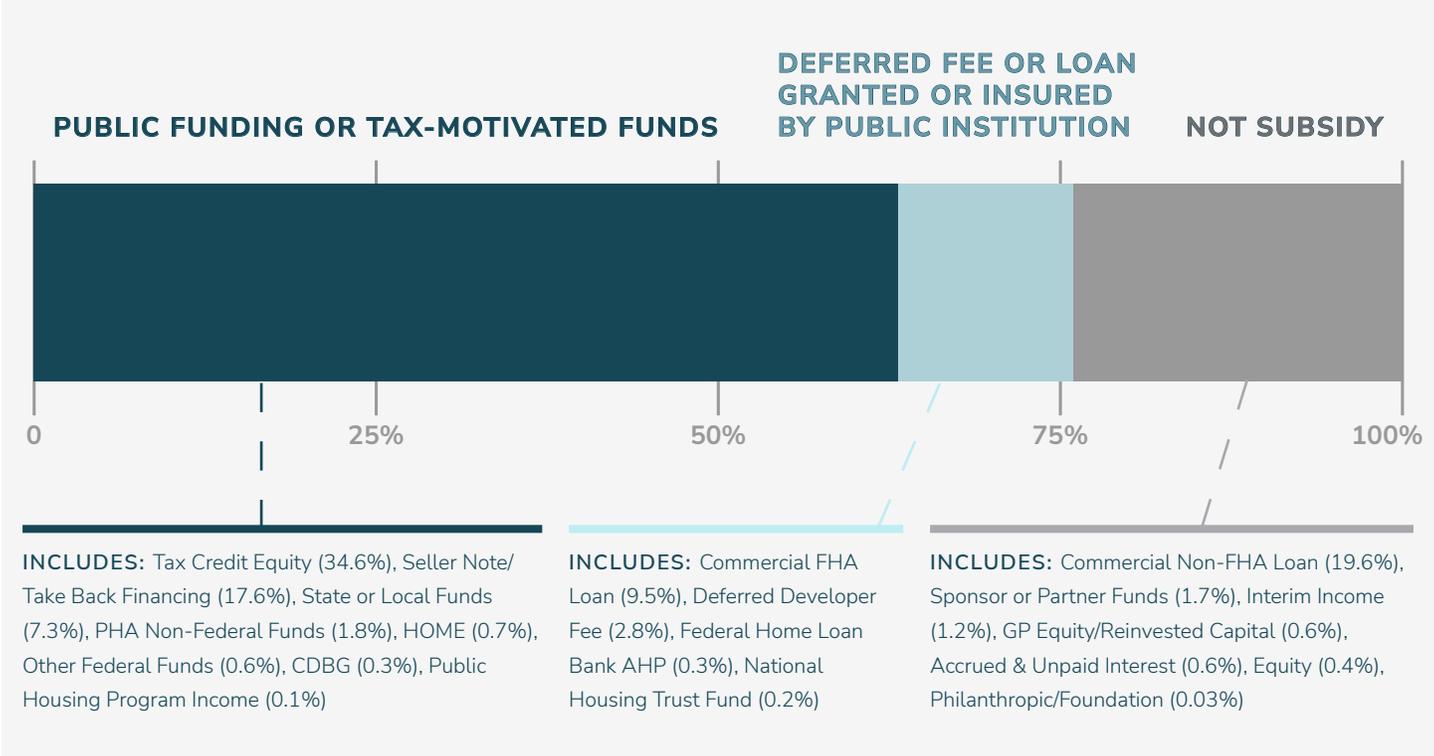
57 Econometrica, Urban Institute, and EMG, “Evaluation.”

58 NYCHA, “Permanent Affordability”; HUD, “Rental Assistance Demonstration.”

FIGURE 4

Public funding and federally-insured loans underlie 75% of all funding available through RAD

Source: RAD Program data



For years, HUD misleadingly reported that all funds made available through RAD were “leveraged private-sector investment,” despite the fact that the majority of those funds were subsidized, insured, or directly provided by other public programs. HUD halted this practice after a 2018 GAO report criticized this misleading practice, and HUD released new classifications of the funds that RAD leverages.⁵⁹

Using HUD’s revised classifications, 63% of raised value is from “public or tax-motivated funds,” while the remaining 37% is from other sources. When federally insured loans, loans from public institutions, and deferred

developer fees are separated out, the money from private sources—including commercial loans, private equity, and philanthropic spending—accounts for less than 25% of the total, with only about two percentage points coming from unsubsidized private equity or sponsor or partner funds.⁶⁰

Apart from the capital needs funding covered in this HUD data, RAD can hide costs in other ways as well. RAD/ Section 18 blends can entail additional public costs not included in these proportions, as Section 18 vouchers are used to increase ongoing subsidies in converted developments.

59 US Government Accountability Office, “Rental Assistance Demonstration.”

60 The 2019 Econometrica evaluation of the RAD program gives rationale for including loans insured by the Federal Housing Administration (FHA) as “private unsubsidized funds” rather than public or tax motivated: “FHA-insured loans are considered private unsubsidized funds because they have a zero or negative federal credit subsidy. See OMB, 2018.” Econometrica, Urban Institute, and EMG, “Evaluation.”

Analyzing the actual sources of funds unlocked through RAD helps illustrate a number of issues with the program, including:

- **RAD siphons funds from other public sources, entailing substantial hidden costs.** While RAD is claimed to be budget neutral, it actually requires large amounts of public funds beyond what converted Section 9 funds cover. This entails large, hidden costs of the RAD program. Directly funding public housing through Section 9 (as with a Green New Deal for Public Housing) would make these costs explicit rather than hidden—meaning the true cost of the program compared to RAD would be smaller than supposed if additional public expenditures associated with RAD are ignored.
- **The program’s complex nature further increases costs.** As noted above, the complexity of RAD deals creates further additional costs. RAD funds are derived from a multitude of different sources, with many sources of public subsidies combined with private financing. The range of sources and the coordination required helps illustrate the expensive, convoluted process of financing a RAD conversion, with its concomitant “high transaction costs.”⁶¹
- **RAD will tend to cost more or lose feasibility in areas with lower-cost housing markets.** Public funding, tax credits, and equity are typically combined with commercial loans and some private funding to finance capital needs in RAD-converted developments. The amount and type of public subsidy required to motivate private partners will depend in large part on local real estate conditions. In lower-cost markets, vouchers from RAD conversions are not worth as much; private partners may be harder to attract; and more public subsidies will be required.⁶² In effect, this reliance on private investment means RAD will tend to leave behind areas that are already struggling, leaving the deteriorating conditions and high emissions of public housing developments to worsen indefinitely while depriving those areas of the economic investment, jobs, and community benefits that would be associated with repairs and retrofits.

61 Econometrica, Urban Institute, and EMG, “Evaluation.”

62 Existing research will often note how lower-cost housing markets “struggle to secure financing and private partners with enough capital to invest.” See, for example, Thompson, “What Happened.”

Ensuring Public Housing Can Thrive

Chronic underfunding is not the only obstacle that has accounted for the decline of public housing in the United States. PHAs are subject to a range of cumbersome rules or requirements that raise costs or otherwise obstruct them in the mission of providing housing. Reforming or removing these impediments will be essential to implementing a Green New Deal for Public Housing.

These impediments are typically rules from HUD, often connected to contracting processes, financing requirements, limitations on PHA eligibility for other public programs, and other rules around public housing management. In this section, we raise some examples of rules that legislators and HUD officials should review and reform to let public housing thrive, but additional reforms and more thorough reviews should be considered as well.

OVERVIEW

- **HUD financing restrictions limit PHAs' financing capabilities for energy-efficiency repairs.**

As one example, energy performance contracts (EPCs) are a common financing tool for repairs that include an energy-efficiency component, allowing one to use future energy savings to finance building work. However, HUD's EPC rules include a number of restrictions on how EPCs can or cannot be combined with other sources, limiting PHAs' ability to use this financing mechanism.⁶³ While use of EPCs is restricted, EPCs and other financing mechanisms used in commercial real estate are subject to sometimes unclear HUD requirements and long, sometimes multiyear, approval processes.⁶⁴ These restrictions and long timelines burden PHAs, raising costs and diminishing their ability to act efficiently and effectively.

- **Strict spending timelines create bureaucratic hurdles for PHA staff.** Apart from restrictions on how HUD grants are spent or combined with other forms of financing, HUD gives PHAs specific timelines

to commit and then spend capital funds. While the rules are meant to enforce spending accountability, they can create time pressure to award bids when a re-bid might have reduced costs and divert staff time and attention from future-looking capital planning to moving funds amongst projects to meet deadlines.⁶⁵ Rather than mandating efficiency, these stringent timelines can function as bureaucratic hurdles that pull PHAs from the actual work of long-term capital planning for upgrading housing.

- **Contracting requirements can feature expensive, overly restrictive requirements.**

Contracting requirements for PHAs can vary by state, but the federal regulation 2 CFR 200.320, for example, does not allow PHAs to consider quality (only cost) for purchases within a cost range; as a result, PHAs are often forced to purchase lower-quality products, which negatively impacts living conditions and will frequently result in higher costs over the long term. Other state-level requirements may limit the procurement methods

63 Jung, Christian, and Sahagian, "NYCHA Climate."

64 Jung, Christian, and Sahagian, "NYCHA Climate."

65 Jung, interview.

used, mandating lengthier and most costly processes, specifying minimum number of contractors, or stipulating other burdensome or counterproductive requirements.⁶⁶

- **Public housing developments are excluded from other federal decarbonization grant programs.** In contrast to RAD-converted developments, Section 9 is excluded from a huge array of public subsidies. The Inflation Reduction Act, which

includes large subsidies for residential decarbonization (and a smaller pool of subsidies reserved for affordable housing), excludes public housing residents from becoming potential beneficiaries of grant programs specifically tied to decarbonizing federally assisted housing.⁶⁷ Similarly, other public subsidies that provide major sources of funds for RAD conversions, such as the LIHTC program, are not available to public housing receiving Section 9 funds.⁶⁸

Other requirements on public housing may be justified on other policy grounds but can function inconsistently for different entities. For example, PHAs are subject to prevailing wage requirements for capital work, but private RAD developers are not. Largely due to this fact, union labor has tended to disappear from many RAD developments.⁶⁹ In effect, RAD can function in these cases as a loophole in prevailing wage laws, holding PHAs to one set of rules and private RAD partners to another.

HUD has taken some positive steps to remove or reduce the cost of some of these burdensome requirements, but these have been halting and incomplete. For example, the Moving to Work HUD program gives PHAs some flexibility from some HUD rules.⁷⁰ In New York, design-build procurement processes have been recently extended to NYCHA. However, the slow, halting pace of these expansions underscore how much progress is still needed on these issues.

FROM BUREAUCRATIC HURDLES TO DEMOCRATIC GOVERNANCE

One very promising alternative to governance by restrictive legislative and HUD requirements is joint governance by PHAs and Resident Management Councils (RMCs). Resident organizations have functioned as partners in implementing deep-energy retrofits in some of the case studies we discussed earlier in the report.⁷¹ The original Green New Deal for Public Housing called for greater prominence of democratic governance, citing the Commonwealth Tenants Association in Boston as a clear success story and historical precedent for such governing tenant

associations in public housing management. Although dated, HUD has conducted evaluations that have shown “RMCs had high performance levels and greater resident satisfaction at lower costs compared to their housing authority”; this evaluation is still cited in current HUD resources.⁷² Case studies and existing evaluations of RMCs show how tenant groups can provide crucial oversight of PHAs or act as managing partners in ways that improve housing management and render overbearing and restrictive PHA rules from HUD unnecessary.

66 Thompson, “What Happened.”

67 Bigger, et al., “Inflation Reduction Act.”

68 Jung, Christian, and Sahagian, “NYCHA Climate.”

69 Thompson, “What Happened.”

70 HUD, “Moving to Work.”

71 DOE, “Transforming Public Housing.”

72 HUD, “Guide 8.”

Conclusion

A Green New Deal for Public Housing is an integrated policy approach to help address the existential crisis that public housing and its residents are facing. It is a truly holistic approach that also recognizes the climate crisis; the astonishing opportunities that now exist in green building technologies; and the intersections of housing, public health, and community resiliency. Turning the tide on the immense, accumulated maintenance backlog in public housing will allow meaningful investment in all these areas—and pursuing an integrated approach to these issues will also allow an integrated planning process that will save time and money compared to addressing one set of issues (or building systems) at a time.

Meanwhile, a Green New Deal for Public Housing would also function as a green industrial policy to drive innovation and workforce development in the green building sector. This would bring new technologies to market, accelerate decarbonization throughout the housing sector, and broadly benefit American consumers and public housing residents alike. The precedents for this approach are well established both in the United States and internationally, with major initiatives—such as DOE’s ABC Initiative, NYCHA’s repeated successes, and Energiesprong in Europe—demonstrating repeated successes.

Other approaches—namely RAD—are being held as solutions to the long-term funding shortfalls facing public housing. But RAD creates a convoluted system to fundamentally simple problems: the lack of funding for public housing and sets of overly restrictive HUD requirements. RAD can make projects eligible for additional subsidies or grants for which PHAs are ineligible. RAD allows PHAs to take loans against future funding streams, but those loans are only possible due to the perceived stability and relative lack of restrictions of Section 8 funding streams relative to Section 9 funding. Fundamentally, RAD allows PHAs to compensate for underfunding or restrictive requirements while introducing unnecessary costs, complexity, and risks for tenants. RAD may be offered as a solution—but the far better approach is the simpler one: funding public housing through Section 9 and removing unnecessary restrictions on PHAs.

Myths surrounding public housing—that public housing in the United States is doomed to poor outcomes due to building design, public management, or whatever else—have been established as just that: myths.⁷³ Decades of funding shortfalls and other policies that, by design or only impact, have hamstrung public housing are the real responsible factors for the current state of disrepair facing public housing in the US.⁷⁴ Course correcting from this frequently racist history of public-housing divestment and sabotage will help remedy major historical ills at the same time that it accelerates decarbonization and delivers myriad other benefits to both public housing residents and Americans at large.

73 Nicholas Dagen Bloom et al., eds., *Public Housing Myths: Perception, Reality, and Social Policy* (Ithaca London: Cornell University Press, 2015).

74 Wildstyle Paschall, “When Indianapolis Accidentally Did Public Housing Right,” *New America*, December 2020, <http://newamerica.org/indianapolis/blog/when-indianapolis-accidentally-did-public-housing-right/>; Hanlon, “The Origins of the Rental Assistance Demonstration Program and the End of Public Housing”; Rothstein, *The Color of Law*.

Methodological Appendix

COST AND JOBS METHODOLOGY

We estimate a total cost for this program at \$16.2 to \$23.4 billion per year over ten years. This alters our previous cost estimate based on unit loss and cost changes in the interceding years.

Our 2019 cost estimates for a Green New Deal for Public Housing ranged from \$11.9 to \$17.2 billion per year, with the range reflecting uncertainty in our data sources and a range of possible scope in terms of depth of retrofits.⁷⁵ For this report, we revised the cost estimate in light of changes in the interceding years, especially from loss of public housing and cost inflation.

Unit Loss

Between 2019, when we released our original set of estimates, and 2022, the latest year with data available on the number of public housing units, there has been a decline of nearly 80,000 units, or 8%.⁷⁶ We used this percentage to adjust our previous cost estimates downward to reflect unit loss.

Cost Inflation

Since 2019, there has also been substantial inflation, particularly in construction materials and other costs. We based our original 2019 cost estimates partially on a Physical Needs Assessment (PNA) for the NYCHA from 2017. In summer 2023, NYCHA and its consultants (STV and AECOM) released an updated PNA with new cost estimates, based on new need accruals, scope additions, cost changes, needs addressed in the interceding years, and other changes.⁷⁷ The new PNA estimated substantially (73%) higher costs to address capital needs over the next twenty years compared to the 2017 estimate. By far, the largest factor accounting for this increase was “market price escalation,” or increasing costs. On its own, this accounted for a 61% cost increase.

To gauge an appropriate price escalation factor for a nationwide retrofit program, we compared the cost escalation that NYCHA faces with national construction price indices, namely the Producer Price Index (PPI) for construction materials; the PPI for final demand in construction; and wages of construction workers (figure below).

75 Cohen, et al., “Green New Deal.”

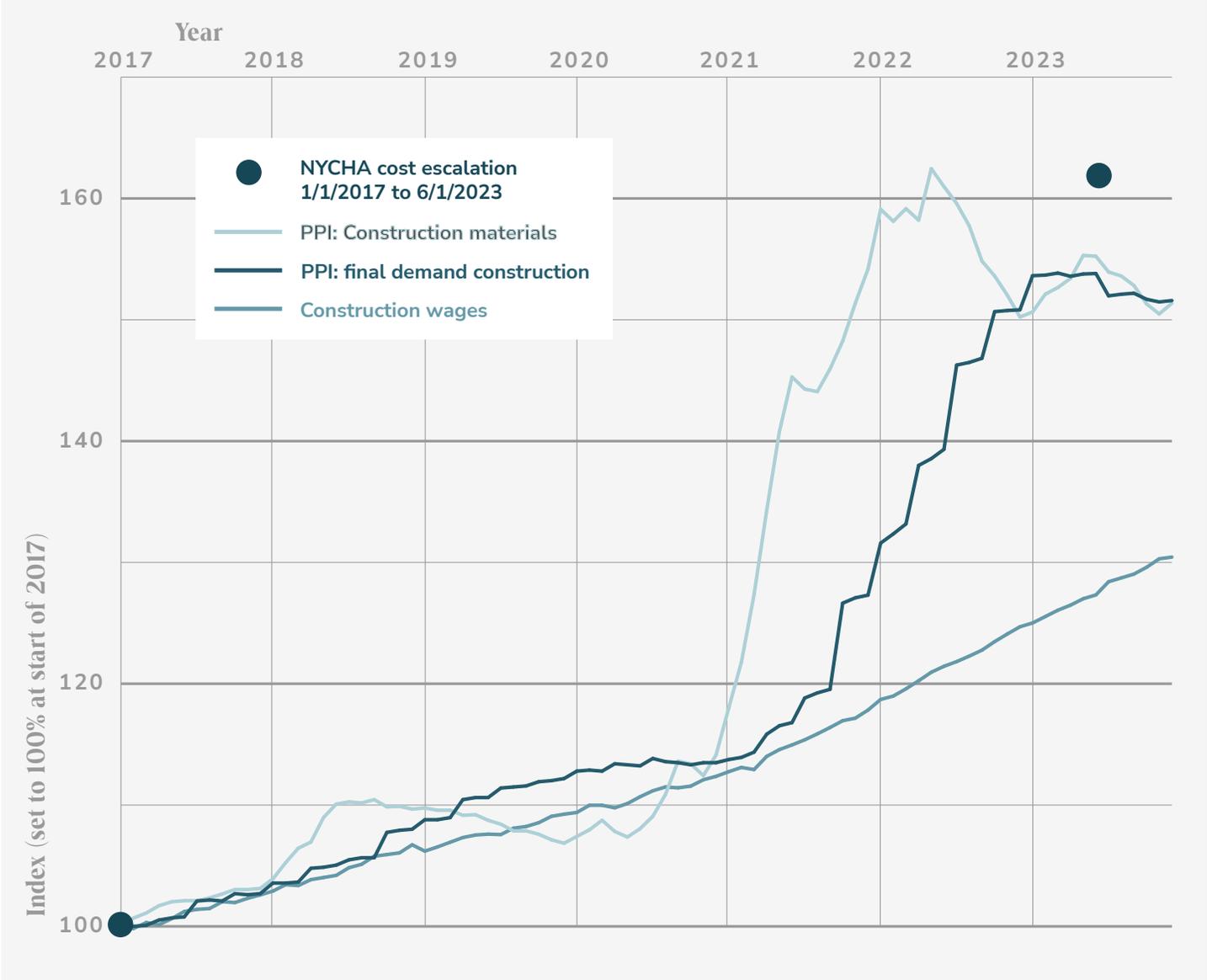
76 HUD, “Picture of Subsidized Households.”

77 STV and AECOM, “Physical Needs.”

FIGURE 5

Producer price indices (PPI) for construction have risen at a similar rate to the estimated cost escalation for NYCHA

Source: Federal Reserve Bank of St. Louis (FRED) and NYCHA 2023 Physical Needs Assessment



NYCHA currently comprises nearly 18% of the country's public housing stock. Rather than doing a weighted average of NYCHA's cost increase and national cost increases, we used the change in PPI final construction demand to weigh our cost estimates for the entire country, including NYCHA. This is because the price indices show construction costs appearing to level out or drop somewhat, even from NYCHA's latest PNA. Our price escalation factor was therefore 52%, rather than the 61% reflected in the 2023 NYCHA PNA. We also believe potential cost savings associated with our plan—such as buying materials at scale and exercising market power to lower costs—help justify using the lower-cost increase factor.

Job Creation Estimates

We use the new cost estimate in the same input-output (I-O) model developed for our previous report to develop national job estimates. This model breaks down estimated spending across industries, each of which have associated employment multipliers to reflect direct, indirect, and induced jobs from new spending in a given sector. Direct jobs are directly created from spending in the sector; indirect jobs are from supplier sectors; and induced jobs reflect workers spending money into the rest of the economy. We use national employment multipliers that the Economic Policy Institute⁷⁸ releases, again adjusting for inflation (using the Personal Consumption Expenditures Price Index⁷⁹) where necessary.

Our I-O job creation model shows that this spending program would create from 190,000 to 280,000 jobs throughout the ten year spending period, or 1.9 to 2.8 million total job years.

The breakdown of spending by industry that we use is shown to the right.

INDUSTRY	
Residential structures (construction)	30.32%
Management of companies and enterprises	13.00%
Architectural, engineering, and related services	11.00%
Nonmetallic mineral product manufacturing	8.52%
Machinery manufacturing	8.52%
Fabricated metal product manufacturing	8.52%
Maintenance and repair	7.58%
Electrical equipment and appliance manufacturing	5.12%
Wholesale trade	3.07%
Employment services	2.00%
Insurance carriers and related activities	2.00%
Truck transportation	0.34%

EMISSIONS METHODOLOGY

We estimate that decarbonizing the public housing stock would yield 5.67 million metric tonnes of CO₂, the equivalent of taking 1.26 million cars off the road.

To estimate emissions reductions, we use reported spending by utility within public housing taken from HUD budget documents,⁸⁰ price per utility from the US Energy Information Administration, and emissions factors from the US Environmental Protection Agency (EPA) to move from spending to consumption to emissions by utility.⁸¹

We benchmarked this method in a variety of ways, including comparing the total number of public housing units to an estimated emissions per housing unit from the EPA, which yielded a similar but slightly lower estimate.

78 Bivens, "Updated Employment."

79 US Bureau of Economic Analysis, "Personal Consumption Expenditures."

80 HUD, "FY 2023 Congressional Justifications"; "Calculation of Utilities Expense Level."

81 US Environmental Protection Agency, "Greenhouse Gases Equivalencies Calculator."

RAD CONVERSIONS AND PUBLIC HOUSING UNIT LOSS

Numbers for the total stock of public housing and decline in public housing units over time are from HUD's Picture of Subsidized Households data, and the total number of RAD conversions is calculated from RAD Program Data.

Comparison between these two datasets shows that, from 2012 to 2023, 174,000 public housing units were converted through RAD, while the number of public housing units in the US declined by 274,000, with the difference showing that up to 100,000 public housing units were demolished or otherwise disposed of over that period.

Given that Picture of Subsidized Households data represent the stock of subsidized households at the end of a given calendar year, to make the comparison over the 2012-2023 time period, we compare change in public housing units from the 2023 Picture of Subsidized Households data to the 2011 version, which would represent the end of 2011 and allow a more direct comparison with RAD conversions completed from the start of 2012 to the end of 2023.

An email exchange with HUD User Helpdesk provided confirmation that Picture of Subsidized Households data does represent a snapshot of units at the end of the given calendar year, while the RAD Program Data provide a closing date for every RAD transaction, making the calculation of closed conversions from that data straightforward.

Finally, the RAD Program Data includes closed transactions, conversions in various stages in the pipeline, and some withdrawn applications. Filters were applied to replicate top-line numbers in the data dashboard associated with this data, and these were applied consistently to identify total closed conversions and conversions in pipeline.

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