

# **Public Banks: Potential to Reduce Cost and Eliminate Silos of Financing for Clean Energy and Just Transition**

*Sylvia Chi, Asian Pacific Environmental Network*  
*Isaac Sevier, Energy Efficiency for All*

## **ABSTRACT**

Policies and programs to address the variety of treatment needs in our building stock exist in a patchwork. Available financing tools vary widely depending on the property's tax status, location, regulatory requirements, and other eligibility guidelines. Combined with metrics and measurements attached to each funding source, this financing labyrinth presents a barrier to achieving deep, whole building retrofits and improving climate resilience.

In 2019, California became the third U.S. state or territory to authorize the establishment of Public Banks. The new law authorizes "public ownership of public banks for the purpose of achieving cost savings, strengthening local economies, supporting community economic development, and addressing infrastructure and housing needs for localities." This globally-tested banking model can produce greater social and economic benefits per dollar than a for-profit bank while supporting energy efficiency, emissions reductions, public health, climate resiliency, and both preservation and creation of affordable housing.

Our paper summarizes Public Banking's major features and opportunities in the United States and explores its relationship to existing financing tools, policies, and programs. We argue that energy efficiency practitioners should participate in the arena of public finance and how doing so will address interwoven issues of racial injustice in energy, housing, and finance. We discuss how Public Banks relate to insufficient capital, misalignment of financial markets to public benefits, incorporating measures with no revenue stream into whole building retrofits, and creating financing efficiencies that support higher adoption of energy efficiency. Lastly, we make recommendations to ensure energy efficiency priorities are reflected in Public Banking.

## **Introduction**

### **Why Energy Efficiency Practitioners Should Get Involved in Public Finance**

Energy efficiency is the lowest-cost resource in any utility's resource plan, and faithful practitioners are encouraged to seek out every cost-effective means of obtaining demand reductions. However, in the rental housing sector, practitioners continue to be challenged collectively by the split incentive paradox, where the costs of installing energy efficiency measures fall on the property owner while the benefits accrue to the utility customer, which is often the renter not the owner. The most constrained by the split incentive is the multifamily affordable housing subsector, which faces unique barriers to accessing cost-effective measures due to complex financing arrangements that are required in the acquisition, preservation, or creation of multifamily affordable housing.

The cost of capital for multifamily housing is directly linked to the ability of an affordable multifamily housing developer to comply with affordability covenants. A higher cost of capital causes a higher operating income requirement from the property to repay debt, and the operating income (maximum possible rents) is fixed as a program requirement of the federal

Low Income Housing Tax Credit (King and Blumenthal 2016). Lowering the cost of capital may enable the developer to incorporate energy efficiency in the design of the project upfront while still meeting cash flow requirements to sustain the property under its affordability covenants. Influencing the financial structures available to multifamily affordable housing developers, therefore, is a key strategy for energy efficiency practitioners to achieve deeper savings in the affordable housing sector, aid in overcoming the split incentive paradox, and create multilateral cost, health, and energy benefits for housing owners, renters, and utilities.

As highlighted in existing literature, there are a range of possible intervention points to reduce cost barriers for deploying cost effective energy efficiency upgrades in residential buildings and maintain affordability. For multifamily buildings, both housing and energy policy practitioners have undertaken significant analysis and policy development for alignment of utility incentives and housing construction and preservation program designs (Robbins and Bartolomei 2018) to try and align capital timelines and resources. Even closer to the meter and applicable in both single- and multifamily buildings, tariffed on-bill programs are enabling significant investments across the United States (Hummel and Lachlan 2018). These intervention points have been offered to counter the split incentive paradox and require separate, green financing products or post-construction incentive programs.

The furthest upstream intervention possible is the reduction of the cost of borrowed capital used in the building's development (for new construction), for its comprehensive retrofit (for existing affordable housing), or for its acquisition (for converting to affordable housing). Public banks - banks that hold deposits, are owned by a government unit and mandated to serve a public mission - are able to provide this structural intervention in the form of lowest-cost, long-term debt financing featuring lower permanent financing fees and with lower interest rates than currently available through wholesale or Wall Street banks. By lowering the total cost of repayment, public banks can create direct and ecosystem benefits, including:

- Lowering the total cost of repayment for mortgage debt required in any affordable housing development, retrofit, or acquisition
- This may, in turn, enable broader adoption of energy efficiency from the outset of a project without specific green financing products or post-construction incentives, which may reduce the barrier of the split incentive paradox
- Offset the use of the Low Income Housing Tax Credit subsidy in a single project, helping that limited but critical resource to go further
- Create greater positive cash flows for the affordable housing operator and strengthen their operating budgets which are resources for co-payment for some energy efficiency subsidy programs
- Maximize the household benefits received from energy savings by lowering the capital required in an on-bill tariff or incentive required to add measures post-construction

Public banks are not a new bank design,<sup>1</sup> and their recent re-emergence across the United States<sup>2</sup> offers a unique opportunity to ensure offering products for housing and energy efficiency are top priorities for these banks' program areas, especially in states with exemplary clean energy goals like California, Massachusetts, New York, and Hawai'i. Existing global climate finance investment supports energy efficiency (with \$34 billion USD total directed to this sector in 2017 and 2018), renewable energy development (\$337 billion USD), and the built environment (\$6 billion USD). Using a two-year average across 2017 and 2018, 43.6% of global climate finance flows originated from the public sector, and 98.5% of all climate finance flows used for climate adaptation (including investment in the built environment) came from public finance (CPI 2019). Total housing finance flows globally or in the U.S. are also significant,<sup>3</sup> and more data is needed to fully understand the magnitude of the opportunity of alignment through public banks.

This paper presents a primer on the intersection between energy efficiency barriers, affordable housing finance, and public banking advocacy, and invites further exploration of how Public Banking can support the clean energy, energy efficiency, and affordable housing sectors who seek multilateral benefits in comprehensive building retrofits.

## **The Opportunity To Build Principled Partnerships for a Just Transition**

### **Addressing Racial Injustice in an Interconnected System of Housing, Energy, and Banking**

The demand for affordable housing in the United States is not limited to a small fraction of the population. 17% of all households are cost-burdened renters,<sup>4</sup> paying more than 30% of their income for rent (Joint Center for Housing Studies 2019). Not only are rents prohibitive, the units are scarce: for every 100 people in the United States living on an extremely low income, there are just 33 units of affordable housing.<sup>5</sup> Integrating energy efficiency into these renters' homes -- and joining forces with nontraditional allies to expand the number of affordable homes -- should be a top priority for any practitioner concerned about equity, maximizing the benefits of demand reduction on the grid, the environment, and cost.

For a snapshot of the challenge in existing buildings, there are a variety of metrics that highlight how inequitably energy efficiency is distributed. From a survey conducted by ACEEE, researchers found that low-income, renting, African-American, and Latino households live in

---

<sup>1</sup> "According to numbers provided by Orbis/Bankscope, the most comprehensive electronic database of banks, there are 693 banks globally that are majority publicly owned... public banks have combined assets of \$37.72 trillion. As a percentage of all global bank assets, public and private, this constitutes 20 per cent of the total." (Marois and Gungen 2018)

<sup>2</sup> The nation's oldest public bank, the Bank of North Dakota, was chartered in 1919. In 2019, California passed legislation to establish new public banks, and similar legislation is currently proposed in Hawai'i, Massachusetts, New Hampshire, and New York. Business plan development is underway in New Jersey and Washington with several other states including New Mexico pursuing feasibility studies.

<sup>3</sup> The Affordable Housing Finance Lenders Survey reports a two-year average of \$38 billion USD for the top 25 affordable housing lenders in the United States alone, which are entirely comprised of private sector sources. (Serlin 2020)

<sup>4</sup> According to the Joint Center for Housing Studies, 35.6% of all American households are renters and 47.4% of all renter households are cost-burdened.

<sup>5</sup> Number of Affordable, Available, and Adequate Units for every 100 Renters in the United States by Income category: Extremely low income (0-30% AMI) 33; Very low income (31-50% AMI) 53.7; Low-income (51-80% AMI) 88.7.

less efficient housing than the median household (Drehobl and Ross 2016). The American Community Survey in 2017 found that renter households making less than \$15,000 pay more than 15% of that income on energy costs, which is 500% more than the median for all households. While higher earning renter households can exert some choice in the housing marketplace about features like location, vintage, and energy features, this market power declines significantly inversely to income.

Banking and the prioritized outcomes for financial products on Wall Street are still creating racist outcomes that favor whites over minorities despite persistent ongoing efforts to change outcomes via regulation. Most recently, the Community Redevelopment Act - intended to prevent discrimination on the basis of race - has failed to produce equitable outcomes for building wealth in communities and improve housing conditions according to research that examined disparities in bank lending, controlling for nine economic and social factors (Glantz and Martinez 2018a; Glantz and Martinez 2018b). This systemic failure indicates a broader need for transformation, not tweaking, of the banking system to benefit people of color.

However, this lack of capital or power does not correlate to a lack of interest or motivation. People of color have stronger preferences for taking action on climate change and clean energy than their White counterparts across the board, and are more likely to feel the impacts of pollution and be interested in preparing and preventing those impacts (Speiser and Krygsman 2014). Energy efficiency practitioners have an enormous opportunity to meet demand for greener, more efficient housing by taking action outside of traditional utility programs and partnering with allies in Just Transition like housing justice groups, environmental justice groups, and public banking groups.

## **Aligning Banking Structures with Desired Outcomes**

### **Public Finance Supports Affordability and Regenerative, Local Solutions**

Establishing a bank is a complex, well-known, and documented process in existing literature and spans issues including capitalization, governance, and products offered. This paper connects a very specific example of affordable housing finance and its barriers to integrating energy efficiency with public banking. What public banking presents an alternative to is not the products that existing wholesale banks offer but to change the beneficiaries of those products and to whom the banks themselves are accountable.

The success of conventional Wall Street finance is defined by how well its earnings compare to the earnings of its peers and is rewarded for maximizing returns on a quarterly basis in the stock market. In order to create a maximum return, conventional Wall Street finance optimizes for the highest possible revenue streams from its offered financial products.

Energy efficiency measures, by and large, do not create a revenue stream; they create a savings stream, and, in a principal-agent dilemma, do not create a transfer back to the lender. As discussed, affordable housing does create a revenue stream, albeit with a cap designed to create the condition of affordability of rents. Neither are natural fits for Wall Street capital's desired outcome of maximum return on investment in order to deliver maximum value to shareholders.

Advocates continue to try and design creative products paired with regulation to achieve equitable outcomes and to prioritize in local community development. However, this desired outcome is in direct opposition to Wall Street's success metrics. This calls for the government to intervene where markets cannot produce the desired outcomes. In particular, government

intervention is commonly accepted as a solution to resource-sharing problems like the split incentive dilemma or the tragedy of the commons.

Generally, public banks are distinguished from conventional financial institutions in that they are owned by a government entity, capitalized with public resources, and governed with some degree of democratic control and accountability.<sup>6</sup> For the purposes of this discussion, “public banks” are further distinguished from “green banks” or “infrastructure banks,” which may be capitalized by private sources or function with little or no public accountability or oversight. In contrast to “socially responsible” community banks or credit unions, which may serve individuals and small businesses well, a chief function of a public bank is to hold local government funds and use them to achieve community-informed public policy goals. The purposeful design for community benefit can also allow for different models of financial sustainability and different designed outcomes from maximum return seeking. With democratic control over the bank’s financial sustainability goals, it is possible to pursue a relatively low return on assets<sup>7</sup> in further contrast to finance that is tied to Wall Street objectives (Marois and Gungen 2019).

Examples from around the world demonstrate that public banks mandated to prioritize the public interest over short-term profits have successfully supported economic development and achieved social and environmental goals, including financing projects with long or uncertain lead times (UNCTAD 2019, 148). Germany’s robust public banking system has been a main funder of the country’s investments in energy efficiency and transition to renewable energy. The development bank KfW has been financing residential energy efficiency for over a decade, issuing over €100 billion euros in loans or grants in energy efficient construction and refurbishment of over 4 million housing units (KfW 2020). In 2002, Costa Rica’s Banco Popular established a gender parity requirement across all decision-making forums, including its highest decision-making body, the 290-member Workers’ Assembly (Marois forthcoming, 6). Banco Popular has also created specialized green lending facilities for micro-, small- and medium-sized businesses, in addition to financing for community energy cooperatives and local residential solar installations (Marois 2017).

In “Municipal Banking: An Overview”, the Roosevelt Institute outlines three real solutions that public banking offers that fit the objectives of Just Transition and can be realized through tailored offerings for energy efficiency and affordable housing:

1. Allow cities to recapture local funds invested in money market (short-term) instruments and retain tax revenues currently diverted upwards via principal and interest payments to municipal bond owners and redirect them back into local investments in affordable housing, infrastructure and economic development
2. Address the shortfalls of local programs and initiatives that support affordable housing development that are often limited in scale due to lack of funding, and make available funding resources not available to local governments alone due to their inability to accept and lend deposits

---

<sup>6</sup> In order to meet Federal Deposit Insurance Corporation (FDIC) approval, where required, public banks must be governed by a board that is independent and free from political influence; thus, public banks formed under California’s AB 857 charter, which are statutorily required to gain FDIC coverage, are anticipated to be governed by independent directors, as opposed to a local government’s elected officials.

<sup>7</sup> A range of reported return on assets from public development banks in 2017 and 2018 is 0.01 to 11 according to data compiled by Marois and Gungen from Orbis/Bankscope.

3. Support community banks, credit unions, and other community development financial institutions (CDFIs) through lower cost products than available to them from market rate institutions

In simplest terms, the profits that banks currently receive in the form of financing fees and interest rates move from the resource base of renters, taxpayers, and local communities to the resource base for banks, their shareholders, and the purchasers of municipal bonds (which tend to be more wealthy investors seeking a tax benefit for their investment). With a public bank underwriting debt and offering other financial instruments, it creates a more sustainable, circular revenue model in which profits paid for by those same renters, taxpayers, and local communities go back into the public bank and create a return to the state and local treasury, not private or corporate shareholder returns. Over time, this creates higher levels of capital for regional and local grant programs that the public bank prioritizes. Today, some governments, financial organizations, and banks attempt to do this on a limited basis with “revolving loan funds”; a public bank’s structure is naturally revolving, but not limited to that.

A public bank is a more ideal partner for CDFIs and other financing groups with social objectives like Green Banks than a Wall Street bank. In some instances, an existing CDFI like a community development bank might be an important precursor to the formation of a public bank, but would not compete directly with a public bank (Cohen et al. 2019). Two primary distinctions between the two types of entities are that first, public banks are government-owned, while CDFIs are independent organizations, and second, a public bank primarily acts like a wholesale bank,<sup>8</sup> which is outside the function of existing CDFIs.

Public banks under California’s AB 857 charter, for example, are modeled after the Bank of North Dakota (BND), which mainly functions as a wholesale bank. BND is capitalized and owned by the State of North Dakota, and through BND the State maximizes the impact of its own assets by enabling increased local investments with diffuse public benefits through local financial institutions like CDFIs. In most cases, borrowers of debt from a local community bank or other customers of a CDFI are unlikely to even know that BND is involved, since the borrower may only interface directly with the local community bank, as the financial institution that originated the loan. In this mutually beneficial relationship, BND’s role is to enable lending by CDFIs by extending credit to them. In exchange, CDFIs can leverage BND’s greater financial strength for a bigger impact while reducing their own risk. These types of partnerships between public banks and CDFIs or other financial institutions with social objectives are well-suited to meet the needs of affordable housing and energy efficiency practitioners.

## **The Basics of Affordable Housing Finance**

While complex in execution, affordable housing finance fundamentals are not difficult to understand. Upon the creation of an affordable housing property - whether by new construction or acquisition - the money charged in rent to tenants must pay for the recurring operating expenses and cover the total cost of development (land acquisition, construction, design, project management, etc.). What makes affordable housing quantity limited is a high cost of

---

<sup>8</sup> A wholesale bank provides banking services to large customers such as government units, corporations, and other financial institutions including CDFIs. It is not a retail bank, meaning it does not provide banking services to individuals. This terminology can be confusing because well-known bank brands in the U.S. offer both wholesale and retail banking services under the same name, despite being different financial entities and governed separately.

development and, because the desired outcome is to house people with low to extremely low incomes, a lowered ability to pay high rents relative to higher earners.

Embedded in the total cost of development is an expectation of profit for multiple parties, including the developer, the construction firm, the project management firm, and the lender and investors which back debt or provide equity to pay for the project. In market rate financing, Wall Street capital providers expect a return (or profit) on their capital, and require that the return is competitive with or otherwise favorable compared to other investments they could make. A financing balance sheet for affordable housing typically includes four types of sources of funds, and this expectation of profit materializes in at least the first three:

1. **Mortgage debt:** Capital provided by a financial institution in the form of loans with an expectation of simple repayment and no ownership stake or tax credits
2. **Equity:** Capital provided by private investors with an expectation of repayment via an ownership stake and resulting share of cash flow from the property or via tax credits under the federal Low Income Housing Tax Credit Program (LIHTC)
3. **Soft financing:** Capital provided by a state or local government in the form of loans with below market interest rates or long repayment periods
4. **Other sources:** including grants, social impact bonds, and utility incentives

This is a massively simplified presentation of the finance capital required to support the development of affordable housing. The Urban Institute goes into more depth in “How affordable housing gets built” (Blumenthal, Handelman, and Tilsley 2016) and presents an accessible and interactive online tool which illustrates the way these types of capital interact in the project financing for an affordable housing development. While there is just one lender providing mortgage debt and one equity capital stake via LIHTC, sometimes there are as many as 27 other sources of equity, soft financing, and other funding, depending on the capital stack.

## **Specific Housing Financing Efficiencies That Encourage Energy Efficiency**

### **Lower Cost of Capital for Mortgage Lending**

As stated, one of the principal advantages of a public bank that is specific to the financial products needed for development of affordable housing is the ability to offer competitive or lower interest rate loans than Wall Street banks. Public banks, while needing to meet their designed financial sustainability goals, could offer lower interest rates than the market due to a design that is not seeking maximum return but is instead prioritizing community benefit. In today’s unlimited quantitative easing schema set by the Federal Reserve and with the establishment of the Municipal Liquidity Facility, credit is at an all-time low in terms of cost and this new tool creates additional liquidity in the municipal securities market. Social benefit banks stand to benefit immensely.

Interest rates are just one part of the equation. Currently, the accepted practice for mortgage lending uses debt sizing tests. These tests compare expected revenues against the value of the property (called the loan to value (LTV) ratio) or the acceptable risk factor the bank is willing to accept for the loan (debt service coverage ratio (DSCR)). A public bank can choose to loosen those debt sizing tests beyond what a Wall Street bank would accept in order to meet social priorities, while still designing for solvency.

Together, these feasible practices lower the total cost of repayment for the same amount of debt which has cascading benefits. In combination they support increasing capital available on the same payment size, which adds flexibility for an affordable housing developer to include energy efficiency from the start of the project. When incorporated from the start, these measures have a significant impact on the building's operating expenses and the renter's utility costs. This might appear in the form of direct benefit to the renter or in the utility allowance calculated under LIHTC. In either case, the reduced cost of capital alone improves cash flow on the same amount of mortgage debt. This also lowers the pressure for the bank in the form of potentially lower requirements for loan loss reserves, ceteris paribus, as the increased cash flow for the developer improves their ability to pay the loan.

### **Greater Efficiencies for Soft Financing and Equity Funds**

A common form of soft financing is non-mortgage debt with flexible repayment period and interest rate reductions that are meant to close the gaps left after accessing mortgage debt, equity via LIHTC, and local grants. Like the offering for mortgage debt, public banks can offer these “mezzanine” products at more favorable terms than other wholesale banks when specifically designed to close the gaps.

Every public bank's business plan will differ, but there is potential for public banks to have wider services relevant to affordable housing developers and energy efficiency practitioners than traditional loan offerings. If so mandated by the local community and feasible under the specific charter provisions, public banks can be a servicer and consolidator of multiple financing programs that are administered by a combination of public agencies including state Housing Finance Agencies, local housing authorities, environmental departments, and public utilities.

In a sufficiently capitalized and financially sustainable public bank, it could also be feasible to establish equity funds and manage the offering of municipal bonds, further integrating the role of the public bank in the development of affordable housing and recapturing local wealth for community reinvestment. In 2017/2018, equity investments made up the second-largest finance flow after debt, making up 29% of total global climate finance flows (CPI 2019). This represents an opportunity, but it is up to each public bank to assess and option individually based on their democratically determined design.

### **Other Possible Social and Environmental Efficiencies**

Energy and housing finance share a unique locational property. Notably, both are developed on a project by project basis, and are shaped by the federal, regional, state, community, and utility financing tools or incentives available which can be combined in myriad ways. This makes public banks, which are owned by public entities locally and subject to governance determined through public process not private shareholder votes, uniquely suited to partnership for supporting energy efficient affordable housing development and tailoring financial products or services that meet the gaps left by a complex, many layered capital stack.

In traditional scenarios, a bank has no benefit from housing besides the revenue stream it produces, while local governments have a wider balance sheet and can recognize cost savings from public health improvements that result from housing creation and affordability. Instead of relying on residential energy efficiency investments to create public health outcomes using energy efficiency dollars, public bank design could streamline the co-investment from these typically siloed budgets and programs further upstream.

If fully realized as a broker-dealer in addition to being a bankers' bank, public banks can also influence the requirements and measurement for various bond offerings, like green bonds and social impact bonds. Both of these types of products are often in high demand - due to a scarcity of available financial instruments that are aligned with social benefit outcomes - but results are inconclusive about their efficacy in creating greater efficiencies that outweigh the burdens and costs associated with their inclusion (Carrillo 2017). In particular, social impact bonds issued by a public bank could help facilitate the breakdown of government funding silos, and allow for establishing a "social program with one government partner, and then seek payments for success from another," a noted inconclusive lesson from early social impact bonds used for affordable housing.

## **Observations and Recommendations for Equitable Policy Design, Advocacy, and Partnership**

### **Observations**

1. In order to fully remove fossil fuels from buildings and avoid increasing housing costs for already vulnerable populations due to energy upgrades, significant structural changes must be made in housing financing to unlock more systemic opportunities to include energy efficiency and other clean energy technology including building electrification.
2. A living wage standard for affordable housing construction and retrofit is needed to ensure the fair treatment of workers, expand community wealth-building, and build broad coalition support for a just transition to an economy that is not based on fossil fuels.
3. The high cost of construction - and development broadly - is a barrier to creating a living wage standard for workers who build clean, new construction and retrofit existing buildings.
4. Challenges like those outlined in this paper for the cost of development for housing are often shared in other green community projects such as community solar, energy storage, clean transportation, climate adaptation, and public transit.

### **Recommendations**

1. Evaluate a comprehensive strategy that achieves energy efficiency goals by including other legislative or regulatory venues beyond those solely overseeing energy utilities.
2. Encourage cities and states to conduct feasibility studies for public banks, with affordable housing and energy efficiency as core goals of public bank business plans.
3. Partner with grassroots community groups who are already in the process of advocating for public banks locally, and offer resources to advance their goals and expand capacity to include housing and energy efficiency.
4. Develop champions among energy decisionmakers for public banking as a key financing strategy for clean energy, energy efficiency, and affordable housing.
5. Partner with public banking advocates to provide input to public bank business plan development, and eventually, governing boards.
6. Ensure that equity concerns are centered in regulations and guidance developed to govern public banks, including by providing technical assistance to community-based organizations to provide for meaningful and robust community participation and decision-making in the development of public banks and their business plans.

## References

- Beitel, K. 2016. "Municipal Banking: An Overview. Financing Socially Just and Sustainable Forms of Urban Development." Roosevelt Institute. <https://rooseveltinstitute.org/municipal-banking-overview/>.
- Blumenthal, P., E. Handelman, and A. Tilsley. 2016. "How affordable housing gets built." Assisted Housing Initiative at the Urban Institute. <https://www.urban.org/urban-wire/how-affordable-housing-gets-built>.
- Carrillo, O. 2017. "Pay for Success: Opportunities and Challenges in Housing and Economic Development." Joint Center for Housing Studies and NeighborWorks America. <https://www.jchs.harvard.edu/research-areas/working-papers/pay-success-opportunities-and-challenges-housing-and-economic>.
- Cohen, M., A. Fried, T. Shah, and K. Chen. 2019. *Municipal Bank Feasibility Task Force Report*. San Francisco Office of the Treasurer & Tax Collector. <https://sftreasurer.org/banking-investments/municipal-banking-feasibility-task-force>.
- CPI, 2019. Global Landscape of Climate Finance 2019 [Barbara Buchner, Alex Clark, Angela Falconer, Rob Macquarie, Chavi Meattle, Rowena Tolentino, Cooper Wetherbee]. London: Climate Policy Initiative. <https://climatepolicyinitiative.org/publication/global-climate-finance-2019/>.
- Derhobl, A. and L. Ross. 2016. "Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities." Washington, D.C.: ACEEE. <https://www.aceee.org/sites/default/files/publications/researchreports/u1602.pdf>
- Glantz, A. and E. Martinez. 2018a. "For people of color, banks are shutting the door to homeownership." The Center for Investigative Reporting. <https://www.revealnews.org/article/for-people-of-color-banks-are-shutting-the-door-to-homeownership/>.
- Glantz, A. and E. Martinez. 2018b. "Gentrification became low-income lending law's unintended consequence." The Center for Investigative Reporting. <https://www.revealnews.org/article/gentrification-became-low-income-lending-laws-unintended-consequence/>.
- Hummel, H. and H. Lachman. 2018. "What Is Inclusive Financing for Energy Efficiency, and Why Are Some of the Largest States in the Country Calling for It Now?" In *Proceedings of the 2018 ACEEE Summer Study on Energy Efficiency in Buildings* 13:1-14. Washington, D.C.: ACEEE.
- KfW. 2017. "Ten years of the KfW's "Energy-efficient Construction and Refurbishment" programmes." [https://www.kfw.de/KfW-Group/Newsroom/Latest-News/Pressemitteilungen-Details\\_403200.html](https://www.kfw.de/KfW-Group/Newsroom/Latest-News/Pressemitteilungen-Details_403200.html).

- King, R. and Handelman, E. 2016. “Technical Appendix to The Cost of Affordable Housing: Does It Pencil Out?” The Urban Institute. [https://apps.urban.org/features/cost-of-affordable-housing/cost-of-affordable-housing\\_technical-appendix.pdf](https://apps.urban.org/features/cost-of-affordable-housing/cost-of-affordable-housing_technical-appendix.pdf).
- Marois, T. 2017. “How Public Banks Can Help Finance a Green and Just Energy Transformation.” Amsterdam: Transnational Institute. [https://www.tni.org/files/publication-downloads/how\\_public\\_banks\\_can\\_help\\_finance\\_a\\_green\\_and\\_just\\_energy\\_transformation.pdf](https://www.tni.org/files/publication-downloads/how_public_banks_can_help_finance_a_green_and_just_energy_transformation.pdf).
- Marois, T. and Güngen, A.R. 2019. “A US Green Investment Bank of All: Democratized Finance for a Just Transition.” The Next System Project. [https://thenextsystem.org/sites/default/files/2019-09/A\\_US\\_Green\\_Investment\\_Bank-final.pdf](https://thenextsystem.org/sites/default/files/2019-09/A_US_Green_Investment_Bank-final.pdf).
- Marois, T. Forthcoming. *The Public Bank Resurgent*.
- Joint Center for Housing Studies of Harvard University. 2019. *The State of the Nation’s Housing 2019*. Cambridge, MA: Harvard University. <https://www.jchs.harvard.edu/state-nations-housing-2019>.
- Robbins, L. and D. Bartolomei. 2018. “Seizing the Moment: Incorporating Efficiency, Health, and Renewables Upgrades into Affordable Housing Financing Events.” In *Proceedings of the 2018 ACEEE Summer Study on Energy Efficiency in Buildings* 13:1-13. Washington, D.C.: ACEEE.
- Serlin, C. 2020. “Lenders Anticipate 2020 Growth.” *Affordable Housing Finance*. [https://www.housingfinance.com/finance/lenders-anticipate-2020-growth\\_o](https://www.housingfinance.com/finance/lenders-anticipate-2020-growth_o).
- Speiser, M. and K. Krygsman. 2014. *American Climate Values 2014: insights by racial and ethnic groups*. Washington, DC: Strategic Business Insights and ecoAmerica. [https://ecoamerica.org/wp-content/uploads/2014/09/eA\\_American\\_Climate\\_Values\\_2014\\_Insights\\_by\\_Racial\\_Ethnic\\_Groups.pdf](https://ecoamerica.org/wp-content/uploads/2014/09/eA_American_Climate_Values_2014_Insights_by_Racial_Ethnic_Groups.pdf).
- UNCTAD (United Nations Conference on Trade and Development). 2019. *Trade and Development Report 2019: Financing a Global Green New Deal*. Geneva: United Nations. <https://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=2526>.
- Urban Institute. 2016. “The cost of affordable housing: Does it pencil out?” <http://apps.urban.org/features/cost-of-affordable-housing/>.