#WE CHOOSE NOW: ECONOMY POLICY PLAYBOOK

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climate + community project

CONTENTS

INTRODUCTION

The economy of the United States operates, above all, through extraction: pulling atmosphere-heating fossil fuels out of the ground to power industries that exploit the most vulnerable for the benefit of the powerful. **Ending extractive economic relations will be critical to facilitating a just transition to a hotter, but post-fossil fueled world.** Pennsylvania's economy is emblematic of these extractive relations; from centuries of fossil economy booms and busts[1] to privatized services that send public money to wealthy investors while abandoning urban and rural communities to fend for themselves.[2]

Disparities produced by this extractive economy in Pennsylvania are glaring: Pennsylvania is plagued by the highest Black unemployment rate in the US;[3] wildly divergent funding for schools and other public resources across regions;[4] and massively unequal access to clean, healthy spaces for living, working, and playing. For many Pennsylvanians, housing costs are rising while the quality of homes deteriorates, and local control over the ability to keep homes safe and comfortable is being eroded by underfunded utility services, predatory privatizations, and regressive state laws. For all Pennsylvanians to flourish, the Commonwealth needs major policy shifts. **Above all, the state needs interventions that create a just economic transition away from extraction and structural racism, and take on the entrenched powers that have benefited from this plunder.**

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1. "Development of the Pennsylvania Oil Industry," American Chemical Society National Historic Chemical Landmarks,accessed April 25th, 2023, http://www.acs.org/content/acs/en/education/whatischemistry/landmarks/pennsylvaniaoilindustry.html; Jeremy Weber, Nick McClure, Ion G. Simonides, "The Boom, the Bust, and the Cost of the Cleanup: Abandoned Oil and Gas Wells in Pennsylvania and Implications for Shale Gas Governance," *USEAA Working Papers* 18-358, (2018): http://dx.doi.org/10.2139/ssrn.3245620.

2. Nina Lakhani, "'Corporate vultures': how Americans fearing higher water bills are fighting takeover," *The Guardian*, January 25, 2022, https://www.theguardian.com/us-news/2022/jan/25/corporate-vultures-americans-fearing-higher-water-bills-fight-takeovers.

3. Laura Benshoff, "COVID pushed Black unemployment higher in Pa. than anywhere in the nation, report says," *WHYY*, March 26, 2021, https://whyy.org/articles/covid-pushed-black-unemployment-higher-in-pa-than-anywhere-in-the-nation-report-says.

4. Avi Wolfman-Arent, "School funding in Pa. is about to go on trial — here's what you need to know," *WHYY*, November 8, 2021, https://whyy.org/articles/school-funding-in-pa-is-about-to-go-on-trial-heres-what-you-need-to-know/.

Our approach to imagining a post-extractive economy in Pennsylvania centers two primary themes. **First, we consider intersecting affordability crises facing Pennsylvania households.** One dimension of this challenge is the quality and affordability of housing for working Pennsylvanians. Pennsylvania has among the oldest housing stock in the country, and many single and multi-family homes are in dire need of retrofitting to become more energy efficient, as well as upgrades to move away from expensive, dirty oil and gas heating and appliances toward clean, cheaper electricity produced by wind and solar. Pennsylvania households are seeing costs jump for the energy they need to stay warm in the winter and cool in the summer in an increasingly unpredictable climate. This crisis of affordability is worsened by histories of utility deregulation and policies that make households foot the bill for companies' overinvestment in fossil fuels, and the state's long-running lack of ambition to drive the buildout of cheaper renewable power. This is the second aspect of comfortable, affordable homes: building democratically controlled renewable energy generation that can help make long-neglected communities healthier and wealthier.

Second, we contend with the role of public finance in a just transition to a post-fossil fueled, warmer world. Public finance is an umbrella term that describes how states, local governments, and other public organizations (for example, school districts, public water and wastewater utilities, and hospital and housing authorities) pay for the public services and infrastructure they provide. Our work investigates multiple aspects of public finance in Pennsylvania: how public entities raise revenue, how and where they spend it, and who benefits in the process. These decisions have major power to shape Pennsylvania's economy, and in turn, household spending on essential utilities and public access to other infrastructures that communities need to thrive. We specifically look at fights over how municipal water utilities are funded; communities are resisting their sale to private investors, who are turning essential services into new sites of financial extraction. At the same time, Pennsylvania's public finances are entangled with the fossil fuel economy in deeply unhealthy ways: community-harming extraction that must be transformed to transition the Commonwealth to a post-emissions future.

The playbook integrates ideas and policy recommendations for a just transition, one that focuses on affordable, clean energy for climate-safe homes and transformative public finance to create an economy for Pennsylvania that works for everyone. The slate of policies we explore here range from immediate, short term interventions to longer term reforms that can put climate-safe economic power in the hands of communities by making investments in people and places that will use them to build collective wealth. Housing, utilities, and public finance are closely linked, so policy shifts targeting aspects of each of these issues will have to account for all of them. For example, building public renewables in the long term will require new forms of public finance to pay for their construction and job training to install them. This need for holistic action may be a challenge, but it also creates an opportunity for a 'virtuous circle' where policy changes in one area make more ambitious reforms possible in the others.

The playbook provides recommendations that amplify movement voices to curtail and divest from harmful, extractive economic relations while investing in strategies that build democratic control of the economy. We suggest concrete policy proposals that tackle racial injustice, economic inequality, and social precarity in Pennsylvania while delivering climate wins that make both state residents and the world more secure. By focusing on the housing/utilities nexus and public finance we hope to offer movement partners a playbook to improve the material conditions for millions of Pennsylvanians in their homes and neighborhoods, create opportunities that link communities across the state in common cause, and help foster the conditions for self-determination in a future after fossil fuels.

We are motivated by a vision of the future that lifts up the communities that have suffered from extraction, pollution, and systemic racism. We envision a Pennsylvania where thousands of people are working to retrofit older homes and build new ones that are heated and cooled with renewable power—power that is produced by public and community owned infrastructure and delivered through a democratically controlled power grid. People will be able to afford their homes and to keep them safe and comfortable regardless of whether they rent or own, or live in newly built social housing. This livelihood security and collective wealth will be made possible when polluting companies and economically extractive industries like banks and corporate landlords pay their fair share, helping to capitalize public banks and

Topic	Near Term	Medium Term	Long Term
Power	• Shut-off moratorium • Single application for state utility bill assistance • Raise AEPS renewable and remove non-renewable quotas • Rate increase caps • More diverse stakeholder representation in governance at PUC and PJM	• Build public renewables with local government • Grid reform led by PUC to prioritize DER and alternative pricing	• Multi-state public grid • Public ownership of private utilities
Housing	• Continue funding and expand Whole Homes • Repairs for more electrification • Reintroduce eviction moratorium • Manufacturing incentives for retrofitting materials and home appliances	• New gas hookup ban • State acquisition and distribution of electrified home appliances	• Incentivize new public housing • Pennsylvania homes guarantee
Water	• Shutoff moratorium Stop new privatizations • Single application for state utility bill assistance • Accelerate lead service line replacement	• Repeal Act 12 • Remunicipalization • Scale up lead pipe replacement & associated workforce training	• Remunicipalization cont'd • Free residential access to clean water as a human right

Table 1. Part 1. High-Level Overview of Interventions in this Policy Playbook

allowing the state to expand access to programs that help homeowners, renters, and public housing authorities direct access to the money they need to make housing upgrades. **It is a future that looks very different from the one we are headed toward, but it is also one worth fighting for.**

Above is a chart that includes a high-level overview of the interventions proposed in the playbook and puts them within the context of political and organizing capacity in the short, medium, and long term.

Topic	Near Term	Medium Term	Long Term
Public Finance	• Repeal local tax preemption • Appoint the Philadelphia Public Financial Authority's Board of Directors • Authorize PA public bank • Technical assistance for state and county public banks	• State progressive income tax • State-wide wealth tax • Fully staff municipal and state agencies to administer transition	• State-wide participatory budgeting
Fossil Fuels	• Severance tax • Raise bonding requirements	• Build abandoned well cleanup workforce	• Full phase-out of fossil fuel extraction

Table 1. Part 2. High-Level Overview of Interventions in this Policy Playbook

Pennsylvania's Extractive Economy

There is no shortage of ways in which Pennsylvanians are subjected to extraction, which damages communities, families, and the environment—both locally and globally. Rents are rising,[5] privately owned utilities gouge customers[6] while delivering shoddy service, and the people and companies that profit from this extraction don't pay their fair share. These extractions and costs are unevenly distributed by place and across social differences, including race and gender.[7] Extraction is central to the Pennsylvania economy in a more physical sense as well, in the state's long standing support for fossil fuel extraction and the harmful dependencies and lock-ins that centuries of fossil investment has created. **Pennsylvania has been an energy producing economy for more than 200 years, but the financial benefits of that extraction have never been shared fairly.** The companies that mine and drill have significant political power, and as a result, Pennsylvania has some of the lowest tax and insurance requirements for fossil fuel producers in the country. These low barriers have led to breakneck energy development and problems like air and water pollution, as well as boom-and-bust economic extraction cycles that whiplash energy producing communities. Meanwhile, deceptively cheap fossil resources have led Pennsylvania's utilities to overinvest in climate harming forms of electric power and energy production long after the need to ramp up investment in clean energy had become clear. This section will detail some of these extractive situations, building an understanding of the problems so we can identify just solutions.

HOUSING

While Pennsylvania does not have the same severity of housing shortage as seen in some other states, the Commonwealth is still experiencing an affordability crisis as the price of housing—both rents and

5. Abby Bink, "Where rent rose, fell the most in 2021: report," *WKBN FirstNews 27*, February 21, 2022, https://www.wkbn.com/news/where-rent-rose-fell-the-most-in-2021-report/.

6. Anya Litvak, "Why Do Pennsylvania's Utility Bills Keep Rising?," *Governing*, December 22, 2021, https://www.governing.com/finance/why-do-pennsylvanias-utility-bills-keep-rising.

7. "Racial Equity Report 2021," Pennsylvania Department of Human Services, 2021, https://www.dhs.pa.gov/about/Documents/2021%20DHS%20Racial%20Equity%20Report%20final.pdf; Diana Boesch and Carolyn Sabini, "Fast Facts: Economic Security for Women and Families in Pennsylvania," Center for American Progress, August 12, 2021, https://www.americanprogress.org/article/fast-facts-economic-security-women-families-pennsylvania-2/.

purchases—rise. As the most recent Pennsylvania Comprehensive Housing Study puts it, "[i]ncreasing income inequality, combined with fewer low-cost housing options, is translating into large cost burdens and a deficit of affordable and available units at the low end of the income spectrum."[8] Housing costs and distress are not uniformly distributed across social groups; the number of evictions in Philadelphia's Black majority neighborhoods is consistently 2-3 times higher than in predominantly white neighborhoods.

Equally important for achieving low-carbon, secure, and affordable housing, **Pennsylvania's housing stock is among the oldest in the country and, on the whole, is in need of significant upgrading.** Older homes tend to be energy inefficient, poorly insulated, and reliant on fossil fueled systems for heating, cooking, and hot water. Many are built on sites vulnerable to flooding, or will become unsafe in periods of prolonged high heat. More than half of all homes in Pennsylvania were built before 1970 and rental units are even older—more than 60 percent of renter-occupied homes and apartments are more than 50 years old, which disproportionately impacts BIPOC families who are more likely to be renters.[9]

UTILITIES

A crucial element of Pennsylvanians' household economy is spending on essential services. **Rising costs for power, heating, and water has become a major driver of precarity for Pennsylvania households.** In many cases, households are forced to bear costs of aging, outdated infrastructure, like natural gas and lead pipes in homes. Pennsylvanians feel the pain of fossil energy dependence in home heating costs. Historically, half the energy used in Pennsylvania homes has gone to space heating, via electricity or direct energy use.[10] Half of Pennsylvania homes now heat directly with natural gas,[11] and the state also remains unusually dependent on fuel oil and propane[12] (almost 20% of PA households still used these older heating fuels in 2020).[13] This is in part due to the state's older housing stock, as the cost of retrofitting homes has left many households across the Northeast locked into these increasingly obsolescent technologies.[14]

Privatization of water and wastewater services has been a major driver of cost jumps for working Pennsylvanians. In recent years, a new state regulation has changed the rules through which cities can value their public water utility, which has led to a wave of private companies buying up formerly public water utilities. The results have been higher rates, worse service, and a loss of community control of a critical asset. Pennsylvania has inherited water utility infrastructures with many legacy problems such as lead contamination and combined sewer overflow.[15] Due to the last problem, a number of Pennsylvania cities have been sanctioned by the U.S. Environmental Protection Agency (EPA) and the Pennsylvania Department of Environmental Protection (DEP) for violations of the Clean Water Act, which requires them to undertake unfunded but mandatory actions to address their stormwater management issues. Existing problems with combined sewers are likely to

8. Vincent Reina, Claudia Aiken, Jane Christen and Jason Schunkewitz, "Pennsylvania Comprehensive Housing Study," Pennsylvania Housing Finance Agency, May 2020, https://www.phfa.org/forms/housing_study/2020/pennsylvania-comprehensive-housing-study-full-report.pdf.

9. Vincent Reina, Claudia Aiken, Jane Christen and Jason Schunkewitz, "Pennsylvania Comprehensive Housing Study," Pennsylvania Housing Finance Agency, May 2020, https://www.phfa.org/forms/housing_study/2020/pennsylvania-comprehensive-housing-study-full-report.pdf.

10. "Household Energy Use in Pennsylvania," US Energy Information Administration, 2009, https://www.eia.gov/consumption/residential/reports/2009/state_briefs/pdf/PA.pdf.

11. "Highlights for space heating fuel in U.S. homes by state, 2020," Energy Information Administration, updated March 2023, https://www.eia.gov/consumption/residential/data/2020/state/pdf/State%20Space%20Heating%20Fuels.pdf.

12. "Heating oil explained,"Energy Information Administration, updated February 23, 2022, https://www.eia.gov/energyexplained/heating-oil/use-of-heating-oil.php.

13. "Highlights for space heating fuel in U.S. homes by state, 2020," Energy Information Administration, updated March 2023, https://www.eia.gov/consumption/residential/data/2020/state/pdf/State%20Space%20Heating%20Fuels.pdf.

14. "NEHHOR History," Office of Cybersecurity, Energy Security, and Emergency Response, accessed April 24th, 2023, https://www.energy.gov/ceser/nehhor-history.

15. "Combined Sewer Overflows," PA Department of Environmental Protection, accessed April 24th, 2023, https://www.dep.pa.gov/Business/Water/CleanWater/WastewaterMgmt/Pages/CSOs.aspx.

worsen under climate change alongside other flood risks, as it increases extreme weather in the state.[16] Fixing them will be expensive and has led to municipal bankruptcies in cities around the county: a strong argument for community investment in climate-safe infrastructure to cope with more intense rainfall.

PUBLIC FINANCE

The public finance landscape in Pennsylvania is riddled with inequalities, inefficiencies, and, sometimes, outright malfeasance. First and foremost, the state's uniformity clause codifies a regressive tax regime that requires all people and businesses to pay the same percentage for the same tax, regardless of who they are.[17] As the Pew Charitable Trust notes, this means that, "[r]esidents making $100 an hour have the same 3.8398% wage tax rate as those making the $7.25 minimum wage."[18] The uniformity clause makes it challenging for the state or Pennsylvania cities to advance public policy priorities through the tax system, because raising taxes will disproportionately impact lower-income Pennsylvanians. Taxes are a key lever for both promoting the growth of more socially desirable industries or for discouraging unwanted industries—especially fossil fuel extraction and consumption. Progressive taxation is also the key tool that governments have at their disposal to fight inequality by making the wealthy pay their fair share while delivering public services that improve everyone's quality of life. **The regressive tax regime at the heart of Pennsylvania public finance directly leads to an array of extractive financial relationships** that send scarce public resources to big banks and financiers. In the context of uniformity-driven austerity, cities, school districts, municipal utilities, and other public entities have been driven to risky, disadvantageous deals with financiers to fill the gaps, as well as cutting services or simply selling public goods to the highest bidder- as witnessed by the recent wave of public water utility privatization.

One important result of this combination of regressive taxation and the inability for governments to make investments in people, communities, and infrastructure is a wide variety of harms visited on communities of color, working people, and less affluent parts of the state.

FOSSIL FUELS

Pennsylvania's legacy of fossil energy production and its aging housing stock are already contributing to an energy affordability crisis for households, both urban and rural. Driven by the regional fracking boom and the promise of cheap natural gas, Pennsylvania and neighboring states heavily invested in new gas plants in the 2010s.[19] This strategy has driven out much remaining Pennsylvania coal production while creating few lasting jobs[20] or local government tax revenues to replace it.[21] The rush to natural gas is now causing major problems for Pennsylvania households as oil and gas costs skyrocket internationally, on top of ongoing, racially uneven economic turbulence in the wake of the pandemic.

On the production side, the companies that have exploited Pennsylvania's fossil resources for the last two centuries—from coal to oil, and now natural

16. Rachel McDevitt, "Study: Flood risk rising across Pennsylvania as climate changes," StateImpact Pennsylvania, Dcemebr 31, 2021, https://stateimpact.npr.org/pennsylvania/2021/12/31/study-flood-risk-rising-across-pennsylvania-as-climate-changes/.

17. "The Constitution of Pennsylvania," Pennsylvania General Assembly, accessed April 24th, 2023, https://www.legis.state.pa.us/cfdocs/legis/LI/consCheck.cfm?txtType=HTM&ttl=00&div=0&chpt=8.

18. Elinor Haider, "How Pennsylvania's Uniformity Clause Affects Property and Wage Taxes in Philadelphia," Pew Charitable Trusts, March 9, 2022, https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2022/03/how-pennsylvanias-uniformity-clause-affects-property-and-wage-taxes-in-philadelphia.

19. JEREMIAH SHELOR, "PJM Capacity Auction Shining Impact on Cheap Marcellus/Utica Natural Gas," Natural Gas Intelligence, March 24, 2017, https://www.naturalgasintel.com/pjm-capacity-auction-shining-impact-on-cheap-marcellus-utica-natural-gas/.

20. Colin Jerolmack, "The fracking boom is over. Where did all the jobs go?," MIT Technology Review, July 1, 2021, https://www.technologyreview.com/2021/07/01/1027822/fracking-boom-jobs-industry/; James Bruggers, "A Decade Into the Fracking Boom, Pennsylvania, Ohio and West Virginia Haven't Gained Much, a Study Says," Inside Climate News, February 11, 2021, https://insideclimatenews.org/news/11022021/fracking-boom-natural-gas-report/.

21. Morgan Lee and Mead Gruver, "In US, Pennsylvania and other states struggle to replace fossil fuel tax revenue," StateImpact Pennsylvania, May 16, 2022, https://stateimpact.npr.org/pennsylvania/2022/05/16/in-us-pennsylvania-and-other-states-struggle-to-replace-fossil-fuel-tax-revenue/.

gas (both conventional and unconventional, or fracked—have long held outsized influence in state politics, working to ensure laws have been favorable to owners. This political capture has contributed to the rapid expansion of hydraulic fracturing for gas extraction over the last 15 years. The fracking boom has again made Pennsylvania one of the largest fuel and power producers in the United States, while creating a host of new ecological and environmental justice problems, especially air and water pollution. Meanwhile, Pennsylvania has doubled down on the state's fossil fuel reliance—making the Commonwealth a globally significant driver of the climate crisis, even as that crisis is already harming Pennsylvania's BIPOC and working people most severely.

NATIONAL CONTEXT

The problems facing Pennsylvania have regionally specific aspects, but are a microcosm of the United States' broader extractive economy. Investor-owned utilities across the country are gouging customers, providing unreliable service, dragging their feet on building renewables, and touching off environmental catastrophes from wildfires in California to poisoning Black communities with toxic waste in North Carolina. 72% of the US population is forced to pay bills to profit-driven power companies whose first responsibility is to deliver returns to their investors, not serve the needs or interests of their customers. There is a serious utility bill crisis brewing as Covid-era temporary shut-off bans were allowed to lapse. More than 20 million US households are behind on their utility bills as the price of electricity has risen by as much as 50% across the country—disportionately harming BIPOC and working people who were already spending a greater share of their income on bills than affluent consumers.[22]

The utility crisis is contributing to a broader crisis of housing affordability. Average rents are the highest they have ever been, and have grown more than 10% across the country in the last year.[23] New housing construction remains far below pre-2008 financial crisis levels,[24] and the majority of new homes that are being built are a far cry from what could be considered affordable housing. Furthermore, rental property ownership is being consolidated as more and more properties are bought by large landlords—and if recession hits and forces a new wave of home foreclosures, corporate landlords like Blackrock are poised to buy up even more of the market. Government inaction is making this bad situation worse. Housing assistance programs are stagnant or have been rolled back, there has been infinitesimal growth in publicly owned housing over the past three decades, and the number of families living in publicly owned housing is actually falling.[25]

The fossil fuel industry represents another existential threat to working people, communities of color, and the wellbeing of everyone. While big green groups have celebrated the Biden Administration's Inflation Reduction Act because this federal legislation will help speed up building new renewable energy, the fossil fuel industry is celebrating too. The industry's massive political power (and wealth) has stalled climate action for the last 30 years, and even the biggest climate law in US history will do very little to rein in fossil fuel companies. Additional policy is required to both ramp up the construction of renewables and wind down fossil fuel extraction and consumption. Fossil fuel companies are the largest corporate polluters in the country, and the impact of that pollution falls disproportionately on BIPOC communities—from extraction sacrifice zones on the Gulf Coast,[26] to Indigenous communities whose lands and waters are poisoned by leaking

22. Will Wade and Mark Chediak, "A 'Tsunami of Shutoffs': 20 Million US Homes Are Behind on Energy Bills," *Bloomberg*, August 23, 2022, https://www.bloomberg.com/news/articles/2022-08-23/can-t-pay-utility-bills-20-million-us-homes-behind-on-payments-facing-shutoffs#xj4y7vzkg.

23. "Zumper National Rent Report," Zumper, March 28, 2023, https://www.zumper.com/blog/rental-price-data.

24. Jonathan Jones, "U.S. Cities Investing the Most in New Housing [2020 Edition]," Construction Coverage, December 2, 2021, https://constructioncoverage.com/research/cities-investing-the-most-in-new-housing-2020.

25. Benny Docter and Martha Galvez, "The Future of Public Housing Public Housing Fact Sheet," Urban Institute, October 2019, https://www.urban.org/sites/default/files/publication/101482/the_future_of_public_housing_public_housing_fact_sheet_1.pdf.

26. Steve Lerner, "Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States," *Environ Health Perpsect* 119, no. 6 (2010), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3114843/.

pipelines,[27] to communities of color living in the shadow of massive refineries and breathing car exhaust in cities criss-crossed by freeways.[28]

All of these problems expose deep structural crises in the US economy and society. Staggering inequality has been produced and maintained under a system scholars have termed 'racial capitalism',[29] where racism and economic exploitation are not separate phenomena, but mutually feed off of, and help reproduce, one another. There is much to say about how and why the system operates, but we can see how it manifests through communities' lived experiences—and in the economic data. The most glaring example of this is that white household wealth is more than eight times greater than that of Black households in the United States, and that figure has gotten worse over the last 30 years.[30] But the effects of racial capitalism are wide ranging. From unemployment to life expectancy, from incarceration rates to access to nature, BIPOC people - especially Black and Indigenous people - are worse off in the United States by virtually every measure.[31]

The chain of causation is complicated, but one specific issue that has made matters far worse over the last 40 years is the declining role of government in some of the most important parts of society—especially the economy. Cuts to state and local governments disproportionately hurt BIPOC workers and communities that depend on government programs because of the inequities produced by racial capitalism, or that were relatively well represented in government jobs. Cuts to the public sector generally empower and enrich large, unaccountable companies who are contracted to provide many of the services that governments used to manage, from electricity and water utilities to infrastructure maintenance and school lunches. A further result of this faith in 'market-rule' is the entrenched power of fossil fuel burning utilities, who have little political or economic incentive to respond to democratically identified needs or wants—including cheaper bills or switching to clean, safe renewable generation.

To combat these issues, we focus this piece of a Just Transition from the Gulf to Appalachia in Pennsylvania. Pennsylvania has long been an energy-producing state, with all the baggage that comes along with it, but it has also fostered a strong ecosystem of movements that are ready to confront the fossil fuel industry, investor-owned utilities and their political allies. The analysis we offer here is about creating public, democratic control over the things that make a difference in people's lives—their work, the power they use, the homes they live in, and the priorities and capacities of their government. By defining a strategy that focuses on building public renewables to power comfortable, affordable homes, we can make a change in a state that is a bellwether politically. Action now can help Pennsylvania become an example for other energy-producing states to make a transition to a 21st Century economy by building solidarity across divisions of race and geography.

A JUST TRANSITION FROM THE GULF TO APPALACHIA

After decades of denial, inaction, false solutions, and footdragging, the climate is already changing. The impacts of climate change are hurting the most vulnerable communities most intensely while the need to ramp up decarbonization is more urgent than ever. Mitigating and adapting to climate change will require transitions for virtually every aspect of society- particularly the economy, which runs on planet heating fossil fuels that harm

27. Liz Staton, Chirag Lala, "Pipelines Threaten Indigenous Safety, Land, and Sovereignty," Applied Economics Clinic, November 11, 2021, https://aeclinic.org/aec-blog/2021/11/10/pipelines-threaten-indigenous-safety-land-and-sovereignty.

28. Hiroko Tabuchi and Nadja Popvich, "People of Color Breathe More Hazardous Air. The Sources Are Everywhere.," *The New York Times*, September 7, 2021, https://www.nytimes.com/2021/04/28/climate/air-pollution-minorities.html.

29. Robin D.G. Kelley, "What Did Cedric Robinson Mean by Racial Capitalism?," *Boston Review*, January 12, 2017, https://www.bostonreview.net/articles/robin-d-g-kelley-introduction-race-capitalism-justice/.

30. Emily Moss, Kriston McIntosh, Wendy Edelberg, and Kristen Broady, "The Black-white wealth gap left Black households more vulnerable," *Brookings*, December 8 2020, https://www.brookings.edu/blog/up-front/2020/12/08/the-black-white-wealth-gap-left-black-households-more-vulnerable/.

31. Ashley Nellis, "The Color of Justice: Racial and Ethnic Disparity in State Prisons," The Sentencing Project, October 13, 2021, https://www.sentencingproject.org/reports/the-color-of-justice-racial-and-ethnic-disparity-in-state-prisons-the-sentencing-project/; Jenny Rowland-Shea, Sahir Doshi, Shanna Edberg, "The Nature Gap: Confronting Racial and Economic Disparities in the Destruction and Protection of Nature in America," Center for American Progress, July 21, 2020, https://www.americanprogress.org/article/the-nature-gap/.

working communities the most. A just transition must recognize the harms done to working communities by the fossil economy and build solutions that center those communities in the many changes that are needed to build a safer, fairer, and healthier economy. From the Gulf to Appalachia, communities have suffered from the extractive organization of the economy as wealth was siphoned out and pollution, poverty, and precarity was left behind.

While this playbook focuses on Pennsylvania, it contends with economic issues that are critical to a just transition across the country. Our work is guided by a vision that centers a just transition for workers and communities, one that builds a public energy system that provides reliable, affordable energy to keep Pennsylvanians safe and comfortable in secure housing- a transition from the uncertainty and expense of housing and energy that working families face across the country. In Pennsylvania, as elsewhere, getting to a more democratic energy and housing system will create of thousands of good jobs in home retrofitting, installing and repairing renewable energy generation on people's homes and at utility scale, green manufacturing, interventions to foster urban adaptation, shutting down and cleaning up oil and natural gas wells, and more.

The scope of the problems that Pennsylvanians, and states from the Gulf to Appalachia, face is vast, but so are the opportunities. These changes will require substantial investment from states and the federal government, so it will be imperative to reform public finance so that it actually works for the public. Public services must actually be funded, regulations preventing or cleaning up pollution will have to be enforced, and the rich and polluters will have to pay their fair share. It may sound utopian, but these interventions are key parts of a just transition.

This report lays out a detailed slate of policy directions that move toward this overarching vision in the short, medium, and long term, divided into five distinction themes: comfortable, affordable homes; building publicly owned renewable power; public finance that works for the public; recapturing public water; and winding down fossil fuels. These range from immediate interventions, like campaigns to educate towns and cities about the Federal funding they would lose out on if they chose to privatize their water supply, to long term policy sequences that ultimately lead to energy democracy and community control of critical resources for families and neighborhoods that have suffered the most under racial capitalism. The report is not comprehensive of course, and there are policy areas that will be critical to achieving many of these goals that we can only briefly touch on, such as supporting workers and enabling workplace democracy through collective bargaining or worker ownership that will be important for a just transition. But given the enormity of the challenges- and the huge gains to be made– we hope this policy playbook can help organizers strategize to build power and win campaigns that resonate from the Gulf to Appalachia and beyond.

SECTION 1: Safe, Comfortable, Affordable Housing and Energy

Pennsylvanians, like people across the United States, are facing converging problems that sum to a crisis of access to affordable, comfortable, secure homes and basic household services. While the details vary from state to state, Pennsylvania is marked by an aging housing stock, rising housing costs, skyrocketing utility bills, and, for many families, exposure to the toxic impacts of fossil fuels. Meanwhile, the impacts of climate change are increasingly obvious: while Pennsylvania is not among the US's most vulnerable states, summer temperatures are rising and extreme rain events are becoming more common. To keep from making a bad situation worse, greenhouse gas emissions need to drop, and quickly. However, many Pennsylvania households do not have a choice about their electricity source, and they are still forced to rely on dirty, dangerous fossil fuels for home heating and to run their appliances. Fortunately, policy makers have begun to take on some of these challenges. For example, the recently passed Whole Homes Repair Act allocated $125 million to retrofit homes, train workers to do those retrofits, and build government capacity to get people access to state and federal assistance for retrofitting. Nonetheless, there is a long way to go. This section explores the state of housing in Pennsylvania and the utilities that serve them—often poorly and at exorbitant cost. We will look at the social movements pushing for transformative change that will ensure Pennsylvanians are secure and comfortable in their homes, then outline a suite of policies that could help achieve that goal.

HOUSING COSTS AND QUALITY

While Pennsylvania has a high rate of homeownership relative to other states at 69%, the number of renters is on the rise—not just in cities, but across the state. Of course, as with all economic arrangements in the United States, homeownership rates in Pennsylvania are marked by racial inequality.[32] In the Philadelphia area, while nearly 75% of White headed-households own their homes, only around 50% of Black households do. This long term trend toward increased renting began in the 1980s, then accelerated after the 2008 financial crisis, reflecting growing precarity and income stagnation in the state since the 'Reagan Revolution'. The shift mirrors broader trends across the United States toward an ever more unequal housing market.

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32. Dan Treglia, Mina Addo, Meagan Cusack, and Dennis Culhane, "UNDERSTANDING RACIAL AND ETHNIC DISPARITIES IN HEALTH OUTCOMES AND UTILITY INSECURITY RESULTING FROM COVID-19," https://clsphila.org/wp-content/uploads/2021/03/CLS_UtilityReport_20200324.pdf.

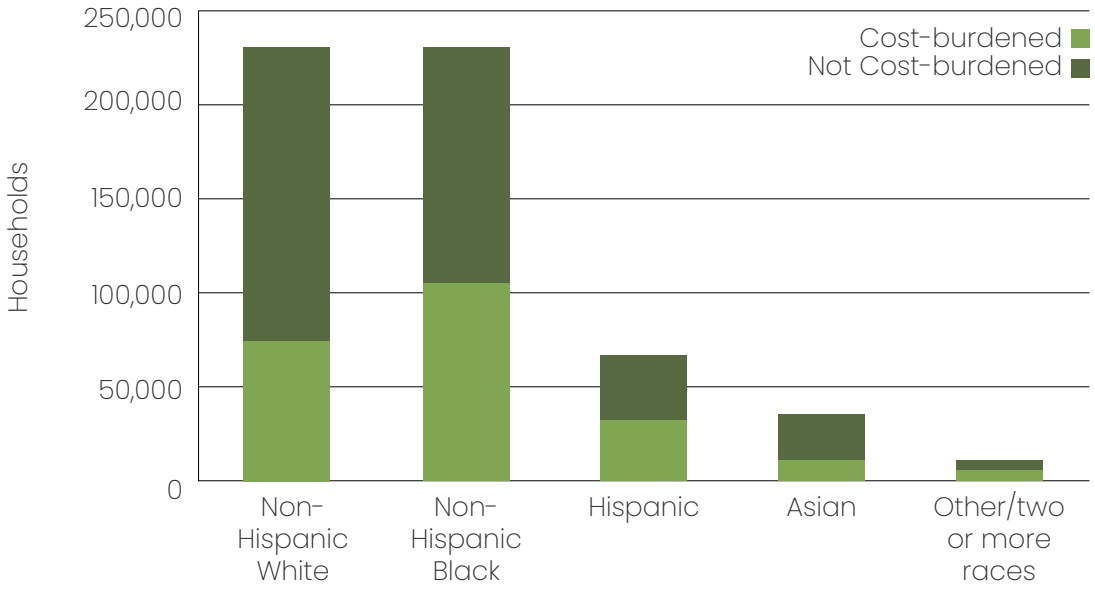

Figure 1. Housing Cost Burden by Race and Ethnicity in Philadelphia. BIPOC households are more likely to pay more than 30% of their income toward housing costs[33]

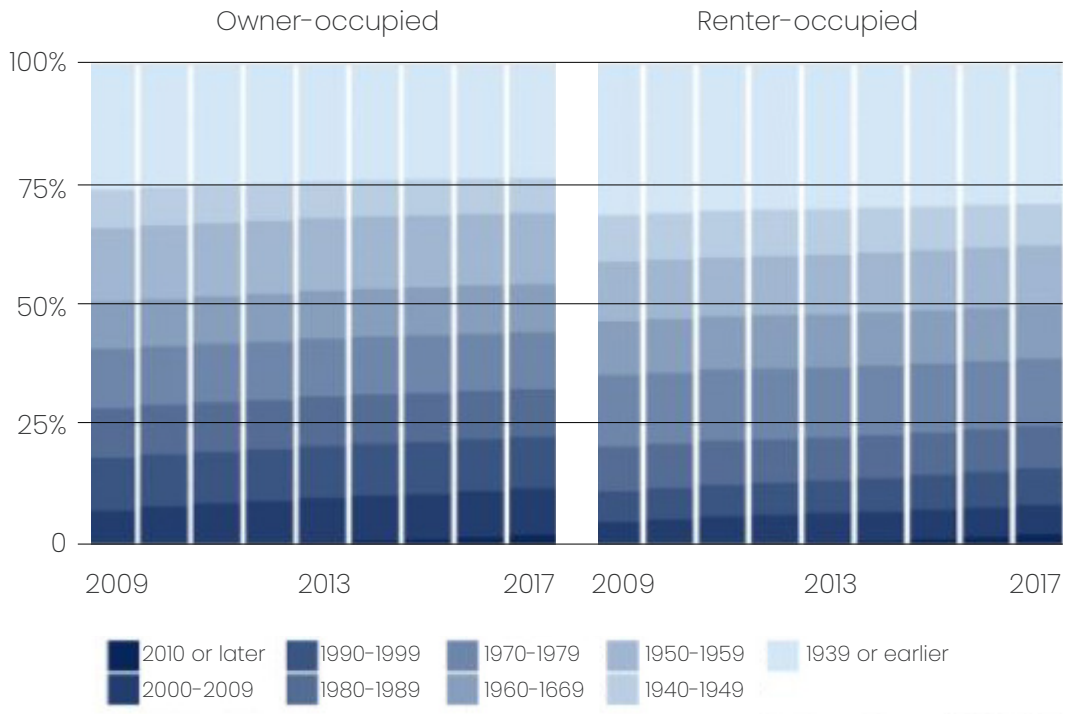

Figure 2: Decade of home construction by tenure in Pennsylvania. Pennsylvania's housing stock is among the oldest in the country and renters disproportionately live in older homes. Renters, in turn, are disproportionately BIPOC and working class.[34]

33. Elinor Haider and Larry Eichel, "The State of Housing Affordability in Philadelphia," Pew Charitable Trusts, September 10, 2020, https://www.pewtrusts.org/en/research-and-analysis/reports/2020/09/the-state-of-housing-affordability-in-philadelphia.

34. Vincent Reina, Claudia Aiken, Jane Christen and Jason Schunkewitz, "Pennsylvania Comprehensive Housing Study," Pennsylvania Housing Finance Agency, May 2020, https://www.phfa.org/forms/housing_study/2020/pennsylvania-comprehensive-housing-study-full-report.pdf.

The costs of renting in Pennsylvania are growing increasingly unaffordable. For example, current estimates suggest that the majority of Philadelphia's renters pay more than 30% of their income toward rent, the threshold for what is considered unaffordable housing—and those cost burdens are also racialized (see figure below). For households that make less than $30,000 a year, that percentage balloons to 70% who are spending more than half of their income on rent.[35]

Compounding this injustice, Pennsylvania renters are paying more and more of their income for increasingly deteriorated homes and aging home systems. The Commonwealth's housing stock is some of the oldest in the country, and rental units tend to be even older than homes in general. Landlords often have little incentive (or inclination) to upgrade or retrofit these buildings in the absence of concerted state invention to mandate or subsidize those investments.

Beyond sacrificing the comfort and safety of residents, this underinvestment is felt in other increasing household costs, as deteriorating homes and systems become increasingly energy inefficient and expensive to run- or more dangerous to live in when residents can't afford the energy they need. Investment in retrofitting and upgrading Pennsylvania's housing stock is a priority to transition the state to a post-fossil fuel economy: repairing drafty homes to cut energy waste and replacing major home systems to run on low-carbon energy sources must continue to be top priorities. These interventions are particularly urgent today, as years of climbing energy prices have made basic energy services unaffordable for many Pennsylvania households.

In addition to questions of housing and energy affordability, many older homes are outfitted with lead pipes- creating a dangerous public health problem, particularly in Southwestern Pennsylvania. While the lead crisis in Pittsburgh's water system received much less national attention than a similar situation in Flint, MI, lead levels are actually higher in Pittsburgh than in Flint.[36] But similarly to Flint, lead contamination in the public water supply delivered through aging lead service pipes that link the water main to homes disproportionately harms Black communities in the city, and resolving the crisis is expensive and slow moving.[37] A just transition to a hotter world means repairing and upgrading all of the systems we rely on for everyday life- and none of those is more fundamental than water.

DEREGULATED ENERGY UTILITIES

Pennsylvania households obtain energy from varying sources, including important legacies of public and rural cooperative power that we will discuss further below (over 230,000 rural households and other customers in Pennsylvania and New Jersey get their power from a cooperative).[38] However, most of Pennsylvania's 5.77 million households rely on electricity and natural gas supplied by private utilities.[39] In 2020, half of Pennsylvania homes relied on natural gas for heating (up significantly from a decade ago), while 29% were all-electric.[40]

Like most other US states, in the 20th century Pennsylvania organized private investor-owned utilities (IOUs) into vertically integrated monopolies which ran gas lines and electricity generation, transmission, and distribution grids within their regional service areas, with rate-setting and other regulation handled by the state Public Utility Commission (PUC). However, Pennsylvania joined other US states in the wave of energy utility deregulation starting in the 1990s.

35. Dina Schlossberg, "Affordable Housing Shortage in Philadelphia a Persistent Problem," *The Legal Intelligencer*, July 15, 2022, https://www.law.com/thelegalintelligencer/2022/07/15/affordable-housing-shortage-in-philadelphia-a-persistant-problem/?slreturn=20230324103520.

36. Jessica Glenza, "Pittsburgh officials may have 'deflected' attention from lead-contaminated water," *The Guardian*, July 25, 2017, https://www.theguardian.com/us-news/2017/jul/25/pittsburgh-lead-drinking-water-flint-epa.

37. "LEAD IN DRINKING WATER – WHAT YOU NEED TO KNOW," Pittsburgh Water and Sewer Authority, January 18, 2018, https://apps.pittsburghpa.gov/redtail/images/1500_Lead-FAQ-January-2018-FINAL-1-18-18.pdf/.

38. "About Us," Pennsylvania Rural Electric Association, accessed April 24th, 2021, https://prea.com/about-us.

39. "Quickfacts Pennsylvania," US Census Bureau, accessed April 24th, 2023, https://www.census.gov/quickfacts/PA.

40. "Highlights for space heating fuel in U.S. homes by state, 2020," Energy Information Administration, updated March 2023, https://www.eia.gov/consumption/residential/data/2020/state/pdf/State%20Space%20Heating%20Fuels.pdf; "Household Energy Use in Pennsylvania," Energy Information Administration, accessed April 24th ,2023, https://www.eia.gov/consumption/residential/reports/2009/state_briefs/pdf/PA.pdf.

Power Distribution Utility	Service Area	Number of Residential Customers	Percent Retail Switching
PECO	Southeastern PA	1,504,139	23.0%
PPL	Eastern PA	1,286,818	35.2%
West Penn Power	Western PA	631,610	17.2%
Dusquesne	Alleghney & Beaver Counties	542,782	22.0%
Metropolitan Edison	Southeastern PA	514,782	20.2%
Pennsylvania Electric Co. (Penelec)	Northern and Central PA	499,387	18.1%
Pennsylvania Power Co. (Penn Power)	Western PA	148,543	17.5%
Statewide Total		5,227,536	23.9%

Table 2. Pennsylvania Electric Utility Retail Customer Switch Rates. Largest seven (out of eleven) Pennsylvania electric power distribution utilities by # of residential customers and % of residential customers retail power switching as of July 2022.[41]

As part of its power deregulation process, Pennsylvania entered the thirteen-state wholesale electricity market coordinated by the PJM Interconnection, the Mid-Atlantic Region's major transmission grid operator (and largest in the United States). The state also created PUC-run retail markets for both electricity and utility natural gas, meaning that Pennsylvania households may choose energy suppliers other than their legacy IOU (aka 'distribution utility'). Households can shop around for electricity supply from dozens of independent power producers (IPPs)—i.e. competing private providers. Meanwhile, their distribution utility purchases its power supply from PJM's wholesale market and handles low-voltage distribution regardless—though more than 3/4 of households remained with their default power supplier in 2022 (see table below).
Similarly, eight incumbent natural gas utilities still run local distribution lines and default supply, but households may switch to one of several dozen retail suppliers. PECO is Pennsylvania's largest combined electricity and natural gas utility, serving about 1.6 million power and 511,000 natural gas customers in Southeastern Pennsylvania. Another particularly notable natural gas distributor is the City of Philadelphia-owned Philadelphia Gas Works. Serving 500,000 customers, it is the largest municipally owned gas utility in the United States—and, as we will discuss below, has become a front of decarbonization battles in the state, and also creates important political possibilities.

RISING HOUSEHOLD ENERGY COSTS AND SHUT-OFFS

As with other US states that deregulated their energy sectors, opening Pennsylvania's utilities up to private competition was touted as a way to make energy cheaper for households. Evidence of success in the Commonwealth and elsewhere has been mixed at best.[42] To the extent that prices dropped for some

41. "Monthly Update," PAPowerSwitch, July 2022, https://www.papowerswitch.com/media/3k4e4lyo/paps_numbers073122.pdf.

42. CHRISTINA SIMEONE, JOHN HANGER, :A Case Study of Electricity Competition Results in Pennsylvania," Kleinman Center for Energy Policy, October 28, 2016, https://kleinmanenergy.upenn.edu/research/publications/a-case-study-of-electricity-competition-results-in-pennsylvania-real-benefits-and-important-choices-ahead/;The 21st Century Power Partnership "AN INTRODUCTION TO RETAIL ELECTRICITY CHOICE IN THE UNITED STATE," NREL, 2017, https://www.nrel.gov/docs/fy18osti/68993.pdf.

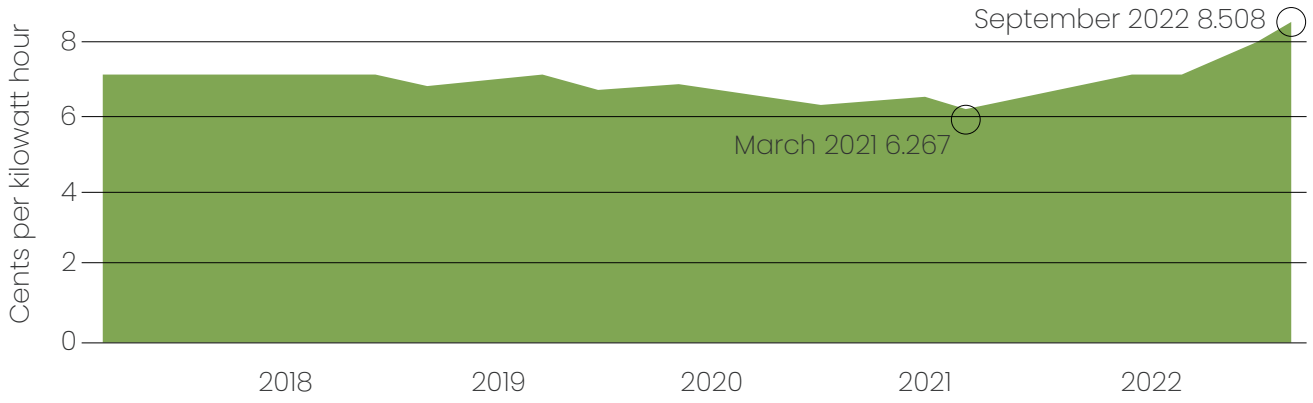

Figure 3. The Rising Cost of Power.[43]

customers, a much more influential driver was the boom in unconventional natural gas extraction in and beyond Pennsylvania, which provided cheap locally sourced energy and power for a decade.[44] At the same time, this widespread turn to domestic natural gas made retail power prices more volatile, closely tied to the fluctuating natural gas markets.[45]

The ongoing energy crisis is driving high natural gas prices globally, and lock-in to this fossil power source is imposing rising costs on Pennsylvania households—doubly so for those who also fuel their homes with it. PA's PUC has been a mixed actor here and in recent history has been split along party lines. After the PUC allowed its Covid moratorium on utility shut-offs for nonpayment of heating and electric bills to expire on April 1 2021, 116,000 customers were disconnected. Pennsylvanians' utility power bills then rose by as much as 50% in winter 2021, with the worst effects for households locked into bad retail deals- like renters whose landlords control their utility choices.[46] The state disbursed nearly 400,000 grants to Pennsylvanians over the winter of 2021-2022 to help households meet soaring energy costs.[47] However, these funds still left thousands of residents at risk of shut-offs, or forced to make impossible choices about whether to pay electric and heating bills or buy other necessities.

The state now faces another winter of climbing prices and household energy burdens. Most of Pennsylvania's IOUs significantly increased power prices in June 2022, with costs to households climbing by as much as 45%;[48] September 1st saw a fresh round of double-digit power price increases.[49] While the PUC does not allow power sector IOUs to turn a profit on rising supply prices, neither are private utilities protecting households from climbing prices in a fossil energy-dominated market. Third-party competitors are generally not offering households more affordable supply deals amidst these climbing prices, while market energy-saving options like efficiency innovations expected from deregulation

43. Andrew Maykuth, "Gasoline Prices are Down. Buy Peco's electricity prices are going up 1%," *The Philadelphia Inquirer*, August 11, 2022, https://www.inquirer.com/business/peco-pennsylvania-electricity-prices-increase-natural-gas-20220811.html.

44. Severin Borenstein and James Bushnell, "The U.S. Electricity Industry after 20 Years of Restructuring," Energy Institute at Haas, September 2014, https://haas.berkeley.edu/wp-content/uploads/WP252.pdf.

45. Severin Borenstein and James Bushnell, "The U.S. Electricity Industry after 20 Years of Restructuring," Energy Institute at Haas, September 2014, https://haas.berkeley.edu/wp-content/uploads/WP252.pdf.

46. Andrew Maykuth, "Pa. electricity prices will be rising by as much as 50% this week. Here's how you can save.," *The Philadelphia Inquirer*, November 28, 2021, https://www.inquirer.com/business/peco-ppl-electricity-prices-rates-increase-pennsylvania-20211126.html.

47. "CONSUMER ALERT: AS UTILITY COSTS GO UP, THOUSANDS OF PENNSYLVANIANS CAN CUT THEIR BILL," Pennsylvania Attorney General, MArch 9, 2022, https://www.attorneygeneral.gov/taking-action/consumer-alert-as-utility-costs-go-up-thousands-of-pennsylvanians-can-cut-their-bill/.

48. Brian C. Rittmeyer, "Pennsylvania electric generation costs increasing up to 45% on June 1," TribLive, March 9, 2022, https://triblive.com/local/regional/pennsylvania-electric-generation-costs-increasing-up-to-45-on-june-1/.

49. Gerardo Pons, "Pa. Electricity Rates Set to Rise Again: Here's How It Could Affect You," *NBC10 Philadelphia*, August 13, 2022, https://www.nbcphiladelphia.com/news/local/pa-electricity-rates-set-to-rise-again-heres-how-it-could-affect-you/3334704/.

have also failed to materialize.[50] Meanwhile, utility natural gas prices for Pennsylvania households went up 30% between Feb 2021 and 2022 and have been consistently up 13-28% in 2022 over 2021 levels.[51]

Significantly too, rising energy costs do not burden all Pennsylvania households in the same way. Community Legal Services (CLS) and the Pennsylvania Utility Law Project (PULP) have tracked how utility terminations and unaffordability issues have disproportionately affected Black and Latinx households, including due to excessive rent burdens and disproportionate exposure to protracted economic impacts from COVID.[52] Black households across the Commonwealth are three times more likely than White-headed households to require utility assistance.[53] And this assistance can be extremely challenging to access even when households qualify; currently, there is no centralized application for utility bill assistance, and requests are processed differently by each utility. In Western Pennsylvania, this may be one of nine different utilities, which can make it challenging for community advocates to help residents access assistance- or for residents to even figure out where they must apply, and what kinds of documentation they need to submit to access assistance to which they are entitled. Groups like Pittsburgh United have been working to harmonize applications for assistance in Western Pennsylvania, but this effort should be scaled up state-wide to make it easier to access help.

At the same time, overall energy bills are significantly higher in Pennsylvania's rural areas than its cities, often owing to archaic home heating systems which rely on fuel oil, propane (13% and 5% of Commonwealth homes respectively in 2020, 90,000 overall),[54] or even coal.[55] Rural households have historically had few other options than to go 'off the grid' for home heating—as the figure below shows, large parts of the state are not served by gas utilities at all. However, these fuels have a higher global and local environmental impact than even natural gas, and fuel oil and propane—and households dependent upon them—have been even more vulnerable to extreme price swings and rising costs.[56] This has been a major problem in recent years—for example, the prices of propane and fuel oil skyrocketed 28% and 86% between March 2021 and 2022.[57]

As we will discuss below, full home electrification provides an important pathway to switching Pennsylvania households off of technologically locked-in dependence on fossil heating fuels, whether those are provided by gas utilities or off-the-grid private suppliers, and moving them toward renewable power sources that are simultaneously cleaner, cheaper, and more stable over the long term. However, like other energy and climate retrofits, many households will not be able to afford these low-carbon technological upgrades and energy switches without assistance—which has not materialized under the state's decades of market-led energy policies.[58]

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50. CHRISTINA SIMEONE, JOHN HANGER, "A Case Study of Electricity Competition Results in Pennsylvania," Kleinman Center for Energy Policy, October 28, 2016, https://kleinmanenergy.upenn.edu/research/publications/a-case-study-of-electricity-competition-results-in-pennsylvania-real-benefits-and-important-choices-ahead/.

51. "Natural Gas," US Energy Information Adminstration, accessed April 24th, 2023, https://www.eia.gov/dnav/ng/hist/n3010pa3m.htm.

52. "REPORT FROM CLS AND PULP REVEALS ENERGY INSECURITY AMONG BLACK AND LATINX HOUSEHOLDS IN PENNSYLVANIA," Community Legal Services of Philadelphia, March 25, 2021, https://clsphila.org/utilities/report-energy-insecurity/.

53. Dan Treglia, Mina Addo, Meagan Cusack, and Dennis Culhane, "UNDERSTANDING RACIAL AND ETHNIC DISPARITIES IN HEALTH OUTCOMES AND UTILITY INSECURITY RESULTING FROM COVID-19," https://clsphila.org/wp-content/uploads/2021/03/CLS_UtilityReport_20200324.pdf.

54. "Highlights for space heating fuel in U.S. homes by state, 2020," Energy Information Administration, updated March 2023, https://www.eia.gov/consumption/residential/data/2020/state/pdf/State%20Space%20Heating%20Fuels.pdf.

55. "For Pennsylvanians Who Heat Homes With Coal, It's Still King," *NPR News*, March 2, 2019, https://wskg.org/for-pennsylvanians-who-heat-homes-with-coal-its-still-king/.

56. Scott Disavino, "U.S. home heating bills expected to surge this winter, EIA says," Reuters, October 13, 2021, https://www.reuters.com/world/us/us-home-heating-bills-seen-higher-this-winter-eia-says-2021-10-13/.

57. Michael Jeffers, "Warding Off Winter Cold in U.S. Will Be Pricey as Propane Soars," Bloomberg, Sepemtebr 15, 2021, https://www.bloomberg.com/news/articles/2021-09-15/warding-off-winter-cold-will-be-pricey-as-key-heating-fuel-soars#xj4y7vzkg; "Petroleum and Other Liquids," US Energy Information Adminstration, accessed April 24th, 2023, https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=W_EPLLPA_PRS_SPA_DPG&f=W.

58. Rebecca Foster, "Home heating prices are soaring. There's not much we can do about it for now.," *The Washington Post,* November 23, 2021, https://www.washingtonpost.com/outlook/2021/11/23/home-heating-prices-energy/.

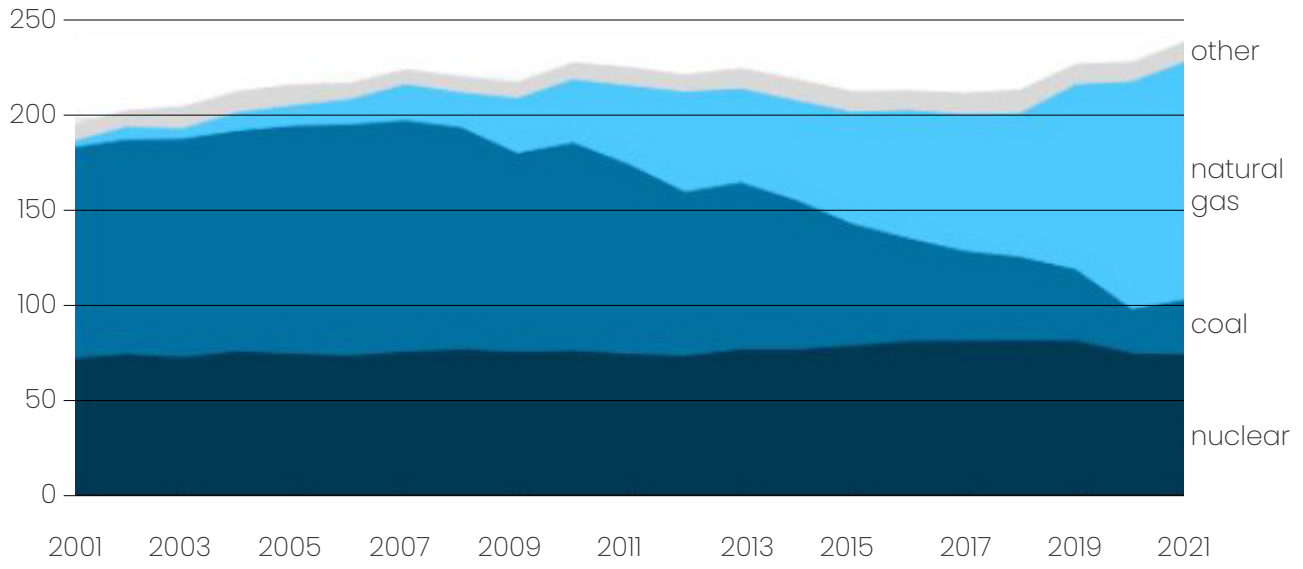

Figure 4. Annual utitliy-scale electricty generation by source in Pennsylvania (2001-2021).[59]

FOSSIL POWER

Electrification and other interventions to switch energy sources at the household level are not enough alone to decarbonize Pennsylvania's energy system, or to address the health and environmental impacts of burning fossil fuels on households living near power plants—who are disproportionately working class and BIPOC communities. To become an effective climate and energy justice strategy, electrification requires a transformative change to Pennsylvania's power mix, and likely that of the broader PJM power pool that extends across 13 states. Another central promise of Pennsylvania's power sector deregulation in the 1990s was that introducing market competition would open up new opportunities for renewable power and other low-carbon innovations. However, while Pennsylvanians have the option to switch from their default distribution utility to an all-renewable electricity supplier, this consumer choice has failed to spur a large-scale transition to renewables.[60]

Pennsylvania-based power supply has significantly transformed in the last 20 years. However, the big story here is the collapse of coal generation and its replacement by a glut of cheap natural gas (see figure below), much of it produced by fracking in-state.[61] Coal dominated Pennsylvania-based electricity generation in 2001, producing 57% of power generated in the state; after a wave of power plant closures, by 2019 it produced just 17%. Conversely, repurposed or newly built natural gas power plants skyrocketed from a tiny share to become the state's dominant source of power generation in 2019, at 42%. A decade of cheap gas prices even began to put price pressure on Pennsylvania's nuclear power plants, historically the state's other major power source.

Natural gas power generated in Pennsylvania plants supplies many utilities in the state but also the broader Mid-Atlantic region, as much electricity produced is fed into the PJM Interconnection's wholesale electricity market (some of which is then bought by in-state

59. "Today in Energy," US Energy Information Admistration, January 26, 2023, https://www.eia.gov/todayinenergy/detail.php?id=55319.

60. "Pennsylvania Clean Energy Suppliers," PAPowerSwitch, accessed April 24th, 2023, https://www.papowerswitch.com/shop-for-electricity/clean-energy-suppliers/; CHRISTINA SIMEONE, JOHN HANGER, :A Case Study of Electricity Competition Results in Pennsylvania," Kleinman Center for Energy Policy, October 28, 2016, https://kleinmanenergy.upenn.edu/research/publications/a-case-study-of-electricity-competition-results-in-pennsylvania-real-benefits-and-important-choices-ahead/.

61. Nadja Popvich and Brad Plumer, "How Does Your State Make Electricity?," *The New York Times*, October 28, 2020, https://www.nytimes.com/interactive/2020/10/28/climate/how-electricity-generation-changed-in-your-state-election.html.

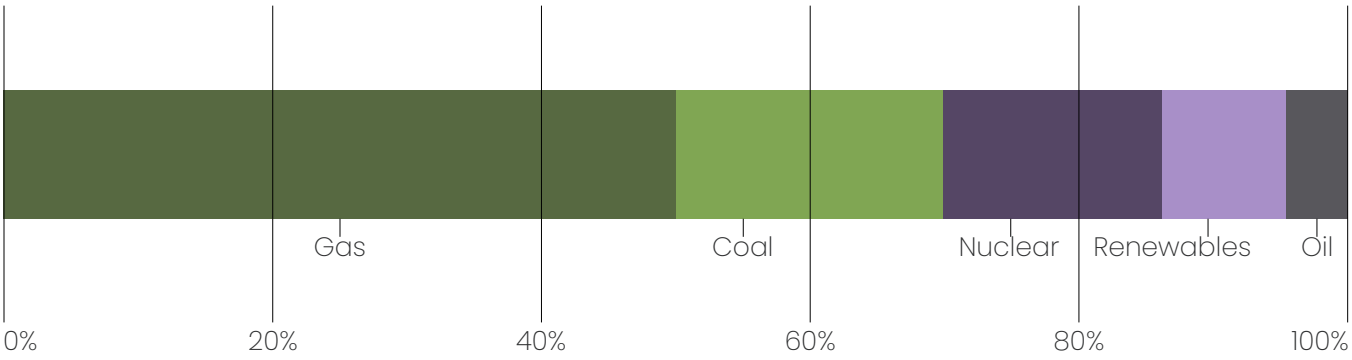

Figure 5. Without strong policies, Pennsylvania will not substantially alter its power mix in the near future[62]

distribution utilities). As the US's third largest power generator, Pennsylvania exports significant amounts of power to other states in PJM's power pool. PJM typically procures its power supply in annual auctions, which usually secure its capacity and set wholesale prices several years in advance. For example, in PJM's June 2022 capacity auction, the grid operator spent $2.2 billion to buy power market supply for 2023-4 (144,871 MW, out of about 160,874 MW offered by suppliers).[63] In the 2010s, cheap natural gas sourced from Pennsylvania and neighboring states in the fracking boom came to dominate PJM's wholesale market.[64]

In all this, renewable power and other low-carbon options like energy efficiency have been marginalized. While replacing coal with natural gas lowered the state's greenhouse gas emissions in the 2010s, new investments in natural gas doubled down on Pennsylvania's fossil fuel dependence even as more ambitious states turned toward true decarbonization. Renewables account for only about 5% of Pennsylvania's in-state power generation;[65] as PJM's recent auction demonstrates, they are similarly badly under-represented across the regional power pool. Renewables generation must grow quickly both to address the climate crisis and to reduce environmental harms in the Pennsylvania communities where fossil energy is burned and extracted.

EXISTING RENEWABLE ENERGY POLICIES

Renewable policy in Pennsylvania consists of a number of different policy mechanisms—all of which are limited in significant ways. First, like 31 other US states, Pennsylvania has a mandatory renewable portfolio standard (RPS). In the absence of a unified federal mandate, for the last twenty years these state-level policies have been the US's central regulatory mechanism for procuring renewable power.[66] The general idea of RPSs is that states require electricity utilities to include a certain percentage of electricity from renewable sources in the supply that they sell to customers, and by a certain target date. States vary widely in the energy sources they count as renewable for these standards—utilities can usually choose any from a pre-selected list—and in how ambitious their renewable targets are.

Pennsylvania is well-known for having a particularly weak and problematic RPS—Food and Water Watch gives it a grade of F.[67] Established amidst the state's power sector deregulation in 2004, Pennsylvania's

62. "REPORT CARD ON PENNSYLVANIA'S ELECTRICITY GENERATION INFRASTRUCTURE," alpha three, June 22, 2019, https://www.alphathree.com/news/report-card-pennsylvanias-electricity-generation-infrastructure.

63. "PJM Capacity Auction Secures Electricity Supplies at Competitive Prices," PJM Inside Lines, June 21, 2022, https://insidelines.pjm.com/pjm-capacity-auction-secures-electricity-supplies-at-competitive-prices/.

64. Jeremiah Shelor, "PJM Capacity Auction Shining Impact on Cheap Marcellus/Utica Natural Gas," Natural Gas Intelligence, May 24, 2017, https://www.naturalgasintel.com/pjm-capacity-auction-shining-impact-on-cheap-marcellus-utica-natural-gas/.

65. "REPORT CARD ON PENNSYLVANIA'S ELECTRICITY GENERATION INFRASTRUCTURE," alpha three, June 22, 2019, https://www.alphathree.com/news/report-card-pennsylvanias-electricity-generation-infrastructure.

66. Ingrid Behrsin, Sarah Knuth, and Anthony Levenda, "Thirty states of renewability: Controversial energies and the politics of incumbent industry," *Environment and Planning E: Nature and Space* 5, no. 2 (2021), https://doi.org/10.1177/25148486211006340.

67. "Pennsylvania Renewable Portfolio Standard Report Card," Food and Water Watch, July 2018, https://foodandwaterwatch.org/wp-content/uploads/2021/03/fs_pa-rps_statescore-web.pdf.

Alternative Energy Portfolio Standard (AEPS) required Pennsylvania distribution utilities (IOUs) and competing retail suppliers to procure 18% of their power from renewable or 'alternative' sources by 2021, as well as a minor additional requirement that at least 0.5% of this power comes from solar. Some of the problem is the weakness of this target. It does put Pennsylvania ahead of other fossil fuel-producing states in the region—Ohio and West Virginia have, respectively, an even less ambitious standard and now none at all, after concerted fossil industry-backed campaigns for target freezes and repeals.[68] However, Pennsylvania is badly out of touch with the United States as a whole: 21 states now have RPSs or similar policies mandating a transition to 100% renewable/carbon-free electricity over the next 10-30 years.[69] These states include Pennsylvania's other neighbors: New York, New Jersey, and Maryland.

The AEPS has also been widely criticized for supporting a range of dirty energy sources and problematic practices.[70] 8% of its target mandates "Tier 1" renewable energy sources like wind and solar, but a full 10% can be met with "Tier 2" sources like trash incineration, coal mine methane, and, most infamously, so-called "clean coal". Besides failing to meet climate goals, many of these dirty power sources cause additional environmental harms around generation sites, burdens which disproportionately fall on Pennsylvania's BIPOC communities. For example, the AEPS is responsible for Pennsylvania ratepayers paying 60% of energy costs of a bitcoin mining operation that is sourcing energy from waste coal.[71]

In addition, because the AEPS allows power generators to purchase Renewable Energy Credits (RECs) instead of generating this energy themselves, many choose to buy it from distant suppliers instead of growing clean energy in Pennsylvania—in 2016-2017, Pennsylvania utilities bought 20 million MWh of RECs, over half from out of state. Though RECs are a controversial feature of many state RPSs, they are a particular problem in a state that needs to grow its renewables production fast. It should be noted that alongside AEPS' solar mandate, RECs do provide some support to Pennsylvania solar producers and households seeking to install rooftop solar—both can sell Solar Alternative Energy Credits to utilities.[72] Though Pennsylvania was historically oversupplied with solar from other states in the PJM Interconnection and credits weren't worth much, the state closed this loophole in 2017 to better support its solar industry.[73]

Action is badly needed to address these numerous problems with Pennsylvania's RPS. However, proposals to re-up the RPS as it sunsets, reform, and expand it are currently stalled in Pennsylvania's Republican-controlled legislature.[74] Facing this political gridlock,

68. "Ohio's renewable energy portfolio standard," Ohio Public Utilities Commission, access April 24th, 2023, https://puco.ohio.gov/utilities/electricity/resources/ohio-renewable-energy-portfolio-standard#:~:text=Ohio%20law%20contains%20a%20renewable,renewable%20energy%20sources%20by%202026; John Light, "Score one for ALEC: West Virginia is first state to repeal a renewable energy standard," Grist, February 5, 2015, https://grist.org/climate-energy/score-one-for-alec-west-virginia-is-first-state-to-repeal-a-renewable-energy-standard/.

69. "Table of 100% Clean Energy States," Clean Energy States Alliance, accessed April 24th, 2023, https://www.cesa.org/projects/100-clean-energy-collaborative/guide/table-of-100-clean-energy-states/.

70. Ingrid Behrsin, Sarah Knuth, and Anthony Levenda, "Thirty states of renewability: Controversial energies and the politics of incumbent industry," *Environment and Planning E: Nature and Space* 5, no. 2 (2021), https://doi.org/10.1177/25148486211006340; "Pennsylvania Renewable Portfolio Standard Report Card," Food and Water Watch, July 2018, https://foodandwaterwatch.org/wp-content/uploads/2021/03/fs_pa-rps_statescore-web.pdf.

71. Kara Holsopple, "How waste coal is fueling Bitcoin in Pennsylvania," *90.5 WESA*, January 31, 2022, https://www.wesa.fm/environment-energy/2022-01-31/how-waste-coal-is-fueling-bitcoin-in-pennsylvania.

72. "Solar Incentives & Financing in Pennsylvania," Solar United Neighbors, accessed April 24th, 2023, https://www.solarunitedneighbors.org/pennsylvania/learn-the-issues-in-pennsylvania/solar-incentives-in-pennsylvania/.

73. "Q&A: Law change expected to boost Pennsylvania's solar industry," StateImpact Pennsylvania, November 28, 2017,https://stateimpact.npr.org/pennsylvania/2017/11/28/qa-law-change-expected-to-boost-pennsylvanias-solar-industry/.

74. Quinn Galbicki, "To turn up the solar power, PA needs new laws. One bill is poised to move, but here's why others seem stalled.," PublicSource, September 20, 2022, https://www.publicsource.org/solar-power-pennsylvania-general-assembly-community-portfolio-renewable-legislation/; Anne Danahy, "Legislative action on increasing Pennsylvania's alternative energy goals appears unlikely," StateImpact Pennsylvania, March 15, 2021, https://stateimpact.npr.org/pennsylvania/2021/03/15/legislative-action-on-increasing-pennsylvanias-alternative-energy-goals-appears-unlikely/.

many of Pennsylvania's most important renewable energy policies in recent years have come from the executive branch. In 2019, Governor Wolf announced a goal of reducing Pennsylvania's overall greenhouse gas emissions 80% by 2050 (consistent with the state's new Climate Action Plan).[75] In an Executive Order that year, the governor committed Pennsylvania to join the Regional Greenhouse Gas Initiative (RGGI). This move has been significant within Pennsylvania's shifting renewable energy politics, but highly controversial. RGGI is a regional carbon cap-and-trading initiative by New England and Mid-Atlantic states, focused on cutting emissions from the power sector. Pennsylvania was originally due to participate in RGGI's September 2022 auction alongside 10 other states. However, the state's RGGI entry is currently stalled in courts by cases filed separately by the Legislative Reference Bureau and by special interest groups.[76] If the policy does go through, Pennsylvania will be the first "fossil fuel" state to participate in RGGI, which will require the power sector in the Commonwealth to make annual emissions reductions of 3% through caps on its greenhouse gas emissions.[77] Pennsylvania's Department of Environmental Protection (DEP) also projected that the Commonwealth's participation in RGGI would generate $200 million in its initial year for a Clean Air Fund (CAF), which is roughly the same amount of investment that the regional participation (without Pennsylvania) generated in 2020. However, Pennsylvania's participation might also drive down prices of carbon emissions, which could reduce proceeds to the other states.[78]

In another 2019 Executive Order significant to Pennsylvania renewables, Governor Wolf created the Pennsylvania GreenGov Council. This council coordinates decarbonization activities by Pennsylvania's state agencies—for example, reducing their own energy consumption, electrifying the state fleet, and pursuing energy efficiency and decarbonization in building and procurement.[79] This commitment has also meant buying renewable energy to support state government needs. In the last few years, state agencies have met these clean power goals by purchasing RECs—in 2021, making up 40% of their power usage.[80] In 2021, the state announced a more ambitious policy to directly procure solar energy produced in Pennsylvania—enough to supply 50% of the state government's power, making it currently the US's largest government commitment to solar energy.[81] This initiative, called the Pennsylvania Project to Utilize Light and Solar Energy (PULSE), is expected to create 191 MW of new solar energy sited across six rural Pennsylvania counties (361,000 MWh of expected generation per year) when it begins operating in January 2023. The state is running this initiative with private partners. Lightsource BP, a major transnational solar developer, will construct, own, and operate the solar generation facilities. The Commonwealth has contracted to buy power produced via a 15-year fixed contract, or power purchase agreement (PPA), arranged via Constellation, another big private energy company.

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75. Amy Sisk, "Wolf sets goal for Pa. to cut greenhouse gas emissions," StateImpact Pennsylvania, January 8, 2019, https://stateimpact.npr.org/pennsylvania/2019/01/08/wolf-sets-greenhouse-gas-emission-reduction-target/.

76. Rachel McDevitt, "Pennsylvania will miss September RGGI auction as court battle continues," StateImpact Pennsylvania, September 2, 2022, https://stateimpact.npr.org/pennsylvania/2022/09/02/pennsylvania-will-miss-september-rggi-auction-as-court-battle-continues/.

77. Marc Levy, "Big greenhouse gas state taking biggest climate step yet," *AP News*, April 22, 2022, https://apnews.com/article/climate-business-environment-pennsylvania-lawsuits-ca1da47e732e3fb318fd9d7047978172.

78. Elizabeth McCarthy, "Pennsylvania reaches the Regional Greenhouse Gas Initiative starting line," Utility Dive, April 26, 2022, https://www.utilitydive.com/news/pennsylvania-reaches-the-regional-greenhouse-gas-initiative-starting-line/622610/#:~:text=As%20part%20of%20the%20Regional,allowances%20RGGI%20auctioned%20in%202021.

79. Sophia Schmidt, "Pennsylvania state agencies used less energy in 2021, but lagged on electric vehicle goals," StateImpact Pennsylvania, April 18, 2022, https://stateimpact.npr.org/pennsylvania/2022/04/18/pennsylvania-state-agencies-used-less-energy-in-2021-but-lagged-on-electric-vehicle-goals/.

80. Sophia Schmidt, "Pennsylvania state agencies used less energy in 2021, but lagged on electric vehicle goals," StateImpact Pennsylvania, April 18, 2022, https://stateimpact.npr.org/pennsylvania/2022/04/18/pennsylvania-state-agencies-used-less-energy-in-2021-but-lagged-on-electric-vehicle-goals/.

81. Jon C. Beckman and Brian J. Pulito, "Pennsylvania Governor Seeks Nation's Largest Government Commitment to Solar Energy," The National Law Review, April 1 2021, https://www.natlawreview.com/article/pennsylvania-governor-seeks-nation-s-largest-government-commitment-to-solar-energy.

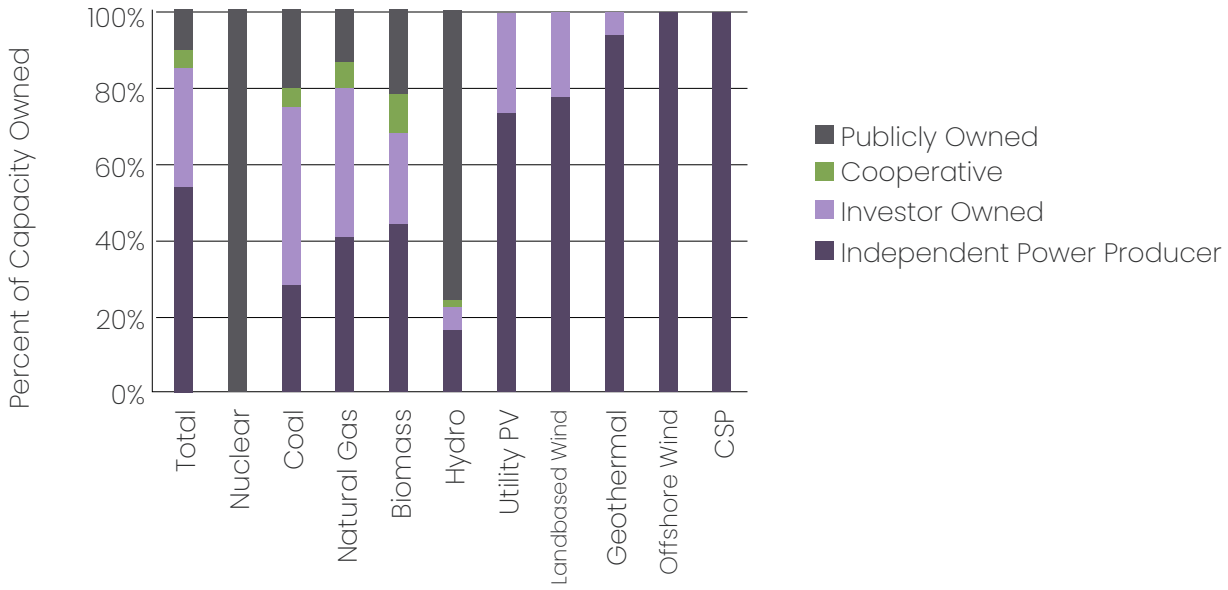

Figure 6. Ownership of new US electric generation capacity added 2010-2018.[82]

This move toward public procurement, and use of public-private PPAs as a mechanism for doing so, has been a broader growing trend across Pennsylvania's governments,[83] universities, and agencies.[84] These PPAs provide renewable project developers more routes to sell power directly, bypassing problems with Pennsylvania and PJM's power markets (see below). PPAs have historically been particularly important in helping renewable projects secure upfront financing, since they provide a guaranteed off-taker for power produced. However, they may take various forms. For example, PPAs have also long been used by US utilities seeking to meet state RPS mandates, in their own contracts with IPPs like Lightsource. Various features of the US power system (e.g., historically the nature of federal subsidies for new project development)[85] have meant that most new renewables generation in the United States is developed and owned privately,[86] but by IPPs rather than established IOUs (see figure below). Like Lightsource, leading US IPPs are very large companies, owning increasing numbers of facilities across the United States and internationally.[87]

Beyond these mandates, pricing, and procurement policies, Pennsylvania operates numerous public financing mechanisms for renewable energy and/or building energy efficiency retrofits. These initiatives provide both loans and grants, mostly to commercial users but also to public projects.[88] For example, Pennsylvania's Commercial Property Assessed Clean Energy (C-PACE) loan program has facilitated $72 million of private capital since its adoption in

82. David Feldman, Mark Bolinger, and Paul Schwabe, "Current and Future Costs of Renewable Energy Project Finance Across Technologies," NREL, July 2020, https://www.nrel.gov/docs/fy20osti/76881.pdf.

83. Michael Machosky, "Allegheny County signing major hydropower deal," Next Pittsburgh, February 2, 2021, https://nextpittsburgh.com/city-design/allegheny-county-signs-major-hydropower-deal/.

84. William Driscoll, "Philadelphia-area transit agency expects six-figure annual savings from 44 MW solar project," *pv magazine*, April 30, 2020, https://pv-magazine-usa.com/2020/04/30/philadelphia-area-transit-agency-expects-six-figure-annual-savings-from-44-mw-solar-project/.

85. Sarah Knuth, "Rentiers of the low-carbon economy? Renewable energy's extractive fiscal geographies," *Environment and Planning A: Economy and Space* (2021), https://doi.org/10.1177/0308518X211062601.

86. David Feldman, Mark Bolinger, and Paul Schwabe, "Current and Future Costs of Renewable Energy Project Finance Across Technologies," NREL, July 2020, https://www.nrel.gov/docs/fy20osti/76881.pdf.

87. Lucy Baker, "Procurement, finance and the energy transition: Between global processes and territorial realities," *Environment and Planning E: Nature and Space* (2021), https://doi.org/10.1177/2514848621991121.

88. Chelsea Swift, "Erie Central Fire Station to operate on 100% solar power," YourErie.com, July 13, 2022, https://www.yourerie.com/news/pennsylvania-news/erie-county/erie-central-fire-station-to-operate-on-100-solar-power/.

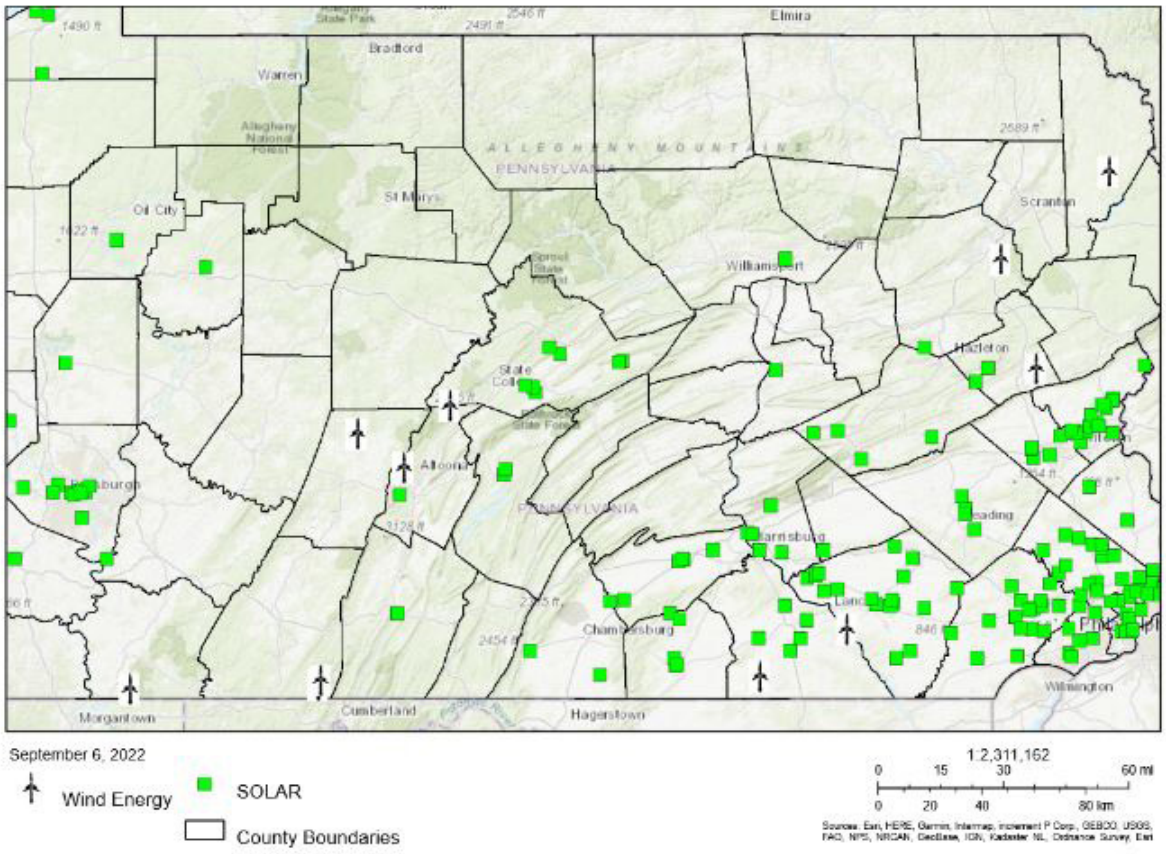

Figure 7. Pennsylvania Wind and Solar generation projects publicly funded by PA DEP or the Commonwealth Finance Authority, 2006-2017.[89]

2018, which commonly funds roof-top solar panel installations.[90] The Pennsylvania Energy Development Authority (PEDA) was revitalized in 2004 to advance clean energy projects and has provided $10 million dollars in grants to 21 projects. There are also four funds that were set up alongside power sector deregulation that promote the development of renewable energy programs and related technologies, which have distributed over $20 million in loans and $1.8 million in grants to more than 100 projects. One of these funds, the Sustainable Energy Fund, also manages the ACP Renewable Energy Revolving Loan Fund, which is funded by the AEPS and provides low-interest loans of up to $100,000 to projects that generate renewable energy. Another financing option includes Commonwealth Financing Authority's (CFA) grants (of up to $1 or 2 million) and loans (of up to $5 million). There are numerous other financing options that have been proposed or partially implemented (i.e. a green bank proposed in 2020, see the following section in this report for more detail) which are more focused on energy efficiency, municipally or county-based.[91]

Finally, there are numerous legislative bills that have been proposed that would allow for more flexible metering, which would open the door to more novel renewable energy practices like "virtual net metering" and community solar projects. In addition, there have been bills that have been proposed to require certain levels of bonding for solar projects, as well as legislation to promote electric vehicle infrastructure in the Commonwealth.

89. "OPPEA Viewer," PA Department of Environmental Protection, accessed April 24th, 2023, https://www.depgis.state.pa.us/EPOAlternativeEnergyViewer/.

90. Billy Ludt, "Solar States constructs 740-kW rooftop solar array in Philadelphia," Solar Power World, August 21, 2020, https://www.solarpowerworldonline.com/2020/08/solar-states-constructs-rooftop-solar-array-in-philadelphia/.

91. "Pennsylvania announces the establishment of a state green bank," United States Climate Alliance, October 12, 2020, http://www.usclimatealliance.org/recent-leadership/2020/10/12/pennsylvania-announces-the-establishment-of-a-state-green-bank.

GETTING RENEWABLES ONTO THE GRID

Beyond highly mixed policy supports at the state level, a major obstacle to growing renewable power in Pennsylvania and the PJM Interconnection has been serious problems and delays in getting new renewable power projects onto power transmission grids. One major recent controversy was Trump-era lobbying from fossil generators to economically penalize and restrict renewable sources in PJM's power-buying—their argument being that state support otherwise gave renewables an unfair competitive advantage at auction.[92] Advocates like Earthjustice fought resulting PJM proposals, which initially caved to this pressure to protect fossil producers against cheaper power from rising renewable competitors.[93] These fights chilled new renewables entry to PJM for years, before the Federal Energy Regulatory Commission (FERC) recently resolved them in favor of renewable producers. In discussing this controversy, one FERC commissioner put it bluntly: for the many states like Pennsylvania that operate in a deregulated context, regional grid-scale decisions like this directly affect their control over their own energy transition, especially their ability to set meaningful renewable energy targets and policies like RPSs—signaling that grid governance, especially at PJM, is a critical issue going forward.[94]

However, many large-scale obstacles remain, which ultimately hit the ground in Pennsylvania households' ability to access cheap, clean energy at scale—or inability to do so. Nationally, FERC rules currently allow grid operators to pass on the costs of grid upgrades needed to accommodate new renewables at scale to individual new projects seeking access—even though other transmission customers and the grid in general also benefit from these upgrades. As more renewable projects try to connect (they make up 90% of new proposals to grid managers in the United States) these interconnection fees have ballooned—they have grown from approximately 10% of projects' total costs even a few years ago to 50-100% today, and can run into the hundreds of millions of dollars.[95] This problem has become an important target for proposed Biden Administration reforms.[96]

In addition, PJM and other US grid managers now have long queues of renewable projects waiting to be allowed to interconnect, with operators arguing that the need to rapidly accommodate large numbers of small renewable projects (i.e. instead of larger but fewer fossil energy facilities) strains their planning capacity.[97] The number of projects entering PJM's New Services Queue has nearly tripled over the past four years, and PJM now has 2,500 proposed generation projects under study (225,000 MW overall)—more than 95% of which are renewable power generation and/or energy storage.[98] PJM's wait time has become particularly infamous, as have numbers of renewables projects failing as a result. Analysis suggests that such projects are now typically stuck from one to three years in PJM's queue.[99] Over the past five years, developers have withdrawn at least 1,000 projects,

92. Rao Konidena, "Renewable energy cheers revised MOPR at PJM," Renewable Energy World, September 30, 2021, https://www.renewableenergyworld.com/solar/renewable-energy-cheers-revised-mopr-at-pjm/#gref.

93. Kim Schaczniak, "States Must Fight the Latest Fossil Fuel Bailout," EarthJustice, October 23, 2018, https://earthjustice.org/experts/kim-smaczniak/states-must-fight-fossil-fuel-bailout.

94. Richard Glick, "Commissioner Richard Glick Rehearing Dissent Regarding PJM MOPR," FERC, April 16, 2020,https://www.ferc.gov/news-events/news/commissioner-richard-glick-rehearing-dissent-regarding-pjm-mopr.

95. Julie Lieberman, "HOW TRANSMISSION PLANNING & COST ALLOCATION PROCESSES ARE INHIBITING WIND & SOLAR DEVELOPMENT IN SPP, MISO, & PJM," Concentric Energy Advisors, March 2021, https://acore.org/wp-content/uploads/2021/03/ACORE-Transmission-Planning-Flaws-in-SPP-MISO-and-PJM.pdf.

96. Rao Konidena, "Breaking down the FERC interconnection NOPR," Renewable Energy World, June 29, 2022, https://www.renewableenergyworld.com/solar/breaking-down-the-ferc-interconnection-nopr/#gref.

97. Catherine Morehouse, "FERC launches proceeding to reform transmission policy," Utility Dive, July 16, 2021, https://www.utilitydive.com/news/ferc-launches-proceeding-to-reform-transmission-policy/603416/.

98. "PJM Files Interconnection Process Reform With FERC," PJM Inside Lines, June 16, 2022, https://insidelines.pjm.com/pjm-files-interconnection-process-reform-with-ferc/.

99. Jeff Dennis and Kat Burnham, "In PJM, Renewable Energy Projects Are Getting Stuck," Advanced Energy United, February 10, 2022, https://blog.advancedenergyunited.org/in-pjm-renewable-energy-projects-are-getting-stuck; "PJM Interconnection Queue Summary Data Table by State for Clean Energy Projects (2016-2021)," Advanced Energy United, accessed April 24th, 2023, https://info.aee.net/hubfs/EWM%20Documents/Final%20PJM%20Queue%20analysis%20summary%20data%20chart%2012.8.21.pdf.

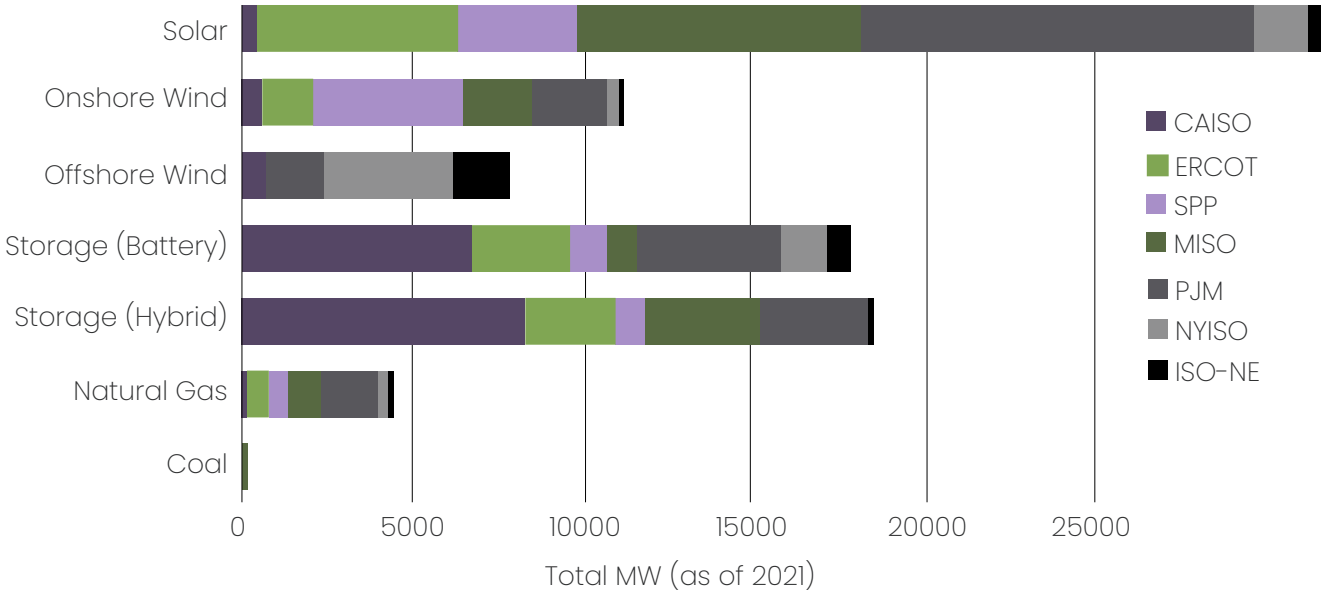

Figure 8. US power capacity waiting in regional grid operators' interconnection queues. Source: Hagan et al. (2022)[100]

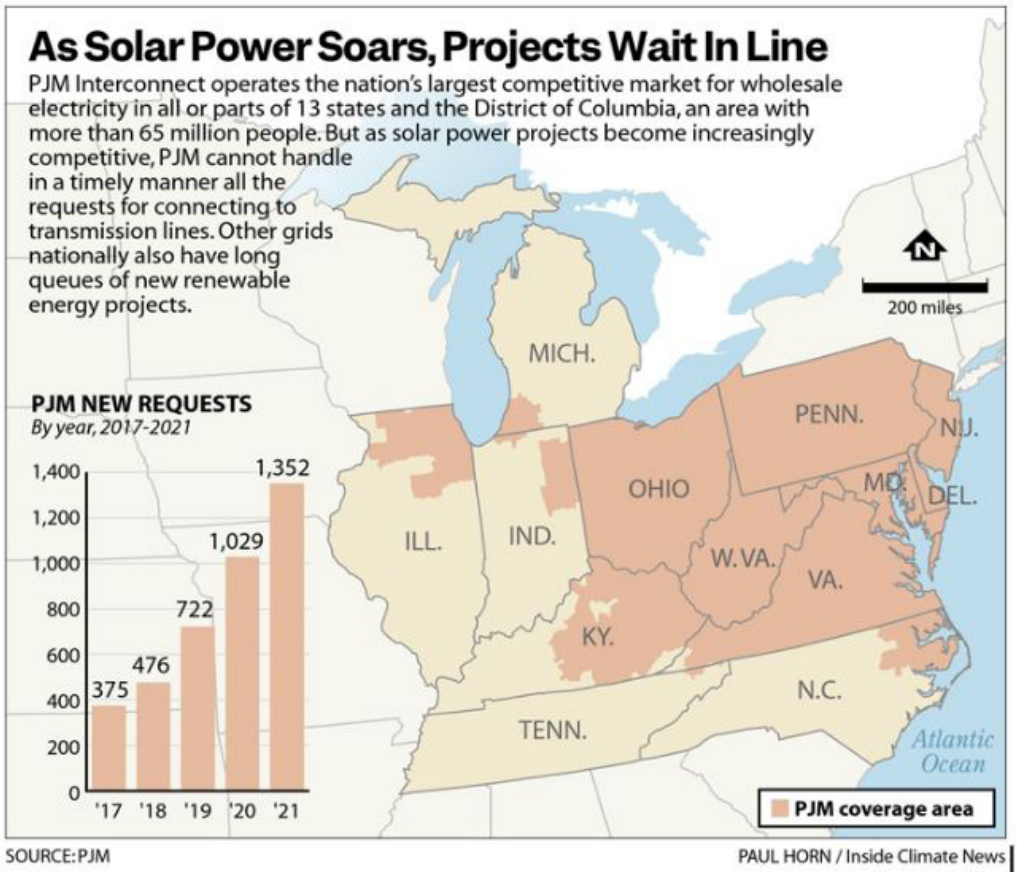

Figure 9. PJM New Solar Powr Projects Requests[101]

101. Daniel Hagan, Serena Rwejuna, John Forbush, Jacqueline Triggs, R.J. Colwell, Aaron Bryant, "Ready for Renewables: FERC Targets Interconnection Queue Reform," White & Case, July 5, 2022, https://www.whitecase.com/insight-alert/ready-renewables-ferc-targets-interconnection-queue-reform.

101. James Bruggers, "Overwhelmed by Solar Projects, the Nation's Largest Grid Operator Seeks a Two-Year Pause on Approvals," *Inside Climate News*, February 2, 2022, https://insideclimatenews.org/news/02022022/pjm-solar-backlog-eastern-power-grid/.

including over 77,000 MW of proposed renewable power or storage. One recent study suggests that in PJM only 15% of projects now successfully make it through the process.[102] PJM has proposed new planning procedures[103] to mitigate the problem—including a controversial recent decision to halt all new projects for two years.[104] PJM's experience is being closely watched nationally amidst proposed federal reforms.[105]

FOSSIL ENERGY EXTRACTION

A transition to renewables is needed not just to tackle Pennsylvania's greenhouse gas emissions, but also to drive down extraction that poisons nearby communities—and state politics. Pennsylvania's glut of natural gas in the last twenty years drove out much remaining Pennsylvania coal production, created few lasting jobs,[106] little local government tax revenues to replace those from coal,[107] and imposed a host of new environmental and community harms. Sweeping from the southwest corner all the way to the northeastern tip of the state, more than half of Pennsylvania is effectively an active drilling site. Fractracker tallies more than 100,000 conventional or unconventional (e.g., fracking, horizontal drilling) oil and gas extraction sites, and a shocking 78,000 code violations incurred by drillers since 2008.[108] In addition to myriad concerns this poses for the water supply, fracking in Western Pennsylvania has been linked to increased likelihood of death for people over the age of 65 living close to drilling sites, along with a litany of other health problems from complications with pregnancy to upper respiratory infections and asthma, to childhood cancer.[109] A 2020 grand jury report found that the Pennsylvania DEP "did not take sufficient action in response to the fracking boom."[110] Fracking has widespread impacts given the geographical scope of the practice in Pennsylvania, but, unsurprisingly, those impacts are not borne equally—wealthy communities see virtually zero fracking activity, while working class communities bear the brunt.[111]

However, the problem does not stop with extraction, and will require action beyond replacing natural gas with renewables. Pennsylvania has five times more orphaned or abandoned wells than any

102. Julie Lieberman, "HOW TRANSMISSION PLANNING & COST ALLOCATION PROCESSES ARE INHIBITING WIND & SOLAR DEVELOPMENT IN SPP, MISO, & PJM," Concentric Energy Advisors, March 2021, https://acore.org/wp-content/uploads/2021/03/ACORE-Transmission-Planning-Flaws-in-SPP-MISO-and-PJM.pdf.

103. "PJM Files Interconnection Process Reform With FERC," PJM Inside Lines, June 16, 2022, https://insidelines.pjm.com/pjm-files-interconnection-process-reform-with-ferc/.

104. Ethan Howland, "PJM proposes 'first-ready, first-served' interconnection review process, steps to clear backlog," Utility Dive, June 15, 2022, https://www.utilitydive.com/news/pjm-interconnection-request-FERC-proposal/625544/; Rao Konidena, "The wave of generator interconnection queue reforms hit PJM," Renewable Energy World, December 12, 2022, https://www.renewableenergyworld.com/solar/the-wave-of-generator-interconnection-queue-reforms-hit-pjm/#gref; James Bruggers, "Overwhelmed by Solar Projects, the Nation's Largest Grid Operator Seeks a Two-Year Pause on Approvals," Inside Climate News, February 2, 2022, https://insideclimatenews.org/news/02022022/pjm-solar-backlog-eastern-power-grid/.

105. Rao Konidena, "Breaking down the FERC interconnection NOPR," Renewable Energy News, June 29, 2022, https://www.renewableenergyworld.com/solar/breaking-down-the-ferc-interconnection-nopr/#gref.

106. Colin Jerolmack, "The fracking boom is over. Where did all the jobs go?," MIT Technology Review, July 1, 2021, https://www.technologyreview.com/2021/07/01/1027822/fracking-boom-jobs-industry/; James Bruggers, "A Decade Into the Fracking Boom, Pennsylvania, Ohio and West Virginia Haven't Gained Much, a Study Says," Inside Climate News, February 11, 2021, https://insideclimatenews.org/news/11022021/fracking-boom-natural-gas-report/.

107. Morgan Lee and Mead Gruver, "In US, Pennsylvania and other states struggle to replace fossil fuel tax revenue," StateImpact Pennsylvania, May 16, 2022, https://stateimpact.npr.org/pennsylvania/2022/05/16/in-us-pennsylvania-and-other-states-struggle-to-replace-fossil-fuel-tax-revenue/.

108. Matt Kelso, "INTRODUCING: FRACTRACKER'S COMPREHENSIVE NEW PENNSYLVANIA MAP!,"FracTracker Alliance, January 20, 2022, https://www.fractracker.org/2022/01/introducing-fractrackers-comprehensive-new-pennsylvania-map/.

109. James Bruggers, "For the First Time, a Harvard Study Links Air Pollution From Fracking to Early Deaths Among Nearby Residents," Inside Climate News, January 27, 2022, https://insideclimatenews.org/news/27012022/fracking-air-pollution-health-pennsylvania/.

110. Reid Fraser and Susan Phillips, "Pa. grand jury report on fracking: DEP failed to protect public health," StateImpact Pennsylvania, June 26, 2020, https://stateimpact.npr.org/pennsylvania/2020/06/25/pa-grand-jury-report-on-fracking-dep-failed-to-protect-peoples-health/.

111. Reid Frazier, "IS FRACKING AN ENVIRONMENTAL JUSTICE ISSUE?," *The Allegheny Front*, June 30, 2017, https://www.alleghenyfront.org/is-fracking-an-environmental-justice-issue/.

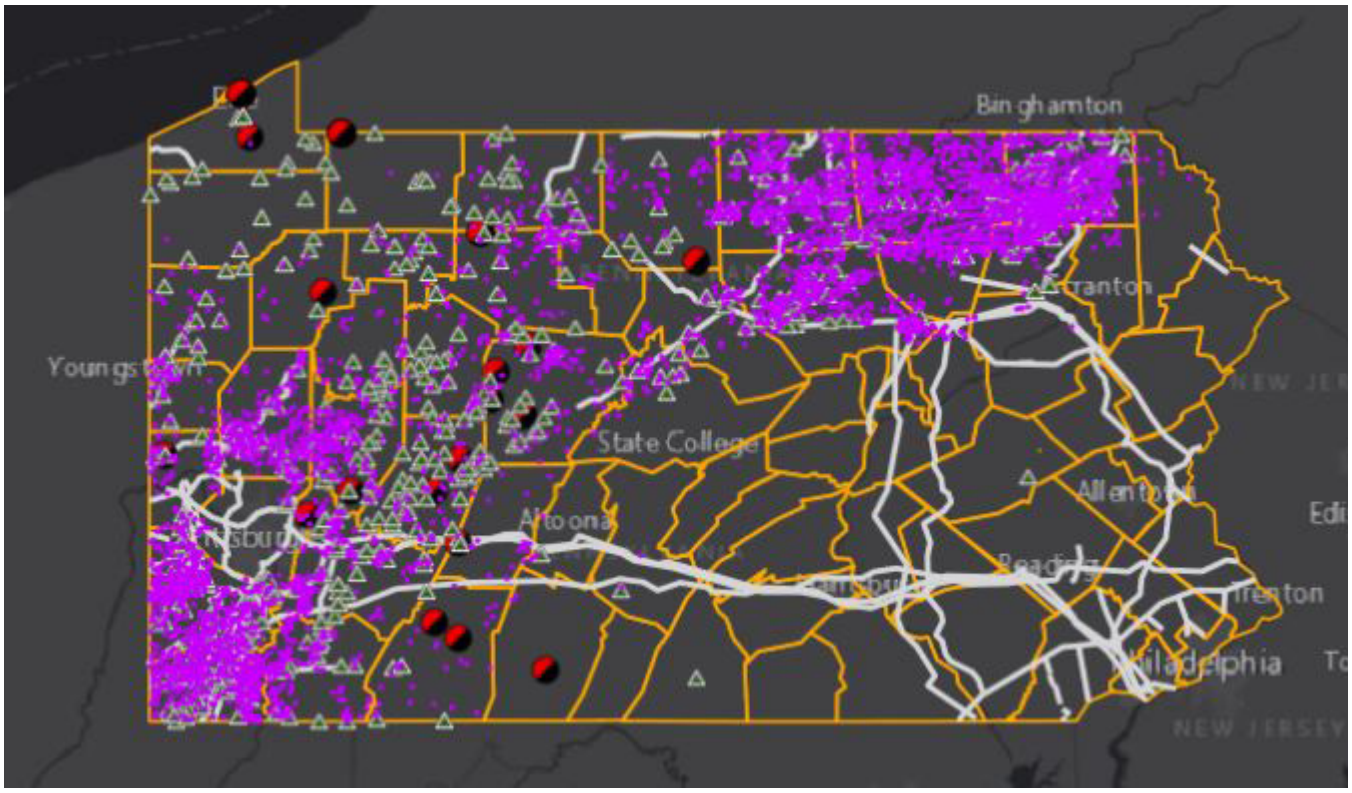

Figure 10. Pennsylvania's 'unconventional' drilling infrastructure, including extraction and disposal wells, gas compressors, and pipelines[112]

other state,[113] in part because of state insurance requirements for well cleanup are astonishingly low: the state only requires a fracking company put up a $25,000 bond for all of its fracking sites in the state, while it costs about $20,000 to plug a single well. This lax regulation means that there is every incentive for drillers to walk away from their spent wells to drill new ones, never cleaning up their messes. These abandoned wells can have all the health and environmental impacts of active wells, including groundwater pollution, leaching heavy metals into the soil, and belching further world-warming methane into the atmosphere—but will have even less monitoring than on active drilling sites. With more than 330,000 abandoned wells in Pennsylvania, clean up will take a tremendous effort, in terms of both money and labor. More broadly, this everything-is-disposable attitude is indicative of the way that the gas industry treats Pennsylvanians across the state as more and more drilling processes are automated and mechanized. The oil and gas industry likes to claim that increasing production or reducing regulation would create thousands of new jobs, but those claims have been recycled for decades with no evidence they are true.[114]

SOCIAL MOVEMENTS FOR HOUSING AND ENERGY JUSTICE

There will be substantial challenges to a just transition in Pennsylvania, one that enables everyone to be secure and comfortable in climate-safe homes powered by renewable and democratically controlled energy systems. Indeed, it is the fight of our lives. However, Pennsylvania already has a

112. "PENNSYLVANIA RESOURCES," Fractracker Alliance, accessed April 24th, 2023, https://www.fractracker.org/map/us/pennsylvania/.

113. Jessica Aizarani, "Number of abandoned oil and gas wells in the United States as of 2020, by state (in 1,000s)," statista, January 31, 2023, https://www.statista.com/statistics/1135734/us-abandoned-oil-gas-wells/.

114. Colin Jerolmack, "The fracking boom is over. Where did all the jobs go?," MIT Technology Review, July 1, 2021, https://www.technologyreview.com/2021/07/01/1027822/fracking-boom-jobs-industry/.

robust network of activists, organizations, coalitions, and entire movements working on different parts of this puzzle. And these movements have shown they can win. In August 2022, Pennsylvania passed the Whole Homes Repair Act (WHR), establishing a $125 million fund to support efforts to upgrade and weatherize Pennsylvania homes for climate change.[115] The Act offers grants of $50,000 to owner-occupiers and loans to landlords (with key 'good behavior' provisions, like only allowing modest rent increases) to bring their properties up to code standards. Critically, the bill goes beyond funding repairs and offers county-level technical assistance officers for homeowners to interface with the appropriate regulatory agencies, while also providing increased funding for job training for workers to learn to do the retrofitting Pennsylvania's housing stock desperately needs. As an ambitious law with relatively different ramifications for different communities—from urban to rural, renter to owner-occupier—building support to get this bill through a Republican-controlled legislature is a significant achievement. The coalition for Whole Homes Repair included environmental and racial justice organizations, housing rights advocates, and left political organizations that held rallies, call-in days, and other actions to support the bill. This is the type of movement that will be required to deliver the policy actions that communities need, but will have to continue to scale up and become more ambitious.

The authors of WHR are already pushing in this direction. For the first time a Commonwealth-wide housing justice movement is beginning to coalesce, bolstered by the success of their movement on home retrofitting. From the perspective of the organizing director of the state senator who introduced WHR, the biggest components of the WHR coalition were POWER Interfaith, PA Stands Up, and Make the Road—all organizations with a deep commitment to racial and economic justice that organize in diverse communities across the state. However, the coalition included nearly 60 organizations, from Erie to Philadelphia and everywhere in between. This state-wide conversation is already in dialog with existing or emerging formations, especially around climate equity and just transitions for energy communities. More effort—and resources—will need to be deployed to build capacity and create opportunities to build trust between different sections of this nascent formation. For example, some organizers active in both the housing and climate justice spaces indicated that mostly White-led environmental groups were perceived as indifferent if not hostile to the needs of workers and working communities in driving decarbonization. It should be abundantly clear that the path to a non-extractive economy is going to require a lot of work, and labor is often a missing dimension in these discussions. One organization, in particular, that has been very strong on the labor dimension of a just transition is the Center for Coalfield Justice in Western Pennsylvania, and integrating their insights into statewide strategy for building new housing, retrofitting older homes, and building public renewables will be critical to building geographically and racially diverse coalitions that can make a sustained pushed for change at the homes/energy nexus.

On the energy supply side of the equation, many of the same movements are involved in pushing for distributed, as well as community and large utility-scale renewables. For example, POWER Interfaith has an ongoing Energy Democracy project along with a sister climate justice project focused on the economic inequities produced through the organization and management of the power grid—a critical component of the renewables build out. While there has not yet been a win for renewable energy of the magnitude of WHR, it is critical to build organizing capacity for big wins in the immediate future.

The moment to act is now. Two new major streams of funding for renewables and other low-carbon technologies like energy storage are likely to become available in the next five years, from federal investment in the Inflation Reduction Act and from carbon market revenues when and if Pennsylvania joins RGGI—to the tune of hundreds of millions of dollars annually.[116] Either way, the share of renewables is likely to grow in Pennsylvania, but there are better and worse ways of making that happen. A negative route would reinforce the power of private utilities and that continue current trends toward price gouging, profit extraction by far-away investors, and neglect for underserved communities—both urban and rural. The opportunity to

115. "Whole Homes Repair," Senator Nikil Saval, accessed April 24th, 2023, https://www.pasenatorsaval.com/wholehomerepairs/.

116. Mandy Warner, "With the Support of a Majority of Pennsylvanians, State Officially Links to the Regional Greenhouse Gas Initiative," Environmental Defense Fund, April 22, 2022, https://www.edf.org/media/support-majority-pennsylvanians-state-officially-links-regional-greenhouse-gas-initiative.

use this windfall to drive public control of power to heat and cool affordable homes is unlikely to be repeated in the near future, so building the energy justice and pro-public renewables movements in ways that are aligned with housing justice is an urgent priority.

There is already a robust network of pro-solar organizations active in Pennsylvania, but many of these groups tend to be more narrowly technical, often lack a class and race analysis that centers justice, and may not be well integrated into coalitions, or even dialogs, with organizations working for transformational change. Judging by the experience of the excruciatingly narrow defeat of the Build Public Renewables Act in neighboring New York in 2022, ensuring that renewables advocates are rowing in the same direction as climate justice and labor will be absolutely essential to achieving the vision we offer here.

POLICY DIRECTIONS

We call for a range of short- and longer-term interventions to further an equitable energy and economic transition in Pennsylvania, which furthers the state's divestment from extractive fossil-based regimes while shaping its investment in a just renewables-based economy.

SOLUTION 1: PROTECT HOUSEHOLDS FROM RISING HOUSING & ENERGY COSTS

An immediate priority for action must be to protect Pennsylvania households from mounting costs and entangled affordability crises, again highly uneven and racialized, in housing and basic energy services. Tackling the root causes of these crises is necessary, in building a more equal and just economy in the state, rethinking how Pennsylvanians are housed, and transitioning the state onto cleaner, cheaper, and more stable renewable energy forms. However, action is also needed now to protect Pennsylvanians, especially the most precarious and cost-burdened.

One important intervention is to expand Philadelphia's 'eviction diversion program',[117] and to fund a long-term Emergency Rental Assistance Program (ERAP) across the state, while pushing further for long-term eviction moratoria for low-income renters. As the Pennsylvania Budget & Policy Center has underlined, the Covid crisis did not cause Pennsylvania's housing affordability crisis and growing population of cost-burdened renters—this was a pre-existing trend that the pandemic and its economic crisis only made worse.[118] Pennsylvania and federal eviction moratoria under Covid provide an important precedent that should not be abandoned as the long-term effects of these crises continue. Though the Covid eviction moratorium was created and extended several times under executive order by the governor, a longer term version likely requires legislation.[119] ERAP was created under the Consolidated Appropriations Act 2021 and is administered by the Pennsylvania Department of Human Services (PA DHS); it is set to end in September 2025.[120] Expanding and extending funding for ERAP is particularly important because the program already has a mandate to support tenant households not only in paying rent, but also utility and home energy costs and arrears, among other household costs—precedent for tackling Pennsylvania's housing and energy affordability crises as inevitably interconnected. These measures should be complemented with other policies that help keep people in their homes in times of crisis, including legislation requiring evictions to be for 'good cause', while pushing for a dramatic ramp-up in state spending on affordable housing development to ensure there is enough good quality housing available for every income bracket.[121]

A related immediate action to push for is a **PUC cap on rate increases by electric and natural gas utilities, and reinstatement of Covid-era**

117. Aaron Moselle, "Philly's eviction diversion program poised for 18-month extension," *WHYY*, October 13, 2022, https://whyy.org/articles/philly-eviction-diversion-program-extension/.

118. Kehinde Akande and Diana Polson, "Housing Affordability in PA During and After the COVID-19 Pandemic: Evictions and Recommendations to Help Families,"Keystone Research Center, MArch 30, 2022, https://krc-pbpc.org/research_publication/report-draft-housing-affordability-in-pa-in-and-after-covid-19-evictions-and-recommendations-to-help-families/.

119. Marc Levy, "Wolf won't extend state's eviction moratorium, office says," *Pittsburgh Post-Gazette*, August 31, 2020, https://www.post-gazette.com/news/social-services/2020/08/31/Governor-Wolf-hints-extend-Pennsylvania-eviction-moratorium-pandemic/stories/202008310084.

120. "PA Emergency Rental Assistance Program," PA Department of Human Services, June 27, 2022, https://www.dhs.pa.gov/ERAP/Documents/PA_ERAP_Revised%20FAQ_20220627_vShared.pdf.

121. The Pitt News Editorial Board, "Wolf needed a backup plan for eviction moratorium," *The Pitt News*, SEPTEMBER 1, 2020, https://pittnews.com/article/159577/opinions/editorial-wolf-needed-a-backup-plan-for-eviction-moratorium/.

disconnection moratoria against utility shut-offs for the most vulnerable Pennsylvanians. At the time, low-income advocates represented by the Utility Law Project and Community Legal Services in Philadelphia urged the PUC to keep its shut-off prohibitions,[122] and some protections for the most vulnerable households remained, on top of standing state prohibitions on energy utilities shutting off customers during winter heating months (end of November to end of March).12[3] However, the Covid moratorium created an important precedent for formally recognizing and addressing how broader crises hit Pennsylvania households, lessons which should be translated into the current energy and housing crises. It also underscored the PUC's power, despite the supposedly market-led character of Pennsylvania's energy system since deregulation: in a crisis, it still has fallen to the state to protect households where neither IOUs nor retail competitors will.

The decision to end the Covid moratorium split the state's five-member PUC board along party lines—demonstrating how important it is who sits on the PUC, and how they are chosen.[124] Currently, Pennsylvania's governor appointments PUC commissioners for staggered five-year terms. The governor's nominations must be approved by the state senate, and with a mandate that the board be bipartisan.[125] Three out of five seats are currently open, after Republicans blocked proposed appointments to protest Governor Wolf's plan for Pennsylvania to join RGGI.[126] More generally, the PUC remains unelected and broadly unaccountable, aided by its historically low political profile and technocratic mandate. Pennsylvania's energy and water utility crises (see below) and mounting conflicts between fossil energy and renewable challengers are overturning such assumptions: they underscore the true extent of the PUC's power. A more progressive reenvisioning of how the PUC works for Pennsylvania households may require bigger changes to its membership and structure to promote more diverse stakeholder representation in its governance—an organizing goal pushed also by activist groups like POWER that will require legislative intervention.[127]

SOLUTION 2: EXPAND FULL ELECTRIFICATION IN PENNSYLVANIA HOUSEHOLDS

An important step in moving both Pennsylvania households and the state's broader energy system off fossil fuels—and cutting costs today and over the long-term—is expanding full electrification of homes in the state (as well as the rest of its built environment). As discussed above, electrification is particularly important to respond to the challenges of decarbonizing heating and other direct fuel uses like cooking and water heating. This is important whether fossil-dependent households are currently on natural gas grids or obtain heat from non-utility fossil sources like fuel oil and propane. Key technology switching pathways here replace gas-fired home appliances (boilers, water heaters, stoves) with electric-powered ones. Households may power these technologies with electricity sourced from the grid (including via the new community/cooperative and public options discussed below), or generate it themselves via rooftop solar and battery storage systems. **Another important switching option is to replace fossil heating technologies with home heat pumps, ground source/geothermal or air source.** Distributed energy resource (DER) solutions can also build climate resilience—for example, in interventions that can keep homes powered if power grids are taken out by more extreme and frequent storms.

122. Andrew Maykuth, "Pa. utilities urge a resumption of shutoffs as pandemic subsides and unpaid bills soar," *The Philadelphia Inquirer,* February 20, 2021, https://www.inquirer.com/business/pennsylvania-utilities-shutoff-ban-coronavirus-covid-20210220.html.

123. Andrew Maykuth, "PA utilities urgea resumption of shutoffs as pandemic subsidies and unpiad bills soar," *The Philadelphia Inquirer*, February 20, 2021, https://www.inquirer.com/business/pennsylvania-utilities-shutoff-ban-coronavirus-covid-20210220.html.

124. Andrew Maykuth, "Utilities can now cutoff nonpaying customers, PA says, but the poorest customers are protected," *The Philadelphia Inquirer*, October 8, 2020, https://www.inquirer.com/business/pennsylvania-pa-utilities-shutoff-ban-lifted-puc-virus-coronavirus-covid-20201008.html.

125. "Pennsylvania Public Utility Commission," Ballotpedia, accessed April 24, 2023, https://ballotpedia.org/Pennsylvania_Public_Utility_Commission.

126. Andrew Maykuth, "With election day looming, Gov. Wolf and Republicans agree to fill three seats on depleted PA utilties commission," *The Philadelphia Inquirer*, September 23, 2022, https://www.inquirer.com/business/pennsylvania-wolf-politics-republicans-puc-appointments-coleman-20220923.html.

127. Susan Phillips, "Climate activists set their sights on the Pennsylvania Public Utility Commission," *WHYY,* August 23, 2021, https://whyy.org/articles/climate-activists-set-their-sights-on-the-pennsylvania-public-utility-commission/.

Translating this decarbonization goal into policy will require multiple areas of action. One longer-term policy to begin pushing now is a **ban on natural gas in new construction** through the legislature. A number of US urban governments have passed similar bans in recent years, including New York City,[128] Denver, Seattle, Berkeley, and San Francisco, among more than two dozen cities in California.[129] The State of California has not yet banned new natural gas hookups outright, but in 2021 it mandated that most new commercial buildings install solar and energy storage systems and that homes are built "electric ready" for electric appliances and vehicles.[130] In 2022, it announced that it would ban the sale of all new natural gas-fired space and water heaters by 2030.[131] New Jersey's 2020 Energy Master Plan may go even further, requiring all of the state's buildings to be fully electric by 2050.[132] These bans have been advanced through varying policy mechanisms, from city ordinances and building codes at various scales to state agency actions (California) and Executive Orders (New Jersey). Some policies and proposals, such as Denver's, Seattle's, and New Jersey's, also mandate retrofits of some or all existing fossil fueled-buildings.

Though Pennsylvania has no such mandate at the state level, Governor Wolf recently vetoed Republican legislation that would prevent Pennsylvania municipalities from adopting all-electric building codes that prohibit new natural gas hookups.[133] (This move headed off a potential conflict between municipal policy innovation and state-level authority; the next section discusses such issues further, particularly Pennsylvania's struggles with "preemption".) Though piecemeal action is not ideal either, **Wolf's veto allows progressive municipal governments to lead the state in these fuel-switching policies.** The state also has the ability to act directly to build better, affordable low-carbon housing, in building and mandating all-electric technologies in expanded public housing that could be incentivized through county and state-level public banks (see below), ultimately building to a Pennsylvania homes guarantee that recognizes decent, safe, secure, and climate-safe housing a human right to which all Pennsylvanians are entitled.

Another crucial policy intervention is major public investment to electrify Pennsylvania's existing homes—particularly important given the state's aging housing stock, and the likelihood that renters and particularly cost-burdened BIPOC and rural communities will be funneled into homes needing both repairs and technological upgrades. Homeowners have faced consistent problems making the upfront investments needed to repair and retrofit homes for energy efficiency—even though these investments are likely to pay back in the form of energy savings over time. Electrification raises a greater challenge still, as installing solar systems, heat pumps, and other household DERs is likely to be even more expensive upfront, while replacing existing appliances and systems that often still have a usable life. Meanwhile, renters have historically had little control over any of these investment decisions. Many, even most, Pennsylvania households will need assistance to manage the upfront costs of switching to full electrification—even though, again, they are likely to pay back to households in the form of long-term cost savings. These savings will come from reducing households' exposure to rising and volatile fossil prices with increasingly cheap renewables-powered electricity, removing ongoing costs by owning their own generation, selling solar credits or energy generated

128. Anne Barnard, "N.Y.C.'s Gas Ban Takes Fight Against Climate Change to the Kitchen," *The New York Times*, December 15, 2021, https://www.nytimes.com/2021/12/15/nyregion/nyc-gas-stove-heat-ban.html.

129. "New California rules move state away from natural gas in new buildings," *Reuters*, August 11, 2021, https://www.reuters.com/legal/litigation/new-california-rules-move-state-away-natural-gas-new-buildings-2021-08-11/.

130. "New California rules move state away from natural gas in new buildings," *Reuters,* August 11, 2021, https://www.reuters.com/legal/litigation/new-california-rules-move-state-away-natural-gas-new-buildings-2021-08-11/.

131. ANGEL ADEGBESAN, "California moves to ban natural gas furnaces and heaters by 2030," *Los Angeles Times*, September 23, 2022, https://www.latimes.com/business/story/2022-09-23/california-moves-to-ban-natural-gas-furnaces-and-heaters-by-2030.

132. Alexander C. Kaufman, "After Blocking Gas Bans In Red States, Fossil Fuel Industry Eyes New Jersey," *HuffPost*, December 7, 2022, https://www.huffingtonpost.co.uk/entry/nj-climate-heating-fossil-fuel_n_62c6f1f0e4b0d7401980967c; "Governor Murphy Unveils Energy Master Plan and Signs Executive Order Directing Sweeping Regulatory Reform to Reduce Emissions and Adapt to Climate Change," January 27, 2020, State of New Jersey, https://www.nj.gov/governor/news/news/562020/approved/20200127a.shtml.

133. The Associated Press, "Gov. Wolf vetoes bid to block all-electric building codes in Pennsylvania," StateImpact Pennsylvania, July 12, 2022, https://stateimpact.npr.org/pennsylvania/2022/07/12/gov-wolf-vetoes-bid-to-block-all-electric-building-codes/.

back to the grid via residential 'net metering'—already authorized in Pennsylvania—and more; many of these initiatives will also have to pass through the PUC.[134]

We propose to build on the recent success of Pennsylvania's Whole Home Repairs (WHR) Act to help the state's households, urban and rural, fund needed investments in home electrification. As discussed above, WHR investments in better connecting Pennsyvlanians to energy retrofitting are a major political win for broad-based, household justice-focused decarbonization investment; the WHR is funded at $125 million in this year's budget.[135] **Electrification presents an opportunity to build on this success, whether framed as an add-on to WHR or a separate, but similarly justified, policy.** A home electrification campaign may have more immediate pathways to coalition-building and multi-phase possibilities than natural gas hookup bans, since electrification retrofits are likely to target many urban households with aging home heating systems and many rural households still using fuel oil and propane—building a cross-geographical coalition that also can draw Republican legislative support as WHR did.

WHR particularly targets financially precarious homeowners who might otherwise lack resources to take advantage of energy or weatherization improvements. Though WHR has been an important success, this connection of energy/climate, economic, and housing justice has also been an animating concern of federal weatherization policies—however chronically underfunded in practice. These interconnected goals have also driven other recent policy proposals, such as SB 170 and AB 128 in California.[136] Given the relatively high rates of homeownership in Pennsylvania, a policy likely to favor homeowners can still have positive equity impacts. **However, more ambitious investment targets set by the legislature should include additional support for low income residents regardless of housing tenure, coupled with other environmental justice community investments.** This investment may include direct grants for the most cost-burdened households—an important protection amidst consumer advocates' warnings on retrofit financing programs like residential PACE in other states like Missouri[137] and Florida,[138] including accusations about unaffordable debt burdens and accusations of racialized predatory lending.[139] However, with care in implementation, this electrification initiative may include public financing and repayment options for more financially secure households. **More is also needed to ensure that Pennsylvania renters have access to these same opportunities for technologically modern, cheaper-to-operate household technologies.** Funding may be provided to landlords—again with ring-fencing regulations for the latter to make sure they pass cost savings on to tenants, and that they do not use technological upgrading as a lever to raise rents or justify evictions.

Home retrofitting cannot end with energy concerns; more state funding is needed to deal with lead pipes in Pennsylvania once and for all. Lead piping creates multiple levels of vulnerability for many Pennsylvanians, particularly renters and People of Color who are disproportionately impacted by lead exposure. Currently, replacing lead service lines is a 'joint responsibility' between cities and homeowners, an arrangement that contributes to the unacceptable goal of replacing these lead pipes by 2026 or 'as soon as feasible'. In addition to reducing exposure to lead, **pipe replacement can contribute to a just transition** by offering meaningful, place-based work to newly trained workers, or for workers with experience in industrial construction, welding, and plumbing in the fossil fuel industry.

134. Ben Zientara, "Guide to Pennsylvania net metering in 2023," SolarReviews, January 3, 2023, https://www.solarreviews.com/blog/pennsylvania-net-metering.

135. Katie Meyer, "In a rare bipartisan move, the Pa. legislature approves a new home repair assistance program," *WHYY*, July 8, 2022, https://whyy.org/articles/pennsylvania-legislature-home-repair-assistance-program-bipartisan/.

136. Srinidhi Sampath Kumar, "Bridging the gap between climate justice and housing justice," Cal Matters, September 24, 2021, https://calmatters.org/commentary/2021/09/bridging-the-gap-between-climate-justice-and-housing-justice/.

137. Jeremy Kohler and Haru Coryne, "State-Supported "Clean Energy" Loans Are Putting Borrowers at Risk of Losing Their Homes," ProPublica, August 23, 2021, https://www.propublica.org/article/missouri-pace-loans.

138. Malena Carollo, Tax Hit: An Energy Efficiency Finance Program is Trapping Florida Homeowners in Debt," *Tampa Bay Times,* September 10, 2020, https://www.tampabay.com/investigations/2020/09/10/tax-hit/.

139. Rebecca Burns, "The Subprime Solar Trap for Low-Income Homeowners," Bloomberg, April 6, 2021, https://www.bloomberg.com/news/features/2021-04-06/the-subprime-solar-trap-for-low-income-homeowners?leadSource=uverify%20wall#xj4y7vzkg.

This public investment in electrification and technological upgrading will build out important local workforces with good jobs in skilled, union-protected plumbing and installation labor, with work and reskilling pathways for formerly incarcerated Pennsylvanians and other workers facing barriers to entry in a growing low-carbon sector. The jobs component of this transition is already built into WHR, but given the scale and urgency of the challenge to retrofit tens of thousands of homes, training (and, critically, retaining) more workers in both installation and maintenance, of modern heating systems must be a policy priority pursued in partnership with counties, regional and technical colleges, high schools, and correctional facilities.

Furthermore, a robust home retrofitting program will provide opportunities to rebuild manufacturing economies and workforces in Pennsylvania neighborhoods and towns. Building further on the WHR, this next level of ambition in scope and funding provides opportunities to further link policies that help Pennsylvania households and broader economic redevelopment opportunities for communities across the state. For example, the recent Federal executive order authorizing the use of the Defense Production Act to channel federal investment in different parts of the home energy supply chain includes funding for new insulation manufacturing capacity—of which Pennsylvania currently has none[140]—or entering into an agreement with neighboring states to design, contract, and co-deploy heat pump systems for public buildings,[141] including public housing. A home retrofitting and electrification program pursued in the Pennsylvania legislature should build on WHR county one-stops for appliance distribution with these new appliance modernization and home DER technology hubs, including local content requirements and other industrial policies to support the buildup of new specializations in growing clean technology sectors defined by the Department of Community and Economic Development. Funds will include targeted investments for environmental justice communities and BIPOC-owned businesses, as well as support for worker cooperatives and other alternative business ownership models.

SOLUTION 3: ACCELERATE RENEWABLE POWER DEVELOPMENT

Pennsylvania badly needs to grow the share of renewables in its electricity supply, as does the broader PJM Interconnection—and quickly, as the state's reliance on natural gas and other fossil sources produces ongoing environmental and community harms, while causing it to fall farther and farther behind more progressive and fast-acting US states. Transitioning the power supply is also necessary for policies like electrification to produce intended climate benefits. As discussed above, Pennsylvania has various policies to support renewables, but procurement-side interventions have largely been in a holding pattern for a decade, with the exception of the state's widely contested bid to join RGGI, a strategy which would see the Commonwealth join the US's second-largest carbon market (with all the pitfalls that come along with it).[142] The state also has important opportunities today to more thoroughly reimagine its power system, particularly in building on its long and multifaceted tradition of public power by empowering rural electricity coops to expand and decarbonize in innovative ways.

One significant policy pathway is to **push for a better, more ambitious RPS**. As discussed above, the AEPS has had too-weak targets—and sunsetted in 2021—and has contained other highly problematic elements like support for dirty energy sources and REC rules that allow generators to simply purchase renewable power mandated from outside the state. AEPS needs change now—in recent years the prices of "Tier 2" credits have become more comparable to "Tier 1" credits, which is paradoxically giving coal energy producers the advantage over solar energy.[143] Food & Water Watch suggests that a new and better RPS must eliminate all six of the dirty energy sources allowed under the AEPS, eliminate the use of RECs, and raise its mandate to 100% renewables by 2038 (still an ambitious timeline, but broadly consistent with other

140. "North American Plant Locations," NAIMA Canada, accessed April 24, 2023, https://insulationinstitute.org/wp-content/uploads/2017/08/Member-Plant-Map-FINAL-1120.pdf.

141. Maria Gallucci, "Window heat pumps will help electrify New York City's apartments," Canary Media, August 3, 2022, https://www.canarymedia.com/articles/heat-pumps/window-heat-pumps-will-help-electrify-new-york-citys-public-housing.

142. Lisa Song, "Cap and Trade Is Supposed to Solve Climate Change, but Oil and Gas Company Emissions Are Up," *ProPublica*, November 15, 2019, https://www.propublica.org/article/cap-and-trade-is-supposed-to-solve-climate-change-but-oil-and-gas-company-emissions-are-up.

143. "Alternative Energy Credit Pricing," PA PUC, September 17, 2021, https://www.puc.pa.gov/media/1650/alternative_energy_credit_pricing091721.pdf.

states discussed above).[144] These are all strong targets for new policy proposals. Eliminating RECs would likely require alternate support for Pennsylvania-based solar producers now selling credits to the scheme. Further support could come, for example, from expanding the state's specific solar 'carve-out' mandate in a new RPS. It would emerge amidst a broader shift to PPAs with the elimination of RECs, as IOU/distribution utility and retail power suppliers instead directly build or contract renewable power generated from in-state projects to meet their expanded requirement.

As discussed above, several pieces of proposed state-level legislation to reform the RPS are currently stalled amid broader political fights over renewables in the state, particularly over Pennsylvania's participation in RGGI. They include a state legislative push last year to aim for 30% renewables by 2030 and 18% by 2026, with a 10% carve out for solar energy and DER support provisions—still far behind states showing more decarbonization leadership.[145] The results of the November 2022 election will strongly influence legislative possibilities for transforming the RPS, particularly in more ambitious ways, and shape targets for movement organization and pressure. In this multi-sided fight, we must again also support activist groups putting pressure on the Pennsylvania PUC to increase renewable energy sourcing above the requirements of the AEPS—another reason to reform the PUC board itself to better represent ratepayers and users.[146]

At the same time, publicly or cooperatively owned institutions that are governed by and for the needs of the users will be crucial to advancing a version of Pennsylvania's energy future that does not leave it dependent on renewables imported from earlier-moving states around it, or on the major private IPPs increasingly consolidating private ownership of renewable projects transnationally. Expanding the role of public and nonprofit actors in growing Pennsylvania's renewable energy supply will take multiple forms. First, **governments across the state should directly procure renewable energy directly.** These procurement policies build on recent executive branch actions like PA PULSE—a project that should be followed up with further procurement to meet more of the state government's energy needs. Other governments and public entities across the state should similarly continue to take action to directly procure renewable energy developed in Pennsylvania. In the first instance, they may continue to do so via PPAs negotiated with private developers and owners, but ultimately public ownership is preferable to private contracts.

Pennsylvania governments have other options as well. For example, a growing trend toward community choice aggregation (CCA) allows local governments to purchase electricity on behalf of themselves, residents, and businesses in their area, including targeting renewable supply.[147] Eight US states had passed enabling legislation to approve CCAs as of 2020—most in deregulated electricity markets, since it makes the process easier. Pennsylvania has not yet passed this enabling legislation, though neighboring states like Ohio, New York, and New Jersey have. **Public entities should also develop and own renewable energy projects themselves** rather than committing to paying long-term charges to transnational corporations like Lightsource or buying from the market. Both governments and nonprofits like cooperative and community owners now have new resources to do so via newly available-to-them federal subsidies—an important outcome of shifting major federal tax credits for renewables to a "direct pay" model in the IRA.[148] Building up public power ownership in this way

144. "REPORT CARD ON PENNSYLVANIA'S ELECTRICITY GENERATION INFRASTRUCTURE," alpha three, June 22, 2019, https://www.alphathree.com/news/report-card-pennsylvanias-electricity-generation-infrastructure.

145. Rachel McDevitt, "Clean Energy Advocates Say Industry Will Slow If Lawmakers Fail To Increase Renewable Energy Goals," *90.5 WESA*, May 17, 2021, https://www.wesa.fm/environment-energy/2021-05-17/clean-energy-advocates-say-industry-will-slow-if-lawmakers-fail-to-increase-renewable-energy-goals.

146. Susan Phillips, "Climate activists set their sights on the Pennsylvania Public Utility Commission," StateImpact Pennsylvania, August 23, 2021, https://stateimpact.npr.org/pennsylvania/2021/08/23/climate-activists-set-their-sights-on-the-pennsylvania-public-utility-commission/.

147. "Where is community choice aggregation available?," energysage, January 8, 2020, https://www.energysage.com/other-clean-options/community-choice-aggregation/where-are-ccas-available/.

148. Sarah Knuth, "Renewable energy: US tax credits for wind and solar mostly benefit big bank," The Conversation, January 25, 2022, https://theconversation.com/renewable-energy-us-tax-credits-for-wind-and-solar-mostly-benefit-big-banks-173965; Erin Kelly, "Senate Passes Direct-Pay Incentives for Co-ops; House to Vote Next," NRECA, August 8, 2022, https://www.electric.coop/senate-passes-direct-pay-incentives-for-co-ops-house-to-vote-next.

provides another pathway to similar visions under ongoing debate in neighboring states like New York.[149]

Likewise, it is important to transition (and build on) existing public ownership in Pennsylvania to renewables. Besides major public energy providers like Philadelphia Gas Works (PGW), the state has dozens of existing municipal power providers,[150] represented by the Pennsylvania Municipal Electric Association (PMEA).[151] Again taking advantage of new federal funding available under the IRA, existing public power providers should grow their supply of renewable energy—potentially supported by broader state public-public assistance in "derisking" investments and covering upfront costs. Action too is needed to help public owners transition off of existing fossil fuel resources. The related case of PGW has become a particularly significant target for advocacy in recent years. The City of Philadelphia-owned natural gas utility faces increasing pressures to diversify away from natural gas, including conflicts with activist groups like POWER, who have called for PGW to support broader state efforts to decarbonize the state's power mix and promote electrification.[152] The utility has so far resisted and worked against these decarbonization efforts.[153] A particularly important area for movement advocacy is resisting PGW's recent moves to convert its existing district heating system to more individual natural gas hook-ups.[154] This would be a tragic missed opportunity to transform PGW's base fuel at scale: its district steam system could simply switch to steam generated by an alternate renewable source. This is an important resource for the city and its customers, both for in making a major decarbonization contribution and in protecting a climate-resilient energy resource for the city—district heating and cooling is experiencing a broader East Coast renaissance today after systems stayed on during Hurricane Sandy, even as power grids failed.[155] However, helping Pennsylvania's municipal governments get the resources that they need for these forward investments is crucial, particularly for already cost-burdened municipalities—and will go beyond the energy sector to the broader reforms to public finance described in the next section.

Similarly, Pennsylvania should take the new opportunity of IRA resources to **transition (and build on) existing community and cooperative ownership.** Here Pennsylvania has the opportunity to build on strong historical legacies of nonprofit power development and community ownership. For example, the state has important precedents for public and community power in thirteen power cooperatives which serve 230,000 customers (600,000 Pennsylvania residents

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149. Jacob Fulton, "Sparking change? Why activists in New York, Maine and elsewhere are pushing for public power.," *USA Today*, September 3, 2022, https://www.usatoday.com/story/news/nation/2022/09/03/public-power-new-york-maine-climate-sustainability/7904405001/ .

150. "Public Power in Pennsylvania," American Public Power Association, accessed April 24, 2023, https://www.publicpower.org/public-power-pennsylvania.

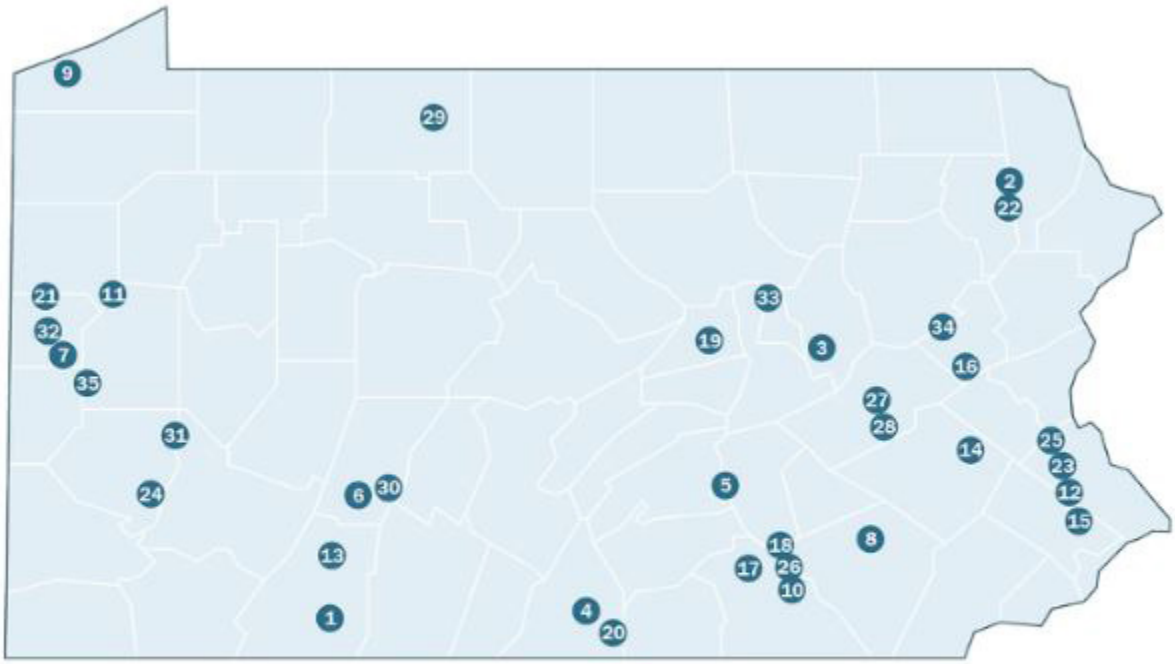
151. "Pennsylvania Municipal Electric Association," accessed April 24, 2023, https://www.papublicpower.org/.

152. Jordan G. Tiecher, "Philadelphia's biggest barrier to climate action is PGW," *The Philadelphia Inquirer*, August 15, 2022 https://www.inquirer.com/opinion/commentary/philadelphia-pgw-climate-change-action-inflation-act-20220815.html; Sophia Schmidt, "New PGW budget could include first step toward climate-friendly transformation," *WHYY*, August 9, 2022, https://whyy.org/articles/activists-protest-pgw-budget-climate-action-transparency/; The Editorial Board, "Be a climate city or own a natural gas utility? Philly can't do both.," *The Philadelphia Inquirer*, January 15, 2022, https://www.inquirer.com/opinion/editorials/philadelphia-pgw-natural-gas-diversification-climate-20220115.html#loaded; Susan Phillips, "PGW emails show involvement in drafting bill that runs counter to climate goals," *WHYY*, November 24, 2021, https://whyy.org/articles/pgw-emails-show-involvement-in-drafting-bill-that-runs-counter-to-climate-goals/; Susan Phillips, "Philadelphia Gas Works emails show involvement in drafting bill that runs counter to climate goals," StateImpact Pennsylvania, December 3, 2021, https://stateimpact.npr.org/pennsylvania/2021/12/03/philadelphia-gas-works-emails-show-involvement-in-drafting-bill-that-runs-counter-to-climate-goals/.

153. Emily Barkdoll, "Philadelphia Gas Utility Explores Business Diversification," NRDC, December 9, 2021, https://www.nrdc.org/bio/emily-barkdoll/philadelphia-gas-utility-explores-business-diversification.

154. Susan Phillips, "Could district steam systems provide a climate solution? Philadelphia Gas Works says no," StateImpact Pennsylvania, September 2, 2022, https://stateimpact.npr.org/pennsylvania/2022/09/02/could-district-steam-systems-provide-a-climate-solution-philadelphia-gas-works-says-no/.

155. Susan Phillips, "Could district steam systems provide a climate solution? Philadelphia Gas Works says no," StateImpact Pennsylvania, September 2, 2022, https://stateimpact.npr.org/pennsylvania/2022/09/02/could-district-steam-systems-provide-a-climate-solution-philadelphia-gas-works-says-no/.



1. Berlin	7. Ellwood City	13. Hooversville	19. Mifflinburg	25. Quakertown	31. Tarentum
2. Blakely	8. Ephrata	14. Kutztown	20. Mont Alto	26. Royalton	32. Wampum
3. Catawissa	9. Girard	15. Lansdale	21. New Wilmington	27. St. Clair	33. Watsontown
4. Chambersburg	10. Goldsboro	16. Lehighton	22. Olyphant	28. Schuylkill Haven	34. Weatherly
5. Duncannon	11. Grove City	17. Lewisberry	23. Perkasie	29. Smethport	35. Zelienople
6. East Conemaugh	12. Hatfield	18. Middletown	24. Pitcairn	30. Summerhill	

Figure 11. PA Boroughs that operate their own electric companies[156]

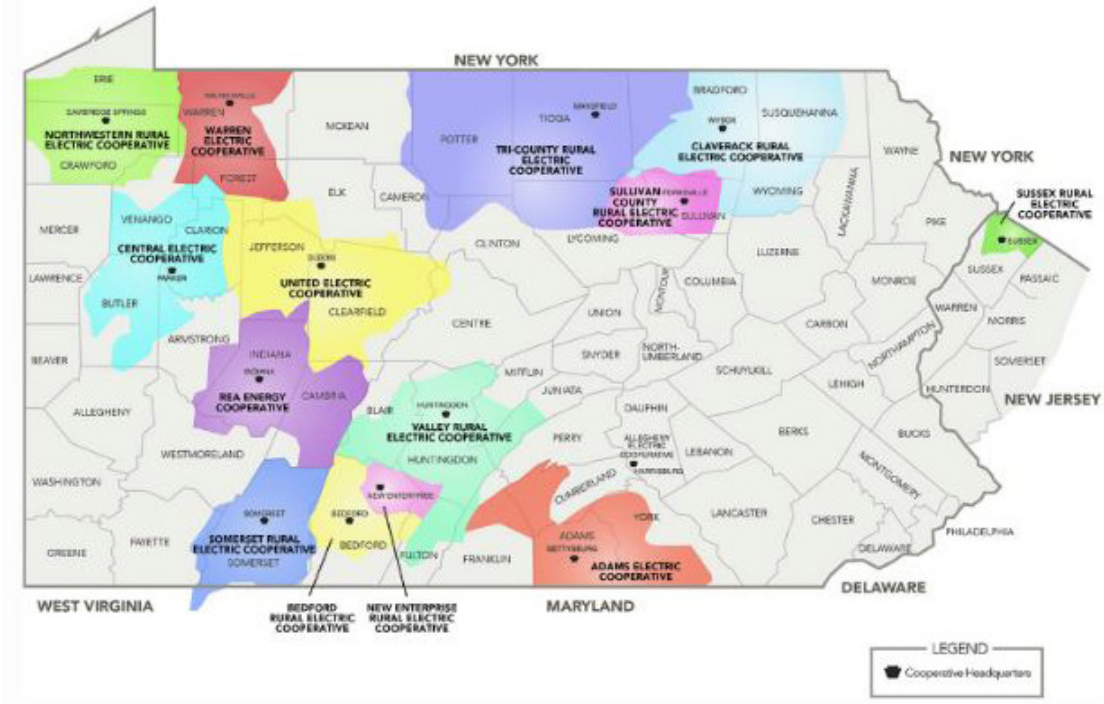


Figure 12. Pennsylvania/New Jersey Electric Cooperative Service Territories[157]

156 "Homepage," Pennsylvania Municipal Electric Association, accessed April 24th, 2023, https://www.papublicpower.org/.

157. "Pennsylvania/New Jersey Electric Cooperative Service Territories," Pennsylvania Rural Electric Association, accessed April 24, 2023, https://prea.com/member-cooperatives.

in total) across the state.[158] As late as the mid-1930s, the dominance of private power producers and profit motives in the electricity grid meant that electricity was a service for cities and the wealthy: 94% of rural Pennsylvanians were excluded from electricity services, as the private sector charged them exorbitant rates or refused to build power lines altogether. Founded with crucial financing and technical assistance from the Rural Electrification Administration during the New Deal, Pennsylvania's energy cooperatives brought community organization and transformative public investment together to act where the private sector would not—and have successfully provided power for many decades.[159] Beyond IRA, legislation to enable similar public-public investment assistance from the state government today will be important to help these nonprofits build and own new renewables, while managing the costs of retiring existing fossil generation facilities.

Existing cooperatives provide a model for future ones—though another important target for policy and movement advocacy here is state enabling legislation to permit models like community solar in Pennsylvania, in which households subscribe to a large collectively owned array in a community.[160] Enabling legislation has recently be reintroduced after being stalled amid ongoing debates over RGGI (other in-progress legislation, HB 1161, would expand other local support for solar but falls short of full community ownership).[161] Some form of "virtual net metering" is also required for community solar to work as intended (i.e. so customers can offset electric use from a system not located on their own property).[162] Another particularly important target for new investment here is to make sure that this **local renewables buildout prioritizes low-income and BIPOC communities,** including existing environmental justice communities bearing the brunt of Pennsylvania's existing extractive economy. This investment will require both movement advocacy and target state-level assistance—again supported here by the opportunity to also claim new federal funding for this justice-oriented (re)investment via the IRA, including (but not limited to) a bonus tax credit for projects located in or near an "energy community".[163]

The policies have an important ability to build a more transformative vision to remake the Pennsylvania energy economy. As underlined here, the state's current power producers, grid operators, and utilities currently serve the fossil fuel industry, and a transition to renewable energy may bankrupt existing private institutions and firms with locked-in assets like wells, power plants and pipelines. Pennsylvania and PJM disproportionately face these 'transition risks' because of their historically narrow focus on maximizing production and building fossil fuel energy generation for export, and recent doubling down on natural gas. We must build longer-term visions for how to prepare for likely utility bankruptcies to come, avoiding other states' recent examples of bailouts and rushes to recreate an unjust, brittle business-as-usual (now generating parallel calls for public power).[164] Accelerating public options now gives us new tools to manage the transition—for example, programs to buy up bankrupt private utilities and convert them into publicly owned power. All of this gives us new tools to facilitate the winddown of fossil fuel energies in a way that supports workers, communities, and durable common wealth beyond extraction.

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158. "Pennsylvania/New Jersey Electric Cooperative Service Territories," Pennsylvania Rural Electric Association, accessed April 24, 2023, https://prea.com/member-cooperatives.

159. "Cooperative Story," Pennsylvania Rural Electric Association, accessed April 24, 2023, https://www.prea.com/cooperative-story.

160. Quinn Galbicki, "Only partly sunny? Solar backers say federal action isn't enough," PublicSource, September 6, 2022, https://www.publicsource.org/pa-solar-power-energy-inflation-reduction-biden-pittsburgh/; "Community Solar," NREL, accessed April 24, 2023, https://www.nrel.gov/state-local-tribal/community-solar.html.

161. Rachel McDevitt, "Pa. lawmaker launches new attempt to allow community solar," StateImpact Pennsylvania, April 10, 2023, https://stateimpact.npr.org/pennsylvania/2023/04/10/pa-lawmaker-community-solar-new-attempt/; Quinn Galbicki, "To turn up the solar power, PA needs new laws. One bill is poised to move, but here's why others seem stalled.," PublicSource, September 20, 2022, https://www.publicsource.org/solar-power-pennsylvania-general-assembly-community-portfolio-renewable-legislation/.

162. "Community Solar," NREL, accessed April 24, 2023, https://www.nrel.gov/state-local-tribal/community-solar.html.

163. Pivot Energy, "The IRA's Impact on Solar Incentives: What You Need To Know," Pivot Energy, September 7, 2022, https://www.pivotenergy.net/blog/the-iras-impact-on-solar-incentives.

164. Sammy Roth, "Meet the new PG&E. It looks a lot like the old PG&E," *Los Angeles Times*, June 17, 2020, https://www.latimes.com/environment/story/2020-06-17/pge-bankruptcy-new-pge-looks-like-old-pge; "Info," Debtwire, accessed April 24, 2023, https://info.debtwire.com/.

SOLUTION 4: TACKLE THE INTERCONNECTION CRISIS & REFORM GRID GOVERNANCE

In building out these new renewable resources and ownership models, we must address the ongoing interconnection crisis for new renewables production, including targeting PJM's harmful legacy of perpetuating a fossil energy-dominated grid—an argument also recently advanced by movement groups like

166..[165] Progressive interventions here must respond to a fast-evolving situation, and interconnection problems will not be resolved by PJM alone—though, again, PJM's well-known difficulties may make it a model for bigger federal changes. PJM's own proposed reforms include, for example, a "first-ready, first-served" (versus first in line, ready or not) approach to interconnection requests and "fastlaning" of about 450 current projects to mitigate its backlog.[166] Meanwhile, FERC is now considering changes including requiring PJM and other grid operators to consider all requests in clusters, laying penalties on operators that fail to meet deadlines, and, conversely, imposing more stringent fees and penalties on energy project developers to discourage 'speculative' interconnection requests.[167] Critics note, however, that poor information sharing by grid operators (especially problematic given the uncertainties of a fast-changing grid) and long queues have essentially forced power projects to apply at a very early stage in order to get information needed and to hold their place in line—arguing that these are less frivolous proposals than a reflection of broader break-downs in the system.[168] They also underline that higher fees would disproportionately affect smaller developers.

One intervention to target in movement advocacy, possibly with state government support, to **democratize PJM's governance**—a particularly important move given PJM's recent history of favoring fossil incumbents over new renewables. Like reforms to Pennsylvania's PUC governance, pushes should prioritize both the selection of more diverse stakeholders to sit on PJM's 10-member board and more robust processes to choose these members and hold them publicly accountable going forward.[169] If PJM cannot or will not act decisively to protect renewables developers, particularly these more vulnerable players, more aggressive state action is another policy pathway and organizing target. In response to PJM's recent policies against renewables, Maryland[170] and New Jersey[171] both considered leaving its wholesale market altogether and joining or creating a new power pool. Pennsylvania and its neighbors have similar options if PJM cannot resolve its interconnection problems.

One immediate substantive target for movement advocacy is PJM's recently proposed pause to its transmission connection queue—crucial for big new renewable projects seeking to come onto the grid—for up to two years.[172] This delay jeopardizes the state's recent progress in large-scale solar energy development. However, priority support for public and nonprofit renewables projects seeking to interconnect will be a particularly important target for movement organization going forward—while we need to fight for an expedited process to accommodate renewables projects in general, we also must not lose sight

165. "Opening Eyes To PJM," POWER, accessed April 24, 2023, https://powerinterfaith.org/opening-eyes-to-pjm/.

166. Daniel Hagan, Serena Rwejuna, John Forbush, Jacqueline Triggs, R.J. Colwell, Aaron Bryant, "Ready for Renewables: FERC Targets Interconnection Queue Reform," White & Case, July 5, 2022, https://www.whitecase.com/insight-alert/ready-renewables-ferc-targets-interconnection-queue-reform.

167. "FERC Proposes Interconnection Reforms to Address Queue Backlogs," FERC, June 16, 2022, https://www.ferc.gov/news-events/news/ferc-proposes-interconnection-reforms-address-queue-backlogs.

168. Emma Penrod, "Why the energy transition broke the U.S. interconnection system," Utility Dive, August 22, 2022, https://www.utilitydive.com/news/energy-transition-interconnection-reform-ferc-qcells/628822/.

169. "Governance," PJM, accessed April 24, 2023, https://learn.pjm.com/pjm-structure/governance.

170. Catherine Morehouse, "Maryland taking a 'serious look' at exiting PJM capacity market through FRR, says PSC Chair," Utility Dive, April 29, 2020 https://www.utilitydive.com/news/maryland-taking-a-serious-look-at-exiting-pjm-through-frr-says-psc-chair/576957/.

171. Robert Walton, "New Jersey looks to exit PJM capacity market, worried MOPR will impede 100% carbon-free goals," Utility Dive, March 31, 2020, https://www.utilitydive.com/news/new-jersey-looks-to-exit-pjm-capacity-market-worried-the-mopr-will-impede/575160/.

172. Tim Sylvia, "PJM, flooded with interconnection requests, proposes two-year review pause," pv magazine, February 3, 2022, https://pv-magazine-usa.com/2022/02/03/pjm-flooded-with-interconnection-requests-proposes-two-year-review-pause/.

of transmission's significant to broader questions about renewable energy ownership, democracy, and justice, and growing trends for large private IPPs to own the country and state's renewable power. It will be particularly crucial to support the interests of nonprofit and public project developers and owners such as communities, cooperatives, and municipal governments. These projects should be prioritized in interconnection reforms with fast-track access and other priority assistance to help them compete against big private developers.

Movement advocacy should also expand the scope of today's political debates around transmission by surfacing bigger questions about the state of deregulation and market-led governance in (and beyond) Pennsylvani's power system: who does this system empower to make decisions about the state's renewables generation and transmission needs, and is this likely to produce the kind of renewables transition Pennsylvanians actually want and need? The current debate privileges a vision of large "utility scale" renewables projects (again, generally owned by private IPP developers) and new and upgraded high-voltage transmission lines to competitively sell their power across PJM's multi-state market. Pennsylvania's renewable transition goals might be better served by building out a more diverse mix of community generation and ownership, DERs, virtual net metering, and other power generation, storage, and management options that place less pressure on the regional transmission grid. To support these new ideas substantively, we also must demand **more DER-supportive transmission** policies from PJM and utilities including (but not limited to) a reduction in fees, more reliable pricing for electricity, and just implementation of time of use pricing. **The PUC should undertake similar grid reforms to prioritize DER and alternative pricing** schemes to promote "non-wires" grid management options—and be pressured to do so by advocacy movements if it fails to act on these issues.

Transitioning the grid to renewables will inevitably require some investments in new transmission lines, upgrades, and grid modernization. As states continue to debate who should pay for these big upfront investments across state lines, investment in these 'regional' inter-state transmission projects has badly lagged for decades—another underlying structural problem behind current interconnection delays and costs. This dilemma is opening up serious questioning about who should own and plan transmission in the United States, including more transformative options like a **multi-state public grid**. Pennsylvania movements should watch the broader FERC process closely for advocacy opportunities here—these seemingly abstruse technical concerns have major consequences for who can build and own renewable power in Pennsylvania. A more immediate substantive target for movement organization is to push PJM to study where capacity for new renewables could be opened up in the context of decommissioning coal and (eventually soon) natural gas power plants as a short to medium term step to opening up grid capacity in the state, as well as growing the "non-wires" DER options discussed above.

SOLUTION 5: FUND BETTER FOSSIL FUEL CLEANUP

Finally, we need to act now to start winding down existing fossil energy extraction—and, crucially, make sure that the industry is prevented from abandoning their responsibilities for cleaning up the long-term damage of this legacy. Pennsylvania's fossil fuel lobby is currently blocking funds badly needed to clean up the state's thousands of abandoned and leaking oil and gas wells (as many as 300,000-500,000 today, many long predating the state's recent fracking boom). These extractive residues are a major public health and environmental justice crisis, threatening local water supplies and worsening climate change through unregulated methane releases. Tightening rules in the state legislature and in the Department

of Environmental Protection's Office of Oil and Gas Management, as well as making companies pay the true costs of end-of-life cleanup will be critical to mitigating the impacts of Pennsylvania's boom and bust fossil natural gas economy, preventing knee-jerk new buildup or refracking in response to recent price rises and avoid future volatility.

Like other states, Pennsylvania requires oil and gas companies to take out bonds as part of the permitting process required before drilling a well—if the company fails to plug the well itself once it stops extraction, the state, in theory, can use the upfront money to seal the well itself. However, Pennsylvania's required bond amounts are only a fraction of the cost it actually takes to plug a well, making it cheaper for companies to simply 'orphan' wells and forfeit their bonds rather than properly plug them.[173] Pennsylvania needs to raise this bond rate now. The state could receive up to $330 million under new federal infrastructure funding for well cleanup—the second largest of any US state—with stipulations to prioritize hiring and cleanups near historically marginalized communities, but $40 million in federal funds depend on the Pennsylvania legislature raising the bond rates for well cleanup.[174] We add our voice to petitions by the Sierra Club and other environmental groups, which call for the bonding rate to be raised to $38,000 for every conventional well, and to $83,000 for each unconventional well.[175] Taking action now by pressuring the legislature (especially the Environmental Resources & Energy Committees in the state House and Senate), while the Infrastructure Bill stimulus is making its way through Pennsylvania's planned closure and capping activities, will provide a multiplier effect on the growth of jobs in the Pennsylvania oil and gas plugging sector, as well as its capacity to undertake more well-capping jobs and complete them more efficiently.

173. Audrey Carleton, "Pennsylvania Oil Lobby Keeps Abandoned Wells Unplugged," The American Prospect, May 10, 2022, https://prospect.org/environment/pennsylvania-oil-lobby-keeps-abandoned-wells-unplugged/; Reid Fraser, "DEP, CNX reach $1.48 M settlement on abandoned wells," StateImpact Pennsylvania, October 11, 2019, https://stateimpact.npr.org/pennsylvania/2019/10/11/dep-cnx-reach-1-48-m-settlement-on-abandoned-wells/; Stephen Ansolabehere, Kathleen Araújo, Yiran He, Alison Hu, Valerie Karplus, Heidi Li, Elizabeth Thom, Dustin Tingley, "A Low Carbon Energy Transition in Southwest Pennsylvania," Roosevelt Project, October 12, 2021, https://www.cmu.edu/energy/roosevelt-project-southwest-pa-case-study-interim-draft-10-12-2021-post.pdf.

174. "Biden Administration Announces $1.15 Billion for States to Create Jobs Cleaning Up Orphaned Oil and Gas Wells," US Department of Interior, January 31, 2022, https://www.doi.gov/pressreleases/biden-administration-announces-115-billion-states-create-jobs-cleaning-orphaned-oil; "Interior Department, Federal Partners Announce Interagency Effort to Clean Up Legacy Pollution, Implement Infrastructure Law," US Department of Interior, January 18, 2022, https://www.doi.gov/pressreleases/interior-department-federal-partners-announce-interagency-effort-clean-legacy.

175. Audrey Carleton, "Pennsylvania Oil Lobby Keeps Abandoned Wells Unplugged," The American Prospect, May 10, 2022, https://prospect.org/environment/pennsylvania-oil-lobby-keeps-abandoned-wells-unplugged.

SUMMARY OF POLICIES

Electric and Gas Utilities

1. Reinstitute the utilities shut-off moratorium.

2. Increase ambition in the Alternative Energy Portfolio Standard.

3. Improve stakeholder representation and diversity on critical administrative boards.

4. Expand and, as needed, create legislative framework for building municipally owned renewable energy capacity.

5. Legislative mandate for grid reform for pricing updates and prioritization of distributed energy resources

6. Work toward a publicly owned, multi-state grid State ownership, including municipalization of power utilities

Housing

1. Create a standing appropriation for Whole Homes Repairs

2. Reintroduce eviction moratorium

3. Facilitate incentives for retrofitting materials and next-generation appliance manufacturing to boost federal funds

4. State-wide ban on gas hookups in new build construction

5. State purchase then distribution of next-generation electric appliances through Whole Homes Repair framework building on federal incentives

6. Incentivize and build new public housing through direct appropriations to cities

7. Increased state and Federal funding for lead service pipe replacement

8. Work toward a Pennsylvania homes guarantee

Ending fossil fuels

1. Impose a severance tax on oil and gas extraction

2. Raise bonding requirements for drilling

3. Build an orphaned and abandoned well workforce Work toward a fossil-free future

SECTION 1: Public Finance for the Public

The first question that is always (often unfairly or nonsensically)[176] asked about progressive policy priorities, including renewable energy or housing retrofits, is 'how are you going to pay for it?'. Aggressive reform of the state's public finance laws and priorities will be necessary to answer that question for a just transition. Pennsylvania's current system of taxes and public investment actually makes inequality worse when the state could be using the 'power of the purse' to make transformative changes that benefit peoples' everyday lives. Corporate interests, in particular, play an outsized role in the Pennsylvania electorate as big banking, fossil fuel, and property developers use money and influence to shape tax rules and other regulations in their favor. As a result, public finance in the state, and the policies that shape it, skew toward extractive economies and away from the interests of working Pennsylvanians. This rigged system has provided cover for the rich and corporations to pay as little as possible into federal, state and local budgets-cover like corporate tax subsidies and tax cuts for the wealthy. The Pennsylvania Budget and Policy Center, for example, found that the state has lost an average of $4.2 billion per year over the last twenty years due to corporate tax cuts, and is expected to lose a further $6.3 billion over the next 10 years from the latest round.[177] In a national study, researchers also found that Pennsylvania has one of the 10 most inequitable tax structures- the tax code is actually widening the racial wealth gap by putting a higher burden, proportionally, on Black taxpayers.[178] On top of that, the Commonwealth is the only major oil and gas producing state that doesn't require companies to pay a severance tax for extracting fossil fuels from the land, forgoing revenue while making

176. Ryan Cooper, *How Are You Going to Pay for That?* (macmillan, 2022), https://us.macmillan.com/books/9781250272348/howareyougoingtopayforthat.

177. Stephen Herzenberg, Diana Polson, Marc Stier, "Corporate Tax Cuts Since 2002 Now Cost PA $4.2 Billion Yearly: Pennsylvania Should Pass Worldwide Combined Reporting," Keystone Research Center, January 27, 2020, https://krc-pbpc.org/research_publication/corporate-tax-cuts-since-2002-now-cost-pa-4-2-billion-yearly-pennsylvania-should-pass-worldwide-combined-reporting/.

178. Diana Polson, "Pennsylvania's Terrible Tax Code Asks More of You as You Make Less: Hits Communities of Color Especially Hard," Keystone Research Center, October 23, 2018, https://krc-pbpc.org/research_publication/pennsylvanias-terrible-tax-code-asks-more-of-you-as-you-make-less-hitting-communitys-of-color-especially-hard/.

it cheaper for oil and gas companies to pollute the land and water while adding to climate change.[179]

INEQUALITY IN THE PENNSYLVANIA TAX REGIME

In Pennsylvania, the top 1% of earners make over 20% more than the bottom 99%, and while economic inequality in the state is pronounced, it has not translated into policies that promote equitable public finance.[180] From budgets, to tax structures and revenue, to expenditures and debt servicing, public finance isn't benefiting the public as much as it could with significant reforms. This has had a range of harmful impacts on Black and Brown households. Black Pennsylvanians are twice as likely to be among the highest taxed and lowest earners compared to white residents.[181] Latinx Pennsylvanians also have a higher likelihood of falling within this category, facing higher effective tax rates. Any attempt to contend with this regressive, and functionally racist tax structure will need to address, first and foremost, the state's uniformity clause.[182] This regressive 'flat' approach to taxes actively disregards how much more poor families experience the burden of taxes when they have limited disposable income - especially when the lowest earners are made to pay a higher proportion of their income than higher wage workers. The same goes for property tax, where the uniformity clause that mandates equal tax rates no matter the type or value of the property- the owner of a skyscraper in Philadelphia and a small home in Lancaster pay the same 1.4% state tax.

Progressive revenue policies rest on the conviction that those who have more should pay their fair share- it is the basis for the taxation policies of most countries, including US federal income tax, and most US states. There are a number of ways to accomplish progressive taxation. For example, wealth taxes and corporate taxes require the ultra wealthy to pay their fair share by taxing hoarded wealth, income, transactions or property- both tangible, like a home or piece of valuable jewelry, and intangible, like the profit from sale of a stock. Increasing wealth and corporate taxes while reducing those that disproportionately impact the poor and working class, like sales taxes, would help take the burden off Pennsylvania's poor- objectives that have to be met in the state legislature and with a broad based campaign to amend the state constitution.

Doing so is critical, because tax uniformity precludes all manner of progressive priorities by codifying an explicitly regressive tax regime and making it challenging for the state, or Pennsylvania cities, to advance public policy priorities through the tax system- a key lever for both promoting the growth of more socially desirable industries or contending with inequality, or for discouraging unwanted industries- especially fossil fuel extraction and consumption. The origins of uniformity laws are also grounded in racist history. The first uniformity clauses arose in slave states that wanted to limit the power of abolitionists in the legislature. Enslaved people were considered property and therefore taxable. Abolitionists proposed aggressive taxes on enslaved people so that it would become prohibitively expensive to participate in slavery, creating a path toward abolition in the south. As a result, slave owners created laws that prohibit different forms of property from being taxed differently. That meant that an enslaved person and a piece of land and a home would all have to be taxed the same. Here we can clearly see how uniformity was designed to reinforce racial capitalism; now, repealing uniformity must be a long-term goal of any progressive public finance campaign.

EXTRACTIVE PUBLIC FINANCE

This regressive tax regime at the heart of Pennsylvania public finance leads to extractive financial relationships that send scarce public resources to big banks and financiers. The inability to tax income, wealth and property progressively

179. James Wesser, "Severance tax proposed on natural gas drilling in Pennsylvania," *ABC27 News*, March 2, 2023, https://www.abc27.com/pennsylvania/severance-tax-proposed-on-natural-gas-drilling-in-pennsylvania.

180. Diana Polson, "Pennsylvania's Terrible Tax Code Asks More of You as You Make Less: Hits Communities of Color Especially Hard," Keystone Research Center, October 23, 2018, https://krc-pbpc.org/research_publication/pennsylvanias-terrible-tax-code-asks-more-of-you-as-you-make-less-hitting-communitys-of-color-especially-hard/.

181. Diana Polson, "Pennsylvania's Terrible Tax Code Asks More of You as You Make Less: Hits Communities of Color Especially Hard," Keystone Research Center, October 23, 2018, https://krc-pbpc.org/research_publication/pennsylvanias-terrible-tax-code-asks-more-of-you-as-you-make-less-hitting-communitys-of-color-especially-hard/.

182. "The Constitution of Pennsylvania," Pennsylvania General Assembly, accessed April 24th, 2023, https://www.legis.state.pa.us/cfdocs/legis/LI/consCheck.cfm?txtType=HTM&ttl=00&div=0&chpt=8.

because of the uniformity clause has meant that cities, school districts, publicly owned utilities, and other public entities have been underfunded and driven to bad deals with financiers to fill the gaps, or to the outright privatization of public goods. Even in the best of conditions, reliance on private finance for the everyday operations of government and maintenance of public infrastructure comes with hefty fees, high interest rates, and a governing style geared toward making debt payments and maintaining an investment-grade credit rating, rather than maximizing social utility. This outlook ultimately hinders accomplishing the public mission of these institutions and instead serves the interest of financiers.

What's more, a 2017 lawsuit led by the City of Philadelphia (along with other cities and states) alleges that big banks secretly agreed not to compete with each other from February 2008 to June 2016, when they controlled about 70 percent of the national Variable Rate Debt Obligation (VDRO) market, charging municipalities across the country up to seven times the rate they would have secured without the banks' anti-competition collusion over these years.[183] Similar to a variable rate mortgage, the interest rates on these VDROs (effectively a loan to cities) fluctuates, typically weekly. When those interest rates were low, municipalities paid less interest on their debts, however this meant that investors were also more likely to opt to sell the securities based on these low-interest VDROs in search of higher profits. The lawsuit alleges that the banks worked together to keep the interest rates high so that investors would not sell. Without sellers, the banks would have to do a lot less work, and they could still keep charging municipal borrowers tens of millions a year in falsely inflated fees, funneling already scarce state tax revenues into private debt markets and away from the improvement of everyday life in Pennsylvania. State and local governments in Philly, Baltimore, California, Illinois and New York have identified VRDOs and filed suit against the banks who served as remarketing agents for the bonds. In these lawsuits, they are holding banks responsible and demanding pay back for the excess fees charged to state/local governments. However, there is still an absence of political will to wean states and cities off of their complete reliance on Wall Street for long term debt obligations, and very little to no exploration of other, more equitable, public financing mechanisms.

Public finance that works for the public will still rely on debt to some extent, but cities would be able to self-finance operations and more projects (and likely get lower borrowing costs) more effectively if they had better, more progressive ways to raise revenue according to democratic agreement about what municipal tax structures ought to look like. In addition to this, cities in Pennsylvania are increasingly handcuffed in a number of ways by preemption,[184] or the practice of nullifying city rules or ordinances by state government. In theory, this tool of state government could be used for either progressive or conservative ends, but in practice it has stifled cities' ability to raise revenue- or to enact environmental and social justice ambitions of city-based residents. States have become more heavy handed in their use of preemption with the rise of the reactionary wing of the Republican Party. In particular, Republican-held state legislatures have sought to use preemption against initiatives launched by large, Democratic dominated cities, which means BIPOC Pennsylvanians living in Philly, Pittsburgh and other urban areas are disproportionately subject to the preemption of their political will by the state. Some of the most common uses of preemption in recent years have been to halt municipal attempts to address or regulate minimum wage and paid-sick leave laws, gun laws, local tax limitations, short-term rental housing, the ride-sharing business, and rent-control and other local housing policy. In terms of building strategy, it is key to know that preemption is not a general legal provision but is rather applied on a law-by-law basis. So each issue will be attached to its own legislative fight.

While, traditionally, taxes have taken center stage in conversations about funding community needs, there are other options available – but they come at serious costs. These are primarily issuing debt on the municipal or national bond markets, like VDROs, and privatizing local revenue generating services traditionally handled by the public sector. This latter process can range from piecemeal contracts for individual services within the public sector (eg outsourcing staffing services, which often has disproportionate impacts on Black and Brown workers), to full privatization of the public department in question (like selling a municipal water department to a private company) or working within the public-private-partnership (PPP) framework as discussed above in terms of the state's renewable energy

183. "Case 1:19-cv-01608," February 20, 2019, https://images.law.com/contrib/content/uploads/documents/402/36507/2019.02.20-Philly-VRDO-complaint.pdf.

184. "Local Preemption In Pennsylvania," Pennsylvania Municipal League, accessed April 23, 2023, https://www.pml.org/advocacy/local-preemption-in-pennsylvania/.

procurement.[186] Other common avenues of public finance include securing federal grant money and working with philanthropic foundations (this last option is a new darling of neoliberal governance, but has been critiqued for philanthropic foundation fickleness – projects have unstable timelines and can come crashing to a halt if the foundation pulls out.)[187] Each of these strategies is rife with problems that regularly lead to higher costs and worse services for the people who depend on them, once again demonstrating that taxation to fund well staffed government services and operations is the most equitable path toward financing a state that works for everyone.

One critical way that underfunded public services impact the state, and BIPOC workers in particular is that 'shrinking government' often does not result in better services or even cut the prices of those services, but it does often result in driving BIPOC workers out of good, secure, often low-carbon government jobs—a trend since the 1970s. On top of lost employment, insufficient tax revenue disproportionately harms services that BIPOC communities rely on. This problem is especially acute in terms of funding schools, but also has meant a dearth of public housing, poor public health services, and insufficient investment in neighborhoods with decaying infrastructure—creating racially uneven harms which will only get worse as the climate crisis bites.

PUBLIC FINANCE AND WATER PRIVATIZATION

Targeting the increasing privatization of Pennsylvania's essential water services is one way to build connections between public finance and the household-level affordability crisis discussed above: the privatization of water and wastewater services has been a major driver of cost jumps for working Pennsylvanians. Pennsylvania has inherited water utility infrastructures with many legacy problems such as lead contamination and combined sewer overflow (CSO)—in which combined stormwater and wastewater treatment systems result in major discharges of untreated sewage during big rainfall events—as well as general maintenance needed for aging infrastructure.[188] A number of Pennsylvania cities like Harrisburg, Pittsburgh, Scranton, and Lancaster are under federal consent decrees from EPA and the Pennsylvania Department of Environmental Protection (DEP) for violations of the Clean Water Act, which requires them to undertake unfunded but mandatory maintenance and upgrades to address their growing stormwater management issues- mandates which even further constrain spending on critical issues like lead pipe replacement in Pittsburgh.[189] CSO problems are likely to worsen under climate change alongside other flood risks, with an increase in extreme weather in the state.[190]

These CSO-related EPA consent decrees have also proven to be a leading contributor to high levels of municipal debt and even insolvency. The water (and electric) utilities of Birmingham, AL, Detroit, MI and Puerto Rico respectively were all large contributors to the municipal bankruptcies of these places, and Jackson MS, Atlanta, GA and Baltimore, MD have all weathered credit ratings downgrades (leading to higher borrowing costs) and/or crises of governance related to addressing EPA consent decrees for CSO water systems. Meanwhile St. Louis, MO, Houston, TX, and Baton Rouge, LA are also facing similarly treacherous constraints. Any municipality in Pennsylvania facing the imposition of large unfunded, yet mandated infrastructural costs associated with water system maintenance and improvements is at risk of a credit ratings downgrade. Cities with large BIPOC populations encountering material legacies of racism, such as redlined neighborhoods or structural losses to the tax-base due to white flight and/or deindustrialization are especially vulnerable to negative borrowing

186. "Public-Private Partnerships," PENNDOT, accessed April 24, 2023, https://www.penndot.pa.gov/ProjectAndPrograms/p3forpa/Pages/default.aspx.

187. Miranda Green, "Rockefeller to end city-based climate change program and lay off staff," *The Hill*, April 1, 2019, https://thehill.com/policy/energy-environment/436797-rockefeller-to-end-resilient-cities-push-and-layoff-staff/.

188. "Combined Sewer Overflows," PA Department of Environmental Protection, accessed April 24th, 2023, https://www.dep.pa.gov/Business/Water/CleanWater/WastewaterMgmt/Pages/CSOs.aspx; Ad Crable, "Bay Journal: Fix For PA's Sewage Overflow Pollution - Worst In U.S. - Neither Quick Nor Easy," PA Environment Digest, July 20, 2020, http://www.paenvironmentdigest.com/newsletter/default.asp?NewsletterArticleID=50550&SubjectID=193.

189. Madison Goldberg, "PA cities have a sewer-system problem. Green infrastructure can help — but comes with its own risks," StateImpact Pennsylvania, August 5, 2021, https://stateimpact.npr.org/pennsylvania/2021/08/05/pa-cities-have-a-stormwater-problem-green-infrastructure-is-a-complicated-solution/.

190. Rachel McDevitt, "Study: Flood risk rising across Pennsylvania as climate changes," StateImpact Pennsylvania, December 31, 2021, https://stateimpact.npr.org/pennsylvania/2021/12/31/study-flood-risk-rising-across-pennsylvania-as-climate-changes/.

City	Buyer	Year	Percentage rate rise (actual or projected)
Limerick Township	Aqua PA	2018	98%
Cheltenham	Aqua PA	2020	69%
East Bradford	Aqua PA	2018	47%
East Norriton	Aqua PA	2018	73%
New Garden	Aqua PA	2017	90%
Lower Makefield	Aqua PA	2020	28%
Willistown	Aqua PA	2022	86%
East Whiteland	Aqua PA	2022	133%
Towamencin	NextEra	2022	236%

Table 2. Selected Pennsylvania Public Water Company sales since 2017

assessments. When a city's credit is downgraded, it becomes more expensive to borrow funds in order to address issues in the built environment and provide public services. The more expensive it is to borrow, the higher the debt load, the worse subsequent credit assessments become. Credit downgrades therefore often trigger additional downgrades until the city eventually falls into insolvency.

These consent decrees are particularly challenging for cities to deal with because US federal funding for public water systems has drastically declined since 1977.[191] Now municipal utilities predominantly rely on rate increases and borrowing to fund infrastructure upgrades, as well as compliance requirements and future climate needs. Additional stormwater fees have become another pathway for addressing CSO issues. In 2011, Philadelphia became the first urban/local government in the state to start charging residents stormwater management fees.[192] In part due to changes in state law enacted in 2014 and 2016 to make these charges easier, 35 PA municipalities and authorities now charge similar fees, including Harrisburg, Allentown, and West Chester. Rate increases by public utilities are another source of rising costs. For example, working in its Public Advocate role in water rate proceedings, Community Legal Services (CLS) recently negotiated down a proposed rate increase from the Philadelphia Water Department—it had asked the Philadelphia Water, Sewer and Storm Water Rate Board for a $141 million rate increase over two years, though CLS's settlement brought that increase down by $84 million.[193]

191. Nina Lakhani, "'Corporate vultures': how Americans fearing higher water bills are fighting takeover," *The Guardian*, January 25, 2022, https://www.theguardian.com/us-news/2022/jan/25/corporate-vultures-americans-fearing-higher-water-bills-fight-takeovers.

192. Anne Danahy, "Increasing rain, aging infrastructure lead growing number of municipalities to adopt stormwater fees," StateImpact Pennsylvania, April 2, 2021, https://stateimpact.npr.org/pennsylvania/2021/04/02/increasing-rain-aging-infrastructure-lead-growing-number-of-municipalities-to-adopt-stormwater-fees/.

193. "CLS IS WORKING TO KEEP WATER RATES AFFORDABLE, AND WE NEED YOUR HELP!," Community Legal Services of Philadelphia, March 18, 2022, https://clsphila.org/utilities/special-rate-proceeding/.

However, a particularly problematic turn in this challenge has been the entry of private companies seeking to buy PA's public water utilities. These private water and wastewater utilities often tout privatization as a route toward bailing out fiscally stressed municipal owners and facilitating more efficient repair and modernization—and justify major cost increases to households as simply reflective of the true costs of repair in the system.[194] Pennsylvania regulators enabled these moves via a key 2016 change to the state's public utility code, called Act 12, which allows utilities to be sold for 'fair market value' rather than 'depreciated value'.[195] This change essentially allows private companies to acquire public utilities for more than they are worth. It has provoked a major wave of buy-outs and mergers in the state and the law has been copied since by at least 11 other US states. A big result of these privatizations in practice has been rising costs for PA households.

For example, one prominent private water utility leading this privatization wave has been Aqua—which bills itself as a 'Pennsylvania Water Privatization Company' and is now a subsidiary of Essential Utilities, the US's second largest publicly traded water and wastewater company. Aqua/Essential Utilities has been aggressively targeting PA public utilities for acquisition (even ones not under serious fiscal stress) and has drastically increased costs to households once ownership has been secured.[196] One of Aqua's attempted hostile takeovers has targeted Chester Water Authority, which serves a Black-majority city in the Philadelphia area.[197] This Authority is tracking hikes in privatized versus public rates across 239 municipalities in Southeastern Pennsylvania.[198] They are right to be concerned- communities in suburban Philadelphia that have private water companies pay nearly double the rates of those who are served by Philadelphia's city-owned water company.

Water utilities aren't the only public entity suffering from extractive public finance conditions. Public schools in Pennsylvania have been forced to pay millions to Wall Street investment banks for coming up on the wrong end of financial products known as interest rate swaps. In an attempt to hedge against the risk of rising interest rates, school districts were sold interest rate swaps, which would save them money in rising interest rate environments, but cost them millions if the interest rate lowered, which is exactly what happened.[199] Schools in Pennsylvania are also inequitably funded by state and federal governments, with schools educating the most BIPOC students receiving about $35k less per classroom in instructional resources.[200] This means that schools with more BIPOC students are also forced to borrow more on the market to make up for the differences in funding amounts, making them more vulnerable to Wall Street tactics like predatory interest rate swap deals. Because of this funding gap, schools in many

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194. Lillian Federico, Pa. Regulation Viewed As Among The Most Constructive For Energy Utilities," S&P Global, October 1, 2019, https://www.spglobal.com/marketintelligence/en/news-insights/research/pa-regulation-viewed-as-among-the-most-constructive-for-energy-utilities.

195. Nina Lakhani, "'Corporate vultures': how Americans fearing higher water bills are fighting takeover," *The Guardian*, January 25, 2022, https://www.theguardian.com/us-news/2022/jan/25/corporate-vultures-americans-fearing-higher-water-bills-fight-takeovers; "2016 Act 12," PA General Assembly, accessed April 24, 2023, https://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=2016&sessInd=0&act=12; Michael D. Klein and David P. Zambito, "Pennsylvania's New Law for Valuing Acquired Municipal/Authority Water and Wastewater Systems ," Cozen O'Conner, May 4, 2016, https://www.cozen.com/news-resources/publications/2016/pennsylvania-s-new-law-for-valuing-acquired-municipal-authority-water-and-wastewater-systems.

196. "AQUA– a Pennsylvania Water Company," AQUA, accessed April 24, 2023, https://www.waterbyaqua.com/privatization-by-state/pennsylvania/; Nina Lakhani, "'Corporate vultures': how Americans fearing higher water bills are fighting takeover," The Guardian, January 25, 2022, https://www.theguardian.com/us-news/2022/jan/25/corporate-vultures-americans-fearing-higher-water-bills-fight-takeovers.

197. Nina Lakhani, "'Corporate vultures': how Americans fearing higher water bills are fighting takeover," The Guardian, January 25, 2022, https://www.theguardian.com/us-news/2022/jan/25/corporate-vultures-americans-fearing-higher-water-bills-fight-takeovers.

198. "COMPARING DROP TO DROP," Chester Water Authority, February 1, 2023, https://chesterwater.com/map/.

199. Joseph N. DiStefano "Wall Street Wins as Pennsylvania Public Schools Bet Against Interest Rates," *The Philadelphia Inquirer*, October 7, 2019, https://www.inquirer.com/business/phillydeals/swaps-public-school-finance-property-tax-loss-20191007.html.

200. Tomea A. Sippio-Smith,"4 Ways Tom Wolf Can Improve Racial Equity in PA Schools," *The Philadelphia Inquirer*, May 17, 2022, https://www.inquirer.com/opinion/brown-v-board-of-education-pennsylvania-schools-equity-20220517.html.

working class parts of Pennsylvania lack appropriate infrastructures to ensure safe learning environments, especially during unpredictable climate change. School roofs have collapsed, flooding events have been reported, and most recently, tens of thousands of students were released from school early due to high temperatures and lack of air conditioning, with almost 60% of schools in Philadelphia lacking appropriate climate control systems.[201]

PUBLIC FINANCE/WATER SOCIAL MOVEMENTS

In terms of the social movement landscape for public finance, there are many organizations throughout the state that focus on how public budgets and finance impact our public services. Philly Thrive, most notable for its work shutting down a southside refinery, is another local organization explicitly working on issues pertinent to transitioning Pennsylvania to a green economy.[202] The PA Climate Equity Table, Philly Climate Works, and the Organizing Center are all integral actors in the local movement space who work at the intersection of social, racial, climate justice and labor force issues.[203] Zakiya Elliot, recently working as a coordinator with the climate works chapter of the PA Sierra Club, and Brianne Moy working out of Pittsburgh were both identified as key actors in terms of doing social justice work in western and rural PA on climate- intersecting issues. While not solely focused on PA, the Action Center for Race and the Economy (ACRE) has vested interests in the state as well as an active research and advocacy agenda. They are the biggest actor in terms of progressive public finance in the state right now.

In terms of water utilities, Food and Water Watch is a national organization supporting a lot of the work ongoing in Pennsylvania.[204] The Peoples Water Project is another broad based coalition fighting for water as a public good, and who are especially focused on fighting against water privatization in low income and BIPOC communities.[205] The key Pennsylvania based organization to connect with is NOPE - Neighbors Opposing Privatization Efforts (NOPE).[206] They are a grassroots organization working to ensure PA residents have a right of refusal against utility privatization via democratic referendum. The NOPE strategy was originally developed from the Norristown experience fighting against a hostile privatization bid for their wastewater system.[207] Norristown is a charter city, which granted provisions enabling it to have a referendum/ballot campaign against the takeover bid by Aqua. The referendum strategy was successful and Norristown was able to retain public control over their water infrastructure. Since then NOPE has established chapters in a number of PA municipalities currently fighting against privatization bids, with the Chester and Bucks County Water Authorities being two of the largest fights. On Tuesday September 6, welcome news came out of Bucks County suggesting privatization opponents were nearing victory, with the city council voting to rescind the acceptance of Aqua's unsolicited bid for their water system. However, the right to know when unsolicited bids have been made is not always guaranteed, with some firms pressuring communities to deny right to know requests (as initially happened in Bucks County), or to even sign non-disclosure agreements preventing water authorities and city councils from communicating privatization processes to city residents. Because of these underhanded tactics, Charter campaigns have become the key to successfully resisting privatization takeover attempts in Pennsylvania and will be a source of strategy consolidation in the near future.

POLICY DIRECTIONS

The tactic of organizing against the outcomes of technocratic rules like preemption, uniformity, and complicated school funding models is strategically

201. Aubri Juhasz, "Philadelphia schools close due to high temperatures and no air conditioning," *WHYY*, August 31, 2022, https://www.npr.org/2022/08/31/1120355494/philadelphia-schools-close-due-to-high-temperatures-and-no-air-conditioning.

202. "Homepage," PhillyThrive, accessed April 24, 2023, https://www.phillythrive.org/.

203. "Homepage," PA Climate Equity Table, accessed April 24, 2023, https://paclimateequity.org/; "About," The Organizing Center, accessed April 24, 2023, https://www.theorganizingcenter.org/about.

204. "Homepage," Food & Water Watch, accessed April 24, 2023, https://www.foodandwaterwatch.org/.

205. "Homepage," Peoples Water Project, accessed April 24, 2023, https://peopleswaterproject.org/.

206. "Homepage," NOPE, accessed April 24, 2023, https://www.stopthesewersale.com/.

208. Andrew Maykuth, "Bucks County Nixes Proposed $1.1 Billion Sewer Sale to Aqua Pennsylvania AMid Public Outcry," The Philadelphia Inquirer, September 6, 2022, https://www.inquirer.com/business/bucks-county-bcwsa-aqua-sewer-utility-sale-20220906.html

sound, but it tends to silo different yet related campaigns by severing the public finance thread that connects them together. This makes building a broader platform that ties them together tricky. In response to this challenge of building a longer-term strategic platform that connects various projects through their public finance relation, one approach is to develop a "Public Finance for a Just Transition" campaign, which could be used to hold space for all public finance related issues and to add more as they appear, and link state level fights to local struggles – for example by building the campaign for a state-level public investment bank to the movement for Philadelphia's public bank.

One of the primary challenges for the public finance arm of the Pennsylvania solidarity economy project is the fact that public finance is traditionally a very unsexy rallying point. It can be hard to get people excited about changing bond regulations or resisting new valuation rules for public utilities. For those groups seeking to take on public finance reform, this has typically been strategically addressed by developing campaign strategies around the outcomes of public finance rather than its specificities. Using this strategy, we would for example, headline a campaign against increased water department privatization, which is an outcome of new valuation rules in PA, rather than the rules themselves.

SOLUTION 1: FAIR SHARE TAXES

Public finance for people not for profit would design a progressive state income tax policy that works around- or better, repeals- the state constitution's uniformity clause.[209] The uniformity clause has long stood in the way of creating a more progressive taxation system; the Commonwealth's 3% flat income tax is the second lowest top marginal tax rate in the US. A campaign against a similar rule in Michigan is building momentum, targeting repeal of uniformity through a constitutional amendment ballot initiative linked to creating a trust-fund for safeguarding the Great Lakes.[210] Identifying a similar outcome with broad public support that can anchor a campaign for progressive taxation could be developed through coalition building on many of the issues raised in this report. Progressive taxation at the state level should be implemented alongside repeal of local tax preemption in order to free cities and towns to raise the revenue they need for pursuing just transition priorities like urban climate adaptation, worker retraining, public building retrofits, and more, which, when successful, could feed into more ambitious state-wide policy. For example, if big cities build public renewables first and show that democratic control of clean energy is cost effective and offers better service, it could help build momentum state-wide.

Further, a public finance for people not for profit would also implement a severance tax, or similar tax instrument, in line with (or above) other oil and gas producing states, that could provide funds for a variety of workforce development projects under just transition principles.[211] It would also seek to repeal Act 12 in order to prevent the wave of water utility privatization happening across the state, as well as restructure oil and gas bonding requirements to fully fund a responsible plugging program. Finally, a more equitable, just transition-aligned tax system would provide fiscal support to PA's underfunded and ill-maintained public schooling infrastructure, providing a safe environment for Pennsylvania kids to learn in, even during inclement and increasingly unpredictable weather.

SOLUTION 2: PUBLIC BANKS

Beyond tax code fixes, one critical intervention (and ongoing campaign) would be the establishment of a Pennsylvania Public Bank that can invest in infrastructure, lend to schools and cities at fair rates, and speed up the deployment of renewable energy generation- especially by lending to other public authorities.[212] Public banking can better facilitate a just transition because a public bank owes allegiance to the community they serve, rather than to institutional shareholders. Public banks are not driven by a profit motive, so any surplus profits that are made could be returned to the state's general fund or used to

209. "The Constitution of Pennsylvania," Pennsylvania General Assembly, accessed April 24th, 2023, https://www.legis.state.pa.us/cfdocs/legis/LI/consCheck.cfm?txtType=HTM&ttl=00&div=0&chpt=8.

210. Timothy Vermeer, "State Individual Income Tax Rates and Brackets for 2023," Tax Foundation, February 21, 2023, https://taxfoundation.org/publications/state-individual-income-tax-rates-and-brackets/.

211. Peter Hall, "Pennsylvania Gov. Tom Wolf floats natural gas tax to pay for $3 billion pandemic recovery plan," *The Morning Call*, February 22, 2021, https://www.mcall.com/2021/02/22/pennsylvania-gov-tom-wolf-floats-natural-gas-tax-to-pay-for-3-billion-pandemic-recovery-plan/.

212. "Creating a Public Bank Will Test Philadelphia City Council," Pennsylvania Public Bank Project, accessed April 24, 2023, https://publicbankingpa.org/.

directly invest in local infrastructural, ecological, or social initiatives. Further, public banks can also include social and racial equity provisions in lending, both in individual project stipulations and in constructing its portfolio to focus on underserved or marginalized communities. Philadelphia has already started down this path after the city council overwhelmingly voted to approve the creation of a municipal public bank this year; the state should follow suit and establish a public bank to jump start finance on just transition projects – especially building publicly owned utilities as discussed above. Doing so quickly is imperative. The Inflation Reduction Act includes billions of dollars in funds that public banks- run by cities, Tribes, and states- can use to invest in clean energy projects, housing retrofits and energy efficiency upgrades, and locally important adaptive infrastructure projects.[213]

SOLUTION 3: PARTICIPATORY BUDGETING

The ultimate goal of a campaign to make public finance work for the public is to create democratic, participatory budgeting processes across all levels of government. While this is certainly a long-term goal that will only be achieved after other kinds of tax and budget reform (right now many of the provision enacted by participatory budgeting at the city level could be preempted by regressive state rules), the idea is that the state's residents, rather than its industry-captured legislators, should define spending priorities. In Pennsylvania, participatory budgeting could be implemented by state, county, and city governments, enabling residents to electorally define high-priority projects and services- in the case of facilitating a just transition in Pennsylvania, this might include scaling back subsidies for fracking while increasing spending on schools. The classic example of a participatory budget is the city of Bueno Aires,[214] and the policy has spread to other countries across Latin America and Europe- and recently, a pilot program in Philadelphia. While Philly's experiment with participatory budgeting is a very limited pot of $1 million, lessons can be learned and then the process improved upon across the Commonwealth.[215]

213. Maxine Joselow, "State climate action could be supercharged by the Inflation Reduction Act," The Washington Post, August 17, 2022, https://www.washingtonpost.com/politics/2022/08/17/state-climate-action-could-be-supercharged-by-inflation-reduction-act/.

214. "Autonomous City of Buenos Aires, Participatory Budget," Participedia, accessed April 24, 2023, https://participedia.net/case/503.

SOLUTION 4: STOP AND REVERSE WATER PRIVATIZATION

Regarding the state of Pennsylvania's water access and affordability, the most impactful near term action is to repeal harmful utility regulations, especially Act 12. Rescinding Act 12's so-called fair value legislation would stop the rush to privatize water utilities by capping the amount corporations can offer cash-strapped cities and making it harder to pass the costs of privatization on to residents. Banning unsolicited bids on municipal water systems by private corporations would similarly take the edge off of Pennsylvania's water privatization gold rush. Just like overly aggressive realtors trying to buy unlisted houses, smaller cities and townships are often overwhelmed by high pressure tactics that accompany unsolicited bidding for off-market water utilities.

While repealing Act 12 and its attendant practices like fair market valuation and unsolicited bidding would take the heat off of Pennsylvania water utilities by disincentivizing these extractive practices, there are also some proactive actions city councils and the legislature could take as well. A 'rate payer bill of rights' that includes things like guaranteed access to average billing amounts and ensuring that voters have a right to rescind privatization deals at the ballot is one way to reintroduce transparency and democratic oversight into the process.[216] Lastly, it is crucial to get the word out to municipal officials and the public that now is a particularly bad time to privatize because only public utilities are eligible to receive funds from the Bipartisan Infrastructure Law. Once privatized, municipalities lose access to that influx of funding.

REMUNICIPALIZATION

The long term goal of a public finance for water security campaign should be remunicipalization, with the ultimate aim to establish free residential access to clean water as a human right. Remunicipalization, also known as "reverse privatization", would bring formerly privatized public service delivery processes back under

215. "Philadelphia Announces Participatory Budgeting & Other Equitable Budgeting Initiatives to Reduce Racial Disparities and Improve Community Outcome," City of Philadelphia, December 1, 2020, https://www.phila.gov/2020-12-01-philadelphia-announces-participatory-budgeting-other-equitable-budgeting-initiatives-to-reduce-racial-disparities-and-improve-community-outcomes/.

216. "Regular Session 2021-2022, House Bill 144," PA General Assembly, January 13, 2021, https://www.legis.state.pa.us/cfdocs/billInfo/billInfo.cfm?sYear=2021&sInd=0&body=H&type=B&bn=144.

local, democratic control. It can bring costs down for end users, establish operational and financial transparency, improve service delivery, and introduce more ecologically sensitive production and distribution processes. With the repeal of the uniformity and preemption frameworks and the introduction of progressive taxation structures and mechanisms, public utilities- including water, power, broadband, and more– can be fully funded, with ample money for repair and maintenance. The pivot towards free residential water as a human right can begin by strengthening protections against residential shutoffs, at either (or both) the municipal level or through the state's utility commission. A full ban on all shutoffs would mark a major early milestone on the road towards water as a human right.

SUMMARY OF POLICIES

Water

1. Reinstate shut off moratorium

2. Stop new privatizations of municipal water systems and raise awareness of lost federal funding to municipalities considering privatization

3. Repeal Act 12 and reintroduce rules that discourage privatization

4. Create enabling legislation and funding for remuncipalization of water systems

5. Guarantee water as a human right for all Pennsylvanians

Public Finances

1. Repeal local tax preemption

2. Appoint the Philadelphia Public Financial Authority's Board of Director

3. Authorize a statewide Green/Infrastructure Public Bank

4. Allocate funding for state technical assistance to local and county green banks

5. Constitutional amendment for statewide progressive income tax

6. Implement state-wide wealth tax on hoarded assets

7. Fully fund state agencies responsible for aspects of just transition

8. Build toward state-wide participatory budgeting

CONCLUSION

From the Gulf to Appalachia and across the United States, communities, towns, and cities are suffering the consequences of an extractive economy. Fossil fuels poison the air and water where they are extracted, then cause further harm to people near and far when they are burned. At home, people are squeezed on all fronts; the cost of housing is rising in homes that are aging, especially for people who rent. The cost of fossil-fueled energy is unpredictable and often exorbitant as investor-owned utilities gouge customers and far-away geopolitics impact peoples' ability to keep their homes warm. The impacts of this extractive economy are not shared equally; BIPOC and working class communities disproportionately suffer the consequences.

The need for a less extractive economy, with secure, comfortable homes serviced by democratically controlled utilities, could not be more clear. But it is going to take a lot of work to get there. It will require reshaping tax codes that benefit the rich, the landlords, the fossil fuel companies, and the multinational companies buying up public services and turning them into investor profit; it will require government investment to retrofit homes and drive the buildout of renewable energy systems; and it will require a lot of organizing to make these things happen. But this organizing is already happening in communities across the country – especially in Pennsylvania. Recent legislative wins like the Whole Homes Repairs Act have shown that it is possible to fight and win for material improvements for working people when movements have a clear vision, strong coalitions, and specific demands. We hope this document will help in building momentum to a less extractive economy shaped by democratic demands that can contribute to, instead of hindering, brighter futures for all.

FURTHER RESOURCES

State of Working Pennsylvania 2022: This report from the Keystone Budget Center offers a good overview of the state of the Pennsylvania economy and how trends in the commonwealth reflect national trends. It is mostly focused on employment and issues for working people, especially wages and collective bargaining. Building a solidarity economy will mean lifting up workers through better wages, conditions, and training opportunities, which this report details.

FracTracker Pennsylvania Map: This is a comprehensive, interactive map of oil and gas drilling across Pennsylvania that includes both conventional and fracked wells, as well as every code violation issued to a driller since 2008. The FracTracker Alliance website has a wealth of materials on the impacts of fracking, and on policy options to reign in fossil fuel production.

Cancel Wall Street! (Primer on Public Banking): This report from the Action Center on Race and the Environment and The Bargaining for the Public Good Network explains the nuts and bolts of public banking, and what communities have to gain by lending to themselves instead of relying on Wall Street Banks. It also features a helpful introduction to city-level public finance, and how better federal policies- like the public banking provisions in the Inflation Reduction Act- could improve the economic outlook for cities.

People's Utility Justice Playbook: The People's Utility Justice Playbook offers straightforward explanations of what utility justice means, and how it could be achieved. Following many of the steps offered in this playbook will be crucial to building toward a public renewables-powered economy in Pennsylvania.

The State of Environmental Justice in Pennsylvania: This one hour video of an event hosted by Chester University features speakers from across the Commonwealth discussing environmental justice problems, and what should be done about them. The speakers cover activism and legal action on topics including water and fossil fuel extraction with a focus on racial and economic dimensions of environmental injustice.