Targeting Energy Justice: Race, Renewables, and Efficiency

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Toward a Study of Energy Justice

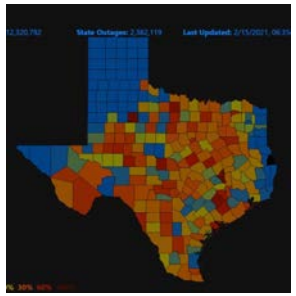
A Just Energy System- an energy system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making (Sovacool & Dworkin, 2014)

- It involves the following key elements:
  - Costs, or how the hazards and externalities of the energy system are imposed on communities unequally, often the poor and marginalized;
  - Benefits, or how access to modern energy systems, technologies, and services are highly uneven;
  - Procedures, or how many energy projects proceed with exclusionary forms of decision-making that lack due process and representation.

The United States of Energy Insecurity

TEXAS NEWS

Texas power outages: How the largest energy-producing state in the US failed in freezing temperatures



Economic Policy

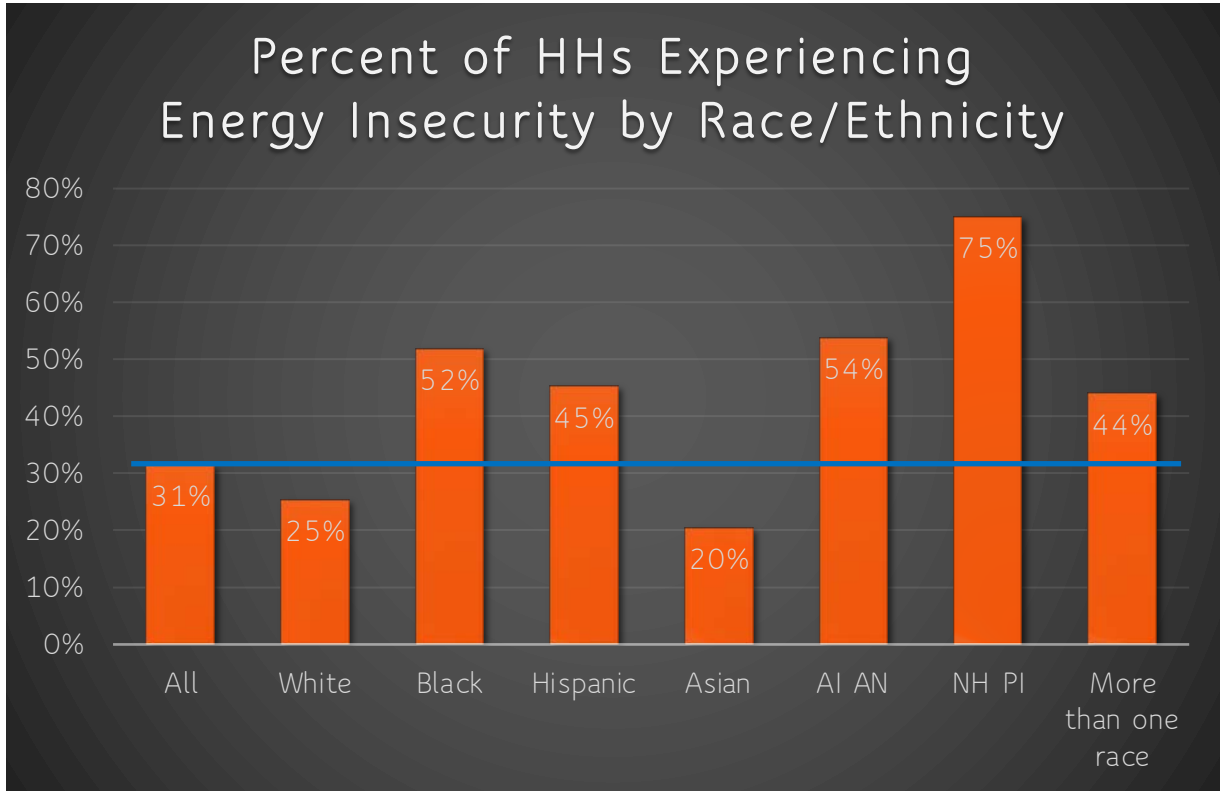
Millions of Americans risk losing power and water as massive, unpaid utility bills pile up

More than 179 million people may be at risk for shut-offs as many state protections end.

The United States of Energy Insecurity

1 in 3 US HHs face energy insecurity (U.S. EIA, 2015)

- Energy insecurity is the inability to adequately meet household energy needs, and includes physical, economic, and behavioral dimensions that lead to or exacerbate adverse health issues (Hernandez, 2016)
- Energy insecurity challenges (EIA, 2015)
  - 1 in 5 HHs reducing or forgoing basic necessities like food and medicine to pay an energy bill
  - 14% of HHs receiving a disconnection notice for energy service.
  - 11% of HHs keeping their home at an unhealthy or unsafe temperature.

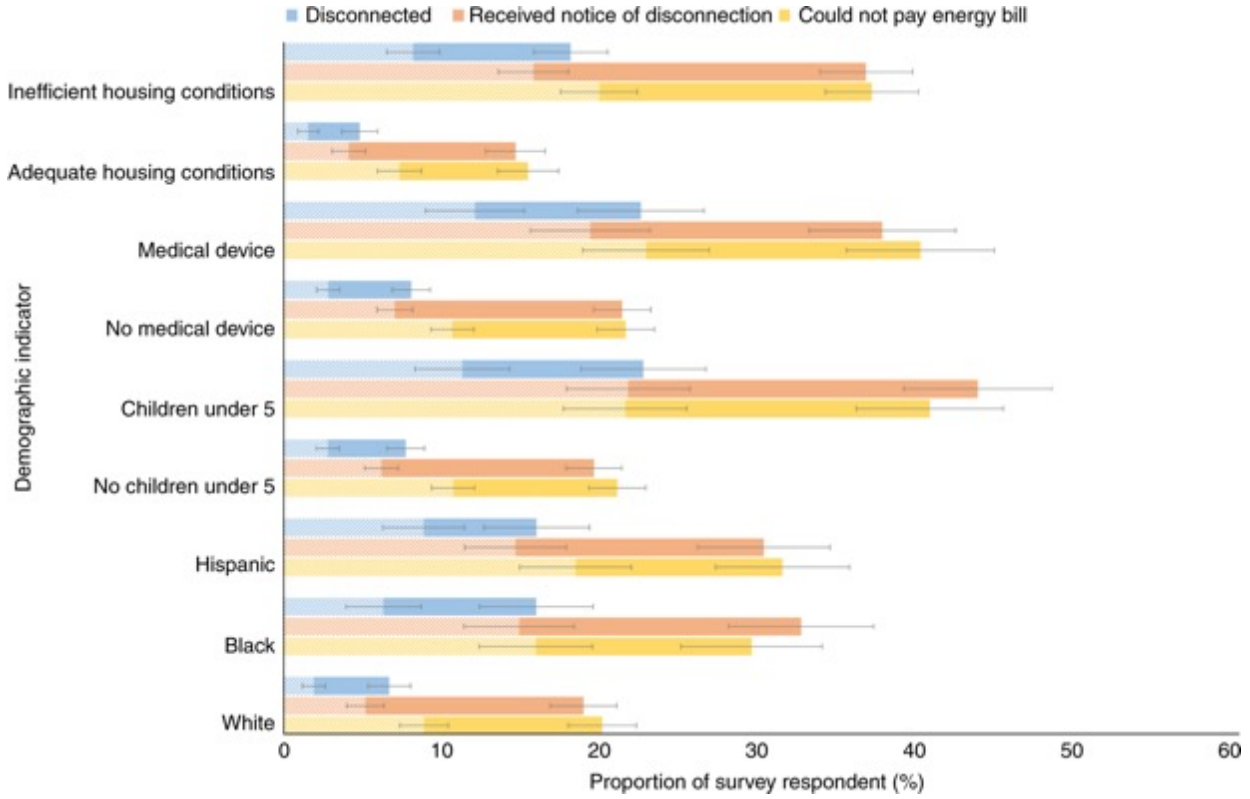


Data Source: US Energy Information Administration Residential Energy Consumption Survey, 2015

The United States of Energy Insecurity

The pandemic has worsened energy insecurity (May 2020)

- Disparities have grown since the beginning of the COVID-19 pandemic
- A higher prevalence of energy insecurity during the early period of the COVID-19 pandemic
- Experienced worsened levels of energy insecurity
  - Inefficient housing conditions
  - Medical devices
  - Children under 5
  - Hispanic
  - Black

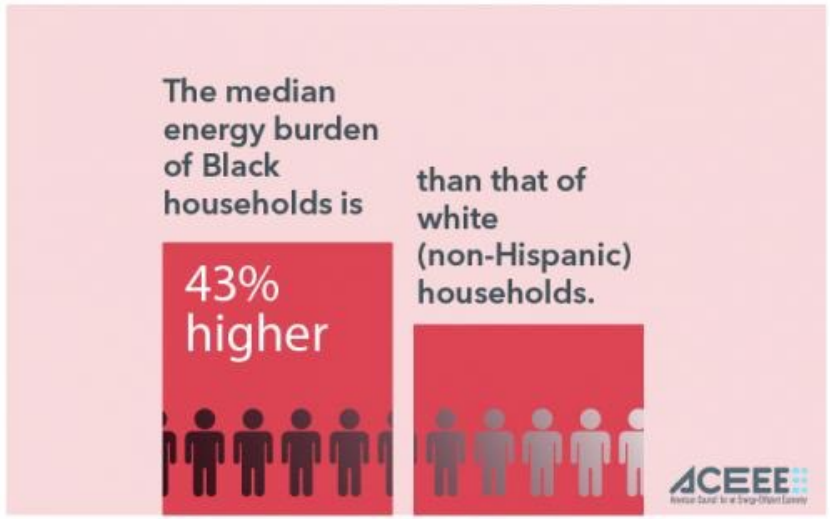


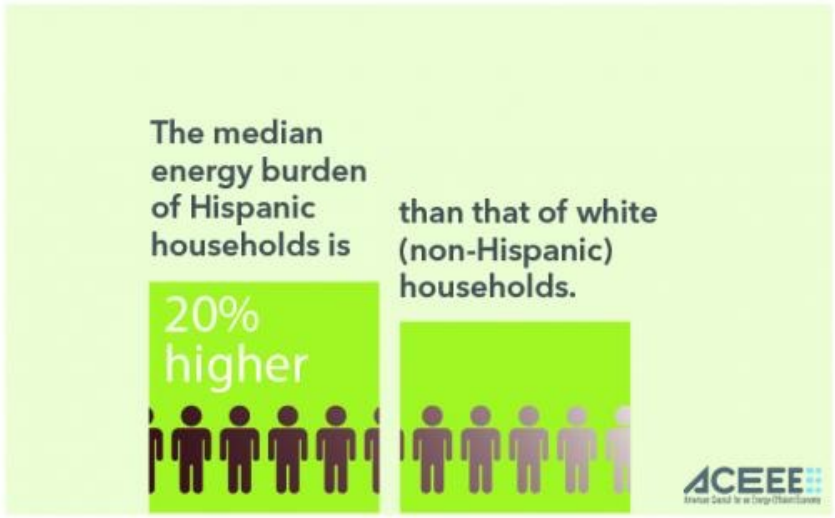
Memmott, T., Carley, S., Graff, M., & Konisky, D. M. (2021). Sociodemographic disparities in energy insecurity among low-income households before and during the COVID-19 pandemic. Nature Energy, 6(2), 186-193.

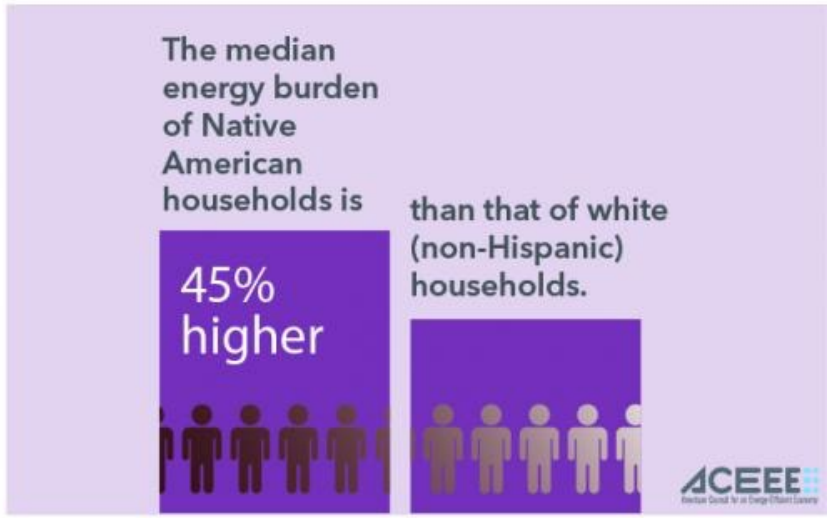
The United States of Energy Insecurity

Black, Hispanic, and Native American Households Face High Energy Burdens

- Study of 13,000 multifamily properties across five U.S. cities
- The average low-income household energy burden was 7%, whereas higher income households had an average energy burden of 2%
- Minority households experienced higher energy burdens than non-Hispanic White households.
- (Kontokosta, Reina & Bonczak, 2020)





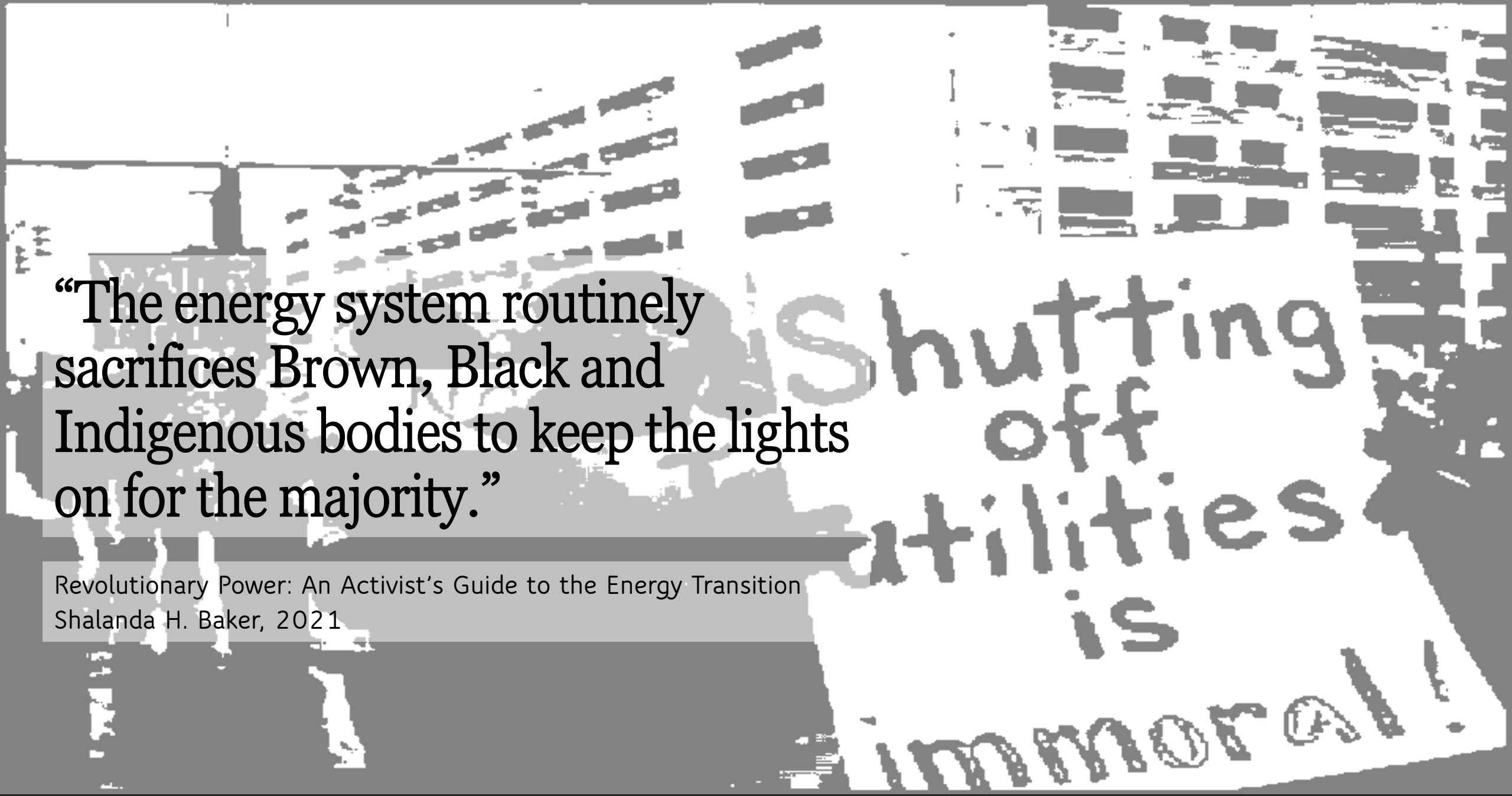


Data Source: American Council for an Energy Efficient Economy (ACEEE), 2020

Energy Burden and Health

- Public health is associated with a complex nexus of factors
- Energy burden needs to be among the considerations
- Across US counties, each unit of increase in LMI energy burden is associated with an average 240 more premature deaths per 100,000 people
- As the energy burden increases across counties, each unit increase is associated with a 7% increase in county residents that report experiencing fair or poor health.
- Each unit increase in energy burden is significantly associated with more than a five year decrease in county average life expectancy.

Reames, T. G., Daley, D. M., & Pierce, J. C. (2021). Exploring the Nexus of Energy Burden, Social Capital, and Environmental Quality in Shaping Health in US Counties. International Journal of Environmental Research and Public Health, 18(2), 620



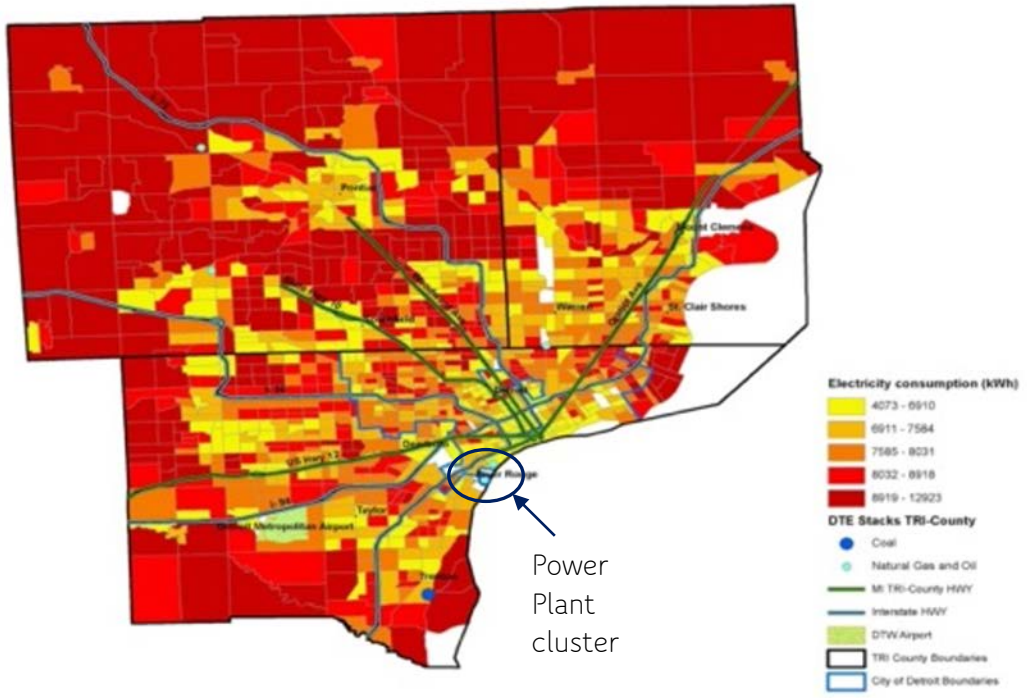
"The energy system routinely sacrifices Brown, Black and Indigenous bodies to keep the lights on for the majority."

Revolutionary Power: An Activist's Guide to the Energy Transition
Shalanda H. Baker, 2021

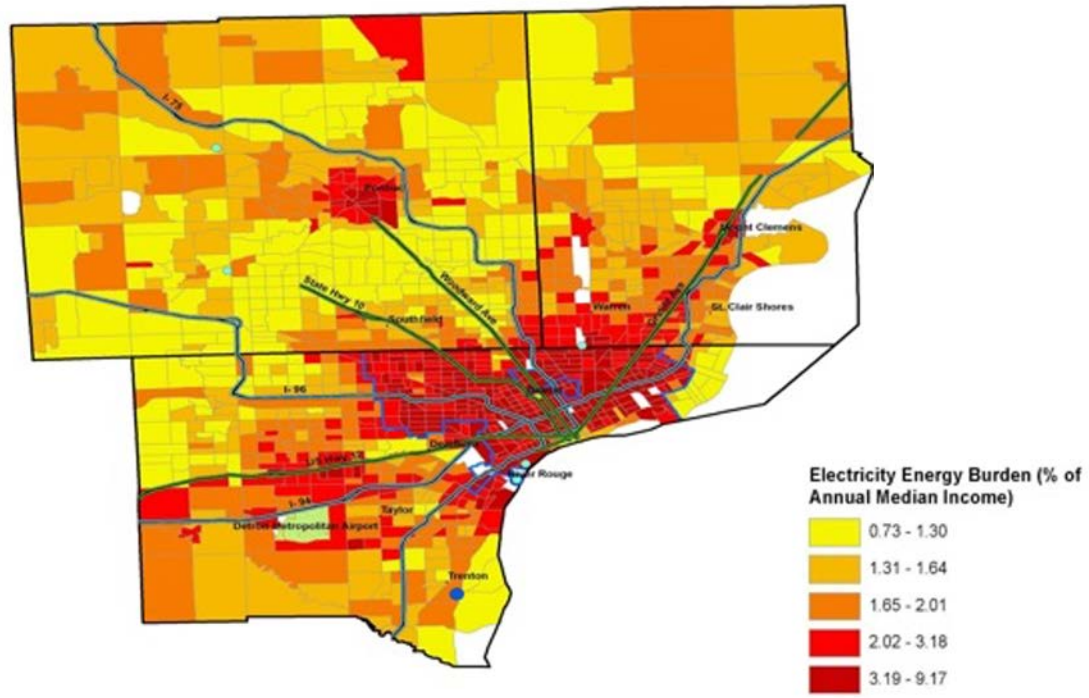

Detroit, Michigan

Detroit Energy Injustice

ELECTRICITY CONSUMPTION

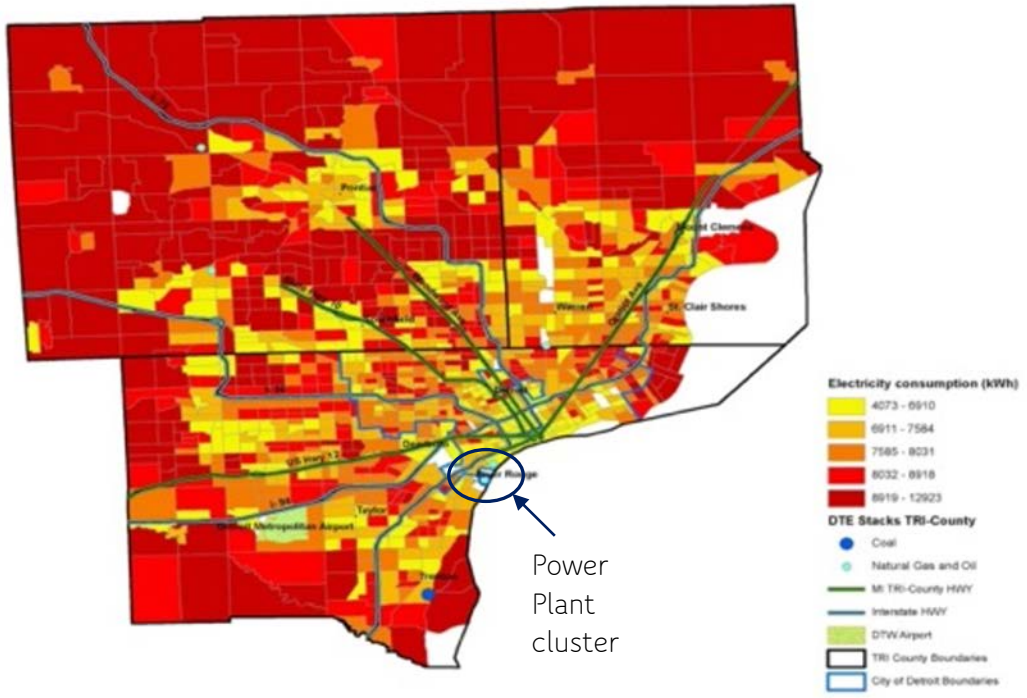


ELECTRICITY EFFICIENCY

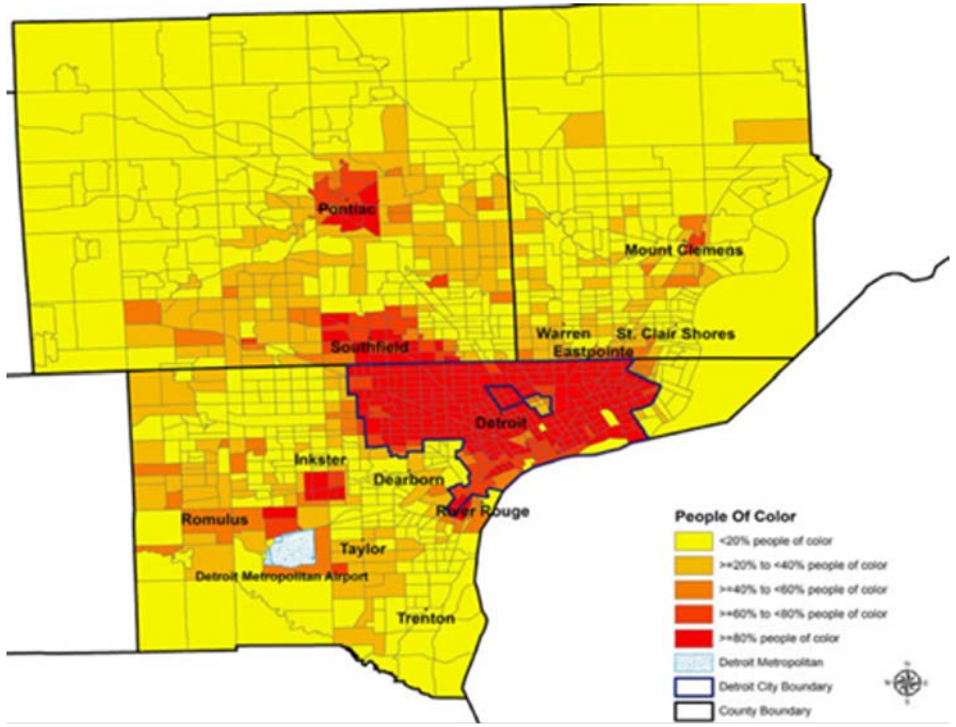


Detroit Energy Injustice

ELECTRICITY CONSUMPTION



% PEOPLE OF COLOR



Detroit Energy Injustice

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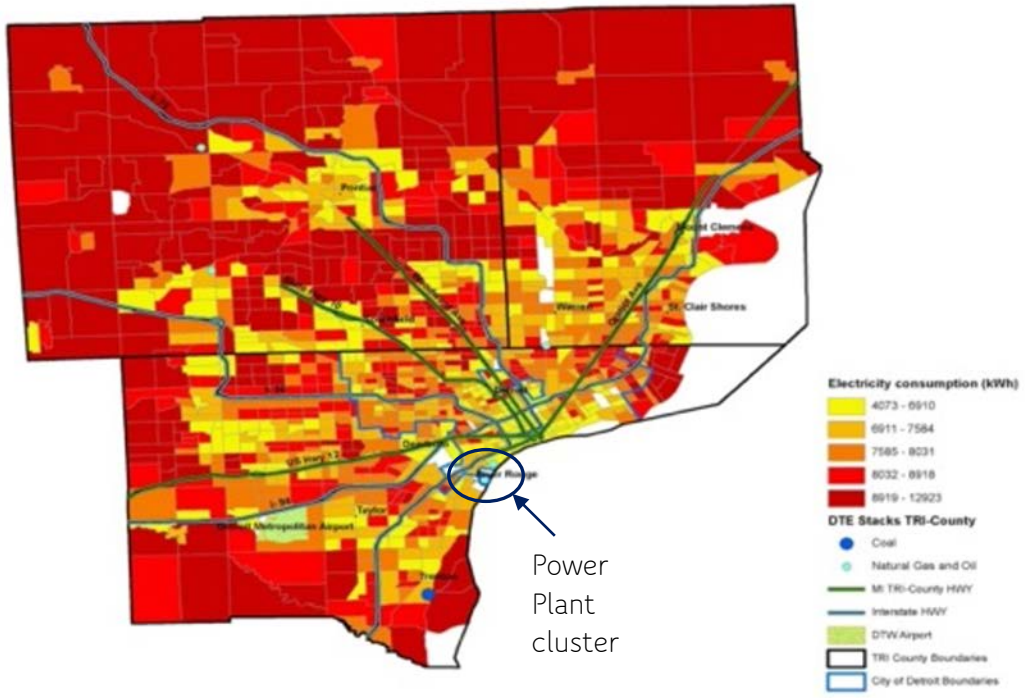
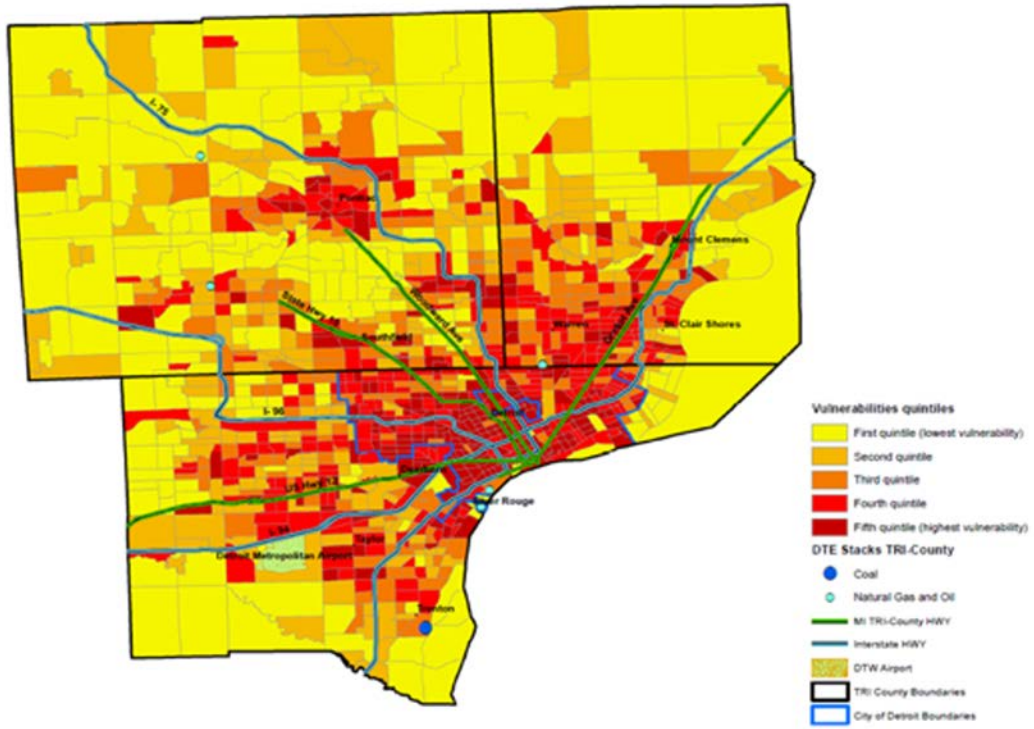


CUMULATIVE VULNERABILITY

(% below poverty, % without GED, median household income (reverse), % renters, linguistic isolation, %<5 years, %>65 years)



Detroit Energy Injustice

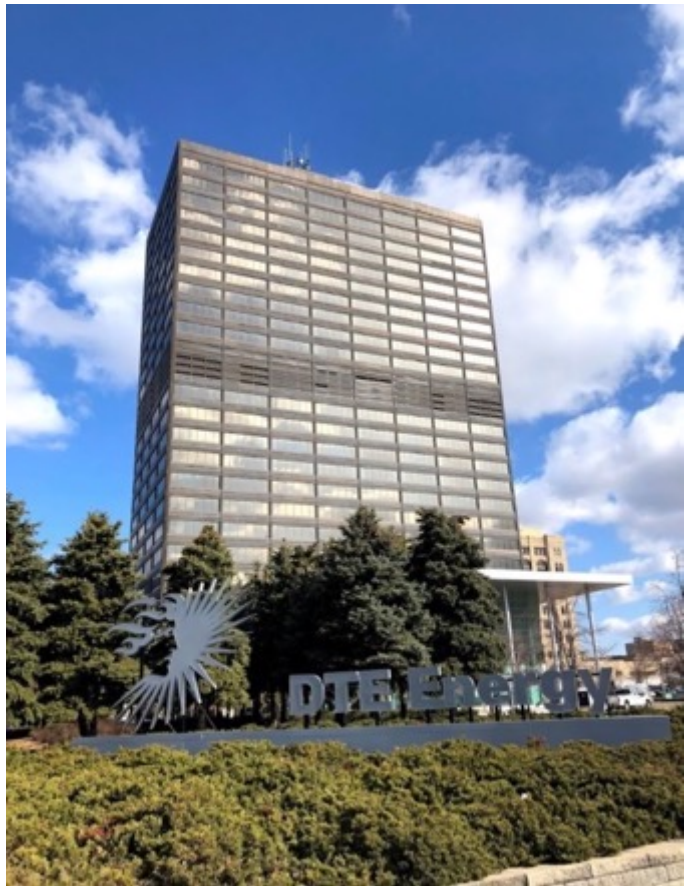
Category	Description	Correlation	
		Heating Consumption	Heating Inefficiency
Economic Status	Median HH income	↑	↓
	% HHs below poverty	↓	↑
Education	% Less HS diploma	↓	↑
Race/Ethnicity	% White HHs		↓
	% African Americans HHs		↑
	% Hispanic HHs		↑
Housing Tenure	% Owner-occupied	↑	↓

HHs= Households

Detroit utility shut-off protests, 2012

Energy Action in Detroit

- DTE, Investor-owned utility serving Detroit (2.2million customers)
- A 2016 Michigan energy law kickstarted a cycle of required long-term energy planning for utilities called Integrated Resource Plans (IRP)
- An IRP outlines the utility's vision for how to provide energy to their customers
- It requires the utility to best predict their customers' power needs over the next fifteen to twenty years
- Describe how they plan to meet energy needs reliably and cost-effectively in different ways (i.e., energy efficiency, wind, solar, gas, and demand response) and when they plan to retire their coal plants.



DTE Energy Headquarters, Detroit, MI

Work for Me DTE Campaign

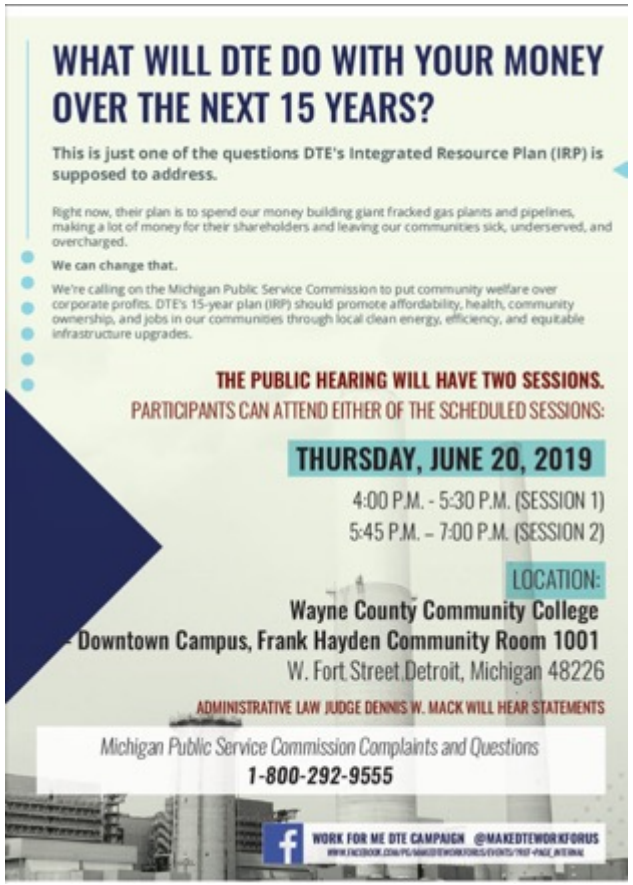
The Call to Action: "Right now DTE Energy is making decisions that will impact your family and household for a generation- and without your input."

DTE's plan:

- rate hike proposals
- a new billion dollar methane gas burning facility,
- weakening the solar industry, and making sure that solar on your rooftops and in your communities stays unaffordable

Meanwhile,

- building the NEXUS gas pipeline
- running other unregulated subsidiaries that invest in more fossil fuels
- releasing more asthma-inducing and climate-causing gases into the air.
- Promising shareholders a doubling of their profits in the next 10 years



Source: workformedte.org

MPSC Public Hearing in Detroit June 2019

Dan Scripps @DanScripps · 15h

Our @MichiganPSC Detroit public hearing tonight on @DTE_Energy's long-term energy plan was scheduled for 3 hours. It went for 4.5. Thanks to the 50+ speakers and the many more attendees for sharing your thoughts and providing input into the planning process.

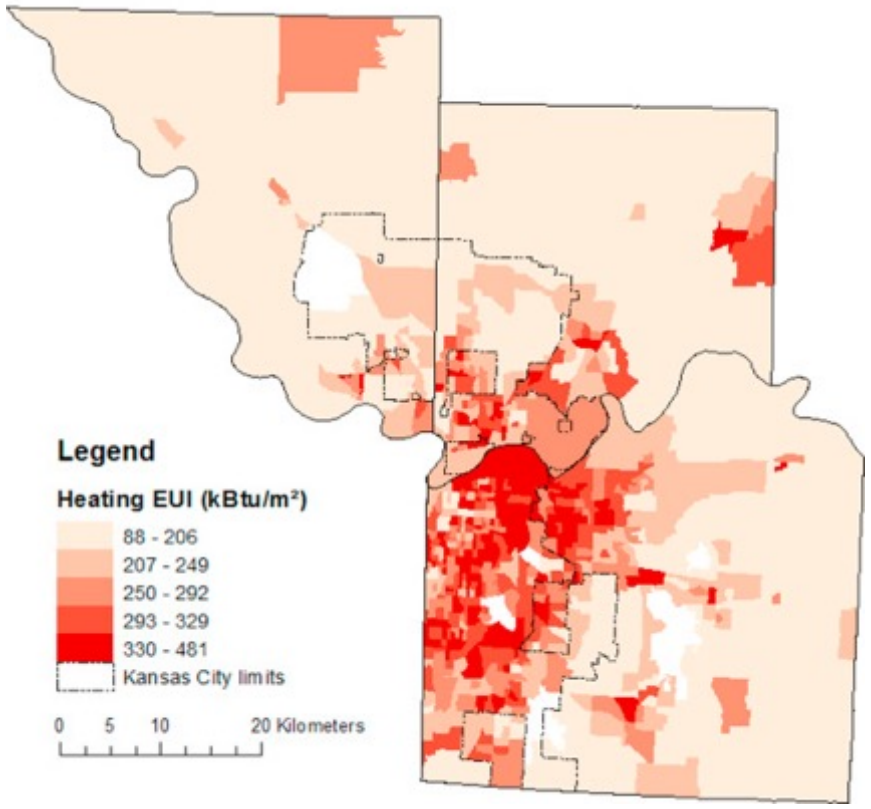
4 10 37

Source: Work for Me DTE; CUB Michigan

"We need actions that will bring jobs, and clean, safe and healthy community solutions for a new green economy. We should rebuild Detroit and all of our neighboring communities throughout Southeast Michigan – cleaner and greener, with no shutoffs, and with strong and sustainable infrastructure for future generations. We want 100% clean energy commitment now, while there is still time." -workformedte.org

Kansas City, Missouri

Kansas City Energy Injustice



Category	Description	Correlation
Economic Status	Median HH Income	↓
	% HHs below poverty	↑
Education	% Less HS diploma	↑
Age	% HH 65+	↑
Race/Ethnicity	% White HHs	↓
	% African American HHs	↑
	% Hispanic HHs	↑
Housing Tenure	% Renter-occupied	↑

HHs= Households

Reames, T.G. (2016). **Targeting energy justice: Exploring spatial, racial/ethnic and socioeconomic disparities in urban residential heating energy efficiency.** *Energy Policy, 97*, pp.549-558.

Kansas City Green Impact Zone

$200M public-private
150-block
"green" urban renewal project

$4.5M
weatherize
659
homes

329
Homes
completed

Sep 2009-Jan 2014

	Green Impact Zone	Kansas City
Population	10,742	474,396
% Black	**86.2**	**28.1**
% White	9.5	57.7
Housing units	5,810	225,569
% Built before 1980	**91.4**	**48.3**
% Vacant	27.8	13.3
% Home ownership	**49.1**	**61.4**
Median HH Inc.	$24,125	$44,436
% Below poverty	**35.2**	**19.1**
Unemployment	16.3	7.7

Persistent Barriers to Weatherization

- Market
  - Lack of information
  - Split incentive
- Regulatory
  - Pre-weatherization
  - Previous weatherization
- Social/Cultural
  - Public priorities
  - Public distrust

Reames, T.G. (2016). **A community-based approach to low-income residential energy efficiency participation barriers** *Local Environment*, 21(12), pp.1449-1466.

Public Priorities

- The first challenge was making green relevant in the Green Impact Zone
- Stakeholders knew a direct connection was needed between social and economic priorities and weatherization, to motivate participation.
- The environmental benefits of weatherization became a co-benefit of focusing on other priorities.
- On all electronic and printed material, the three reasons why residents should weatherize were purposefully ordered as
  - to save money on heating and cooling your home
  - to have a healthier home with better indoor air quality
  - to help protect the environment by reducing energy consumption and pollution

Public Distrust

- Pursuing energy equity requires recognition of social characteristics that impede participation
- Distrust in government
  - Fear of "energy audit"
- Distrust in others
  - Fear of unknown individuals
- To overcome; used known, trusted messengers (e.g., community-based social marketing)
  - African American implementation staff
  - Neighbors (Neighborhood associations, block captains)

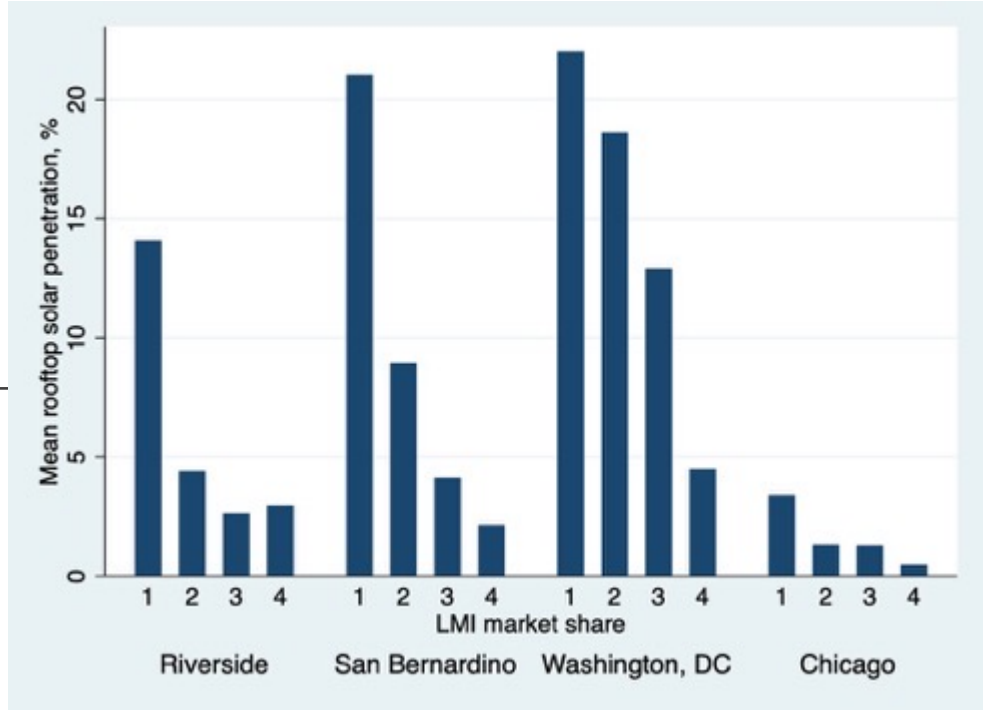
"Let's be honest, I'm a blue-eyed, white woman… Now I've got a lot of cred with those neighborhood leaders, but they needed a strong African American presence and leadership…"

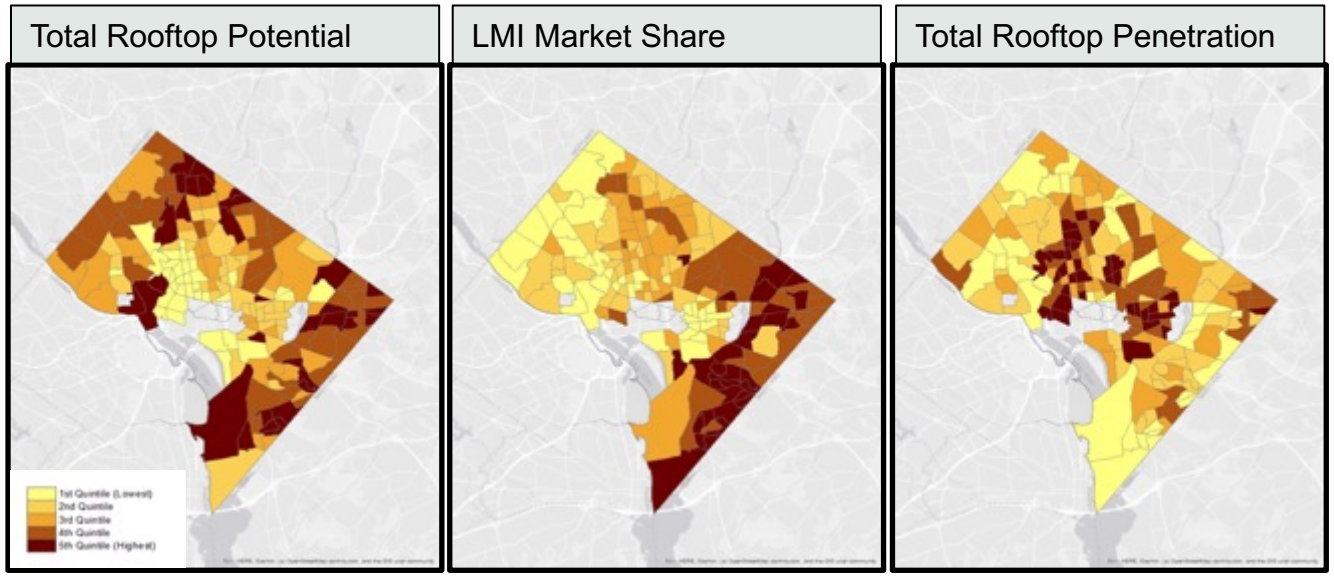
"… I am very happy…I can recommend it to anybody, everybody, they won't have anything to worry about".


Rooftop Solar

Rooftop Solar Injustice

- Although costs of solar continue to decline, adoption by on low- to moderate-income (LMI) households and households of color are growing at a much slower rate
- Majority Black and Hispanic communities had 69% and 30%, respectively, less solar installed, while white majority communities had 21% more solar, when compared to nonracial/ethnic majority communities (Sunter, et al. 2019)
- The majority (68.4%) of residential rooftop potential in the US is on single-family rooftops, and 37% of all solar suitable single–family rooftops are LMI-occupied (NREL REPLICA).
- In response some state and local governments have developed programs, primarily focused LMI households, in support of solar adoption parity.

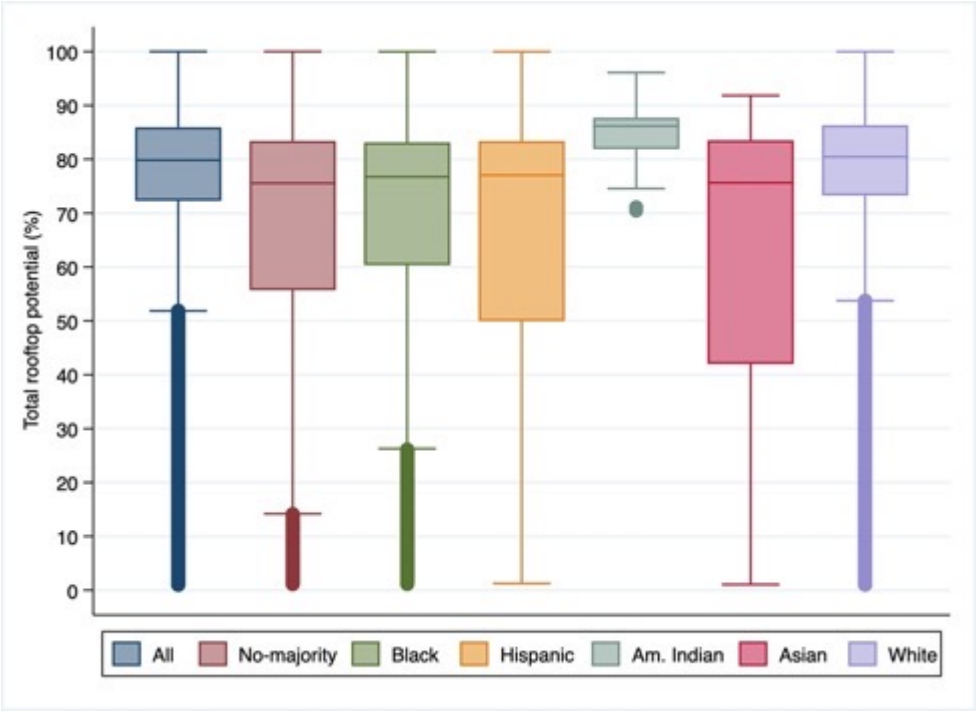


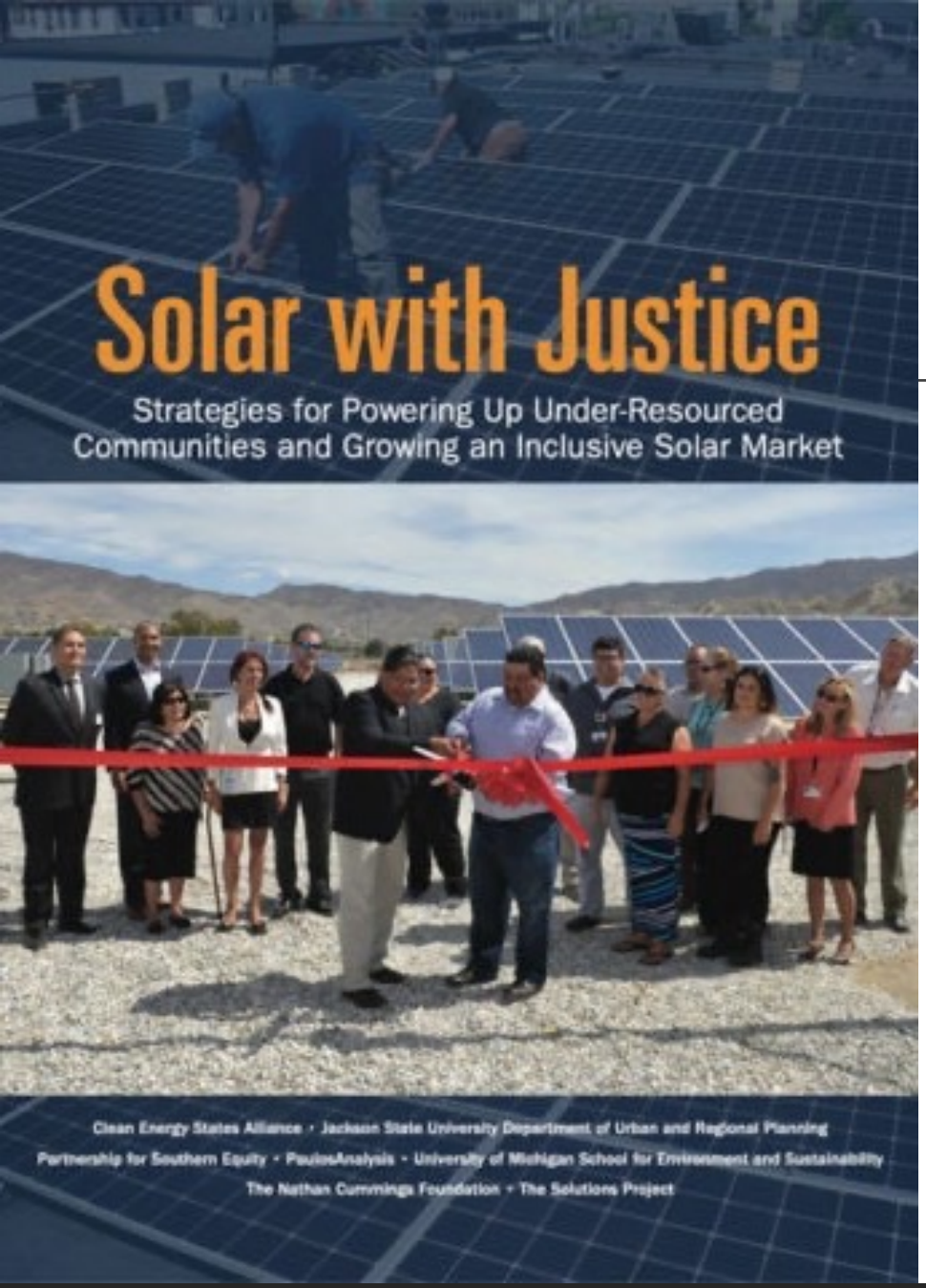


Reames, T. G. (2020). Distributional disparities in residential rooftop solar potential and penetration in four cities in the United States. Energy Research & Social Science, 69, 101612.

Rooftop Solar Potential & Race

- Three-fourths of all census tracts had a rooftop potential greater than 72%, regardless of racial/ethnic majority.
- Compared to majority-white census tracts,
- Majority-Black tracts, 6% less potential
- Majority-Hispanic tracts, 7% less potential
- Majority-Asian tracts, 9% less potential
- Majority-American Indian tracts, 11% higher rooftop potential.





Solar Solutions

- *Solar with Justice* offers a series of recommendations for advancing solar for under-resourced communities, and advice on how to implement it.
  1. Partnerships involving trusted community organizations are essential
  2. It's still the experimental phase for LMI solar
  3. Installations for community institutions deserve special consideration
  4. Resilience should be a component of LMI solar
  5. Financial risk needs to be minimized for LMI households and community organizations
  6. Strong consumer protection is crucial
  7. Shared solar projects can play a useful role, but they are not a panacea
  8. Training and workforce development should remain a priority
  9. Solar education is important
  10. Increasing the availability of financing for solar projects in under-resourced communities is essential

Source: https://www.cesa.org/resource-library/resource/solar-with-justice/

A Call for Community-based Approaches to Energy Justice

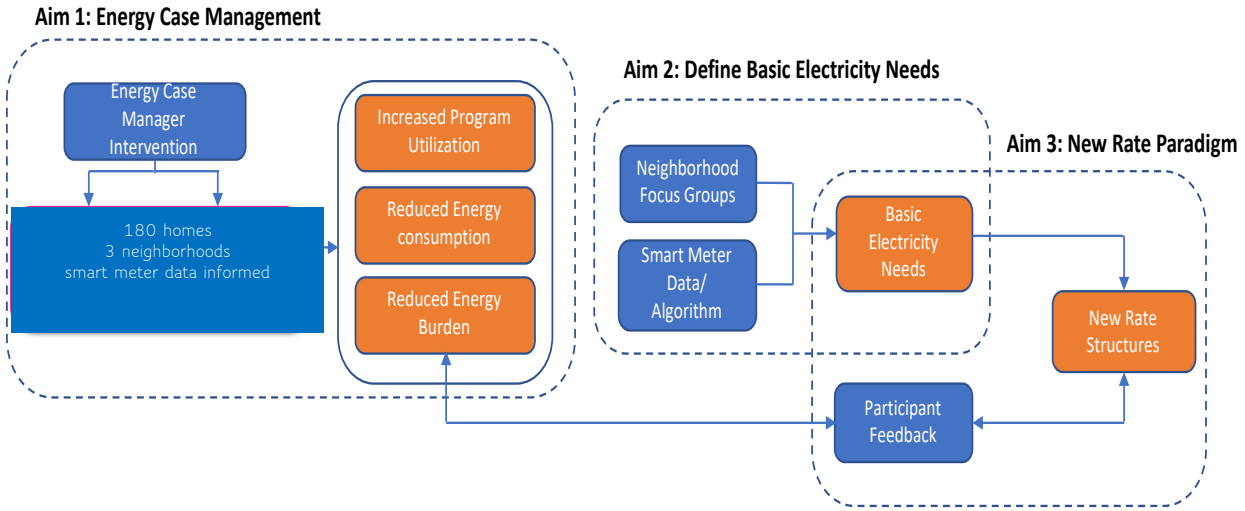
- **Support** equity, justice and democracy; serves as a conduit for community empowerment and self-determination (Teron & Ekoh 2018)
- **Acknowledge** that complex decision-making processes guide energy choices and cannot be described using a simple rational-economic model (Wilk and Wilhite 1985; McKenzie-Mohr and Smith 2011; Anda and Temmen 2014)
- **Foster** social connectedness to transform the way people consume energy – relying on group interaction, peer support, and communal resolve to impact behavior (Wisconsin Energy Conservation Corp.)
- **Create** institutional capabilities to effectively deliver services, and recognize, and respond to fluid conditions (Berry 2010)

Reducing Residential Energy Insecurity in Detroit

NSF-funded, university-community partnership, Smart & Connected Communities

Objectives

1. Test efficacy of a neighborhood-embedded energy case management intervention
2. Determine amount of electricity that should be considered a basic right
3. Develop new hypothetical electricity rate paradigms



THANK YOU!

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