Prepared Statement

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Generating Equity: Improving Clean Energy Access and Affordability

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Chairman Rush, Ranking Member Upton, and Members of the Subcommittee, thank you for inviting me here today to discuss an equity-based approach to improving clean energy access and affordability.

It is an honor to appear before the subcommittee. I am an assistant professor in the School for Environment and Sustainability at the University of Michigan. In 2016, I launched the Urban Energy Justice Lab, which conducts research on spatial, racial and socioeconomic disparities in energy access, affordability, and policymaking. The Urban Energy Justice Lab publishes peer-reviewed articles, policy briefs, and reports.[1] Our research has been funded by the U.S. Department of Energy, National Science Foundation, National Institutes of Health, and several philanthropic foundations. My early training is in civil engineering. Prior to becoming an academic, I served as an officer in the U.S. Army, and worked as a licensed professional engineer in both the public and private sectors. While my work in energy justice began within the last decade, issues of environmental justice were intricately woven through my upbringing in rural South Carolina and my professional life whether in state or local government agencies, transportation design firms, or Iraq.

I began my energy justice centered research as a public administration doctoral student at the University of Kansas during the Great Recession. I became very interested in the local and regional distribution and implementation of American Recovery and Reinvestment Act (ARRA) dollars. I was particularly intrigued by Congressman Emanuel Cleaver's proposal to geographically concentrate ARRA funds and leverage private

[1] For more information on the Urban Energy Justice Lab please visit www.urbanenergyjusticelab.com

investments in portions of five adjoining neighborhoods in urban Kansas City and label it the "Green Impact Zone." One notable effort in the Green Impact Zone was to target a significant portion of the Department of Energy Weatherization Assistance Program (WAP) dollars to the roughly 8,000 homes in the Zone. Studying both the successes and challenges of implementing WAP through a targeted, community-based approach, during an economic recession, established the foundation for my grounded knowledge in residential energy injustices and the critical role for public policy.

Moreover, climate change concerns highlight a number of serious social and environmental inequalities that can be traced to energy consumption. These concerns form the foundation of a growing field of scholarship, and activism, on energy justice. In 2015, Diana Hernández issued "A Call for Energy Justice," which acknowledged four basic human rights to energy: the right to healthy, sustainable energy production; the right to the best available energy infrastructure; the right to affordable energy; and the right to uninterrupted energy service.[2] Yet, for the millions of households suffering from chronic energy poverty,[3] with mounting utility debt and the constant fear of disconnection, exacerbated by the coronavirus pandemic, these rights are mere unfulfilled promises. It is based on these experiences that I reflect on the moment that we are in and the possibilities that are granted us to be bold, innovative, and equitable in plans and proposals to transform our energy economy, improve the environment, and increase intra- and intergenerational quality of life metrics across the country.

My testimony today focuses on:

- The Response and Recognition of Energy Poverty in the U.S.
- Spatial, Racial and Socioeconomic Disparities in Residential Energy Efficiency
- Disparities in Access to Clean Energy Technology (Availability and Affordability)
- A Call for a National Energy Poverty and Justice Strategy
    - Improving the Implementation Effectiveness of Current Federal Energy Assistance Programs
    - Developing a Framework to Target, Measure and Track Equity Progress

Response and Recognition of Energy Poverty in the U.S.

Stark disparities exist in U.S. energy burdens, the percentage of household income spent on energy bills. Both urban and rural low-income households spend substantially greater proportions of their income on energy cost as compared to non-low-income

[2] Hernández, D. (2015). Sacrifice along the energy continuum: a call for energy justice. Environmental Justice, 8(4), 151-156. https://doi.org/10.1089/env.2015.0015
[3] Many different terms are used to describe residential energy hardship (e.g., energy poverty, energy vulnerability, energy burden, energy insecurity, fuel poverty). For clarity, I use the term energy poverty throughout this testimony.

households.[4] Moreover, low-income, African American, Latinx, Native American, multifamily and renter households are disproportionately impacted by high energy burdens.[5] The U.S. Energy Information Administration (EIA) estimated that in 2015, 17 million households received an energy disconnect/delivery stop notice and 25 million households had to forgo food and medicine to pay energy bills.[6] These household experiences are indicators of energy poverty. Yet, the U.S. lacks a national strategy to annually measure and track progress toward energy poverty reduction.

Federal Government action at the intersection of energy and equity has been driven by either geopolitical or economic crises that affect energy prices, rather than by a comprehensive, long-term approach to address disparities in energy access and affordability. The U.S. energy poverty response, typically in the form of program creation and federal stimulus, has a nearly fifty-year history, beginning with response to the 1970's oil crisis, then economic recessions in the 1990s and again in the late 2000s, and now the current coronavirus pandemic. Figure 1 highlights a timeline of energy poverty response efforts in the U.S. over the last four decades.[7]

However, after nearly fifty years of federal energy assistance, the U.S. Energy Information Administration reported that one in three US households (37 million), experienced energy poverty in 2015.[8]

As current discussions of energy policy consider the transition to cleaner technology, acknowledging the problem and nuances of energy poverty is critical to ensuring a just, equitable and affordable energy transition for all. Thus, energy poverty is best viewed as a geographical assemblage of socioeconomic and demographic characteristics, networked infrastructures of energy, technology and policy provision, and material conditions of the home.[9]

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[4] Drehobl, A., Ross, L., and Ayala, R. (2020) How High Are Household Energy Burdens? An Assessment of National and Metropolitan Energy Burdens Across the U.S. https://www.aceee.org/research-report/u2006
[5] Ibid.
[6] 2015 Residential Energy Consumption Survey (RECS) (US Energy Information Administration, 2018). https://www.eia.gov/consumption/residential/data/2015/
[7] Bednar, D.J., and Reames, T.G. (2020). Recognition of and response to energy poverty in the United States. Nature Energy. https://doi.org/10.1038/s41560-020-0582-0
[8] 2015 Residential Energy Consumption Survey (RECS) (US Energy Information Administration, 2018). https://www.eia.gov/consumption/residential/data/2015/
[9] Harrison, C., & Popke, J. (2011). "Because you got to have heat": the networked assemblage of energy poverty in eastern North Carolina. Annals of the Association of American Geographers, 101(4), 949-961. https://doi.org/10.1080/00045608.2011.569659

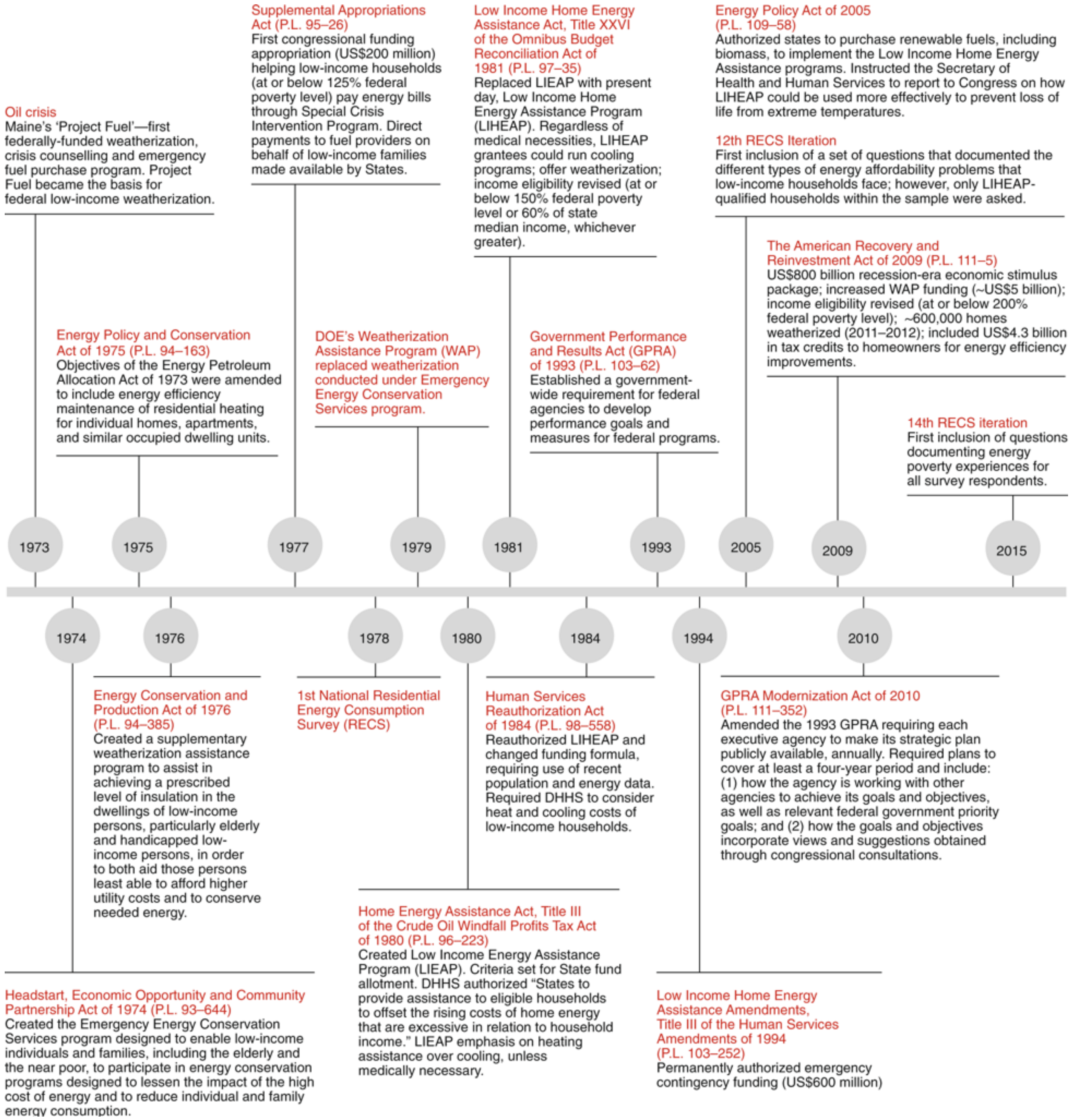

Figure 1. Timeline of U.S. Energy Poverty Response

Spatial, Racial and Socioeconomic Disparities in Residential Energy Efficiency

Investment in residential energy efficiency improvements has long been a key site of intervention to increase energy affordability. On average, low-income households consume less energy than non-low-income households. This assessment of consumption rather than efficiency, tends to mask energy poverty vulnerability. Instead, when analyzing energy use intensity (EUI), or energy consumption normalized by building square area, as a proxy for energy efficiency, national data from the U.S. Energy Information Administration show that low-income households, on average, live in less energy efficient homes, with an EUI 27% greater than higher-income households. The spatial distribution of energy efficiency disparities is further complicated by the persistence of racial and income residential segregation that defines housing development and consumption patterns in many U.S. metropolitan areas.

In two studies using data from the U.S. Energy Information Administration's Residential Energy Consumption Survey (RECS) to model and explore disparities in residential heating energy efficiency. We estimated and mapped residential heating EUI in Kansas City, Missouri and Detroit, Michigan and found significant spatial, racial, and socioeconomic disparities.

The first study, published in in 2016, found disparities in the relationship between heating EUI and spatial, racial/ethnic, and socioeconomic block group characteristics in Kansas City, Missouri.[10] Census block groups with lower median incomes, a greater percentage of households below poverty, a greater percentage of racial/ethnic minority headed-households, and a larger percentage of adults with less than a high school education were, on average, less energy efficient (higher EUIs). Results also implied that the persistence of racial residential segregation exposed Black and Latinx households to increased energy poverty vulnerability. Lastly, the spatial concentration and demographics of energy poverty vulnerable block groups suggest proactive, area- and community-based targeting of energy efficiency assistance programs may be more effective than existing self-referral, first-come-first-serve approaches.

The second study, published in 2017, illustrated spatial disparities in residential energy heating consumption and efficiency in Detroit, Michigan.[11] While the analysis found no statistical relationship between race/ethnicity and heating energy consumption, energy inefficiency was correlated with the racial/ethnic composition of census block groups. As the percentage of white householders increased, so did the modeled energy efficiency of homes in a census tract, relative to the efficiency in areas with greater percentages of African American or Latinx householders. Income and housing tenure (own or rent) revealed inverse relationships with heating energy consumption and efficiency. While

[10] Reames, T. G. (2016). Targeting energy justice: Exploring spatial, racial/ethnic and socioeconomic disparities in urban residential heating energy efficiency. *Energy Policy*, *97*, 549-558. https://doi.org/10.1016/j.enpol.2016.07.048

[11] Bednar, D. J., Reames, T. G., & Keoleian, G. A. (2017). The intersection of energy and justice: Modeling the spatial, racial/ethnic and socioeconomic patterns of urban residential heating consumption and efficiency in Detroit, Michigan. Energy and Buildings, 143, 25-34. https://doi.org/10.1016/j.enbuild.2017.03.028

census tracts with higher median incomes and homeownership rates exhibited higher consumption, they also benefited from greater energy efficiency than areas with lower median incomes and a greater percentage of renters. This study provides evidence supporting approaches for conservation and energy efficiency program targeting that recognizes the significance of race/ethnicity, place and class to understanding disparities and vulnerability.

Disparities in Access to Clean Energy Technology (Availability and Affordability)

Individual participation in the transition to a low-carbon energy future, requires household adoption of clean energy technologies. For prolific adoption trends to materialize, new technology must be recognized as being both cost effective and socially accepted. It is therefore critical to understand energy transitions from a socio-technological perspective, exploring the interaction between humans and technology. Moreover, if transitions are to be equitable, or just, the implementation of new energy technologies, policies, and programs, must consider the impact on and participation of poor and other disadvantaged populations. In the U.S., lighting accounts for 10% of residential electricity consumption, 9% of the average household's primary energy consumption, and 20% of the average household's energy bill.[12] While replacing inefficient incandescent light bulbs with more efficient LEDs is seen as an expensive energy saving intervention, less than 30% of U.S. households have at least one LED bulb and only 1% of households have all LED bulbs.[13] Moreover, the adoption of energy-efficient lighting is not equitably distributed across socioeconomic groups, with poorer households less likely to adopt than higher-income households. The lack of parity in energy efficient lighting technology across socioeconomic groups has real implications for the imbalance in residential energy dynamics that exist between these groups, such EUI and affordability disparities.

To understand other factors that may be contributing to LED lighting adoption disparities and its implications for broader clean energy technology access and adoption disparities, we conducted a study to explore the relationship between light bulb availability, price and household incomes in Detroit (Wayne County) Michigan.[14] Based on 130 in-store surveys in 19 zip codes in four poverty strata (<10% poverty, 10-20% poverty, 20-40% poverty, and >40% poverty), we found that energy-efficient lighting

[12] US EIA. Annual energy outlook 2017. Washington, DC: US Department of Energy; 2017. https://www.eia.gov/outlooks/aeo/pdf/0383(2017).pdf

[13] 2015 Residential Energy Consumption Survey (RECS) (US Energy Information Administration, 2018). https://www.eia.gov/consumption/residential/data/2015/

[14] Reames, T. G., Reiner, M. A., & Stacey, M. B. (2018). An incandescent truth: Disparities in energy-efficient lighting availability and prices in an urban US county. Applied energy, 218, 95-103. https://doi.org/10.1016/j.apenergy.2018.02.143

availability and price varied across the county, with limited availability and higher prices disproportionately present in high-poverty areas. Figure 2 illustrates the mean lightbulb price for each bulb type from least to most energy efficient (incandescent/halogen- IHL, compact fluorescents- CFL, and light-emitting diode- LED) across the four poverty strata.

Major Findings

- Energy-efficient bulbs were less available in high-poverty areas and smaller stores
- Energy-efficient bulbs were more expensive in high-poverty areas and smaller stores
- The cost to upgrade from incandescent to LED was 2 times higher in high-poverty areas than low-poverty areas

Large retail stores, primarily in areas with less poverty, had the least-expensive compact fluorescent lamps and LEDs. The most expensive CFLs and LEDs were found at pharmacies and small retail stores. In fact, none of the small retail stores in the poorest zip codes (40% or more of the households living below the federal poverty level) carried LEDs, while 92% of them carried less-efficient incandescent and halogen bulbs. In the poorest zip codes, there was a $6.24 mean price difference between IHLs and LEDs, a huge upfront cost in areas where 40% or more of the households live in poverty and roughly 27% do not have access to a personal vehicle. These disparities can lead residents of poorer neighborhoods to continue buying IHLs and thereby miss one of the simplest ways to cut home energy bills: residential lighting upgrades.

While availability and affordability access to clean energy technology present an acute barrier for low-income households and communities, an often-hidden barrier exists for moderate-income households – the **energy efficiency funding coverage gap**. Moderate income households, those with annual incomes between 200% and 300% of the federal poverty level (FPL), find themselves in what we call an energy efficiency funding coverage gap. That is these households do not qualify for most government energy assistance programs which typically support households with annual incomes at or below 200% of FPL, nor do they typically have the financial resources or the credit worthiness to cover or access friendly capital for energy efficiency or other clean energy technology upfront costs. In our study of this coverage gap in Michigan, we found that across the state 1 in 8 Michigan households fell into the energy efficiency funding coverage gap, or nearly 460,000 households.[15] Across the state's 83 counties, the number of households in the coverage gap ranged from 0% to as high as one-quarter (25%) of households falling into this energy efficiency funding coverage gap, leaving them unable to fully participate in money-saving and environmentally-beneficial clean

[15] Forrester, S. P., & Reames, T. G. (2020). Understanding the residential energy efficiency financing coverage gap and market potential. Applied Energy, 260, https://doi.org/10.1016/j.apenergy.2019.114307

energy investments. Understanding the market potential and geographic distribution of the energy efficiency funding coverage gap can support impact-driven financiers such as green banks or community development financial institutions (CDFIs) and inform improved targeting of public resources to this under-served market which can promote energy system improvements, facilitate multi-level policy goals, improve household living conditions, and achieve an equitable clean energy transition.

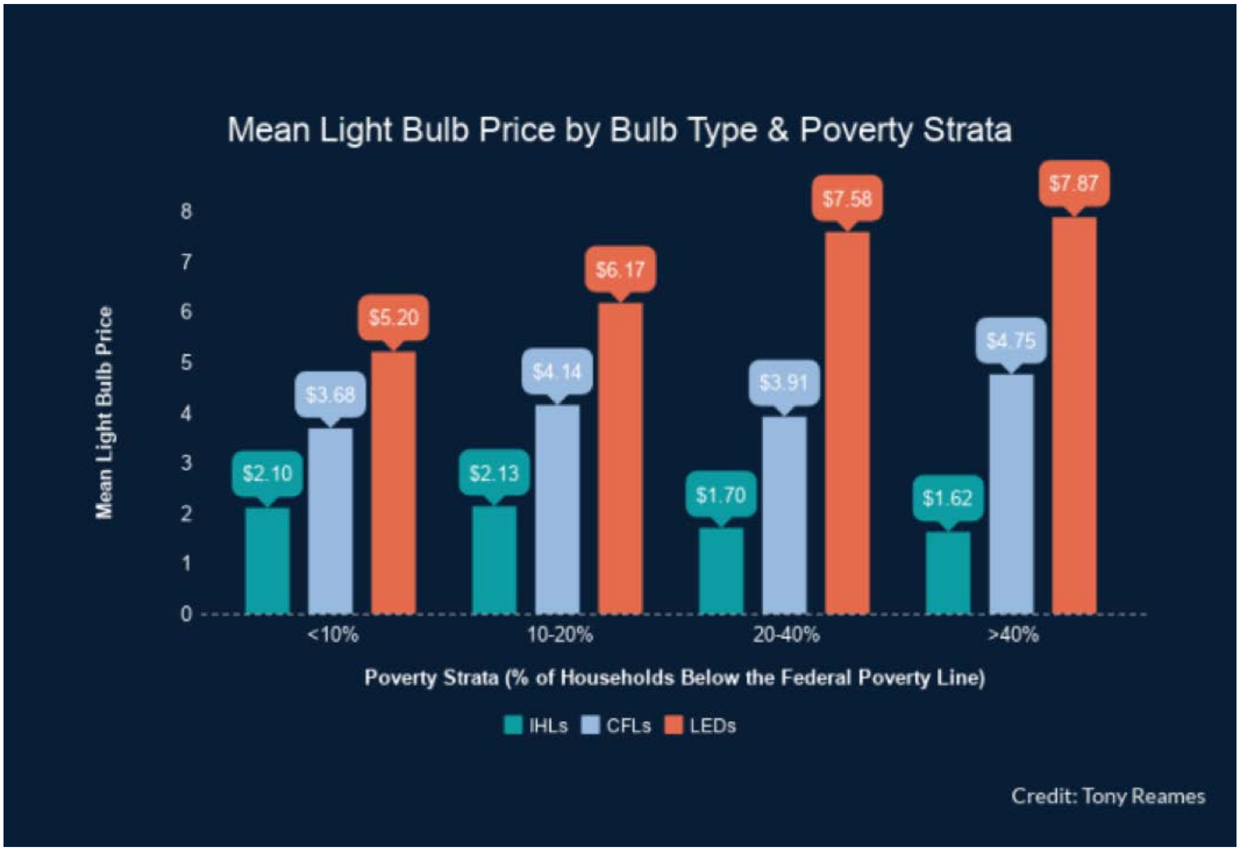

Figure 2. Mean Lightbulb price by bulb type and poverty strata

The growth of residential rooftop solar adoption has not occurred equitably across the country, nor across socioeconomic or racial/ethnic groups. In addition, to solar costs dropping more than 70% over the last decade, various state and federal policies have supported industry growth. Although the National Renewable Energy Lab estimates that approximately 42% of the nation's total rooftop megawatt (MW) potential is on low- to moderate-income (LMI) rooftops[16], studies show households earning less than $45,000 were only 10% of solar installations and households earning $45,000 or more

[16] Sigrin, Ben, Mooney, Meghan. 2018. Rooftop Solar Technical Potential for Low-to-Moderate Income Households in the United States. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-70901. https://www.nrel.gov/docs/fy18osti/70901.pdf.

represented nearly 90% of solar installations.[17] Moreover, racial/ethnic disparities in national solar adoption have also been discovered. When compared to census tracts with the same median income, Black- and Latinx-majority census tracts have installed 69% and 30% less rooftop solar, respectively, compared to census tracts with no racial majority. Conversely, white-majority census tracts have installed 21% more rooftop solar than census tracts with no racial majority.[18]

As mentioned, rooftop solar deployment is not equitably distributed across the country. State and local governments have developed solar equity programs, primarily focused on increasing adoption by low- and moderate-income (LMI) households. In a study comparing the distribution of single-family rooftop solar potential and penetration in four U.S. cities - Riverside and San Bernardino, California, Washington, DC, and Chicago, Illinois – I found both universal and distinct local manifestations of disparities.[19] Single-family rooftops represent 68.4% of the nation's rooftop solar potential (61.8 million rooftops) and LMI-occupied households represent an estimated 37% of all solar-suitable single-family rooftops. Contrary to popular belief, some LMI-majority census tracts had higher rooftop potential than non-LMI-majority census tracts. However, higher rooftop potential did not necessarily translate to higher rooftop penetration, especially if higher potential was in LMI-majority census tracts. Several socioeconomic and demographic characteristics (e.g. race/ethnicity, limited English proficiency, age of housing stock, and internet access) had statistically significant relationships with rooftop solar penetration. For instance, a higher percentage of households with limited English proficiency, and without internet access, were associated with lower solar penetration. Census tracts with a higher percentage of the population aged 65 or older were associated with higher solar penetration in San Bernardino, but lower solar penetration in Washington, DC. There remains great potential for equitably expanding rooftop solar. Studies that seek to understand and illustrate the local dynamics of both solar potential and penetration can inform better policy development and implementation.

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[17] Kann, Toth, How wealthy are residential solar customers? Household income and solar adoption in the United States, GTM Res. (2017). https://www.greentechmedia.com/squared/the-interchange-podcast/how-wealthy-are-residential-solar-customers

[18] Sunter, D. A., Castellanos, S., & Kammen, D. M. (2019). Disparities in rooftop photovoltaics deployment in the United States by race and ethnicity. Nature Sustainability, 2(1), 71. https://rael.berkeley.edu/wp-content/uploads/2019/01/Sunter-Castellanos-Kammen-Nature-SustainablityDisparitiesPVDeploymentRaceEthnicity.pdf

[19] Reames, T. G. (2020). Distributional disparities in residential rooftop solar potential and penetration in four cities in the United States. Energy Research and Social Science. https://doi.org/10.1016/j.erss.2020.101612

A National Energy Poverty and Justice Strategy

The transition to a lower-carbon energy economy will inevitably produce and, in many cases, perpetuate pre-existing sets of winners and losers.[20] There are numerous options that Congress can take to address the disparities raised in our research and set the country on a path to a more equitable clean energy future. I will discuss two options for a national energy poverty and justice strategy: improving the effectiveness of current federal energy assistance programs; and developing a framework for targets, measuring and tracking clean energy equity progress.

Improving the Effectiveness of Current Federal Energy Assistance

Despite the absence of federal statutes to characterize, measure and evaluate the landscape of and responses to energy poverty, the essence of this phenomenon has generally been recognized in the US as evidenced by two federally-funded energy assistance programs: the Low Income Home Energy Assistance Program (LIHEAP) and the Weatherization Assistance Program (WAP). LIHEAP and WAP are administered by two different federal agencies, the Department of Health and Human Services (DHHS) and the Department of Energy (DOE), respectively.

A national energy poverty and justice strategy would acknowledge that these programs have not been able to substantially reduce the persistence of energy burden disparities between low-income and non-low-income households. A restructuring of the processes and procedures of the Low-Income Home Energy Assistance and Weatherization Assistance programs could improve their impact and efficiency, in several ways:

> Currently, the separate federal channels through which the two programs are administered limit opportunities for coordination – leading to incompatible eligibility requirements and redundant administrative and reporting duties for states and local agencies. To improve the situation, Low Income Home Energy Assistance could be transferred to the Department of Energy and treated as a bona fide energy assistance program rather than as a social welfare program. If the two major federal programs were combined under one agency, state and local administrators could be given flexibility to allocate funds to either energy-bill assistance or weatherization, or a combination as needed. Program consolidation would improve case management, helping officials to identify households that have repeatedly needed assistance paying bills and could be ideal candidates for weatherization. This could allow a shift from temporary patchwork approaches to reducing energy poverty toward interventions like

[20] Carley, S., & Konisky, D. M. (2020). The justice and equity implications of the clean energy transition. Nature Energy, 1-9. https://www.nature.com/articles/s41560-020-0641-6?proof=t

weatherization and other energy retrofits that promise longer term reductions in energy costs for low-income households. To be clear, this approach would elevate and integrate LIHEAP not eliminate it.

As currently authorized, both programs require individual households to apply for assistance. This can be a less effective approach. Often the same households tend to need help again and again. Needy households are concentrated in certain regions and neighborhoods – including in urban residential areas where racial and income segregation are associated with homes that lack energy efficiencies. Homes in areas with lower median incomes, a greater percentage of households below poverty, a greater percentage of racial/ethnic minority households, and larger percentage of population with less than a high school education are on average less energy efficient. Proactive, area-based targeting of communities where many households repeatedly need help would improve the implementation of federal energy assistance.

Lastly, energy assistance can be improved by going beyond single-household approaches to leverage social networks and community ties. Community-based approaches to the implementation of low-income energy efficiency efforts have been shown to be moderately more effective at getting people to participate and adopt innovations. Such efforts can transform the way people consume energy through group interaction, peer support, and communal resolve. In addition, community-based approaches can further equity and social justice by taking account of the unique assets and challenges of disadvantaged groups, including minorities. This is especially critical where underserved and disadvantaged people have previously lacked access to energy programs – and where agencies must take special care to overcome public distrust and fear.

In sum, the challenge of alleviating energy poverty and high household burdens for affordable energy remains to be fully addressed. Policymakers need to expand and rework existing programs and institutional capabilities to deliver assistance more effectively to households in need and use community ties to encourage full participation and innovative solutions.

Develop a Framework for Targets, Measuring and Tracking Equity Progress

I strongly believe the data you do not collect is the problem you will not see. Given the multidimensionality and variation of energy poverty regionally, the production of data that characterizes this problem for the U.S. should be intentional in its exploration. Thus, the development of quality indicators and data sets would aid capturing the essence of this problem beyond existing energy affordability measures. A standardized national instrument developed in concert with an independent, interagency working group is critical to understand the landscapes of energy poverty temporally. Equipped with the capability to measure different dimensions of energy poverty, reasonable reduction-based objectives surface as an opportunity for local development and national coordination. Objectives establish baseline goals through which energy poverty reduction can be assessed and achieved. Formal energy poverty recognition alongside reduction-based objectives and performance measures would better align LIHEAP and WAP as an official energy poverty strategy that encourages longitudinal data collection and innovative solutions. Energy poverty reduction goals could be aligned with broader public health and carbon mitigation goals.

Energy efficiency evaluation, measurement and verification are vital in demonstrating the financial benefits of bill assistance and the multiple benefits of energy efficiency. Reduction focused performance measures and program evaluations offer a means to incorporate existing WAP evaluation components aimed at minimizing environmental and health risks, whilst maximizing energy and cost savings. Periodic evaluation would maintain a record of the effectiveness of deployed responses. Energy poverty and its responses can then be reassessed to understand how the landscape has changed and how the problem of energy poverty has evolved.

Furthermore, examples from state mechanisms to define, target, and track efforts for increasing solar equity may offer some examples for a national energy poverty and justice strategy. State governments have instituted four primary mechanisms: 1) targeting LMI households; 2) targeting EJ communities; 3) targeting LMI-serving nonprofit and public facilities; and 4) setting and tracking solar equity goals.

> **Targeting LMI Households.** Most states with solar equity policies take a people-based approach focusing primarily on household-level socioeconomic indicators such as setting an area median income (AMI) threshold for LMI program eligibility and targeting. For example, Massachusetts' Mass Solar Loan program targets LMI households (≤ 80% AMI) with three incentives for purchasing a solar PV system or a share in a behind-the-meter community shared solar system: a 1.5% interest rate buy down; a loan loss reserve for the lender when an applicant's credit record is less than perfect; and a 30% loan support incentive (up to $10,500).[21] California's Single-Family Affordable Solar Housing (SASH) and Multi-Family Affordable Solar Housing (MASH) programs target LMI households (≤ 80% AMI) in investor-owned utility territories for no-cost rooftop solar installations funded by the California Solar Initiative (CSI).[22]

[21] Mass Solar Loan. https://www.masssolarloan.com

[22] California Public Utility Commission. https://www.cpuc.ca.gov/general.aspx?id=3043

Targeting Environmental Justice (EJ) Communities. In addition to targeting LMI households that can live anywhere in the state, some states are implementing place- based solar targeting approaches that prioritize those who live in designated environmental justice communities. This approach is a recognition of the principle of environmental justice—that regardless of race, national origin, age, or income, no segment of the population should bear disproportionately high or adverse environmental burdens. In particular to the benefits of solar, on average majority black and Hispanic communities experience high pollution exposure and high energy burdens (or the proportion of income spent on energy costs). Nationally, EJ communities have been designated through mapping exercises and calculations publicly available through the US EPA's Environmental Justice Screening and Mapping tool which displays census tracts with higher exposure to pollution and other environmental and socioeconomic risk factors. In California, the Clean Energy and Pollution Reduction Act of 2015 required the California Public Utility Commission to help improve air quality and economic conditions in disadvantaged communities which permitted the targeting of solar investments in those communities. In Illinois, the Future Energy Jobs Act which established the Illinois Solar for All Program required designating and targeting environmental justice communities for solar investments. California's disadvantaged communities are easily identified on the state's online CalEnviroScreen mapping tool, while Illinois has an online tool to search an address to determine its EJ community designation status as well as users can apply for review to designate an area as an EJ community.

Targeting LMI-serving non-profit and public facilities. Some states have committed to providing explicit solar incentives to nonprofit and public facilities that serve LMI and environmental justice communities with a goal of offsetting energy costs so savings can be put toward programming that benefit the communities they serve. For example, Illinois seeks to increase solar equity by targeting nonprofit and public facilities serving LMI and environmental justice communities such as public housing, K–12 public schools, homeless shelters, and places of worship. The Illinois Solar For All Program commits 15% of the budget to support the Incentives for Nonprofits and Public Facilities sub-program. According to a NREL report, solar systems on LMI-serving non-profit and public facilities could be oversized to share some of the solar power that is generated with the surrounding community.

Setting and Tracking Solar Equity Metrics and Goals. Beyond defining solar equity targeting approaches, some governments have set measurable and trackable solar equity goals. For example, Washington, DC has set goals for its Solar For All program to install rooftop solar on 100,000 LMI households and reduce LMI energy burdens by 50% by 2032. Illinois has set a goal that a minimum of 25% of its solar incentives be allocated to projects located within environmental justice communities. Additionally, California has established a transparent online resource for tracking its solar equity progress. The statistics and charts are frequently updated based on completed applications for its SASH and MASH programs.

In sum, for a national energy poverty and justice strategy, Congress may consider the following four actions:

- Explore restructuring of the processes and procedures of the Low-Income Home Energy Assistance and Weatherization Assistance programs to improve their impact and efficiency.
- Quantify the current residential energy equity gaps by exploring disparities spatially (e.g., between counties), racially, and socioeconomically.
- Determine and define the desired people- and place-based approaches to policy design and implementation that best address identified disparities. This will facilitate targeting, public engagement, and investment strategies.
    - If a people-based approach is considered, determine the household income threshold that best defines the state’s LMI population
    - If a place-based approach is considered, conduct an environmental justice mapping exercise using established methods (e.g., US EPA, California, or Illinois) centered on environmental, socioeconomic, and demographic risk factors.
- Establish measurable equity metrics and goals (i.e. energy poverty reduction, employment equity increases) and transparent mechanisms for tracking progress. Institutionalize equity metrics into project funding and evaluation.

Thank you, Chairman Rush, Ranking Member Upton and Members of the Subcommittee, for the opportunity to appear before you today to discuss these important and timely issues. I look forward to your comments and questions.