

Recommendations for cities and states to improve equity evaluation and reporting in energy efficiency programming

October 2021 – White Paper

Applied Economics Clinic

Prepared for: American Council for an Energy-Efficient Economy (ACEEE)

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October 2021

[AEC-2021-10-WP-01]



Executive Summary

On behalf of The American Council for an Energy-Efficient Economy (ACEEE), this Applied Economics Clinic (AEC) white paper recommends measures that cities and states can undertake to facilitate equitable energy efficiency evaluation and reporting of energy efficiency efforts, based on the results of our review of low-income energy efficiency efforts in ACEEE’s top-scoring cities and states in their 2020 City and State energy efficiency scorecards. We find that the cities and states most highly-rated for energy efficiency (Top cities: New York, Boston, Seattle, Minneapolis, San Francisco, Washington DC, Denver, Los Angeles, San Jose and Oakland; top states: California, Massachusetts, Vermont, Rhode Island, New York, Maryland, Connecticut, Minnesota and Oregon) offer programs for low-income community members, but fail to take critical actions necessary for equitable evaluation and reporting to facilitate equitable outcomes. Common omissions include:

- Not making disaggregated data publicly available for robust evaluation of those programs’ equity-related impacts;
- Failing to identify, track, and target vulnerable populations beyond low-income; and
- Pursuing energy efficiency planning in isolation, rather than together with climate and equity programming.

Based on our review of these programs, we find that—while these programs have made important progress on addressing equity concerns by offering efficiency programming specifically to low-income households—more robust energy efficiency evaluation and reporting are needed to shine a light on city and state equity-focused energy efficiency programming and ensure that efficiency benefits are equitably distributed. We recommend three main improvements that would drastically enhance the ability to evaluate these programs for their equity-related impacts:

| Recommendation | Equity Impact |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mandate disaggregated efficiency program performance reporting | To more robustly reveal the distribution of costs and benefits within and across program communities. |
| Identify, track, and target vulnerable populations | To help ensure that energy efficiency benefits reach the households that need them most. |
| Integrate energy efficiency, climate, and equity planning and reporting | To ensure that climate and equity progress are synergistic, that representation is diverse, that community engagement is robust, and that transparency and accountability are facilitated. |



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About the Applied Economics Clinic

Founded in 2017, the Applied Economics Clinic (AEC) is a mission-based non-profit consulting group that offers expert services in the areas of energy, environment, consumer protection, and equity from seasoned professionals while providing on-the-job training to the next generation of technical experts. AEC's clients are primarily public interest organizations who work on issues related to AEC's areas of expertise and our work products include expert testimony, analysis, modeling, policy briefs, and reports. AEC works proactively to support and promote diversity in our areas of work by providing applied, on-the-job learning experiences.

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Acknowledgements

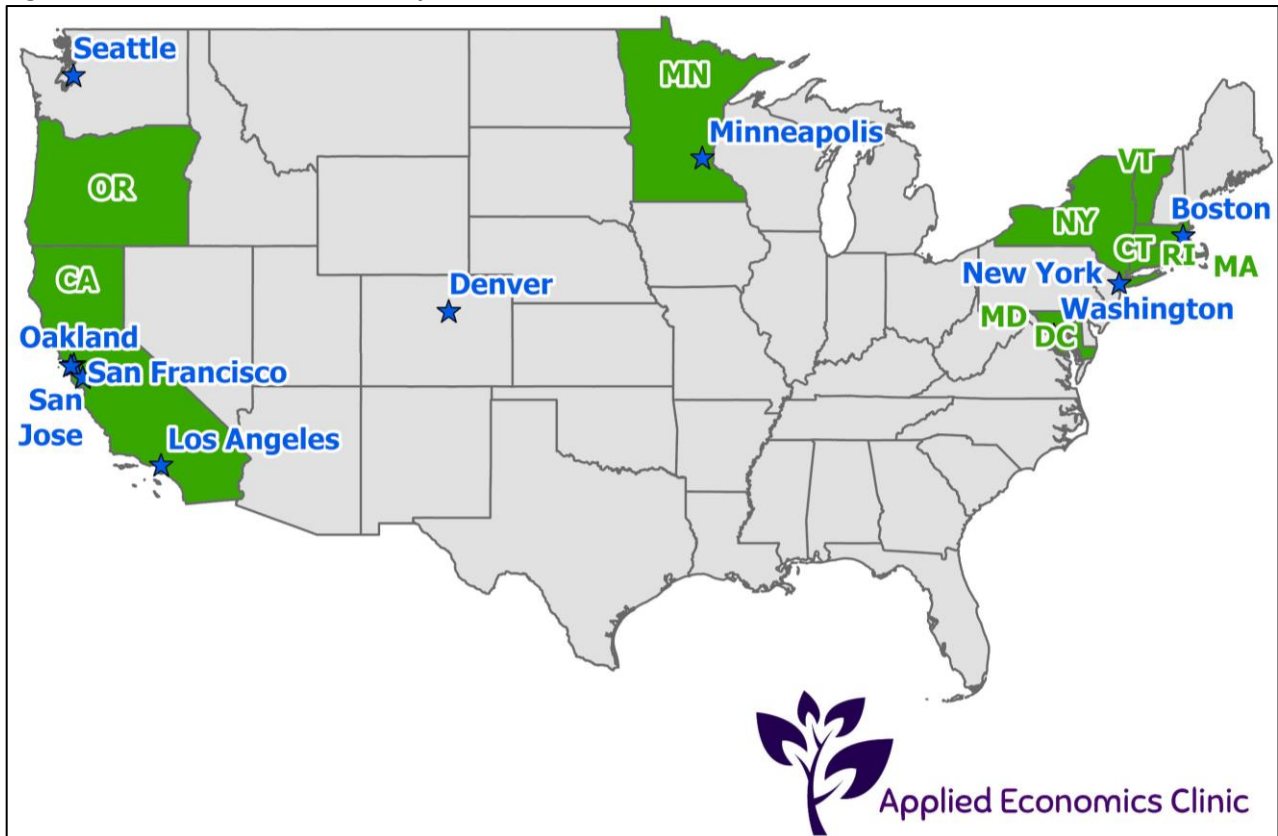
AEC would like to gratefully acknowledge the American Council for an Energy-Efficient Economy (ACEEE) staff who were integral to the development of this white paper: Lauren Ross, Ariel Drehobl, Rachel Gold and Amanda Dewey.



Introduction

AEC reviewed the energy efficiency program offerings of the top 10 cities and states in ACEEE’s 2020 energy efficiency scorecards (see Figure 1) to determine whether and what kind of equity-focused programs exist and whether cities and states make data regarding their savings, participation, budget and emissions performance available to the public that would enable evaluation and reporting of the equity impacts of energy efficiency efforts. (We did not review federal or utility energy efficiency programs.) Our review concluded that, for these cities and states, equity-focused energy efficiency efforts exclusively took the form of income-eligible energy efficiency program offerings. Therefore, we reviewed ACEEE’s top 10 cities and states to determine: (1) whether and what kind of income-eligible energy efficiency programs exist and who offers them; (2) whether low-income participation is reported; (3) whether low-income program energy or cost savings, participation, budgets, and greenhouse gas emissions are reported; and (4) whether data are reported with geographic granularity (i.e. at a sub-state or sub-city level). The results of this review inform our recommendations for city and state energy efficiency programs to better track and monitor their equity, efficiency, and emissions impacts.

Figure 1. ACEEE 2020 Scorecard top 10 cities and states



Key Findings

Our review found that, among ACEEE’s top-ranked cities and states, equity-focused energy efficiency efforts almost exclusively take the form of income-eligible programs. We find that some of ACEEE’s top-ranked cities and states offer their own low-income energy efficiency programs while others are engaged in building awareness about, facilitating participation in and/or mandating reporting for existing low-income energy efficiency programs offered by utilities. In either scenario, the cities and states reviewed are not making sufficient data publicly available to evaluate the equity-related impacts of their low-income efficiency efforts, including on historically marginalized groups that have borne disproportionate burdens of the existing energy system. Cities and states are in a position both to make data on their own programs publicly available and to pressure utilities and third-party administrators to make data publicly available as well. Measuring equity impacts requires disaggregated data that track populations over time—a key challenge for equity-focused evaluations of city and state energy efficiency programs.

1. ACEEE’s top ten cities: most offer low-income energy efficiency programs

The descriptions of city energy efficiency programs that follow are not exhaustive, rather, they are meant to highlight the kinds of programs that exist and their equity-focused characteristics. Three of the cities reviewed offer their own efficiency programs but do not have income-eligible specific focus or do not offer their own low-income energy efficiency efforts. Rather, they work to build awareness about state-level efficiency programs and/or facilitate the implementation of state-level programs:

- **Boston, Massachusetts** does not have its own low-income energy efficiency programs but facilitates the implementation of low-income programs administered by the state.¹
- **San Francisco, California**’s Department of Environment runs the EnergyAccessSF program to offer support to residents, businesses and multifamily property managers by connecting them with energy programs, rebates, and services.²
- **San Jose, California** partners with PG&E to offer energy efficiency programs to qualified low-income customers.³ For example, San Jose manages the Silicon Valley Energy Watch, which provides energy efficiency services to PG&E customers that qualify, such as non-profits, schools and low-income households,⁴ at low or no cost.⁵

¹ American Council for an Energy-Efficient Economy (ACEEE). May 2021. “State and Local Policy Database: Boston, MA.” ACEEE. Available at: <https://database.aceee.org/city/boston-ma>.

² SF Environment. 2020. Available at: <https://sfenvironment.org/sfenergyaccess-sf>.

³ American Council for an Energy-Efficient Economy (ACEEE). May 2021. “State and Local Policy Database: San José, CA.” ACEEE. Available at: <https://database.aceee.org/city/san-jos%C3%A9-ca>.

⁴ City of San Jose. 2017. What is Silicon Valley Energy Watch? Available at: <https://newbuildings.org/wp-content/uploads/2017/02/About-SVEW-Presentation.pdf>.

⁵ City of San Jose. No Date. Tools for Saving Energy in Your Home. Available at: <https://www.sanjoseca.gov/your-government/environment/energy/silicon-valley-energy-watch/tools-for-saving-energy-in-your-home>.

However, seven cities—and/or their municipal utilities—do offer their own income-eligible efficiency programs or policies:

- **New York City, New York**'s Department of Housing Preservation and Development administers the Green Housing Preservation Program (GHPP) which provides low- or no-interest loans for low- and moderate-income small- and mid-size building owners to finance building improvements like energy efficiency improvements and lead remediation.⁶
- **Minneapolis, Minnesota** offers a Green Business Cost Share program that provides funds for business and multifamily residential buildings to increase energy efficiency.⁷ Priority is given to buildings in vulnerable communities, including low-income communities.⁸
- **Washington, DC** offers a variety of low-income energy efficiency programs to low-income residents of the city through the DC Sustainable Energy Utility (DCSEU). DCSEU offers funding for owners and managers of affordable housing, qualified clinics, and shelters to implement energy efficiency upgrades⁹ and has a Low-Income Decarbonization Pilot program to reduce carbon emissions of low-income single-family homes through electrification.¹⁰ DCSEU submits quarterly reports to the District's Department of Energy and Environment that include data on spending, savings, number of participants, and cumulative progress against energy reduction and dollar savings benchmarks.¹¹
- **Seattle, Washington**'s municipal utility, Seattle City Light, offers emergency payment assistance programs for income-eligible customers to pay their current or past due bills and/or receive long-term bill discounts.¹²
- **Los Angeles, California**'s municipal utility, the Los Angeles Department of Water and Power (LADWP), offers a variety of energy efficiency rebates and programs to low-income customers including: the Consumer Rebate Program for energy-efficient products, the AC Optimization

⁶ NYC Housing Preservation and Development. 2021. "Green Housing Preservation Program." *NYC Housing Preservation and Development*. Available at: <https://www1.nyc.gov/site/hpd/services-and-information/green-housing-preservation-program-ghpp.page>

⁷ Minneapolis Health Department. July 20, 2021. "Green Cost Share." *Minneapolis City of Lakes*. Available at: <https://www2.minneapolismn.gov/government/programs-initiatives/environmental-programs/green-cost-share/>.

⁸ Minneapolis. 2021. Green Zones Initiative. Available at: <https://www2.minneapolismn.gov/government/departments/coordinator/sustainability/policies/green-zones-initiative/>.

⁹ DC Sustainable Energy Utility (DCSEU). 2021. *2020 Annual Report*. DC Department of Energy and Environment. Available at: <https://www.dcseu.com/Media/Default/docs/about-us/DCSEU-AnnualReport-2020-final.pdf>

¹⁰ Ibid.

¹¹ Department of Energy & Environment. February 4, 2021. "DCSEU - Quarterly and Annual Reports." *DC.gov*. Available at: <https://doee.dc.gov/publication/dcseu-quarterly-and-annual-reports>

¹² Seattle City Light. 2021. Payment Assistance Program. Available at: <http://www.seattle.gov/city-light/residential-services/billing-information/payment-assistance-programs>.



program for HVAC diagnostic and maintenance services at no cost, the Refrigerator Exchange Program, and the Home Energy Improvement Program.¹³

- **Oakland, California** offers a weatherization and Energy Retrofit Revolving Loan Program to income-eligible property owners, where they can receive interest-free loans ranging from \$6,500 to \$30,000 for weatherization and energy efficiency improvements to owner-occupied residential properties with 4 or less units.¹⁴
- **Denver, Colorado** has awarded funding to the state’s nonprofit Energy Outreach Colorado program to improve energy efficiency measures in affordable housing, and at local nonprofits that support under-served communities within Denver.¹⁵ Organizations that specifically focus on providing services to low-income customers in Denver include the Energy Resource Center—a nonprofit that offers free energy efficiency services¹⁶—and Groundwork Denver—a nonprofit that promotes environmental and community health and wellbeing, including by providing free energy audits and efficiency upgrades.¹⁷

2. ACEEE’s top ten states: all offer some form of low-income energy efficiency program

The descriptions of city energy efficiency programs that follow are not exhaustive, rather, they are meant to highlight the kinds of programs that exist and their equity-focused characteristics. Two of the states reviewed plus the District of Columbia offer their own low-income energy efficiency programs. Vermont and the District of Columbia established separate energy efficiency utilities, while New York State offers low-income and other energy efficiency programs:

- The **Vermont** Public Utility Commission and State Legislature established a third-party, non-profit organization called Efficiency Vermont in 2000 to administer energy efficiency programs including

¹³ Los Angeles Department of Water and Power. 2013. “Energy Efficiency and Rebates.” *LA DWP*. Available at: https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-energyefficiencyandrebates?_adf.ctrl-state=7s7pxavcq_17&_afLoop=470150687353982&_afWindowMode=0&_afWindowId=rr4gniz2e_1#%40%3F_afWindowId%3Drr4gniz2e_1%26_afLoop%3D470150687353982%26_afWindowMode%3D0%26_adf.ctrl-state%3Drr4gniz2e_49.

¹⁴ City of Oakland. 2021. “Energy Programs for Residents.” *City of Oakland*. Available at: <https://www.oaklandca.gov/resources/energy-programs-for-residents>.

¹⁵ Energy Outreach Colorado. November 29, 2016. “Energy Outreach Colorado Awarded Denver Energy Efficiency Grant DOSP Funding Will Reduce Energy Costs For Affordable Housing, Nonprofits.” *Energy Outreach Colorado*. Available at: <https://www.energyoutreach.org/energy-outreach-colorado-awarded-denver-energy-efficiency-grant-dosp-funding-will-reduce-energy-costs-for-affordable-housing-nonprofits/>.

¹⁶ Energy Resource Center. 2021. “The Energy Resource Center.” *Energy Resource Center*. Available at: <https://www.erc-co.org/>.

¹⁷ Groundwork Denver. No Date. “ENERGY.” *GROUNDWORK DENVER*. Available at: <https://groundworkcolorado.org/programs/energy/>.



low-income weatherization, appliance and retrofit programs.¹⁸

- The **District of Columbia**'s 2008 Clean and Affordable Energy Act authorized the creation of the District of Columbia Sustainable Energy Utility¹⁹ which implements energy efficiency and renewable energy programs, including an Income Qualified Efficiency Fund for owners of multifamily buildings that serve low- to moderate-income residents.²⁰
- **New York**—through its state agency dedicated to energy solutions, the New York State Energy Research and Development Authority (NYSERDA)—offers several income-eligible programs such as EmPower New York, where income-eligible renters and homeowners can receive energy efficiency services like weatherization and appliance replacements at no cost. The Assisted Home Performance program (with Energy Star[®]) covers 50 percent of certain home retrofits up to \$4,000 per household.²¹

Seven states²² low-income efficiency efforts are coordinated efforts between the state and public utilities or third-party administrators. For example:

- **California**'s electric and gas utilities are responsible for administering energy efficiency programs—including a standardized, federally-funded low-income program that offers one-time financial assistance for utility bills, energy crisis intervention to prevent shutoffs, free energy efficiency upgrades and energy education and budget counseling²³—and are required to report their data to the California Public Utilities Commission and the Air Resources Board.²⁴
- In **Maryland**, electric and gas utilities are responsible for administering energy efficiency programs and the state requires all utilities to participate in the EmPower Maryland program, administered by the Department of Housing and Community Development (DHCD), which offers weatherization,

¹⁸ Efficiency Vermont. April 1, 2021. *2020 SAVINGS CLAIM SUMMARY*. Efficiency Vermont. Available at: <https://www.encyvermont.com/Media/Default/docs/plans-reports-highlights/2020/efficiency-vermont-savings-claim-summary-2020.pdf>.

¹⁹ DC.gov. No Date. DC Sustainable Energy Utility (DCSEU). Available at: <https://doee.dc.gov/service/dc-sustainable-energy-utility-dcseu>.

²⁰ DC Sustainable Energy Utility. 2021. Efficiency Fund. Available at: <https://www.dcseu.com/commercial-and-multifamily/income-qualified-efficiency-fund>.

²¹ The New York State Energy Research and Development Authority (NYSERDA). No Date. "Low- to Moderate-income Programs." *NYSERDA*. Available at: <https://www.nyserda.ny.gov/-/media/Files/Publications/Fact-Sheets/low-to-moderate-income-program-overview.pdf>.

²² Note that Washington DC was one of the top ten ranked "states" in ACEEE's 2020 Scorecard but has been covered as a city in this white paper.

²³ CA.gov. 2021. Low Income Home Energy Assistance Program. Available at: <https://www.csd.ca.gov/Pages/LIHEAPProgram.aspx>.

²⁴ California Department of Community Services and Development. February 2021. "Low-Income Weatherization Program Fact Sheet." Available at: <https://www.csd.ca.gov/Shared%20Documents/LIWP-Fact-Sheet.pdf>.

retrofits, and appliance upgrades at no cost for limited income households.²⁵ DHCD also implements the state’s other federally-funded income-eligible efficiency programs, including the Maryland Energy Assistance Program and the Weatherization Assistance Program.²⁶

- **Rhode Island’s** electric and gas utilities offer low-income energy efficiency programs and are required by the state to submit both three-year energy efficiency plans and annual program performance data to the state Public Utilities Commission.²⁷
- In **Colorado**, a statewide nonprofit called Energy Outreach Colorado raises funds to help low-income residents (that are customers of participating utilities) to afford energy through energy efficiency improvements, bill payment assistance, emergency heating repair/replacement, and more.²⁸
- In **Massachusetts**, the Low-Income Energy Affordability Network (LEAN) is an association of nonprofit agencies that coordinates utility-funded low-income energy efficiency programs across the state.²⁹ Between 2013 and 2019, the LEAN program served about 46,000 customers per year, and renters account for about 84 percent of those customers served.³⁰

3. ACEEE’s top-ranked cities and states do not provide detailed public data

Disaggregated data—meaning data that is broken down into smaller subpopulations like race/ethnicity, income, or languages spoken—on energy efficiency program performance are scarce for the cities and states reviewed. Some states do report energy efficiency performance separately for their low-income programs, but none report performance for other vulnerable subpopulations like race/ethnicity or English-language isolation, and very few report low-income program performance across multiple metrics (for example, households served, budgets and emissions savings). For example:

- **California’s** Low Income Weatherization Program reports the total number of low-income households served and their energy savings, total budget allocated to the low-income subprogram,

²⁵ Maryland Department of Community Housing and Development. No Date. “EmPOWER Maryland Limited Income Energy Efficiency Program.” *Maryland Department of Community Housing and Development*. Available at: <https://dhcd.maryland.gov/Residents/Pages/lieep/default.aspx>

²⁶ Maryland Department of Housing and Community Development. No Date. Energy Efficiency. Available at: <https://dhcd.maryland.gov/Pages/EnergyEfficiency/default.aspx>.

²⁷ Rhode Island Public Utilities Commission Docket No. 5076. October 2020. *JOINT PRE-FILED DIRECT TESTIMONY OF CHRISTOPHER PORTER, MATTHEW RAY AND JOHN TORTORELLA*. Submitted by THE NARRAGANSETT ELECTRIC COMPANY d/b/a NATIONAL GRID. Available at: <http://rieermc.ri.gov/wp-content/uploads/2020/10/2021-ap-only-2021-ap-and-2021-2023-3yp-combined-filing.pdf>

²⁸ Energy Outreach Colorado. 2021. Homepage. Available at: <https://www.energyoutreach.org/>.

²⁹ Mass LEAN Residential. No Date. Homepage. Available at: <https://masslean.org/>.

³⁰ MassSave and LEAN. November 10, 2020. EEAC 3 Year Plan Workshop: LEAN UPDATE. Available at: https://ma-eeac.org/wp-content/uploads/LEAN_EEAC-2022-2024-Plan-Workshops-11.10.2020.pdf.

and emissions savings achieved from low-income measures.³¹

- **Massachusetts'** MassSave program reports the total number of low-income participants, total energy savings for low-income, total budget allocated to low-income measures, and cumulative emission reductions for low-income programs (but not by program year).³²

Most states report energy efficiency performance by program, customer type, and/or town—but rarely provide the level of data granularity that would be needed to evaluate programs' equity impacts. For example:

- **Connecticut's** utilities report efficiency data to the state that include energy savings by fuel type, total dollars saved, benefit cost ratios, and carbon dioxide emissions savings.³³ Data are publicly available on a total or per-town basis, disaggregated to the residential and commercial sector level but are not available for low-income participants or other vulnerable groups.³⁴
- **Oregon's** electric and gas utilities submit annual reports to the state's Public Utility Commission, including the number of low-income households served, total annual funding, and energy savings but do not report emissions savings.³⁵

Of the state or city-level energy efficiency programs reviewed, only California's Low Income Weatherization Program and Massachusetts' MassSave program make emissions savings data publicly available by program type (that is, emissions savings data reported separately for low-income, residential, commercial and industrial programs). Therefore, given currently available data and information about state-level efficiency programs, it is not possible to evaluate the emission reduction impacts of income-eligible efficiency programs nationwide.

Recommendations

Based on the results of this review, AEC recommends three primary ways that cities and states can facilitate equity-focused evaluation and reporting of their energy efficiency efforts: 1) mandate disaggregated program performance reporting; 2) identify, track, and target vulnerable populations; and 3)

³¹ California Department of Community Services & Development. February 2021. Low Income Weatherization Program Fact Sheet. Available at: <https://www.csd.ca.gov/Shared%20Documents/LIWP-Fact-Sheet.pdf>.

³² Massachusetts Energy Efficiency Program Administrators. February 10, 2021. Quarterly Report: Fourth Quarter, 2020. Available at: <https://ma-eeac.org/wp-content/uploads/Quarterly-Report-of-the-PAs-2020-Q4-Final.pdf>.

³³ Eversource Energy, United Illuminating, Connecticut Natural Gas Corporation, and Southern Connecticut Gas. 2020. *2021 Plan Update to the 2019-2021 Conservation & Load Management Plan*. Eversource Energy, United Illuminating, Connecticut Natural Gas Corporation, and Southern Connecticut Gas. Available at: <https://portal.ct.gov/-/media/DEEP/energy/ConserLoadMgmt/FINAL-2021-Plan-Update-Filed-10302020.pdf>.

³⁴ Energize Connecticut. 2019. "Compare Towns." *CLEAN ENERGY COMMUNITIES*. Available at: <https://ctenergydashboard.com/CEC/CompareTownsMap.aspx>.

³⁵ Public Utility Commission of Oregon Docket No. RG 81. March 2021. *2020 Avista Oregon Low-Income Energy Efficiency (AOLIEE) Annual Report – Informational Filing Only*. Submitted by Shawn Bonfield. Available at: <https://edocs.puc.state.or.us/efdocs/HAQ/rg81haq10559.pdf>.

integrate energy efficiency, climate, and equity planning and reporting.

1. Mandate disaggregated program performance reporting

While most of the cities and states reviewed offered energy efficiency programs for low-income households, very few make low-income program evaluation data publicly available, or any other data disaggregation that would show program impacts across communities and/or households. Evaluating city and state energy efficiency efforts for their equity impacts depends on data reporting that reveals the distribution of costs and benefits within a community, and electric distributor cooperation and coordination may be critical to accessing and synthesizing those data.

Our review indicates that an important way that cities and states can improve the ability to evaluate energy efficiency efforts for their equity impacts is to **mandate disaggregated energy efficiency program performance reporting** by electric distributors and others responsible for administering energy efficiency programs. It is important to note that collecting disaggregated data entails serious privacy concerns because their collection cannot help but identify and track vulnerable groups. Data privacy concerns can be mitigated using deliberate and transparent methods that put decision-making about privacy in the hands of individuals and communities with the greatest concerns, such as anonymous and/or voluntary data collection techniques or data privacy protocols like data encryption or multi-factor authentication. Disaggregated energy efficiency program performance reporting could include (but not be limited to):

a. Separate data for multi-family and single-family

Reporting energy efficiency program performance separately for multi- and single-family homes is important for equity analysis because residents in multifamily housing are less likely to benefit from energy efficiency programs.³⁶ There is very little incentive for multifamily property owners to invest money in energy efficiency upgrades in buildings where residents pay their own energy bills—a conundrum known as the “split incentive” challenge.³⁷ Multifamily building owners can also lack access to the funding needed for efficiency upgrades.³⁸ Residents of multi-family households are also more likely to rent their homes, to be low-income, and to have a higher energy burden (energy costs as a share of household income) than

³⁶ Drehoobl and Ross. 2016. *Lifting the High Energy Burden in America’s Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities*. Energy Efficiency for All and American Council for an Energy-Efficient Economy (ACEEE). Available at:

<https://www.aceee.org/sites/default/files/publications/researchreports/u1602.pdf>.

³⁷ Bird, S. and Hernandez, D. September 2012. Policy options for the split incentive: Increasing energy efficiency for low-income renters. *Energy Policy*. 48: 506–514. Available at:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4819331/#:~:text=Split%20incentives%20are%20defined%20as,California%20Sustainability%20Alliance%2C%202011>).

³⁸ National Association of State Energy Officials. 2021. “Energy Efficiency in Multifamily Buildings.” NASEO. Available at: <https://www.naseo.org/issues/buildings/multifamily>.

residents of single-family households.³⁹ Energy efficiency efforts around the country have left vulnerable, multifamily housing residents behind, which is why energy efficiency performance data must be reported separately for multifamily and single-family households in order to assess the equity of efficiency program impacts.

b. Separate data by income level

Reporting energy efficiency program performance separately for different income levels is important for equity because low- and moderate-income families spend a higher percentage of their income on electricity⁴⁰ and are more likely to live in energy inefficient housing than higher income households.⁴¹ Black and Latinx households are more likely to be low- or moderate-income than other racial groups due to a history of federal, state, and local systemic racist policies⁴² and are more likely to face utility shutoffs.⁴³ While each state has its own definition, in general terms, low-income households are defined as those with incomes below 150 percent of the federal poverty level⁴⁴ while moderate-income households are those with incomes below 300 percent of the federal poverty level.⁴⁵ In 2020, that means low-income households earned less than \$19,140 and moderate-income households earned less than \$38,280.⁴⁶ It is important to evaluate efficiency program performance for low- and moderate-income households separately, because moderate-income households may not qualify for income-based assistance, but can

³⁹ Drehobl and Ross. 2016. *Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities*. Energy Efficiency for All and American Council for an Energy-Efficient Economy (ACEEE). Available at:

<https://www.aceee.org/sites/default/files/publications/researchreports/u1602.pdf>.

⁴⁰ Applied Public Policy Research Institute for Study and Evaluation (APPRISE). 2018. *Low-Income Energy Efficiency: A Pathway to Clean, Affordable Energy for All*. Available at:

https://www.edf.org/sites/default/files/documents/liee_national_summary.pdf.

⁴¹ Leventis, G., Kramer, C., and Schwartz, L. August 2017. *Energy Efficiency Financing for Low- and Moderate-Income Households: Current State of the Market, Issues, and Opportunities*. Lawrence Berkeley National Laboratory. Prepared for State and Local Energy Efficiency Action Network (SEE Action). Available at:

<https://emp.lbl.gov/sites/default/files/news/lmi-final0811.pdf>.

⁴² Applied Public Policy Research Institute for Study and Evaluation (APPRISE). 2018. *Low-Income Energy Efficiency: A Pathway to Clean, Affordable Energy for All*. Prepared for Environmental Defense Fund (EDF). Available at:

https://www.edf.org/sites/default/files/documents/liee_national_summary.pdf.

⁴³ Kowalski, K.M. July 1, 2020. "Racial disparities persist in electric service. Is 'willful blindness' to blame?" *Energy News Network*. Available at: <https://energynews.us/2020/07/01/racial-disparities-persist-in-electric-service-is-willful-blindness-to-blame/>.

⁴⁴ Applied Public Policy Research Institute for Study and Evaluation (APPRISE). 2018.

⁴⁵ Leventis, G., Kramer, C., and Schwartz, L. *Energy Efficiency Financing for Low- and Moderate-Income Households: Current State of the Market, Issues, and Opportunities*. Lawrence Berkeley National Laboratory. Prepared for State and Local Energy Efficiency Action Network (SEE Action). Available at:

<https://emp.lbl.gov/sites/default/files/news/lmi-final0811.pdf>.

⁴⁶ Office of the Assistant Secretary for Planning and Administration. 2020. "U.S. Federal Poverty Guidelines Used to Determine Financial Eligibility for Certain Federal Programs." *ASPE*. Available at: <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2020-poverty-guidelines>.

still struggle with energy burdens and may sacrifice other necessities—like healthcare or food—to mitigate their energy burdens and/or avoid utility shutoffs.⁴⁷ Energy efficiency performance data must be reported separately for low-, moderate-, and higher-income households to evaluate how households are being reached by efficiency programs and identify their specific needs.

c. Separate data for different vulnerabilities

Low-income households are vulnerable because of their increased likelihood to live in poor quality housing and to face energy and other cost burdens, but other characteristics can also increase household vulnerability: energy efficiency programs need to reach and track other vulnerable communities such as renters, communities of color, limited English-speaking households, persons with disabilities, the elderly, immigrants, formerly incarcerated people, and veterans—and provide data collection specific to these groups. Collecting data of this kind would need to take place within the bounds of applicable civil rights and antidiscrimination laws and may raise serious privacy concerns, particularly if made public (as is necessary to facilitate external, third-party equity evaluation).⁴⁸ However, data privacy techniques like anonymous data collection, multi-factor authentication, incident response plans, authorized user and access protocols, and data encryption techniques can mitigate these risks.⁴⁹ Making energy efficiency performance data available on a variety of vulnerable groups would improve efficiency providers' ability to track whether programs are having equitable impacts on vulnerable and historically marginalized communities.⁵⁰

d. Separate data geographically, layered with other types of data disaggregation

Measuring equity impacts requires detailed data regarding the distribution of the costs and benefits of energy efficiency programs across and within communities.⁵¹ When efficiency program data are only made publicly available at an aggregate level—for example, for an entire city, entire state, entire program, etc.—

⁴⁷ Affordable Access Steering Committee. 2017. Massachusetts Department of Energy Resources and Department of Housing, Community Development and Massachusetts Clean Energy Center, and Meister Consultants Group. Available at: <https://www.mass.gov/doc/affordable-access-to-clean-and-efficient-energy-the-final-working-group-report/download>.

⁴⁸ Woods, B. and Stanton, E. 2021. *Initial Assessment of the Climate Justice Working Group's Recommended Policy Priorities – Tracking Equity and Justice*. Applied Economics Clinic. Prepared for: Massachusetts' Climate Justice Working Group. Available at: <https://aeclinic.org/publicationpages/2021/3/23/initial-assessment-of-the-climate-justice-working-groups-recommended-policy-priorities-tracking-equity-and-justice>.

⁴⁹ Employee Benefits Security Administration. No Date. *CYBERSECURITY PROGRAM BEST PRACTICES*. United States Department of Labor. Available at: <https://www.dol.gov/sites/dolgov/files/ebsa/key-topics/retirement-benefits/cybersecurity/best-practices.pdf>.

⁵⁰ Lanckton, T. and DeVar, S. 2021. *Justice in 100 Metrics: Tools for Measuring Equity in 100% Renewable Energy Policy Implementation*. Initiative for Energy Justice. Available at: <https://iejusa.org/wp-content/uploads/2021/03/Justice-in-100-Metrics-2021.pdf>.

⁵¹ Brady, J. June 13, 2021. "Tackling 'Energy Justice' Requires Better Data. These Researchers Are On It." *NPR*. Available at: <https://www.npr.org/2021/06/13/1004873139/tackling-energy-justice-requires-better-data-these-researchers-are-on-it>.

it is much more difficult to evaluate the distribution of costs and benefits across a community. Providing data at the most geographically disaggregate level possible—for example, by zip code or census tract—and layering it with other types of data disaggregation (for example, by renter status, race/ethnicity or language spoken) enables better equity evaluation. For clarity, an example of layered, disaggregated data is energy efficiency participation of English-isolated households by town or zipcode.

e. Leading examples

Some examples of best practice data disaggregation among state and city energy efficiency programs include:

- **Massachusetts:** The Massachusetts Energy Efficiency Advisory Council publishes annual and quarterly reports using data from energy efficiency program administrators that include data on program performance, savings, budgets, and emissions broken down by customer class but not by income level (that is, emissions savings are available for residential and commercial and industrial, but not for low-income customers), type of efficiency program⁵² and town.⁵³ Emission data are not available by town nor are any data reported separately for low-income programs, making it difficult to robustly assess the equity impacts of emissions savings from Massachusetts' energy efficiency programs.
- **Vermont:** In Efficiency Vermont's Annual Reports, data on number of program participants, net/lifetime savings, fuel savings, incentives paid, and participant costs is provided with several levels of disaggregation.⁵⁴ First, totals for each data category are available by program type, utility, and county. However, there is no further geographic granularity beyond the county-level nor is data by geography available for low-income programs—only totals for all programs are published.⁵⁵
- **Denver, Colorado:** Energy Outreach Colorado submits annual reports on low-income energy assistance programs to the state legislature, which provides data on program spending and number of customers by county and utility.⁵⁶ However, the reports do not disaggregate data by

⁵² Massachusetts Department of Energy Resources (DOER). 2020. "RESULTS & REPORTING." *MA ENERGY EFFICIENCY ADVISORY COUNCIL*. Available at: <https://ma-eeac.org/results-reporting/>.

⁵³ Mass Save. 2021. "Welcome to Mass Save Data." *Mass Save*. Available at: <https://www.masssavedata.com/Public/GeographicSavings?view=U>.

⁵⁴ Efficiency Vermont. April 1, 2021. *2020 SAVINGS CLAIM SUMMARY*. Efficiency Vermont. Available at: <https://www.efficiencyvermont.com/Media/Default/docs/plans-reports-highlights/2020/efficiency-vermont-savings-claim-summary-2020.pdf>.

⁵⁵ Ibid.

⁵⁶ Gremmert, J. March 2021. *Senate Bill 05-001 Final Report*. Energy Outreach Colorado. Prepared for Colorado General Assembly. Available at: <https://www.energyoutreach.org/wp-content/uploads/2021/03/2020-Final-Report-from-EOC-to-CO-Legislature.pdf>.

income level, nor do they include data on energy savings or emissions.⁵⁷

2. Identify, track, and target vulnerable populations

Most of the cities and states reviewed offer energy efficiency programs targeted at low-income households, but low-income is just one of several important categories of vulnerability. Equitable energy efficiency outcomes require an awareness of existing vulnerabilities within a community and intentional approaches to reach vulnerable households. A lack of information regarding different populations, energy usage, energy costs, and program participation can make it difficult to deliver efficiency benefits to households that need it most.

Our review indicates that an important way that cities and states can improve the ability to evaluate energy efficiency efforts for their equity impacts is to **identify, track and target vulnerable populations**—including, but not limited to, low-income households. Vulnerable populations to be identified, tracked and targeted by energy efficiency programs could include (but are not limited to):

a. Energy-burdened households

Identifying and targeting households with high energy-burdens (a household's energy burden equals its energy costs as a share of income) is important for equity because low-income communities and communities of color face disproportionately high energy burdens.⁵⁸ For example, two households may each pay \$6,000 per year in electric and heating costs but one household earns \$30,000 while the other earns \$120,000. The energy burden for the household with the lower income would be 20 percent ($\$6,000/\$30,000$) while the energy burden for the household with the higher income would be 5 percent ($\$6,000/\$120,000$). Utilities record energy use and expenditures by customer (though that information is not publicly available) and cities and states could access information on household incomes. Taken together, this means that many cities and/or states could identify energy burdens across their communities if motivated to do so. Energy efficiency improvements have the greatest benefits for energy-burdened households. City and state-led efficiency efforts to identify, track, and target energy-burdened households for efficiency improvements would serve to make the benefits of energy efficiency more equitably distributed.

b. Environmental justice communities

Identifying and targeting environmental justice communities is important for equity because cost, health, safety and environmental burdens of the existing energy system are borne disproportionately by low-income communities and communities of color and these communities stand to benefit the most from

⁵⁷ Ibid.

⁵⁸ Office of Energy Efficiency and Renewable Energy. No Date. "Low-Income Community Energy Solutions." *ENERGY.GOV*. Available at: <https://www.energy.gov/eere/slsc/low-income-community-energy-solutions>.

energy efficiency improvements.⁵⁹ Environmental justice communities are defined differently state-by-state, but the U.S. Department of Energy defines them as communities that “bear a disproportionate share of negative environmental consequences” from the “development, implementation, and enforcement of environmental laws, regulations, and policies.”⁶⁰ Environmental justice communities face greater environmental harms and risks, which increase their vulnerability to not only environmental hazards, but also health⁶¹ and socioeconomic hazards as well.⁶² The U.S. Environmental Protection Agency has an environmental justice screening and mapping tool called EJSCREEN, which identifies environmental justice communities around the country on the basis of eleven environmental indicators—such as air pollution levels and proximity to environmental hazards—and six demographic indicators—such as income, race, and educational attainment.⁶³ Cities and states should identify environmental justice communities—and/or rely on existing environmental justice mapping tools like EJSCREEN—to better target them with energy efficiency efforts that to reduce energy bills and improve indoor air quality.

c. Energy efficiency program non-participants

Identifying and targeting households that are not participating in energy efficiency programs is important for equity because non-participants tend to be low-income, rural, energy burdened, rent their housing, and/or have limited English language proficiency.⁶⁴ By seeking to identify which households are not participating in energy efficiency programs, cities and states can enhance equity by characterizing barriers to participation and identifying methods to overcome them. Multiple research studies have identified common barriers to energy efficiency program participation: households that are more concerned about

⁵⁹ Environmental Protection Agency (EPA). No Date. *Tools and Products for Environmental Justice Action*. EPA. Available at: https://www.epa.gov/sites/default/files/2017-09/documents/epa_office_of_environmental_justice_factsheet.pdf.

⁶⁰ Office of Legacy Management. No Date. “What Is Environmental Justice?” *ENERGY.GOV*. Available at: <https://www.energy.gov/lm/services/environmental-justice/what-environmental-justice>.

⁶¹ American Public Health Association. November 5, 2019. “Addressing Environmental Justice to Achieve Health Equity.” *APHA*. Available at: <https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2020/01/14/addressing-environmental-justice-to-achieve-health-equity>.

⁶² Jessel, S., Sawyer, S., and Hernández, D. 2019. *Energy, Poverty, and Health in Climate Change: A Comprehensive Review of an Emerging Literature*. *Front Public Health*, 7 (357). Available at: <https://www.frontiersin.org/articles/10.3389/fpubh.2019.00357/full>.

⁶³ United States Environmental Protection Agency (EPA). October 6, 2020. “What is EJSCREEN?” *EPA*. Available at: <https://www.epa.gov/ejscreen/what-ejscreen>.

⁶⁴ 1) Driehbol and Ross. 2016. Available at: <https://www.aceee.org/sites/default/files/publications/researchreports/u1602.pdf>; 2) Brown, M.A., Soni, A., Lapsa, M.V., and Southworth, K. March 2020. *Low-Income Energy Affordability: Conclusions from a Literature Review*. Oak Ridge National Laboratory. Prepared for the US Department of Energy. Available at: <https://info.ornl.gov/sites/publications/Files/Pub124723.pdf>; 3) NAVIGANT, ILLUME, and CADEO. February 2020. *Residential Nonparticipant Market Characterization and Barriers Study*. Prepared for THE ELECTRIC AND GAS PROGRAM ADMINISTRATORS OF MASSACHUSETTS PART OF THE RESIDENTIAL EVALUATION PROGRAM AREA. Available at: <https://illumeadvising.com/files/Residential-Nonparticipant-Market-Characterization-and-Barriers-Study.pdf>.

other pressing needs and do not have the time or money to prioritize energy efficiency; households that are unclear about the programs available to them; households that lack trust in and/or are fearful of government agencies; and households that rent their homes and believe it is a landlord's responsibility to make upgrades.⁶⁵ To ensure that the benefits of energy efficiency are equitably distributed, cities and states must identify which households are not participating in available energy efficiency programs and why.

d. Health-vulnerable households

Identifying and targeting households that are health-vulnerable is important for equity because older populations and communities of color tend to have higher rates of respiratory conditions and stand to benefit the most from the benefits of energy efficiency like improved indoor air quality, improved indoor comfort, and lower energy bills. Older populations are more likely to be electricity-dependent to run nebulizers, oxygen machines, or refrigerate medicines.⁶⁶ Communities of color have lower incomes,⁶⁷ higher rates of asthma and other respiratory conditions,⁶⁸ higher rates of COVID-19 infections and hospitalizations,⁶⁹ and are more likely to have serious chronic medical conditions.⁷⁰ To better target for energy efficiency improvements that can improve indoor air quality, reduce energy bills and entail important co-benefits like reduced hospitalizations and mortality, cities and states must identify health-vulnerable households.

e. Leading Examples

Some leading examples to identify vulnerable populations (above and beyond low-income) for targeting by

⁶⁵ 1) ILLUME. April 2021. *Understanding our Underserved Majority: Using end-to-end research to decode the nuances of the nonparticipant experience*. ILLUME. Available at: <https://illumeadvising.com/files/Case-Study-Understanding-our-Underserved-Majority.pdf>. 2) Reames, T.G. 2016. "A community-based approach to low-income residential energy efficiency participation barriers." *Local Environment*, 12 (21), 1449-1466. Available at: <https://justurbanenergy.files.wordpress.com/2018/03/reames-2016-a-community-based-approach.pdf>.

⁶⁶ Brown, M.A., Soni, A., Lapsa, M.V., and Southworth, K. March 2020. *Low-Income Energy Affordability: Conclusions from a Literature Review*. Oak Ridge National Laboratory. Prepared for the US Department of Energy. Available at: <https://info.ornl.gov/sites/publications/Files/Pub124723.pdf>.

⁶⁷ Creamer, J. September 15, 2020. "Inequalities Persist Despite Decline in Poverty For All Major Race and Hispanic Origin Groups." *United States Census Bureau*. Available at: <https://www.census.gov/library/stories/2020/09/poverty-rates-for-blacks-and-hispanics-reached-historic-lows-in-2019.html>.

⁶⁸ American Lung Association. July 6, 2020. "Current Asthma Demographics." *American Lung Association*. Available at: [https://www.lung.org/research/trends-in-lung-disease/asthma-trends-brief/current-demographics#:~:text=Current%20Asthma%20Rates%20by%20Race,%25\)%20to%20still%20have%20asthma.](https://www.lung.org/research/trends-in-lung-disease/asthma-trends-brief/current-demographics#:~:text=Current%20Asthma%20Rates%20by%20Race,%25)%20to%20still%20have%20asthma.)

⁶⁹ Carroll, N. October 23, 2020. The Backstory: Pollution. "Poor health care. Crowded housing. High-risk jobs. Prejudice. Why people of color are dying of COVID-19." *USA Today*. Available at: <https://www.usatoday.com/story/opinion/2020/10/23/covid-racism-communities-color-have-higher-rates-covid-here-why/3727325001/>.

⁷⁰ Thorpe, K.E., Chin, K.K., Cruz, Y., Innocent, M.A., Singh, L. August 17, 2017. "The United States Can Reduce Socioeconomic Disparities By Focusing On Chronic Diseases." *Health Affairs*. Available at: <https://www.healthaffairs.org/doi/10.1377/hblog20170817.061561/full/>.

city and state energy efficiency programs include:

- **Vermont:** Efficiency Vermont tracks energy burdens across the state—and makes those data publicly available⁷¹—and updated its energy efficiency program criteria in 2019 such that Vermonters with high electricity burdens became eligible to receive certain efficient home appliances for free.⁷²
- **Massachusetts:** In 2019, the Massachusetts’ efficiency program administrators and Energy Efficiency Advisory Council commissioned a team of analysts to assess relationships between participation rates, market barriers, and specific customer characteristics in order to characterize nonparticipants in efficiency programs, to investigate barriers to participation, and to identify opportunities to engage customers who currently do not participate in any efficiency programs. Their findings were summarized in a February 2020 report⁷³ which examined three customer groups with historically low rates of efficiency program participation: renters, moderate income households (60-80 percent of state median income), and non-English speakers.⁷⁴ These findings influenced the development of the draft 2022-2024 statewide three-year energy efficiency plan.⁷⁵ The draft plan also includes efforts that will target state-designated Environmental Justice communities, such as strengthening and expanding the Municipal & Community Partnership Strategy to prioritize the involvement of community-based organizations in Environmental Justice communities, focusing workforce development efforts in Environmental Justice communities, and targeting Environmental Justice communities for door-to-door awareness raising efforts for small business program participation.⁷⁶
- **Minneapolis, Minnesota:** Buildings in communities burdened by pollution and poverty receive prioritized support from City’s Green Cost Sharing Program.⁷⁷ The program helps building owners

⁷¹ Efficiency Vermont. 2019. Vermont’s Total Energy Burden by Town. Available at:

<https://www.encyvermont.com/news-blog/whitepapers/vermont-energy-burden>.

⁷² Efficiency Vermont. No Date. “Bringing efficiency to those who need it most.” Available at:

<https://www.encyvermont.com/blog/your-story/bringing-efficiency-to-those-who-need-it-most>.

⁷³ NAVIGANT, ILLUME, and CADEO. February 2020. *Residential Nonparticipant Market Characterization and Barriers Study*. Prepared for THE ELECTRIC AND GAS PROGRAM ADMINISTRATORS OF MASSACHUSETTS PART OF THE RESIDENTIAL EVALUATION PROGRAM AREA. Available at: <https://illumeadvising.com/files/Residential-Nonparticipant-Market-Characterization-and-Barriers-Study.pdf>.

⁷⁴ Ibid.

⁷⁵ Mass Save. April 2021. *MASSACHUSETTS JOINT STATEWIDE ELECTRIC AND GAS THREE-YEAR ENERGY EFFICIENCY PLAN 2022-2024*. Mass Save. Available at: <https://ma-eeac.org/wp-content/uploads/Mass.-Statewide-Energy-Efficiency-Plan-Submitted-April-30-2021.pdf>.

⁷⁶ MassSave. April 30, 2021. *Massachusetts Joint State Wide Electric and Gas Three-Year Energy Efficiency Plan: 2022-2024*. Available at: <https://ma-eeac.org/wp-content/uploads/Mass.-Statewide-Energy-Efficiency-Plan-Submitted-April-30-2021.pdf>.

⁷⁷ Minneapolis Health Department. July 20, 2021. “Green Cost Share.” *Minneapolis City of Lakes*. Available at: <https://www2.minneapolismn.gov/government/programs-initiatives/environmental-programs/green-cost-share/>.



improve energy efficiency while maintaining housing affordability. As of February 2021, almost \$5 million has been spent through the program.⁷⁸

- **Denver, Colorado:** The City’s Climate Action, Sustainability and Resiliency Department is creating a tool that will identify under-resourced buildings to target for efficiency investments and support by using data from the City’s Greenlink Equity Map platform,⁷⁹ existing energy burden maps from the City’s Office of Social Equity and Innovation,⁸⁰ as well as data generated by the City’s energy benchmarking and transparency ordinance. Denver plans to assemble a diverse task force to help determine how buildings will be prioritized for targeted energy efficiency support.⁸¹
- **Los Angeles, California:** LADWP offers discounted rates on electric bills for customers with certain medical conditions or life-support devices powered by electricity (like oxygen machines), low-income households, elderly customers (older than 62), and customers with permanent disabilities.⁸²

3. Integrate energy efficiency, climate, and equity planning and reporting

Most of the cities and states reviewed offer and evaluate energy efficiency programs separately from other energy, environmental, and equity-enhancing programs, but energy efficiency is an essential strategy to achieve emission reductions in the near- medium- and long-term and to address existing inequities like energy burdens and poor indoor air quality. Equitable energy efficiency efforts must account for the existing distribution of efficiency program investments, benefits, and emissions reductions across communities and practice integrated planning to pursue equity, efficiency, and climate action simultaneously. Siloed energy efficiency programs make it difficult to evaluate the climate and equity implications of these programs or make improvements and find synergies among these goals.

Our review indicates that an important way that cities and states can improve the ability to evaluate energy efficiency efforts for their equity impacts is to **integrate energy efficiency, climate, and equity**

⁷⁸ Mazur, L. July 13, 2021. “Cities can make energy efficiency programs green and equitable.” *American City & Country*. Available at: <https://www.americancityandcountry.com/2021/07/13/cities-can-make-energy-efficiency-programs-green-and-equitable/>.

⁷⁹ Greenlink Analytics. 2020. “Visualizing Data through Neighborhood Equity Maps.” *greenlink equity map*. Available at: <https://www.equitymap.org/>.

⁸⁰ Office of Social Equity & Innovation. 2021. “Office of Social Equity & Innovation.” *DENVER THE MILE HIGH CITY*. Available at: <https://www.denvergov.org/Government/Departments/Mayors-Office/Programs-and-Initiatives/Social-Equity-and-Innovation>.

⁸¹ Mazur, L. July 13, 2021. “Cities can make energy efficiency programs green and equitable.” *American City & Country*. Available at: <https://www.americancityandcountry.com/2021/07/13/cities-can-make-energy-efficiency-programs-green-and-equitable/>.

⁸² Los Angeles Department of Water and Power. No Date. “LADWP Low Income Discount Program Grows to 270,000 Customers Board Expands Eligibility Levels to Broaden Accessibility and Increase Enrollment.” Available at: <https://www.ladwpnews.com/ladwp-low-income-discount-program-grows-to-270000-customers-board-expands-eligibility-levels-to-broaden-accessibility-and-increase-enrollment/>.

planning and reporting. Efforts to make energy efficiency, climate, and equity planning and reporting more holistic and well-integrated could include (but are not limited to):

a. Ensure that decision-makers are representative of the communities they serve

To ensure that energy efficiency programs are equitable and aligned with broader climate goals, it is essential that relevant city and state-level decision makers are representative of the communities they serve. Robust community engagement can go a long way towards enhancing equity considerations in decision-making, but there is no substitute for lived experience, which is why representation among decision makers is critical to reflect a diverse range of viewpoints, perceptions and opinions. For example, cities and states could set representation standards for advisory committees and state boards relevant to energy efficiency planning and transparently report progress (or backsliding) towards meeting those standards.⁸³

b. Mandate community engagement and outreach

For energy efficiency programs to be equitable and aligned with broader climate goals, it is essential that cities, states and the electric distributors they partner with ensure that community engagement and outreach is a part of energy efficiency planning and program evaluation. Disaggregated, layered reporting makes it possible to provide detailed information on who participates in energy efficiency programs and how those participants are impacted. Establishing and nurturing relationships with the communities that energy efficiency programs are intended to serve is essential to identify challenges and potential improvements as well as to build public trust.⁸⁴ Community engagement needs to be proactively planned, easy, transparent, diverse, and location- and language-appropriate, and should include a clear, transparent plan for getting and using stakeholder feedback in decision-making.⁸⁵ For example, cities and states could mandate that community engagement processes: offer engagement opportunities at multiple times of day on multiple days of the week; pay people for their time and/or provide childcare services; publicize community engagement opportunities online and offline; provide clear community engagement timelines; transparently communicate how public feedback will be considered, responded to, and influence decision-making; and offer materials and information in the languages spoken in the community. Successful community engagement can provide members of the public with the assurance that their experiences are

⁸³ Woods, B. and Stanton, E. 2021. *Initial Assessment of the Climate Justice Working Group's Recommended Policy Priorities – Tracking Equity and Justice*. Applied Economics Clinic. Prepared for: Massachusetts' Climate Justice Working Group. Available at: <https://aeclinic.org/publicationpages/2021/3/23/initial-assessment-of-the-climate-justice-working-groups-recommended-policy-priorities-tracking-equity-and-justice>.

⁸⁴ Minnesota Department of Health. July 2018. "Principles of Authentic Community Engagement." Available at: <https://www.health.state.mn.us/communities/practice/resources/phqitoolbox/docs/AuthenticPrinciplesCommEng.pdf>.

⁸⁵ Woods, B. and Stanton, E. 2021. *Initial Assessment of the Climate Justice Working Group's Recommended Policy Priorities – Tracking Equity and Justice*. Applied Economics Clinic. Prepared for: Massachusetts' Climate Justice Working Group. Available at: <https://aeclinic.org/publicationpages/2021/3/23/initial-assessment-of-the-climate-justice-working-groups-recommended-policy-priorities-tracking-equity-and-justice>.

being heard and their concerns are being addressed. Accountability is ensured when stakeholder (including program participants and non-participants) feedback—and how that feedback was used—is publicly available and consistently provided.

c. Mandate data transparency and public access

For energy efficiency equity goals to be more than lip-service, efficiency data must be not only disaggregated but also transparent and accessible to the public. Making data accessible to the public means, at a minimum, providing easy to find, clearly labeled data online in a readily downloadable format. Making data available in multiple languages and easily understandable would also help improve its accessibility to the public. Accountability necessitates developing metrics that a city or state has the authority and capability to act on, and that successfully enable equity evaluation as well as facilitating meaningful community engagement to provide specific feedback and develop concrete plans for improvements; all of which can only be achieved if data are made publicly available.⁸⁶

d. Leading examples

Some leading examples that integrate energy efficiency, climate and equity planning and reporting include:

- **Oregon:** In 2018, the Oregon Energy Trust developed ten diversity, equity, and inclusion goals “to improve and enhance offers for underserved customers”⁸⁷ by engaging in a six-month process with members of the Energy Trust’s diversity, equity and inclusion committee, management team, Board members, Oregon Public Utility Commission staff, community leaders, and diversity, equity and inclusion professionals.⁸⁸ Progress reports are provided on a quarterly and annual basis and are easily accessible and publicly available on the Energy Trust website.⁸⁹ The 2020 progress report notes mixed progress toward meeting its goals and provides detailed information on a goal-by-goal basis. For example: the goal to “Increase the number of contracts executed with minority- and women-owned businesses by 15% by the end of 2020” was achieved with contracts executed with 109 diverse businesses, up from 48 in 2016.⁹⁰
- **Washington:** The Environmental Health Disparities Map project is “an interactive mapping tool

⁸⁶ 1) AIA Energy Leadership Group. No Date. *Leveraging Energy Transparency*. Prepared for The American Institute of Architects. <https://content.aia.org/sites/default/files/2019-10/2019-AIA-Energy-Benchmarking-Whitepaper.pdf>; 2) Bloomberg Professional Services. July 14, 2021. “Transparency, accountability, progress: Quantifying the S in ESG.” Bloomberg. Available at: <https://www.bloomberg.com/professional/blog/transparency-accountability-progress-quantifying-the-s-in-esg/>.

⁸⁷ Energy Trust of Oregon. April 2021. *2020 Progress toward diversity, equity and inclusion goals*. Energy Trust of Oregon. p. 2. Available at: <https://energytrust.org/wp-content/uploads/2021/04/2020.DEI-Report.pdf>.

⁸⁸ Oregon Energy Trust. December 14, 2018. Diversity, Equity and Inclusion Operations Plan. Available at: <https://www.energytrust.org/wp-content/uploads/2018/10/DEI-Operations-Plan-Executive-Summary.pdf>.

⁸⁹ Energy Trust of Oregon. 2021. “Plans, Reports and Financials.” Energy Trust of Oregon. Available at: <https://www.energytrust.org/about/reports-financials/>.

⁹⁰ Energy Trust of Oregon. April 2021. *2020 Progress toward diversity, equity and inclusion goals*.



that compares communities across our state for environmental health disparities” and is the result of a statewide analysis of cumulative impacts.⁹¹ The data that underpin the tool are being used to inform state policy implementation. For example: the State recently passed a 100 percent clean electricity standard⁹² that requires utilities to fund low-income programs such as energy bill assistance, weatherization, energy efficiency improvements and distributed energy resource development.⁹³ The bill also requires utilities to identify vulnerable communities—such as those identified as pollution-burdened, health-sensitive, or otherwise vulnerable by the mapping project (including those living in poverty or with limited education)—and consider the distribution of program benefits across Washington’s communities.⁹⁴

- **Minneapolis, Minnesota:** The Minneapolis Green Zones initiative was the direct result of the Minneapolis Climate Action Plan Environmental Justice Working Group and is aimed at improving health and facilitating economic development in environmentally conscious ways in socially, politically, and economically vulnerable communities that face the worst cumulative health and environmental effects.⁹⁵

Conclusion

In this white paper, AEC finds that most of ACEEE’s most highly-rated cities and state for energy efficiency offer low-income programs: some offered by the city/state themselves, while other programs are coordinated efforts between the city/state and public utilities or third-party administrators. Some cities do not offer their own programs but work to build awareness and/or facilitate participation in existing programs. Based on our review of these programs, we find that—while these programs have made important progress on addressing equity concerns by offering efficiency programming specifically to low-income households—three main improvements would drastically improve the ability to evaluate these programs for their equity-related impacts:

⁹¹ Washington State Department of Health. 2018. “Washington Environmental Health Disparities Map.” *Washington State Department of Health*. Available at: <https://www.doh.wa.gov/DataandStatisticalReports/WashingtonTrackingNetworkWTN/InformationbyLocation/WashingtonEnvironmentalHealthDisparitiesMap>.

⁹² Washington State Legislature. 2019. SB 5116 - 2019-20. *Supporting Washington's clean energy economy and transitioning to a clean, affordable, and reliable energy future*. Available at: <https://app.leg.wa.gov/billsummary?BillNumber=5116&Initiative=false&Year=2019>.

⁹³ Ricketts, S., Clifton, R., Oduyeru, L., and Holland, B. April 30, 2020. “States Are Laying a Road Map for Climate Leadership.” *Center for American Progress*. Available at: <https://www.americanprogress.org/issues/green/reports/2020/04/30/484163/states-laying-road-map-climate-leadership/>.

⁹⁴ Roberts, D. April 18, 2019. “A closer look at Washington’s superb new 100% clean electricity bill.” *Vox*. Available at: <https://www.vox.com/energy-and-environment/2019/4/18/18363292/washington-clean-energy-bill>.

⁹⁵ Energy Efficiency for All. No Date. “Minneapolis Green Zones Initiative.” *ENERGY EFFICIENCY FOR ALL*. Available at: <https://www.energyefficiencyforall.org/resources/minneapolis-green-zones-initiative/>.



1. **Mandating disaggregated efficiency program performance reporting** to more robustly reveal the distribution of costs and benefits within and across program communities;
2. **Identifying, tracking, and targeting vulnerable populations** to help ensure that energy efficiency benefits reach the households that need it most; and
3. **Integrating energy efficiency, climate, and equity planning and reporting** to ensure that climate and equity progress are synergistic, that representation is diverse, that community engagement is robust, and that transparency and accountability are facilitated.

Making these improvements to efficiency reporting would not only improve state's and cities' ability to evaluate low-income energy efficiency programs for their equity impacts but would also help to ensure that the communities these programs serve are aware of the programs available to them, the progress these programs have made, and how they themselves can and should be reaping benefits.