NARUC
National Association of Regulatory Utility Commissioners

State Energy Justice Roundtable Series: Energy Justice Metrics

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Acknowledgments and Disclaimers

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- All roundtable participants including federal and state decision-makers, members of community-based organizations, and subject-matter experts

Background

The National Association of Regulatory Utility Commissioners (NARUC), National Association of State Energy Officials (NASEO), and National Governors Association (NGA) hosted a State Energy Justice Roundtable (Roundtable) in April 2022. Participants included federal and state decision-makers, members of community-based organizations, and subject-matter experts. The Roundtable members explored current state efforts to articulate and incorporate energy justice concerns into energy-related decision-making. Participants established connections with one another to better understand the current landscape of existing resources, learn about emerging efforts, and identify ongoing support opportunities for advancing energy justice.

This paper is one of five authored by the host organizations on topics that were the focus of the Roundtable. Each paper summarizes key themes, emerging efforts, and group takeaways that were discussed at the Roundtable and should assist state members in developing and meeting their own state goals around energy justice. The papers all include the same discussions of background, introduction, and reading list so they can be read separately. Each paper is written from the perspective of one association and includes options for its members to take actions that could support more equitable state energy policies and programs. The five papers cover:

- Participation in decision making (NARUC)
- Customer affordability and arrearages (NARUC)
- Energy justice metrics (NARUC)
- Equity in clean energy research and development (NASEO)
- Equitable distributed energy resource (DER) access (NGA)

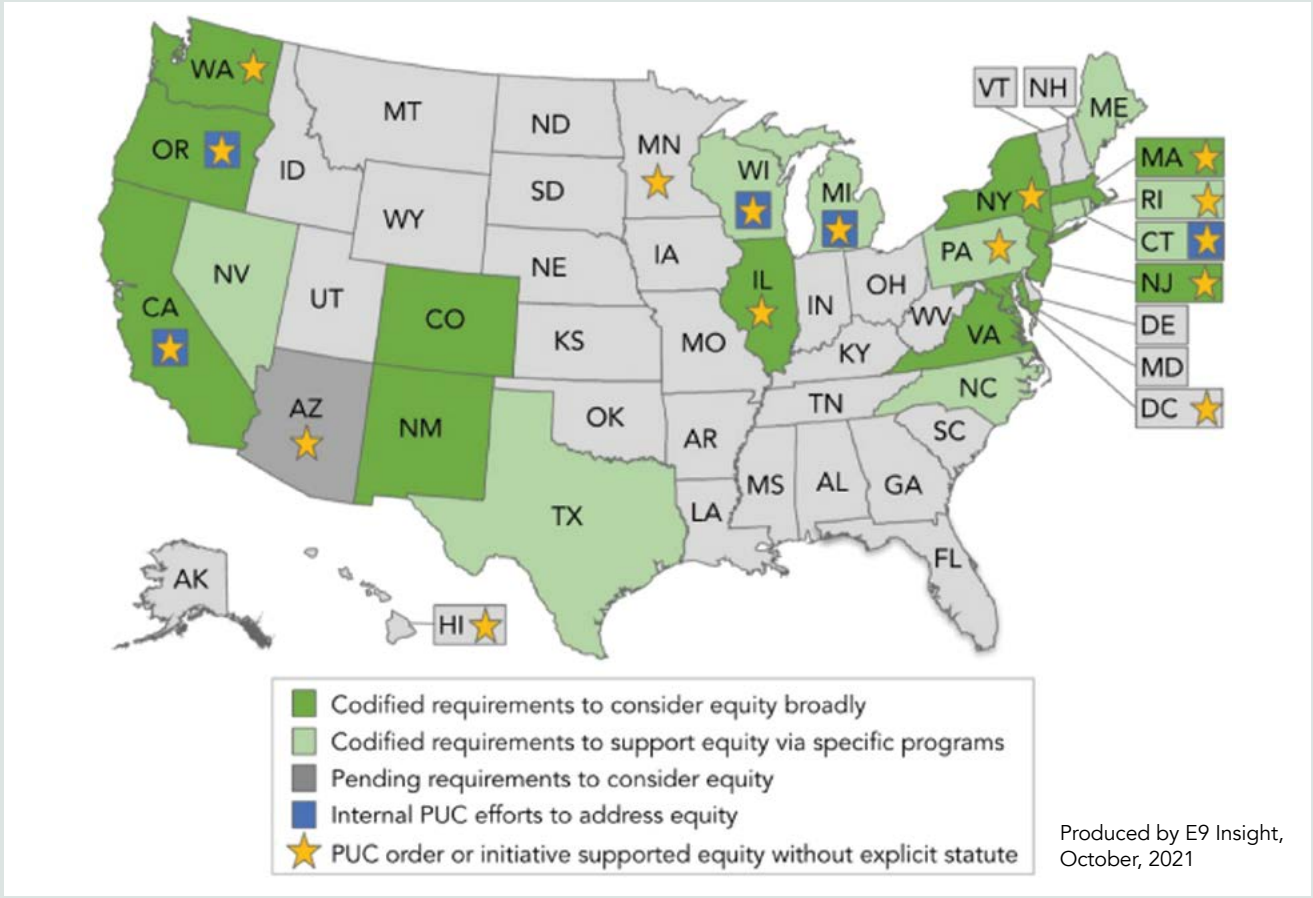
The resources and recommendations listed in these papers are not meant to be exhaustive, as this field of study continues to evolve. Although this brief is focused on electricity, energy justice considerations extend to all energy needs and services, including the impact of energy extraction, processing, and distribution functions.

Introduction

The Growing Priority of Energy Justice in Energy Policy

The impetus for the Roundtable was the emergence of energy justice as a priority for state and federal decision-makers in recent years. The energy sector transition from fossil fuels to low-carbon energy resources has highlighted the disparate social, economic, and health impacts of the current energy system. The recent focus on energy justice has been driven by state legislative mandates, state programs and policies, focused federal investments, and societal recognition of inequities. Examples of recent state legislation on energy justice include California's SB 350, 2021, Colorado's HB21-1266, 2021, Illinois' SB 2408, 2021, Maine's HP 1251, 2021, Massachusetts' S.9, 2021, and Oregon's HB 2475, 2021.[1] Further, **Figure 1** illustrates actions by state public utility commissions (PUCs) across the country.

Figure 1. Equity Activities and Requirements at U.S. Public Utility Commissions



Produced by E9 Insight, October, 2021

Significant federal action has also occurred recently. In early 2021, President Biden issued Executive Order 14008, directing 40 percent of the overall benefits from federal climate and clean energy investments toward disadvantaged communities in an initiative known as Justice40. In July 2021, the Office of Management and Budget released Interim Guidance for the Justice40 Initiative that outlined requirements for federal agencies that manage covered programs, established an interim definition of disadvantaged communities, and defined actions required of state agencies, such as State Energy Offices, that manage Justice40 programs. Subsequently, on July 25, 2022, the U.S. Department of Energy (DOE) released

1 C. Farley et al., *Advancing Equity in Utility Regulation*, Lawrence Berkeley National Laboratory, 2021, https://emp.lbl.gov/publications/advancing-equity-utilityregulation

General Guidance for Justice40 Implementation that provided program and funding guidance, policy priorities and benefits, and case studies for demonstration and educational purposes.[2]

In addition, on February 18, 2022, the White House Council on Environmental Quality released the beta version of its Climate and Economic Justice Screening Tool (CEJST) to help federal agencies identify disadvantaged communities that are marginalized, underserved, and overburdened by pollution.[3] On the same day, the U.S. Environmental Protection Agency released an update to its EJSCREEN tool, an environmental justice mapping and screening tool that may complement CEJST. Additional guidance from the federal government on the Justice40 initiative is expected.

Defining Energy Justice

Although the concept of energy justice and injustice varies among organizations and stakeholders, it generally includes evaluation of:

- **Energy burden** – the proportion of energy expenditures relative to overall household income
- **Energy insecurity** – the hardships households face when meeting basic household energy needs
- **Energy poverty** – the lack of access to reliable and affordable energy
- **Energy democracy** – whether communities have agency in shaping their energy future[4]

The host organizations of the Roundtable proposed the following working definition of energy justice, adapted from the Initiative for Energy Justice:

> **The goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those historically harmed by the energy system. Energy justice explicitly centers the concerns of marginalized communities and aims to make energy more accessible, affordable, clean, reliable, resilient, and democratically managed by and for all communities.**[5]

What's The Difference between Energy Justice, Environmental Justice, and Climate Justice?

Justice, by definition, implies fairness and impartiality. Energy justice, environmental justice, and climate justice are inherently connected and together represent a more just future for individuals and communities who have suffered historic injustices. **Environmental justice** specifically involves the 'recognition and remediation of the disproportionately high and adverse human health or environmental effects on communities of color and low-income communities' as well as fair treatment and meaningful involvement in the development, application, and administration of environmental laws, regulations, and polices. **Climate justice** focuses on the 'remediation of the impacts of climate change on poor people and people of color, and compensation for harms suffered by such communities due to climate change.' Collectively with **energy justice** (defined above) these frameworks can help create a comprehensive vision for a just transition. The principle of a just transition supports the co-existence of a healthy economy and clean environment, and the process and practice of achieving this vision is one that is fair and does not cost workers or community residents their health, environment, jobs, or economic assets.

Baker, S., DeVar, S., & Prakash, S. (2019). The Energy Justice Workbook. Initiative for Energy Justice. https://iejusa.org/workbook/.

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2 U.S. Department of Energy Office of Economic Impact and Diversity, Justice40 Initiative, https://www.energy.gov/diversity/justice40-initiative. Climate and Economic Justice Screening Tool, 2022, https://screeningtool.geoplatform.gov/en/

3 Climate and Economic Justice Screening Tool, 2022, https://screeningtool.geoplatform.gov/en/

4 S. Baker, S. DeVar, and S. Prakash, *The Energy Justice Workbook*, Initiative for Energy Justice, 2019, https://iejusa.org/workbook/

5 Ibid.

The energy industry is embarking on fundamental changes to the way energy is produced and delivered that will result in cleaner, and possibly more localized, options. This transformation offers an opportunity to recognize disparities in who has received the benefits and who has carried the burdens of the existing system by intentionally investing in historically disadvantaged communities.

A four-pillar framework has emerged in energy justice literature that helps conceptualize how energy justice is achieved. Although the exact terminology varies slightly among groups, the following language was used to frame the Roundtable discussions:

- **Distributional justice** – an inherently spatial concept[6] that concerns both the distribution of costs, hazards, or externalities, and the distribution of benefits and access to modern energy systems and services, throughout society.[7]
- **Procedural justice** – relates to the accessible and meaningful participation of individuals in the energy decision-making processes.
- **Recognition justice** – seeks to acknowledge the various needs, rights, and experiences of different groups in relation to the energy system.[8]
- **Restorative justice** – aims to repair the harm done to people (and/or society/nature) and can pinpoint where prevention needs to occur.[9]

6 McCauley, D., Heffron, R.J., Stephan, H., & Jenkins, K. (2013). *Advancing energy justice: the triumvirate of tenets.* International Energy Law Review. https://research-repository.st-andrews.ac.uk/bitstream/handle/10023/6078/IELR_2013.pdf?sequence=1&isAllowed=y

7 Sovacool, B.K., & Dworkin, M.H. (2014). *Global Energy Justice: Problems, Principles, and Practices.* Cambridge University Press.

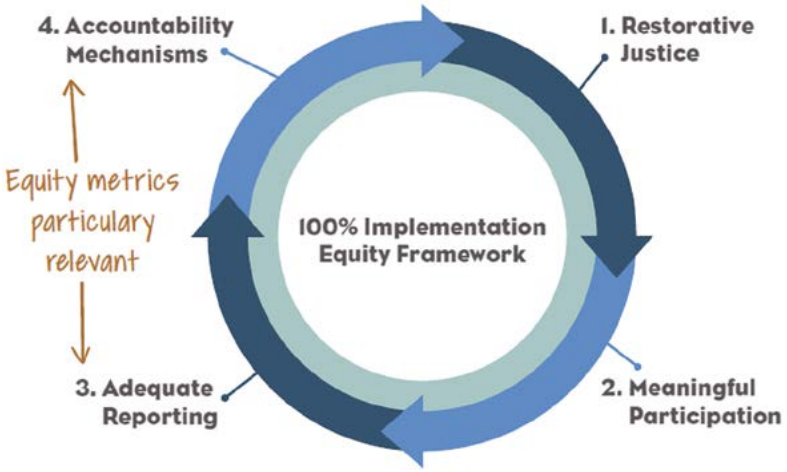
8 Gillard, R., Snell, C., Bevan, M, *Advancing an energy justice perspective of fuel poverty: Household vulnerability and domestic retrofit policy in the United Kingdom,* Energy Research & Social Science, 2017, http://dx.doi.org/10.1016/j.erss.2017.05.012.

9 Heffron, R.J., and McCauley, D, *The concept of energy justice across the disciplines*, Energy Policy, 2017, http://dx.doi.org/10.1016/j.enpol.2017.03.018.

Metrics Context within the Broader Energy Justice Framework

The collection and analysis of data are essential to energy justice efforts. They can be used to develop programs, evaluate outcomes, and compare them to the intended goals and are an important resource for accountability. A framework, similar to what was provided in the previous section, was developed by the Initiative for Energy Justice and Front and Centered specifically to guide and evaluate implementation of renewable energy requirements,[10] which also provides a roadmap that can be applied to other policies (see **Figure 2**).

Figure 2. Framework to Guide Clean Energy Program Implementation



1. **Restorative Justice** ensures that past and current energy injustices guide implementation and underline all aspects of policymaking and program implementation processes, particularly to frame, ground, and clarify definitions and parameters.
2. **Meaningful Participation** is key throughout the development, evaluation, iteration, and enforcement of implementation plans.
3. **Adequate Reporting** is necessary for state decision-makers and the public to meaningfully evaluate and respond to actions undertaken during the implementation period of a policy or program.
4. **Accountability Mechanisms** are structures that hold the utility, state, or other parties accountable to the goals and actions outlined in an implementation plan. Here, the process restarts with a commitment to restorative justice and active engagement of the public to respond to progress and address remaining inequities.[11]

The Roundtable discussion reiterated how the concepts in this framework can enable the just development and implementation of metrics. In addition to the four-part approach described previously, participants cited the need for:

- Transparency in how metrics are selected and operationalized
- Meaningful stakeholder participation through an iterative data and metrics selection process
- Adequate resources to empower community members and community-based organizations to access and use relevant metrics
- The creation of a "Data Bill of Rights" to encourage practices that protect consumer interests and the ethical collection and use of data
- Integration of energy justice metrics within system planning process and with consideration of other system interdependencies (i.e., water)

10 Ibid.

11 T. Lanckton & S. DeVar, Justice in 100 Metrics. Initiative for Energy Justice, 2021, https://iejusa.org/wp-content/uploads/2021/03/Justice-in-100-Metrics-2021.pdf.

Types of Metrics

During the Roundtable, and in a literature review conducted by the Pacific Northwest National Laboratory,[12] four types of metrics emerged as pertinent to energy justice initiatives: target population identification, investment decision making, program impact assessment , and accountability metrics.

Target Population Identification

Target population identification metrics identify criteria that can be used to direct policies and programs to intended populations. Being intentional and comprehensive in the selection of these metrics can provide a more thorough understanding of those with energy-related needs. Demographic information is a common source of data to help policymakers target programs and efforts to those they are intended to serve.

Potential questions to guide identification of population metrics are:

- Who is eligible for support programs?
- Who has not received support?
- Which communities are included/excluded in the federal and/or state definitions of disadvantaged communities?
- Where are energy prices higher or more burdensome?
- Who is able to make their monthly utility bill payments?
- Where have energy efficiency measures been put into place?
- Which households limit their energy expenditures to meet other necessities?

Roundtable participants noted that these metrics are crucial for ensuring that policies and programs do not exclude individuals or communities who may have limited access to electricity, such as some Indigenous communities, or those that may be not clearly fall under certain thresholds, such as the Federal poverty levels or energy burden definitions.

State Snapshot: New York

New York's Climate Leadership and Community Protection Act (Climate Act), signed into law in 2019, requires state agencies, authorities, and entities to direct 40 percent of the benefits from clean energy and energy efficiency program investments to disadvantaged communities. The Act also directed the Climate Justice Working Group to establish criteria for defining disadvantaged communities.

Over the last couple of years, the working group has been developing a mapping tool that aggregates data at the census tract level. While the Climate Act provided broad categories for consideration of disadvantaged communities, such as areas burdened by pollution and areas most vulnerable to climate change, the working group identified 45 unique indicators such as income, race, home ownership, and prevalence of asthma to come up with an aggregate score for each census tract. Using this proposed method, the census tracts that score in the top 27 percent statewide, and those that score in the top 27 percent in New York City, would be designated as disadvantaged communities.

The state opened a 120-day public comment period from March 9, 2022, to July 7, 2022, on the proposed criteria and methods.

Sources: Exec. Order No. 14008. (January 27, 2021). https://www.regulations.gov/document/EPA-HQ-OPPT-2021-0202-0012, NYSERDA. Disadvantaged Communities. https://www.nyserda.ny.gov/ny/disadvantaged-communities

12 B. Tarekegne, G. Pennell, D. Preziuso, &R. O'Neil, Review of Energy Equity Metrics. Pacific Northwest National Laboratory, 2021, https://www.osti.gov/servlets/purl/1830804.

In November 2022, the White House Council on Environmental Quality (CEQ) launched version 1.0 of the Climate and Economic Justice Screening Tool (CEJST).[13] Communities are considered disadvantaged if they are in a census tract that meets the threshold for at least one of the tool's categories of burden and corresponding economic indicator, or are on the lands of a Federally Recognized Tribe. Version 1.0 of the CEJST identifies 27,251 communities as disadvantaged or partially disadvantaged. The CEJST uses an open-source platform that provides transparency on the methodology and datasets used. The CEJST will continue to be updated based on recommendations from a National Academies of Sciences, Engineering, and Medicine committee[14] and public feedback. Version 1.0 of the Climate and Economic Justice Screening Tool and frequently asked questions can be found at https://screeningtool.geoplatform.gov.

Investment Decision Making Metrics

Assessing the distributional impact of potential investments can be used to direct programs toward communities that meet designated eligibility criteria. For example, community-based organizations attending the Roundtable noted the importance of maximizing opportunities for the economic benefits of the energy transition to stay within frontline communities. Decision-makers can evaluate the potential impacts of a decision by using metrics such as wealth creation, and the number of potential quality clean energy jobs or business contracts in these communities. These priorities were also reflected in Presidential Executive Order (EO) 14008: Tackling the Climate Crisis at Home and Abroad. EO 14008 introduced the Justice40 (J40) initiative to direct 40 percent of the benefits to disadvantaged communities (DACs) from climate and clean energy investments.[15] Guidance on J40, released by DOE in July 2022, provided several example metrics to capture these benefits, such as:

- Dollars spent [$] and/or number of participants from DACs in job training programs, apprenticeship programs, STEM education, tuition, scholarships, and recruitment
- Number of hires from DACs resulting from DOE job trainings
- Number of and/or dollar [$] value of partnerships, contracts, or training with minority serving institutions
- Number of contracts and/or dollar value [$] awarded to businesses that are principally owned by wom en, minorities, disabled veterans, and/or LGBT persons.[16]

Potential questions to utilize investment metrics in decision-making are:

- In which communities does a proposed policy/goal/investment lead to the greatest number of new quality jobs?
- What are the health and environmental impacts of a proposed policy/goal/investment in a community?
- What is the degree of community acceptance and support for a proposed policy/goal/ investment?
- To what extent does a proposed policy/goal/investment improve energy security in a community?

Information on customer behavior may also influence investment decisions. For example, a recent study by researchers at Carnegie Mellon University revealed that the income-based metric of energy burden does not sufficiently capture the extent of a household's energy poverty and insecurity, as the data overlook how they

13 The White House, *Biden-Harris Administration Launches Version 1.0 of Climate and Economic Justice Screening Tool, Key Step in Implementing President Biden's Justice40 Initiative*, November 22, 2022, https://www.whitehouse.gov/ceq/news-updates/2022/11/22/biden-harris-administration-launches-version-1-0-of-climate-and-economic-justice-screening-tool-key-step-in-implementing-president-bidens-justice40-initiative/

14 National Academies of Sciences, Engineering, and Medicine, Utilizing Advanced Environmental Health and Geospatial Data and Technologies to Inform Community Investment, https://www.nationalacademies.org/our-work/utilizing-advanced-environmental-health-and-geospatial-data-and-technologies-to-inform-community-investment

15 Exec. Order No. 14008, January 27, 2021, https://www.regulations.gov/document/EPA-HQ-OPPT-2021-0202-0012.

16 U.S. Department of Energy, General Guidance for Justice40 Implementation, 2022, https://www.energy.gov/sites/default/files/2022-07/Final%20DOE%20Justice40%20General%20Guidance%20072522.pdf.

may limit their energy consumption to lower costs at the expense of their health and comfort. The researchers suggested a new energy poverty metric to complement energy burden – the energy equity gap.

> *The energy equity gap is the difference in the inflection temperatures, or the outdoor temperatures at which a household starts using a cooling system, between low- and high-income groups.*

The energy burden and energy equity gap metrics can be used together "to identify households experiencing multiple forms of energy poverty: those who experience financial strain while satisfying their energy needs [energy burden] and those who forgo energy consumption to reduce financial strain and satisfy other necessities [energy equity gap]."[17]

State Snapshot: Connecticut

To achieve their goal of weatherizing 80 percent of all homes in the state by 2030, the Connecticut Department of Energy and Environmental Protection and the Connecticut Green Bank set their focus on attracting private investment to scale up low-income energy efficiency efforts and ensure equitable access to solar. The metrics strategy used by Connecticut was to use a variety of data sources to define the low-income residential sector for energy efficiency and solar deployment in low- and moderate-income communities, and track their progress in a statewide energy efficiency dashboard. Connecticut also utilized the U.S. Department of Energy's Low-Income Energy Affordability Data (LEAD) tool to target programs to single-family, owner-occupied homes and large multifamily buildings.

For energy efficiency programs, the Green Bank conducted analysis at the census tract level on households that may be eligible for utility-administered programs, which provided insight on whether equitable participation was being achieved. For solar photovoltaic (PV) deployment, they visualized the data at the census tract level for the number of projects and the kW installed to calculate the kW installed per capita at different income levels. The Green Bank also leveraged analysis on customer behavior and bias to better tailor customer communication. Census-tract level maps were also used to target new low-income customers for these programs.

These measures, along with others, helped support the launch of the Solar for All program, bringing solar and energy efficiency to underserved communities.

Sources: U.S. Department of Energy. Issue Brief: Using Data to Set Priorities and Track Success of Low-Income Energy Programs. https://betterbuildingssolutioncenter.energy.gov/sites/default/files/IB_Using%20Data%20to%20Set%20Priorities_Final.pdf
Connecticut Green Bank. Solar for All Program, https://www.ctgreenbank.com/solarforall/.

Program Impact Assessment Metrics

Metrics that show how well a support program has helped a targeted community can be employed after implementation to understand the impact. Although they are often tied to target population identification and investment decision-making metrics, these metrics are focused on tracking outcomes and progress by measuring the benefits that directly reach people.

Potential questions to guide identification of impact metrics are:

- Are communities enrolling in and satisfied with the program?
- Has the program generated wealth for targeted communities?
- Has the program generated savings in energy or energy costs?
- Has the program improved communities' quality of life?[18]

17 S. Cong, D. Nock, Y. L. Qui, & B. Xing, "Unveiling Hidden Energy Poverty Using the Energy Equity ap," Nature Communications, 2022, https://doi.org/10.1038/s41467-022-30146-5.

18 B. Tarekegne, G. Pennell, D. Preziuso, & R. O'Neil, Review of Energy Equity Metrics. Pacific Northwest National Laboratory, 2021, https://www.osti.gov/servlets/purl/1830804.

Accountability Metrics

Roundtable participants elevated accountability metrics as fundamental for both utilities and agencies engaged in this work. Accountability not only helps to advance positive program outcomes but plays an important role in building community trust and continued engagement. Participants suggested metrics that captured elements such as transparency in processes, diverse and inclusive demographic representation within utilities and agencies, and meaningful stakeholder engagement processes.

Potential questions to guide the identification of accountability metrics are:

- Has stakeholder engagement around the policy/goal/investment engaged a diverse group representative of those who will be/are being impacted?
- To what extent is the representation of agency/utility staff representative of ratepayers/residents?
- During which parts of the process are stakeholders engaged?
- Have stakeholders had the opportunity to provide meaningful feedback after implementation?

Outstanding Needs and Limitations

Throughout the Roundtable, participants discussed the outstanding needs for and limitations of energy justice metrics. Feedback generally coalesced around the issues of:

- Standardization
- Missing, incomplete, or outdated data
- Concerns about misuse of data
- Staff capacity and expertise
- Bureaucratic inefficiencies

Participants noted that the lack of standardization in how data are collected and which metrics are used contributed to a hesitancy to implement metrics, difficulty comparing progress between locations, and added hurdles for inter-agency coordination. These challenges also add strain to organizational resources, which are often already limited by finite funding, staffing, and technical expertise. Participants suggested that these resource limitations could be addressed through means such as having access to a national database or pool of technical experts and through increased funding for technical assistance.

Gaps in current data are also seen as a significant limitation to the quality and applicability of energy justice metrics. Participants listed the following data gaps as current challenges:

- Unreliability of data, particularly for Indigenous or rural communities, due to the lack of granular data or distrust in how data is collected
- Lack of data related to procedural justice
- Limited access to utility data
- Lack of grid reliability and resilience data overlapping with other equity metrics
- Challenges identifying critical assets and vulnerabilities
- Lack of comprehensive analysis on the status of data infrastructure
- Need for increased third-party validation to ensure quality control of data

Bureaucratic inefficiencies and IT infrastructure were also mentioned as a limitation for agencies and organizations regarding data sharing. However, state staff shared promising practices that could be applied in other regions of the country.

- The Vermont Climate Council has a subcommittee on Science and Data to oversee the incorporation of high-quality and updated data for inclusion in the state's climate action plan and is working to identify where current data gaps exist.[19]
- In California, the development of CalEnviroScreen,20 which identifies and maps DACs in California, compiles data from agencies throughout the state for a comprehensive suite of demographic, health, and environmental metrics.

Participants also discussed the value of data sharing among agencies such as state departments of emergency management and economic development agencies.

Although the Roundtable discussion largely focused on the importance of allocating resources to improve the development of metrics, participants also cautioned that this effort should not come at the expense of equity considerations that may not be explicitly quantifiable or disregard analyses where data may not be 100 percent complete.

The group also raised the following overarching questions about metrics that warrant further inquiry:

1. How can these topics be considered for cooperative and municipal utilities that are not regulated?
2. Is there a baseline standard for how much funding and effort should agencies allocate for this work?
3. How are these metrics implemented absent authorizing legislation?
4. What is the appropriate balance between improving data collection and access with protecting individual privacy?

Relevant Resources

One of the challenges of identifying appropriate metrics is that stakeholders have different interpretations of justice and equity. Multiple organizations have recognized the need to address this issue and have convened diverse stakeholders to define and characterize energy justice metrics for use by state, local, and federal agencies, utilities, and other entities. A few ongoing initiatives are highlighted as follows:

- Launched in early 2021, the American Council for an Energy Efficiency Economy's (ACEEE) Leading with Equity Initiative is convening community-based organizations, advocates, and utilities to jointly define success for equitable decarbonization, and use this definition to develop metrics for ACEEE's city, state, and transportation electrification scorecards that capture progress towards equity-centered clean energy policies and program outcomes.

- The Energy Equity Project (EEP) is an initiative housed out of the Urban Energy Justice Lab at the University of Michigan's School for Environment & Sustainability working to create a framework for measuring energy efficiency and clean energy programs among utilities, state regulatory agencies, and other practitioners. EEP is centering Black, Indigenous and People of Color (BIPOC) and frontline communities in the metrics development process to support the equitable distribution of benefits of climate and clean energy programs. A beta version of the equity measurement framework is set to launch in 2022.

19 Vermont Climate Council. (2021). Science and Data Sub-committee, https://aoa.vermont.gov/sites/aoa/files/Boards/VCC/Science%20and%20Data%20Subcommittee%20Descriptions%20Edited%20Version%203-16-21.pdf.

20 California Office of Environmental Health Hazard Assessment, CalEnviroScreen 4.0, https://oehha.ca.gov/calenviroscreen.

- The Initiative for Energy Justice developed the *Justice in 100 Metrics Report* by reviewing existing literature and compiling equity metrics for the implementation of 100% renewable energy policy. The framework is composed of equity indicators and utility actions across the categories of energy access and affordability, procedural justice and democracy, community ownership and economic participation, and health and environmental impacts.

Actions for Public Utility Commissions

Participants in the Roundtable would like to see Commissions move forward with energy justice metrics by adopting promising practices identified in this brief and also:

- Coordinate with other state agencies and utilities to share data
- Include a diverse set of stakeholders, particularly those from frontline communities, in a transparent and iterative process for metric development, whether led by the Commission or utilities under its jurisdiction
- When overseeing utilities incorporating energy justice metrics, consider adopting a standardized set of metrics and data practices
- When selecting metrics for target population identification, consider metrics that capture a comprehensive scope of burden beyond just income and energy burden

Resource List

The following list of publications, data and tools, and organizations conducting work on energy justice issues is included to assist state members seeking more detailed information and support for their efforts. Content was compiled from Roundtable participants and staff conducting research for these briefs. Inclusion in this list is not an endorsement of any individual resource or organization's content by NARUC, NASEO, or NGA members, or staff.

Publications

Overarching Resources

- Advancing Equity in Utility Regulation, Lawrence Berkeley National Laboratory
- Comprehensive Building Blocks for a Regenerative & Just 100% Policy, The 100% Network
- Energy Infrastructure: Sources of Inequities and Policy Solutions for Improving Community Health and Wellbeing, RAP, Synapse, and Community Action Partnership
- Energy Justice Workbook, Initiative for Energy Justice
- Incorporating Equity into Energy Benchmarking: Guidance for Practitioners, Institute for Market Transformation
- Just Energy Policies and Practices: Action Toolkit, National Association for the Advancement of Colored People
- Making Equity Real in Climate Adaptation and Community Resilience Policies and Programs: A Guidebook, The Greenlining Institute
- Racial Equity Toolkit, Greenlining Institute
- State and Local Energy Justice Programs, Center for Local, State, and Urban Policy, University of Michigan Ford School of Public Policy

Participation in Decision-Making

- Climate Equity & Community Engagement in Building Electrification: A Toolkit, Emerald Cities Collaborative, People Organizing to Demand Environmental & Economic Rights
- Community acceptability and the energy transition: a citizens' perspective, The Environmental Research Institute, University College Cork, Ireland
- Community Engagement: A Practitioner's Guide, Citizen Lab
- Dear Policymakers: Community Engagement is Critical for Climate Policy, Climate Xchange
- Designing Equity-Focused Stakeholder Engagement to Inform State Energy Office Programs and Policies, NASEO
- Public Utility Commission Stakeholder Engagement: A Decision-Making Framework, NARUC
- State Approaches to Intervenor Compensation, NARUC
- Surfacing Social Values & Community Priorities: A Landscape Report of Relationship-Building Approaches for Public Engagement with Climate, American Association for the Advancement of Science

Arrearages and Affordability

- High energy burden and low-income energy affordability: conclusions from a literature review, Oak Ridge National Laboratory
- How High are Household Energy Burdens? An Assessment of National and Metropolitan Energy Burdens across the U.S., American Council for an Energy Efficient Economy
- Memorandum on State Utility Disconnection Moratoriums and Utility Affordability, NGA
- Sociodemographic disparities in energy insecurity among low-income households before and during the COVID-19 pandemic, O'Neill School of Public Policy and Environmental Affairs at Indiana University
- Supporting Electricity Customers During Times of Crisis: Being There When It Matters Most, Critical Consumer Issues Forum
- Survey of Household Energy Insecurity in Time of COVID, O'Neill School of Public Policy and Environmental Affairs at Indiana University

Clean Energy Research, Development, and Deployment

- An analysis of energy justice program across the United States, O'Neill School of Public Policy and Environmental Affairs at Indiana University
- Comprehensive Building Blocks for a Regenerative & Just 100% Policy, The 100% Network
- Designing Electricity Rates for an Equitable Energy Transition, Energy Institute at Haas
- Energy Democracy: Honoring the Past and Investing in a New Energy Economy, Race Forward
- Fostering Equity Through Community-Led Clean Energy Strategies, American Council for an Energy-Efficient Economy
- Framework for an equitable energy supply transformation, Meister Consultants Group
- Justice40+ Playbook, Emerald Cities Collaborative
- Policy Options to Enable an Equitable Energy Transition, Resources for the Future
- Regulators' Energy Transition Primer: Economic Impacts on Coal-Producing Communities, Environmental Justice Consideration, and Implications on Clean Energy Jobs, NARUC
- The Role of State Utility Regulators in a Just and Reasonable Energy Transition: Examining Regulatory Approaches to the Economic Impacts of Coal Retirements, NARUC
- Workers and Communities in Transition: Report of the Just Transition Listening Project, Labor Network for Sustainability

Metrics

- Clean Energy for Low Income Communities: Metrics and Indicators, Better Buildings, U.S. Department of Energy
- The State of Equity Measurement: A Review for Energy-Efficiency Programs, Urban Institute
- The State of Equity Measurement: A Review of Practices in the Clean Energy Industry, VEIC
- Review of Energy Equity Metrics, Pacific Northwest National Laboratory
- Quantitative Energy Equity, Empower Dataworks

Data and Tools

- Climate and Economic Justice Screening Tool, White House Council on Environmental Quality
- Community Engagement Innovation Products (Resources, Tools, Guides, and Implementation Examples), Urban Sustainability Directors Network
- EJScreen, U.S. Environmental Protection Agency
- Energy Burden Calculator, Sierra Club
- Energy Justice Dashboard (BETA), U.S. Department of Energy
- Justice in 100 Metrics: Tools for Measuring Equity in 100% Renewable Energy Policy Implementation, Initiative for Energy Justice
- Low-Income Energy Affordability Data (LEAD) Tool, U.S. Department of Energy
- Map of Disconnection Moratoria, National Regulatory Research Institute

Organizations and Initiatives

- ACEEE Leading with Equity
- Center for the New Energy Economy, Colorado State University
- Climate Justice Alliance
- Climate Justice Network
- Electric Power Research Institute
- Emerald Cities Collaborative
- Energy Democracy Project
- Energy Efficiency for All
- Energy Equity Project, University of Michigan
- Energy Justice Lab, Indiana University
- Equity in a Clean Energy Economy, DEFG
- Government Alliance on Race & Equity
- Initiative for Energy Justice
- Institute for Market Transformation
- Just Solutions Collective
- Justice40 Accelerator
- National Utilities Diversity Council
- Race Forward
- US Climate Action Network

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