

# Exploring energy equity frameworks and definitions

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Webinar



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# ECEE background and challenge statement



The E Source Equity in a Clean Energy Economy (ECEE) Collaborative is a unique group of more than 500 stakeholders focused on energy equity. Members work for utilities (municipal and investor owned), state regulatory agencies, social service agencies, research institutes, consumer organizations, national associations and other nonprofit organizations, and creative, analytical, and software businesses.

Created in 2021, the ECEE adopted this challenge statement:

**Utilities have an obligation to provide safe, affordable, reliable energy to all. We believe the time has come to expand the traditional compact in the utility sector to include clean energy and new perspectives on equity. We must consider the impacts on the grid, the traditional utility business model, and customers, especially around affordability and access. Particular attention is needed to ensure that at-risk customers share the benefits of the transition to a clean energy economy. It is critically important that we get the right balance.**

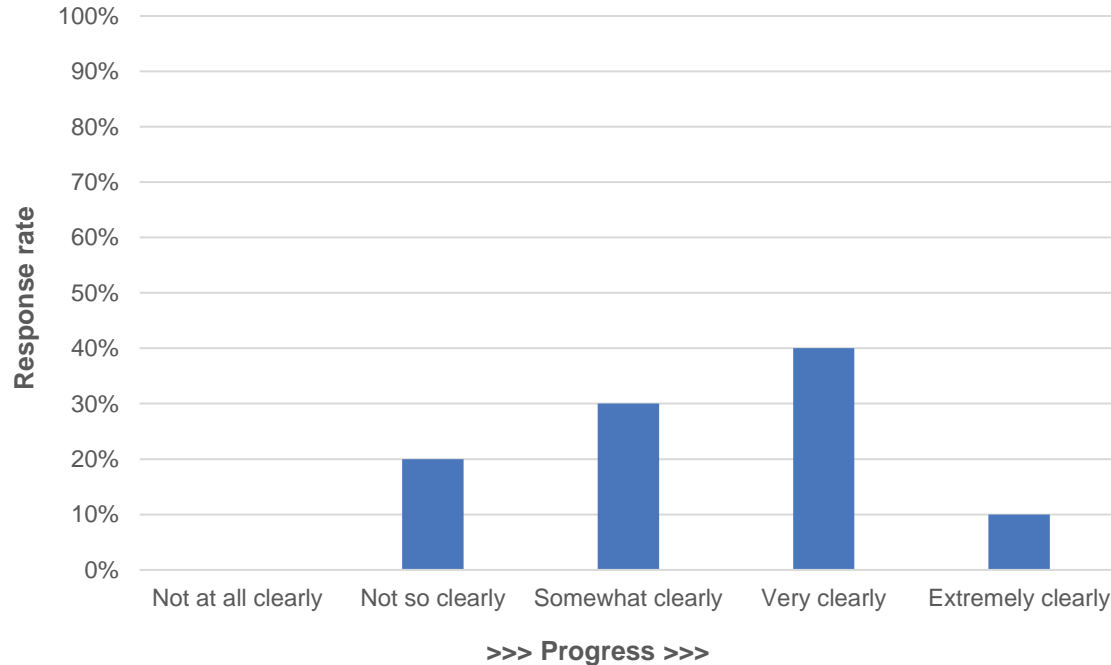
# ECEE mission



**Bring together different stakeholders to create new approaches and tools that ensure equity in a clean energy economy for at-risk customers and communities**



# Poll: How clearly (or officially) has your company defined energy equity OR identified customers or communities for prioritization in your energy equity efforts?



“

Historically, the energy sector echoes racial and class disparities in housing, education, and economic development. Despite the semblance of uniform utility rates and ubiquitous service, the negative outcomes of power shut-offs and cost burdens—and the positive benefits of weatherization, retrofits, and renewable energy—are not evenly distributed.

—[The Energy Equity Project \(PDF\)](#)

”

# Energy inequity

“Compared to white (non-Hispanic) households, Black households spend 43% more of their income on energy costs, Hispanic households spend 20% more, and Native American households spend 45% more.”

—[American Council for an Energy-Efficient Economy](#) (ACEEE)

“Majority-Black communities install 69% less rooftop solar than other neighborhoods that have the same income level.”

—[US Department of Energy](#) (DOE)

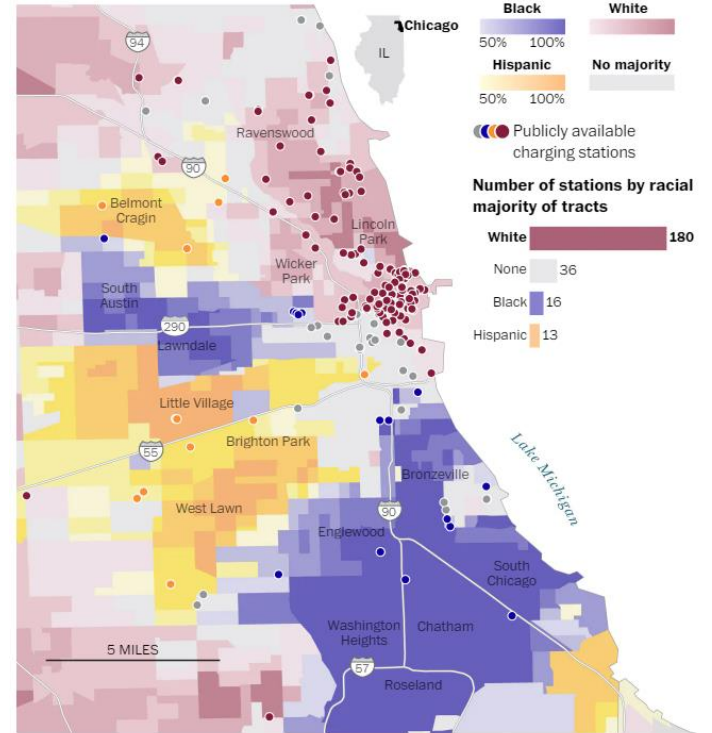
“... the lack of charging stations and electric vehicles that depend on them threatens to worsen an already disproportionate exposure to air pollution in minority neighborhoods and relegate Black and Latino drivers to gasoline-powered cars, which, though cheaper to buy, are more expensive to fuel and maintain.”

—[The Washington Post](#)



## Most of Chicago's accessible electric charging stations are in mostly White areas

Share of population per census tract, by race or ethnicity



Sources: Census Bureau; Energy Department

Source: *The Washington Post* ([Without access to charging stations, Black and Hispanic communities may be left behind in the era of electric vehicles](#))

# What does equity in a clean energy economy really mean?

The definition of equity within the context of a clean energy economy has critical implications for the design, implementation, and evaluation of new clean energy programs and policies.

## Sierra Club

“... justice, equity, affordability, and access for all members of the community while prioritizing the communities most burdened by the fossil fuel industry, such as low-income areas and communities of color.”

## DOE

“... the inclusion and participation of individuals in underserved communities, such as minorities, women, veterans, and formerly incarcerated persons.”

## California Energy Commission (CEC)

“... improve access to clean energy technologies for low-income customers and disadvantaged communities, increase clean energy investment in those communities, and improve community resilience to grid outages and extreme events.”





# Themes – defining equity



## Access or self-determination

“Equity is to provide the structures and resources so that peoples most impacted by the clean energy economy are centered at the decision making.”

## Opportunity

“Equity is the opportunity for ‘all’ stakeholders and participants to drive equal value, resources, and options on a common basis to meet their specific needs.”

## Justice

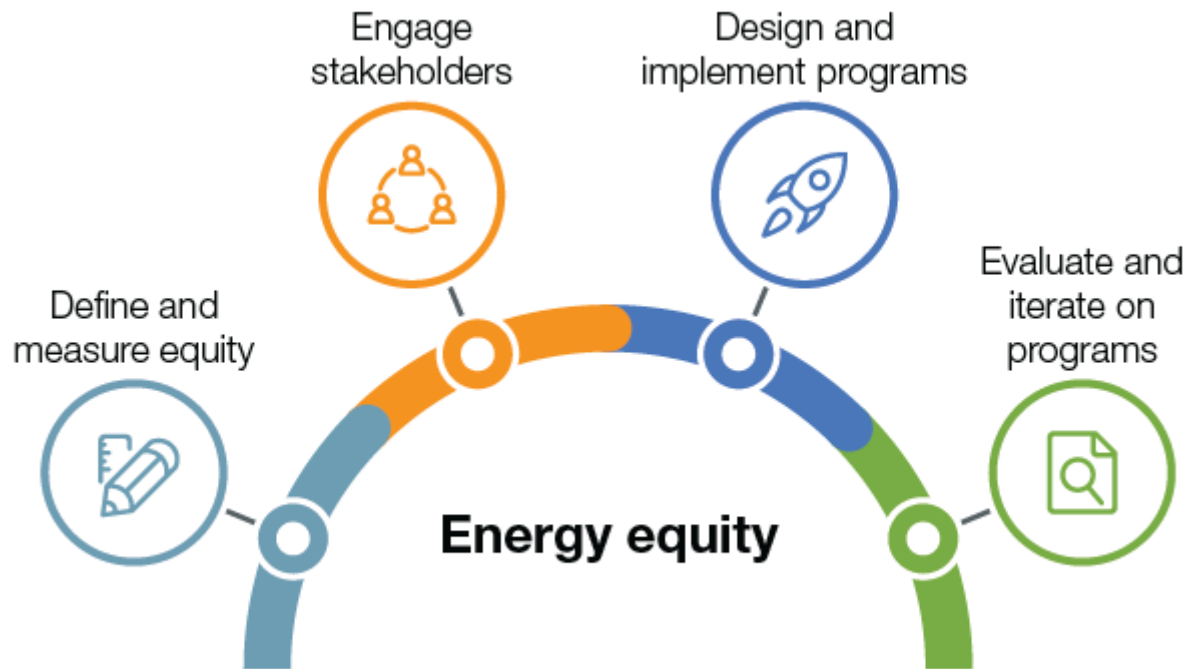
“Clean Energy equity is the process of bringing about justice in the economic participation in the clean energy system while also rectifying financial, negative community, and well-being burdens on those chronically harmed by the energy system.”

## Inclusion or fairness

“Fair and just; that all customers benefit from the clean energy economy.”

© E Source (Equity in a Clean Energy Economy Collaborative Member Survey Findings—August 2021)

# E Source energy equity framework



# Define and measure equity

## Customer metrics

Demographics	
➤ Income and energy burden	➤ Disability
➤ Race and ethnicity	➤ Language and information access
➤ Age	➤ Business type
Location and housing	
➤ Energy efficiency of housing	➤ Climate change impacts
➤ Building stock value and age	➤ Heat-island effect
➤ Homeownership	➤ Rural versus urban
➤ Local pollution	
Access to resources	
➤ Employment	➤ Local grid infrastructure quality
➤ Access to personal or public transportation	➤ Access to healthcare
➤ Access to EV charging infrastructure	

# Define and measure equity

## Success metrics

- Percentage of program participants in target groups
- Where program money is spent
- Community engagements
- Workforce development/supplier diversity targets
- Outcomes from programs
- In the future, can we track:
  - Disconnections?
  - Arrears and affordability concerns?
  - Changes in energy burden?
  - Changes in development index scores?

# Who else is working on this?

- **Academics** like the [Energy Equity Project](#) and [Initiative for Energy Justice](#)
- **Advocates** like [Energy Efficiency for All Equity Working Group](#), [WE ACT for Environmental Justice](#), and the [Partnership for Southern Equity](#)
- **Allies** like the [Green & Healthy Homes Initiative](#) and [Urban Sustainability Directors Network](#) (PDF)
- **Research organizations** like the [ACEEE Leading with Equity Initiative](#) and [Pecan Street Center for Race, Energy & Climate Justice](#)
- **Regional energy efficiency organizations** like [Northeast Energy Efficiency Partnerships](#) and the [Southeast Energy Efficiency Alliance](#)
- **The federal government** through [the DOE](#), the [US Environmental Protection Agency](#) (EPA), and national labs like the [Pacific Northwest National Laboratory](#) (PNNL) and [National Renewable Energy Laboratory](#)

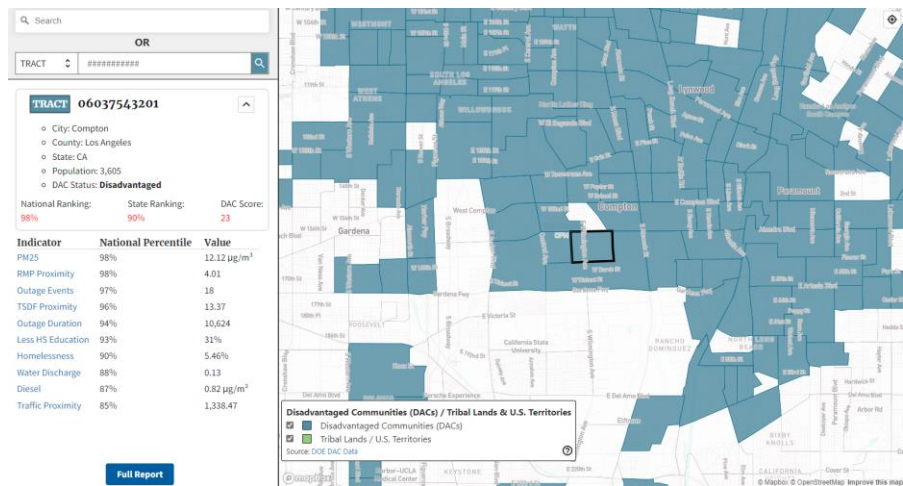
# DOE's definition



Through the DOE [Justice40 Initiative](#), disadvantaged communities are defined by 36 burden indicators collected at the census tract level. It maps communities through the [Energy Justice Mapping Tool—Disadvantaged Communities Reporter](#).

These burden indicators can be grouped across the following four categories (the numbers in parenthesis are the number of indicators in each category):

- Fossil dependence (2)
- Energy burden (5)
- Environmental and climate hazards (10)
- Socioeconomic vulnerabilities (19)



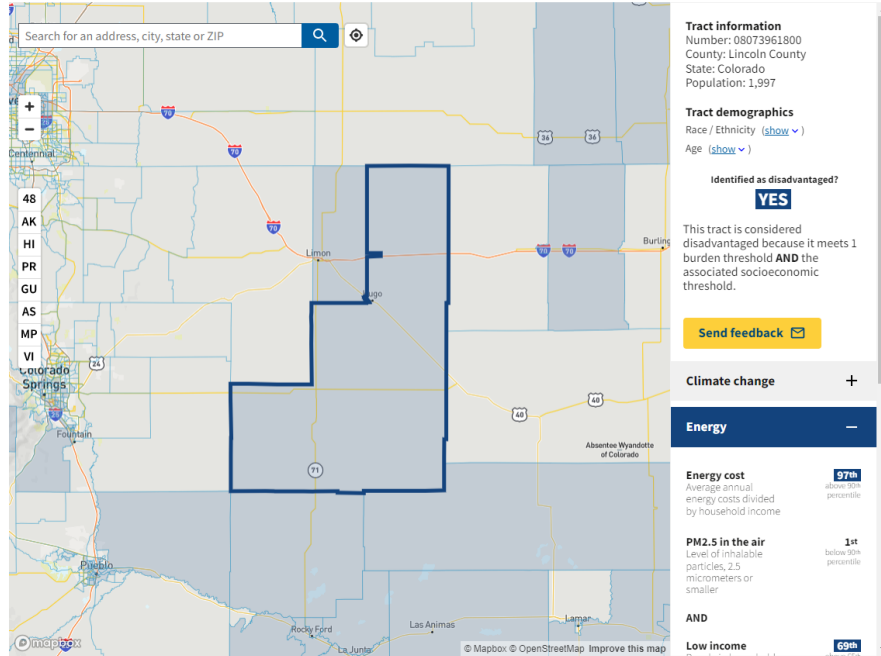
Source: US Department of Energy ([Disadvantaged Communities Reporter](#))

# Climate and economic justice



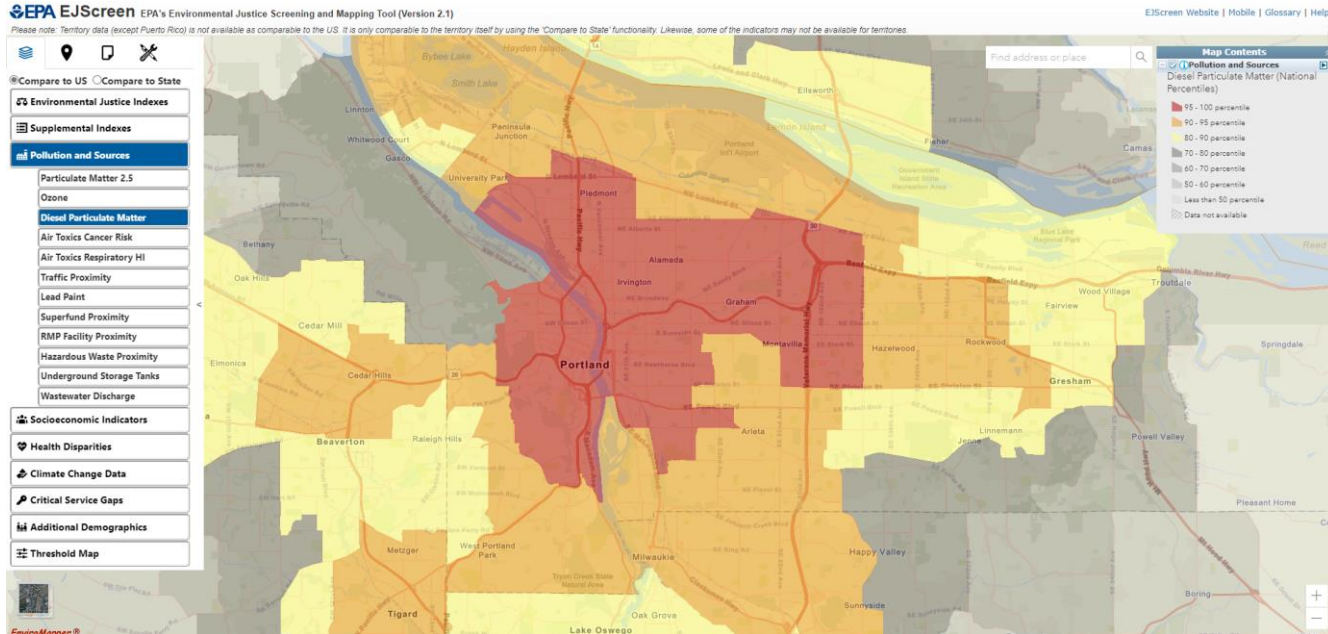
The US Council on Environmental Quality [Climate and Economic Justice Screening Tool](#) maps disadvantaged communities on a robust set of layered indicators:

- Climate change impacts
- Energy indicators
- Health indicators
- Legacy pollution
- Transportation metrics
- Water and wastewater infrastructure
- Workforce development



Source: US Council on Environmental Quality ([Climate & Economic Justice Screening Tool](#))

# EPA's definition



Source: US Environmental Protection Agency ([EJScreen: Environmental Justice Screening and Mapping Tool](#))



# CEC's energy equity indicators



## The CEC's [Energy Equity Indicators—Interactive Story Map](#)

uses census tract-level geographic information system mapping and environmental, health, and socioeconomic data to identify disadvantaged communities that are targeted through utility programs.

California Energy Commission



### Energy Equity Indicators – Interactive Story Map

Together with the California Energy Commission's Energy Equity Tracking Progress report, [1] this interactive story map launches a set of energy equity indicators to identify opportunities and track progress for advancing the recommendations in the SB 350 Low-Income Barriers Study. Going forward, staff plans to add map applications and widgets for selected data layers; for example, see the [sample interactive mapping application](#).

[1] The Energy Commission Tracking Progress reports provide sector-specific summaries of California's progress toward a cleaner energy future, with links to additional resources. Information and metrics are updated regularly. The reports are available at [http://www.energy.ca.gov/renewables/tracking\\_progress](http://www.energy.ca.gov/renewables/tracking_progress).

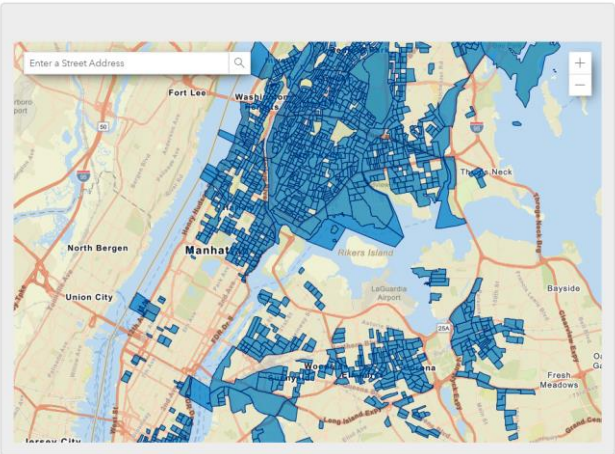
Table 1: Energy Commission Low-income Barriers Study Recommendations and



Source: California Energy Commission ([Energy Equity Indicators—Interactive Story Map](#))

# New York's disadvantaged communities criteria

The State of New York [Energy & Climate Equity Strategy](#) identified 45 “indicators” based on income, race, employment, homeownership, pollutants and health, and potential climate risks.



\*HUD 50% Threshold: Top quartile of census block groups in New York, ranked by the percentage of LMI Households in each census block. LMI Households are defined as households with annual incomes at or below 50% of the Area Median Income of the County or Metro area where the Census Block Group resides.

Environmental Burdens and Climate Change Risk		
Land use and facilities associated with historical discrimination or disinvestment	Potential climate change risks	Potential pollution exposures
Proximity to remediation sites	Extreme heat projections	Vehicle traffic density diesel truck and bus traffic
Proximity to regulated management plan sites	Flooding in coastal and tidally influenced areas (projected)	Particulate matter (PM2.5)
Proximity to major oil storage facilities	Flooding in inland areas (projected)	Benzene concentration
Proximity to power generation facilities	Low vegetative cover	Wastewater discharge
Proximity to active landfills	Agricultural land	
Proximity to municipal waste combustors	Driving time to hospitals or urgent/critical care	
Proximity to scrap metal processors		
Industrial/manufacturing/mining land use		
Housing vacancy rate		



## Population Characteristics and Health Vulnerabilities

- Income**
- Percent <80% area median income
  - Percent <100% of federal poverty line
  - Percent without bachelor's degree
  - Unemployment rate

- Race and Ethnicity**
- Percent Latino/a or Hispanic
  - Percent Black or African American
  - Percent Asian
  - Percent Native American or Indigenous

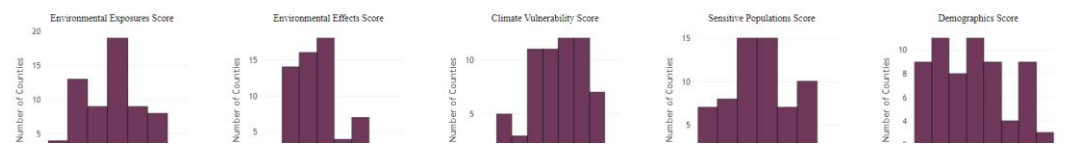
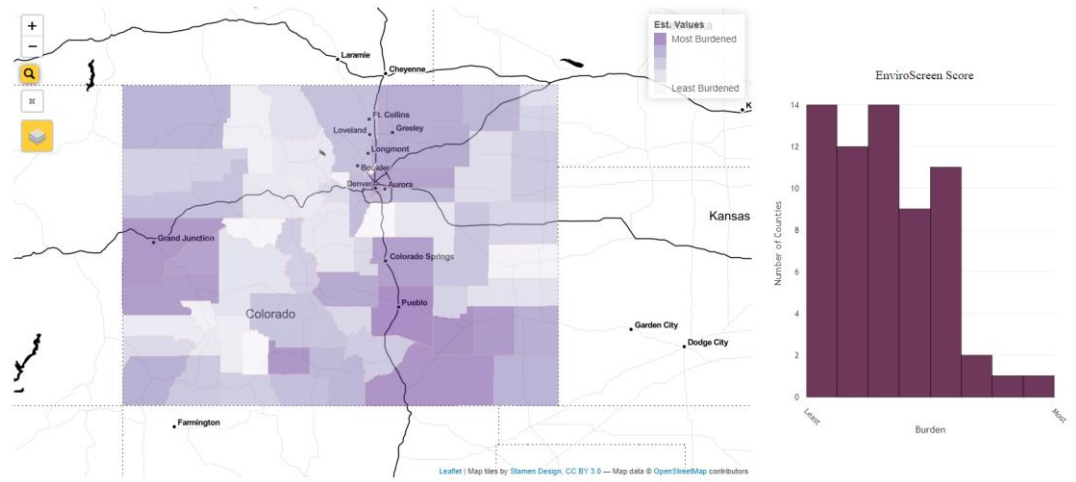
- Health Outcomes & Sensitivities**
- Asthma emergency department visits
  - COPD emergency department visits
  - Heart attack (MI) hospitalization
  - Premature deaths

- Housing Mobility & Communications**
- Percent renter-occupied homes
  - Housing cost burden (rental costs)
  - Energy poverty / cost burden
  - Manufactured homes

Source: New York State

# Colorado's disproportionately impacted communities

- [Colorado EnviroScreen](#) is Colorado's new bilingual interactive environmental justice mapper.
- EnviroScreen combines 35 environmental, health, and demographic indicators.
- It visualizes areas in Colorado with higher environmental and socioeconomic burdens.
- The tool also shows places that meet the state's definition of a [disproportionately impacted community](#).



Source: State of Colorado ([Colorado EnviroScreen](#))

# Energy equity project resources

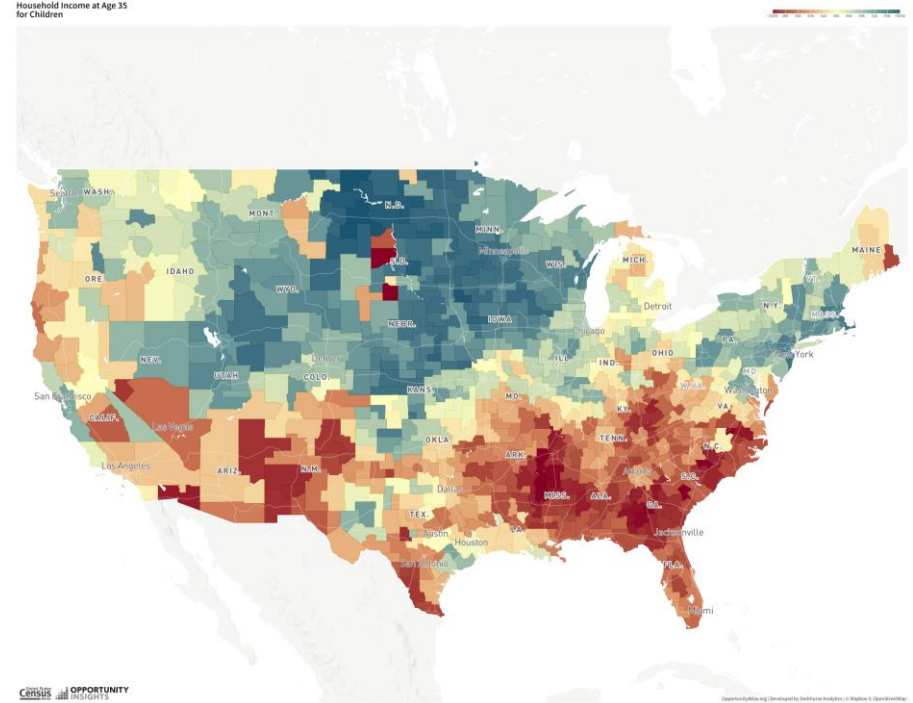


- [The EEP Framework](#)
  - Guiding principles for recognition, procedural, distributional and restorative dimensions of energy equity
  - Review of 148 proposed energy equity measures, with accompanying resources and implementation guidance
  - Big picture energy equity takeaways and ideas for how to get started
- [EEP Interactive Map](#)
  - Mapping tool that provides census tract level data for 29 demographic variables for assessing energy equity metrics

# The Opportunity Atlas



- [The Opportunity Atlas](#) is a data map made in collaboration with the US Census Bureau, Harvard University, and Brown University
- Uses anonymous data of 20 million Americans, tracking them from their childhood to their mid-30s
- It's an effort to understand, on a local level, which neighborhoods have historical effects on upward mobility
- This data-rich resource can be an important tool when layering equity solutions and considerations in local areas, as described in the 2023 research paper [Creating Moves to Opportunity: Experimental Evidence on Barriers to Neighborhood Choice](#) (PDF).



Source: [The Opportunity Atlas](#)

# National lab definitions

## Terms for describing social and economic status



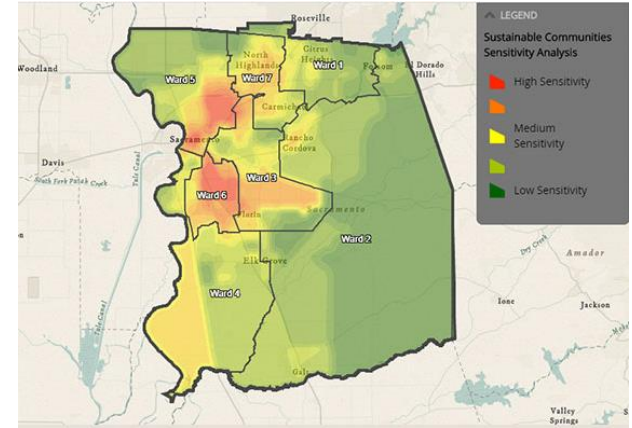
Community designation	Definition
Underserved communities	People who have a decreased level of service or access to energy system services.
Marginalized people	People excluded from participating in decision-making and those who lack access to basic economic, political, cultural, and social activities.
Vulnerable populations	Those who are economically disadvantaged, racial and ethnic minorities, the elderly, rural residents, those with inadequate education, and those with other socioeconomic challenges.
Highly impacts communities	Communities living in geographic locations characterized by energy inequity and facing economic or historical barriers to participation in energy decisions and solutions.
Disadvantaged communities	Those who most suffer from economic, health, and environmental burdens.
Overburdened populations	Minority, low-income, tribal or Indigenous populations, or geographic locations that potentially experience disproportionate environmental harms and risks.
Frontline communities	Communities that experience the first and worst of air pollution resulting from energy systems.
Fenceline communities	Communities living in closest proximity to dangerous facilities (within one-tenth of a facility's vulnerability zone).
Environmental communities	Those who are most affected by environmental harms and risks.
Low- or moderate-income persons	People who make less than 80% of the area median income.

Source: Pacific Northwest National Laboratory ([Review of Energy Equity Metrics](#) [PDF])

# Utility metrics and data strategies



- SMUD's [Sustainable Communities](#) program uses heat mapping to indicate underserved local areas by lack of community development, income, housing, employment opportunities, transportation, medical treatment, nutrition, education, and clean environment.
- The City of Longmont, Colorado, surveyed its residents on energy burden, affordability, and awareness in its [Just Transition](#) program. It held listening groups and reviewed data to identify places that might not have access to electricity to shape its equitable climate action goals.
- Consumers Energy analyzed how its energy efficiency pilot programs might impact certain communities differently. It found it could have the greatest impact on older neighborhoods with low-income residents. These neighborhoods historically had highly loaded systems, high energy use, and a high percentage of older and inefficient building stock. ([Consumers Energy 2022 rate increase application](#))
- Under Washington State's [Clean Energy Transformation Act](#) (CETA), regulated utilities use the [Washington Tracking Network \(WTN\)](#) tools to identify priority communities for their equity efforts.



Source: SMUD (Resource Priorities Map)

# Evaluation and reporting with equity



- Los Angeles Department of Water and Power's [Equity Metrics Data Initiative](#) measures and reports on the status of 15 equity metrics. It assigns each metric to a manager who regularly provides updated data on the metrics.
- Energy Trust of Oregon's [Progress toward diversity, equity and inclusion goals](#) (PDF) assesses and sets goals and tracks progress toward increasing different, underserved groups' participation in efficiency programs.
- Equity-focused, performance-based regulation at Hawaii Energy ([2018 Annual Report](#) [PDF]).
- Ameren Illinois, ComEd, Consumers Energy, and DTE Energy are required to track and meet certain energy equity metrics in their demand-side management portfolios to receive performance incentives from the state.

Utility benefits	
Peak load reduction	Less debt written off
Transmission and distribution savings	Lower collection costs
Reduced arrearages	Fewer customer calls
Reduced carrying costs	

Participant benefits	
Operation and maintenance cost savings	Increased employee productivity
Health benefits	Increased property values
Increased comfort	Benefits to low-income customers

Societal benefits	
Public health and welfare	Economic development
Improved air quality	Increased employment
Water quality and quantity	Energy security
Fewer coal ash ponds and coal combustion residuals	Benefits to low-income families

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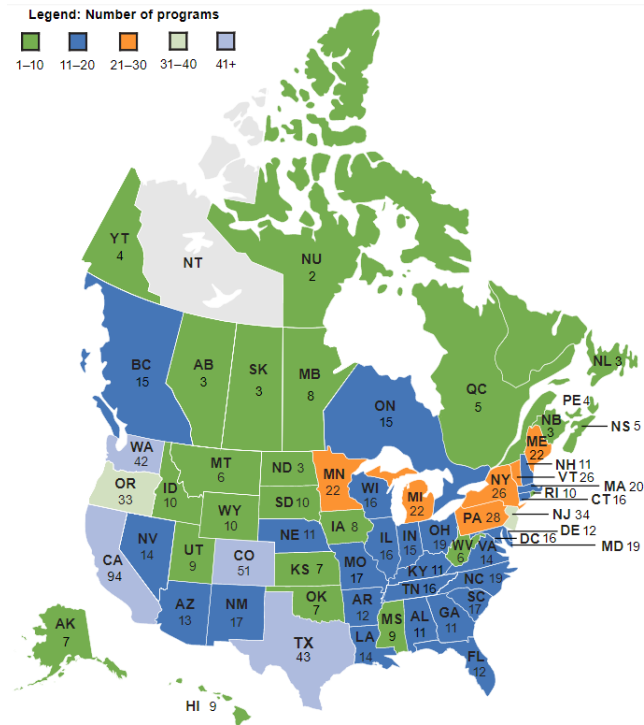
# Spotlight: E Source energy equity and affordability database



[A database of energy equity and affordability programs across the US and Canada](#) catalogs 800+ initiatives, programs, pilots, and plans offered by utilities, nonprofits, and state, local, and provincial governments in support of energy equity and affordability.

Filterable and searchable by:

- Administrator
- State or province
- Administrator type
- Program purpose
- Program type
- Fuel type
- Sectors served
- Equity metrics

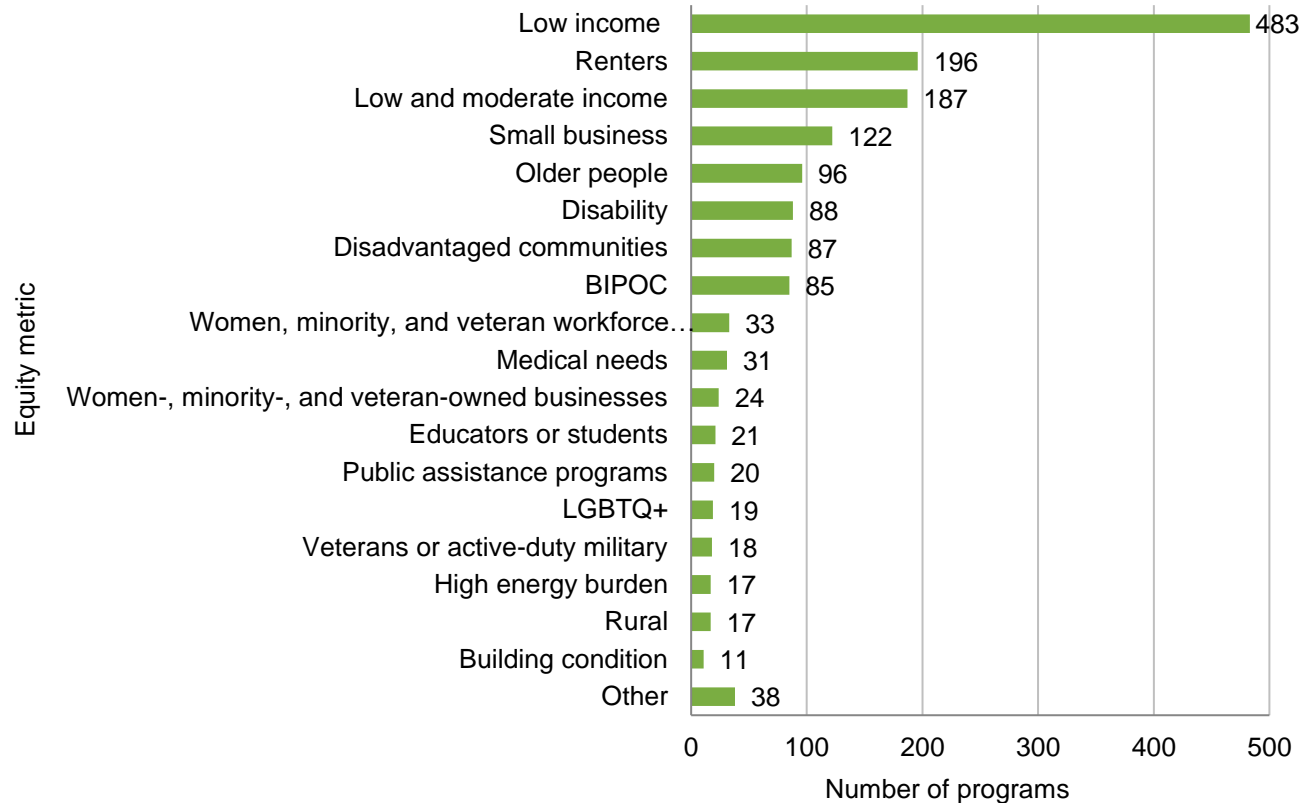


© E Source, data from program websites and E Source DSMdat. Note: Some programs serve more than one state or province.

# Equity and affordability program landscape

## E Source energy equity and affordability database

Equity and affordability program metrics

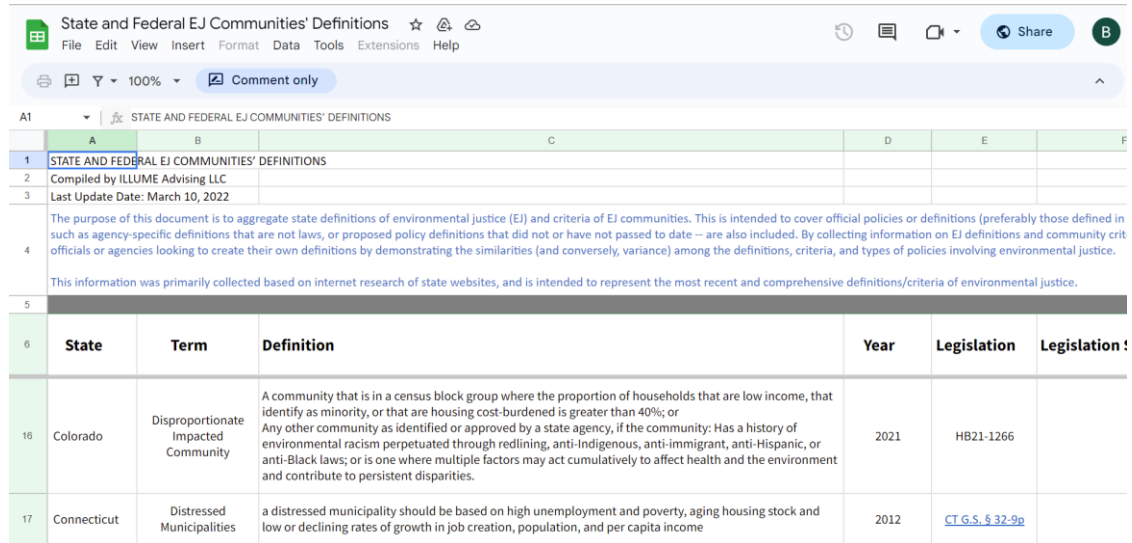


© E Source; data from program websites and E Source DSMdat. **Notes:** Some programs include more than one equity metric. "Disadvantaged communities" includes 13 different terms for target communities.



# Federal and state equity regulation databases

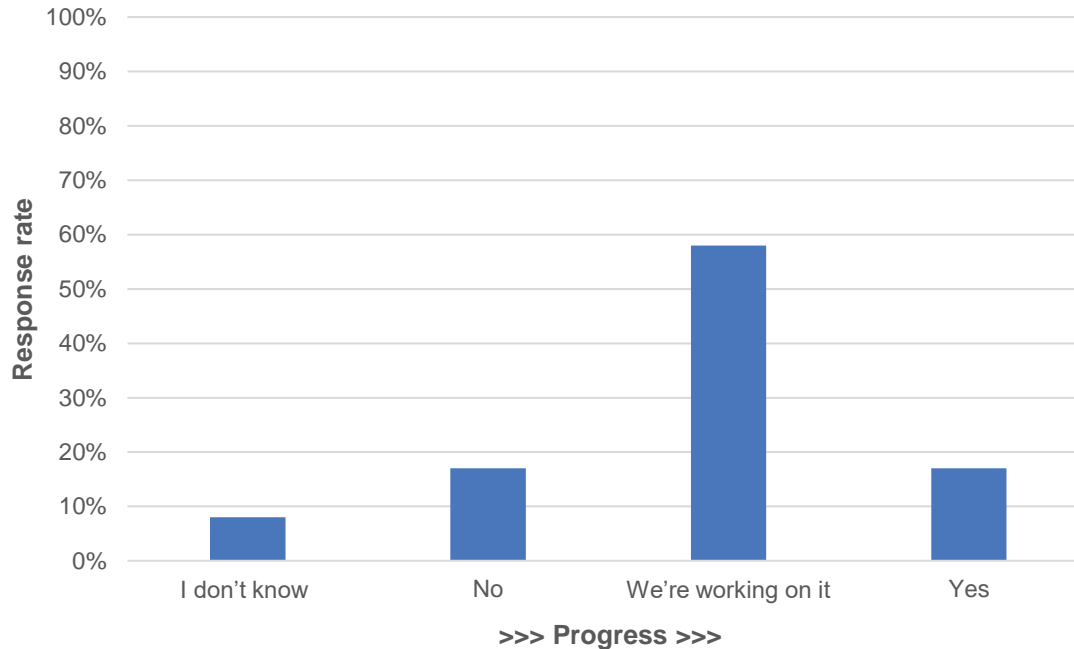
- The Institute for Market Transformation's [PUC mandate database](#) (XLSX)
- The New School's [EJ Community Definitions](#) (GSHEET)
- ILLUME Advising's [State and Federal EJ Communities' Definitions](#) (GSHEET)
- ACEEE's [Leading with Equity Initiative](#)



State	Term	Definition	Year	Legislation	Legislation ID
Colorado	Disproportionate Impacted Community	A community that is in a census block group where the proportion of households that are low income, that identify as minority, or that are housing cost-burdened is greater than 40%; or Any other community as identified or approved by a state agency, if the community: Has a history of environmental racism perpetuated through redlining, anti-Indigenous, anti-immigrant, anti-Hispanic, or anti-Black laws; or is one where multiple factors may act cumulatively to affect health and the environment and contribute to persistent disparities.	2021	HB21-1266	
Connecticut	Distressed Municipalities	a distressed municipality should be based on high unemployment and poverty, aging housing stock and low or declining rates of growth in job creation, population, and per capita income	2012	<a href="#">CT G.S. § 32-9b</a>	

Source: ILLUME Advising ([State and Federal EJ Communities' Definitions](#) [GSHEET])

# Poll: Do you have a framework, roadmap, or overarching plan or policy for how you define and pursue equity?



# Discussion questions

1. How do you define equity at your company or in your service territory? Who are your target customers or communities in your equity efforts?
2. Is your definition of equity and target customers or communities legislatively driven?
3. Do you have a framework, roadmap, or overarching plan or policy for how you define and pursue equity?
4. Do you use screening tools to identify disadvantaged customers or communities in your equity efforts?

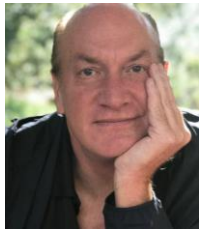


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