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Assessing the Current State of U.S. Energy Equity Regulation and Legislation

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Authors

Hanus, Nichole L

Barlow, Jay

Satchwell, Andrew

et al.

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Assessing the Current State of U.S. Energy Equity Regulation and Legislation

Nichole Hanus, Jay Barlow,
Andrew Satchwell, and Peter Cappers

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Report Outline

- I. Executive Summary
- II. Introduction
- III. Analytical Approach
- IV. Results
- V. Conclusions and Future Work
- VI. References
- VII. Appendix (additional details on database organization)

I. Executive Summary

Executive Summary

- Lawrence Berkeley National Laboratory (LBNL) and Pacific Northwest National Laboratory (PNNL) partnered with E9 Insight (E9) to develop a database of executive, legislative, and regulatory actions focusing on energy equity and directed at electricity and natural gas utilities.
- The resulting database contains 95 energy equity actions, which consist of documents (e.g., bills, dockets, and executive orders) identified through keyword searches to have association with energy equity. Multiple categories of information were collected along with each action (e.g., driver(s), regulatory focus, objective(s), outcome(s), and metric(s)).
- Based on our review, almost half of states (22 + DC) were taking some sort of action on energy equity (i.e., executive order, PUC activity, agency plan, or executive bill).
- We also explored what drivers led to what outcomes. Drivers were organized into legislative, regulatory, executive, and stakeholder-driven. There was no leading driver of energy equity actions, nor was there one overarching outcome actions were driving towards.
- We organized intended energy equity outcomes into four energy equity/justice tenets: recognition, distributive, procedural, and restorative. In our sample, states tended to focus on distributive and procedural tenets over recognition and restorative tenets.
- Finally, our review suggested that energy equity metrics are in nascent stages (if they exist in a state). Affordability and energy burden were identified as metrics in multiple cases and appeared in several different forms.
- Future work should improve upon the database and analysis by (1) focusing on equity objective definitions, (2) detailing the conception and history of equity actions, (3) assessing the continuation of energy equity actions among states, (4) examining the tradeoffs related to metric harmonization, and (5) defining comprehensive, durable energy equity action.

II. Introduction

Equity Cohort States and Study Context

- Many states are considering ways to **incorporate energy equity and justice into electric regulation**.
- Some have already started down this path, either due to **legislative requirements** via new or updated statutes, **executive mandates** through orders and policy statements, or **regulatory initiatives** promulgated through docketed proceedings.
- Given the novelty of issues and solutions under consideration, **states at all stages could benefit from an awareness of what others are doing**.
- For this reason, the Department of Energy (DOE) funded a set of tasks to develop (1) a cohort of equity-related technical assistance (TA) projects (the Equity Cohort), and (2) a database of current energy equity-related regulation in the US.
- This report **summarizes the contents of the Current State of Equity Regulation database** and synthesizes some key findings.

Task 1: Equity Cohort

Hawaii	Maine	Washington	Wisconsin
Develop a framework for equitable utility-scale RE procurement	Identify equitable rate design frameworks & evaluate DER/EE tech	Identify equitable clean energy programs & rate plans; develop metrics	Conduct energy burden analysis that informs rate design

Task 2: Current State of Equity Regulation

Equity Database
Develop a database of executive, legislative, and regulatory actions focusing on energy equity and directed at electricity and natural gas utilities.

Study Boundaries

This study is *not*...

A comprehensive study of all energy equity programming in the US.

An account of energy equity legislation/regulation that occurred during a long time period.

An exercise in defining energy equity or identifying best practices.

A causal analysis of what drivers led to what outcomes.

Instead, our intent is to...

Provide a representative sample of state **executive, legislative, and regulatory** actions focusing on equity and directed at electricity and natural gas utilities.

Review recent dockets and legislation published between **January 2020 – July 2022**.

Enable **states to define energy equity** and best practices in their own terms.

Provide high-level, **exploratory analysis** and identify trends.

III. Analytical Approach

Data
Gathering &
Filtering

Database
Organization

Research
Questions

Exploratory
Analysis

Overview

- **Data Gathering & Filtering:** LBNL and PNNL partnered with E9 to develop a database of executive, legislative, and regulatory actions focusing on energy equity and directed at electricity and natural gas utilities. E9 maintains a database of public utilities commission (PUC) dockets, news, and related energy policy activities. In this work, E9 augmented their database with new executive and legislative resources focused on energy equity.
- **Database Organization:** We scanned the individual dockets, legislation, and executive orders for key words identified as pertaining to energy equity and equitable processes. Some categorization was completed within the database (e.g., defining and organizing energy equity/justice tenets).
- **Research Questions:** This research focused on emerging definitions and applications of equity by applying a two-step procedure: (1) identifying equity objectives in executive, legislative, and regulatory actions; and (2) identifying their intended outcomes. The resulting database allows researchers to ask questions related to drivers, objectives, and outcomes.
- **Exploratory Analysis:** We performed counts, mapping, and comparisons with other energy policies to draw general observations about energy equity practices across the US. Furthermore, we developed high-level graphical representations to illustrate relationships between data.



Raw Data



Filtering



Database

1. E9’s existing database included PUC dockets, news, and related energy policy activities related to nine topics:

- Resource Planning
- Demand Management
- Distributed Energy
- Smart Grid
- Distribution System
- Community Energy
- Utility Business
- Models
- Competition
- Electrification

2. E9 expanded their database by searching the following resources for equity-related executive, legislative, and regulatory actions and drivers:

- Legiscan
- PUC Websites
- Resources from LBNL, Rocky Mountain Institute, and the Regulatory Assistance Project.

1. The raw data was filtered for equity actions using analyst judgement and the following key words:

- Equity/Equitable
- Environmental Justice
- Disadvantaged
- Diversity
- Intervenor Compensation
- Race/Racial
- Transparency
- Communities

2. We cast a wide net for collecting energy equity metrics information in our database:

- Existing/directed/pending
- Qualitative/quantitative
- Other program tracking

3. Finally, the raw data was filtered for the timeframe of interest: January 2020 – July 2022

1. A total of **95 actions** were identified across **22 states and Washington D.C.**

2. The database contains **19 variables** tracked for each action, including driver(s), regulatory focus, objective(s), outcome(s), and metric(s).

3. The resulting sample contains **410 observations** that describe unique combinations of actions and variables.

Data
Gathering &
Filtering

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Organization

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Questions

Exploratory
Analysis

- E9 delivered the database to LBNL and PNNL who subsequently performed three organizational steps:
 - ▣ Step 1: Breaking out drivers into multiple rows
 - ▣ Step 2: Omitting actions that didn't have assigned drivers from the analysis of drivers
 - ▣ Step 3: Organizing energy justice/equity tenets
- Energy equity/justice tenet organization:
 - ▣ The field of energy equity has established tenets that represent different dimensions of justice.
 - ▣ LBNL and PNNL assigned certain **outcomes** to each **tenet**. This approach allows a mapping of tenets, but does not capture the potential interaction and synergies.

Recognition

- Demographics
- Program design
- PUC hire or consultant
- Supplier diversity
- Workforce

Distributive

- Access to innovative financing or technologies
- Affordability
- Customer reliability
- Distribution investments
- Rate design
- Utility incentive

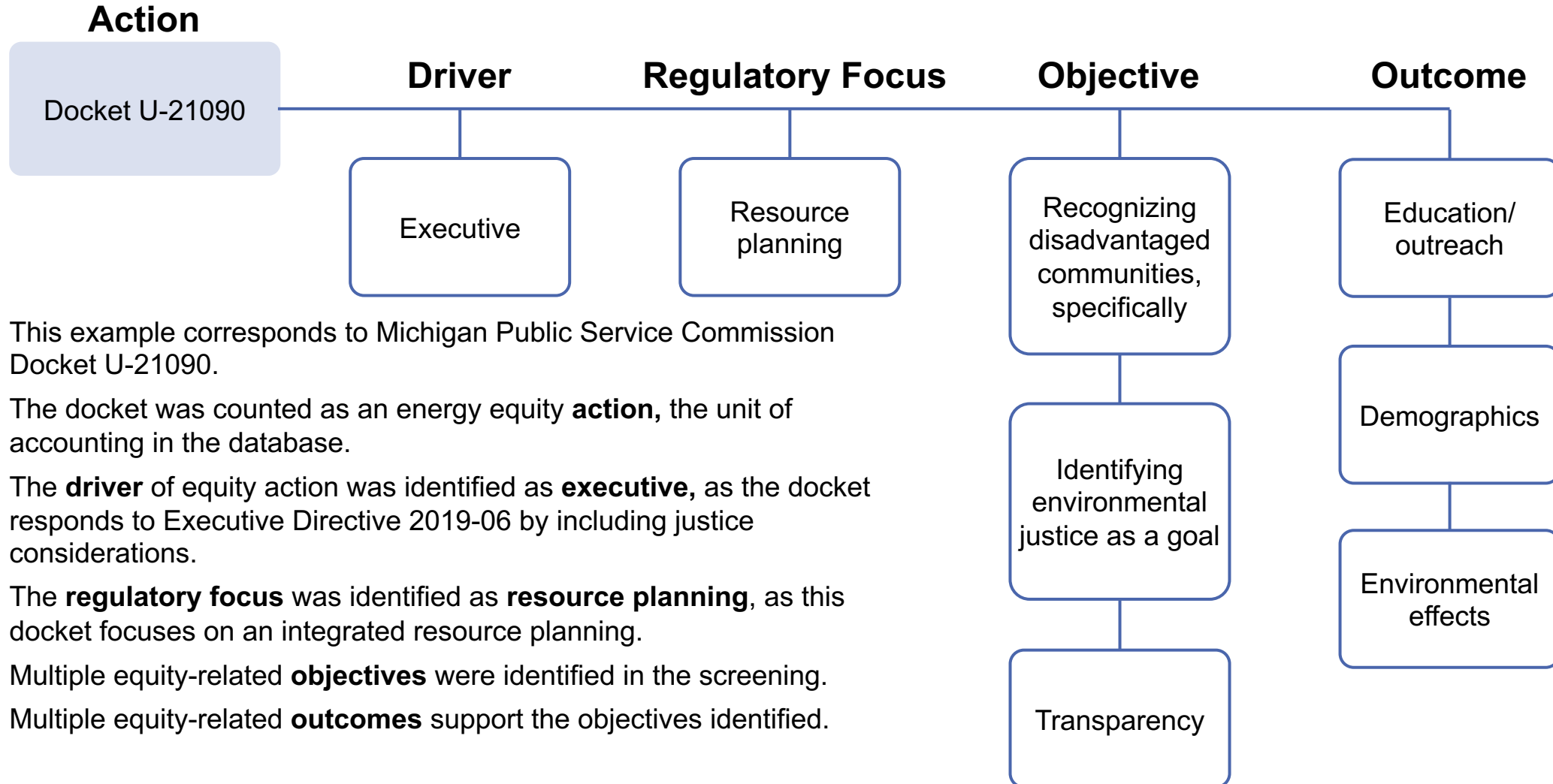
Procedural

- Creating working groups
- Education/outreach
- Enhanced party representation
- Enhanced engagement

Restorative

- Environmental effects
- Customer protection
- Community resilience
- Renewable energy siting
- Imbalance for legacy customers

Example of how a single docket was organized in the database:



- This example corresponds to Michigan Public Service Commission Docket U-21090.
- The docket was counted as an energy equity **action**, the unit of accounting in the database.
- The **driver** of equity action was identified as **executive**, as the docket responds to Executive Directive 2019-06 by including justice considerations.
- The **regulatory focus** was identified as **resource planning**, as this docket focuses on an integrated resource planning.
- Multiple equity-related **objectives** were identified in the screening.
- Multiple equity-related **outcomes** support the objectives identified.

Data
Gathering &
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Database
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Questions

Exploratory
Analysis

This research focuses on emerging definitions and applications of equity by applying a two-step procedure: (1) identifying equity objectives in executive, legislative, and regulatory actions; and (2) identifying their intended outcomes. The resulting database allows researchers to ask questions related to drivers, objectives, and outcomes.

1. Who took action on energy equity?
2. Which equity objectives were identified?
3. How were drivers, regulatory focus, objectives, and outcomes linked?
4. Which energy equity/justice tenets were represented?
5. What energy equity metrics were identified?

Data
Gathering &
Filtering

Database
Organization

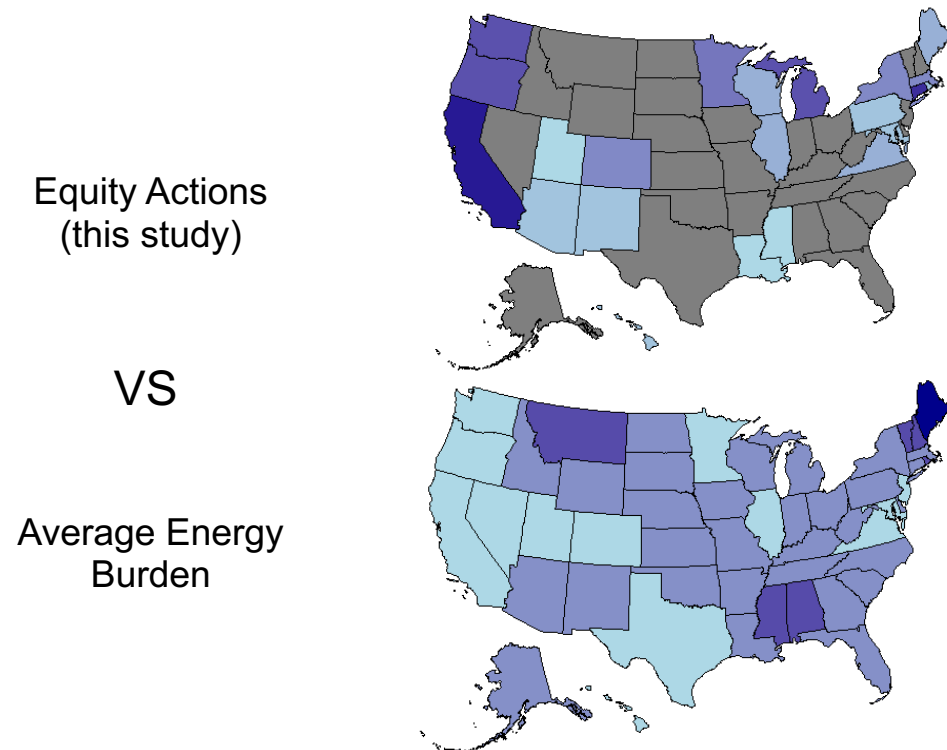
Research
Questions

Exploratory
Analysis

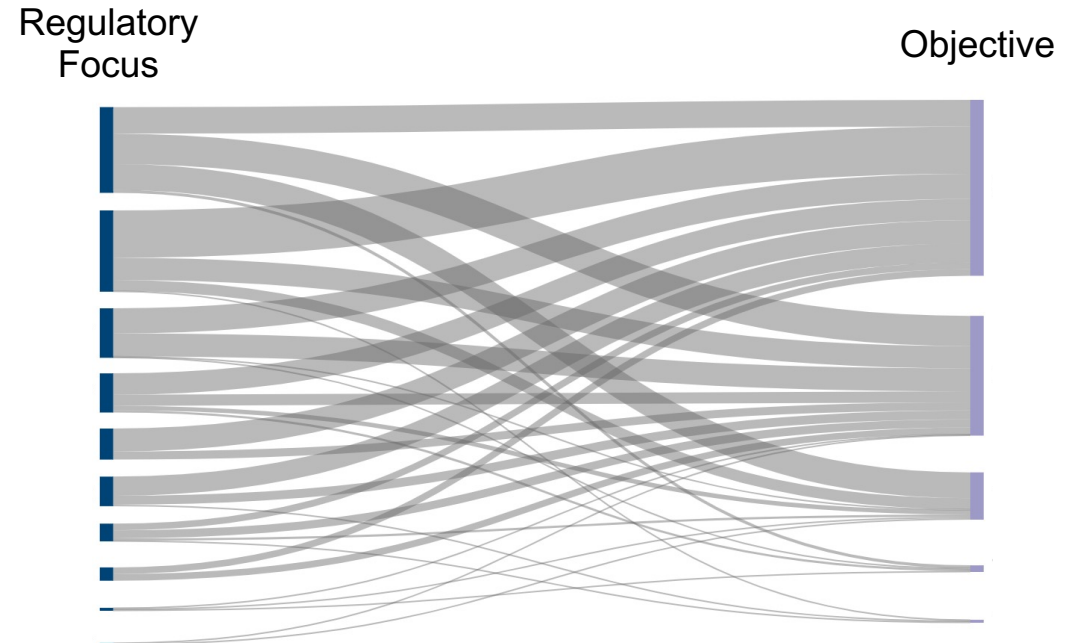
We performed **counts**, **mapping**, and **comparisons** with other energy policies to draw general observations about how energy equity might be identified across the country and how it may relate to other energy initiatives.

We graphically assessed relationships of count and relative significance between data. These flows link regulatory focus, objective, drivers, and outcomes.

Illustrative Graphics



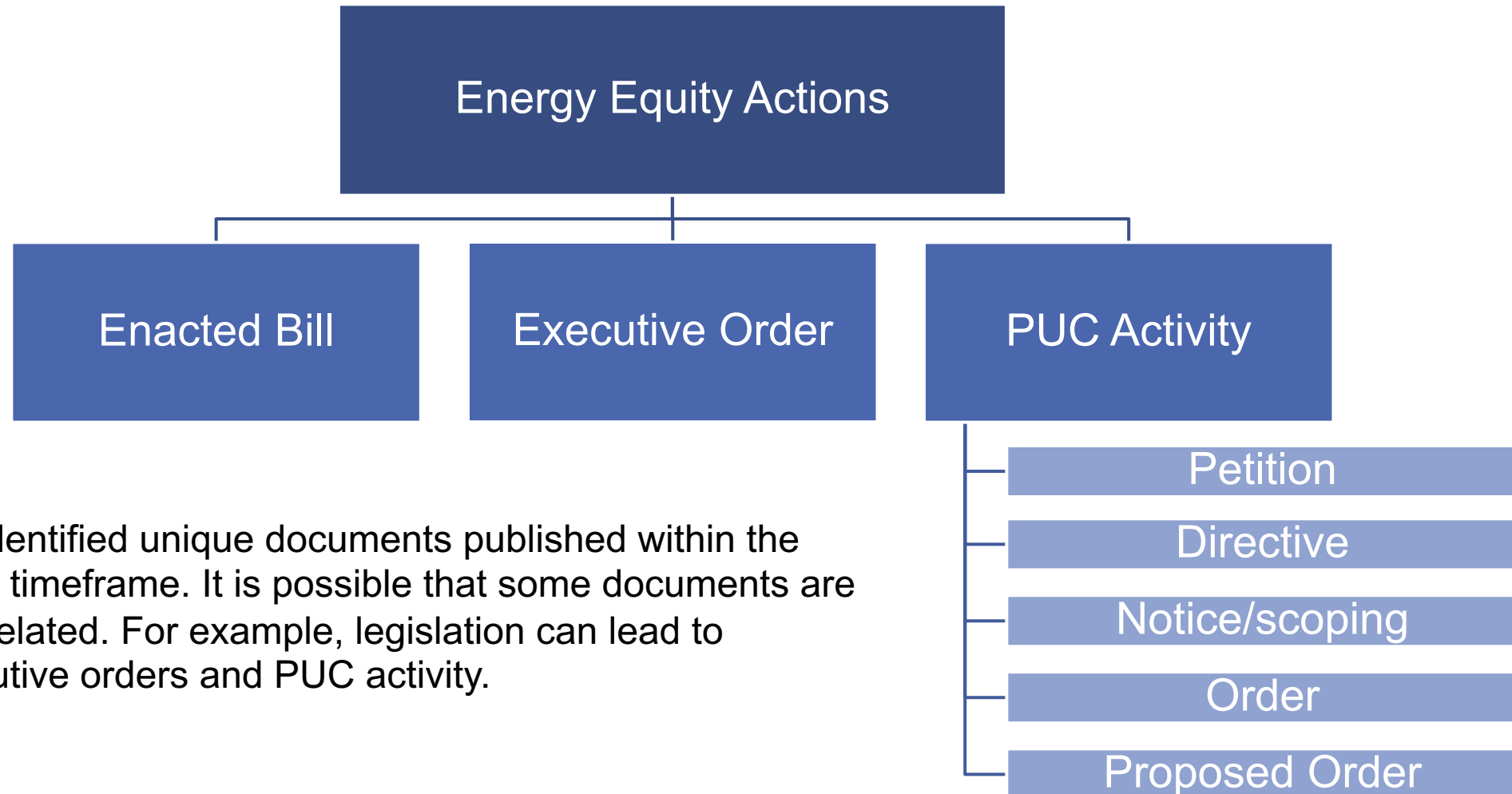
Illustrative Graphic



IV. Results

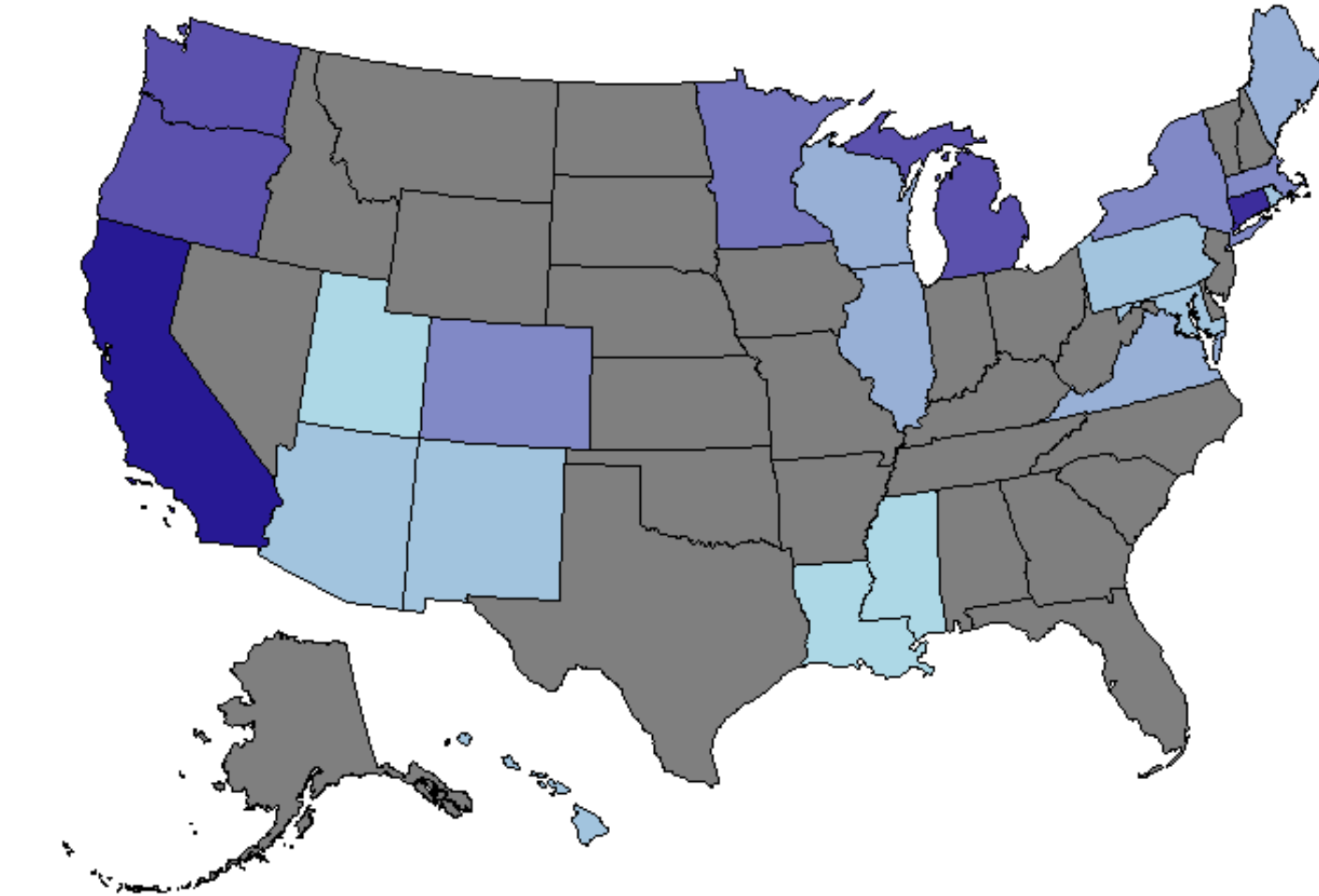
Who took action on energy equity?

Three categories of energy equity actions were defined, with additional details for PUC activities.



- We identified unique documents published within the study timeframe. It is possible that some documents are interrelated. For example, legislation can lead to executive orders and PUC activity.

Almost half of states took action on energy equity between January 2020 and July 2022.



Equity Actions

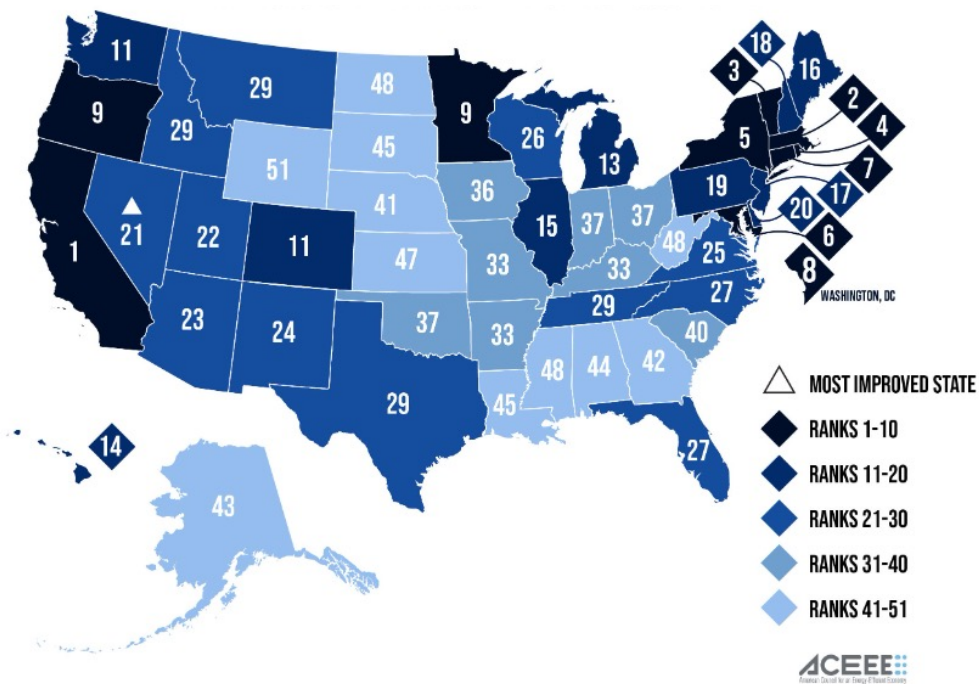
3	6	9	12	No Action
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- The screening process identified 95 equity actions taken from January 2020 to July 2022 across 22 states and Washington, D.C.
- Only 13 states took three or more equity actions:
 - CA
 - MN
 - CO
 - NY
 - CT
 - OR
 - IL
 - VA
 - MA
 - WA
 - ME
 - WI
 - MI

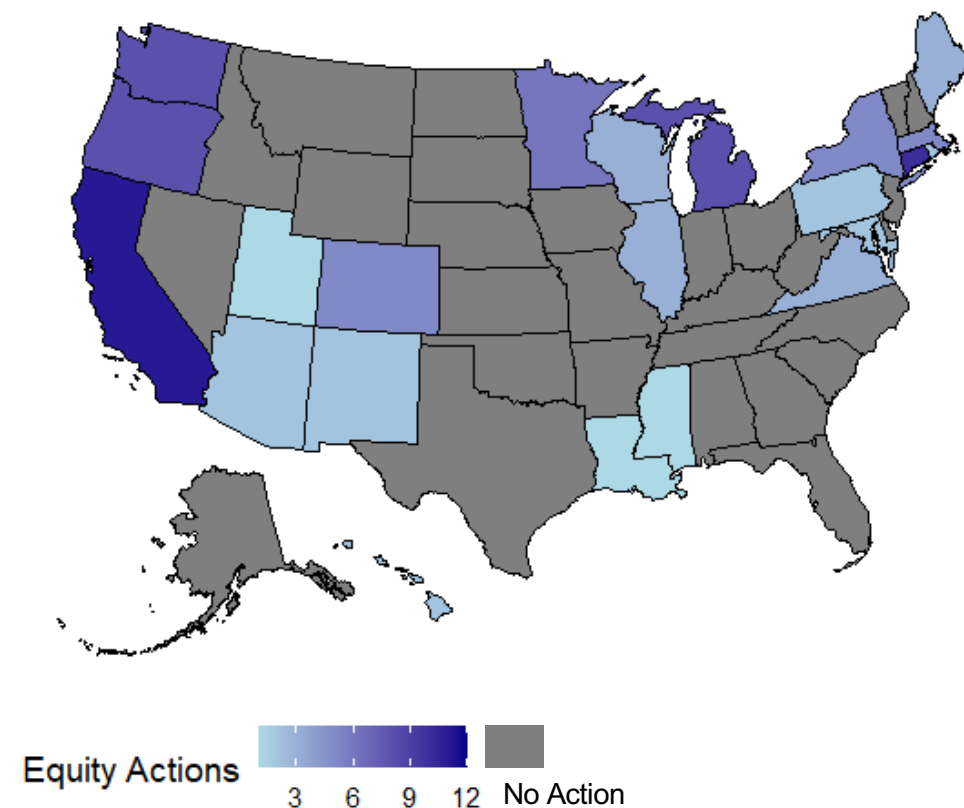
States that took equity action correlated with states that have historically taken energy efficiency action.

- States taking equity actions may align with states that have historically supported customer energy programs.
- A comparison between ACEEE State Energy Efficiency Scorecards and this study shows such possible correlation.
- However, there are notable cases of states with high performance in energy efficiency, but no observed action on energy equity (e.g., VT).

Energy efficiency scorecard rankings (ACEEE, 2020)

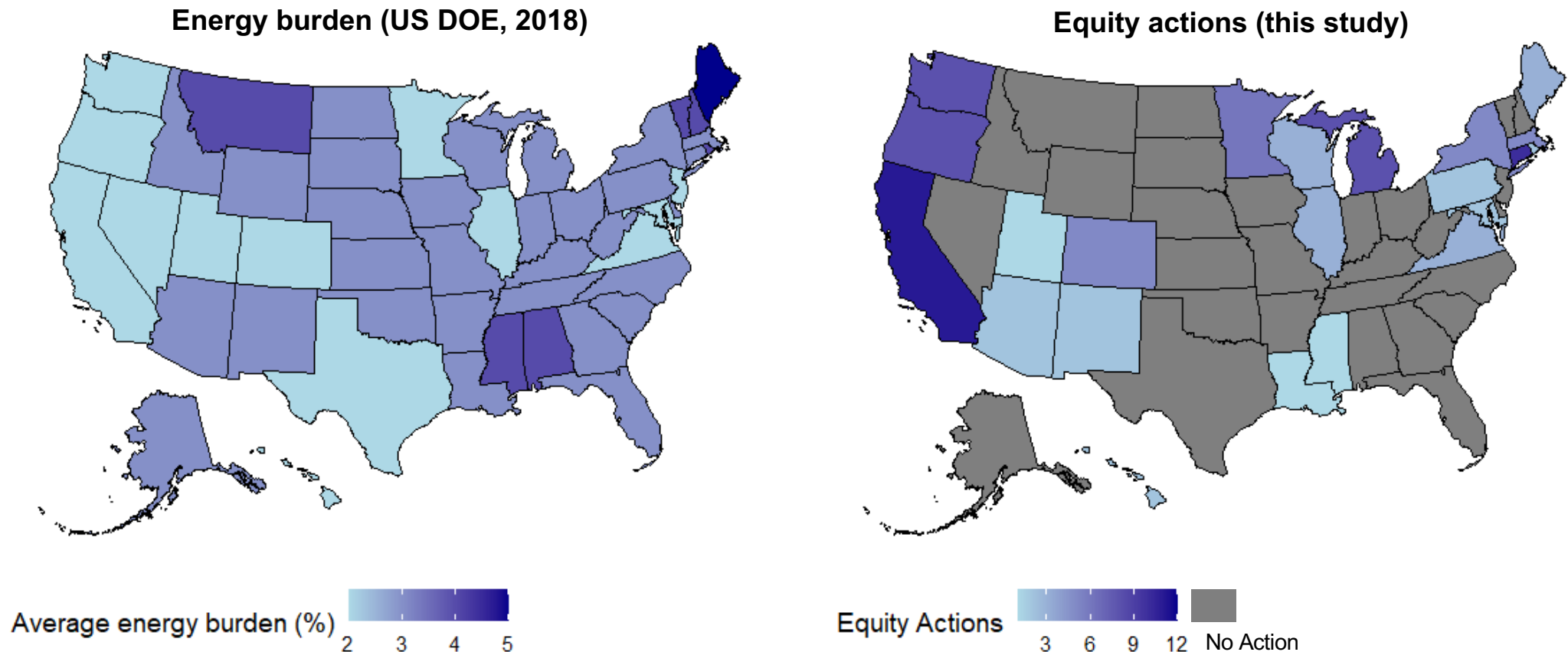


Equity actions (this study)



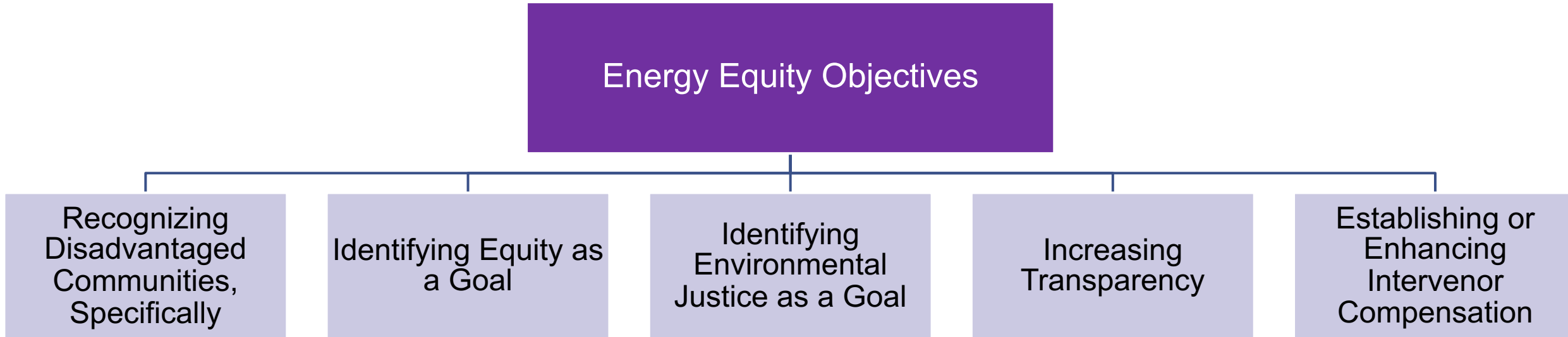
No strong correlation was found between average energy burden in a state in 2018 and the number of equity actions identified in this study.

- Energy burden is defined as the portion of annual household income spent on energy.
- State level energy burdens represented in this figure may not represent local levels of energy burdens, which could be considerably higher/lower (and may also correlate with equity actions taken at the state level).
- States with **high** average energy burdens may be taking energy equity actions as a response (e.g., ME).
- States with **low** average energy burden may be addressing this issue through their energy equity actions (e.g., CA, WA, and OR).

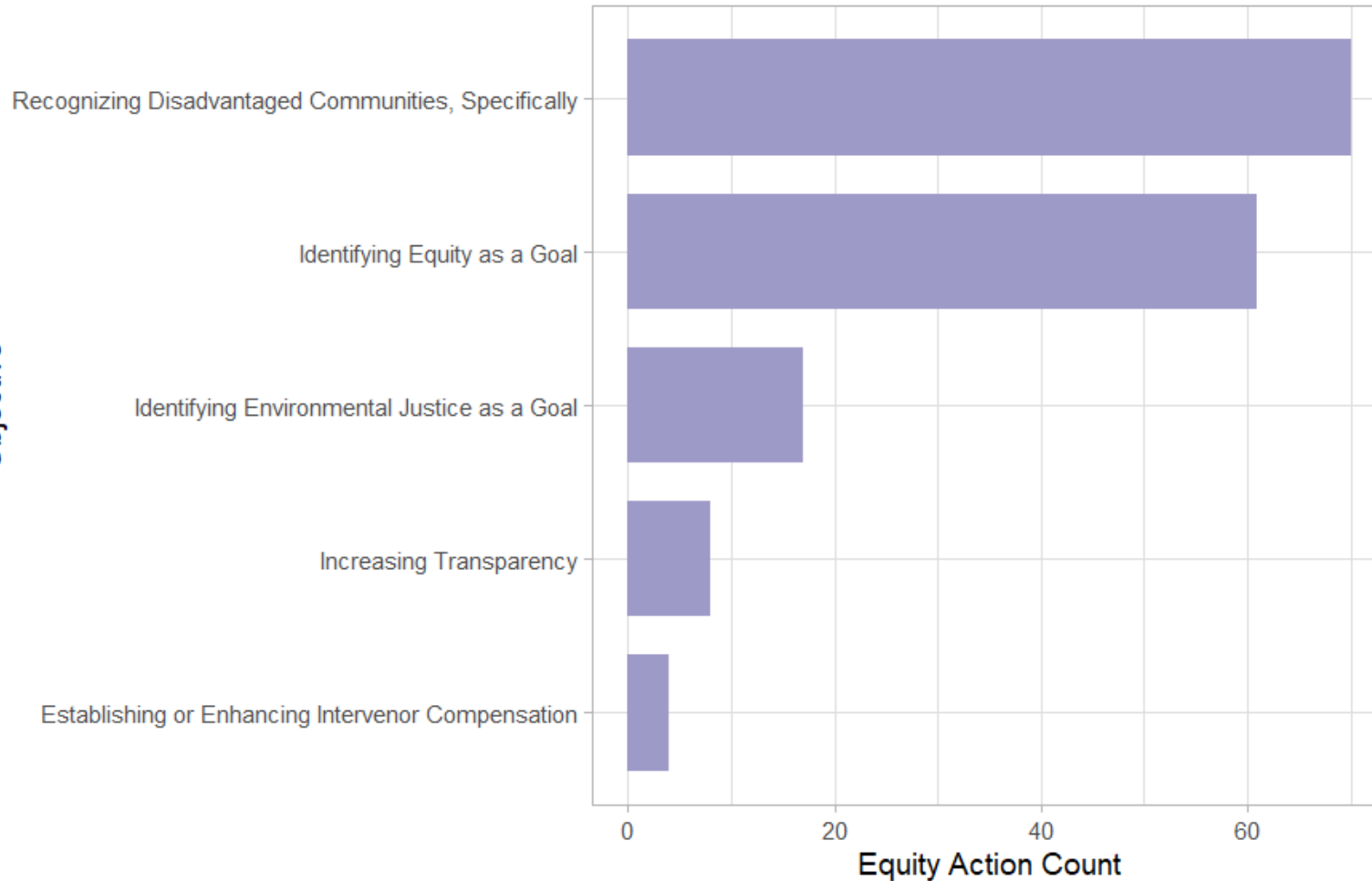


Which equity objectives were identified?

Five categories of energy equity objectives were defined.

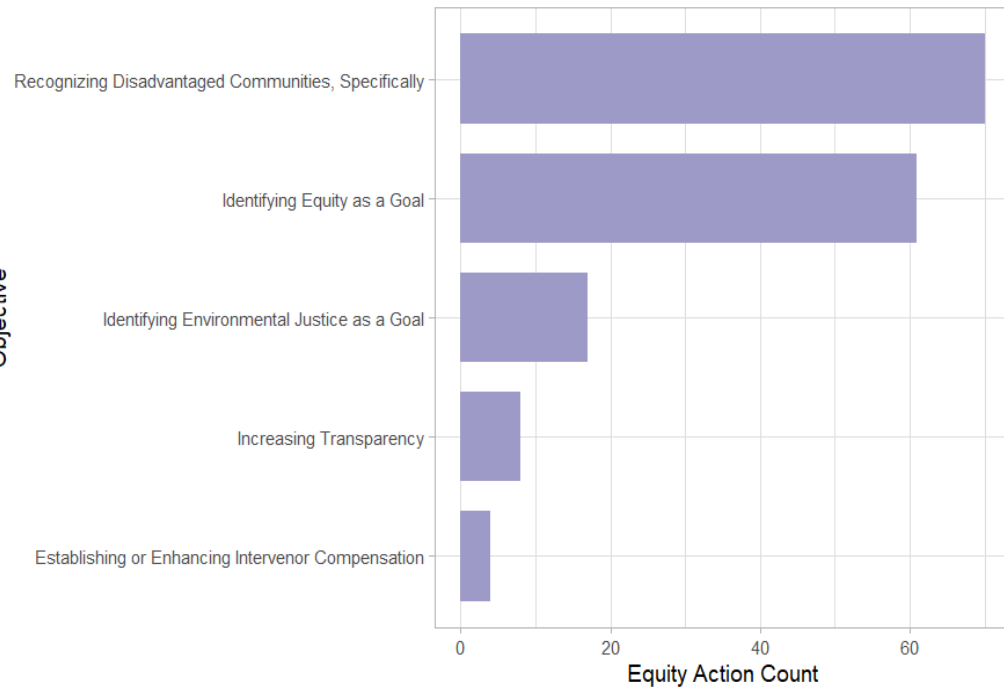


Recognition and equity/justice goals were the most common objectives.

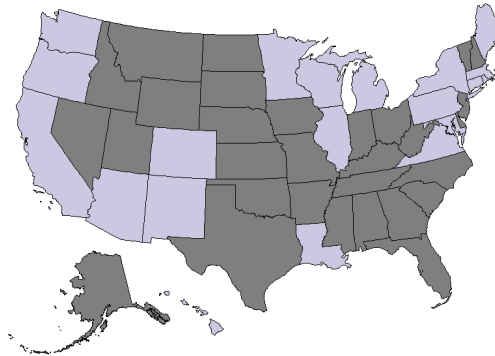


- Many of the 95 equity actions were associated with multiple objectives, leading to a total count of 160 action-objective combinations.
- *Recognizing Disadvantaged Communities, Specifically* was the most frequently identified objective, followed by *Identifying Equity as a Goal*. Together, these two objectives represented 82% of equity actions in our database.
- *Establishing or Enhancing Intervenor Compensation* was identified in only four actions.

Many states recognized disadvantaged communities as their main objective; fewer established/enhanced intervenor compensation.

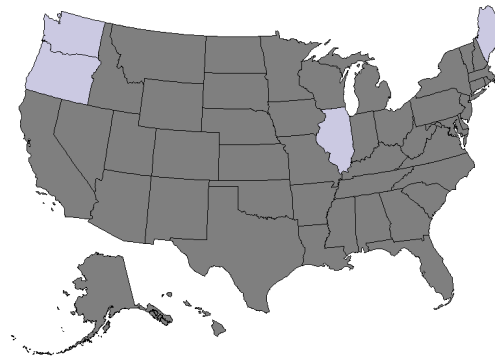


Recognizing Disadvantaged Communities, Specifically



- 87% of states with equity actions had an objective of *Recognizing Disadvantaged Communities, Specifically*. Due to its high prevalence and the fact that it appeared in one of the states considered to be in nascent stages (i.e., LA), this objective may be a more accessible entry into energy equity than other objectives.

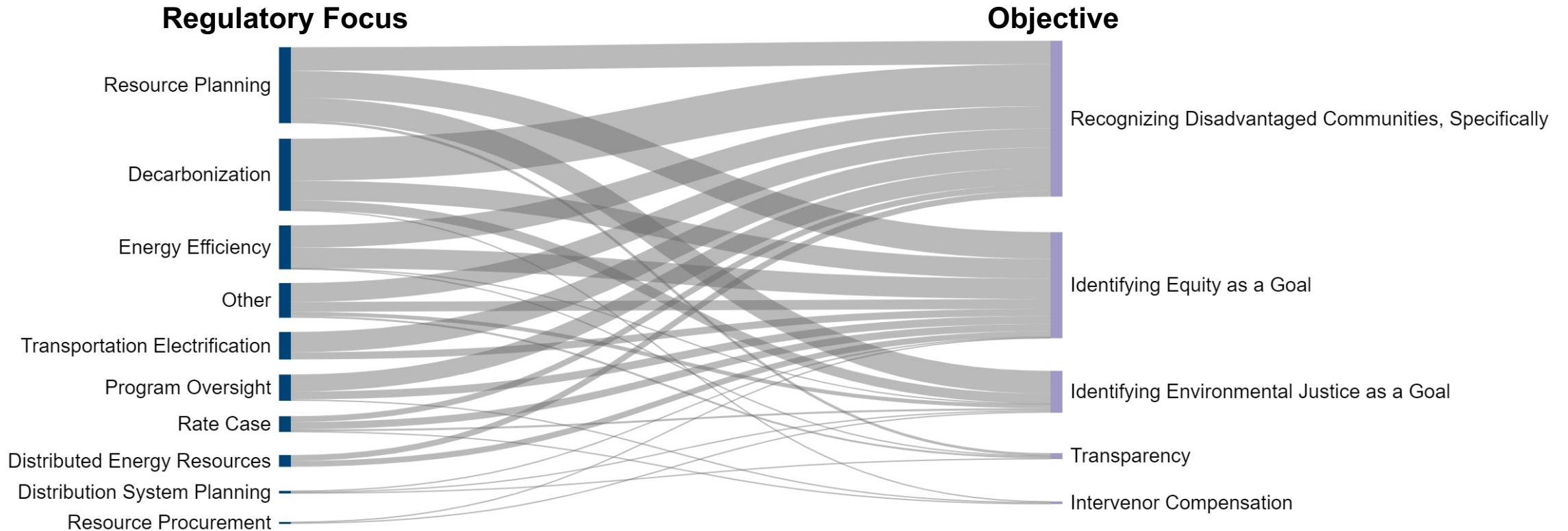
Establishing or Enhancing Intervenor Compensation



- The objective of *Establishing or Enhancing Intervenor Compensation* was identified least often among objectives, and by the fewest states.
- This could be for a number of reasons:
 - The phrasing of this objective is specific, whereas others are worded more broadly (e.g., could capture more intent).
 - Intervenor compensation could have been established and/or enhanced in actions taken before our search period (Jan 2020 – Jul 2022).

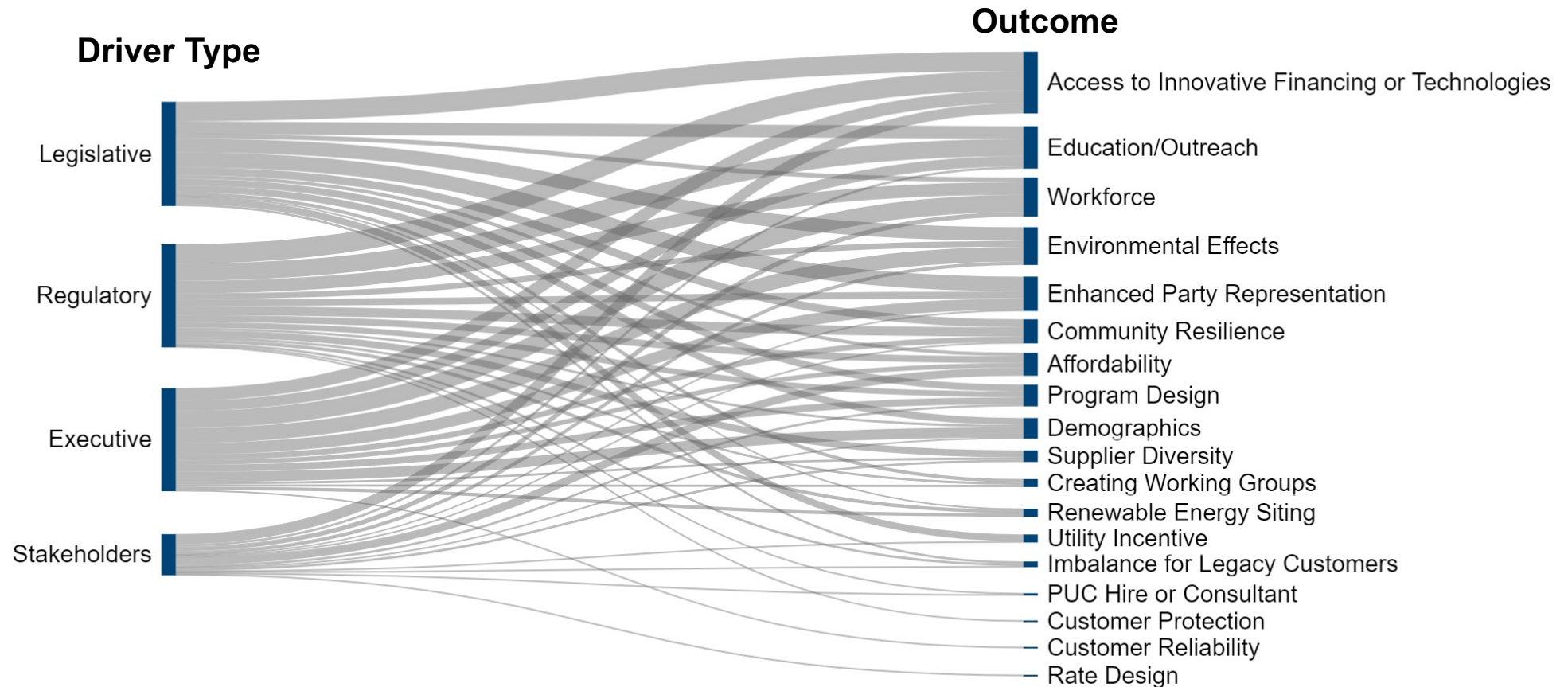
How were drivers, regulatory focus, objectives, and outcomes linked?

Energy equity was associated with a variety of regulatory focus areas.



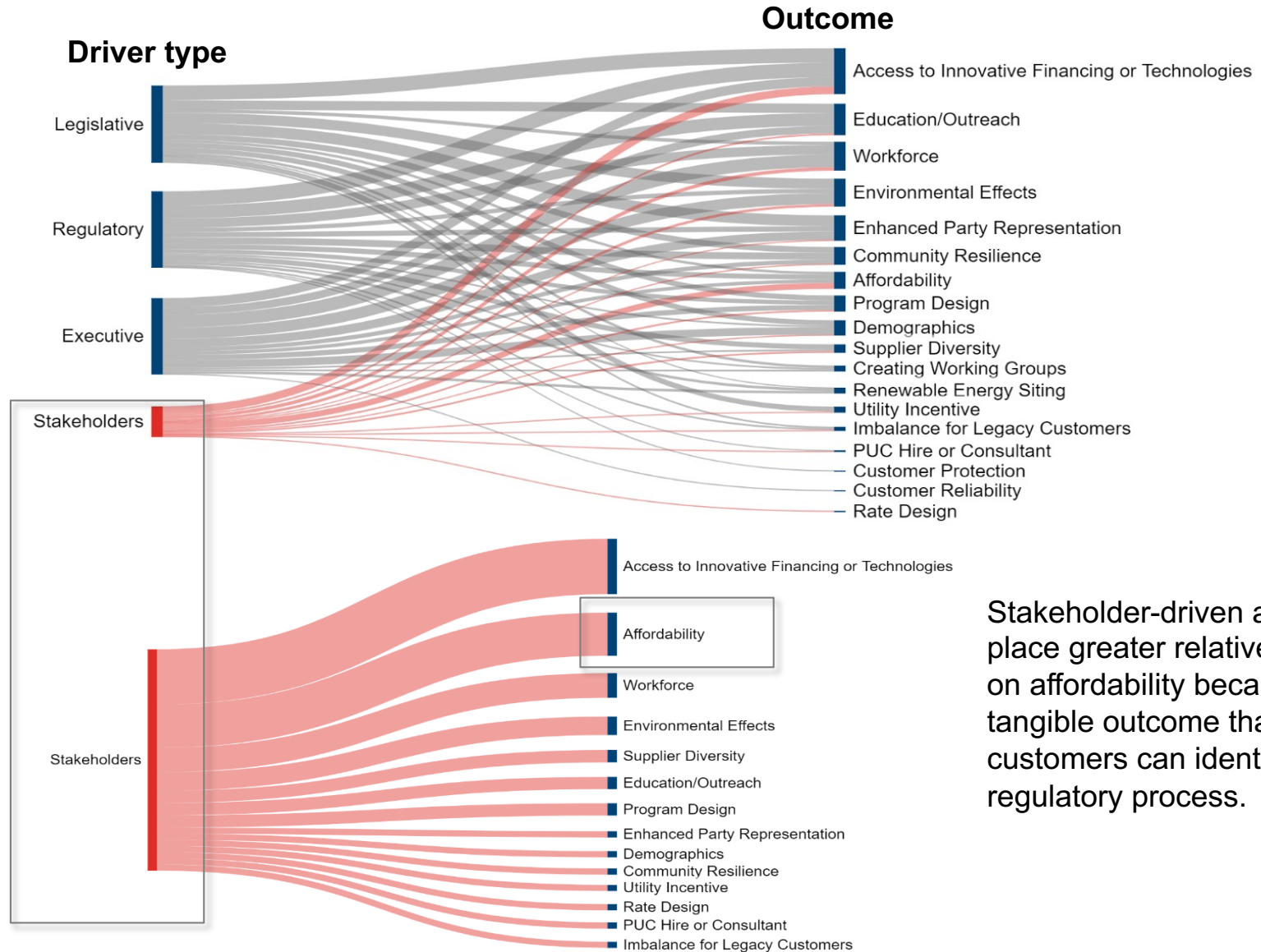
- *Resource Planning* and *Decarbonization* were the most frequently identified regulatory focus areas for energy equity action (left axis).
- The most frequently observed association was between *Decarbonization* and *Recognizing Disadvantaged Communities, Specifically*.
- Equity-focused *Resource Planning* activities were aimed **equally** at *Recognizing Disadvantaged Communities, Specifically*; *Identifying Equity as a Goal*; and *Identifying Environmental Justice as a Goal*.
- There were activities from **every regulatory focus area** that sought to *Identify Equity as a Goal*.

There was no leading driver of energy equity outcomes.



- The three governmental driver categories (legislative, executive, and regulatory) were roughly evenly divided across the sample.
- The executive branch seemed most focused on driving workforce outcomes, whereas both the legislative and regulatory branches were most focused on access to innovative financing and technologies.
- The strength of executive drivers may depend on the state. Utility commissioners in 36 states are governor-appointed, suggesting that regulatory actions in those states may respond more directly to executive action.
- 41% of the 410 observations in our sample did not include an identified driver. Those cases were omitted from this diagram.

Stakeholder-driven action prioritized affordability.

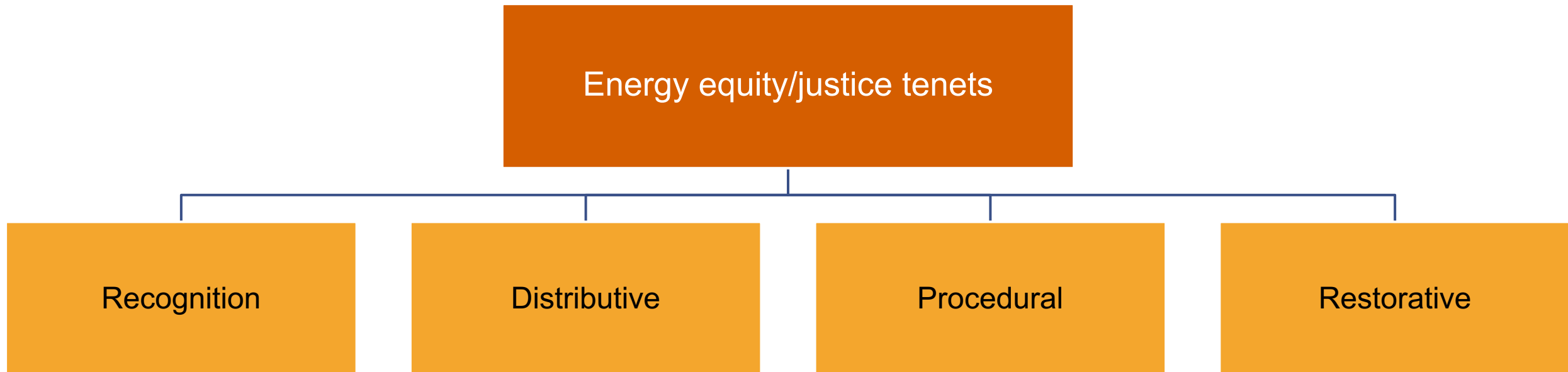


Legislation and executive action are often driven by stakeholders. In our analysis, we only examined where stakeholder recommendations or petitions led directly to an equity action. These stakeholder-driven actions were a minority, representing 12% of observations.

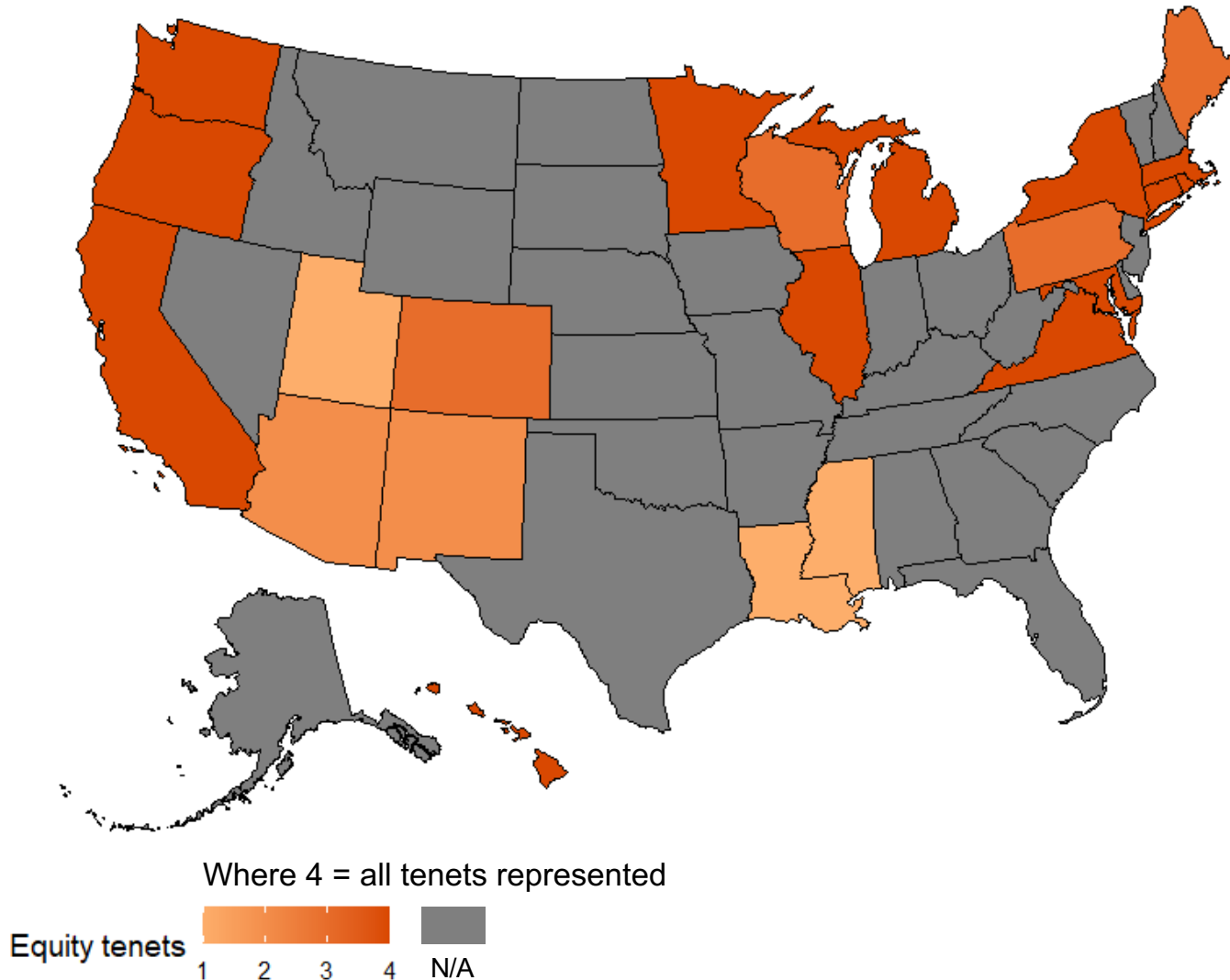
Stakeholder-driven actions may place greater relative importance on affordability because it is a tangible outcome that many customers can identify in the regulatory process.

Which energy equity/justice tenets were represented?

Four energy equity/justice tenets were defined.

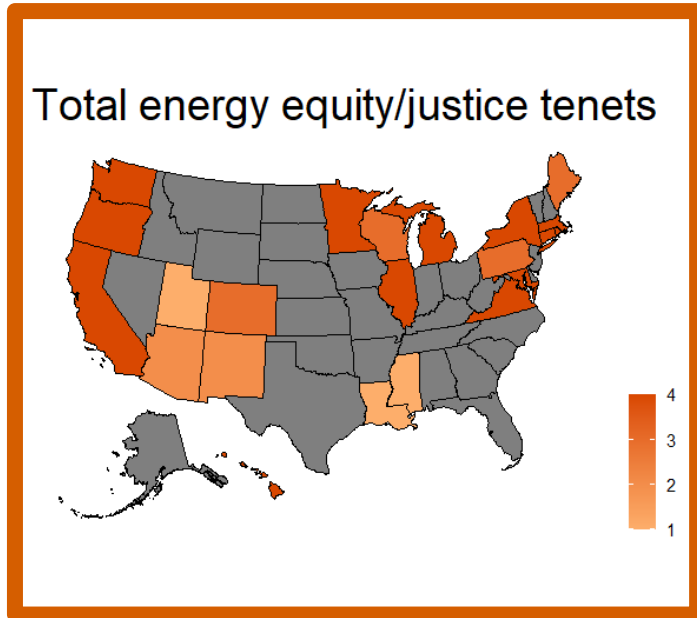


Most states that have taken energy equity actions addressed multiple energy equity/justice tenets.

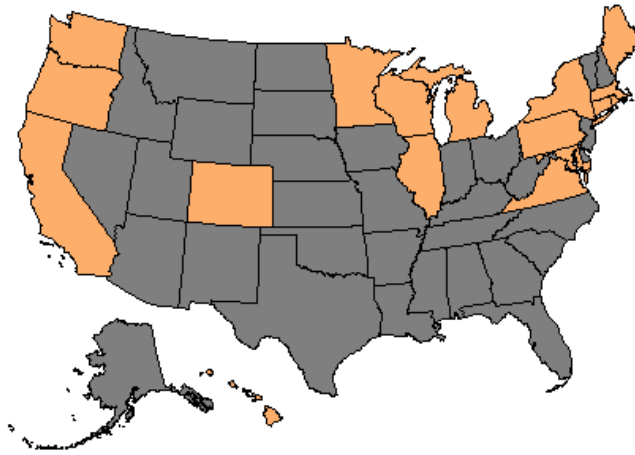


- 19 states and Washington D.C. pursued **more than one** energy equity/justice tenet in their actions.
- Four (4) states taking equity actions covered **three** of the **four** tenets.
- Over half (13) of states taking equity action covered **four** of the **four** tenets.

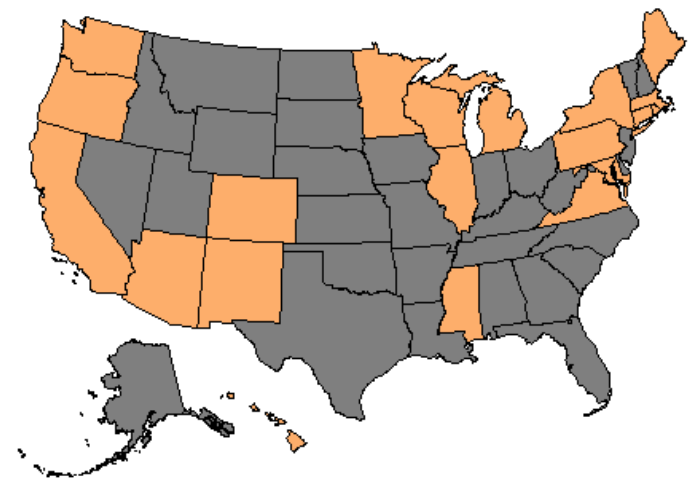
Almost every state in our sample included procedural or distributive tenets; fewer states focused on recognition or restorative.



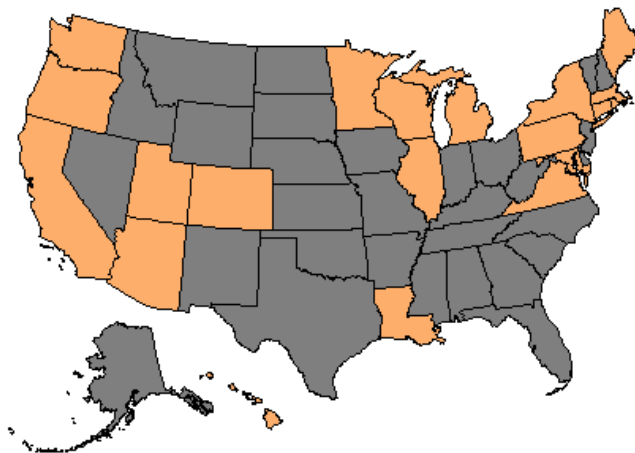
Recognition



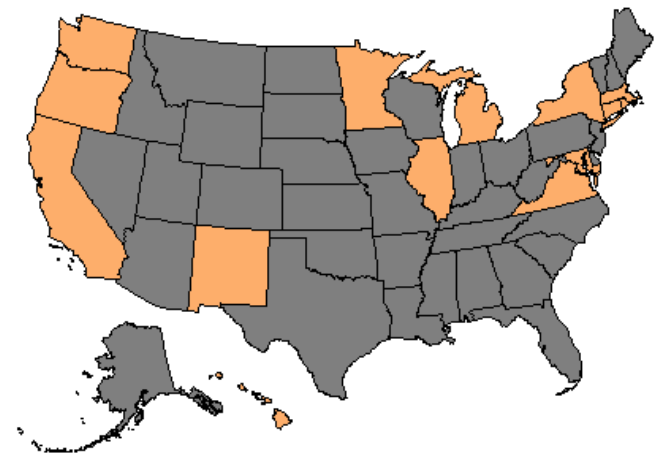
Distributive



Procedural



Restorative



- Energy equity/justice tenets often have synergies that were not necessarily captured in this mapping analysis.
- Four (4) states are addressing either Distributive, Procedural, and/or Recognition justice without addressing Recognition justice: AZ, LA, NM, and UT.

What metrics were identified?

Energy equity metrics were not harmonized (e.g., affordability and energy burden appeared multiple times in different forms).

State	Specific metrics identified
CA	<ul style="list-style-type: none"> Hours at minimum wage required to pay for essential utility services Vulnerability index of various communities in California Ratio of essential utility service charges to non-disposable household income
CT	<ul style="list-style-type: none"> “A metric...to track and increase participation in energy efficiency programs among customers that are enrolled in the Matching Payment Program”
IL	<ul style="list-style-type: none"> “Equity/affordability”
MA	<ul style="list-style-type: none"> “An equity index metric reporting energy efficiency, demand response, heating electrification, and electric vehicle infrastructure investments in environmental justice communities” Community solar enrollment
OR	<ul style="list-style-type: none"> Energy burden Disconnections for residential customers and disconnections for small commercial customers Supplier diversity: contract spend for contractors and subcontractors Organizations engaged and their community representation Numbers and nature of outreach efforts in energy-burdened communities EV ownership per capita (per census tract) Amount of money spent on underserved communities
WA	<ul style="list-style-type: none"> Energy burden Community ownership of resources Resiliency Nonenergy benefits Public health

V. Conclusions and Future Work

Conclusion 1: This database of equity-focused executive, legislative, and regulatory actions on electricity and natural gas can provide foundational data for state-level or topic-specific case studies.

A total of **95 actions** were identified across **22 states** and **Washington D.C.**

The database contains **19 variables** including state, docket abstract, URLs, drivers, and metrics

The resulting sample contains **410 observations** that describe unique processes and outcomes

We provide source documentation (i.e., URLs) for dockets and specific actions

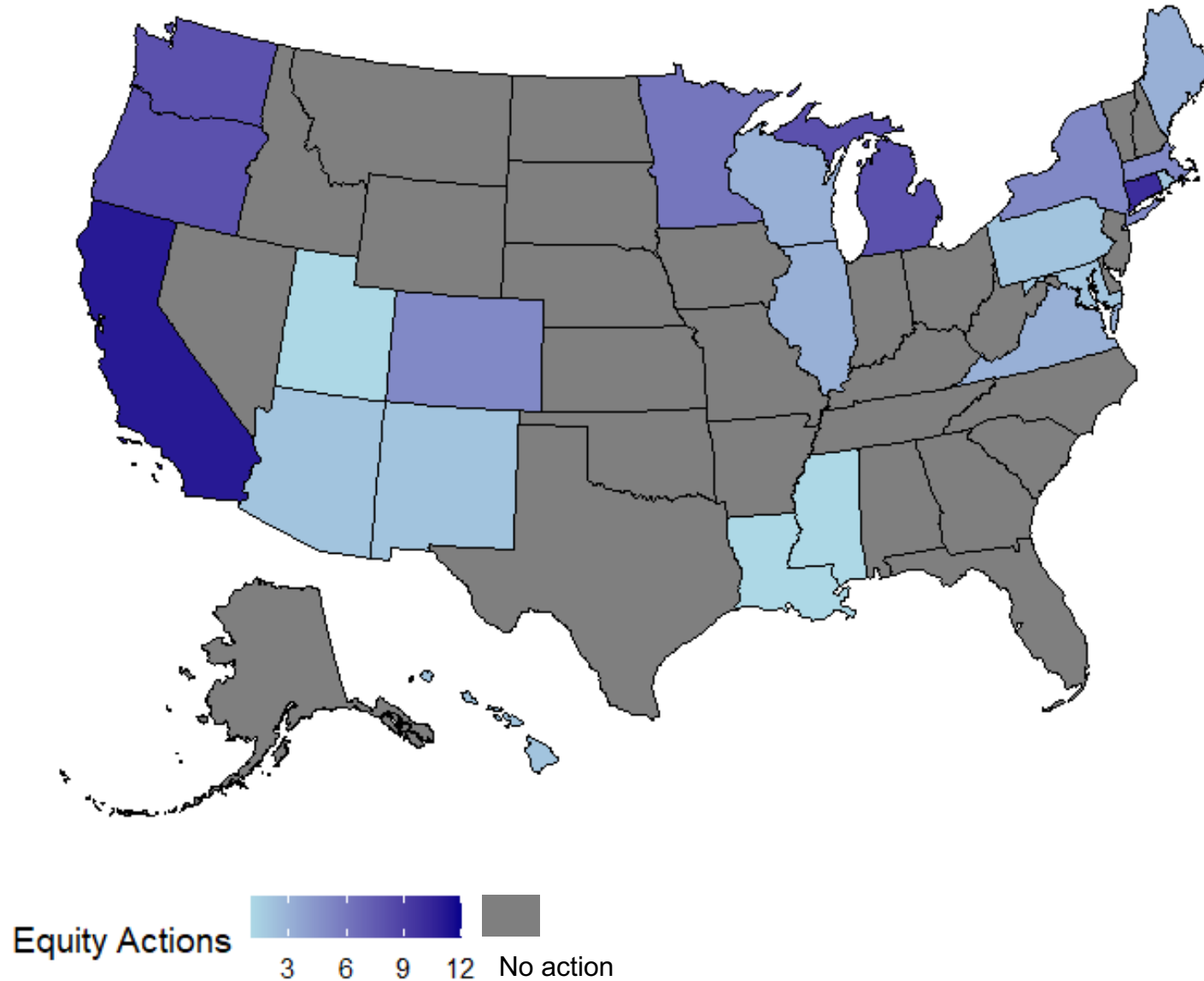
The Appendix provides details of terminology changes we made between the database and this report

We include summaries and extracts from the original documents

Screen Capture of Database

State	Authority	Energy Type	Docket Abstract	Docket Number	Docket Keywords	Docket URL	Docket UUID	Action Date	Action Type	Action URL	Action UUID	Driver	Driver Description	Process	Process Description	Outcome	Outcome Description	Metrics
AZ	Docket	Electricity	COVID-19 Service Dis	AU-00000A-20-0050	Program Oversight	https://e9rada	5698E125A2394f	05/12/2020	Directive	https://e9rada	02BAF28FB7344F56874A59450748C185			Recognizing Disad	Arizona Commission	Distribution Invest	Commissioner Kennedy questioned ho	
AZ	Docket	Electricity	IOU Clean Energy Tra	E-00000A-22-0149	Resource Planning	http://e9radar	49D766A024CA4	06/07/2022	Directive	https://e9rada	82B40041D67F4558810D79CABE1F6CCF			Transparency	The office of Commi	Education/Outreach	Commissioner Marquez Peterson state	
CA	Agency	Electricity & Natu	Equity in the 2022 In	21-IEPR-04	Resource Planning	http://e9radar	23EF8C41994544	04/22/2022	Notice/Scoping	https://e9rada	A4E0A1C30D164	Executive, l	EO B-30-15 established	Identifying Equity	"The 2022 IEPR Upd	Access to Innovati	The CEC will also revisit the Energy Equi	
CA	Agency	Electricity & Natu	Equity in the 2022 In	21-IEPR-04	Resource Planning	http://e9radar	23EF8C41994544	04/22/2022	Notice/Scoping	https://e9rada	A4E0A1C30D164	Executive, l	EO B-30-15 established	Identifying Enviror	The CEC's scoping o	Access to Innovati	The CEC will also revisit the Energy Equi	
CA	Agency	Electricity & Natu	Equity in the 2022 In	21-IEPR-04	Resource Planning	http://e9radar	23EF8C41994544	04/22/2022	Notice/Scoping	https://e9rada	A4E0A1C30D164	Executive, l	EO B-30-15 established	Identifying Equity	"The 2022 IEPR Upd	Community Resilien	The CEC will revisit Energy Equity Indica	
CA	Agency	Electricity & Natu	Equity in the 2022 In	21-IEPR-04	Resource Planning	http://e9radar	23EF8C41994544	04/22/2022	Notice/Scoping	https://e9rada	A4E0A1C30D164	Executive, l	EO B-30-15 established	Identifying Enviror	The CEC's scoping o	Community Resilien	The CEC will revisit Energy Equity Indica	
CA	Agency	Electricity & Natu	Equity in the 2022 In	21-IEPR-04	Resource Planning	http://e9radar	23EF8C41994544	04/22/2022	Notice/Scoping	https://e9rada	A4E0A1C30D164	Executive, l	EO B-30-15 established	Identifying Enviror	The CEC's scoping o	Program Design	The structure for a framework was outl	
CA	Agency	Electricity & Natu	Equity in the 2022 In	21-IEPR-04	Resource Planning	http://e9radar	23EF8C41994544	04/22/2022	Notice/Scoping	https://e9rada	A4E0A1C30D164	Executive, l	EO B-30-15 established	Identifying Equity	"The 2022 IEPR Upd	Education/Outreach	The framework will include recommend	
CA	Agency	Electricity & Natu	Equity in the 2022 In	21-IEPR-04	Resource Planning	http://e9radar	23EF8C41994544	04/22/2022	Notice/Scoping	https://e9rada	A4E0A1C30D164	Executive, l	EO B-30-15 established	Identifying Enviror	The CEC's scoping o	Education/Outreach	The framework will include recommend	
CA	Agency	Electricity & Natu	Equity in the 2022 In	21-IEPR-04	Resource Planning	http://e9radar	23EF8C41994544	04/22/2022	Notice/Scoping	https://e9rada	A4E0A1C30D164	Executive, l	EO B-30-15 established	Identifying Enviror	The CEC's scoping o	Enhanced Party Rep	"The Lead Commissioner encourages th	
CA	Agency	Electricity & Natu	Equity in the 2022 In	21-IEPR-04	Resource Planning	http://e9radar	23EF8C41994544	04/22/2022	Notice/Scoping	https://e9rada	A4E0A1C30D164	Executive, l	EO B-30-15 established	Identifying Equity	"The 2022 IEPR Upd	Enhanced Party Rep	"The Lead Commissioner encourages th	
CA	Docket	Electricity	PG&E Disadvantage	A.22-05-022	Distributed Energy R	http://e9radar	FD53678813044	05/31/2022	Petition	https://e9rada	FF472141DBE54f	Prior Comm	In Decision 18-06-027,	Recognizing Disad	PG&E's proposed di	Access to Innovati	The disadvantaged communities (DAC)	
CA	Docket	Electricity & Natu	Energy Efficiency Por	R.13-11-005	Energy Efficiency	http://e9radar	F63BD3BEED204	05/26/2021	Order	https://e9rada	EEA5246777514E	Stakehold	This rulemaking has be	Identifying Equity	In the CPUC's 2021	Affordability	The objectives of equit	Directive to dev

Conclusion 2: Almost half of states (22 + DC) took action on energy equity.

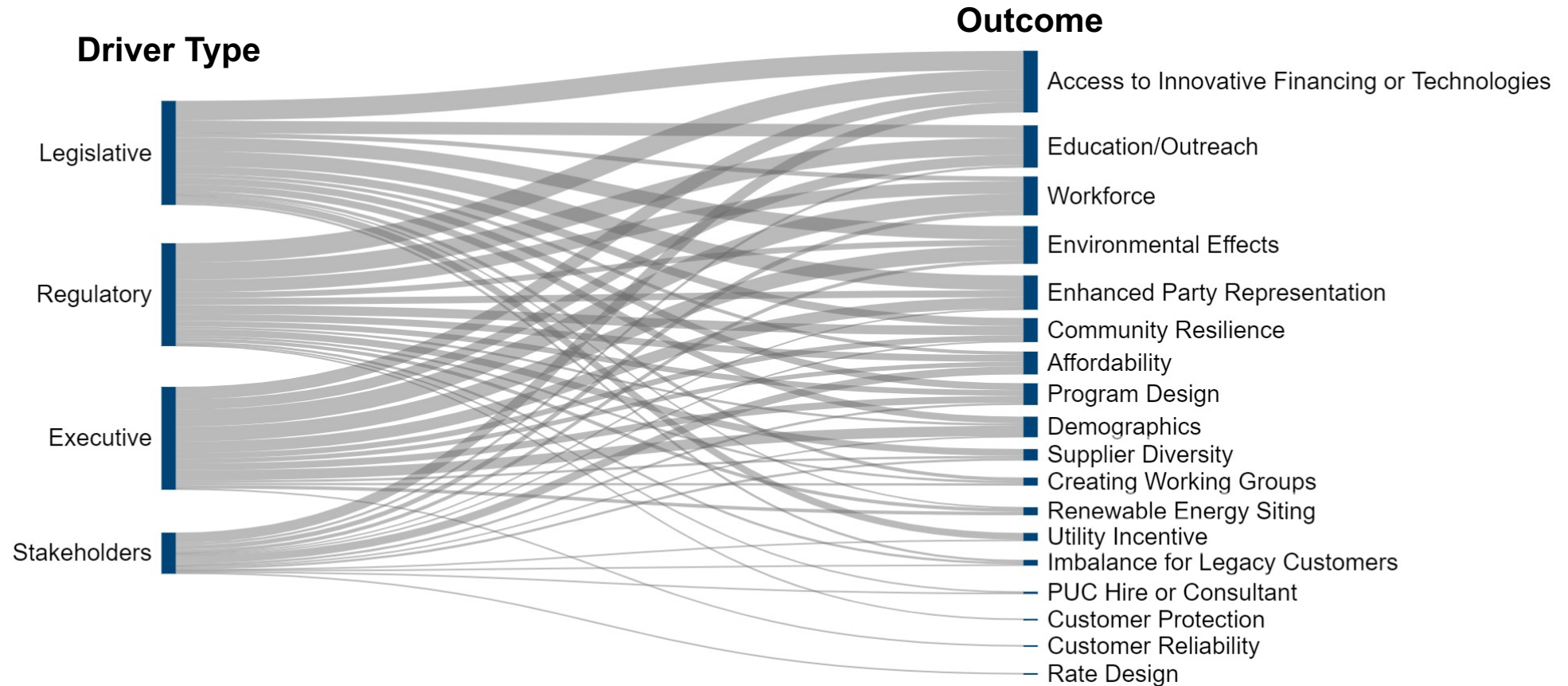


Conclusion 3: It remains to be seen what combination of equity actions, objectives, and metric-setting will have the greatest effect in increasing energy equity in a given state.

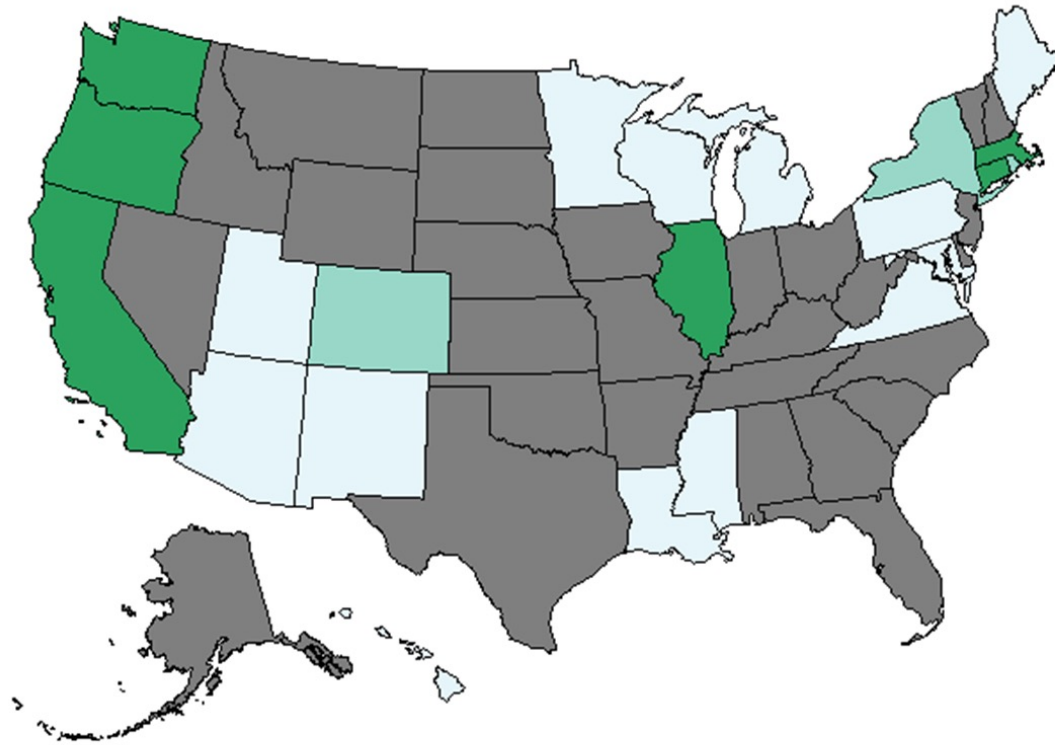
Table of states that have taken three (3) or more equity actions, as well as the number of objectives and a description of metrics.

State	# of Actions	# of Objectives	Specific metrics identified
CA	11	3	<ul style="list-style-type: none"> Hours at minimum wage required to pay for essential utility services Vulnerability index of various communities in California Ratio of essential utility service charges to non-disposable household income
CT	10	4	“A metric...to track and increase participation in EE programs among customers that are enrolled in the Matching Payment Program”
MI	8	4	N/A
OR	8	4	<ul style="list-style-type: none"> Energy burden Disconnections for residential customers and disconnections for small commercial customers Supplier diversity: contract spend for contractors and subcontractors Organizations engaged and their community representation Numbers and nature of outreach efforts in energy-burdened communities EV ownership per capita (per census tract) Amount of money spent on underserved communities
WA	8	4	<ul style="list-style-type: none"> Energy burden Community ownership of resources Resiliency Nonenergy benefits Public health
MN	6	3	N/A
MA	5	4	<ul style="list-style-type: none"> “An equity index metric reporting energy efficiency, demand response, heating electrification, and electric vehicle infrastructure investments in environmental justice communities” Community solar enrollment
CO	5	2	N/A
NY	5	2	N/A
IL	3	3	“Equity/affordability”
ME	3	5	N/A
VA	3	2	N/A
WI	3	2	N/A

Conclusion 4: There was no leading driver of energy equity outcomes.



Conclusion 6: Metrics were not widely implemented or harmonized.



■ Equity actions with metric(s) identified
 ■ Equity actions with metric(s) directed/pending
 ■ Equity actions without metric(s) identified or directed/pending
 ■ N/A

State	Specific metrics identified
CA	<ul style="list-style-type: none"> Hours at minimum wage required to pay for essential utility services Vulnerability index of various communities in California Ratio of essential utility service charges to non-disposable household income
CT	<ul style="list-style-type: none"> “A metric...to track and increase participation in energy efficiency programs among customers that are enrolled in the Matching Payment Program”
IL	<ul style="list-style-type: none"> “Equity/affordability”
MA	<ul style="list-style-type: none"> “An equity index metric reporting energy efficiency, demand response, heating electrification, and electric vehicle infrastructure investments in environmental justice communities” Community solar enrollment
OR	<ul style="list-style-type: none"> Energy burden Disconnections for residential customers and disconnections for small commercial customers Supplier diversity: contract spend for contractors and subcontractors Organizations engaged and their community representation Numbers and nature of outreach efforts in energy-burdened communities EV ownership per capita (per census tract) Amount of money spent on underserved communities
WA	<ul style="list-style-type: none"> Energy burden Community ownership of resources Resiliency Nonenergy benefits Public health

Future Work

- **Providing a closer look at equity objectives:** Currently, our database assigns relatively broad language for some of our objectives and specific language for other objectives. In a next iteration of the database, it would be valuable to delve into the dockets further and provide more specific language to describe the energy equity objectives.
- **Detailing the conception and history of equity actions:** Currently, our database identifies whether the equity action is a result of an executive, legislative, regulatory, or stakeholder driver. These relationships were complex and difficult to identify for all of our observations (i.e., 41% of our 410 observations did not include a driver). We suggest looking into and documenting the full chain of events and docket history by delving through the source documentation, including those that came before the start of our study period (January 2020) as well as those coming from state energy offices (SEOs).
- **Assessing continuation of energy equity actions among states:** Energy efficiency programs, intervenor compensation, and disconnection moratoriums have been implemented in states far before the start of our study period. In the next iteration of the database, it would be valuable to understand (1) how long this programming has existed, (2) which states are emphasizing these current practices in light of equity considerations, (3) which states are addressing equity in entirely new ways, and (4) which states are pursuing energy equity through their SEOs.
- **Examining the tradeoffs related to metric harmonization:** Only a few states have implemented metrics. Among the states that have developed them, their metrics tended to reflect the local legislative and regulatory circumstances. Future research should address the balance of harmonizing metrics across states and developing metrics that shed light on specific, localized phenomena.
- **Defining comprehensive, durable energy equity action:** By collaborating with the DOE Equity Cohort and other stakeholders, insights from this equity database may be useful in informing a set of best practices for increasing energy equity across the US (e.g., standardizing objectives and linking them with trackable outcomes/metrics).

VI. References

References

- ACEEE. (2020). *The 2020 State Energy Efficiency Scorecard*. American Council for an Energy-Efficient Economy. <https://www.aceee.org/research-report/u2011>
- NARUC. (2021). *State Approaches to Intervenor Compensation*. National Association of Regulatory Utility Commissioners. <https://pubs.naruc.org/pub/B0D6B1D8-1866-DAAC-99FB-0923FA35ED1E>
- US DOE. (2018). *Low-Income Energy Affordability Data Tool*. U.S. Department of Energy. <https://www.energy.gov/eere/slsc/maps/lead-tool>

VII. Appendix

Database Organization [1/2]

All fields and sub-fields collected in the database

Action	Driver	Regulatory Focus	Objective	Outcome
<ul style="list-style-type: none">• PUC Activity<ul style="list-style-type: none">○ Notice/scoping○ Order○ Directive○ Petition○ Proposed order• Enacted bill• Executive order• Agency plan	<ul style="list-style-type: none">• Executive• Legislative• Regulatory• Stakeholders	<ul style="list-style-type: none">• Resource planning• Decarbonization• Energy efficiency• Transportation electrification• Program oversight• Rate case• Distributed energy resources• Distribution system planning• Other	<ul style="list-style-type: none">• Recognizing disadvantaged communities, specifically• Identifying equity as a goal• Identifying environmental justice as a goal• Transparency• Intervenor compensation	<ul style="list-style-type: none">• Access to innovative financing or tech• Education/outreach• Workforce• Environmental effects• Enhanced party representation• Community resilience• Affordability• Program design• Supplier diversity• Creating working groups• RE siting• Utility incentive• Imbalance for legacy customers• PUC hire or consultant• Customer protection• Customer reliability• Rate design• Demographics• Distribution investments• Enhanced engagement

Database Organization [2/2]

Variable Name Changes

LBNL and PNNL made two variable name changes to better align with the research questions and exploratory analysis methods.

Original E9 Insights Database	LBNL and PNNL Analysis
Process	Objective
Keyword	Regulatory Focus

Tenet Organization

LBNL and PNNL Assigned certain Outcomes into each Energy Equity/Justice Tenet.

Distributive	Recognition	Procedural	Restorative
<ul style="list-style-type: none"> Access to innovative financing or technologies Affordability Customer reliability Distribution investments Rate design Utility incentive 	<ul style="list-style-type: none"> Demographics Program design PUC hire or consultant Supplier diversity Workforce 	<ul style="list-style-type: none"> Creating working groups Education/outreach Enhanced party representation Enhanced engagement 	<ul style="list-style-type: none"> Environmental effects Customer protection Community resilience Renewable energy siting Imbalance for legacy customers

Driver Re-categorization

LBNL and PNNL organized the original drivers into four categories:

Driver (Raw)	Driver (Updated)
Executive	1. Executive
Legislation	2. Legislative
Commission Initiative	3. Regulatory
Rules	3. Regulatory
Prior Commission Order	3. Regulatory
Settlement	3. Regulatory
Stakeholder Recommendations	4. Stakeholders
Petition	4. Stakeholders

Example of Driver Organization

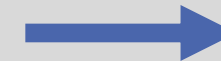
1. Separate out distinct drivers

State	Driver
AZ	N/A
CT	Executive, Commission Initiative



2. Re-categorize drivers

State	Driver
AZ	N/A
CT	Executive
CT	Commission Initiative



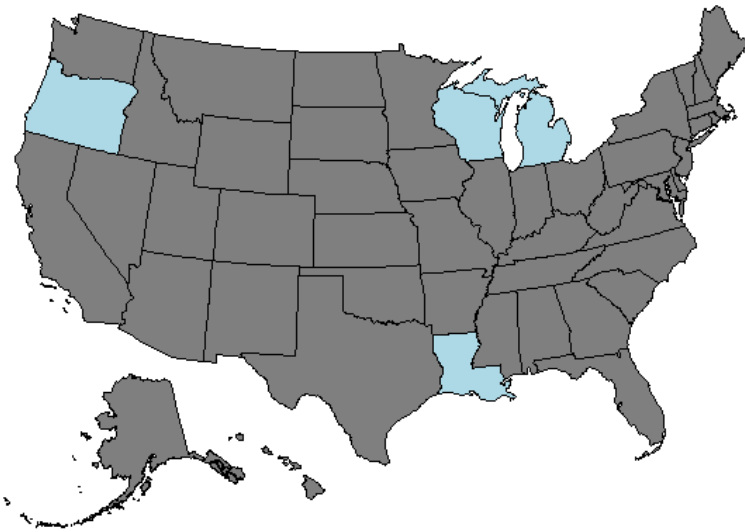
3. Omit entries without drivers for analysis

State	Driver
CT	Executive
CT	Regulatory

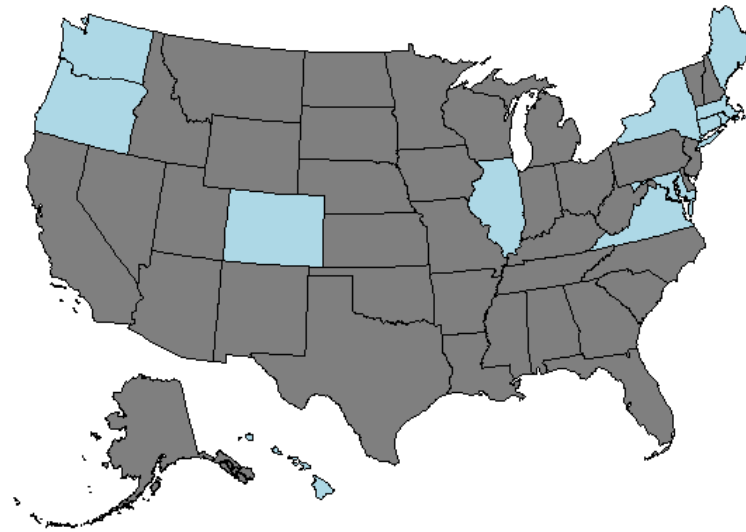
Most states took equity action through PUC Activity

- PUC activity consists of a notice/scoping, order, proposed order, directive, or petition undertaken by a public utility commission.
- PUC activity may be generated in response to executive orders or enacted bills.

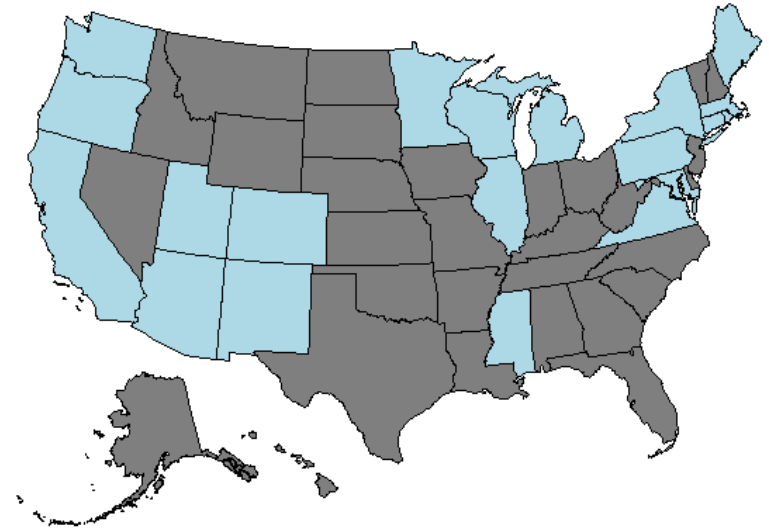
Executive Order



Enacted Bill



PUC Activity



Most outcomes did not have corresponding metrics

