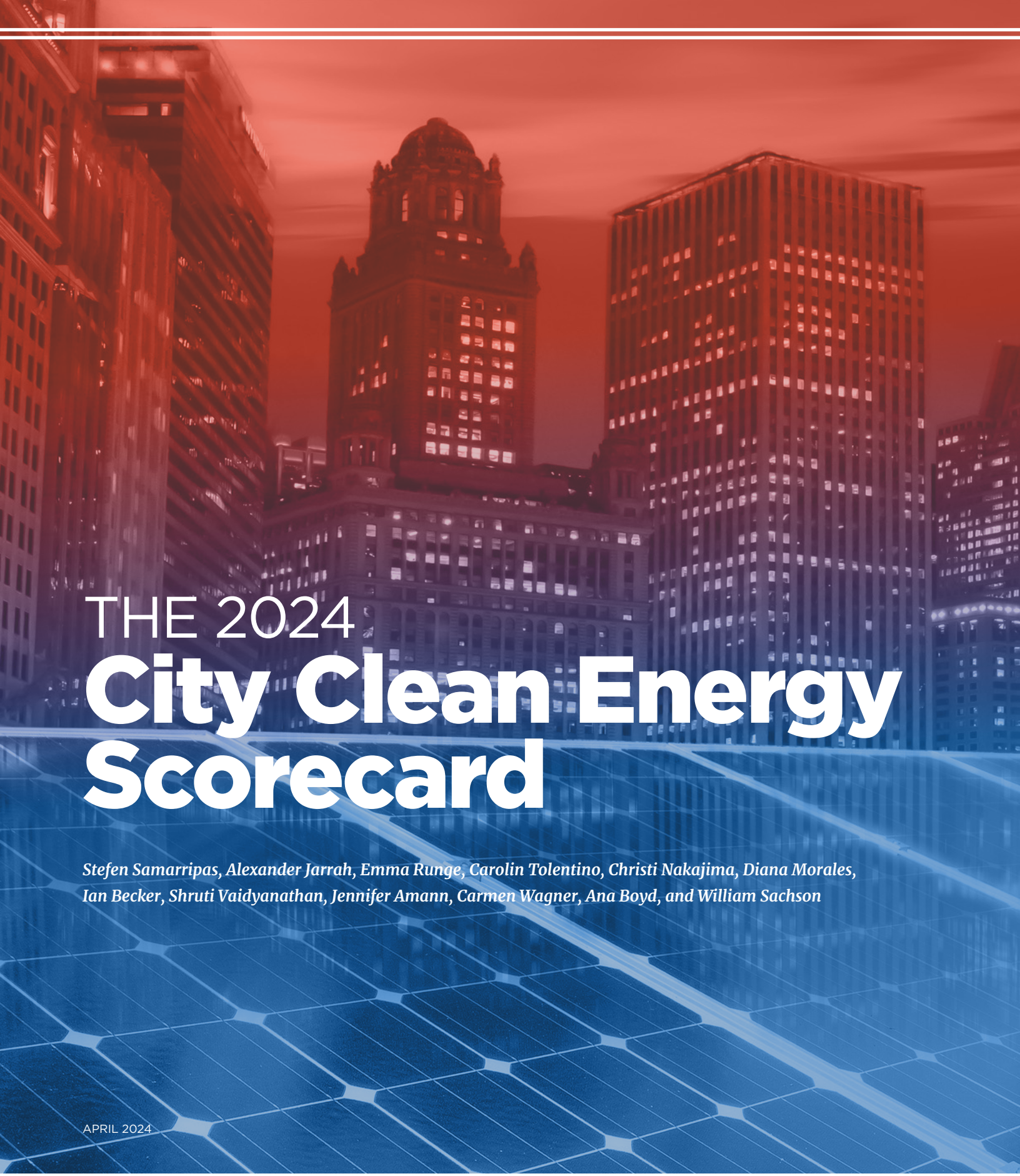

THE 2024 City Clean Energy Scorecard

Stefen Samarripas, Alexander Jarrah, Emma Runge, Carolin Tolentino, Christi Nakajima, Diana Morales, Ian Becker, Shruti Vaidyanathan, Jennifer Amann, Carmen Wagner, Ana Boyd, and William Sachson

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529 14th Street NW, Suite 600, Washington, DC 20045
(202) 507-4000 I @ACEEEDC I @myACEEE I aceee.org

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ABOUT ACEEE

The **American Council for an Energy-Efficient Economy** (ACEEE), a nonprofit research organization, develops policies to reduce energy waste and combat climate change. Its independent analysis advances investments, programs, and behaviors that use energy more effectively and help build an equitable clean energy future.

ABOUT THE AUTHORS

Stefen Samarripas analyzes and conducts outreach on policies and programs that encourage energy efficiency in local communities. His current work focuses on scaling up energy efficiency investments in affordable multifamily buildings.

Alexander Jarrah assists with research on the local policy team.

Emma Runge assists the local policy program with research related to energy equity.

Carolin Tolentino assists ACEEE's buildings team with research on energy codes and low- and zero-energy buildings.

Christi Nakajima conducts research and analysis on vehicle miles traveled (VMT) reduction policies and transportation electrification.

Diana Morales conducts research related to energy efficiency and clean energy policy led by local governments in cities and metropolitan regions in the United States.

Ian Becker is a manager on the Residential Retrofits for Energy Equity (R2E2) team, helping local governments and private sector stakeholders develop programs to improve the energy efficiency of affordable housing.

Shruti Vaidyanathan was the director of ACEEE's transportation program until the end of 2023. She is now the director of transportation advocacy at NRDC.

Jennifer Amann develops and supports ACEEE's strategic efforts to improve efficiency in homes and commercial buildings.

Carmen Wagner, **Ana Boyd**, and **Will Sachson** were interns supporting ACEEE's local policy work in 2023.

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ACEEE is solely responsible for the content of this report.

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Executive Summary

KEY FINDINGS

This report scores 75 U.S. cities on their efforts to advance their clean energy goals by improving energy efficiency and moving toward a cleaner electric grid and fuels.

- First place goes to **San Francisco**, earning the top spot for the second year in a row.
- Rounding out the top 10 cities are **Denver**; **Seattle**; **Los Angeles**; **Oakland**; **Minneapolis**; **New York**; **Portland, Oregon**; **San José**; and **Washington, DC**. Portland is a returning city to our top 10 rankings.
- **New Orleans** and **Miami** are this year's most-improved cities. These cities increased in our rankings because they adopted a series of new goals designed to reduce energy use and greenhouse gas (GHG) emissions. New Orleans also undertook new initiatives to reduce its municipal carbon footprint while Miami adopted a new stormwater management policy, in part designed to mitigate against the heat island effect.
- We provide a new separate breakout of scores and rankings for cities in our *Scorecard* that are in midsize metros. **Madison, Wisconsin**, is the top-ranked midsize metro city in these rankings.
- **San Francisco** earned the top equity scores and was the only city to earn more than half of available equity points. **New York** led the way in smart growth policies while **Seattle** earned the most policy performance points for metrics that track the impact of its initiatives and its approach to program evaluation. The *Scorecard*'s top 10 cities received high scores for these metric categories; however, all cities have room to improve their scores on these metrics, and especially those pertaining to equity.
- Between July 2, 2021, and September 30, 2023, the cities we assessed took **at least 158 new actions** to advance clean energy. In contrast to past *Scorecards*, most new city actions were directed at the transportation sector. The share of new city actions focused on racial and social equity increased from 17% in the 2021 *Scorecard* to 34% in this *Scorecard*.
- Moving forward, cities can meaningfully advance equity by creating more equitable electrification programs, adopting rental energy disclosure policies, undertaking low-income energy incentive and financing program best practices, and providing building performance standard compliance support for affordable housing providers and underserved commercial properties.
- As of fall 2023, 11 of our *Scorecard* cities had building performance standards. Some cities are prevented by their state governments from adopting these kinds of policies, but many more have opportunities to implement building energy performance standards to reduce energy use and GHG emissions.
- We found that 31 cities have adopted vehicles miles traveled or transportation GHG emissions goals, but only **San Diego** is on track to achieve its goal. Many more *Scorecard* cities will need to adopt and carry out commitments to reduce transportation energy use and GHG emissions.
- This year's *Scorecard* modified its selection methodology to include only those cities that have formally adopted community-wide GHG emissions targets and are actively working to track progress toward those goals. This removed 30 cities that were included in the previous edition, indicating that many large cities remain in the nascent stages of clean energy planning.

The *City Clean Energy Scorecard* is the go-to resource for tracking clean energy plans, policies, and progress in large cities across the United States. It compiles information on local policies and actions to advance energy efficiency, and decarbonization more broadly, comparing 75 large cities across all energy sectors. It also assesses cities' focus on equity, policy performance, and smart growth across these sectors. The 2024 *City Scorecard* accounts for all local policies adopted by September 30, 2023. The scores we report identify high-achieving cities and those with significant room to strengthen their policy efforts. Our focus on policies and programs also makes the *Scorecard* a road map for local governments aiming to scale up their clean energy initiatives in pursuit of their climate change mitigation goals.

We were able to document cities in our *Scorecard* undertaking at least 158 new clean energy actions to advance policies, programs, plans, and projects between July 2, 2021, and September 30, 2023. In past *Scorecards* we found that cities were typically directing their clean energy work toward the building or power sectors, but increasingly new city actions over the past two years have been directed at the transportation sector. New transportation actions accounted for 83 (53%) of the 158 new city clean energy actions that cities undertook. Compared to the 2021 *Scorecard*, we also found that a larger share of the new city actions in this *Scorecard* were focused on advancing racial and social equity. Fifty-five (34%) of the new actions had an equity focus, whereas only 17% of new city actions in the last *Scorecard* were intended to advance racial and social equity.

POLICY AREAS

As shown in table ES1, the *Scorecard* compares cities across five policy areas:

- Community-wide initiatives
- Buildings policies
- Transportation policies
- Energy and water utilities
- Local government operations

Table ES1. Highest-scoring cities by policy area

Policy area	Top scoring cities	Top scoring city achievements
Community-wide initiatives	Seattle (#1), San José (#2), Minneapolis (#3)	These cities are all undertaking robust efforts to engage disadvantaged groups to guide their clean energy work and build an inclusive clean energy workforce.
Buildings policies	Denver (#1), New York (#2), Washington, DC (#3)	These cities have stringent building energy codes and have instituted multiple requirements to improve the energy performance of large existing buildings.
Transportation policies	San Francisco (#1), Portland (#2), Oakland (#3)	These cities have pursued multiple initiatives to advance location efficiency, shift to efficient modes of transportation, invest in transit and electric vehicle infrastructure, connect disadvantaged communities with transit and other clean energy transportation options.
Community Energy Infrastructure	Los Angeles (#1), San José (#2), and Minneapolis (#3)	The energy efficiency programs of the utilities serving these cities achieve high levels of energy savings. They also offer a portfolio of low-income programs. These cities are pursuing multiple initiatives to decarbonize their electric grid and reduce GHG emissions.
Local government operations	Portland and Seattle (tied #1), Madison (#2), and Boston (#3)	These cities are making ongoing investments to create an energy-efficient municipal vehicle fleet, complete municipal building retrofits, and diversify the pool of contractors providing support for local government projects.

SCORES

Table ES2 presents city scores in the five policy areas and each city's total score.

Table ES2. Summary of scores

Rank	City	State	Community-wide initiatives (45 pts)	Buildings policies (70 pts)	Transportation policies (70 pts)	Community energy infrastructure (40 pts)	Local government operations (25 pts)	Total (250 pts)	Share of total points	Change in rank from 2021
1	San Francisco	CA	27	36	47.5	31.5	16.5	158.5	63.4%	0
2	Denver	CO	28	58	27.5	28	13.5	155	62.0%	5
3	Seattle	WA	33	34.5	41.5	26	19	154	61.6%	–1
4	Los Angeles	CA	27.5	34.5	37.5	34	11.5	145	58.0%	4
5	Oakland	CA	24.5	28	43	30.5	17	143	57.2%	5
6	Minneapolis	MN	30	34	38	32	8	142	56.8%	–2
7	New York	NY	9	52.5	35	29.5	13.5	139.5	55.8%	–2
8	Portland	OR	24.5	26	47	22	19	138.5	55.4%	3
9	San José	CA	31.5	33	31.5	33.5	8	137.5	55.0%	0
10	Washington	DC	24	39	35	20.5	11.5	130	52.0%	–7
11	Boston	MA	13	29	29	31.5	17.5	120	48.0%	–6
12	Chicago	IL	11.5	36.5	27.5	25.5	13.5	114.5	45.8%	0
13	San Diego	CA	14.5	23	29.5	31	9	107	42.8%	3
13	Sacramento	CA	14.5	31.5	26	26	9	107	42.8%	5
13	Atlanta	GA	17.5	23.5	30.5	22.5	13	107	42.8%	2
16	Chula Vista	CA	11.5	34.5	14.5	29.5	10	100	40.0%	1
17	Orlando	FL	20	22.5	18.5	24	11	96	38.4%	5
17	Austin	TX	18	28	24	20.5	5.5	96	38.4%	–3
19	Philadelphia	PA	22	19.5	24	18.5	11	95	38.0%	–6
20	Saint Paul	MN	15.5	15	27.5	27	9.5	94.5	37.8%	0
21	Madison	WI	6	15.5	22.5	28.5	18	90.5	36.2%	18
22	Riverside	CA	11	24	19.5	24	4	82.5	33.0%	18
22	Baltimore	MD	10.5	18.5	20.5	23.5	9.5	82.5	33.0%	2
22	Pittsburgh	PA	11.5	12	25.5	19	14.5	82.5	33.0%	–1
25	Charlotte	NC	13.5	12	21.5	21.5	13	81.5	32.6%	17
26	Kansas City	MO	12.5	22.5	18	19.5	8.5	81	32.4%	10
27	Miami	FL	15.5	26	22.5	10.5	4	78.5	31.4%	22
28	Long Beach	CA	4.5	21	31	13	8.5	78	31.2%	–1
29	Honolulu	HI	9.5	16.5	19.5	21	10	76.5	30.6%	–5
30	St. Louis	MO	8	29.5	19.5	16	2.5	75.5	30.2%	–2
31	San Antonio	TX	21	19.5	8.5	10	14.5	73.5	29.4%	6
32	Columbus	OH	15	11.5	15	18	12.5	72	28.8%	–4
33	Nashville	TN	8	15.5	15.5	17	14.5	70.5	28.2%	13
34	Fresno	CA	0	21.5	19	27.5	2	70	28.0%	13
34	Houston	TX	11.5	14.5	15.5	13.5	15	70	28.0%	0
36	Hartford	CT	4.5	12	16.5	28.5	8	69.5	27.8%	–18
36	Providence	RI	13	9.5	14.5	26	6.5	69.5	27.8%	–10
38	Las Vegas	NV	12.5	11.5	19.5	14	11	68.5	27.4%	–7

Rank	City	State	Community-wide initiatives (45 pts)	Buildings policies (70 pts)	Transportation policies (70 pts)	Community energy infrastructure (40 pts)	Local government operations (25 pts)	Total (250 pts)	Share of total points	Change in rank from 2021
39	New Orleans	LA	15.5	15	15	11.5	11	68	27.2%	28
40	Grand Rapids	MI	7.5	13.5	11	24.5	9.5	66	26.4%	–9
41	Phoenix	AZ	13	12.5	10.5	20.5	9	65.5	26.2%	–19
41	Salt Lake City	UT	5.5	12.5	21	19.5	7	65.5	26.2%	–7
43	Albuquerque	NM	11.5	12.5	11.5	20	9.5	65	26.0%	–12
44	Oxnard	CA	7.5	21.5	17	15.5	1	62.5	25.0%	17
45	Milwaukee	WI	8	13	16.5	18	6.5	62	24.8%	8
46	Cleveland	OH	11.5	6.5	18	13.5	11.5	61	24.4%	–8
47	Knoxville	TN	9	8	11.5	21	10.5	60	24.0%	–4
48	Aurora	CO	3	29.5	6	19	1	58.5	23.4%	–18
49	Cincinnati	OH	16	10	10	9	10.5	55.5	22.2%	–6
50	New Haven	CT	4	8	16.5	20	6	54.5	21.8%	5
51	Dallas	TX	12.5	14	8	9.5	9.5	53.5	21.4%	–8
52	Boise	ID	8.5	14	10	11.5	9	53	21.2%	–11
53	Spokane	WA	2.5	21.5	22.5	2	3	51.5	20.6%	N/A
54	Detroit	MI	7.5	5	13.5	19.5	4.5	50	20.0%	7
55	Memphis	TN	4.5	12	13.5	13.5	6	49.5	19.8%	5
56	Springfield	MA	2.5	8	11	25.5	2	49	19.6%	–7
56	Raleigh	NC	6.5	3	14.5	19	6	49	19.6%	8
56	Des Moines	IA	11	10	11	15.5	1.5	49	19.6%	10
59	Rochester	NY	0	13	11.5	19	4.5	48	19.2%	–8
60	Indianapolis	IN	7.5	6	9	11	8.5	42	16.8%	4
61	Richmond	VA	9	7.5	13	8.5	2	40	16.0%	–14
62	Tucson	AZ	1	9.5	16	9	3	38.5	15.4%	9
62	St. Petersburg	FL	4	8.5	9.5	8	8.5	38.5	15.4%	–11
64	Reno	NV	7.5	16	3	7.5	3	37	14.8%	–3
65	Lansing	MI	3	7	13	10.5	3	36.5	14.6%	N/A
65	Louisville	KY	8	7.5	9	9	3	36.5	14.6%	–6
67	Durham	NC	0	3	5.5	16	8	32.5	13.0%	N/A
68	Bridgeport	CT	0	5	7	13.5	3	28.5	11.4%	1
69	Mesa	AZ	3.5	6	4	8	4.5	26	10.4%	0
70	Charleston	SC	3	4	9.5	5	4	25.5	10.2%	9
70	Fayetteville	AR	6.5	2.5	10.5	4.5	1.5	25.5	10.2%	N/A
72	Toledo	OH	3.5	3	4.5	8	4	23	9.2%	5
73	Chattanooga	TN	1.5	6	7.5	5.5	2	22.5	9.0%	N/A
74	Tampa	FL	2	3.5	8	6.5	1	21	8.4%	7
75	Akron	OH	0	2	4	8.5	5	19.5	7.8%	9

The group of cities making up this year's *City Scorecard* top 10 remained relatively unchanged from the previous edition with one exception. Portland moved up into the top 10, taking the ninth highest spot.

STRATEGIES FOR ADVANCING CLEAN ENERGY

All cities, even those ranked in the top 10, have considerable opportunity to improve. Using our *Scorecard* results, we highlight several priority actions cities can take to advance their clean energy efforts. These include:

- *Advancing racial and social equity through clean energy strategies.* While some cities are taking steps to advance equity through their clean energy work, all have room to do more. In particular, cities tended to have lower scores for equity metrics tracking their efforts in the buildings sector. Moving forward, cities can create more equitable electrification programs, adopt rental energy disclosure policies, undertake low-income energy incentive and financing program best practices, and provide building performance standard compliance support for affordable housing providers and underserved commercial properties.

- *Adopting building energy performance standards that require existing buildings to meet energy or GHG emissions reduction targets.* In *The 2021 City Clean Energy Scorecard* only seven cities had adopted building energy performance standards. As of fall 2023, 11 of our *Scorecard* cities had these mandates. While some cities are prevented by their state governments from adopting these kinds of policies, many more have the opportunity to do so and make substantial cuts to their building sector GHG emissions.

- *Adopting and carrying out commitments to reduce transportation energy use and GHG emissions.* The 2021 edition of the *Scorecard* identified that only 25 cities had adopted goals to reduce VMT or transportation GHG emissions, and only 3 of those were on track to achieve them. In many cases, cities did not provide us with sufficient data to assess their progress toward their transportation goals. As of this *Scorecard*, 31 cities have adopted VMT or transportation GHG emissions goals, but only San Diego is on track to achieve its goal. San Diego is also the only city on track to achieve its community-wide and transportation climate goals.

We provide guidance for all cities, and we highlight opportunities for groups of cities that share similar characteristics. We have divided the 65 cities that fall outside our top 10 rankings into a typology of four groups based on two factors: metropolitan statistical area (MSA) size and city population growth rate. These two variables are often indicative of local characteristics that determine a city's energy and GHG emissions profile and city government budgets that drive a locality's capacity to pursue clean energy initiatives. These groupings are shown in table ES3 below.

Table ES3. City breakdown of typology groups

Stable cities in large metros		Accelerated-growth cities in large metros		Stable cities in midsize metros	Accelerated-growth cities in midsize metros
Baltimore, MD	Memphis, TN	Atlanta, GA	Phoenix, AZ	Akron, OH	Boise, ID
Boston, MA	Milwaukee, WI	Aurora, CO	Providence, RI	Albuquerque, NM	Charleston, SC
Chicago, IL	New Orleans, LA	Austin, TX	Raleigh, NC	Bridgeport, CT	Chattanooga, TN
Cincinnati, OH	Philadelphia, PA	Charlotte, NC	Richmond, VA	Des Moines, IA	Durham, NC
Cleveland, OH	Pittsburgh, PA	Chula Vista, CA	Sacramento, CA	Knoxville, TN	Fayetteville, AR
Dallas, TX	Riverside, CA	Columbus, OH	Salt Lake City, UT	Lansing, MI	Madison, WI
Detroit, MI	Rochester, NY	Fresno, CA	Tampa, FL	New Haven, CT	Reno, NV
Grand Rapids, MI	Saint Paul, MN	Kansas City, MO		Oxnard, CA	Spokane, WA
Hartford, CT	San Antonio, TX	Las Vegas, NV		Springfield, MA	
Honolulu, HI	San Diego, CA	Louisville, KY		Toledo, OH	
Houston, TX	St. Louis, MO	Mesa, AZ			
Indianapolis, IN	St. Petersburg, FL	Miami, FL			
Long Beach, CA	Tucson, AZ	Nashville, TN			
		Orlando, FL			

Of the two factors we used to form our typology groups, a city's surrounding metro area especially affects the opportunities and challenges a city faces. Given that our *Scorecard* mostly comprises cities in large metros, we provide a separate breakout of scores and rankings for the 18 cities in our *Scorecard* that are located in midsize metros. Madison, Wisconsin, is the top-ranked midsize metro city in these rankings.

We also identify key opportunities for each of our *City Clean Energy Scorecard* typology groups to improve their scores in table ES4 below.

Table ES4. Clean energy policy and program opportunities and model cities for each typology group

City type	Policy and program	Model city with policy or program
Stable cities in large metros	Adopt energy benchmarking and retrocommissioning (RCx) policies, laying a foundation for more comprehensive building energy improvement requirements such as building performance standards.	Philadelphia, PA St. Louis, MO
Accelerated-growth cities in large metros	Create more programs designed to increase disadvantaged communities' access to renewable energy resources.	Fresno, CA
	Create or expand bike networks that connect people of all ages and abilities with a diversity of community destinations using protected bike lanes, off-street paths, slow shared streets, and safe crossings.	Salt Lake City, UT
Stable cities in midsize metros	Improve the energy performance of municipal operations and assets.	Knoxville, TN
	Encourage and incentivize energy efficiency building retrofits.	Albuquerque, NM
Accelerated-growth cities in midsize metros	Improve transportation system efficiency by encouraging a shift to active transportation and transit modes.	Madison, WI Spokane, WA
	Form partnerships to encourage utility clean energy goals, programs, and investments	Madison, WI

Introduction

Since 2013, ACEEE's *City Energy Efficiency Scorecard* and *City Clean Energy Scorecard* have documented the evolution of clean energy strategies employed at the local level by city governments. With an overarching focus on assessing city efforts to reduce greenhouse gas (GHG) emissions, *The 2024 City Clean Energy Scorecard* tracks local policies and programs that advance energy efficiency and decarbonization more broadly. These strategies reduce urban energy use and transition communities to less carbon-intensive energy sources such as renewable energy or carbon-free electricity.[1]

This year's *Scorecard* also continues to expand our focus on city efforts to advance racial and social equity through their clean energy strategies. This focus reflects the importance of addressing how certain communities—especially people of color, indigenous communities, low-income residents, youth, the elderly, recently arrived immigrants, those with limited English proficiency, people with disabilities, and those experiencing housing insecurity—have been denied access and control to resources, opportunities, and decision-making power.[2] These inequities exist throughout American society, and local governments are increasingly aware that addressing these disparities requires holistic multi-department strategies that are grounded in an understanding of these communities' lived experiences (Hays et al. 2021). As such, we added new metrics to track city activities to achieve equitable outcomes through their clean energy and other related policy areas, such as housing and workforce development. We also increased the total points available for these metrics across the *Scorecard*.

Of the new actions we tracked cities taking between July 2, 2021 and September 30, 2023 to advance clean energy and related work, we observed an increased share focused on racial and social equity. These actions accounted for 34% of all new city activities, compared to only 17% in the 2021 *Scorecard*. Our analysis also shows a substantial number of cities are only in the first stages of addressing equity in their clean energy work, a trend that we observed in the previous *Scorecard*. Most of the new equity actions we documented were undertaken as part of a planning process. Only 12 of the 54 equity-driven actions involved beginning a new policy, program, or project. Cities' planning work may lead to an increase in equity-focused clean energy policies and programs in the future, but it is critical that cities begin to shift their focus from intention to action.

1 We recognize that local and state governments have varying definitions of what is considered *renewable energy* or *carbon-free electricity*. Throughout the report, unless otherwise stated, we provide credit for city renewable energy activities if they align with the 2018 International Green Construction Code definition of onsite renewable energy systems, which includes "photovoltaic, solar thermal, geothermal energy, and wind systems used to generate energy and located on the building project" (ICC 2018). Unless otherwise indicated, we use the federal government's definition of carbon pollution–free electricity to determine which generation sources count as *carbon-free electricity*. According to Executive Order 14057, carbon pollution–free electricity includes "electrical energy produced from resources that generate no carbon emissions, including marine energy, solar, wind, hydrokinetic (including tidal, wave, current, and thermal), geothermal, hydroelectric, nuclear, renewably sourced hydrogen, and electrical energy generation from fossil resources to the extent there is active capture and storage of carbon dioxide emissions that meets EPA requirements" (The White House 2021).

2 Governments and utilities use varying income criteria to qualify low-income individuals, households, and communities for participation in their programs. Given this, we do not use a standard low-income definition but instead recognize any individual, household, or community as low-income if their city or utility recognizes them as such.

CHAPTER 1

Methodology and Results

Lead Author: Stefen Samarripas

Today more than half of the world's population lives in cities, and the proportion is projected to rise to nearly 70% by 2050. Cities around the globe are responsible for nearly three-quarters of the world's energy consumption and more than 70% of energy-related carbon dioxide emissions (IEA 2021). Urban area activities, and especially those falling under the authority of local governments, are critical factors affecting climate change.

City governments around the United States have a variety of mechanisms by which to address their own energy use and to influence energy use in their communities. These include land use and zoning laws, building codes, local policies, public finance, transportation investment, procurement of goods and services, clean energy advocacy to state and federal authorities, workforce development initiatives, and energy and water services development and management. The Inflation Reduction Act, signed into law in August 2022, is providing cities with an unprecedented level of funding to further support their climate action work, including nearly $370 billion in clean energy investments for disadvantaged communities (Barbanell 2022).[3]

The thousands of local governments in the United States vary in size and authority and have diverse priorities. Consequently, they have pursued different clean energy strategies. We document this variety in the *Scorecard* by focusing on how the clean energy activities of 75 large U.S. cities vary across sectors (each one addressed in a chapter of the *Scorecard*) and in their intended outcomes. To a limited degree, we also assess the utility companies, state governments, and transit authorities of these cities because they affect local decisions regarding energy use in important ways. However, city actions remain the core focus of our report's scope. Our metrics track common policy categories and actions these entities can carry out or influence; most measure policies and programs that municipalities have implemented within their city limits.

GOALS AND APPROACH

Our *Scorecard* analysis of cities' clean energy initiatives has three main aims. First, we identify clean energy policy leaders, those pursuing strategies designed to reduce energy use or GHG emissions and achieve racially and socially equitable outcomes through that work. Second, we identify the most recent clean energy policy trends across cities and highlight emerging innovative practices employed by clean energy leaders, providing practical examples from which other communities can learn. Third, we identify how clean energy leadership and policy trends have changed over time.

3 Here and throughout the *Scorecard* we define *disadvantaged communities* as those groups that receive inadequate social and economic services and resources, are most affected by policy decisions and social structures, and often face high barriers to participation in decision-making processes. These groups can include people of color, indigenous communities, low-income residents, youth, the elderly, recently arrived immigrants, those with limited English proficiency, people with disabilities, and those experiencing housing insecurity.

As mentioned previously, we also consider steps taken by actors other than city governments, such as investor-owned utilities, transit authorities, and, to a limited extent, state governments. For example, each city's score accounts for utilities' energy efficiency investments, even if those utilities are investor owned. Each score also reflects the stringency of the building energy code in the city, even if that code is set at the state level. We scored actions lying outside the direct influence of the city government for several reasons:

- These outside actors can influence the progress cities make toward their clean energy goals. For cities to achieve their goals in some cases, regional and state policymakers and program administrators also need to focus on energy efficiency and on furthering the development of a cleaner electricity grid and the use of cleaner fuels in the planning, decision making, and implementation of their initiatives.
- Even if city governments do not regulate or manage these actors, they can still advocate for them to adopt certain policies and programs and can further engage in their design and implementation.
- The *City Scorecard* is an educational resource to inform policymakers and interested citizens seeking to advance clean energy. We would present only a partial picture of a city's clean energy policy environment if we were to focus solely on city actions.

SELECTION OF CITIES

We focus on the core cities of the most populous metropolitan statistical areas (MSAs) because they play important roles as centers of economic activity.[4] Core cities—the most populous cities in metro regions—influence regional travel behavior and hold a large share of their region's commercial buildings. Leaders of these cities can also influence the policies of states and the federal government.

Our selected cities list primarily includes the most populated city in each of the most populated metros. In certain cases, we also include the second-largest cities in these MSAs. We include the second-most-populous city in a metro area only if its population exceeds 250,000, and we allow only one additional city per MSA to maintain geographic diversity and avoid overrepresenting certain metros. All cities in our *Scorecard* have a population of at least 100,000. This threshold eliminates smaller cities that may be predominantly residential communities with limited commercial activity. These smaller, residential cities could be substantially disadvantaged by metrics that assess initiatives designed to address energy use associated with commercial buildings, transit, and freight activity.

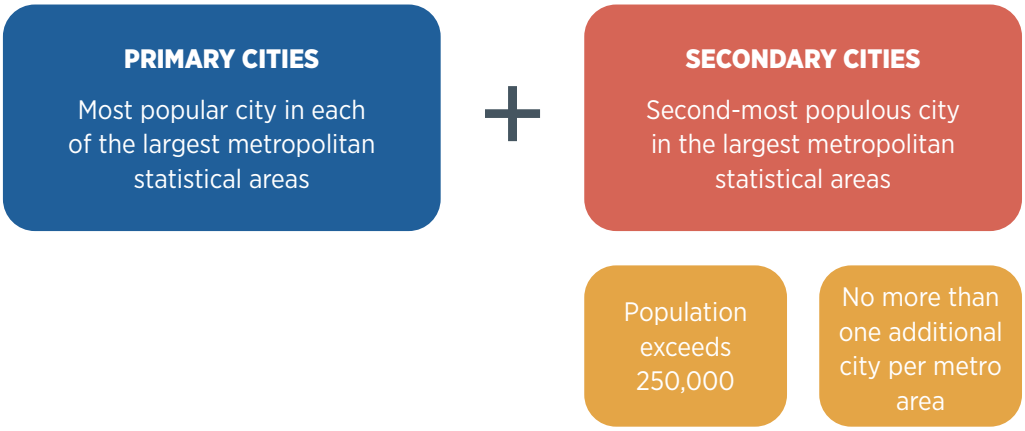
Recognizing that cities stand at a critical point in their climate change mitigation efforts, we have updated our city selection criteria in this year's *Scorecard* to include only those cities that have formally adopted community-wide GHG emissions targets and are actively working to track progress toward those goals. This means that each city selected for this edition of the *City Scorecard* has at the very least adopted a GHG emissions goal and has conducted a GHG emissions inventory or inventories to assess where they stand relative to that target. This shift in our selection criteria removed 30 cities that were included in the 2021 edition.[5] Rather than add 30 new cities to bring the total to 100, we chose to keep the focus of this report mostly on those cities we have tracked over the past several years and added only five new cities—Chattanooga, Tennessee; Durham, North Carolina; Fayetteville, Arkansas; Lansing, Michigan; and Spokane, Washington.

4 For the purposes of the *Scorecard*, we define a city as the area within whose political borders a local government has direct policy authority (e.g., the city of Detroit rather than the Detroit–Livonia–Dearborn metropolitan statistical area).

5 We removed the following cities: Allentown, Pennsylvania; Augusta, Georgia; Bakersfield, California; Baton Rouge, Louisiana; Birmingham, Alabama; Buffalo, New York; Cape Coral, Florida; Colorado Springs, Colorado; Columbia, South Carolina; Dayton, Ohio; El Paso, Texas; Fort Worth, Texas; Greensboro, North Carolina; Henderson, Nevada; Jacksonville, Florida; Lakeland, Florida; Little Rock, Arkansas; McAllen, Texas; Newark, New Jersey; Oklahoma City, Oklahoma; Omaha, Nebraska; Provo, Utah; San Juan, Puerto Rico; Stockton, California; Syracuse, New York; Tulsa, Oklahoma; Virginia Beach, Virginia; Wichita, Kansas; Winston-Salem, North Carolina; and Worcester, Massachusetts.

Figure 1 details our criteria for including cities in the *Scorecard*.

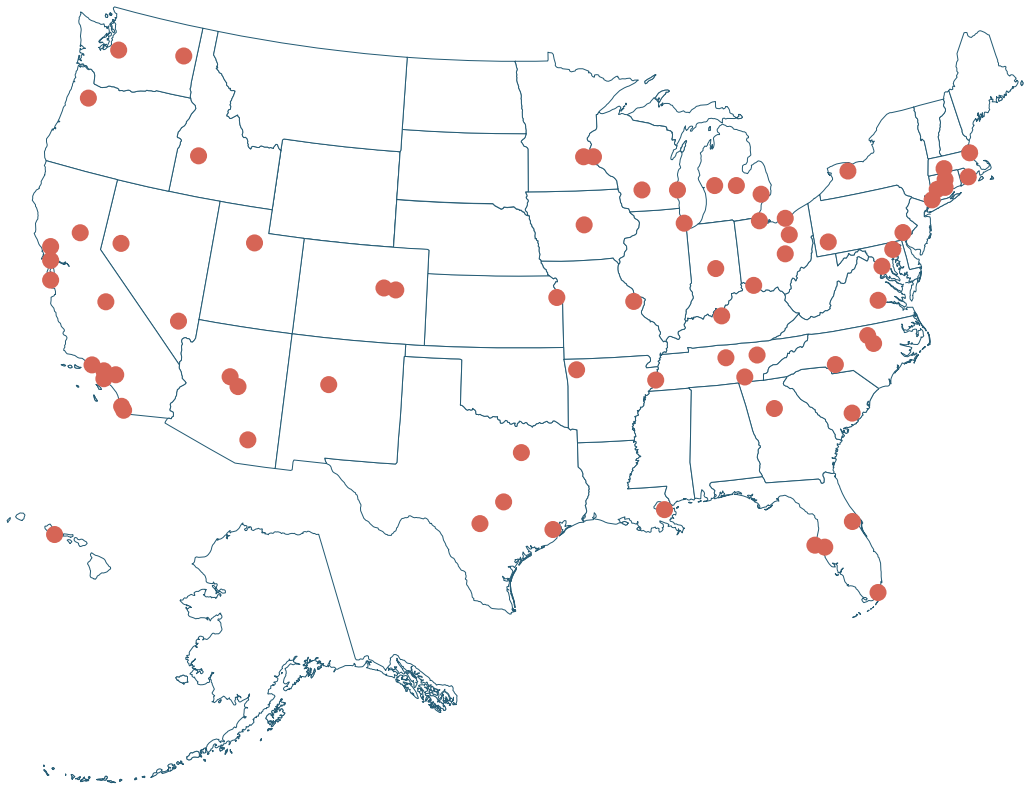
Figure 1. Selection of cities



Each city selected for this edition of the City Scorecard has at the very least adopted a GHG emissions goal and has conducted a GHG emissions inventory or inventories to assess where they stand relative to that target.

Figure 2 shows all 75 cities assessed in the 2024 *City Scorecard*.

Figure 2. Cities in the 2024 City Scorecard



METRIC CREATION

Our *City Scorecard* metrics track local clean energy initiatives that are designed to reflect policy best practices, advance racial and social equity, or use innovative approaches to reduce GHG emissions. The information contained in the *Scorecard*, and on which we base our scoring of the 75 cities, reflects existing policies as of September 30, 2023.

Although cities' policy environments vary considerably, our metrics capture a broad range of local clean energy actions across common urban economic sectors. The metrics track initiatives that employ one of several techniques to reduce energy use and transition communities to less carbon-intensive energy sources such as renewable energy. These techniques are

- Setting long-term commitments to reduce GHG emissions, save energy, increase renewable and carbon-free energy, lower vehicle miles traveled, or achieve racial and social equity outcomes
- Enforcing mandatory or incentivizing voluntary building energy performance and location-efficient land use codes or standards
- Offering technical assistance, training, and/or funding to support existing clean energy programs or services
- Reducing market, regulatory, and information barriers to clean energy projects
- Directly designing and funding projects that affect the energy use of urban buildings and transportation systems
- Advocating for new federal, state, and utility clean energy policies, programs, and investments

Our focus on policies and programs is in keeping with our goal of providing actionable information to policymakers, residents, and businesses. Policymakers need to know what they can do to advance clean energy goals given the full scope of issues and factors their communities are facing. Residents and businesses need information on what services, policies, and incentives are available to reduce their energy use, GHG emissions, and costs. They also need access to resources about the clean energy policies they may want their local government to support.

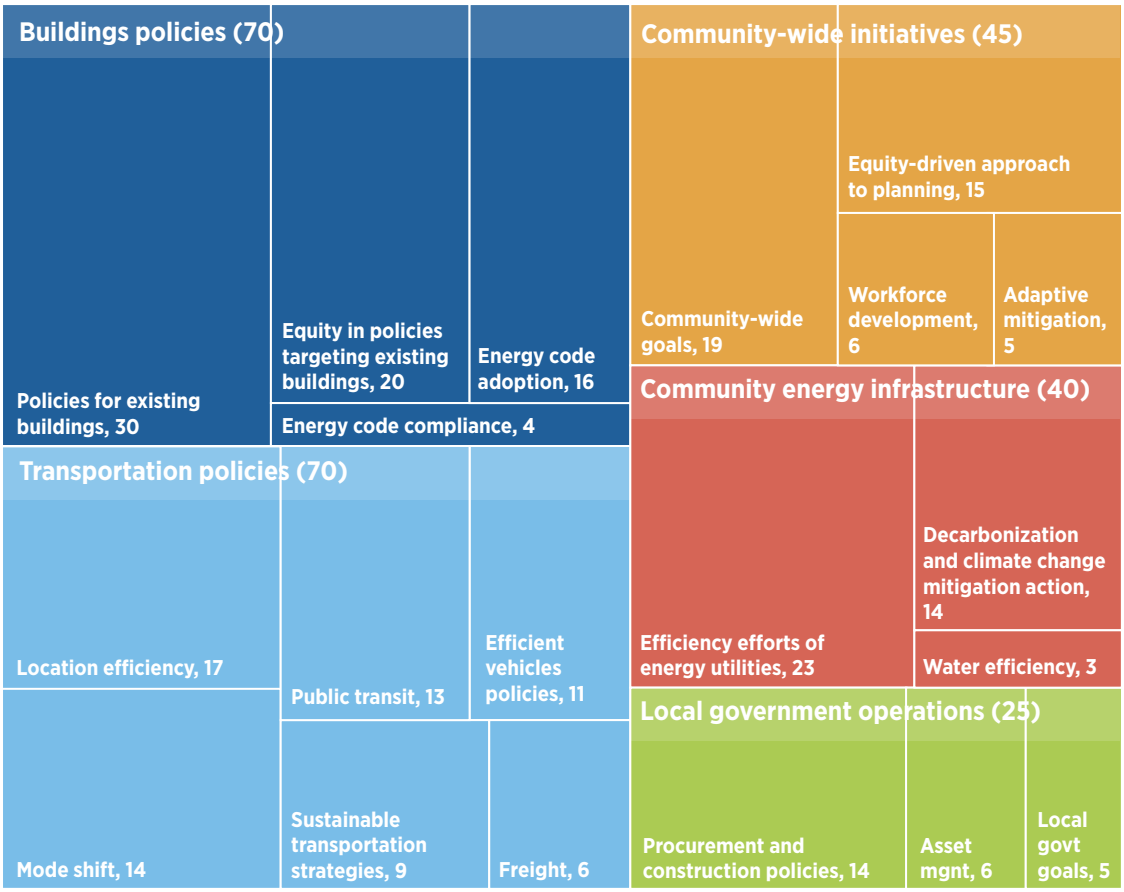
With each new edition of the *Scorecard* we work to add and update metrics to ensure that we are capturing the full range of city clean energy activities. This year's *Scorecard* includes many updated and new metrics. See Appendix B for a full listing of these metric changes, including descriptions of both new metrics and metrics we removed.

SCORING METHOD

Each one of this report's five chapters analyzes a different group of metrics. Four of these chapters are focused on urban energy sectors: Buildings, Transportation, Local Government Operations, and Community Energy Infrastructure. The Community Energy Infrastructure chapter replaces the Energy and Water Utilities chapter from previous *Scorecards*. While the chapter still includes a focus on utility company actions, it also includes an expanded focus on city-level actions to decarbonize the electric grid and promote the use of cleaner fuels. The remaining chapter, Community-Wide Initiatives, focuses on plans, policies, and programs that are designed to address clean energy across more than one sector. We increased the maximum number of points a city can earn across all chapters from 100 to 250 this year to better account for an increased number of metrics in this and previous *Scorecards*.[6] Figure 3 shows the point allocations across these chapters and the various policy areas included in each.

6 Our point distribution across chapters is based on analyses of city energy consumption patterns and assessment by ACEEE and external experts of the potential impacts of city policies on improving energy efficiency. Over time, we have refined the point distribution to reflect stakeholder and expert feedback as well as the number of actions available to cities in each policy area.

Figure 3. Distribution of points by chapter and policy area



Our *Scorecard*'s focus on sectors helps provide actionable guidance to the decision makers and industry professionals that operate within each. For example, city facilities staff can consult the Local Government Operations chapter to take stock of their work involving municipal facilities and vehicles. Utility companies can use the metrics in our Community Energy Infrastructure chapter to better assess the effectiveness of their programs and services affecting city energy use.

Each chapter of the *Scorecard* includes scoring summary tables that show how cities scored on various metrics. We include more detailed scores and some additional policy and program information in the appendixes. We include the complete body of policy and program information on which we score cities in the ACEEE State and Local Policy Database.[7]

Past *Scorecard* reports placed a heavy emphasis on describing the policies and programs of city clean energy leaders. Our complementary city fact sheets, released alongside past editions of this report, described all cities' clean energy actions, scores, and policy opportunities in detail. Beginning with the 2021 edition of the *Scorecard*, we included an analysis of the policy trends of cities that fall outside our *Scorecard's* top-10 ranking to better identify opportunities for these cities to improve their scores. To accomplish this, we created a typology that groups cities based on their population growth rate and the population of their surrounding metropolitan statistical areas. We then identified the most common policies and programs enacted by each group along with their most pronounced opportunities for score improvements. We have also added a ranking of cities in midsized metro areas, as these cities do not currently appear in our top 10 rankings. We discuss the typology and the results of this analysis in a subsequent section of this chapter.

STATE POLICY AND CITY SCORES

As we have discussed, all local governments have some influence over the policies we cover in the *Scorecard*, but the degree of city influence or capacity to act varies due to differing local policy environments, state laws, and local control over utilities. These factors affect the policy mechanisms cities can use to influence energy-related outcomes (C40 and Arup

7 We update the ACEEE State and Local Policy Database with each edition of the *City Scorecard* and as major policy developments occur. Local policymakers and other stakeholders can use the database to learn about innovative policies and programs being implemented in other cities. It can be accessed at database.aceee.org.

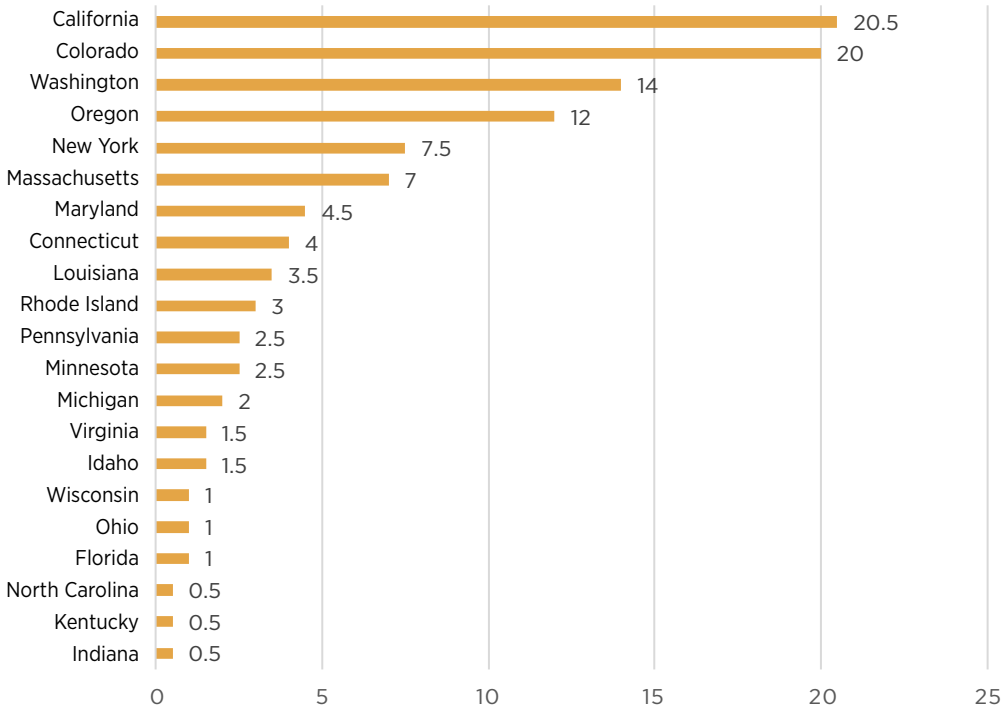
2015; Hinge et al. 2013). Some of our metrics have alternate scoring tracks to account for these differing capacities to act. For example, to ensure a fair comparison, our scoring for cities with municipal energy utilities is different from our scoring for those with investor-owned utilities.

Beginning with the 2020 *Scorecard*, we took the step of quantifying the known effects of state policies and programs on city scores in cases where state initiatives aligned with our metric criteria and increased city scores or clearly kept cities from earning a metric's total available points. As we have mentioned, we designed different scoring tracks in some metrics to account for differences in jurisdictional authority. Regardless, it can be challenging to disaggregate state policy from city scores completely. In refining and updating the analysis for this year's *Scorecard*, we first examined how states have played a role in increasing scores for their cities.[8] The following state policies and programs can increase city scores:

- Stringent statewide building codes
- Renewable-ready building code provisions
- Electric vehicle (EV) infrastructure-ready building code provisions
- Requirements to install EV infrastructure in parking facilities
- Statewide policies that remove parking minimums in transit-oriented development (TOD)
- Electric transit bus goals
- Statewide policies that allow for increased residential density
- Statewide policies to benchmark, report, and improve existing building energy performance

Figure 4 shows the number of points these existing state policies and programs can add to city scores.

Figure 4. Points gained due to state action



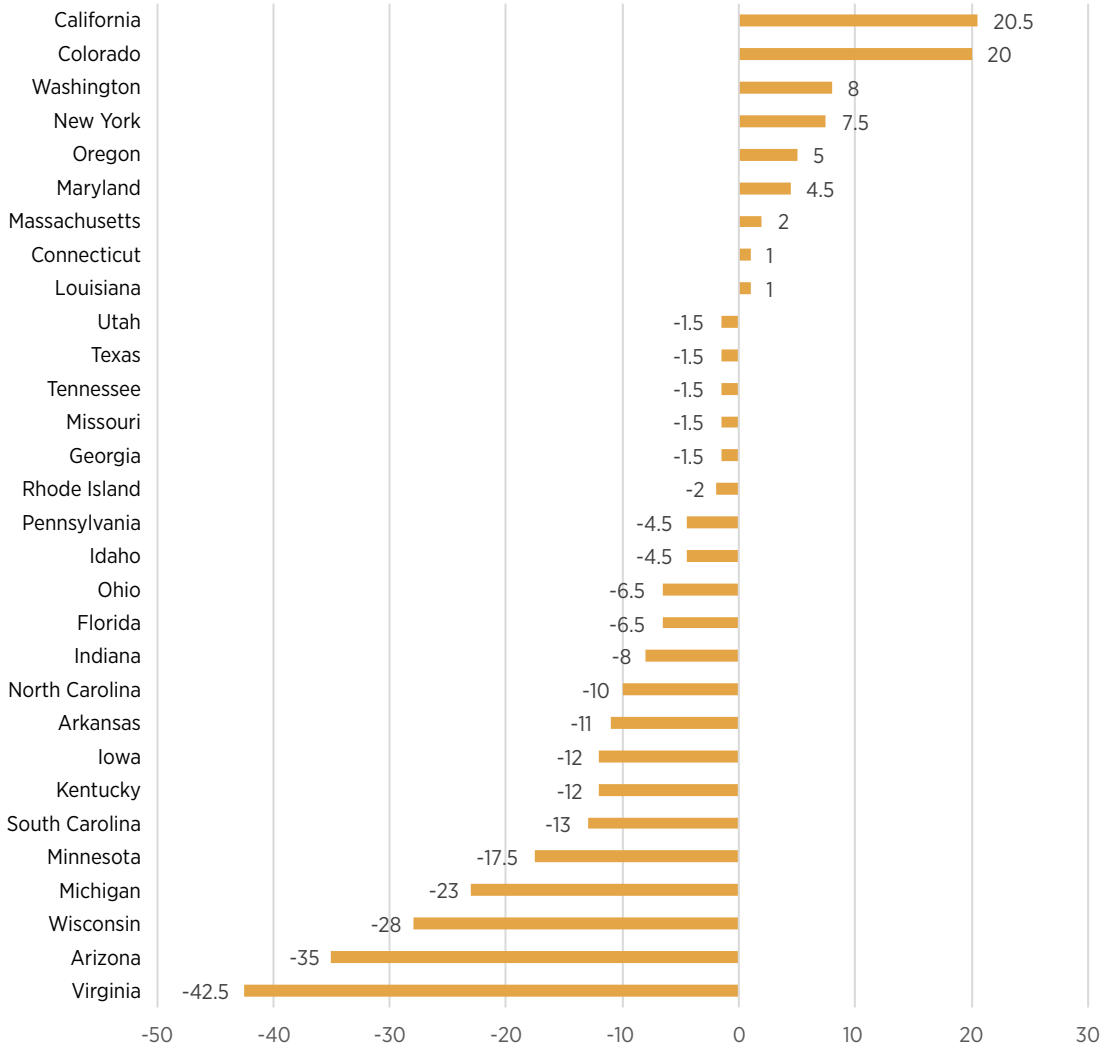
California cities benefited the most from their state's energy policy actions. The state has adopted building energy benchmarking requirements, EV charging infrastructure readiness and installation requirements, a goal to transition all transit agency buses to zero GHG emissions by 2040, allowances for higher residential density, prohibitions of parking minimums in TOD, and building solar-ready requirements. Colorado had the second largest positive impact on the scores of its *Scorecard* cities. The state passed House Bill 21-1286 in 2021 that establishes statewide requirements to benchmark commercial and multifamily building energy use and share this information with new owners, to disclose rental unit energy use information to prospective tenants, and to improve building energy performance to a specified standard. Washington,

8 Our analysis does not include a comprehensive look at the effect of all state policies on all *Scorecard* metrics. We have limited our analysis to policies and programs whose effect on city scores can be clearly determined. This minimizes uncertainty and provides an unclouded comparison among states.

the state with the third-highest positive impact, has adopted a commercial building energy performance policy, stringent building energy codes, and EV charging–ready and EV charging–installation requirements.

While states can play a supporting role in advancing city clean energy goals and strategies, several states have passed laws restricting the ability of cities to adopt certain policies and programs. We have found that the degree to which state policies are limiting city actions is sometimes unclear, and we do not consider these cases here. However, we have been able to establish that Arizona and Virginia have barred local governments from adopting any rules requiring owners of existing buildings to report on or improve their property's energy performance. Michigan, Minnesota, and Iowa do not allow cities to adopt requirements for existing building owners to improve their energy performance. Wisconsin bars local governments from enacting policies that would require building owners to make physical upgrades to their property or compel residential rental properties to benchmark their energy use. Pennsylvania has not passed legislation enabling community solar, closing off the possibility that local governments can support such projects. Several states control the adoption of building energy codes, which can limit the potential points a city can earn.[9] Thirteen states have also adopted legislation barring local governments from enacting restrictions on the use of natural gas in buildings.[10] Figure 5 shows the combined net effect of state limitations and supportive state policies on their cities' scores.

Figure 5. Net effect of state actions on city scores



9 States that do not allow local governments to adopt building codes include Arkansas, Connecticut, Florida, Hawaii, Idaho, Indiana, Kentucky, Massachusetts, Michigan, Minnesota, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Virginia, and Wisconsin. Cities in Washington are only allowed to adopt their own commercial building codes.

10 *Scorecard* cities in the following states are prohibited from pursuing natural gas bans or electrification mandates: Arkansas, Arizona, Florida, Georgia, Indiana, Kentucky, Louisiana, Missouri, North Carolina, Ohio, Tennessee, Texas, and Utah.

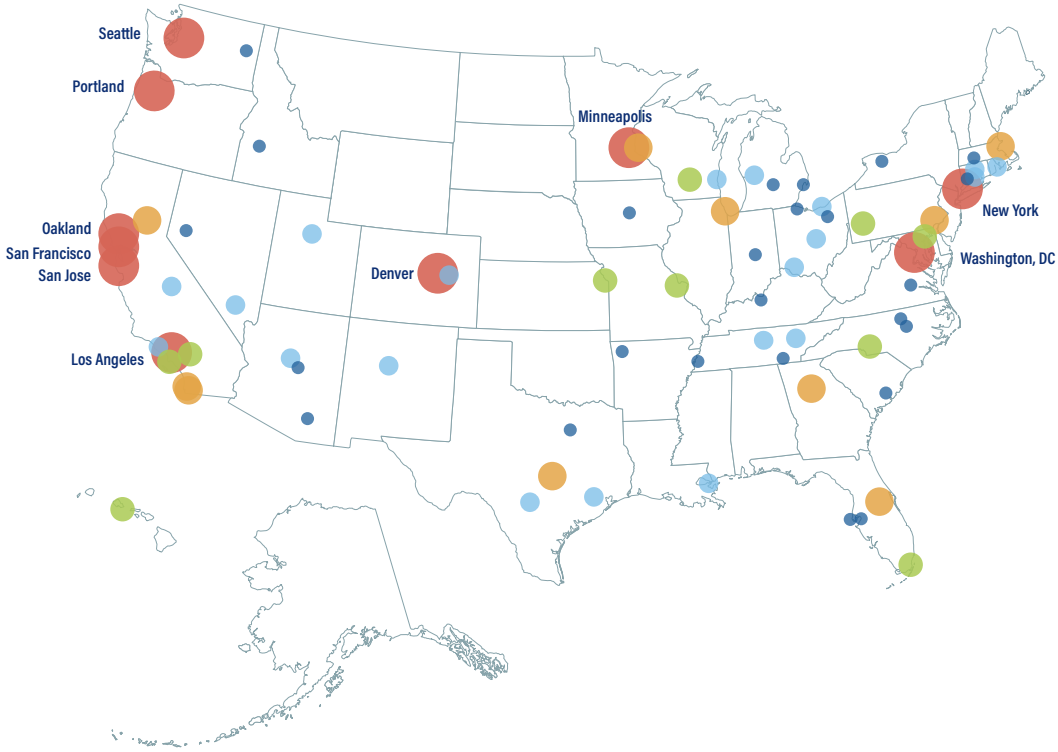
We did not adjust city scores or ranks based on this analysis because it is impossible to know what cities would have done in the absence of these state policies. Some leading cities may have adopted strong local clean energy policies; others may not have. Rather than adjusting scores, we offer this analysis to provide context for interpreting the city scores below.

CITY CLEAN ENERGY LEADERS

2024 Results

We present the results of *The 2024 City Clean Energy Scorecard* in figure 6 and more fully in table 1. The last column of table 1 lists information related to the change in rank from the 2021 *City Scorecard*. In the sections that follow, we discuss policy trends of the leading and most-improved cities.

Figure 6. 2024 City Scorecard rankings



2024 City Clean Energy Scorecard

1-10

1. San Francisco
2. Denver
3. Seattle
4. Los Angeles
5. Oakland
6. Minneapolis
7. New York
8. Portland
9. San José
10. Washington, DC

11-20

11. Boston
12. Chicago
13. San Diego
13. Sacramento
13. Atlanta
16. Chula Vista
17. Orlando
17. Austin
19. Philadelphia
20. Saint Paul

21-30

21. Madison
22. Riverside
22. Baltimore
22. Pittsburgh
25. Charlotte
26. Kansas City
27. Miami
28. Long Beach
29. Honolulu
30. St. Louis

31-50

31. San Antonio
32. Columbus
33. Nashville
34. Fresno
34. Houston
36. Hartford
36. Providence
38. Las Vegas
39. New Orleans
40. Grand Rapids
41. Phoenix
41. Salt Lake City
43. Albuquerque
44. Oxnard
45. Milwaukee
46. Cleveland
47. Knoxville
48. Aurora
49. Cincinnati
50. New Haven

51-75

51. Dallas
52. Boise
53. Spokane
54. Detroit
55. Memphis
56. Springfield
56. Raleigh
56. Des Moines
59. Rochester
60. Indianapolis
61. Richmond
62. Tucson
62. St. Petersburg
64. Reno
65. Lansing
65. Louisville
67. Durham
68. Bridgeport
69. Mesa
70. Charleston
70. Fayetteville
72. Toledo
73. Chattanooga
74. Tampa
75. Akron

Table 1. Summary of scores

Rank	City	State	Community-wide initiatives (45 pts)	Buildings policies (70 pts)	Transportation policies (70 pts)	Community energy infrastructure (40 pts)	Local government operations (25 pts)	Total (250 pts)	Share of total points	Change in rank from 2021
1	San Francisco	CA	27	36	47.5	31.5	16.5	158.5	63.4%	0
2	Denver	CO	28	58	27.5	28	13.5	155	62.0%	5
3	Seattle	WA	33	34.5	41.5	26	19	154	61.6%	–1
4	Los Angeles	CA	27.5	34.5	37.5	34	11.5	145	58.0%	4
5	Oakland	CA	24.5	28	43	30.5	17	143	57.2%	5
6	Minneapolis	MN	30	34	38	32	8	142	56.8%	–2
7	New York	NY	9	52.5	35	29.5	13.5	139.5	55.8%	–2
8	Portland	OR	24.5	26	47	22	19	138.5	55.4%	3
9	San José	CA	31.5	33	31.5	33.5	8	137.5	55.0%	0
10	Washington	DC	24	39	35	20.5	11.5	130	52.0%	–7
11	Boston	MA	13	29	29	31.5	17.5	120	48.0%	–6
12	Chicago	IL	11.5	36.5	27.5	25.5	13.5	114.5	45.8%	0
13	San Diego	CA	14.5	23	29.5	31	9	107	42.8%	3
13	Sacramento	CA	14.5	31.5	26	26	9	107	42.8%	5
13	Atlanta	GA	17.5	23.5	30.5	22.5	13	107	42.8%	2
16	Chula Vista	CA	11.5	34.5	14.5	29.5	10	100	40.0%	1
17	Orlando	FL	20	22.5	18.5	24	11	96	38.4%	5
17	Austin	TX	18	28	24	20.5	5.5	96	38.4%	–3
19	Philadelphia	PA	22	19.5	24	18.5	11	95	38.0%	-6
20	Saint Paul	MN	15.5	15	27.5	27	9.5	94.5	37.8%	0
21	Madison	WI	6	15.5	22.5	28.5	18	90.5	36.2%	18
22	Riverside	CA	11	24	19.5	24	4	82.5	33.0%	18
22	Baltimore	MD	10.5	18.5	20.5	23.5	9.5	82.5	33.0%	2
22	Pittsburgh	PA	11.5	12	25.5	19	14.5	82.5	33.0%	–1
25	Charlotte	NC	13.5	12	21.5	21.5	13	81.5	32.6%	17
26	Kansas City	MO	12.5	22.5	18	19.5	8.5	81	32.4%	10
27	Miami	FL	15.5	26	22.5	10.5	4	78.5	31.4%	22
28	Long Beach	CA	4.5	21	31	13	8.5	78	31.2%	–1
29	Honolulu	HI	9.5	16.5	19.5	21	10	76.5	30.6%	–5
30	St. Louis	MO	8	29.5	19.5	16	2.5	75.5	30.2%	–2
31	San Antonio	TX	21	19.5	8.5	10	14.5	73.5	29.4%	6
32	Columbus	OH	15	11.5	15	18	12.5	72	28.8%	–4
33	Nashville	TN	8	15.5	15.5	17	14.5	70.5	28.2%	13
34	Fresno	CA	0	21.5	19	27.5	2	70	28.0%	13
34	Houston	TX	11.5	14.5	15.5	13.5	15	70	28.0%	0
36	Hartford	CT	4.5	12	16.5	28.5	8	69.5	27.8%	–18
36	Providence	RI	13	9.5	14.5	26	6.5	69.5	27.8%	–10
38	Las Vegas	NV	12.5	11.5	19.5	14	11	68.5	27.4%	–7
39	New Orleans	LA	15.5	15	15	11.5	11	68	27.2%	28
40	Grand Rapids	MI	7.5	13.5	11	24.5	9.5	66	26.4%	–9

Rank	City	State	Community-wide initiatives (45 pts)	Buildings policies (70 pts)	Transportation policies (70 pts)	Community energy infrastructure (40 pts)	Local government operations (25 pts)	Total (250 pts)	Share of total points	Change in rank from 2021
41	Phoenix	AZ	13	12.5	10.5	20.5	9	65.5	26.2%	–19
41	Salt Lake City	UT	5.5	12.5	21	19.5	7	65.5	26.2%	–7
43	Albuquerque	NM	11.5	12.5	11.5	20	9.5	65	26.0%	–12
44	Oxnard	CA	7.5	21.5	17	15.5	1	62.5	25.0%	17
45	Milwaukee	WI	8	13	16.5	18	6.5	62	24.8%	8
46	Cleveland	OH	11.5	6.5	18	13.5	11.5	61	24.4%	–8
47	Knoxville	TN	9	8	11.5	21	10.5	60	24.0%	–4
48	Aurora	CO	3	29.5	6	19	1	58.5	23.4%	–18
49	Cincinnati	OH	16	10	10	9	10.5	55.5	22.2%	–6
50	New Haven	CT	4	8	16.5	20	6	54.5	21.8%	5
51	Dallas	TX	12.5	14	8	9.5	9.5	53.5	21.4%	–8
52	Boise	ID	8.5	14	10	11.5	9	53	21.2%	–11
53	Spokane	WA	2.5	21.5	22.5	2	3	51.5	20.6%	N/A
54	Detroit	MI	7.5	5	13.5	19.5	4.5	50	20.0%	7
55	Memphis	TN	4.5	12	13.5	13.5	6	49.5	19.8%	5
56	Springfield	MA	2.5	8	11	25.5	2	49	19.6%	–7
56	Raleigh	NC	6.5	3	14.5	19	6	49	19.6%	8
56	Des Moines	IA	11	10	11	15.5	1.5	49	19.6%	10
59	Rochester	NY	0	13	11.5	19	4.5	48	19.2%	–8
60	Indianapolis	IN	7.5	6	9	11	8.5	42	16.8%	4
61	Richmond	VA	9	7.5	13	8.5	2	40	16.0%	–14
62	Tucson	AZ	1	9.5	16	9	3	38.5	15.4%	9
62	St. Petersburg	FL	4	8.5	9.5	8	8.5	38.5	15.4%	–11
64	Reno	NV	7.5	16	3	7.5	3	37	14.8%	–3
65	Lansing	MI	3	7	13	10.5	3	36.5	14.6%	N/A
65	Louisville	KY	8	7.5	9	9	3	36.5	14.6%	–6
67	Durham	NC	0	3	5.5	16	8	32.5	13.0%	N/A
68	Bridgeport	CT	0	5	7	13.5	3	28.5	11.4%	1
69	Mesa	AZ	3.5	6	4	8	4.5	26	10.4%	0
70	Charleston	SC	3	4	9.5	5	4	25.5	10.2%	9
70	Fayetteville	AR	6.5	2.5	10.5	4.5	1.5	25.5	10.2%	N/A
72	Toledo	OH	3.5	3	4.5	8	4	23	9.2%	5
73	Chattanooga	TN	1.5	6	7.5	5.5	2	22.5	9.0%	N/A
74	Tampa	FL	2	3.5	8	6.5	1	21	8.4%	7
75	Akron	OH	0	2	4	8.5	5	19.5	7.8%	9

The group of cities making up this year's *City Scorecard* top 10 remained relatively unchanged from the previous edition with one exception. Portland moved up into the top 10, taking the ninth-highest spot while Boston fell out of the top 10 to #11 in our rankings.

Leading Cities

Below we describe the clean energy policies and programs of our *Scorecard's* five highest-scoring cities.

San Francisco again took the top spot in the *City Scorecard*. In addition to earning the highest overall score, the city also earned the top scores for our transportation policy and racial and social equity metrics. Since the last edition, the city has updated its climate action plan to include new goals for reducing GHG emissions, advancing decarbonization, and shifting to low- or zero-carbon forms of transportation. The city also created a new transportation plan called *San Francisco Transportation Plan 2050*. Advancing a more energy-efficient transportation system, the city upzoned all residential districts to allow the construction of duplexes by right.

Denver received the second-highest overall score this year, moving up five spots in the top-10 rankings. This increase is largely owed to it having the highest buildings policy score. The city has adopted building performance requirements that set minimum efficiency standards for existing buildings and benefits from the State of Colorado's requirement that rental property owners disclose energy use information to prospective tenants and buyers. The city has gone a step further and is providing support for both affordable housing providers and underserved commercial properties to comply with these policies. Since the last *Scorecard*, the city also began the process of installing 11 new community solar gardens in neighborhoods across the city.

Seattle received the third-highest overall score this year and the highest score in our community-wide initiatives and policy performance metrics. The city moved up from sixth to fourth in our transportation rankings largely due to new actions the city undertook in this regard since the last *Scorecard*. The city has been updating the comprehensive plan it will use to direct future transportation work while King County, home to the city, has adopted a *Metro Zero Emission Bus Fleet Transition Plan*, which directs actions and sets targets to transition its transit buses to zero GHG emissions. Seattle also began providing free transit passes for individuals living in Seattle Housing Authority properties. Seattle continues to advance other equity-centered climate mitigation initiatives, expanding the reach of existing efforts such as the Clean Heat Program, which provides no-cost upgrades to help low- to middle-income residents switch to energy-efficient electric heat pumps.

Los Angeles rose four spots in our rankings to fourth overall, largely owing to the city having the highest score in our community energy infrastructure metric. It ranked first in this area based on its equity-driven approach to designing, implementing, and evaluating low-income energy efficiency programs through its municipal utility Los Angeles Department of Water and Power (LADWP). In 2021, LADWP launched its Comprehensive Affordable Multifamily Retrofits program to provide financial incentives for home retrofits for low-income housing and communities. The city also offers multiple renewable energy programs for low-income households and has organized focus groups of disadvantaged residents to inform its overall building decarbonization work. Sixty-two percent of the electricity powering the city government comes from carbon-free sources and LADWP's carbon footprint is the second smallest of all municipal utilities scored in this *Scorecard*.

Oakland had the fifth highest overall score in our *Scorecard* this year, its highest ranking since being added to the report in 2019. Oakland has created several innovative and unique structures for equitable community engagement. Since the last edition of the *Scorecard*, the City of Oakland and its equity facilitator team have released a *Racial Equity Impact Assessment and Implementation Guide* to steer the work of its employees. The city also adopted its *Zero Emissions Vehicle Action Plan,* which lays out strategies to switch as many trips as possible from cars and trucks to active transportation and transit, while encouraging all remaining vehicle trips to utilize zero emissions vehicle technologies.

Minneapolis, New York, San José, Portland, and Washington, DC, round out the top 10. **Minneapolis**, sixth in our rankings, was awarded a federal grant to complete work on three resilience hubs in disadvantaged communities. **New York City**, our seventh-highest ranked city, earned the highest smart growth metrics score. **Portland** ranked eighth overall and solidified its place as the *Scorecard's* leading city in local government operations, owing to the long-running strategic energy management of its facilities. **San José**, ranked ninth in our scores, took an important step forward in promoting location-efficient development by removing parking minimums for new construction projects. **Washington, DC**, ranked 10th, adopted new GHG emissions goals as part of its Climate Commitment Act of 2022.

Most-Improved Cities

We commend all cities that rose in the ranks of this year's *Scorecard*, but two dramatically improved their rank. New Orleans and Miami rose 28 and 22 spots in rank, respectively.

New Orleans improved in our *Scorecard* by undertaking several new clean energy actions. The city successfully advocated that the State of Louisiana adopt the 2021 IECC energy code, with the new codes going into effect July 1, 2023. New Orleans updated its zoning in 2023 to require EV charging stations in several new types of residential and commercial development. The city set a requirement that all new municipal building construction projects achieve LEED Gold certification. In 2022, New Orleans adopted a new municipal fleet procurement ordinance that halts the purchase of any vehicles powered by fossil fuels and requires the creation of a 10-year plan to replace the city's current fossil fuel–powered vehicles. The city also adopted a new Renewable and Clean Portfolio standard with a goal of generating 100% carbon-free electricity by 2050 and achieving net-zero GHG emissions from power generation by 2040.

Miami committed to achieving carbon neutrality by 2050 in its *Miami Forever Carbon Neutral* plan. The plan not only updated its community-wide GHG emissions goal, but laid out many strategies and targets to achieve this goal. The plan includes transportation energy commitments, including a goal to achieve 15% fewer private vehicle trips compared to 2018 levels by 2035 and a goal of transitioning 100% of its trolley fleet to electric by 2035. Miami plans to prioritize routes serving disadvantaged communities and communities with high asthma rates as it converts its trolley fleet. The city also adopted a new stormwater management ordinance in 2022 designed to mitigate against the heat island effect and reduce GHG emissions associated with new developments.

NEW CITY CLEAN ENERGY ACTIONS

Between January 2017 and June 2021, our *City Clean Energy Scorecard* documented cities undertaking more than 500 actions to advance clean energy in their communities. *Scorecard* cities undertook at least 158 new clean energy actions between July 2021 and September 2023. In past *Scorecards* we found that cities were typically directing their clean energy work toward the buildings or power sectors, but an increased share of city actions over the past two years were directed at the transportation sector. New transportation actions accounted for 83 (53%) of the 158 new city clean energy actions that cities undertook. Most of these actions involved cities either adopting new sustainable transportation plans (32) or adopting new mode shift, EV transit, or EV school bus targets (19). The remaining new transportation actions involved

- Adopting location-efficient zoning codes (9)
- Providing local government employees with benefits that reduce the carbon footprint of their commutes (7)
- Creating new subsidy programs to increase disadvantaged residents' access to low- or no-carbon forms of transportation (6)
- Creating policies to improve the energy efficiency of their municipal vehicle fleet (5)
- Removing or lowering parking minimum requirements (4)
- Adopting EV-ready building codes (3)

When cities were not undertaking actions directed at the transportation sector, they were often focused on setting goals for themselves and their communities. Cities adopted 16 new GHG emissions, 6 carbon-free, and 4 energy reduction targets for their communities. Eleven cities also adopted these targets for their own local government operations.

Compared to the 2021 *Scorecard*, we found that the share of new city actions in this *Scorecard* focused on advancing racial and social equity doubled. Fifty-five (34%) of the new actions had an equity focus. We found that only 17% of new city actions in the last *Scorecard* were intended to advance racial and social equity. While this is encouraging, cities still stand to do a great deal more to pursue equity through their clean energy work. As with past *Scorecards*, most city equity actions were related to a planning process. Thirty-two cities created new transportation plans that were, at least in part, focused on racial and social equity. Eight cities undertook equity-driven community engagement and decision-making processes to guide their clean energy strategies and three cities established protocols to hold themselves accountable to their stated equity goals. Cities stand to do more in terms of initiating equity-driven clean energy policies and programs. Only 12 of the 55 equity-driven actions involved beginning a new policy, program, or project.

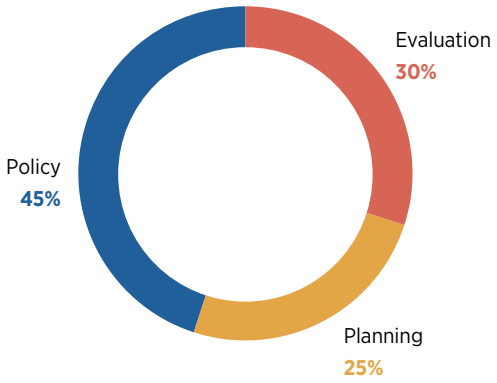
This trend in cities focusing on planning and process rather than policy or program adoption was not reflected across the full breadth of new city activities. Forty-five percent (71) of the new city actions involved creating a new policy, program, or project. However, these actions accounted for a significantly smaller share of the total new actions cities undertook when compared to the previous *Scorecard*. Roughly two-thirds of the new actions we observed cities taking in the *2021 Scorecard* involved policies, programs, and projects focused on either the creation of clean energy infrastructure or improving the energy performance of buildings. In keeping with the overall trend of new city activities, most of the new city activities included in this *Scorecard* were focused on the transportation sector. Table 2 lists the most common types of new city policies, programs, and projects recorded in this *Scorecard*.

Table 2. Most common new city policies, programs, and projects

Type of new city actions	Count of actions
Location-efficient zoning codes	9
Low-income and multifamily energy efficiency programs	7
Low carbon transportation employee benefits	7
Fleet procurement policy	5
Support for community solar systems	4
Removed or lowered minimum parking requirements	4
Subsidies to disadvantaged residents for efficient transportation	4
Heat island mitigation policies and programs	4
Workforce development programs	3

The remaining new clean energy actions were split roughly evenly between planning (40) and evaluation (47) activities. As has already been pointed out, many of the planning activities involved the adoption of a new sustainable transportation plan. Nearly all of the new actions cities took to evaluate themselves involved the adoption of a new energy-related goal or goals. Figure 7 shows the breakdown of new city actions between those that can be categorized as policy, planning, or evaluation actions.

Figure 7. Breakdown of new city clean energy actions by type



ASSESSING THE MULTIPLE AIMS OF CITY CLEAN ENERGY EFFORTS

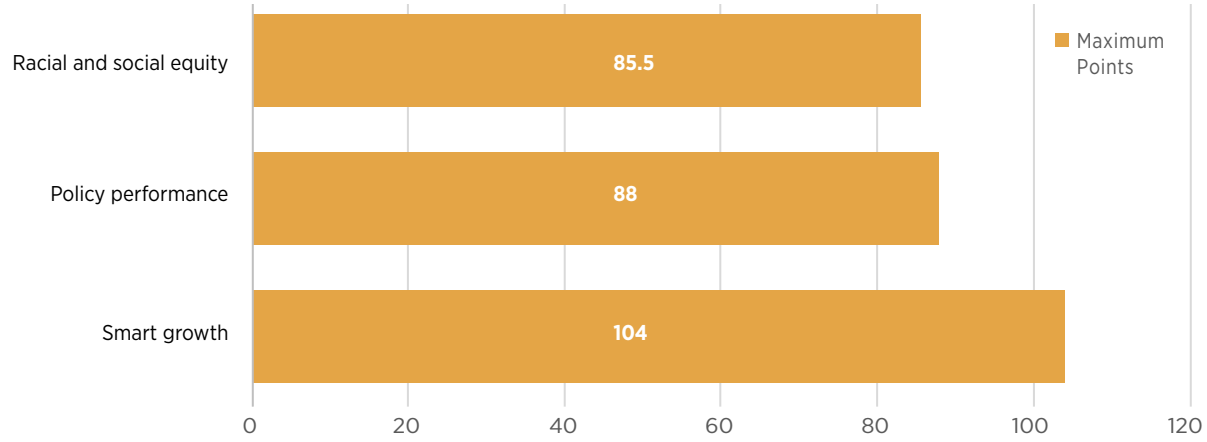
While cities are primarily intending their clean energy plans, policies, and programs to reduce GHG emissions and energy use, we recognize that they are also aiming to achieve several other objectives. We examine three of these that appear throughout three subsets of metrics found across all chapters of the *Scorecard*:

- Addressing racial and social inequities
- Demonstrating the effectiveness of their initiatives (policy performance)
- Growing their local economy while reducing energy consumption and GHG emissions (smart growth)

We have performed a separate analysis of city actions that align with these objectives. We totaled each city's scores for the metrics related to each of these aims and include the results of that analysis in this section. Appendix A offers a detailed categorization of each metric in the *City Scorecard*, showing which ones align with each of these three categories. Figure 8 shows the maximum number of points that cities could score for each category.[11]

11 The maximum number of points that a city can earn for a given category includes points that are specifically allocated out of the total 250 available. We do not include points for bonus metrics in the totals shown here.

Figure 8. Maximum points available for city clean energy metric categories (points are not mutually exclusive)



Below we briefly discuss the importance of examining each of these three categories and how we have done so through our metrics and point allocations.

Racial and Social Equity

As the planet warms, low-income communities and communities of color are likely to experience the harshest effects of climate change. These individuals and families are at risk because they often live in neighborhoods with greater exposure to natural hazards such as flooding, droughts, wildfires, and extreme heat (IPCC 2007; Dodman and Satterthwaite 2009; Hoerner and Robinson 2008; Davies et al. 2018; Hsu et al. 2021). These places also typically lack the infrastructure needed to mitigate or adapt to climate change's worst outcomes. For example, many of the buildings in these areas may lack air-conditioning, cool roofing, and surrounding green space to diminish extreme heat (Jesdale, Morello-Frosch, and Cushing 2013; Chen, Ban-Weiss, and Sanders 2020; Hoffman, Shandas, and Pendleton 2020). In some cases, such infrastructure may exist but may be at risk of failure due to poor design or maintenance. For example, the dredging of canals in New Orleans led to the destruction of nearby wetlands, which absorb floodwaters during storms. This led to intense flooding in Black neighborhoods during Hurricane Katrina (Freudenburg et al. 2008). Historically, people of color and those with low incomes have been denied access to the resources that would allow them to address these vulnerabilities or move to less vulnerable locations. These resources include clear information about hazards and risks as well as guidance on accessing good jobs, reliable transportation, home insurance, and government assistance (IPCC 2007; Dodman and Satterthwaite 2009; Hoerner and Robinson 2008; Davies et al. 2018).

These disadvantaged communities also encounter barriers to participating in energy efficiency and renewable energy programs that can reduce their energy costs (Drehobl, Ross, and Ayala 2020; Garren et al. 2017). Low-income households spend a larger proportion of their incomes on home energy bills and vehicle gasoline costs than do more affluent households, adding to the struggles that many face in paying for other necessities. Low-income households' median home energy and average gasoline cost burdens are more than three times those of households that are not low income (Drehobl, Ross, and Ayala 2020; Vaidyanathan, Huether, and Jennings 2021). Compared with white households, the median home energy burden of Hispanic households is 20% greater; for Black and Native American households, the burden is nearly 50% greater (Drehobl, Ross, and Ayala 2020). Similarly, Black and Hispanic households experience gasoline cost burdens nearly 50% higher than do white households, and Native American household gas burdens are nearly 75% higher (Vaidyanathan, Huether, and Jennings 2021).

Disadvantaged communities face substantial barriers to mitigating and adapting to climate change. We have detailed only some of these here. Throughout the remaining chapters of this report, we expand on how these and other inequities manifest in multiple aspects of cities' clean energy and related strategies. We describe and score cities on their actions to address these disparities. We also characterize and score cities on activities such as community engagement that increase the ability of historically marginalized groups to affect and direct local policy while honoring and valuing their knowledge and traditions, strengthening their solidarity with one another, and expanding their ability to direct the course of their own lives (Samarripas and Jarrah 2021).

This year's *City Scorecard* includes several new equity metrics, including those that track cities' equity-driven approaches to create resilience hubs in disadvantaged communities, provide support for underserved commercial properties to comply with building performance standards, deploy equitable electrification programs, better track program outcomes for underserved groups, conduct more equitable transportation planning, and set living wages for clean energy workers. We provide additional information about these new metrics in the section following this chapter. We have also revised several of our existing equity-focused metrics, and these changes are detailed in Appendix B. In adding and revising these metrics, we increased the overall share of points available for equity-driven clean energy strategies from 17% to 34%.[12]

Table 3, included at the end of this section, shows the top 10 city scores for racial and social equity strategies.

Policy and Program Performance

The Intergovernmental Panel on Climate Change (IPCC) warned in its *Sixth Assessment Report* that time is running out to prevent some of the worst effects of climate change and that it is critically important that all governments act both quickly and effectively to reduce GHG emissions (IPCC 2021). To do their part in helping meet global climate change mitigation targets, cities will need to ensure that the policies and programs they adopt are performing well. Historically, many cities have not tracked or shared comparable annual data regarding the performance of their clean energy initiatives, community-wide energy use, or greenhouse gas emissions (Samarripas and de Campos Lopes 2020). This has started to change in recent years, and our *City Clean Energy Scorecard* has increasingly included metrics that score city policy performance as these data have become more widely available.

In this edition of the *City Clean Energy Scorecard* we include two kinds of policy and program performance metrics in each chapter. First, we include metrics that analyze data of policy and program outcomes. These include metrics that track progress toward GHG emissions goals, municipal clean energy procurement efforts, energy benchmarking compliance, utility energy savings, and access to high-quality transit. These metrics account for 48 of the 88 points we assigned to our performance metrics. While many of these metrics remained similar to those from past years, we made two notable changes to these metrics. We updated the metric used to track cities' progress toward their community-wide GHG goals. This year's metric accounts not only for the degree to which cities are projected to meet the goals but also the rate at which their emissions are declining. We also added a metric assessing city progress toward their carbon-free electricity goals.

Second, we include metrics that assess how cities are evaluating the effectiveness of their initiatives. The following evaluation metrics are new to this year's *Scorecard*:

- Community-wide energy efficiency goal adoption
- Workforce development program outcome tracking
- Tracking equity outcomes for non-targeted buildings programs
- Bicycle system efficiency and connectivity
- Equitable electric school bus goal adoption
- Equitable electric transit bus goal adoption
- Utility low-income energy efficiency program equity goal adoption
- Utility low-income energy efficiency program gap analyses
- Disparity studies of inclusive procurement and contracting

These and existing evaluation metrics account for 40 of the 88 points we assigned to our performance metrics.

Table 3, at the end of this section, shows the top 10 city scores for this metric category. See the "Issue in Focus: Progress on Climate Change Mitigation Goals" section following Chapter 2 for a closer look at cities' progress toward their climate change mitigation goals.

12 These point shares do not include metrics that are assigned bonus points.

Smart Growth Strategies that Reduce Energy and GHG Emissions

The COVID-19 pandemic demonstrated that deliberate action can lead to rapid declines in GHG emissions. U.S. GHG emissions dropped by 10% in 2020 compared with 2019, but these declines were largely the result of decreased economic activity that led to fewer and shorter trips, elevated unemployment, and decreased output of goods and services (Larsen, Pitt, and Rivera 2021). Such drops in emissions are not sustainable over a prolonged period, but policymakers can achieve economic growth while reducing GHG emissions. Between 2005 and 2017, 41 states and the District of Columbia grew their economy while reducing GHG emissions (Saha and Jaeger 2020).

Some cities are pairing smart growth and evolving clean energy strategies to mitigate the impact of growth on their carbon footprint and achieve other environmental, health, and societal benefits. Smart growth strategies are deployed in land use, transportation, and community planning and align with the following principles developed in 1996 by the Smart Growth Network, a partnership of government, business, and nonprofit organizations:

- Mix land uses
- Take advantage of compact building design
- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Foster distinctive, attractive communities with a strong sense of place
- Preserve open space, farmland, natural beauty, and critical environmental areas
- Strengthen and direct development toward existing communities
- Provide a variety of transportation choices
- Make development decisions predictable, fair, and cost effective
- Encourage community and stakeholder collaboration in development decisions (ICMA and Smart Growth Network 2006)

City clean energy policies, programs, and projects that align with these principles focus on reducing the energy use or GHG emissions of energy infrastructure, preserving existing buildings while lowering their carbon footprint, and modifying urban form to encourage a more energy-efficient and less carbon-intensive transportation system. They can also produce several co-benefits, such as improving public health, community well-being, and a city's economic competitiveness (ICMA and Smart Growth Network 2006). We identify metrics that track policies, programs, and projects directly aligning with smart growth principles. These metrics account for 109 of the *Scorecard*'s 250 possible points, including 2 bonus points. Table 2 lists these metrics and shows how they align with smart growth principles. Table 3, included at the end of this section, shows the top 10 city scores for this clean energy strategy.

Table 2. Actions tracked by *City Scorecard* smart growth metrics and their alignment with smart growth principles

Smart growth metric actions	Corresponding smart growth principles
Requiring less outdoor lighting in specific zones	Foster distinctive, attractive communities with a strong sense of place
	Preserve open space, farmland, natural beauty, and critical environmental areas
	Strengthen and direct development toward existing communities
Reducing the carbon footprint of district energy and microgrid systems that serve multiple facilities	Take advantage of compact building design
	Strengthen and direct development toward existing communities
	Make development decisions predictable, fair, and cost effective
Supporting community solar systems so that those in dense urban areas can benefit from solar deployment	Mix land uses
	Take advantage of compact building design
	Make development decisions predictable, fair, and cost effective
Taking an equity-driven approach to deploying district energy, microgrid, and community solar systems	Mix land uses
	Take advantage of compact building design
	Foster distinctive, attractive communities with a strong sense of place
	Strengthen and direct development toward existing communities
	Encourage community and stakeholder collaboration in development decisions

Smart growth metric actions	Corresponding smart growth principles
Using existing, structurally sound, and safe buildings to create resilience hubs that provide for the clean energy and climate needs of the surrounding community	Foster distinctive, attractive communities with a strong sense of place Strengthen and direct development toward existing communities Provide a variety of transportation choices
Employing land conservation, environmental restoration, and green infrastructure development strategies to mitigate the heat island effect	Take advantage of compact building design Foster distinctive, attractive communities with a strong sense of place Preserve open space, farmland, natural beauty, and critical environmental areas Strengthen and direct development toward existing communities
Requiring or incentivizing comprehensive whole-building energy improvements that extend the useful life of existing properties	Foster distinctive, attractive communities with a strong sense of place Strengthen and direct development toward existing communities
Instituting housing affordability requirements in clean energy incentive programs	Foster distinctive, attractive communities with a strong sense of place Strengthen and direct development toward existing communities
Creating zoning provisions, removing parking minimums, and offering incentive programs designed to encourage location efficiency	Mix land uses Take advantage of compact building design Create a range of housing opportunities and choices Create walkable neighborhoods
Initiating efforts to increase the use of more energy-efficient and/or low-carbon transportation modes such as walking, biking, transit, and EVs	Create walkable neighborhoods Take advantage of compact building design Provide a variety of transportation choices

Equity, Policy Performance, and Smart Growth Leaders

Table 3 lists the cities receiving the top 10 equity, policy performance, and smart growth scores. Appendix D contains these scores for all 75 cities.

Table 3. Top 10 city scores for equity, policy performance, and smart growth metrics

Racial and social equity (85.5 points)	Policy performance (88 points)	Smart growth (104 points)
1. San Francisco (48)	1. Seattle (57)	1. New York (64)
2. Seattle (43)	2. San Francisco (56.5)	2. San Francisco (59)
3. Denver (42.5)	3. Oakland (54)	3. Denver (57.5)
4. Minneapolis (41.5)	4. Minneapolis (53.5)	4. Portland (56.5)
5. Portland (41)	5. Portland (51)	5. Washington, DC (54.5)
6. Washington, DC (38.5)	6. San José (50)	6. Seattle (52)
7. Oakland (37)	7. Washington, DC (49.5)	7. Oakland (47)
8. New York (36.5)	8. Los Angeles (48.5)	8. Minneapolis (46.5)
9. Chicago (34.5)	9. Denver (46.5)	9. Los Angeles (44.5)
10. Boston and Los Angeles (34)	10. Boston (45.5)	10. Sacramento and San José (41.5)

Most of the cities that received the top-10 equity, policy performance, and smart growth scores also scored in the top 10 of our overall *Scorecard* rankings. The top 10 cities in this *Scorecard* generally provide many examples of how local governments can tackle some of our most pressing clean energy challenges effectively, and all top-10 cities appear in at least two of these rankings. We note three cities that appear in these top-10 equity, policy performance, and smart growth rankings but not in our overall top 10. Boston has the 10th-highest equity and policy performance scores while scoring just outside the top 10 with the 11th-highest overall score. Chicago has the 9th-highest equity score, but it is ranked 12th overall in the *Scorecard*. Finally, Sacramento is tied with San José for the 10th-highest smart growth score but scores 13th overall in the *Scorecard*.

Unfortunately, only two cities—San Francisco and Seattle—earned more than half of our available equity metric points. New York, San Francisco, Denver, Portland, and Washington, DC, earned more than half of the available smart growth points. All of the top-ranked policy performance cities earned more than half of the available points in this category; however, no cities beyond these 10 earned half or more points. Overall, the 75 cities analyzed for this report stand to greatly improve their overall scores with a stronger focus on racial and social equity, policy performance, and smart growth.

ADVANCING CLEAN ENERGY: CURRENT TRENDS AND OPPORTUNITIES

Opportunities for All Cities

Our analysis of city scores reveals that all cities, even those with a top 10 ranking, have opportunities to create or expand clean energy policies and programs. These include:

- *Advancing racial and social equity through clean energy strategies*. While some cities are taking steps to advance equity through their clean energy work, all have room to do more. In particular, cities tended to have lower scores for equity metrics tracking their efforts in the buildings sector. Moving forward, cities can create more equitable electrification programs, adopt rental energy disclosure policies, undertake low-income energy incentive and financing program best practices, and provide building performance standard compliance support for affordable housing providers and underserved commercial properties.[13] We explore additional city clean energy equity trends and opportunities in the section following this chapter.

- *Adopting building energy performance standards that require existing buildings to meet energy or GHG emissions reduction targets*. In *The 2021 City Clean Energy Scorecard* only seven cities had adopted building energy performance standards. As of fall 2023, 11 of our *Scorecard* cities had these mandates. While we recognize that some cities are prevented by their state governments from adopting these kinds of policies, many more have the opportunity to do so and make substantial cuts to their building sector GHG emissions. According to Nadel and Hinge (2023), applying these standards to 80% of commercial properties and 60% of the residential properties built before 2023 would reduce projected 2050 carbon emissions by 26%. We describe how cities can embark on paths to adopt these policies and do so equitably in this and the Buildings Policies chapter (Chapter 3).

- *Adopting and carrying out commitments to reduce transportation energy use and GHG emissions*. The 2021 edition of the *Scorecard* identified only 25 cities that had adopted goals to reduce VMT or transportation GHG emissions, and only 3 of those were on track to achieve them. In many cases, cities did not provide us with sufficient data to assess their progress toward their transportation goals. As of this *Scorecard*, 31 cities have adopted VMT or transportation GHG emissions goals, but only San Diego is on track to achieve its goal. San Diego is also the only city on track to achieve its community-wide and transportation climate goals. Setting, tracking progress toward, and working to achieve community-wide and transportation-specific clean energy goals are especially important given that the world has a narrow window to reduce GHG emissions and avoid the worst outcomes of climate change (IPCC 2021). The transportation sector is of special concern given that it contributes the largest (and still growing) share of U.S. GHG emissions (EPA 2021). We further explore city approaches to setting and tracking progress toward these goals in Chapter 4.

13 Throughout this report, we use the term *affordable housing* as a general term that characterizes a variety of housing types and ownerships, all with the common objective of being low cost to residents. Affordable housing includes subsidized housing—properties with below-market rents, or market-rate properties with residents who receive vouchers for rent payments. It also includes "naturally occurring affordable" housing—properties that are low cost without any subsidies.

City Clean Energy Scorecard Typology

The 75 large U.S. cities included in our *Scorecard* represent a diverse range of localities facing very different circumstances and challenges. While we continue to highlight the performance of cities in the top 10 of the *Scorecard*'s rankings, we also want to recognize the unique strengths and needs of the remaining 65 cities. These cities received only limited analysis in the *Scorecards* that preceded the 2021 edition because of their lower scores and fewer clean energy initiatives. Most cities' initiatives were characterized only in the city fact sheets that were created as supplements to this report.

To provide additional guidance, the 2021 *City Scorecard* divided the cities that fell outside the top 10 into a typology of six groups based on two factors: metro (MSA) size and city population growth rate. These two variables are often indicative of local characteristics that determine a city's energy and GHG emissions profile and city government budgets that drive a locality's capacity to pursue clean energy initiatives. In reducing the number of *Scorecard* cities from 100 to 75, we found that some of the original groups of cities were too small to conduct a reliable trends analysis. We therefore reorganized the typology into four groups.

We first grouped cities according to whether they were in a large or midsize metropolitan area using 2019 U.S. Census Bureau American Community Survey population data. Those cities with an MSA population of 1 million or more were included in our large metro classification, while those with an MSA population of less than 1 million were included in our midsize metro classification. We also divided all cities into groups based on the distribution of their average annual population change between 2010 and 2020. Those cities with a growth rate of less than 0.641%, the median for average annual population change for all U.S. cities, were characterized as *stable* and those with a higher growth rate were characterized as *accelerating*. Figure 9 summarizes our approach to grouping *Scorecard* cities.

Figure 9. Methodology for grouping *Scorecard* cities

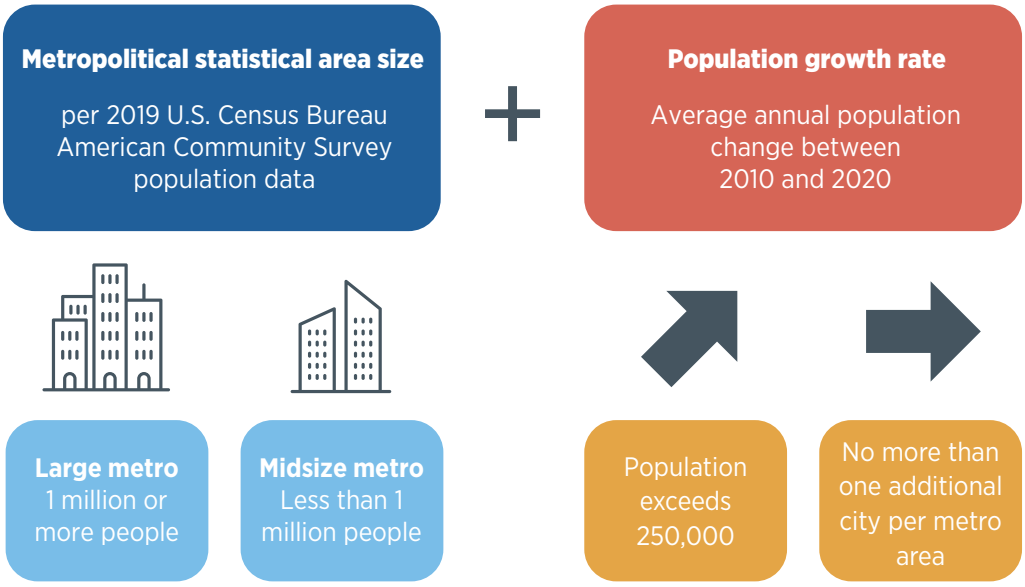


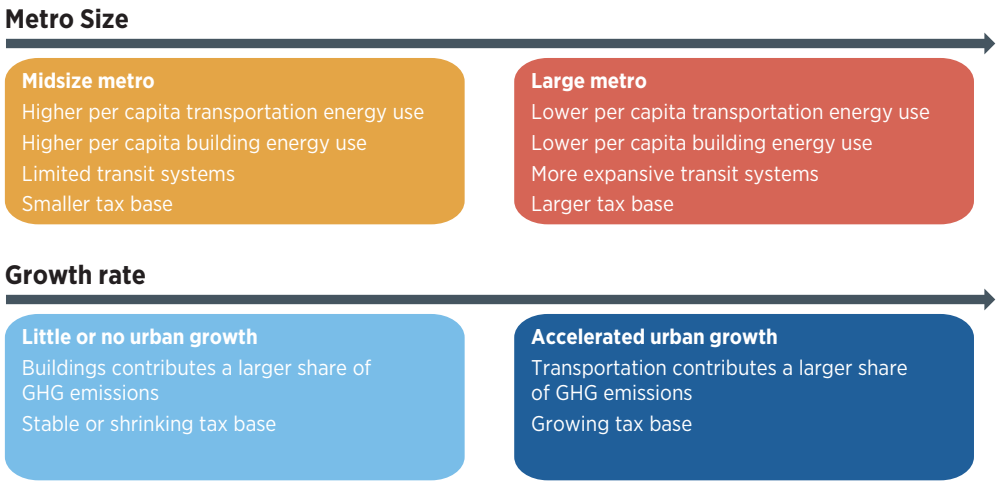
Table 4 on the next page shows the breakdown of cities into these groups, and Appendix C includes each city's MSA population and average annual population change data.

Table 4. City breakdown of typology groups

Stable cities in large metros	Accelerated-growth cities in large metros	Stable cities in midsize metros	Accelerated-growth cities in midsize metros
Baltimore, MD	Atlanta, GA	Akron, OH	Boise, ID
Boston, MA	Aurora, CO	Albuquerque, NM	Charleston, SC
Chicago, IL	Austin, TX	Bridgeport, CT	Chattanooga, TN
Cleveland, OH	Charlotte, NC	Des Moines, IA	Durham, NC
Cincinnati, OH	Chula Vista, CA	Knoxville, TN	Fayetteville, AR
Dallas, TX	Columbus, OH	Lansing, MI	Madison, WI
Detroit, MI	Fresno, CA	New Haven, CT	Reno, NV
Grand Rapids, MI	Kansas City, MO	Oxnard, CA	Spokane, WA
Hartford, CT	Las Vegas, NV	Springfield, MA	
Honolulu, HI	Louisville, KY	Toledo, OH	
Houston, TX	Mesa, AZ		
Indianapolis, IN	Miami, FL		
Long Beach, CA	Nashville, TN		
Memphis, TN	Orlando, FL		
Milwaukee, WI	Phoenix, AZ		
New Orleans, LA	Providence, RI		
Philadelphia, PA	Raleigh, NC		
Pittsburgh, PA	Richmond, VA		
Riverside, CA	Sacramento, CA		
Rochester, NY	Salt Lake City, UT		
Saint Paul, MN	Tampa, FL		
San Antonio, TX			
San Diego, CA			
St. Louis, MO			
St. Petersburg, FL			
Tucson, AZ			

These groups are generally associated with several economic and energy characteristics. Cities in midsize metros are more likely than those in large metros to be in the U.S. heartland, have fewer professional service employers, and have higher overall per capita building and transportation energy use. Cities with declining populations experience challenges in the form of employment losses, abandoned buildings, a smaller tax base, and limits on city services. However, rapidly growing cities will eventually be responsible for large costs associated with their growth. These localities are also more likely to have higher per capita building and transportation energy use and GHG emissions, with the transportation sector occupying a large share of cities' total GHG emissions. Figure 10 summarizes how metro size and urban population growth are associated with several economic and energy characteristics. We provide a detailed review of the research surrounding these indicators in Appendix B.

Figure 10. Associations between metro size, urban population growth, and various local characteristics



Midsize metro city rankings

Recognizing that the size of a city's surrounding metro area greatly affects the opportunities and challenges a city faces and given that our *Scorecard* is mostly composed of cities in large metros, we decided to give separate recognition for cities in midsize metros. Table 5 provides the scores and rankings for the 18 cities in our *Scorecard* that are located in midsize metros.

Table 5. Scores and rankings for cities in midsize metros

Midsize metro city rank	Overall *Scorecard* rank	City	State	Community-wide initiatives (45 pts)	Buildings policies (70 pts)	Transportation policies (70 pts)	Community energy infrastructure (40 pts)	Local government operations (25 pts)	Total (250 pts)	Share of total points
1	21	Madison	WI	6	15.5	22.5	28.5	18	90.5	36.2%
2	43	Albuquerque	NM	11.5	12.5	11.5	20	9.5	65	26.0%
3	44	Oxnard	CA	7.5	21.5	17	15.5	1	62.5	25.0%
4	47	Knoxville	TN	9	8	11.5	21	10.5	60	24.0%
5	50	New Haven	CT	4	8	16.5	20	6	54.5	21.8%
6	52	Boise	ID	8.5	14	10	11.5	9	53	21.2%
7	53	Spokane	WA	2.5	21.5	22.5	2	3	51.5	20.6%
8	56	Des Moines	IA	11	10	11	15.5	1.5	49	19.6%
9	56	Springfield	MA	2.5	8	11	25.5	2	49	19.6%
10	64	Reno	NV	7.5	16	3	7.5	3	37	14.8%
11	65	Lansing	MI	3	7	13	10.5	3	36.5	14.6%
12	67	Durham	NC	0	3	5.5	16	8	32.5	13.0%
13	68	Bridgeport	CT	0	5	7	13.5	3	28.5	11.4%
14	70	Fayetteville	AR	6.5	2.5	10.5	4.5	1.5	25.5	10.2%
15	70	Charleston	SC	3	4	9.5	5	4	25.5	10.2%
16	72	Toledo	OH	3.5	3	4.5	8	4	23	9.2%
17	73	Chattanooga	TN	1.5	6	7.5	5.5	2	22.5	9.0%
18	75	Akron	OH	0	2	4	8.5	5	19.5	7.8%

Madison is the top-ranked city in a midsize metro for the 2024 *Scorecard*. The city was our most-improved city in the 2021 *Scorecard*. While Madison did not maintain that distinction in this year's report, it did jump 18 spots to land at 21st in our overall rankings. It is also the only midsize metro city to appear in a policy area's top three rankings—achieving this distinction as the third-highest scoring city in our local government operations rankings. The city's new ordinance

reducing outdoor lighting helped its move up the rankings. The city also undertook two new transportation actions in adopting its 2022 *Vision Zero Action Plan*, which includes a goal to reduce vehicle miles traveled 15% by 2050, and modifying its zoning code to create a transit-overlay district for areas near high-frequency transit.

Below, we lay out policy trends and identify key opportunities for each of our typology groups to improve their scores. We analyzed each group's combined scores on each metric and compared that total to the maximum number of points available to the group for that metric. Using the results of this analysis, we identified the metrics for which a group received particularly high or low scores relative to other groups, and we use these findings to discuss trends and opportunities for each group below. We also used available information about each group's energy or GHG emissions profile and the presence or absence of enabling state legislation to guide our identification of each group's opportunities for score improvement. In presenting these opportunities, we identify at least one city in each group that can serve as a model and resource for a given strategy. To better support future collective action by cities in these groups, we do not identify a strategy as an opportunity for future action unless at least one city in the group has undertaken it. We recognize that the opportunities we identify may not be needed or possible for all cities in a group. For this reason, we highlight at least two policy or program opportunities for each group to pursue. We identify additional trends and opportunities for cities in the individual city fact sheets that accompany this publication.

Stable cities in large metros

Cities in large metros with stable populations earned the highest average scores for our local government operations and transportation policies areas. These cities stand out compared to the other typology groups for taking a "lead by example" approach by adopting municipal fleet procurement policies and robust, inclusive contracting and procurement processes that encourage women- and minority-owned businesses to apply. This group leads on transportation with nearly all cities having adopted a goal to electrify their transit buses and most cities offering EV charging infrastructure incentive programs. These cities also score the most points on average in our *Scorecard* for having adopted stringent energy codes and renewable readiness requirements for their buildings. Finally, they are the most active group in advocating for a decarbonized electric utility grid.

While these cities excel in certain respects, they do have room for improvement. The buildings sector is likely to be the largest source of GHG emissions in these communities and is the focus of the opportunities we identify:

- *Adopt energy benchmarking and retrocommissioning (RCx) policies, laying a foundation for more comprehensive building energy improvement requirements such as building performance standards.* Cities with lower levels of population growth will tend to have less new construction compared to their faster growing counterparts, but buildings are still likely to be the biggest source of these cities' GHG emissions. Energy benchmarking ordinances require building owners to measure, report, and share their energy use. RCx or building tune-up policies require owners to perform low-cost tasks that improve the operations of their buildings on a set schedule or at various stages of the ownership cycle. These policies can serve as an affordable way to prepare buildings to comply with more comprehensive building energy improvement policies such as building performance standards. Cities in this group can look to **Philadelphia** as an example, a city that has benchmarking requirements for commercial and multifamily buildings and the only city in this group to have adopted a building tune-up requirement. The city is also currently considering adoption of a building performance standard. **St. Louis** provides an example of a city that has adopted a wide-ranging building performance standard that also provides support for affordable housing providers to comply.

Accelerated-growth cities in large metros

Cities in large metros with accelerated population growth earned the highest average scores for our building policies and community-wide initiatives metrics. These cities stand out compared to other groups for having more dedicated staff and upfront support for building energy code compliance. They are also the most likely to have initiated heat island mitigation policies and programs. More than three-quarters of the cities in this group have adopted strategic energy management practices in their water utilities, the highest of any group, including those in the *Scorecard's* overall top 10. They also received the highest scores on our metrics tracking the deployment of EV charging ports, the adoption of equitable transportation plans, and the implementation of municipal facility energy benchmarking. These cities would do well to also pursue the following clean energy strategies:

- *Create more programs designed to increase disadvantaged communities' access to renewable energy resources.* All but 1 of the 21 cities in this group offer renewable energy incentive and financing programs to their communities, but only 3 cities offer these kinds of programs specifically for disadvantaged communities. Through its Transform Fresno initiative, **Fresno** offers no-cost solar installations to low-income households living in neighborhoods in or near the city's downtown. The program also offers weatherization, electric panel upgrades, and roof repairs to households that need them. In addition, the city is supporting the creation of the state's largest community solar array on land next to its Fresno-Clovis Regional Wastewater Treatment Facility. Once complete, the system will provide direct energy cost savings for low-income residents.

- *Create or expand bike networks that connect people of all ages and abilities with a diversity of community destinations.* Most cities in this group have very limited bike networks consisting of protected bike lanes, off-street paths, slow shared streets, and safe crossings. Using the PeopleforBikes' City Ratings, we found that only one accelerated growth midsize city—**Salt Lake City**—received more than 40% of the available points scoring the quality of their bike network. Salt Lake City has a robust bike network serving the areas closest to downtown.

Stable cities in midsize metros

Cities with stable populations in midsize metros had the highest scores for our metric tracking the provision of incentives for electric vehicle charging infrastructure. However, cities in the two midsize metro typology groups received the lowest overall scores in our *Scorecard's* buildings policies, local government operations, and transportation policies rankings. Many local governments will look to set an example for the broader community by focusing on initiatives that reduce their own carbon footprint. Given this and the increased likelihood that most of these cities' GHG emissions originate from the buildings sector, we suggest that these cities actively pursue the following two clean energy strategies:

- *Improve the energy performance of municipal operations and assets.* Cities in this group had the lowest average scores for our local government operations rankings. Historically cities have worked to improve the energy performance of their own operations to demonstrate to the private sector the feasibility and benefits of pursuing clean energy projects. Municipal clean energy projects can also reduce operational costs for city governments. Of the cities in this group, **Knoxville** received the highest score for local government operations. The city created the Sustainable Innovation Fund in 2020 to provide a dedicated source of funding for energy efficiency improvements in the city's facilities and staff training. The city regularly benchmarks all its municipal buildings and has set specific targets to increase the share of contracts being awarded to minority- and women-owned businesses. The city also provides its employees with a free monthly bus pass and tracks its employees' commuting GHG emissions.

- *Encourage and incentivize energy efficiency building retrofits.* Stable cities in midsize metros also had the lowest average buildings policies scores of any typology group. While these cities may have a lower level of new building construction, the largest share of their GHG emissions is likely to come from buildings. So it is important that these cities encourage and incentivize owners of existing buildings to undertake energy efficiency retrofits. **Albuquerque** created the Mayor's Energy Challenge to encourage owners of commercial properties—mostly small businesses in disadvantaged communities—to reduce their energy use 20% over a period of five years. The city also partners with its utility, Public Service New Mexico, and two community-based organizations (CBOs) to identify, qualify, schedule, and carry out free home audits and energy upgrades in disadvantaged communities.[14]

14 Throughout the *Scorecard* we define a *community-based organization* (CBO) as one that is, "driven by community residents in all aspects of its existence. By that we mean: the majority of the governing body and staff consists of local residents, the main operating offices are in the community, priority issue areas are identified and defined by residents, solutions to address priority issues are developed with residents, and program design, implementation, and evaluation components have residents intimately involved, in leadership positions" (University of Michigan 2022).

Accelerated-growth cities in midsize metros

Cities in midsize metros experiencing accelerated population growth stand out for their scores on two metrics. These cities received the highest scores for metrics tracking the existence of low-carbon employee commuting policies, and they are also the typology group most likely to have adopted a target to reduce VMT or transportation GHG emissions. While their performance on these metrics is commendable, these cities can take additional steps to reduce their energy use and GHG emissions:

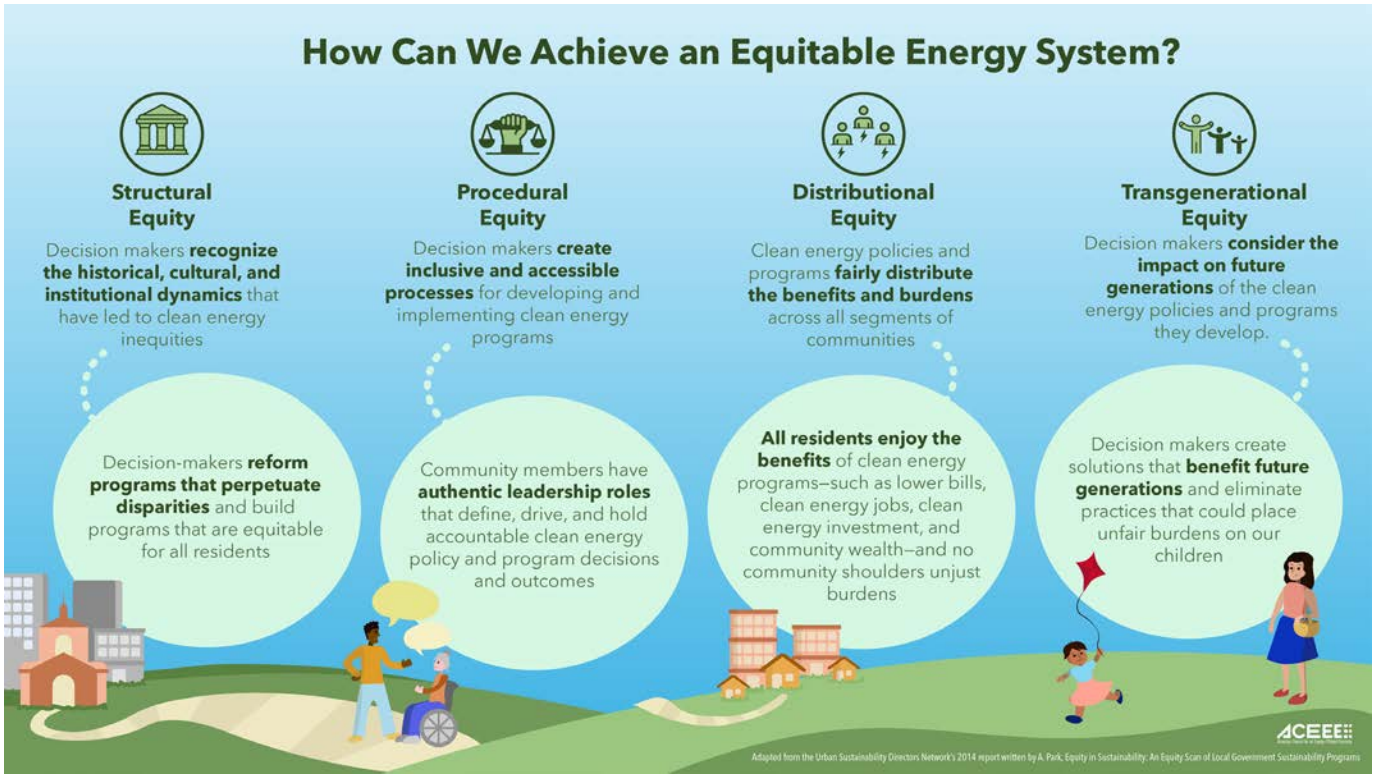
- *Improve transportation system efficiency by encouraging a shift to active transportation and transit modes.* Cities in this group received the lowest scores on our metrics tracking overall location efficiency and transit accessibility. Two cities can serve as examples to improve these scores. **Madison** recently completed a two-year overhaul of its bus routes and schedules to better serve riders and has removed parking minimums in certain districts. **Spokane** modified its zoning code in 2022 to allow up to four residential units per lot by-right in all residential districts.

- *Form partnerships with utilities to encourage clean energy goals, programs, and investments.* Cities in this group earned the lowest overall scores in our community energy infrastructure rankings. To increase their scores in this regard, cities can again look to **Madison** for an example of city-utility partnerships. Madison signed a memorandum of understanding with its investor-owned utility Madison Gas and Electric. Under the terms of the agreement, the city and utility work together to achieve their energy and GHG emissions goals by promoting energy efficiency and renewable energy.

Issue in Focus:
New and Expanded Equitable Clean Energy Policies in the *City Scorecard*

Taking equity-driven approaches to energy issues is critical for cities working to meet their climate goals while addressing longstanding inequities experienced by disadvantaged communities, such as exposure to environmental harm and lack of access to energy resources (Drehobl, Ross, and Ayala 2020; Jesdale, Morello-Frosch, and Cushing 2013; Dodman and Satterthwaite 2009; Hoerner and Robinson 2008). Equity-driven approaches involve finding the right solution for the right place: taking historical and cultural context into account and investing in the areas that have faced disproportionate burdens. Park (2014), drawing from work with the Urban Sustainability Directors Network, identifies dimensions of equity that provide a framework for evaluating efforts to advance equitable outcomes. These dimensions of equity are structural, procedural, distributional, and transgenerational, as defined in figure 11. ACEEE has adapted and applied this framework to assess actions to advance an equitable energy system.

Figure 11. Dimensions of equity (Park 2014; ACEEE 2023)



To ensure cities identified as leaders in clean energy and energy efficiency are taking equitable approaches, ACEEE has increased the focus on equity across all sectors in our scorecards. The *2024 City Clean Energy Scorecard* has significantly increased the number of metrics and doubled the percentage of points allocated for equity-related metrics; this edition has 35 equity-related metrics that make up 34% of total points available, whereas the 2021 edition had 14 equity-related metrics that made up 17% of total points available. Discussion of how these metrics were developed can be found in the methodology chapter.

This section examines the metrics assessing city equity-driven approaches to clean energy policies and programs, specifically focusing on new and revised metrics. Table 6 details this category of metrics. See the chapters listed in the third column of the table for a detailed overview of each equity-related metric's methodology and Appendix B for information on metric changes in this edition.

Table 6. Equity-related metrics in the 2024 *Scorecard*

Metric	Points	Chapter	New or revised metrics
Equity-driven community engagement	5	Community-Wide	***Revised***
Equity-driven decision making	5	Community-Wide	Existing
Accountability for social equity	5	Community-Wide	Existing
Creation of resilience hubs	2	Community-Wide	***New***
Workforce development programs for disadvantaged workers	2	Community-Wide	***Revised***
Workforce development program outcome tracking	2	Community-Wide	***New***
Low-income energy efficiency incentive and financing programs	2	Buildings	Existing
Low-income energy incentive and financing program best practices	2	Buildings	***New***
Affordability requirements in energy incentive and financing programs	2	Buildings	Existing
Building performance standard support for affordable housing	4	Buildings	Existing
Building performance standard support for underserved commercial	4	Buildings	***New***
Residential rental energy disclosure policy	2	Buildings	Existing
Tracking equity outcomes for non-targeted programs	2	Buildings	***New***
Equitable electrification programs	2	Buildings	***New***
Equitable sustainable transportation plan	1	Transportation	***New***
Equitable EV charging infrastructure incentives	1	Transportation	Existing
Equitable efficient vehicle purchase incentives	1	Transportation	Existing
Equitable electric school bus goal	0.5	Transportation	***New***
Equitable electric transit bus goal	0.5	Transportation	***New***
Affordable housing around transit	5	Transportation	Existing
Subsidized access to efficient transportation options	5	Transportation	***Revised***
Low-income access to high quality transit	5	Transportation	Existing
Equitable EV infrastructure deployment (Bonus)	2	Transportation	Existing
Equitable congestion pricing (Bonus)	1	Transportation	***New***
Low-income energy efficiency program portfolio	4	Infrastructure	***Revised***
Low-income energy efficiency program funding braiding	1	Infrastructure	***Revised***
Dedicated funds to lower Weatherization Assistance Program deferral rates	2	Infrastructure	***Revised***
Low-income energy efficiency program equity goals	2	Infrastructure	***New***
Low-income energy efficiency program gap analysis	2	Infrastructure	***New***
Multifamily programs	1	Infrastructure	***Revised***
Equitable utility clean energy partnerships	2	Infrastructure	***Revised***
Low-income renewable energy incentive and financing programs	2	Infrastructure	Existing
Equity-driven approach to shared, distributed energy systems	1.5	Infrastructure	Existing
Inclusive procurement and contracting policy	2	Local Gov	***Revised***
Inclusive procurement and contracting implementation	2	Local Gov	***Revised***
Disparity study of inclusive procurement and contracting	2	Local Gov	***New***
High road worker standards for contracting	2	Local Gov	***New***

Out of 85.5 possible points related to equitable energy approaches across all metrics, the median score earned by cities was 15, or only 18% of the available points. Cities looking to improve their scores can refer to an expanded set of activities featured in this *Scorecard.* Below, we highlight a new or revised equity-related metric from each chapter and share an example of how a leading city is implementing these actions to advance equitable outcomes.

COMMUNITY-WIDE INITIATIVES: EQUITY-DRIVEN COMMUNITY ENGAGEMENT

Disadvantaged communities often face barriers to engaging in decision-making processes, resulting in decisions made without their expertise, lived experiences, and interests in mind. Equity-driven community engagement aims to reduce these barriers and expand access, participation, and power for disadvantaged communities in planning and policy decisions. Doing so can help cities create policies and implement plans that reach disadvantaged communities and meet their needs. We revised and expanded our assessment of equity-driven community engagement practices. In the 2021 *City Scorecard*, cities received points for using at least one community engagement approach that aligns with the description of procedural equity figure 11. The expanded metric in the 2024 *Scorecard* aims to recognize cities that have institutionalized equity-driven engagement and ensure a high level of community engagement; cities could earn up to 5 points for developing a mandated equity-driven community engagement protocol for policies, projects, and/or proposals. This protocol must require city staff to determine the level of engagement necessary, identify a community engagement budget, and identify roles and responsibilities for the community engagement process for city staff.

Out of 5 available points, only one city—Oakland—scored full points for this metric, and 28 other cities received partial credit.

Energy Equity Leader

Oakland has created several innovative and unique structures for equitable community engagement with disadvantaged communities. In creating its 2030 Equitable Climate Action Plan (ECAP), extensive community engagement included community workshops, online resources and feedback, social media, town hall meetings, and youth engagement. The city held workshops alongside a local Equity Facilitator team, sent surveys in three different languages, held events in Oakland's most climate-impacted neighborhoods at varying times and dates, and provided language interpretation, free meals, and childcare services for participants. The City of Oakland and the Equity Facilitator team also created a Racial Equity Impact Assessment and Implementation Guide to ensure equitable delivery of each ECAP action item, thus institutionalizing these engagement practices. Furthermore, Oakland created a Multifamily and EV Working Group of diverse stakeholders to tackle the issue of getting EV charging infrastructure into multifamily buildings, primarily in low-income areas. The city has also established specific equity-focused groups for its creation of an Urban Forest Master Plan, West Oakland Community Action Plan, and Oakland Climate Action Network.

BUILDINGS POLICIES: LOW-INCOME ELECTRIFICATION INCENTIVE AND FINANCING PROGRAMS

Many cities are exploring ways to ensure that low-income households are not overlooked in their efforts to advance building electrification. Low-income households do not typically have access to the funding required to switch out heating equipment that uses fossil fuels, and making the conversion to an all-electric home may increase their utility bills. These households need incentive and financing programs that anticipate and address these cost challenges. We awarded up to 2 points for city grant or loan programs that specifically support low-income home electrification or that advance equitable electrification through non-targeted incentive or financing programs.

Only seven cities, Baltimore, Chicago, Denver, Oakland, San Francisco, Seattle, and Washington, DC, received points for this metric.

Energy Equity Leader

Washington, DC, earned 1 point for the Affordable Home Electrification program offered through the city's DC Sustainable Energy Utility (DCSEU). The program offers no-cost electrification retrofits for qualifying low-income owner-occupied and renter-occupied homes. Equipment installed by the program also comes with a 12-month service warranty from the installation contractor. To offset any potential utility bill increases, all households participating in the program must also participate in DCSEU's Solar for All Community Solar or Single-Family Rooftop Solar program. These programs will either install solar on a low-income household's home or enroll a household in a community solar program, lowering their electric bills through credits generated from the solar systems.

TRANSPORTATION POLICIES: EQUITABLE ELECTRIC TRANSIT BUS GOALS

Many low-income communities and communities of color rely on public buses as a mode of transportation. As municipal fleets transition toward electric vehicles, cities can set goals to ensure that disadvantages communities are prioritized in electric bus deployment. Converting public buses from gas to electric reduces local air pollution, which can improve health outcomes for individuals living nearby. Prioritizing electric bus deployment in disadvantaged communities can help ensure they benefit from public transportation options and reduced exposure to pollution. Cities could earn 0.5 points if the city or transit agency had criteria for deployment of EV buses prioritizing the city's defined disadvantaged communities, or communities identified as transportation disadvantaged by federal mapping tools.

Twenty-three cities received credit for including criteria for deployment prioritizing disadvantaged communities within their goals to increase the number of EV transit buses in service.

Energy Equity Leader

New York earned 0.5 points for including criteria to prioritize disadvantaged communities in electric bus deployment. In their Zero Emission Bus Transition Plan, the Metropolitan Transportation Authority (MTA) identified Equity Priority Areas by finding statistically significant geographic areas based on characteristics such as race, poverty status, vehicle ownership, among others. They also mapped air pollution levels onto the bus service territory. Then, the MTA combined the Equity Priority Areas with air pollution levels to determine an Environmental Justice Score, which is used to prioritize communities most impacted when assigning bus routes and depots (MTA 2022).

COMMUNITY ENERGY INFRASTRUCTURE: LOW-INCOME UTILITY ENERGY EFFICIENCY PROGRAM GAP ANALYSIS

Disadvantaged communities such as low-income communities and communities of color have often been underserved by energy efficiency programs, especially when programs are not intentionally designed to reach them (Amann, Tolentino, and York 2023). Utilities can administer a gap analysis to assess how well their low-income energy efficiency programs are reaching disadvantaged communities and identify existing barriers to participation for these communities. These data can be used to develop solutions and improve access to energy efficiency programs. Because conducting a gap analysis alone does not necessarily lead to improved programs, this metric also assessed whether utilities implemented changes to their low-income energy efficiency programs based on results from the gap analysis. Cities could earn up to 2 points for this metric: They earned 1 point if their electric and/or natural gas utility has conducted a gap analysis or worked with partners to identify barriers to participation in low-income programs and 1 point if the electric and/or natural gas utility used these data to remove and address barriers to participation in low-income programs.

Twenty-eight cities received full credit of 2 points for this metric, and 11 cities received partial credit of 1 point.

Energy Equity Leader

Austin Energy conducted an Equity Audit in 2022 that included surveys, focus groups, and community meetings with targeted low-income and disadvantaged communities. The weatherization staff at Austin Energy are using this information in a logic model for their program that has helped identify barriers and will result in an action plan. Their goal is to further outreach and participation. They identified program capacity and budget constraints as barriers to bringing more contractors into the program. Additionally, Austin Energy has taken steps to ease qualification submittal for their Weatherization Assistance Program and has partnered with its Customer Assistance Program (CAP) to make it easier for low- and moderate-income customers to participate in this program.

LOCAL GOVERNMENT OPERATIONS: INCLUSIVE PROCUREMENT AND CONTRACTING PROCESSES

Cities can help address disparities in clean energy jobs by creating inclusive procurement and contracting processes that prioritize and provide resources to support minority-, women-, and disadvantaged-businesses or contractors (MWDBEs). This edition of the *City Scorecard* significantly increased the points and expanded the metrics around inclusive procurement and contracting. Inclusive procurement and contracting processes can include strategies such as setting goals or targets for MWDBE participation in city contracts; streamlining contractor access to project opportunities and support services; using best-value contracts; matching right-size projects with right-size contractors; engaging community organizations to assist contractors in reaching MWDBE goals; establishing project fees to fund support services infrastructure; assisting with capacity building and succession strategies for MWDBEs. Cities could earn credit for having inclusive procurement and

contracting processes, evidence of implementing those processes, assessment of city procurement and contracting, and actions taken to ensure high-quality jobs. Cities could earn up to 8 points for these metrics.

The median score for these metrics was 1 point out of 8 possible points. Only one city, Madison, received all 8 points for these metrics. Fifty-three cities received partial credit.

Energy Equity Leader

Madison has made multiple efforts for inclusive procurement and contracting processes, including an ordinance and goal for small business enterprises in the Public Works Department and annual participation goals for Disadvantaged Business Enterprises in projects funded by the Federal Transit Administration. Their processes include significant communication and advertising to MWDBEs, negotiation with MWDBEs, and best-value contracting. The City of Madison has created internal procurement guidelines to ensure inclusive procurement and requires that purchases between $10,000 and $49,000 get three quotes, including one from a diverse business. Madison tracks contracts throughout the duration of projects to ensure the city meets its commitments to fair contracting and equity. Madison's contract tracking includes ensuring prompt payment, contract compliance, and compliance to affirmative action plans, conducting onsite reviews, and implementing employee support. Madison screens contractors for workplace violations, institutes best value contracting and affirmative action plans, and prohibits contractors from asking about past convictions when hiring employees through a "ban the box" measure. They have applied their inclusive procurement and contracting processes to the Madison Metro EV bus project, among others.

CHAPTER 2

Community-Wide Initiatives

Lead Author: Alexander Jarrah

INTRODUCTION

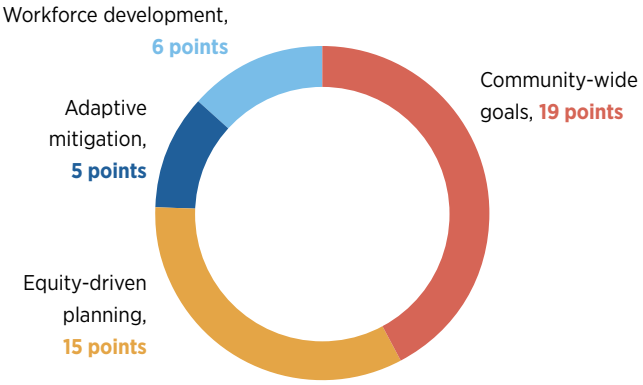
Cities are working to mitigate and adapt to climate change by improving energy efficiency and increasing their reliance on energy generated from carbon-free sources. Consequently, city climate action, sustainability, and resilience plans often include policies that address energy sources as well as energy use. Some cities focus on energy efficiency and decarbonization as part of a comprehensive, community-wide planning process that addresses other long-term priorities such as economic development, transportation, water supply issues, and public health.[15]

Cities are implementing a wide array of community-facing clean energy initiatives directed at buildings, neighborhoods, transportation systems, and city landscapes. Sustainability, energy, climate, or resilience plans allow governments to develop a unifying vision for community energy use and generation that leverages private sector resources—funding, staff, volunteers, and knowledge—to reduce energy use and GHG emissions. Cities are taking action to achieve their visions, and they are increasingly seeking to do so equitably. For example, Albuquerque, Baltimore, Charlotte, Des Moines, Minneapolis, Nashville, Philadelphia, Portland, San Antonio, San Francisco, Seattle, and Washington, DC, all require new policies and programs to complete a structural equity assessment to ensure that the proposed policy or program results in an equitable distribution of burdens and benefits. Incorporating equity into climate planning can help disadvantaged communities benefit from climate action without experiencing disproportionate negative impacts.

SCORING

This chapter focuses on the strategies municipalities commonly adopt to reduce energy consumption, increase the share of electricity generated from carbon-free sources, and decrease GHG emissions throughout the city. These activities typically involve establishing community-wide goals and making specific interventions that cross multiple local urban sectors.[16] We also assess the extent to which cities' approaches to clean energy planning, implementation, and evaluation are equity driven. We allocated 45 points to community-wide initiatives across four categories, as shown in figure 12.

Figure 12. Community-wide initiatives scoring overview



15 In other cities, these initiatives are part of energy-specific plans developed for utility resource planning.

16 We define *community-wide* as the area within the legal jurisdiction of the city.

We do not consider individual, sector-specific elements (buildings, transportation, utilities, and local government operations) of community-wide initiatives here; they will be taken up in the chapters that follow. We have relied on responses from city sustainability staff to our data requests, along with city sustainability reports and websites, for information on community-wide initiatives.

RESULTS

With 33 points, Seattle came in first for community-wide initiatives for the second *City Scorecard* in a row. San José came in a close second with 31.5 points, and Minneapolis came in third with 30 points. As a whole, cities performed better in some metrics than in others. Heat island mitigation initiatives were a notable standout: Many cities have adopted policies and programs linked to easing the heat island effect, such as cool roof policies and tree protection ordinances. Cities have more room to improve in the community-wide goals, particularly in progress toward carbon-free electricity and GHG emissions reduction goals and equity-driven planning and implementation. We discuss some of these further in the pages that follow table 8.

Table 7 presents the overall scores for community-wide initiatives. In subsequent tables in this chapter, we show how we allocated points for individual metrics within these categories. Appendix E provides more detailed scoring information on each metric.

Table 7. Community-wide initiatives scores

City	Climate and energy goals (19 pts)	Equity-driven planning (15 pts)	Adaptive mitigation (5 pts)	Workforce development (6 pts)	Total (45 pts)
Seattle	11.5	12.5	3.0	6.0	33.0
San José	16.0	7.5	4.0	4.0	31.5
Minneapolis	10.0	10.0	4.0	6.0	30.0
Denver	16.0	5.0	3.0	4.0	28.0
Los Angeles	15.0	7.5	3.0	2.0	27.5
San Francisco	9.0	10.0	4.0	4.0	27.0
Portland	8.0	12.5	2.0	2.0	24.5
Oakland	16.0	7.5	1.0	0.0	24.5
Washington, DC	8.0	10.0	4.0	2.0	24.0
Philadelphia	8.0	10.0	2.0	2.0	22.0
San Antonio	8.5	7.5	3.0	2.0	21.0
Orlando	10.0	5.0	3.0	2.0	20.0
Austin	11.0	5.0	2.0	0.0	18.0
Atlanta	8.0	2.5	5.0	2.0	17.5
Cincinnati	7.0	5.0	4.0	0.0	16.0
Miami	8.0	2.5	3.0	2.0	15.5
New Orleans	6.0	2.5	5.0	2.0	15.5
Saint Paul	8.0	7.5	0.0	0.0	15.5
Columbus	9.0	0.0	4.0	2.0	15.0
Sacramento	7.5	5.0	2.0	0.0	14.5
San Diego	12.0	2.5	0.0	0.0	14.5
Charlotte	0.0	7.5	2.0	4.0	13.5
Boston	3.0	5.0	3.0	2.0	13.0
Phoenix	6.0	5.0	2.0	0.0	13.0
Providence	3.5	7.5	2.0	0.0	13.0
Dallas	1.5	5.0	4.0	2.0	12.5
Kansas City	6.0	2.5	4.0	0.0	12.5

City	Climate and energy goals (19 pts)	Equity-driven planning (15 pts)	Adaptive mitigation (5 pts)	Workforce development (6 pts)	Total (45 pts)
Las Vegas	9.0	2.5	1.0	0.0	12.5
Albuquerque	3.0	7.5	1.0	0.0	11.5
Chicago	7.0	2.5	2.0	0.0	11.5
Chula Vista	8.0	2.5	1.0	0.0	11.5
Cleveland	7.0	2.5	2.0	0.0	11.5
Houston	3.0	2.5	4.0	2.0	11.5
Pittsburgh	6.0	2.5	1.0	2.0	11.5
Des Moines	6.0	5.0	0.0	0.0	11.0
Riverside	9.0	0.0	2.0	0.0	11.0
Baltimore	1.5	5.0	4.0	0.0	10.5
Honolulu	7.0	2.5	0.0	0.0	9.5
Knoxville	3.0	5.0	1.0	0.0	9.0
New York	0.0	5.0	2.0	2.0	9.0
Richmond	3.0	5.0	1.0	0.0	9.0
Boise	7.5	0.0	1.0	0.0	8.5
Louisville	5.0	0.0	3.0	0.0	8.0
Milwaukee	1.5	2.5	2.0	2.0	8.0
Nashville	0.0	5.0	3.0	0.0	8.0
St. Louis	5.0	0.0	1.0	2.0	8.0
Detroit	3.0	2.5	2.0	0.0	7.5
Grand Rapids	3.0	2.5	2.0	0.0	7.5
Indianapolis	3.0	2.5	2.0	0.0	7.5
Oxnard	6.5	0.0	1.0	0.0	7.5
Reno	5.5	0.0	0.0	2.0	7.5
Fayetteville	6.5	0.0	0.0	0.0	6.5
Raleigh	0.0	2.5	2.0	2.0	6.5
Madison	3.0	0.0	1.0	2.0	6.0
Salt Lake City	3.5	0.0	2.0	0.0	5.5
Hartford	1.5	0.0	3.0	0.0	4.5
Long Beach	0.0	2.5	2.0	0.0	4.5
Memphis	4.5	0.0	0.0	0.0	4.5
New Haven	3.0	0.0	1.0	0.0	4.0
St. Petersburg	2.0	0.0	2.0	0.0	4.0
Mesa	2.5	0.0	1.0	0.0	3.5
Toledo	0.0	2.5	1.0	0.0	3.5
Aurora	3.0	0.0	0.0	0.0	3.0
Charleston	3.0	0.0	0.0	0.0	3.0
Lansing	3.0	0.0	0.0	0.0	3.0
Spokane	1.5	0.0	1.0	0.0	2.5
Springfield	0.0	2.5	0.0	0.0	2.5
Tampa	0.0	0.0	2.0	0.0	2.0
Chattanooga	1.5	0.0	0.0	0.0	1.5
Tucson	0.0	0.0	1.0	0.0	1.0

City	Climate and energy goals (19 pts)	Equity-driven planning (15 pts)	Adaptive mitigation (5 pts)	Workforce development (6 pts)	Total (45 pts)
Akron	0.0	0.0	0.0	0.0	0.0
Bridgeport	0.0	0.0	0.0	0.0	0.0
Durham	0.0	0.0	0.0	0.0	0.0
Fresno	0.0	0.0	0.0	0.0	0.0
Rochester	0.0	0.0	0.0	0.0	0.0
Median	4.5	2.5	2.0	0.0	9.5

Cities earned a median score of 4.5 points out of a possible 19 for climate and energy goals. Eighteen cities are on track to achieve their near-term climate mitigation goal, and four cities are on track to fall short but come within 25% of their goals. This year, we also began assessing whether cities are on track to achieve their near-term carbon-free electricity goals. Only five cities—Austin, Honolulu, Riverside, San Antonio, and San Francisco—are on track to achieve these goals. For four cities, carbon-free sources provide over 90% of their electricity supply.

Forty-eight cities received credit for equity-driven planning, implementation, or evaluation, an increase of three cities over the last edition. This year we revised our approach to scoring this metric; Seattle and Portland tied as the highest-scoring cities, but no city achieved maximum points. Evidently, cities are increasingly incorporating equity into their climate and clean energy initiatives. Cities can continue this momentum by devoting even more attention to social equity objectives within their clean energy planning and implementation processes.

Leading Cities

Seattle. Seattle has adopted several community-wide GHG mitigation and clean energy goals through the Seattle Climate Action Plan. Seattle is not projected to achieve its 2030 GHG emissions reduction goal. The city's Environmental Justice Committee oversees the Environmental Justice Fund, giving marginalized community residents direct power to fund projects within their neighborhoods. Likewise, the city's Green New Deal Oversight Board includes representatives from communities directly impacted by racial and climate injustices, environmental justice groups, and labor unions. Seattle requires all policies and programs to complete a racial equity assessment at their inception. Seattle's Green Factor requires the installation of green infrastructure in new developments.

San José. The Climate Smart San José plan includes community-wide GHG emissions reduction goals and clean energy goals. San José is projected to achieve its near-term GHG emissions reduction goal. San José Clean Energy, the city's community choice aggregator, serves 98% of the city's customers and provides 92% carbon-free energy. While developing the Climate Smart San José plan, the city partnered with community-based organizations to hold meetings in majority Spanish-speaking and Vietnamese-speaking neighborhoods. Policy 6-29 requires new developments and certain redevelopments to incorporate low-impact development techniques that help mitigate against the heat island effect. The city supports the work2future program to provide clean energy trainings and workforce development opportunities for disadvantaged community residents.

Minneapolis. Minneapolis has adopted community-wide energy efficiency, renewable energy, and GHG emissions goals. Minneapolis is projected to achieve its 2050 GHG emissions reduction goal. Minneapolis requires the use of a racial equity impact analysis for new policies and programs. Minneapolis's Green Career Exploration Program partners with numerous educational institutions and nonprofits to train and assist disadvantaged workers with obtaining careers in the clean energy sector.

COMMUNITY-WIDE CLIMATE MITIGATION AND ENERGY GOALS

Cities can coordinate several programs under a unifying policy by establishing community-wide goals to reduce GHG emissions, curtail energy consumption, or increase the share of electricity generated from carbon-free sources. Policies such as these provide a vision to guide the long-term sustainability of programs. Goals with specific timetables and target dates allow cities to establish transparent objectives and enable regular monitoring. Cities often develop community-wide goals after a long-term planning process and outreach to diverse stakeholders, including local citizens, utilities, nonprofits, advocates, and businesses.

In this category, we scored cities on:

- Stringency of climate change mitigation goals (3 points)
- Progress toward their climate change mitigation goals (6 points)
- Existence of energy savings goals (3 points)
- Stringency of carbon-free electricity goals (2 points)
- Progress toward carbon-free electricity goals (3 points)
- Initial carbon-free supply (2 points)

3 POINTS

Climate Change Mitigation Goal Stringency

Many cities have multiple GHG emissions goals with different time horizons for both the larger community and local government operations.[17] There is often one goal to achieve certain savings in the near term and another to reach a deeper level of savings by 2050. In assessing the stringency of climate goals that apply to the entire city, we based our evaluations on the average annual percentage reductions required to meet the city's nearest-term goal; we did not assess interim or final goals. This metric recognizes city governments that are striving to set more ambitious climate goals relative to those of other cities. We calculated targeted annual percentage reductions for each city, as most cities do not set goals along the same timelines.

Factors such as changes in population or in gross domestic product (GDP) can contribute to increases or decreases in a city's GHG emissions and energy use. While city-level GDP data are typically unavailable, we were able to control for population change over time by evaluating goals in terms of per capita GHG emissions. This allowed us to better assess the effect of initiatives that reduce GHGs or energy use.

We calculated the average annual per capita GHG emissions reductions that would be required to meet a near-term target, relative to a city's per capita GHG emissions in the year closest to a goal's adoption. Each city's near-term per capita target was determined by dividing the target year's anticipated GHG emissions (relative to a goal's baseline GHG emissions) by a forecast target year population. Target year populations were provided by city staff or regional planning commissions or were forecast on the basis of city population growth rates from 2011 to 2021, using a Microsoft Excel straight linear regression function. Except for forecasts provided by a city or regional planning commission, all population numbers used in the *City Scorecard* are from the U.S. Census Bureau (2019) Decennial Census and American Community Survey one-year population estimates.

Cities could earn up to 2 points in this metric, as shown in table 8. Cities with stringencies that fell roughly into the top quintile earned full points, while those with stringencies that fell roughly in the third and fourth quintiles earned 1 point. Those that were roughly aligned with the first and second quintiles did not earn points.

6 POINTS

Progress Toward Climate Change Mitigation Goals

Cities could earn up to 6 points for progress toward their climate change mitigation goals (table 8). This year, we revised our scoring for this metric to allocate points for progress based on the stringency of a city's goal. Figure 13 below demonstrates this new approach.

Figure 13. Point allocations for progress toward city climate mitigation goals

17 We did not credit cities for GHG emissions reduction goals in regional plans, but we did credit cities for such goals in joint city–county plans if the city was substantially involved in the formation and adoption of the plan.

To receive credit for this metric, a city had to report at least two years of quantitative GHG emissions—a baseline year of emissions and a year of emissions data after the adoption of a goal.

To be considered on track, cities had to demonstrate past average annual percentage reductions in per capita GHG emissions that, assuming such reductions continue for all future years until the near-term goal year, would result in GHG emissions at or below the near-term goal. To forecast progress, we first calculated the past average annual change in per capita GHG emissions between the year with reported emissions data closest to the time of a goal's adoption and 2022, using all available interim data.[18, 19] This was calculated with a Microsoft Excel straight linear regression function. The average annual rate of change was calculated by dividing average annual changes in per capita emissions by per capita emissions in the year of a goal's adoption (or closest year with available data). We then projected a city's future progress toward its goal by assuming this rate of change would remain constant in future years until the near-term target year.

Energy Efficiency Goal Adoption

3 POINTS

In previous years we assessed cities on the stringency of their goals to reduce energy use in their communities. However, energy savings can take several forms and there is often insufficient data available to calculate stringency. Therefore, we revised our approach to better reflect the different types of energy reduction goals and only score cities on whether they have formally adopted an energy reduction goal. Goals considered under this metric include, but are not limited to:

- Community-wide energy reduction goal
- Energy use intensity (EUI) reduction goals (including per capita reduction goals)
- Goals to electrify buildings or reduce natural gas usage in buildings
- Goals to retrofit or weatherize buildings

Goals must be time limited and quantitative in nature, and cities must have identified strategies or actions to achieve the goal. Cities could earn 3 points for the formal adoption of an energy reduction goal.

Carbon-Free Electricity Generation Goal Stringency

2 POINTS

This metric assesses the ambitiousness of cities' goals to power communities using carbon-free energy sources.[20] Cities may pursue several strategies to achieve these goals. They may work to add carbon-free and renewable energy sources to the local electric grid or purchase renewable energy or zero-emissions credits to offset carbon-emitting electricity generation. In recognition of these different pathways, we assessed the electricity consumption that cities need to convert or offset using carbon-free sources to achieve their near-term carbon-free electricity generation goal. See Appendix B for the methodology we used to assess renewable energy goal stringency and progress.

Cities could earn up to 2 points for the stringency of their carbon-free electricity goal. City conversion targets equal to or greater than the top quintile earned 2 points and conversion targets that fell into the third and fourth quintile earned 1 point.

Carbon-Free Electricity Goal Progress

3 POINTS

This year, we began calculating cities' progress toward their clean energy generation goals. To forecast progress, we first calculated the past average annual change in per household clean energy use between the year with reported electricity data closest to the time of a goal's adoption and 2022, using all available interim data. After determining the rate of change, we compared this to the per household conversion target the city needed to achieve their goal. If the rate of change was equal to or greater than the conversion target, we considered the city to be on track.

18 In cases where data were insufficient to calculate progress toward the most recently adopted goal, we considered annual changes prior to the most recent goal's adoption date if the city already had a goal in place when adopting the most recent goal.

19 The COVID-19 pandemic significantly reduced GHG emissions during 2020, and GHG emissions have since returned to pre-pandemic levels. As a result, we have excluded 2020 as a data year from all GHG emissions projections, including those in the transportation and local government operations policy areas.

20 We scored both renewable and carbon-free electricity goals under this and the following two metrics.

2 POINTS

Initial Carbon-Free Electricity Supply

Cities could also earn 2 points if the initial carbon-free electricity supply in the year a goal was adopted was at least 25%, which was the average initial adoption percentage.

Table 8 summarizes our scoring, and table 9 lists city scores for our community-wide climate and energy goal metrics. Table E1 in Appendix E provides more detailed city scores.

Table 8. Scoring for community-wide climate mitigation and energy goals

Climate change mitigation goal stringency	Score
Average annual per capita GHG reductions are equal to or greater than 4.25%.	3
Average annual per capita GHG reductions are at least 2.75% but less than 4.25%.	1.5
Climate change mitigation goal progress	
City is on track to meet or exceed its community-wide climate mitigation goal that requires an annual reduction in per capita emissions of greater than 4.25%.	6
City is on track to meet or exceed its community-wide climate mitigation goal that requires an annual reduction in per capita emissions of greater than or equal to 2.75% but less than 4.25%.	4.5
City is on track to meet or exceed its community-wide climate mitigation goal that requires an annual reduction in per capita emissions of less than 2.75%.	3
City is not on track to achieve its community-wide climate mitigation goal but is projected to be within 25% of the goal, regardless of stringency.	1.5
Energy efficiency goal adoption	
City has adopted an energy reduction goal that is time limited and quantitative in nature. City must have also identified strategies or actions to achieve the goal.	3
Stringency of carbon-free electricity goals	
Annual per household conversion target is equal to or greater than 1,200 kWh.	2
Annual per household conversion target is at least 400 kWh but less than 1,200 kWh.	1
Initial carbon-free electricity supply	
Carbon-free electricity supplied at least 25% of city's electricity in the year the city's goal was adopted.	2
Progress toward carbon-free electricity goals	
City is on track to achieve its carbon-free electricity goal	3

Table 9. Community-wide climate mitigation and energy goals scores (out of 19 possible points)

Denver (16)	San Antonio (8.5)	Honolulu (7)	Salt Lake City (3.5)	Richmond (3)	Fresno (0)
Oakland (16)	Atlanta (8)	Fayetteville (6.5)	Albuquerque (3)	Mesa (2.5)	Long Beach (0)
San José (16)	Chula Vista (8)	Oxnard (6.5)	Aurora (3)	St. Petersburg (2)	Nashville (0)
Los Angeles (15)	Miami (8)	Des Moines (6)	Boston (3)	Baltimore (1.5)	New York (0)
San Diego (12)	Philadelphia (8)	Kansas City (6)	Charleston (3)	Chattanooga (1.5)	Raleigh (0)
Seattle (11.5)	Portland (8)	New Orleans (6)	Detroit (3)	Dallas (1.5)	Rochester (0)
Austin (11)	Saint Paul (8)	Phoenix (6)	Grand Rapids (3)	Hartford (1.5)	Springfield (0)
Minneapolis (10)	Washington, DC (8)	Pittsburgh (6)	Houston (3)	Milwaukee (1.5)	Tampa (0)
Orlando (10)	Boise (7.5)	Reno (5.5)	Indianapolis (3)	Spokane (1.5)	Toledo (0)
Columbus (9)	Sacramento (7.5)	Louisville (5)	Knoxville (3)	Akron (0)	Tucson (0)
Las Vegas (9)	Chicago (7)	St. Louis (5)	Lansing (3)	Bridgeport (0)	
Riverside (9)	Cincinnati (7)	Memphis (4.5)	Madison (3)	Charlotte (0)	
San Francisco (9)	Cleveland (7)	Providence (3.5)	New Haven (3)	Durham (0)	

EQUITY-DRIVEN APPROACHES TO CLEAN ENERGY PLANNING, IMPLEMENTATION, AND EVALUATION

As mentioned in Chapter 1, marginalized communities are likely to disproportionately experience the effects of climate change, have high energy cost burdens, and face barriers to energy efficiency and renewable energy program participation.[21] Cities can address disparities such as these through their climate action, energy efficiency, and renewable energy initiatives. In this section, we assess cities' approaches to achieving procedural and structural equity outcomes through the comprehensive planning, implementation, and evaluation of their climate action, energy, sustainability, or resilience initiatives. We have used three metrics for our evaluations. The following descriptions outline our criteria for each. These criteria were developed after a review of cities' equity-focused activities, relevant published research on the topic, and feedback from a working group of community-based environmental justice organizations.

Table 10 outlines the scoring for equity-driven climate action or clean energy planning and implementation, and table 11 presents the scores for cities earning points under these metrics. Table E2 in Appendix E provides more detailed city scores.

Equity-Driven Community Engagement

5 POINTS

Some cities are pursuing procedural equity outcomes by organizing their public engagement strategies in ways that increase feedback from marginalized groups. Their outreach offers residents an opportunity to engage in a direct dialog with climate action, energy, sustainability, or resilience decision makers and provide feedback on an entire plan or on multiple initiatives. Examples of this outreach include conducting community forums in languages other than English, organizing meetings in low-income communities or communities of color, or involving community-based organizations in leading these outreach efforts.

Cities could earn 5 points for requiring new policies and programs to conduct an equity-driven community engagement process. Cities could earn up to 2.5 points for using at least one community engagement approach that aligns with the above description of procedural equity. Community engagement must allow residents to participate in a direct dialog with planning and policy decision makers, and cities must also apply their equity-driven approaches to an entire clean energy planning process or in the implementation of multiple initiatives.

Equity-Driven Decision Making

5 POINTS

Cities may also give marginalized community residents or local organizations representing them a formal role (e.g., appointments to city boards, working groups, or committees) in decision making that affects local climate and energy action. Cities can also incorporate participatory budgeting procedures into these decision-making bodies.[22] By doing so, cities give marginalized community residents direct power to approve or allocate funding toward local climate and energy projects. Cities can also give these decision-making bodies a formal role that affects the creation or implementation of a local energy, sustainability, or climate action plan. These decision-making bodies are focused on environmental justice or social equity outcomes.

Cities could earn 5 points for creating a formal decision-making body of marginalized community residents that incorporates participatory budgeting processes or has created a formal pathway specifically for community members from disadvantaged groups to review and select clean energy projects to receive funding. Cities that give marginalized community residents formal roles in decision-making processes but do not incorporate participatory budgeting earned 2.5 points.

Equity Accountability Measures

5 POINTS

Finally, cities may establish structural equity measures that hold city government accountable for actions that will specifically benefit marginalized constituencies. These can range in scope from more limited measures such as goals, metrics, screening tools, and protocols tracking how energy, sustainability, and climate action initiatives are affecting local marginalized groups, to a total institutionalization at the municipal level such that the city requires new policies and planning documents to undergo structural equity assessments. Institutionalizing equity allows cities to better understand the impacts of proposed policies or plans on local marginalized groups and, as a result, take a more comprehensive approach to advancing equitable outcomes citywide.

21 While historically marginalized populations vary by location, we use the possible groups listed in Park (2014) and do not focus on any particular subgroup within that list in our overall analysis.

22 According to the Participatory Budgeting Project, participatory budgeting is "a democratic process in which community members decide how to spend part of a public budget" (PBP 2021).

Cities could earn 5 points for requiring all new policies and planning documents to undergo structural equity assessments. They could earn up to 2.5 points for structural equity accountability measures that are either aspirational in nature or limited in scope and that focus on environmental justice or social equity outcomes.

Table 10. Scoring for equity-driven clean energy initiative planning, implementation, and evaluation

Equity-driven community engagement	Score
City requires policies and programs to undergo an equity-driven community engagement process.	5
City has structured its public engagement strategies to increase engagement with marginalized groups.	2.5
Equity-driven decision making	
City has given a decision-making body of disadvantaged residents the authority to approve and allocate funding toward clean energy projects or has created a formal pathway specifically for community members from disadvantaged groups to review and select clean energy projects to receive funding.	5
City has given marginalized residents formal roles in decision-making processes for clean energy initiatives.	2.5
Equity accountability measures	
City has institutionalized equity accountability such that all policy and planning documents undergo structural equity assessments.	5
City has adopted structural equity measures that are limited in scope or aspirational in nature.	2.5

Table 11. Equity-driven climate action and clean energy planning, implementation, and evaluation scores (out of 15 possible points)

Portland (12.5)	San José (7.5)	Richmond (5)	Long Beach (2.5)	Charleston (0)	Oxnard (0)
Seattle (12.5)	Austin (5)	Sacramento (5)	Miami (2.5)	Chattanooga (0)	Reno (0)
Minneapolis (10)	Baltimore (5)	Atlanta (2.5)	Milwaukee (2.5)	Columbus (0)	Riverside (0)
Philadelphia (10)	Boston (5)	Chicago (2.5)	New Orleans (2.5)	Durham (0)	Rochester (0)
San Francisco (10)	Cincinnati (5)	Chula Vista (2.5)	Pittsburgh (2.5)	Fayetteville (0)	Salt Lake City (0)
Washington, DC (10)	Dallas (5)	Cleveland (2.5)	Raleigh (2.5)	Fresno (0)	Spokane (0)
Albuquerque (7.5)	Denver (5)	Detroit (2.5)	San Diego (2.5)	Hartford (0)	St. Louis (0)
Charlotte (7.5)	Des Moines (5)	Grand Rapids (2.5)	Springfield (2.5)	Lansing (0)	St. Petersburg (0)
Los Angeles (7.5)	Knoxville (5)	Honolulu (2.5)	Toledo (2.5)	Louisville (0)	Tampa (0)
Oakland (7.5)	Nashville (5)	Houston (2.5)	Akron (0)	Madison (0)	Tucson (0)
Providence (7.5)	New York (5)	Indianapolis (2.5)	Aurora (0)	Memphis (0)	
Saint Paul (7.5)	Orlando (5)	Kansas City (2.5)	Boise (0)	Mesa (0)	
San Antonio (7.5)	Phoenix (5)	Las Vegas (2.5)	Bridgeport (0)	New Haven (0)	

5 POINTS

ADAPTIVE MITIGATION

Climate action often takes the form of climate change mitigation or climate change adaptation. The former describes efforts to reduce GHG emissions while the latter describes actions taken to protect communities against the effects of climate change. However, cities can pursue projects that both reduce GHG emissions and build the capacity of communities to respond to climate-related events and natural disasters. This is known as adaptive mitigation. Adaptive mitigation can be particularly important for frontline communities that may face severe climate risks (Suarez 2020). In this section, we score cities on just two ways they can pursue adaptive mitigation projects: the mitigation of heat islands and community resilience hubs.[23]

Mitigation of Heat Islands

Unvegetated, impermeable, and dark surfaces in cities are substantial contributors to the heat island effect. This effect occurs when a city's buildings, parking lots, and streets absorb more heat than surrounding rural areas where moist, vegetated surfaces release water vapor and provide shade to cool the surrounding air. Consequently, the annual mean air temperature of a city with at least one million people can be 1.8–5.4°F warmer than surrounding rural areas (EPA 2021c).

23 It is important to note that a comprehensive adaptive mitigation strategy goes beyond the two approaches scored in this section. For information on policy options included in a more comprehensive adaptive mitigation strategy, see the EPA's *Smart Growth Fixes for Climate Adaptation and Resilience* publication.

These temperature increases will add to the warming that cities are experiencing and will continue to experience from climate change. Kenward and Adams-Smith (2014) project that daytime temperatures in U.S. cities will rise by 7–10°F on average by the end of the 21st century. Heat islands increase the demand for electric cooling, resulting in greater power plant–related GHG emissions, air pollution, and waste heat. To minimize this effect and mitigate extreme heat events, cities are establishing goals for heat island reduction and implementing a variety of programs and policies.

Cities with land development policies that increase or preserve vegetated land, mitigate stormwater runoff, and protect wetlands can reduce the amount of energy needed to cool surrounding buildings and run wastewater treatment plants (Stone 2012). Cities can also require or incentivize the installation of cool roofs and pavements that use highly reflective coatings to reflect solar energy rather than absorb it. These measures also reduce buildings' energy use and a city's peak energy demand (EPA 2021a).

Cities could earn 1 point, up to a total of 3 points, for each policy or program that incorporates requirements or incentives to mitigate the heat island effect.[24] These include

- *Green infrastructure policies* such as municipal or private sector requirements or incentives for low-impact-development green infrastructure, cool roof/pavement policies, green roof policies, and complete streets policies that require green infrastructure.
- *Private tree protection ordinances* that require a permit to remove existing trees on private property.
- *Private tree planting programs* that provide trees for private planting at low cost or no cost. Procedures must be in place to account for energy savings from tree plantings.
- *Private land conservation policies* such as conservation subdivision ordinances, cluster house zoning, transfer of development rights policies, and incentives for natural land conservation or restoration.[25]

Resilience Hubs

Community resilience hubs can provide critical services before, during, and after climate-related events (Baja 2018). Baja (2018) identified five key components of a resilience hub:

- *Community support.* Cities should gauge whether a resilience hub is something the community desires and needs.
- *An existing, well-trusted building.* Cities should consider the structural condition and safety of the building and site the resilience hub appropriately.
- *Resources to provide necessities during events.* Resilience hubs should have a supply of food, water, medicine, and other necessities on hand in case of emergency.
- *Energy systems and resources.* Resilience hubs can host clean energy systems that can provide power during a broader power outage.
- *Variety of community uses.* Resilience hubs can provide additional services beyond emergency preparedness and response.

If designed well, local governments can use resilience hubs to both achieve GHG emissions reductions and build the capacity of their communities to respond to natural disasters. Cities can incorporate a variety of clean energy resources into resilience hubs, including solar energy, energy storage, and electric vehicles. Cities can also partner with community-based organizations and nonprofit partners to design and site resilience hubs; however, trusted community leaders and members should manage the resilience hubs (Baja 2018; Rogerson and Narayan 2020).

Siting resilience hubs in disadvantaged communities is critically important, as some disadvantaged communities can experience the impacts of climate events for longer than other local communities (Grunwald, Reback, and Warsing 2022). Vulnerable groups must be able to travel to and from resilience hubs with ease. However, resilience hub design often fails to consider how these groups can travel to and from resilience hubs and transportation services that the hub can provide (Ciriaco and Wong 2022).

Cities could earn 2 points for creating resilience hubs in their community. To earn points, cities must demonstrate that at least one resilience hub is sited in a disadvantaged community and includes two or more clean energy technologies.

24 Cities did not receive credit here for green building codes or programs; these are scored in Chapter 3.

25 While the mitigation measures listed here have been shown to reduce land surface temperature in cities, these reductions can vary according to several locational factors. Additionally, while the temperature reduction potential of certain low-impact development and land conservation measures has been the subject of multiple studies, other measures have been studied only sparingly.

Table 12 shows the scoring for these metrics, and table 13 provides the scores. Table E3 in Appendix E provides more detailed city scores.

Table 12. Scoring for adaptive mitigation

Policies and programs to mitigate the heat island effect	Score
City has one or more of these: • Green infrastructure policy • Private tree protection ordinance • Private tree planting program • Private land conservation policy	1 each, up to 3 points
Resilience hubs	
Cities can receive 2 points for creating resilience hubs in their city. Resilience hubs must include at least two emissions-reducing technologies (e.g., solar energy, energy storage, electric vehicles, etc.), must be sited in disadvantaged communities, and must build the resilience capacity of disadvantaged communities to cope with local climate-related events (e.g., wildfires, storms, flooding, etc.).	2 points

Table 13. Adaptive mitigation scores (out of 5 possible points)

Atlanta (5)	Denver (3)	Detroit (2)	Salt Lake City (2)	Pittsburgh (1)	Fayetteville (0)
New Orleans (5)	Hartford (3)	Grand Rapids (2)	St. Petersburg (2)	Richmond (1)	Fresno (0)
Baltimore (4)	Los Angeles (3)	Indianapolis (2)	Tampa (2)	Spokane (1)	Honolulu (0)
Cincinnati (4)	Louisville (3)	Long Beach (2)	Albuquerque (1)	St. Louis (1)	Lansing (0)
Columbus (4)	Miami (3)	Milwaukee (2)	Boise (1)	Toledo (1)	Memphis (0)
Dallas (4)	Nashville (3)	New York (2)	Chula Vista (1)	Tucson (1)	Reno (0)
Houston (4)	Orlando (3)	Philadelphia (2)	Knoxville (1)	Akron (0)	Rochester (0)
Kansas City (4)	San Antonio (3)	Phoenix (2)	Las Vegas (1)	Aurora (0)	Saint Paul (0)
Minneapolis (4)	Seattle (3)	Portland (2)	Madison (1)	Bridgeport (0)	San Diego (0)
San Francisco (4)	Austin (2)	Providence (2)	Mesa (1)	Charleston (0)	Springfield (0)
San José (4)	Charlotte (2)	Raleigh (2)	New Haven (1)	Chattanooga (0)	
Washington, DC (4)	Chicago (2)	Riverside (2)	Oakland (1)	Des Moines (0)	
Boston (3)	Cleveland (2)	Sacramento (2)	Oxnard (1)	Durham (0)	

ENERGY EFFICIENCY AND RENEWABLE ENERGY WORKFORCE DEVELOPMENT

6 POINTS

Several cities are partnering with state governments, community colleges, nonprofits, utilities, unions, the federal government, and others to grow their local energy efficiency and renewable energy workforce. Some cities also want to ensure that these workers receive the training and career guidance they need to stay competitive in a growing clean energy economy. These city-supported workforce development initiatives are most effective when they identify and address gaps in worker skills and include trainings, job placement, and coaching in job access strategies (Shoemaker and Ribeiro 2018; Solar Foundation 2018b). Some cities are adopting community-wide green job goals to guide their workforce development activities, while others are focusing on creating jobs to support specific local policy priorities (Shoemaker and Ribeiro 2018).

Clean energy jobs have been growing in number in recent years, but they are not always distributed equally across demographics (ACEEE 2019; IREC 2022; AWEA 2018). Women make up about 47% of the national workforce but only about 25% of energy efficiency jobs and slightly below 30% of solar jobs (Shoemaker, Ayala, and York 2020; IREC 2022). Black workers account for 12% of the U.S. workforce but hold only 8% of efficiency jobs and 8% of solar jobs (E2 and E4 The Future 2020; IREC 2022). Cities can better distribute workforce development opportunities by crafting policies and programs that seek to elevate the participation rates of underrepresented groups in the clean energy workforce.

We awarded 2 points to cities that partnered with an educational institution (such as local community college, school district, etc.), labor union, or community-based organization (CBO) to target training and support services for potential or existing workers from disadvantaged communities to obtain and keep in-demand jobs. CBOs can also be positioned to lead workforce development programs because they can help residents who have traditionally faced obstacles to employment and workforce development. They may also remove barriers, such as cost, to participation in such programs (Ayala, Drehobl, and Dewey 2021). Cities could receive an additional 2 points for this work that targets the broader community. Workforce development must go beyond simply raising awareness of climate and energy issues and opportunities. Cities could also earn 2 points for tracking outcomes related to their workforce development initiatives. Table 14 shows the scoring for these metrics, and table 15 provides the scores. Table E4 in Appendix E provides more detailed city scores.

Table 14. Scoring for workforce development

Programs for disadvantaged workers	Score
Cities can receive 2 points for partnering with a local education institution (e.g., school district, community college, local university), labor unions, or community-based organizations to initiate, support, and/or incentivize the creation of clean energy workforce development initiatives that target training and support services for potential or existing workers from disadvantaged communities to obtain and keep in-demand jobs.	2
Programs for the broader community	
Cities can receive 2 points for partnering with a local education institution (e.g., school district, community college, local university), labor unions, or community-based organizations to initiate, support, and/or incentivize the creation of clean energy workforce development initiatives that target training and support services for potential or existing workers from the broader community to obtain and keep in-demand jobs.	2
Outcome tracking	
Cities can receive 2 points for instituting a mechanism to measure the performance and/or success of equitable workforce development initiatives focused on the clean energy sector.	2

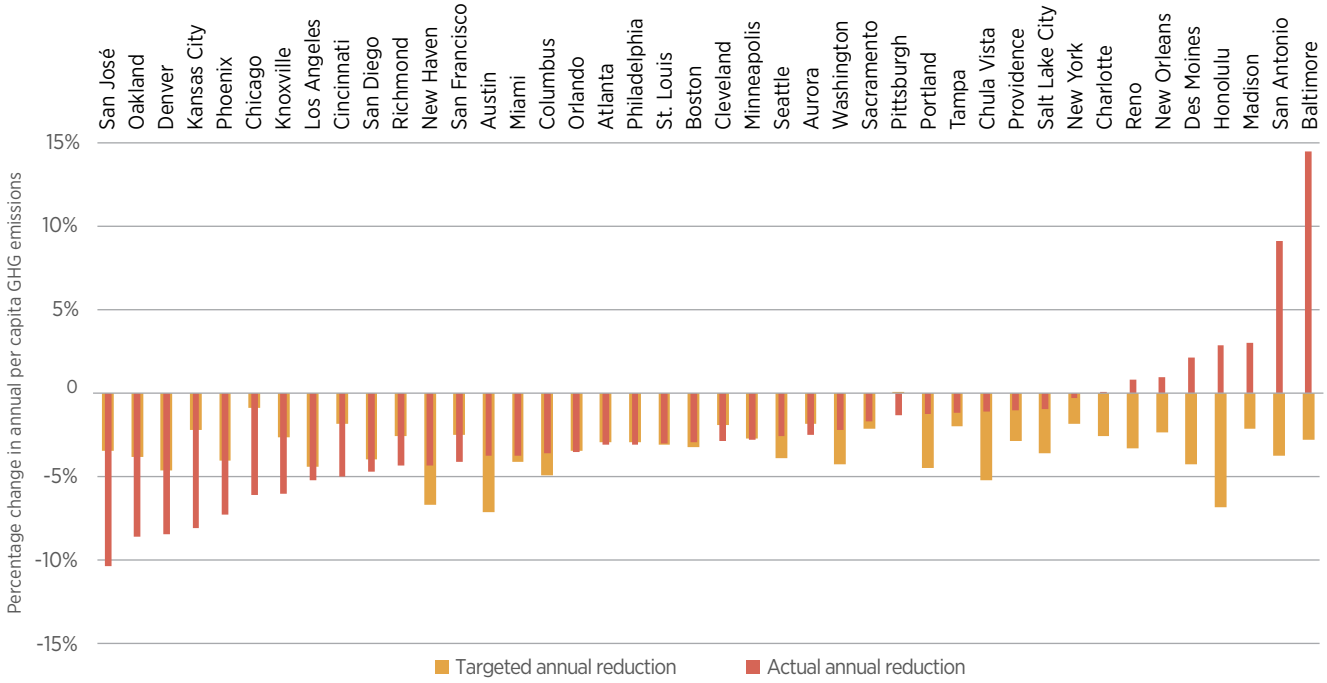
Table 15. City workforce development scores

Minneapolis (6)	Miami (2)	Akron (0)	Des Moines (0)	Long Beach (0)	Sacramento (0)
Seattle (6)	Milwaukee (2)	Albuquerque (0)	Detroit (0)	Louisville (0)	Saint Paul (0)
Charlotte (4)	New Orleans (2)	Aurora (0)	Durham (0)	Memphis (0)	Salt Lake City (0)
Denver (4)	New York (2)	Austin (0)	Fayetteville (0)	Mesa (0)	San Diego (0)
San Francisco (4)	Orlando (2)	Baltimore (0)	Fresno (0)	Nashville (0)	Spokane (0)
San José (4)	Philadelphia (2)	Boise (0)	Grand Rapids (0)	New Haven (0)	Springfield (0)
Atlanta (2)	Pittsburgh (2)	Bridgeport (0)	Hartford (0)	Oakland (0)	St. Petersburg (0)
Boston (2)	Portland (2)	Charleston (0)	Honolulu (0)	Oxnard (0)	Tampa (0)
Columbus (2)	Raleigh (2)	Chattanooga (0)	Indianapolis (0)	Phoenix (0)	Toledo (0)
Dallas (2)	Reno (2)	Chicago (0)	Kansas City (0)	Providence (0)	Tucson (0)
Houston (2)	San Antonio (2)	Chula Vista (0)	Knoxville (0)	Richmond (0)	
Los Angeles (2)	St. Louis (2)	Cincinnati (0)	Lansing (0)	Riverside (0)	
Madison (2)	Washington, DC (2)	Cleveland (0)	Las Vegas (0)	Rochester (0)	

Issue in Focus:
Progress on Climate Change Mitigation Goals

As mentioned previously, cities needed to have formally adopted a GHG emissions reduction goal and have at least one GHG emissions inventory to be included in this edition of the *City Scorecard*. While this allows us to score the stringency of a city's goal, we needed GHG emissions data for a minimum of two years to assess a city's progress, with one data point corresponding to emissions in a goal's baseline year, and the other characterizing emissions for at least one year after a goal's adoption. As a result, we were only able to score progress for 42 cities. Figure 14 shows how cities with these data are performing, on an annual per capita basis, in their efforts to meet their GHG reduction targets.

Figure 14. Cities' targeted versus actual annual per capita GHG emissions change in community-wide emissions



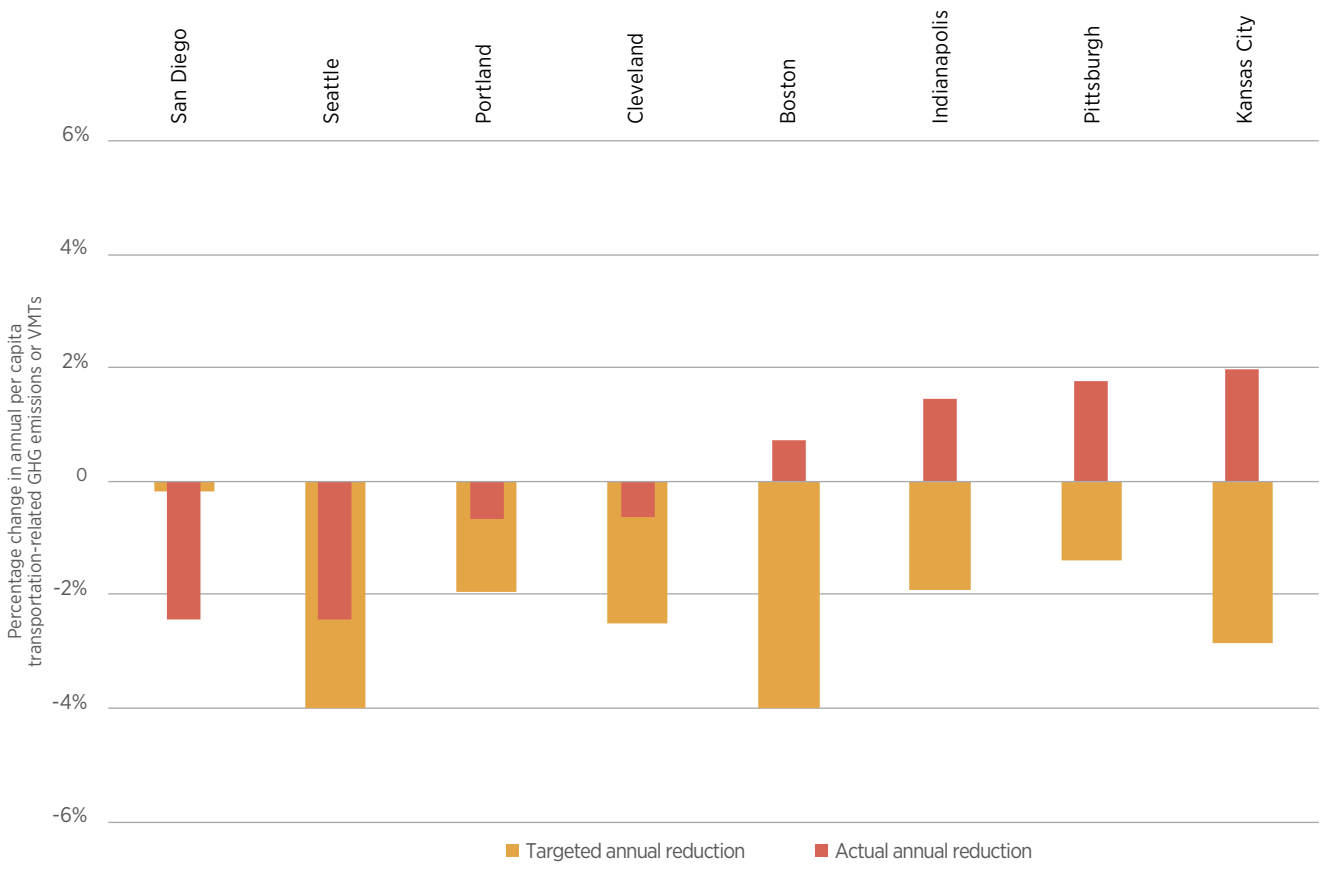
Note: Charlotte's actual emissions change does not appear on this figure because its GHG emissions are increasing at a rate of 0.06% per year, which is too small to be discernable.

Of the 42 cities we assessed, 18 are on track to achieve or exceed their climate mitigation goals. The number of cities on track to achieve their goals has been decreasing slightly since the 2020 *Scorecard*. In that edition, 20 cities were on track to achieve their GHG goals and only 19 were on track in the 2021 edition. Still, of the 42 cities we examined for progress in this *Scorecard*, all but 9 cities are seeing annual decreases in GHG emissions. Another four are projected to achieve 75% or more of their goal by the target year.

GHG emissions from transportation sources occupy a large and growing share of overall city emissions. To address this, cities are adopting transportation-specific emissions or VMT reduction goals. These goals are good indicators that cities are prioritizing emissions reductions and energy savings in their transportation activities. Seventy-one cities have adopted sustainable transportation plans, but only 31 have a VMT or GHG goal associated with those plans. City transportation GHG emissions data are still lacking, and there is an even greater dearth of VMT data. Nine cities in the *Scorecard* have the

necessary data to calculate progress toward their transportation goals. However, only San Diego is on track to meet its goal. Figure 15 illustrates how these cities are performing, on a per capita basis, in their efforts to meet their transportation-specific GHG emissions or VMT reduction goals.

Figure 15. Cities' targeted versus actual annual per capita reductions in transportation-related GHG emissions or VMTs



Note: San Diego's targeted annual reduction does not appear on this figure because its per capita target is 0.16% per year, which is too small to be discernable. While San José had sufficient data to calculate progress toward its goal, the city had already achieved the goal on a per capita basis when the goal was adopted. Therefore, we excluded San José from the above figure.

San Diego is the only city on track to meet both its community-wide goal and its transportation sector goal. Cities can prioritize transportation strategies such as revising their zoning codes to enable mixed-use development and subsidizing efficient micromobility that can lead to significant emissions or VMT reductions. This may increase the likelihood of achieving both their community-wide and transportation sector reduction goals.

CHAPTER 3

Buildings Policies

Lead Authors: Carolin Tolentino, Ana Boyd, and Jen Amann

INTRODUCTION

Buildings are big energy users in cities, which makes them clear targets for energy savings and GHG emissions reductions. While states determine some policies that affect buildings, many cities have gone above and beyond state requirements, when they can, to meet their own objectives for reducing energy use and GHG emissions.

Compared with other locations, large and midsize cities typically have more buildings, less industrial activity, and better-developed public transit systems. As a result, in large cities the buildings sector generally surpasses industry and transportation in its share of energy use—in some locations accounting for 50–75% of overall energy consumption (Ribeiro et al. 2017). This makes buildings a major source of GHG emissions. For example, the U.S. DOE has documented that residential and commercial buildings are the leading source of greenhouse gas emissions in New York, San Francisco, and Chicago (DOE 2019a). Cities will need to improve the energy performance of both new and existing buildings to meet their energy and emissions reduction goals.

An important consideration for buildings policies is ensuring they are equitably designed and positively impact underserved communities. This year, we placed significantly heavier emphasis on equity in our existing buildings metric. While this equity track previously made up 10% of the chapter's points, it makes up nearly 30% of points in this iteration of the *Scorecard*. Cities could earn points for equitable policies like building performance standards for affordable housing, residential energy disclosure, and incentive programs for low-income communities.

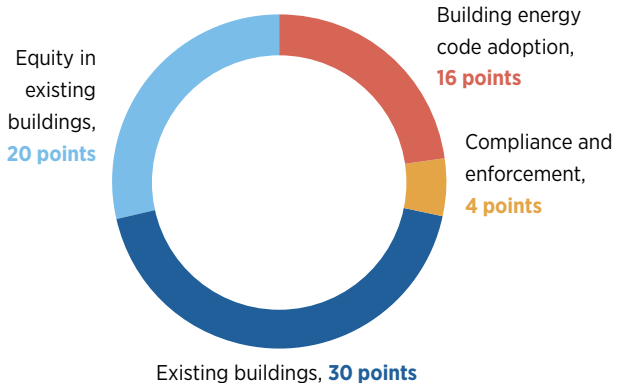
Many cities start by adopting policies for municipal buildings to demonstrate energy improvements in local government operations and then extend those policies to private buildings. Chapter 6 assesses clean energy policies and goals that local governments have established for their own operations, including their buildings. In Chapter 2 we evaluated comprehensive, community-wide targets that frequently incorporate the performance of privately owned buildings. In this chapter we focus on policies applying to residential and commercial buildings in the private sector.

SCORING

We scored cities on clean energy policies for private buildings; these are policies that local governments can directly establish or typically influence. We allocated 70 points to buildings policies across four categories, as shown in figure 16.

We discuss the scoring methodology and data sources for each metric following the presentation of results.

Figure 16. Buildings policies scoring overview



Note: To highlight the importance of city equity-driven policies and programs, we evaluate metrics under existing buildings and equity in existing buildings separately.

RESULTS

Denver earned the most points for buildings policies, with a significant lead over the other top-scoring cities. New York City; Washington, DC; and Chicago were the next highest scorers. The three leading cities earned 39 or more points—far surpassing the median score of 14—by implementing stringent energy codes, robust code enforcement strategies, and several policies targeting existing buildings. These cities can serve as models for others that want to implement clean energy policies for their buildings. Overall, city performance varied across the buildings policy categories. Scores were best for energy code compliance and worst for policies for existing buildings, though some cities have made strides in the latter since the last edition of the *Scorecard*.

Table 16 summarizes the scores across all buildings policy categories. In subsequent tables in this chapter, we show how we allocated points for individual metrics within these categories.

Table 16. Buildings policies scores

City	Building energy code adoption (16 pts)	Code compliance and enforcement (4 pts)	Existing buildings (30 pts)	Equity in existing buildings (20 pts)	Total (70 pts)
Denver	13.0	4.0	29.0	12.0	58.0
New York	14.5	3.0	30.0	5.0	52.5
Washington, DC	11.0	4.0	16.0	8.0	39.0
Chicago	9.5	3.0	16.0	8.0	36.5
San Francisco	16.0	3.0	15.0	2.0	36.0
Seattle	12.5	4.0	15.0	3.0	34.5
Chula Vista	12.5	4.0	18.0	0.0	34.5
Los Angeles	15.5	4.0	12.0	3.0	34.5
Minneapolis	10.0	3.0	15.0	6.0	34.0
San José	16.0	3.0	11.0	3.0	33.0
Sacramento	15.5	2.0	14.0	0.0	31.5
Aurora	5.5	3.0	19.0	2.0	29.5
St. Louis	7.5	4.0	13.0	5.0	29.5
Boston	10.0	2.0	15.0	2.0	29.0
Austin	9.0	4.0	11.0	4.0	28.0
Oakland	16.0	3.0	6.0	3.0	28.0
Portland	9.0	4.0	11.0	2.0	26.0
Miami	9.0	4.0	8.0	5.0	26.0
Riverside	15.0	2.0	6.0	1.0	24.0
Atlanta	6.5	4.0	9.0	4.0	23.5

City	Building energy code adoption (16 pts)	Code compliance and enforcement (4 pts)	Existing buildings (30 pts)	Equity in existing buildings (20 pts)	Total (70 pts)
San Diego	14.0	3.0	6.0	0.0	23.0
Kansas City	11.5	4.0	7.0	0.0	22.5
Orlando	3.5	4.0	12.0	3.0	22.5
Fresno	13.5	2.0	5.0	1.0	21.5
Oxnard	14.5	3.0	4.0	0.0	21.5
Spokane	10.5	3.0	8.0	0.0	21.5
Long Beach	13.0	4.0	4.0	0.0	21.0
Philadelphia	7.5	3.0	9.0	0.0	19.5
San Antonio	10.5	4.0	2.0	3.0	19.5
Baltimore	5.5	1.0	8.0	4.0	18.5
Honolulu	4.5	2.0	9.0	1.0	16.5
Reno	4.0	2.0	10.0	0.0	16.0
Nashville	5.5	4.0	3.0	3.0	15.5
Madison	4.5	1.0	6.0	4.0	15.5
Saint Paul	6.0	3.0	6.0	0.0	15.0
New Orleans	7.0	3.0	3.0	2.0	15.0
Houston	5.5	4.0	5.0	0.0	14.5
Boise	9.0	4.0	1.0	0.0	14.0
Dallas	6.0	4.0	3.0	1.0	14.0
Grand Rapids	7.5	2.0	3.0	1.0	13.5
Milwaukee	6.0	1.0	4.0	2.0	13.0
Rochester	8.0	2.0	3.0	0.0	13.0
Albuquerque	4.5	3.0	3.0	2.0	12.5
Phoenix	4.5	3.0	4.0	1.0	12.5
Salt Lake City	3.5	1.0	8.0	0.0	12.5
Charlotte	5.0	2.0	3.0	2.0	12.0
Hartford	6.0	2.0	3.0	1.0	12.0
Memphis	8.0	1.0	2.0	1.0	12.0
Pittsburgh	5.0	2.0	5.0	0.0	12.0
Columbus	3.5	3.0	5.0	0.0	11.5
Las Vegas	6.5	4.0	1.0	0.0	11.5
Cincinnati	3.0	2.0	3.0	2.0	10.0
Des Moines	5.0	1.0	4.0	0.0	10.0
Providence	4.5	3.0	2.0	0.0	9.5
Tucson	6.5	3.0	0.0	0.0	9.5
St. Petersburg	3.5	2.0	3.0	0.0	8.5
Knoxville	2.0	2.0	2.0	2.0	8.0
New Haven	4.0	2.0	2.0	0.0	8.0
Springfield	6.0	2.0	0.0	0.0	8.0
Louisville	2.5	2.0	3.0	0.0	7.5
Richmond	4.5	2.0	1.0	0.0	7.5
Lansing	3.0	2.0	2.0	0.0	7.0

City	Building energy code adoption (16 pts)	Code compliance and enforcement (4 pts)	Existing buildings (30 pts)	Equity in existing buildings (20 pts)	Total (70 pts)
Cleveland	3.5	0.0	3.0	0.0	6.5
Chattanooga	4.0	2.0	0.0	0.0	6.0
Indianapolis	2.0	0.0	4.0	0.0	6.0
Mesa	4.0	2.0	0.0	0.0	6.0
Bridgeport	4.0	0.0	1.0	0.0	5.0
Detroit	2.0	2.0	1.0	0.0	5.0
Charleston	2.0	2.0	0.0	0.0	4.0
Tampa	1.5	0.0	2.0	0.0	3.5
Durham	2.0	1.0	0.0	0.0	3.0
Raleigh	1.0	1.0	1.0	0.0	3.0
Toledo	1.0	1.0	1.0	0.0	3.0
Fayetteville	1.5	1.0	0.0	0.0	2.5
Akron	1.0	1.0	0.0	0.0	2.0

To highlight the importance of city equity-driven policies and programs, we evaluate metrics under *existing buildings* and equity in *existing buildings* separately.

Leading Cities

Denver. Denver earned full points in the code compliance and enforcement metric and earned nearly full points in all other metrics. The city has adopted the 2021 IECC standard for residential and commercial buildings. It also has additional low-energy-use requirements for municipal buildings and residential and commercial buildings greater than 25,000 square feet. Denver has implemented many policies targeting existing buildings—including a benchmarking policy and several incentive programs—making it a national leader in these policies, second only to New York. Following Colorado's building performance requirement enacted in 2021, Denver passed its own policy, the Energize Denver Ordinance, in 2022—requiring commercial, multifamily, and industrial buildings 25,000 square feet or larger to meet EUI energy performance targets (Nadel and Hinge 2023). Denver provides additional compliance support to affordable housing and underserved commercial buildings covered in the building performance standards—which, combined with other innovative measures, made it the clear leader in integrating equity into its existing buildings policies.

New York. New York received full points in the existing buildings metric, and nearly full points in the energy code and code enforcement metrics. The city's energy codes are among the most stringent in the country, and it is the national leader in policies targeting energy efficiency in existing buildings, with six robust mandatory policies on the books. For example, Local Law 97 of 2019 regulates GHG emissions from buildings larger than 25,000 square feet, requiring a performance review on an annual basis and subjecting properties to penalties for excessive emissions. Local Law 154 of 2021 plans a phase out of fossil fuel systems in buildings, paving the path for electrification of the city's building stock. New York also offers several financing programs to drive energy savings in the existing building stock.

Washington, DC. Washington, DC, earned full points in the code compliance metric and scored highly in all other metrics. While it could not be captured in this year's *Scorecard*, the city was in the process of updating its energy codes during our research and scoring, with a goal of enacting new ones in early 2024. Its current energy code requires solar- and EV-readiness in both commercial and residential buildings. In addition, its Building Code Amendment Act of 2022 mandates a net-zero energy and all-electric energy code be adopted by the city by December 31, 2026. The city also implements highly impactful policies targeting existing buildings, including a benchmarking ordinance and building performance standards. It was one of only four cities to offer affordable housing owners additional compliance assistance as part of its building performance standards.

BUILDING ENERGY CODES

Building energy codes require new and renovated buildings to meet efficiency standards that can substantially reduce the amount of energy they use over their lifetime. These codes have made considerable advances over the past 40 years. For example, a home built to the 2012 energy code uses 50% less energy per square foot than a home constructed in the 1970s (Urbanek 2016). Energy codes continue to be a critical tool for improving building performance.

There are two model national energy codes, one for residential buildings and another for commercial buildings. The national model code for residential buildings is the IECC, developed by the International Code Council (ICC). For commercial buildings it is the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1, developed jointly by ASHRAE and the Illuminating Engineering Society. The current model energy codes, as approved by the U.S. DOE, are the 2021 IECC and the ASHRAE 90.1-2019 standards. The majority of states amend and adopt these codes. Model energy codes are expected to save more than 12.82 quads of primary energy between 2010 and 2040, the equivalent of taking 177 million cars off the road or 245 coal plants off the grid (DOE 2021b).

State governments assume responsibility for adopting and amending model energy codes, and state laws dictate whether cities have the authority to adopt local regulations, such as building energy codes. Those that grant this authority are home-rule states, but this distinction is not always clear-cut when it comes to energy code authority. For example, Ohio is a home-rule state but bars cities from adopting building energy codes. Conversely, some states that are not home-rule allow their localities to adopt stretch codes to add stringency to the state code; these states include California and New York. A few home-rule states set no statewide energy codes, thereby granting cities, by default, full authority to adopt their own codes. And some states may legally allow cities to amend the state energy codes but make it difficult to do so. For example, cities in South Carolina may make amendments to the state codes, but only if the South Carolina Building Codes Council grants them a variance to do so. Thirty-nine of the 75 cities in the *Scorecard* have the authority to adopt their own codes or more stringent codes.

In this category, we scored cities on:

- Code stringency (8 points)
- Electrification policies and programs (3 points)
- Renewable readiness policies (2 points)
- EV charging readiness policies (2 points)
- Low-energy-use policies (1 point)

8 POINTS

Code Stringency

Cities could earn up to 8 points for residential and commercial code stringency. We used two separate scoring methodologies, depending on whether a city has authority to adopt energy codes. Those without this authority have less control over code stringency and cannot easily improve their scores without state assistance. To account for cities without authority to adopt their own codes, we allowed 4 points for code advocacy; these cities could earn a maximum of 4 points for code stringency and 4 points for actively lobbying the state for more stringent building energy codes.

We awarded points for residential and commercial codes separately. We used the New Buildings Institute's (NBI) Zero Energy Performance Index (zEPI) Jurisdictional Score to measure the stringency of a city's codes (NBI 2021). These zEPI scores rate the progress of a jurisdiction toward becoming net zero energy.[26] Cities can score between 0 and 100. A score of 100 is indexed to the worst-performing buildings, equivalent to the average energy performance of a building in the year 2000. A score of 0 represents zero net energy.[27]

For residential and commercial codes, we divided the zEPI scores into quintiles and assigned points accordingly. For cities that have energy code authority, we awarded 4 points to those in the fifth quintile (lowest 15 zEPI scores), 3 to those in the fourth quintile, 2 to those in the third quintile, and 1 to those in the second quintile.[28] For cities without code authority,

26 The U.S. DOE defines a zero-energy building as "an energy-efficient building where, on a source energy basis, the actual annual delivered energy is less than or equal to the onsite renewable exported energy" (Peterson, Torcellini, and Grant 2015).

27 To learn more about NBI's zEPI Jurisdictional Score, visit newbuildings.org/code_policy/zepi/.

28 We could not create perfect quintiles because many cities had the same scores from adopting state codes. We aligned the groups with quartiles as best we could, given the data.

2 points to those in the fifth quintile, 1.5 to those in the fourth quintile, 1 to those in the third quintile, and 0.5 to those in the second quintile. We awarded these cities 2 points for advocating for more stringent energy codes at the state level through one activity or 4 points if they pursued two or more activities. Table 17 outlines the score ranges for both residential and commercial zEPI scores.

3 POINTS

New Construction Electrification Policies and Programs

Fossil fuels burned in buildings are responsible for more than 10% of U.S. greenhouse gas (GHG) emissions (EPA 2023). Building electrification has therefore become a key element in many cities' approaches to achieve their GHG emissions goals—particularly when paired with efficiency, electrification, or the replacement of fossil fuel–fired equipment with equipment that instead uses electricity, reduces pollution in most of the United States today—and will have an even more positive impact in the future as coal-fueled power plants retire and clean electricity generation increases (Nadel 2023a).

While most cities pursuing these efforts were previously limited to California, there has been increasing activity in other cities across the country, where electrification requirements are either already in place or in development. Over 50 cities in the United States have now enacted measures limiting or prohibiting natural gas in new homes (Davis 2022).

In this metric, cities receive 3 points for all-electric requirements or fossil fuel bans in new construction, and half points (1.5) for other policies incentivizing electrification, such as mandating electric-readiness in new construction or prohibiting utility incentives for fossil fuel systems.

2 POINTS

Renewable Readiness Policies

Increasingly, cities are requiring new buildings to support renewable installation through renewable-ready requirements. These policies set design requirements for new construction so that buildings can support renewable energy systems in the future without needing major retrofits. For example, solar-ready policies may set requirements for minimum solar zone areas on roofs or overhangs, steep-sloped roofs, and minimum ratings for electrical panels. Installing these measures up front can be significantly less costly than retrofitting these buildings later.

Some model energy codes include renewable energy–ready requirements that cities have the option to adopt. The 2015 International Residential Code (IRC) Appendix U and IECC Appendix RB offer optional solar-ready requirements for residential buildings.

We awarded 2 points to cities with renewable-ready requirements. Cities that allow renewable energy use in all zones received 1 point for renewable readiness. Some cities are removing zoning restrictions on renewable energy installations. While these policies are not as robust as renewable energy readiness requirements, allowing renewable energy use in all zones can encourage building owners to pursue these systems, particularly in cities that are preempted from adopting renewable-ready requirements.

2 POINTS

EV Charging Readiness Policies

Similar to renewable-ready requirements, cities are also adopting policies that require new building developments to be EV charging–ready. These policies oblige property parking spaces to have sufficient wiring and electrical capacity to support EV chargers (Khan and Vaidyanathan 2018). Much like solar-ready retrofits, EV-ready retrofits can be significantly more expensive because of the added costs of demolition, project permitting, and electrical upgrades (Frommer 2018).

Some model energy codes, including the International Green Commercial Code, include EV-ready requirements. Cities can adopt these policies or develop their own.

We awarded 2 points for EV-ready requirements.

1 POINT

Low-Energy-Use Building Requirements

Some cities set low-energy-use requirements for certain buildings. For example, a number of cities call for large commercial buildings to receive an ENERGY STAR® or LEED certification. Some of these requirements go into effect if public funding is used for a project; others are in place for specific classes or sizes of buildings. Some cities include green building requirements in stretch codes for new construction.

While energy codes apply to the entirety of a city's residential or commercial building stock, our metric recognizes additional policies and efforts a city has made to extend more stringent, above-code requirements to specific categories of buildings. Cities earned 0.5 points for having a low-energy-use requirement for certain residential, commercial, or municipal buildings. If a city has requirements for more than one of these sectors, it earned an additional 0.5 points for a maximum score of 1 point.

Table 17 shows the scoring for these metrics, and table 18 presents the scores. Table E5 in Appendix E provides more detailed city scores.

Table 17. Scoring for building energy code adoption

Residential code stringency		
zEPI score	**Cities with authority**	**Cities without authority**
<50.50	4	2
50.50–55.50	3	1.5
55.51–60.13	2	1
60.14–64.17	1	0.5
Commercial code stringency		
zEPI score	**Cities with authority**	**Cities without authority**
<46.35	4	2
46.35–49.24	3	1.5
49.25–51.75	2	1
51.76–53.83	1	0.5
Advocacy	**Cities with authority**	**Cities without authority**
City advocates to state for more-stringent codes.	N/A	2 points for one activity, 4 points for two or more
Electrification		
City has all-electric requirements or fossil fuel bans for new construction.	3	
City encourages electrification through electric-ready requirements or similar efforts.	1.5	
Renewable readiness		
City has renewable-ready requirements for residential or commercial new construction.	2	
City allows renewable energy use in all zones.	1	
EV charging readiness		
City has EV-ready requirements for residential or commercial new construction.	2	
Low-energy-use requirements		
City has low-energy-use requirements for residential, commercial, or municipal buildings.	0.5 for each sector, capped at 1 point	

Table 18. Building energy code adoption scores (out of 16 possible points)

Oakland (16)	Seattle (12.5)	Rochester (8)	Aurora (5.5)	Bridgeport (4)	Charleston (2)
San Francisco (16)	Kansas City (11.5)	Grand Rapids (7.5)	Baltimore (5.5)	Chattanooga (4)	Detroit (2)
San José (16)	Washington, DC (11)	Philadelphia (7.5)	Houston (5.5)	Mesa (4)	Durham (2)
Los Angeles (15.5)	San Antonio (10.5)	St. Louis (7.5)	Nashville (5.5)	New Haven (4)	Indianapolis (2)
Sacramento (15.5)	Spokane (10.5)	New Orleans (7)	Charlotte (5)	Reno (4)	Knoxville (2)
Riverside (15)	Boston (10)	Atlanta (6.5)	Des Moines (5)	Cleveland (3.5)	Fayetteville (1.5)
New York (14.5)	Minneapolis (10)	Las Vegas (6.5)	Pittsburgh (5)	Columbus (3.5)	Tampa (1.5)
Oxnard (14.5)	Chicago (9.5)	Tucson (6.5)	Albuquerque (4.5)	Orlando (3.5)	Akron (1)
San Diego (14)	Austin (9)	Dallas (6)	Honolulu (4.5)	Salt Lake City (3.5)	Raleigh (1)
Fresno (13.5)	Boise (9)	Hartford (6)	Madison (4.5)	St. Petersburg (3.5)	Toledo (1)
Denver (13)	Miami (9)	Milwaukee (6)	Phoenix (4.5)	Cincinnati (3)	
Long Beach (13)	Portland (9)	Saint Paul (6)	Providence (4.5)	Lansing (3)	
Chula Vista (12.5)	Memphis (8)	Springfield (6)	Richmond (4.5)	Louisville (2.5)	

*We were unable to calculate a zEPI score for Seattle because there are no available analyses comparing that city's code to model energy codes. We reviewed the city's energy codes and determined they should receive full points for residential and commercial code stringency.

BUILDING ENERGY CODE COMPLIANCE AND ENFORCEMENT

Building energy code compliance efforts are key to achieving savings; noncompliance with energy codes results in lost energy savings over the life of the building (Tyler, Hart, and Huckett 2023). The Building Codes Assistance Project reports that every dollar spent on energy code compliance leads to $6 in energy savings (IMT 2010).

State and local agencies are usually responsible for energy code compliance, enforcement, and training. Even when a code is set at the state level, states typically delegate to local agencies the authority to review plans and inspect construction. State offices often support local officials by overseeing their enforcement practices and providing technical and educational assistance.

Most cities' enforcement centers on the permitting process. In jurisdictions without enforcement, engineers or architects for a building construction project self-certify that their plans are code compliant. In jurisdictions with adequate enforcement, builders submit plans to code officials for review. Many jurisdictions also require onsite inspections of construction work prior to granting occupancy permits. Cities with more stringent enforcement additionally require owners to conduct building performance testing upon completion and submit documentation of the results.

Permit fees and municipal taxes fund local government enforcement. State agencies and utilities may sometimes fund training and provide technical assistance, not only to code officials but also to builders, contractors, engineers, and architects. The DOE Building Energy Codes Program provides a variety of technical resources to support state and local code implementation, like guidance, software tools, and trainings for a range of industry professionals.[29]

Local governments often cite a lack of funding or resources as a reason for not enforcing building energy codes (Meres et al. 2012). If resources are limited, energy code enforcement is often the first thing to be cut. Cities may also view energy codes as nonessential compared with building codes that protect people against immediate hazards like fire and structural failure. However, energy codes are a critical component of building design and safety, encompassing measures that can have a significant impact on durability, health, and resilience, in addition to energy efficiency and performance.

Comparing compliance rates across states and cities is often difficult because localities use different methods for collecting and evaluating compliance data. Additionally, most compliance studies report only on new construction since data are harder to obtain for renovation projects subject to code compliance (Tyler et al. 2021). Because few reports exist for city-level compliance rates, we used several proxies in the *City Scorecard* to evaluate code compliance and enforcement efforts.

29 More information is available at www.energycodes.gov.

A city could earn up to 3 points for building energy code enforcement and compliance. In this category, we scored cities on

- Staff dedicated to energy code enforcement (1 point)
- City-administered mandatory code compliance strategies (1 point)
- Upfront support for developers and builders for energy code compliance (e.g., education prior to permit issuance or application review) (1 point)

1 POINT

City Staffing for Building Energy Code Compliance

Most city code officials are responsible for enforcing all building codes, not just energy codes. While staff who specialize in energy codes can perform higher-quality plan reviews and inspections, track code infractions, and raise awareness and compliance (NRDC and IMT 2018; DOE 2013), we acknowledge that most cities do not have the resources or bandwidth to provide this. In this metric, we recognize cities that keep record of the time their employees dedicate to energy code compliance. Cities received 1 point for having the equivalent of at least one full-time employee working on energy code compliance.

2 POINTS

Energy Code Compliance Strategies

Cities can enforce codes by requiring builders to demonstrate compliance throughout the construction process. Most require plan reviews and site inspections. Some cities engage third parties to conduct reviews in order to improve their quality and timeliness while reducing demands on building department staff (NRDC and IMT 2018; Meres et al. 2012).

Beyond plan reviews and site inspections, cities can require builders to conduct performance tests to prove their buildings are functioning at required levels. More recent energy codes often require these tests. For example, the 2012, 2015, and 2018 versions of the IECC mandate duct and building envelope testing in new residential construction. Cities with these requirements must have enough contractors to make testing services available and affordable (Barcik 2013).

Cities could receive up to 2 points for compliance strategies: 1 point for plan reviews and field inspections and 1 point for performance testing for either commercial or residential buildings.

1 POINT

Up-Front Support for Building Energy Code Compliance

Cities can help the design and construction community comply with energy codes by providing support throughout the building process (DOE 2021). Support prior to plan review is especially important to ensure that builders consider energy codes from the beginning of the design and permitting process. Many cities provide free training to builders, developers, and owners to teach them about their energy codes. They may also give builders free plan reviews and one-on-one consultations before they submit permit applications. We awarded 1 point to cities that provide any free up-front support to help the construction community understand and navigate code compliance.

Table 19 summarizes the scoring for these metrics, and table 20 lists the scores. Table E6 in Appendix E provides more detailed city scores.

Table 19. Scoring for code compliance

City staffing	Score
City has the equivalent of one or more full-time employees dedicated to energy code compliance.	1
Compliance strategies	
City requires performance testing *and* requires plan review and site visits.	2
City requires performance testing *or* requires plan review and site visits.	1
Upfront support	
City provides free up-front support.	1

Table 20. Code compliance scores (out of 4 possible points)

Atlanta (4)	Orlando (4)	Oakland (3)	Charlotte (2)	Pittsburgh (2)	Madison (1)
Austin (4)	Portland (4)	Oxnard (3)	Chattanooga (2)	Reno (2)	Memphis (1)
Boise (4)	San Antonio (4)	Philadelphia (3)	Cincinnati (2)	Richmond (2)	Milwaukee (1)
Chula Vista (4)	Seattle (4)	Phoenix (3)	Detroit (2)	Riverside (2)	Raleigh (1)
Dallas (4)	St. Louis (4)	Providence (3)	Fresno (2)	Rochester (2)	Salt Lake City (1)
Denver (4)	Washington, DC (4)	Saint Paul (3)	Grand Rapids (2)	Sacramento (2)	Toledo (1)
Houston (4)	Albuquerque (3)	San Diego (3)	Hartford (2)	Springfield (2)	Bridgeport (0)
Kansas City (4)	Aurora (3)	San Francisco (3)	Honolulu (2)	St. Petersburg (2)	Cleveland (0)
Las Vegas (4)	Chicago (3)	San José (3)	Knoxville (2)	Akron (1)	Indianapolis (0)
Long Beach (4)	Columbus (3)	Spokane (3)	Lansing (2)	Baltimore (1)	Tampa (0)
Los Angeles (4)	Minneapolis (3)	Tucson (3)	Louisville (2)	Des Moines (1)	
Miami (4)	New Orleans (3)	Boston (2)	Mesa (2)	Durham (1)	
Nashville (4)	New York (3)	Charleston (2)	New Haven (2)	Fayetteville (1)	

POLICIES TARGETING EXISTING BUILDINGS

Most buildings that will be in use in 2050 are already in use today (Amann 2017). As discussed in Nadel and Ungar (2019), improving energy efficiency in existing buildings is critical to saving energy and reducing carbon emissions. Increasing the number of deep energy retrofits to existing homes and other buildings is a core strategy for cutting U.S. greenhouse gas emissions in half by 2050; relative to the current retrofit pace, scaling retrofits to the recommended level could save an additional 3.8 quadrillion Btus and 148 million metric tons of carbon dioxide in the year 2050, representing 4% and 3.9% of total energy and emissions savings, respectively.

Cities can implement a number of policies, requirements, and programs to drive clean energy improvements in existing buildings. Some policies aim to lessen the barriers to energy efficiency. For example, energy-use benchmarking policies reduce information barriers by requiring building owners to measure, report, and share how much energy they use annually. Financial incentives like zero-interest loans or tax credits can offset the high up-front cost barriers to efficiency retrofits and renewable energy projects, while nonfinancial incentives like density bonuses can encourage developers to incorporate higher energy efficiency in new construction projects.

Other policies require owners to take energy-saving actions to reduce their energy use. For example, Los Angeles's Existing Buildings Energy and Water Efficiency Program requires owners of large commercial and multifamily buildings to perform energy assessments and retrocommissioning every five years to optimize the performance of their energy and water systems.

In this category, we scored cities on a menu of possible requirements and other actions to reduce energy usage or GHG emissions in buildings. We assigned points based on the expected potential impact of each requirement. Those expected to achieve greater energy savings earned more points; those that would result in lower savings, or whose effectiveness was difficult to gauge, earned fewer points. We scored policies targeting residential and commercial buildings separately; policies that applied to both residential and commercial buildings earned double the points.[30] The overall allocation was as follows:

- Building performance standards (4 points for the commercial sector, 4 points for the residential sector)[31]
- Retrofit requirements (4 points per sector)
- Retrocommissioning requirements (2 points per sector)
- Crosscutting requirements (2 points per sector)

30 For the purposes of scoring, the residential sector can include the multifamily sector, the single-family sector, or both. Our scoring of voluntary programs departs from the description provided here. While cities that do not have the authority to adopt clean energy requirements can earn 1 point for each sector that is served by a voluntary program, this is not the case for those that have the authority to adopt requirements, which can only earn 0.5 points for having a voluntary program.

31 Cities could earn an additional 4 points if they had residential building performance standard provisions that applied to affordable housing and pursued at least two strategies of compliance support. They could earn another 4 points for the same policies for underserved commercial.

- Benchmarking and transparency requirements (2 points per sector)
- Commercial rental disclosure requirements (2 points)[32]
- Energy audit requirements (1 point per sector)
- Energy efficiency incentives and financing programs and best practices (points based on number of programs administered and program characteristics, capped at 4 points overall)
- Other innovative policies (2 points per sector)
- Voluntary programs (2 points per sector for cities without authority to enact requirements; 1 point for cities with authority, capped at 1 point)

While the total number of points for this portion of the metric is 44, we capped the maximum cities could earn to 30.[33] Cities could earn up to an additional 20 points by demonstrating they had adopted initiatives from the following list of equity-driven policies and programs:

- Building performance standards for the affordable housing or underserved commercial sectors with at least two strategies of compliance support (4 points per sector)
- Residential rental disclosure requirement (2 points)
- Non-targeted program outcomes (2 points)
- Low-income energy efficiency incentives and financing programs and best practices (points based on number of programs administered and program characteristics, capped at 4 points overall)
- Low-income electrification incentive and financing programs (points based on number of programs administered, capped at 2 points overall)
- Affordability requirements in energy incentives and financing programs (0.5 points)

We provide additional information on these policies and programs later in this chapter.

Cities were scored on the different components of their policies. An individual city policy could earn multiple points if it calls for multiple actions. For example, a city that implements benchmarking ordinances that include retrocommissioning requirements would earn a total of 4 points for each requirement: 2 points for benchmarking and 2 points for retrocommissioning. Similarly, a city with a single-family energy-use disclosure policy that requires energy audits would receive 3 points: 2 points for the energy-use disclosure policy and 1 point for the audit requirement.

8 POINTS

Building Performance Standards

Energy performance standards set phased energy or emissions reduction requirements for certain buildings. For example, New York's Local Law 97 of 2019 sets emissions caps for buildings greater than 25,000 square feet. The policy requires these buildings to reduce GHG emissions 40% by 2030 and 80% by 2050, relative to a 2005 baseline (Nadel and Hinge 2023).

Although very few cities have adopted them, building performance standards show significant promise for driving deep energy savings in existing buildings. For this reason, we awarded these policies more points than any other requirement in this metric. Cities earned 4 points for building performance standards that covered the commercial sector and 4 points for the residential sector. An additional 4 points are also available for building performance standards for the affordable housing and underserved commercial sectors, discussed below in the "Equity in Policies Targeting Existing Buildings" section.

12 POINTS

Retrofit and Retrocommissioning Requirements

Retrofit policies call for modifying existing buildings to reduce energy use. Comprehensive upgrades can cut commercial building energy use by 15–40% (Srivastava and Mah 2022). Amann, Srivastava, and Henner (2021) report that deep energy retrofits in residential buildings can achieve energy savings of 40% or more. Some cities implement policies that establish retrofit requirements for certain buildings. For example, San Francisco's Residential Energy Conservation Ordinance requires a minimum set of retrofits at time of sale for residential properties built before 1978 (SF Environment 2020). Retrofit policies may also target certain building components. New York's Local

32 Park (2014) considers residential renters to be a marginalized constituency; therefore, we scored residential rental disclosure requirements in the section on equity in policies targeting existing buildings.

33 For more detailed information on the policies and programs that cities received credit for in this metric, please see table E7 in Appendix E and visit the ACEEE State and Local Policy Database, accessible at database.aceee.org/.

Law 88 of 2009, for instance, requires buildings with more than 25,000 square feet to upgrade their lighting to meet the current city energy code.

Retrocommissioning (RCx) policies require owners to upgrade their buildings on a set schedule or at various stages of the ownership cycle. RCx is a process of improving the operations of building equipment to increase efficiency. Its goal is to optimize the performance of building subsystems like chillers and boilers and the way those systems function together. The U.S. Environmental Protection Agency (EPA) estimates that RCx can reduce energy use by up to 15% in commercial buildings, with a payback period of eight to nine months (EPA 2021e).

Cities earned 4 points for each sector (multifamily and commercial) that has retrofit requirements. Cities also earned 2 points for each RCx or building tune-up requirement applying to each sector.

Crosscutting Requirements

4 POINTS

Some cities require building owners to pursue one energy-saving action from a menu of several options. We call these policies crosscutting requirements. Most commonly they involve benchmarking policies that give owners the option to retrocommission their buildings or conduct audits. This is the choice given, for example, by Orlando's Building Energy and Water Efficiency Strategy. We do not credit these policies under "Retrofit and Retrocommissioning Requirements" because we do not want to overstate their potential for saving energy. A dedicated retrofit and retrocommissioning requirement is likely to lead to more energy savings than a requirement that allows building owners to default to an energy audit.

Cities received 2 points for having crosscutting requirements for multifamily or single-family residential buildings and 2 points for such requirements for commercial buildings.

Benchmarking and Disclosure Requirements

7 POINTS

These requirements include any policy that obliges building owners to measure, benchmark, report, and share their energy use. Policies that earned credit were multifamily and commercial benchmarking policies and owner-occupied single-family disclosure policies. Disclosure policies targeting only rental properties were addressed in later metrics in this chapter.

Many cities implement multifamily and commercial benchmarking and transparency ordinances. These policies require building owners to report their annual energy consumption to the local government. Most cities require owners to submit their energy consumption using a web-based tool like the ENERGY STAR Portfolio Manager to ensure that data across all buildings are consistent and therefore readily comparable. To whom this information is disclosed varies. Some cities require disclosure to the public on a recurring basis (e.g., annually), while others require disclosure only at the time of a transaction, like a purchase, and only to the parties involved.

Owner-occupied single-family energy-use and cost disclosure policies are less common. These policies require homeowners to disclose energy usage information when selling or listing their homes. Some cities, like Portland and Austin, require home sellers to receive and disclose an energy report, while other cities, like Chicago, require sellers to disclose annual energy bills. The recipient of the disclosure also varies. Some cities require sellers to disclose to the public when listing their home, while others require disclosure only to the buyer at the time of sale.

Cities could earn 2 points for each sector (commercial, multifamily, and single-family buildings) targeted by a benchmarking and transparency policy.[34] We also awarded 1 point to cities demonstrating at least one year of compliance rates greater than 90% for at least one type of building since 2018.[35]

Commercial Rental Property Disclosure Policies

2 POINTS

Rental disclosure policies are another type of information disclosure requirement. These policies require owners of commercial rental properties to disclose building energy use to prospective tenants—before a transaction takes place—to allow consumers to make informed choices. These disclosures can take several forms, including presenting prospective tenants with a utility bill or presenting them with a detailed energy report.

34 Some states prohibit cities from imposing benchmarking requirements. These cities can receive 1 point for voluntary policies.

35 We score on compliance for this metric because many cities with benchmarking and energy-use disclosure policies track and publish data on their compliance rates. We hope to score compliance and performance for other metrics in this section in the future if enough cities track and publish this information.

Cities could earn 2 points for a commercial rental disclosure policy. Residential rental disclosure policies earn credit in the "Equity in Policies Targeting Existing Buildings" section below.

2 POINTS

Energy Audit Requirements

Audits typically require a certified building professional to perform a site inspection and identify potential upgrades to consider for retrofits as well as tune-up opportunities for retrocommissioning. They generally target the whole building and provide a clear avenue for maximizing energy savings. Cities can implement audit requirements through a stand-alone policy or as an element of their benchmarking policies.

Cities earned 1 point for each building sector covered by an audit requirement.

4 POINTS

Energy Efficiency Incentives and Financing Programs

Cities can provide financial and nonfinancial incentives to encourage owners to pursue energy efficiency projects.[36] Many cities offer at least one of the following financial incentives: tax abatement, permit fee reductions or waivers, grants, and rebates. Some also have policies that provide financing and loans for efficiency upgrades and solar installation. Examples include property assessed clean energy (PACE) financing, tax increment financing (TIF), and revolving loan funds.

Some cities also provide nonfinancial incentives to encourage developers and builders to construct buildings that exceed code minimums and meet additional certifications like LEED. Fast-tracking the permitting process is one example; with little to no financial investment, jurisdictions can motivate builders by moving their projects up in the permitting and plan review process, which can otherwise take up to 18 months (USGBC 2014). Density bonuses are another common nonfinancial incentive. Several cities allow builders to construct buildings that exceed zoning restrictions on size or height if they meet more stringent efficiency requirements.

This scoring category captures incentive and financing programs administered by city governments and municipal utilities. Cities could earn up to 2 points for financial or nonfinancial mechanisms that promote energy efficiency.

We assigned points based on the number of programs a city has implemented. Programs that target both commercial and residential (either multifamily or single-family) buildings counted as two programs.[37] Cities with at least two incentive programs targeting energy efficiency received 2 points, and those with 1 program earned 1 point.

Cities could also earn 0.5 points (up to 2 points total) for each incentive program that included one or more of the following characteristics: one-stop shop application model, tailored pathway or component for rental property owners, community-based social marketing campaign, and a trade and real estate ally network.

4 POINTS

Other Innovative Policies

Cities are instituting other innovative energy-saving requirements that do not fall into the above categories but deserve recognition. For example, some cities have begun adopting building labeling requirements as an add-on to benchmarking mandates. Chicago's Energy Rating System requires building owners to post a building energy performance rating, and New York's Local Law 33 of 2018 requires building owners to post energy efficiency grades or labels.

Cities earned 2 points for having such an energy-saving requirement for residential (multifamily or single-family) buildings and 2 points for having such a requirement for commercial buildings.

2 POINTS

Voluntary Programs

We focus largely on requirements but acknowledge that some cities do not have the authority to enact mandates due to overriding state legislation or the lack of enabling state legislation. For example, cities in Arizona and Virginia cannot pass energy efficiency requirements. In these cases, we awarded cities points if they administer a voluntary program to encourage building owners to take energy-saving actions.

36 Incentives and financing programs for renewable energy are covered in the Community Infrastructure chapter of the *Scorecard*.

37 Cities with municipal utilities could earn points for municipally run programs that were not accounted for in the utilities chapter. We counted municipal efficiency programs targeting residential, commercial, and low-income customers, capped at three programs.

We also awarded points to cities that have the authority to adopt energy savings requirements but are running voluntary programs that aim to achieve significant savings and could build momentum for requirements. For example, the Atlanta Better Buildings Challenge reduced energy use in more than 100 million square feet of public and private buildings by 20% in less than 10 years (Atlanta 2019).

Cities without authority to pass energy savings requirements received 2 points for running voluntary programs for residential (multifamily or single-family) buildings and 2 points for commercial. Cities with authority could earn a maximum of 1 point for voluntary programs for both sectors.

EQUITY IN POLICIES TARGETING EXISTING BUILDINGS

As mentioned in previous chapters, marginalized communities face high energy burdens and barriers to accessing and benefiting from energy efficiency and renewable energy investments. To drive equitable outcomes, cities can adopt policies that require clean energy action in the affordable housing sector and develop incentive programs for low-income households. However, some policies can exacerbate inequities if supporting mechanisms are not adopted alongside them. Designing such policies with an eye toward distributional equity can help ensure that their benefits reach low-income households and that low-income households are not disproportionately burdened by these policies.[38]

We awarded points for city efforts to promote equity in policies targeting existing housing as described below.

8 POINTS

Building Performance Standards and Support Mechanisms for the Affordable Housing and Underserved Commercial Sectors

Building performance standards are a powerful tool to reduce energy burdens for low-income tenants living in affordable housing and for owners of underserved commercial buildings.[39] However, there are both challenges and risks to implementation. First, owners of affordable housing and underserved commercial buildings face several barriers to compliance, including lack of upfront capital and staffing constraints (Nedwick and Ross 2020; Hart et al. 2020). Further, requiring buildings with predominantly low-income tenants to comply with building performance standards may result in higher rents—and thus the displacement of low-income communities (Hart et al. 2020). For these reasons, proper support mechanisms are necessary to both aid compliance within the affordable housing and underserved commercial sectors and mitigate the risk of displacement. Nedwick and Ross (2020) identify such mechanisms:

- Granting exemptions to delay compliance
- Setting performance standards based on the median ENERGY STAR score for different property types
- Establishing multiple compliance pathways
- Fining noncompliant buildings on the basis of how much progress they have made in reducing energy
- Providing technical assistance to building owners
- Offering financial assistance to building owners

Cities earned 4 points for a building performance standard policy that both covers the affordable housing sector and provides any two of the above mechanisms for support, and 4 points for the same practices covering the underserved commercial sector.

2 POINTS

Residential Rental Disclosure Policy

Residential rental disclosure policies require the same action from building owners as their commercial counterparts. However, more than 61% of renter households are low income (Aurand et al. 2021; Park 2014). Disclosing energy use to this constituency helps them make informed housing decisions and avoid high energy burdens. Austin, Minneapolis, Chicago, and the state of Colorado have all adopted time-of-rent energy disclosure policies.

Cities earned 2 points for a residential energy rental disclosure policy.

38 For a definition of distributional equity, see our "Issue in Focus: Equitable Clean Energy Policies in the *City Scorecard*."

39 For the purposes of this report, we consider underserved commercial enterprises to be the same as what Drehobl and Tanabe (2019) defined as community-serving institutions: "businesses and organizations that provide important services to their local community." Examples of these include nonprofit organizations, charitable and philanthropic organizations, religious centers, transition centers and shelters, clinics and hospitals, municipal buildings, community centers, educational institutions, and small commercial businesses.

2 POINTS

Non-Targeted Program Outcomes

Programs promoting energy-efficient products and technologies that are not targeted to low- or moderate-income households have disproportionately served households that are white, higher income, college educated, and English speaking, while disadvantaged populations have much lower rates of program participation (Frank and Nowak 2016; Pigman, Deason, and Murphy 2021). Most program administrators do not keep or publish records of their participation data, which is crucial to understanding which customers and communities have been underserved and to begin rectifying these program gaps.

Cities could earn 2 points for collecting and making publicly available the demographic data for general, untargeted incentive program participants in order to assess the allocation of program benefits among disadvantaged communities. Data collection for targeted low-income programs is not eligible for points under this metric.

4 POINTS

Low-Income Energy Efficiency Incentives and Financing Programs

A number of cities have established or support programs that serve low-income communities. For example, the city of Madison partnered with nonprofit partners Sustain Dane and Elevate Energy to complete energy efficiency upgrades in small to medium multifamily buildings through the Efficiency Navigator Program. The program is available for renter-occupied buildings with rents affordable to residents at or below 80% Area Median Income. Cities can also help nonprofits that serve low-income communities reduce their own energy use and free up funds for their programs. For instance, the city of Denver partnered with Energy Outreach Colorado to provide the Nonprofit Energy Efficiency Program, which helped STEP Denver (a residential substance abuse recovery center) reduce its energy costs by 32% and use the savings to hire an additional case manager (Energy Outreach Colorado 2018).

Cities earned up to 2 points for low-income energy incentives and financing programs. Cities with two or more programs earned 2 points, and those with one program earned 1 point. Programs that serve both the commercial and residential sectors receive two program counts.[40]

Cities could also earn 0.5 points (up to 2 points total) for each of the following program best practices: a one-stop shop application model, programs that include a tailored pathway or component for rental property owners,[41] community-based social marketing campaigns, and establishing a trade and real estate ally network.

2 POINTS

Low-Income Electrification Incentives and Financing Programs

As cities move to decarbonize and electrify their buildings, low-income households will need increased access to financial resources that can assist them in making the shift away from fossil fuels. The cost to convert a low-income home averages $20,000, which is well beyond what most of these households can afford (Nadel 2023b). Grants and financing will be needed to cover the costs of these retrofits. This metric recognizes those cities that are initiating new grant or loan programs to specifically support low-income home electrification or are designing non-targeted incentive or financing programs in ways that advance equitable electrification.

Cities could earn up to 2 points for electrification-specific incentive and financing programs that include equity measures to ensure the transition to all-electric for disadvantaged communities. Cities with two or more of such programs earned 2 points, and those with one program earned 1 point.

2 POINTS

Affordability Requirements in Energy Incentive and Financing Programs

Several cities offer incentives or financing for energy efficiency energy upgrades. As mentioned earlier, these upgrades may increase rents and displace tenants. To avoid this, cities can attach affordability requirements to incentive awards, allowing current tenants to experience the benefits of these energy efficiency and renewable energy upgrades. Charlotte, for example, has an affordability covenant in place for its income-qualified home rehabilitation program, which includes measures like HVAC replacement that could have energy savings impacts. Owners of rental units must maintain affordability, and homeowners cannot sell their homes for specific time periods after the upgrades.

Cities earned 2 points for requiring incentive award recipients to preserve housing affordability.

40 PACE financing programs for commercial and residential buildings are exempt from this rule and are capped at 1 point.

41 Standalone programs for rental property owners are not currently considered/given points under the best practices metric.

Tables 21 and 22 summarize the scoring for policies targeting existing buildings and equity in existing buildings, respectively, and table 23 provides the scores. Table E7 in Appendix E provides more detailed city scores.

Table 21. Scoring for policies targeting existing buildings

Policy	Score (capped at 30 points)
Building performance standards	4 (commercial) 4 (residential)
Retrofit requirements	4 (commercial) 4 (residential)
Retrocommissioning requirements	2 (commercial) 2 (residential)
Crosscutting requirements	2 (commercial) 2 (residential)
Benchmarking and energy-use disclosure requirements	2 (commercial) 2 (multifamily) 2 (single-family)
Commercial rental disclosure policies	2
Energy audit requirements	1 (commercial) 1 (residential)
Energy efficiency incentives and financing programs	2 (2+ incentives) 1 (1 incentive) 0.5 for programs that include recommended best practices (2 max.)
Other innovative policies	2 (commercial) 2 (residential)
Voluntary programs	2 for cities without authority (commercial) 2 for cities without authority (residential) 1 for cities with authority (commercial or residential)

Table 22. Scoring for policies targeting equity in existing buildings

Policy	Score
Building performance standards for affordable housing and under-served commercial	4 (per sector)
Residential rental disclosure policy	2
Non-targeted program outcomes	2
Low-income energy incentives and financing programs	2 (2+ programs) 1 (1 program) 0.5 for programs that include recommended best practices (2 max.)
Low-income electrification incentive and financing programs	2 (2+ programs) 1 (1 program)
Affordability requirements in energy incentive and financing programs	2 (residential)

Table 23. Policies targeting existing buildings scores (out of 50 possible points)

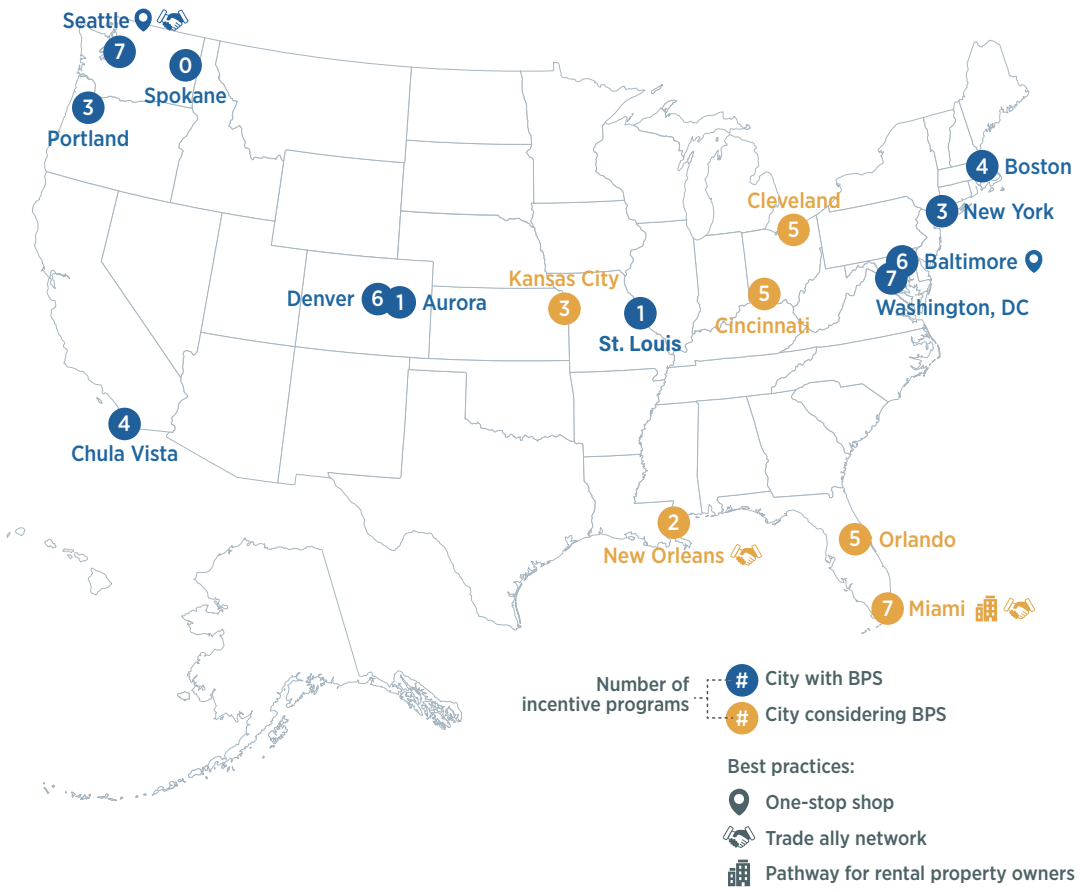
Denver (41)	Los Angeles (15)	Spokane (8)	Phoenix (5)	Louisville (3)	Richmond (1)
New York (35)	Sacramento (14)	Kansas City (7)	Pittsburgh (5)	Memphis (3)	Toledo (1)
Chicago (24)	San José (14)	Riverside (7)	San Antonio (5)	Rochester (3)	Akron (0)
Washington, DC (24)	Portland (13)	Fresno (6)	Dallas (4)	St. Petersburg (3)	Charleston (0)
Aurora (21)	Atlanta (13)	Milwaukee (6)	Des Moines (4)	Lansing (2)	Chattanooga (0)
Minneapolis (21)	Miami (13)	Nashville (6)	Grand Rapids (4)	New Haven (2)	Durham (0)
Seattle (18)	Baltimore (12)	Saint Paul (6)	Hartford (4)	Providence (2)	Fayetteville (0)
Chula Vista (18)	Honolulu (10)	San Diego (6)	Indianapolis (4)	Tampa (2)	Mesa (0)
St. Louis (18)	Reno (10)	Albuquerque (5)	Knoxville (4)	Boise (1)	Springfield (0)
Boston (17)	Madison (10)	Charlotte (5)	Long Beach (4)	Bridgeport (1)	Tucson (0)
San Francisco (17)	Oakland (9)	Cincinnati (5)	New Orleans (5)	Detroit (1)	
Austin (15)	Philadelphia (9)	Columbus (5)	Oxnard (4)	Las Vegas (1)	
Orlando (15)	Salt Lake City (8)	Houston (5)	Cleveland (3)	Raleigh (1)	

Issue in Focus:
Building Performance Standards and the Role of the Inflation Reduction Act in Facilitating Compliance

In recent years, building performance standards have enjoyed a surge in popularity as states and cities look to decarbonize their building stocks and advance their climate goals. Though only three *Scorecard* cities have adopted building performance standards since the 2021 *Scorecard* (Boston, Chula Vista, and Denver), seven additional cities (and one state) have standards at some stage of development or under consideration. These policies usually target large commercial buildings—with most thresholds hovering around 20,000 to 25,000 square feet by the final phase of compliance. According to a 2023 ACEEE report, enacting these policies can save roughly 5.4 quads of energy and 271 MMT of CO_2 in 2050, making them an important tool in energy and greenhouse gas emissions reductions (Nadel and Hinge 2023).

The upgrades necessary to achieve compliance can be substantial, especially given the size of the target buildings and their systems. Despite the advantageous payback periods from many efficient technologies, this upfront investment can pose a barrier. To address this issue, many building performance standard (BPS) policies include options to develop and implement long-term compliance plans (Nadel and Hinge 2023). All but one of the *Scorecard* cities with an active or pending BPS policy also offer energy efficiency incentive programs that could provide some support for compliance. Figure 17 shows these cities, the number of energy efficiency incentive programs they offer, and any best practices the programs received points for.

Figure 17. Map of where BPS have been enacted or are under consideration



Recently passed federal legislation such as the Infrastructure Investment and Jobs Act (IIJA) from 2021 and the Inflation Reduction Act (IRA) from 2022 can provide additional financial incentives to support these upgrades. Between both acts, over $26 billion are dedicated to setting up programs that will fund energy efficiency and decarbonization in buildings (Ungar and Nadel 2022). Although states are the main actors receiving and managing the funds, cities can likely carve out a role disseminating information and connecting home and building owners with resources and opportunities that can be stacked with any incentives offered by a city. Cities can also work with local utilities on implementation assistance. With these potential roles in mind, cities should consider this a particularly opportune time to develop and adopt building performance requirements. Leveraging these programs and forthcoming funding can make BPS compliance the most feasible it has been yet.

This would be particularly impactful for underserved buildings that lack access to traditional streams of capital. Denver's building performance ordinance, Energize Denver, and Washington, DC's Affordable Housing Retrofit Accelerator are two programs that already give special consideration and assistance to equity-eligible buildings—that is, affordable housing and, in Denver's case, underserved commercial—to help them achieve compliance. Layering IRA-funded programs in addition to such existing support would help ensure that buildings serving marginalized communities, which have the most to gain from energy efficiency, do not fall behind in the movement to decarbonize.

CHAPTER 4

Transportation Policies

Lead Authors: Christi Nakajima and Will Sachson

INTRODUCTION

A comprehensive approach to GHG reduction in transportation at the federal, state, or local level must address both individual vehicles and the transportation system as a whole, including its interrelationship with land use policies. Transportation remains the largest emitter of GHGs in the United States and is responsible for 28% of the country's emissions, as well as 28% of energy use. Despite a decrease of 13% in 2020 due to the COVID-19 pandemic, transportation emissions nearly rebounded in 2021, increasing by 12% (EPA 2021d; EIA 2022).

Local governments and metropolitan regions play a critical role in maximizing this sector's energy efficiency, reducing its GHG emissions, and working to ensure that all residents benefit from an accessible, efficient transportation system. Municipalities, for instance, shape land use because they have jurisdiction over zoning laws and regulations. Likewise, central cities and other job centers influence regional commuting behavior and choices, which are major factors in transportation energy use.

Transportation policies at the local level must respond to the changing landscape of technology and prices to fully address the increasingly urgent need to curb GHG emissions from the transportation sector. Cities play a critical role in strategically planning for the deployment of efficient vehicles, investing in the necessary fueling infrastructure, and providing incentives to reduce the upfront cost of purchasing these vehicles. These actions will help to ensure that efficient vehicles contribute to achieving GHG reduction goals.

Likewise, cities can influence and respond to changes in Americans' travel behavior. More and more people have been choosing emerging mobility options to go about their daily activities (Clewlow and Mishra 2017), although the COVID-19 pandemic has fundamentally changed the way people and goods are moved since early 2020. To accommodate the growing demand for alternatives to driving, local governments must take the lead in ensuring that residents have transportation choices and in creating communities that support safe, automobile-independent ways of getting around. They must also ensure that disadvantaged communities are prioritized when improving clean transportation infrastructure, services, and related amenities.

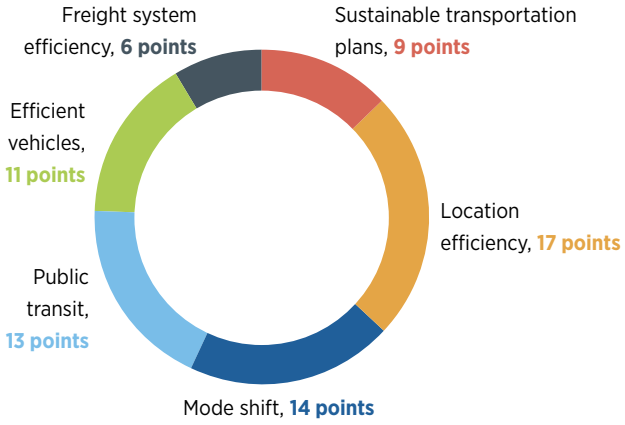
SCORING

We allocated 70 points and 4 bonus points to policies that reduce GHG emissions in the transportation sector. We awarded points across six categories of transportation actions with substantial energy and emissions savings potential, as shown in figure 18. We provide additional details on each of the categories later in this chapter.

Most of the metrics in this chapter focus on local government actions and policies that city decision makers can influence. At the same time, city-level policies are most effective when they interact with or build on the policies of their encompassing jurisdictions. State policies and programs can foster local progress by promoting compact communities or funding the expansion of state and regional transit systems. Regional agencies such as metropolitan planning organizations (MPOs) are important to the transportation planning and implementation process, bringing to the table both funding and analytical expertise.

It is also important to note that it is harder for the smaller cities included in the *Scorecard* to cost effectively incorporate some of the policies outlined in this chapter, as they have smaller populations and lower population density. We recognize this as an obvious limitation of our approach and will revisit our methodology and reassess scoring metrics as they apply to smaller cities in the future.

Figure 18. Transportation policies scoring overview



RESULTS

San Francisco took the top spot this year with 47.5 points. Portland and Oakland followed closely behind for their policies to reduce transportation greenhouse gases. However, with the top scorer in this section receiving only 47.5 of the 70 potential points, substantial opportunities remain for all cities to improve on their transportation policies and for leaders to continue building on the progress they have achieved so far. The median transportation score was 16.5 points, and the mean was 18.5 points.

In addition to scoring cities on specific transportation equity metrics, equity-based criteria were added to certain metrics this year, including the sustainable transportation plans, efficient vehicle purchase incentives, vehicle charging infrastructure incentives, electric transit and school bus goals, and congestion pricing metrics. Additionally, the vehicle charging infrastructure requirements metric was originally located in the buildings chapter but was moved to the transportation chapter because these requirements are often found in land use zoning codes. Finally, a new metric was added to the freight system efficiency category: open data portals.

Table 24 lists the transportation scores for 2023 by policy category. Subsequent tables in this chapter show how we allocated points for individual metrics within these categories. Appendixes E and F provide more detailed scoring information on each metric.

Table 24. Transportation policies scores

City	Sustainable transportation plans (9 pts)	Location efficiency (17 pts)	Mode shift (14 pts)	Transit (13 pts)	Efficient vehicles (11 pts)	Freight (6 pts)	Congestion pricing (2-pt bonus)	Equitable EV deployment (2-pt bonus)	Total (70 pts)
San Francisco	2.0	14.0	8.0	13.0	10.0	0.5	0.0	0.0	47.5
Portland	5.0	13.0	11.0	11.0	4.0	3.0	0.0	0.0	47.0
Oakland	2.0	8.5	6.0	11.0	7.5	6.0	0.0	2.0	43.0
Seattle	6.0	6.5	7.0	11.0	8.0	3.0	0.0	0.0	41.5
Minneapolis	6.0	9.5	11.0	7.0	2.0	0.5	0.0	2.0	38.0
Los Angeles	4.0	9.5	5.0	5.0	8.0	6.0	0.0	0.0	37.5
New York	4.0	3.0	8.0	11.0	4.0	4.0	1.0	0.0	35.0
Washington, DC	6.0	5.5	6.0	9.0	5.5	3.0	0.0	0.0	35.0
San José	4.0	8.0	6.0	4.0	8.0	1.5	0.0	0.0	31.5
Long Beach	4.0	9.0	4.0	4.0	6.0	4.0	0.0	0.0	31.0

City	Sustainable transportation plans (9 pts)	Location efficiency (17 pts)	Mode shift (14 pts)	Transit (13 pts)	Efficient vehicles (11 pts)	Freight (6 pts)	Congestion pricing (2-pt bonus)	Equitable EV deployment (2-pt bonus)	Total (70 pts)
Atlanta	3.0	9.0	4.0	6.0	4.5	4.0	0.0	0.0	30.5
San Diego	7.0	9.5	3.0	2.0	8.0	0.0	0.0	0.0	29.5
Boston	4.5	0.0	7.0	10.0	5.0	0.5	0.0	2.0	29.0
Chicago	4.0	6.5	3.0	12.0	1.0	1.0	0.0	0.0	27.5
Denver	2.0	3.0	10.0	4.0	5.0	1.5	0.0	2.0	27.5
Saint Paul	4.0	8.5	8.0	2.0	2.0	1.0	0.0	2.0	27.5
Sacramento	2.0	6.0	4.0	3.0	9.0	0.0	0.0	2.0	26.0
Pittsburgh	4.0	4.5	5.0	5.0	5.5	1.5	0.0	0.0	25.5
Austin	5.0	4.5	4.0	3.0	5.5	0.0	0.0	2.0	24.0
Philadelphia	3.0	4.5	5.0	10.0	1.5	0.0	0.0	0.0	24.0
Madison	4.0	6.5	6.0	3.0	3.0	0.0	0.0	0.0	22.5
Miami	0.5	6.5	3.0	5.0	5.5	2.0	0.0	0.0	22.5
Spokane	6.0	6.5	3.0	3.0	3.5	0.5	0.0	0.0	22.5
Charlotte	2.0	7.0	2.0	3.0	4.5	1.0	0.0	2.0	21.5
Salt Lake City	0.5	1.0	6.0	5.0	8.5	0.0	0.0	0.0	21.0
Baltimore	1.0	4.0	4.0	4.0	5.5	0.0	0.0	2.0	20.5
Honolulu	1.0	5.5	2.0	7.0	4.0	0.0	0.0	0.0	19.5
Las Vegas	3.0	5.5	7.0	2.0	2.0	0.0	0.0	0.0	19.5
Riverside	1.0	8.5	1.0	1.0	8.0	0.0	0.0	0.0	19.5
St. Louis	0.5	5.5	3.0	5.0	5.5	0.0	0.0	0.0	19.5
Fresno	2.0	9.5	0.0	1.0	6.5	0.0	0.0	0.0	19.0
Orlando	2.0	2.0	4.0	1.0	9.0	0.5	0.0	0.0	18.5
Cleveland	4.0	2.0	1.0	10.0	1.0	0.0	0.0	0.0	18.0
Kansas City	5.0	4.5	2.0	2.0	4.5	0.0	0.0	0.0	18.0
Oxnard	2.0	6.0	2.0	1.0	6.0	0.0	0.0	0.0	17.0
Hartford	0.5	7.5	1.0	3.0	4.5	0.0	0.0	0.0	16.5
Milwaukee	5.0	2.0	5.0	3.0	1.0	0.5	0.0	0.0	16.5
New Haven	1.0	8.0	3.0	2.0	2.5	0.0	0.0	0.0	16.5
Tucson	2.0	3.0	4.0	2.0	4.0	1.0	0.0	0.0	16.0
Houston	4.0	6.0	0.0	3.0	2.0	0.5	0.0	0.0	15.5
Nashville	1.0	6.5	4.0	2.0	1.5	0.5	0.0	0.0	15.5
Columbus	5.0	2.5	1.0	3.0	3.0	0.5	0.0	0.0	15.0
New Orleans	1.0	2.0	3.0	4.0	3.0	0.0	0.0	2.0	15.0
Chula Vista	1.0	8.5	1.0	1.0	3.0	0.0	0.0	0.0	14.5
Providence	4.0	2.5	1.0	3.0	4.0	0.0	0.0	0.0	14.5
Raleigh	1.0	9.5	1.0	1.0	2.0	0.0	0.0	0.0	14.5
Detroit	1.0	4.5	4.0	1.0	3.0	0.0	0.0	0.0	13.5
Memphis	5.0	4.0	4.0	0.0	0.5	0.0	0.0	0.0	13.5
Lansing	1.0	6.0	2.0	3.0	1.0	0.0	0.0	0.0	13.0
Richmond	2.0	4.5	0.0	3.0	3.0	0.5	0.0	0.0	13.0
Albuquerque	0.0	6.5	2.0	1.0	2.0	0.0	0.0	0.0	11.5
Knoxville	1.0	4.5	0.0	1.0	3.0	0.0	0.0	2.0	11.5

City	Sustainable transportation plans (9 pts)	Location efficiency (17 pts)	Mode shift (14 pts)	Transit (13 pts)	Efficient vehicles (11 pts)	Freight (6 pts)	Congestion pricing (2-pt bonus)	Equitable EV deployment (2-pt bonus)	Total (70 pts)
Rochester	0.5	2.0	1.0	1.0	6.0	1.0	0.0	0.0	11.5
Des Moines	2.0	4.0	3.0	2.0	0.0	0.0	0.0	0.0	11.0
Grand Rapids	1.0	4.0	1.0	1.0	4.0	0.0	0.0	0.0	11.0
Springfield	0.5	0.0	4.0	3.0	3.5	0.0	0.0	0.0	11.0
Fayetteville	3.5	0.0	6.0	0.0	1.0	0.0	0.0	0.0	10.5
Phoenix	2.0	1.0	3.0	3.0	1.5	0.0	0.0	0.0	10.5
Boise	3.0	6.0	1.0	0.0	0.0	0.0	0.0	0.0	10.0
Cincinnati	1.0	2.0	1.0	3.0	3.0	0.0	0.0	0.0	10.0
Charleston	5.0	0.0	2.0	0.0	1.0	1.5	0.0	0.0	9.5
St. Petersburg	1.0	3.0	1.0	2.0	2.5	0.0	0.0	0.0	9.5
Indianapolis	4.0	4.0	0.0	1.0	0.0	0.0	0.0	0.0	9.0
Louisville	1.0	4.5	1.0	2.0	0.5	0.0	0.0	0.0	9.0
San Antonio	5.0	0.0	0.0	3.0	0.0	0.5	0.0	0.0	8.5
Dallas	1.0	0.0	3.0	3.0	1.0	0.0	0.0	0.0	8.0
Tampa	2.0	2.5	1.0	1.0	1.5	0.0	0.0	0.0	8.0
Chattanooga	2.0	2.0	0.0	1.0	1.5	1.0	0.0	0.0	7.5
Bridgeport	1.0	4.0	0.0	1.0	1.0	0.0	0.0	0.0	7.0
Aurora	1.0	0.0	3.0	1.0	1.0	0.0	0.0	0.0	6.0
Durham	0.0	2.0	2.0	0.0	1.5	0.0	0.0	0.0	5.5
Toledo	0.0	3.0	1.0	0.0	0.5	0.0	0.0	0.0	4.5
Akron	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	4.0
Mesa	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
Reno	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	3.0

Leading Cities

San Francisco. San Francisco continues to raise the bar for transportation efficiency in a number of ways. The city excels in providing frequent and comprehensive transit service, a high-quality bike network, and a high proportion of electric vehicle charging stations. Looking beyond infrastructure and services, the San Francisco Unified School District plans to fully electrify its school bus fleet by 2025, and San Francisco Municipal Transportation Agency (SFMTA) has established a goal of an all-electric bus fleet by 2035—five years ahead of the state-mandated deadline. Finally, the city's elimination of parking minimums facilitates greater density and location-efficient development.

Portland. Portland jumped from seventh place in this policy area in 2021 to second place in this edition of *City Scorecard*. The city's 2015 Climate Action Plan set a goal of reducing daily VMT by 30% from 2008 levels by 2030 and includes several strategies for reducing transportation emissions, including promoting affordable housing near transit, partnering with car sharing companies to expand access to electric vehicles, and investing in bike infrastructure. The city also manages a Transportation Wallet program in which low-income residents can receive a transit pass preloaded with $200, a membership to the city's bikeshare program, and a $75 prepaid Visa card to be used on transportation expenses. Lastly, Portland adopted the 2040 Freight Plan in July of 2023 as an update to the city's 2006 Freight Master Plan. The plan contains several strategies for reducing emissions from the freight sector, including piloting low emissions zones, exploring the implementation of EV-ready requirements for new freight facilities, and using federal funding to improve intermodal hubs and efficient modes of freight transportation.

Oakland. Oakland, California, took third place in the transportation rankings. In the city's Equitable Climate Action Plan (ECAP), adopted in 2020, Oakland established a goal of 30% of all trips being made by walking, biking, and public transit by 2030, and 50% by 2050. In support of this goal, Oakland awards points to projects located within one-third mile of public

transit when scoring funding applications for affordable housing developments. Additionally, the Port of Oakland released its Seaport Air Quality 2020 and Beyond Plan in 2019. The plan outlines several strategies for reducing greenhouse gas emissions from port activities, including building out additional charging infrastructure for fleet vehicles.

9 POINTS

SUSTAINABLE TRANSPORTATION PLANS AND VEHICLE MILES TRAVELED (VMT)/GHG TARGETS

Sustainable transportation plans can equitably encourage the creation of clean and efficient transportation systems in cities. They often outline multiple strategies, including improved transit, location efficiency, and multimodal options, to reduce VMT and GHG emissions. Some plans go a step further to include specific VMT or greenhouse gas reduction targets, with details on how each of the proposed strategies will help achieve that goal. Including codified targets is a best practice because it establishes specific benchmarks against which to measure progress and gauge success.

In this category, we scored cities on

- The presence of a sustainable transportation plan (2 point)
- Codified VMT/GHG targets (2 point)
- The stringency of these targets (2 point)
- Progress made toward these targets (3 point)

Cities with either a stand-alone sustainable transportation plan or strategies included within a broader plan (such as a climate action plan that has been updated within the past five years), which also include strategies specifically targeted to benefit disadvantaged communities, earned 2 points. Cities with either a stand-alone sustainable transportation plan or strategies included within a broader plan (such as a climate action plan that has been updated within the past five years), which do not include equity considerations or strategies for disadvantaged communities, earned 1 point. Cities with plans that have not been adopted or updated within the past five years were eligible for 0.5 points. As an example of an equity consideration or strategy for disadvantaged communities, the Richmond 300 Master Plan contains an objective to improve transit stops with amenities and to prioritize areas of low income and low car ownership. We chose not to review the quality and content of these plans here because many of the strategies cities have outlined to achieve their transportation goals are captured in other metrics in this chapter.

We awarded 2 additional points to cities with codified VMT or GHG reduction targets for the transportation sector. We then evaluated the stringency of these GHG or VMT reduction targets using the average annual rate of reduction. We awarded 2 full points to targets that would reduce VMT or GHG by at least 4% per year (a natural cut point in the data we received) and gave 1 point to each city that would reduce VMT or GHG by at least 1.5% per year. Finally, cities could earn 3 points for being on track to hit their GHG or VMT goal by the target year, or 1.5 points if they are projected to achieve reductions within 25% of their goal. We assessed goal stringency and progress using the same methodology utilized in Chapter 2 for calculating progress made toward GHG targets.

Table 25 summarizes the scoring, and table 26 lists the scores for sustainable transportation plans and VMT or GHG targets. Table E8 in Appendix E provides more detailed city scores.

Table 25. Scoring for sustainable transportation plans and VMT/GHG targets

Sustainable transportation plan	Score
City has a stand-alone sustainable transportation plan or strategies included within a broader plan that has been updated within the past five years, and which includes equity considerations or strategies for disadvantaged communities.	2
City has a stand-alone sustainable transportation plan or strategies included within a broader plan that has been updated within the past five years, but does not include equity considerations or strategies for disadvantaged communities.	1
City has a stand-alone sustainable transportation plan or strategies included within a broader plan that has not been updated within the past five years.	0.5
Codified VMT/GHG targets	
City has codified VMT/GHG targets or goals.	2
Stringency of VMT/GHG targets	
City's target requires an average annual decrease of at least 4% from its target baseline.	2

Sustainable transportation plan	Score
City's target requires an average annual decrease of at least 1.5% but less than 4% from its target baseline.	1
Progress toward VMT/GHG targets	
City is on pace to achieve its goal by the adopted target year.	3
City is not on track to meet nearest-term goal but is projected to achieve savings within 25% of stated goal.	1.5

Table 26. Sustainable transportation plan and VMT/GHG target scores (out of 9 possible points)

San Diego (7)	Boston (4.5)	Fayetteville (3.5)	Oxnard (2)	Detroit (1)	Hartford (0.5)
Minneapolis (6)	Chicago (4)	Atlanta (3)	Phoenix (2)	Grand Rapids (1)	Miami (0.5)
Seattle (6)	Cleveland (4)	Boise (3)	Richmond (2)	Honolulu (1)	Rochester (0.5)
Spokane (6)	Houston (4)	Las Vegas (3)	Sacramento (2)	Knoxville (1)	Salt Lake City (0.5)
Washington, DC (6)	Indianapolis (4)	Philadelphia (3)	San Francisco (2)	Lansing (1)	Springfield (0.5)
Austin (5)	Long Beach (4)	Charlotte (2)	Tampa (2)	Louisville (1)	St. Louis (0.5)
Charleston (5)	Los Angeles (4)	Chattanooga (2)	Tucson (2)	Nashville (1)	Akron (0)
Columbus (5)	Madison (4)	Denver (2)	Aurora (1)	New Haven (1)	Albuquerque (0)
Kansas City (5)	New York (4)	Des Moines (2)	Baltimore (1)	New Orleans (1)	Durham (0)
Memphis (5)	Pittsburgh (4)	Fresno (2)	Bridgeport (1)	Raleigh (1)	Toledo (0)
Milwaukee (5)	Providence (4)	Mesa (2)	Chula Vista (1)	Reno (1)	
Portland (5)	Saint Paul (4)	Oakland (2)	Cincinnati (1)	Riverside (1)	
San Antonio (5)	San José (4)	Orlando (2)	Dallas (1)	St. Petersburg (1)	

LOCATION EFFICIENCY

Where we choose to live and how neighborhoods are shaped by zoning policies have a huge impact on overall energy use and GHG emissions. Households can reduce their transportation-related energy use by settling in compact, mixed-use communities that are location efficient—well connected by multiple modes of traditional and active transportation (EPA 2011b). Policies that encourage location efficiency reduce the need to drive in the long run (Vaidyanathan and Mackres 2012), and strategies to incentivize or require affordable housing near transit can improve access for disadvantaged populations. Location efficiency strategies are largely a local government responsibility and are, therefore, highly indicative of a government's leadership in transportation policies generally.

In this category, we scored cities on

- The presence of zoning codes that promote location efficiency (4 points)
- The removal or reduction of minimum parking requirements (4 points)
- Incentives to encourage the creation of mixed-use, compact communities (4 points)
- Affordable housing around transit (5 points)

4 POINTS

Zoning Codes for Location-Efficient Development

Post–World War II zoning practices have traditionally segregated industrial and residential uses of land, and some codes further divide land used for commercial, institutional, and recreational purposes. In combination with highway-focused transportation investment and discriminatory housing policies favoring low density, this has created sprawl: People live far from where they work, shop, go to school, and enjoy recreation. Well-crafted zoning codes, by contrast, promote the creation of walkable, mixed-use, location-efficient communities that moderate overall VMT and energy use. They may even reduce the need to drive altogether as households are often positioned near public transit, employment centers, schools, and other amenities (CNT 2021).

Over the past few years, several cities have undergone zoning reforms that have paved the way for denser, mixed-use or transit-oriented development. For example, Atlanta modified its zoning code in 2017 to allow accessory dwelling units (ADUs) in certain single-family districts. This allows more people to live in an area that may be closer to their school, work,

transit, or other destinations. Others, like Minneapolis, went a step further and opted to eliminate single-family zoning altogether, allowing for development of two- and three-unit residential buildings in all residential areas. Boosting density in residential zones can allow for more people to access transit, bike to work, or walk to stores (Litman and Steele 2023).

At the same time, some cities have rezoned certain districts to accommodate multiple uses where previously only one (e.g., commercial uses) was allowed. Facilitating mixed-use development is a key strategy for increasing a community's walkability and reducing reliance on cars (USDN 2023).

Lastly, other approaches to zoning for location-efficient communities include the use of overlays that add transit-related and density requirements to existing codes. These modifications are useful in areas that already have a certain amount of development and are located near existing transit infrastructure.

A city could earn a maximum of 4 points for location-efficient zoning policies as detailed in table 27. We awarded the corresponding points to cities that made any of the following changes in the past 10 years.

Table 27. Scoring breakdown for the location-efficient zoning codes metric

1 point	2 points	3 points	4 points
Made changes to allow ADUs in more districts by-right (in other words, not requiring a discretionary approval process).	Made changes to allow ADUs citywide by-right or increased the number of districts that allow mixed-use development by-right, or created one or more transit-oriented development overlay districts.	Made changes to allow developments with three or more residential units (e.g., triplexes) in more districts by-right.	Made changes to allow three or more residential units in all residential districts by-right, or made changes to allow mixed-use development by-right in all zones of a single use (e.g., in all commercial zones).

4 POINTS

Parking Policies for Location-Efficient Development

We awarded another 4 points to cities with sound parking policies. Conventional zoning codes often have minimum parking requirements that call for one or more onsite parking spaces per housing unit for all occupied units. Such parking requirements claim surface area and drive up development costs, which prevent denser, more compact development from flourishing. Research also suggests a causal link between per capita parking spaces and automobile use in cities (McCahill et al. 2015). To enable the growth of compact development, developers can facilitate access by non-auto modes of transportation and set aside less land for parking. Cities received points for having no residential parking minimums or having parking maximums.

4 POINTS

Location Efficiency Incentives and Information Disclosure

Cities may use a number of incentives or incentive-based zoning policies, ranging from tax credits to expedited permitting, to encourage compact growth and mixed-use projects (MITOD 2021). Such financial and nonmonetary policy levers can make these projects deeply attractive to developers. Financial incentives help promote transit-oriented development (TOD) or other community land use priorities in that they bring down the overall cost of construction in areas where denser, less auto-dependent development is a goal. Commonly used measures include low-interest loans and property tax abatement programs. TOD projects become more financially attractive if developers can borrow at below-market interest rates. Likewise, property tax abatement programs lower overall costs, increasing the attractiveness of investing in projects that combine land uses and provide greater transportation options.

Nonfinancial measures such as density bonuses and expedited permitting similarly provide incentives for compact, mixed-use development. Expedited permitting fast-tracks the approval process for projects that meet certain location efficiency requirements. Density bonuses may be provided to projects meeting specific sustainability benchmarks and industry standards in their construction. They permit the construction of more total floor area in a given area than would otherwise be allowed. Note that we awarded points for density bonuses in the Buildings Policies chapter to cities that allow developers to construct buildings that exceed zoning restrictions on size or height if they meet more stringent efficiency requirements.

The density bonuses evaluated in this chapter typically earned points on the basis of proximity or access to efficient transportation.

Information and incentives for prospective residents can also increase demand for communities that have better transportation choices. To attract residents to transit-oriented development and mixed-use communities, cities may require a real estate listing to disclose information on the location efficiency of buildings to potential buyers or tenants. This information could come from a source like Transit Score, for example, which rates neighborhoods on the basis of how well they are served by transit (Walk Score 2021). However, this strategy is uncommon.

We gave credit to cities with financial or nonfinancial incentive programs for location-efficient development and/or disclosure policies for location efficiency. Each city could score only once for each policy or incentive type we considered. Cities earned 1 point for each expedited permitting program, floor area ratio (FAR) incentive, other density bonus, fee waiver, or tax incentive, up to a maximum of 4 points. Cities that had incentives encouraging development in their downtown areas, but not explicitly for TOD or mixed-use development, received 0.5 points per incentive, up to a maximum of 2 points.

Affordable Housing Around Transit

5 POINTS

We gave up to 5 points to cities that increase transit access for low-income households by requiring affordable housing in new, transit-oriented developments or by preserving existing affordable housing in transit-served areas. Cities were able to earn 2.5 point under this metric if they offered an incentive for developers to include affordable housing in transit-oriented developments.

Table 28 summarizes the scoring, and table 29 lists the scores for location efficiency. Table E9 in Appendix E provides more detailed city scores.

Table 28. Scoring for location efficiency

Location-efficient zoning codes	Score
In the past 10 years, city made changes to either allow three or more residential units by-right in all residential districts, or allow mixed-use development by-right in all zones of a single use (e.g., in all commercial zones).	4
In the past 10 years, city made changes to allow developments with three or more residential units (e.g., triplexes) in more districts by-right.	3
In the past 10 years, city made changes to allow accessory dwelling units (ADUs) citywide by-right, or increased the districts that allow mixed-use development by-right, or created one or more transit-oriented development overlay districts.	2
In the past 10 years, city made changes to allow ADUs in more districts by-right.	1
Parking requirements	
Either parking maximums are in place for all new residential development, or no minimum parking requirements are in place for all new residential development.	4
At least one zone, neighborhood, or district has a parking maximum of 0.5 or fewer spaces per housing unit and at least one zone, neighborhood, or district has no minimum parking requirement for residential uses.	3
At least one zone, neighborhood, or district has a parking maximum of 0.5 or fewer spaces per housing unit or no minimum parking requirement for residential uses.	2
At least one neighborhood has a maximum of one or fewer spaces per housing unit.	1
Location efficiency incentive programs and disclosure policies	
City provides incentives for location-efficient development or has information disclosure policies.	1 each, up to 4
City provides incentives for development in their downtown areas.	0.5 each, up to 2
Affordable housing around transit	
City policy requires or preserves affordable housing development around transit facilities.	5
City policy incentivizes affordable housing development around transit facilities.	2.5

Table 29. Location efficiency scores (out of 17 possible points)

San Francisco (14)	San José (8)	Oxnard (6)	Knoxville (4.5)	Columbus (2.5)	Salt Lake City (1)
Portland (13)	New Haven (8)	Sacramento (6)	Louisville (4.5)	Providence (2.5)	Charleston (0)
San Diego (9.5)	Hartford (7.5)	Lansing (6)	Memphis (4)	Tampa (2.5)	San Antonio (0)
Minneapolis (9.5)	Charlotte (7)	Washington, DC (5.5)	Indianapolis (4)	Milwaukee (2)	Boston (0)
Los Angeles (9.5)	Seattle (6.5)	Las Vegas (5.5)	Des Moines (4)	Cleveland (2)	Fayetteville (0)
Fresno (9.5)	Spokane (6.5)	Honolulu (5.5)	Baltimore (4)	Chattanooga (2)	Aurora (0)
Raleigh (9.5)	Chicago (6.5)	St. Louis (5.5)	Bridgeport (4)	Mesa (2)	Dallas (0)
Long Beach (9)	Madison (6.5)	Austin (4.5)	Grand Rapids (4)	Orlando (2)	Reno (0)
Atlanta (9)	Nashville (6.5)	Kansas City (4.5)	New York (3)	Cincinnati (2)	Springfield (0)
Saint Paul (8.5)	Miami (6.5)	Pittsburgh (4.5)	Denver (3)	New Orleans (2)	Akron (0)
Oakland (8.5)	Albuquerque (6.5)	Philadelphia (4.5)	Tucson (3)	Rochester (2)	
Chula Vista (8.5)	Houston (6)	Richmond (4.5)	St. Petersburg (3)	Durham (2)	
Riverside (8.5)	Boise (6)	Detroit (4.5)	Toledo (3)	Phoenix (1)	

MODE SHIFT

More than 80% of all trips in the United States are made by private vehicles (BTS 2017). To improve the efficiency of their transportation systems, cities must implement policies that encourage other modes of transportation (e.g., public transit, ride sharing, bicycling, walking). Such policies should include steps to incentivize and facilitate the use of alternative modes and, more holistically, to integrate municipal land use and transportation planning.

In this section, we scored cities on

- Modal share targets and progress toward them (5 points)
- Bicycle system efficiency and connectivity (4 points)
- Subsidized access to efficient transportation options (5 points)

Modal Share Targets and Strategy Implementation

5 POINTS

Cities can use a number of policy levers to shift travel from personal vehicles to cleaner, more efficient modes of transport. These include modal share targets, which aim to increase the percentage of trips taken using non-automobile modes of transportation. Cities that commit to modal share targets can change the travel behavior of their communities in favor of modes of transportation that consume less energy.

Cities with codified modal share targets for trips within the city by single-occupancy vehicle, transit, bicycle, and walking earned 2 points; they earned 1 point if they have targets for some but not all modes. Cities with targets for all modes but only for work commute trips also earned 1 point. Cities that provided us with data demonstrating at least some quantified progress toward these modal share goals since their adoption could earn an additional 3 points.

Bicycle System Efficiency and Connectivity

4 POINTS

Bikeable cities give residents and commuters another alternative to owning or driving a personal vehicle. Over half of all vehicle trips in the United States are three miles or less (EERE 2022), and therefore bikes may be able to replace automobile trips for many people in cities with comprehensive and well-connected bicycle infrastructure. To score a city's bikeability, we leveraged PlacesForBikes' 2023 City Scores created by PeopleForBikes. PeopleForBikes scores cities on a 100-point scale, with higher scores indicating a better bike network. The scores are based on the organization's Bike Network Analysis, which evaluates cities based on six factors: safe speeds, protected bike lanes, reallocated space, intersection treatments, network connections, and trusted data (PeopleForBikes 2023). We awarded 4 points to cities that scored 41 points or more points in PlacesForBikes' ratings, the top quintile for *Scorecard* cities' ratings. We awarded 2 points to cities that scored between 32 and 40 points, the next highest quintile.

5 POINTS

Subsidized Access to Efficient Transportation Options

Finally, we awarded up to 5 points to cities that provide subsidized access to efficient transportation options (public transit, shared bicycles and/or scooters, personal bikes and/or scooters, ride sharing, and car sharing) through incentives and rebates to disadvantaged groups. We chose to include programs pertinent to ride-hailing services such as Uber and Lyft on the basis of such services' ability to increase transportation access for disadvantaged populations and connect them to areas not served by other transportation options. Cities, however, need to create policies to ensure that ride-hailing use does not lead to the decline of other, more efficient forms of passenger transport such as public transit, which would effectively increase GHG emissions. Cities earned 1 point for each subsidized or otherwise incentivized mode.

BONUS 2 POINTS

Congestion Pricing

A number of cities are looking to congestion pricing in the urban core as a way to address multiple systemwide transportation challenges and simultaneously generate revenue for more efficient forms of transport.[42] New York City just approved a congestion pricing plan that the state and city agreed on to charge drivers to enter Manhattan's central business district. The plan is expected to generate $15 billion for the city's transit agency (Meyersohn 2023). Other cities, including Portland and Los Angeles, are considering similar policy mechanisms (Hawkins 2019).

Congestion pricing programs have clear impacts on emissions and energy consumption at the local level since they tend to push travel to more efficient modes of transportation and discourage personal vehicle use. However, depending on how the policy is structured, it can substantially burden disadvantaged populations that do not have access to more efficient modes and already spend a high proportion of their income on transportation. Cities looking to implement congestion pricing should take care to include disadvantaged groups in designing the policy and minimize any additional cost to these populations. Cities with congestion pricing mechanisms that mitigate the impact to disadvantaged communities and fund transit or other low-carbon forms of transportation earn 2 bonus points to acknowledge their initiative in leading the country on this front. Cities with mechanisms that do not mitigate the impact to disadvantaged communities earned 1 bonus point. New York, the only city to earn points for this metric, received 1 point.

Table 30 summarizes the scoring, and table 31 lists the scores for mode shift. Table E10 in Appendix E provides more detailed city scores.

Table 30. Scoring for mode shift

Modal share targets	Score
City has a modal share target for all modes of transportation (single-occupancy vehicles, public transit, biking, and walking).	2
City has a modal share target for only some modes of transportation, or for all modes of transportation but only for commuting trips.	1
Progress toward modal share targets	
City demonstrates any quantitative progress toward modal share target.	3
Bicycle system efficiency and connectivity	
PeopleForBikes City Score of 41 or above	4
PeopleForBikes City Score between 32 and 40	2
Subsidized access to efficient transportation options	
City provides rebates or incentives to disadvantaged residents for efficient transportation options (1 point for each incentivized mode of transport).	1 each, up to 5

42 Congestion pricing refers to a system of charges incurred by vehicle owners for traveling in certain zones during times of peak travel.

Table 31. Mode shift scores (out of 14 possible points)

Portland (11)	Salt Lake City (6)	Baltimore (4)	Aurora (3)	Riverside (1)	Reno (1)
Minneapolis (11)	Fayetteville (6)	Tucson (4)	Dallas (3)	Hartford (1)	Fresno (0)
Denver (10)	Los Angeles (5)	Orlando (4)	Charlotte (2)	Boise (1)	Houston (0)
San Francisco (8)	Pittsburgh (5)	Springfield (4)	Albuquerque (2)	Louisville (1)	Richmond (0)
Saint Paul (8)	Philadelphia (5)	San Diego (3)	Oxnard (2)	Grand Rapids (1)	Knoxville (0)
New York (8)	Milwaukee (5)	New Haven (3)	Lansing (2)	St. Petersburg (1)	Indianapolis (0)
Seattle (7)	Long Beach (4)	Spokane (3)	Honolulu (2)	Toledo (1)	Bridgeport (0)
Las Vegas (7)	Atlanta (4)	Chicago (3)	Kansas City (2)	Columbus (1)	Chattanooga (0)
Boston (7)	Nashville (4)	Miami (3)	Durham (2)	Providence (1)	Mesa (0)
Oakland (6)	Sacramento (4)	St. Louis (3)	Charleston (2)	Tampa (1)	San Antonio (0)
San José (6)	Austin (4)	Des Moines (3)	Akron (2)	Cleveland (1)	
Madison (6)	Detroit (4)	New Orleans (3)	Raleigh (1)	Cincinnati (1)	
Washington, DC (6)	Memphis (4)	Phoenix (3)	Chula Vista (1)	Rochester (1)	

PUBLIC TRANSIT

Well-connected public transit networks reduce residents' need to drive and therefore decrease VMT and transportation-related emissions in metropolitan areas. Additionally, 8% of U.S. households do not have access to a vehicle (United States Census Bureau 2021); for these households, public transit is often the primary and only option for reaching jobs and essential services. Although severely impacted by COVID-19, public transit ridership across the country has been recovering, with some cities seeing greater increases than others. In New York City, single-day ridership surpassed 4 million riders on April 20—a first since March 2020 (New York State 2023). A number of cities have put substantial effort into financing and expanding their transit infrastructure to further propel growth in ridership.

For public transit, we scored cities on

- Transit funding (4 points)
- Access to transit service (4 points)
- Low-income access to high-quality transit (5 points)

4 POINTS

Transit Funding

Transit systems saw a steep drop in ridership in 2020—a figure that has slowly recovered to about 70% of pre-pandemic levels (APTA 2022). While the COVID-19 pandemic has played a significant role in causing this free fall, transit agencies were already seeing decreases in ridership before the pandemic hit (Vaidyanathan 2020). Although the federal government has taken multiple steps to keep transit agencies afloat, including passing the largest investment in public transit in U.S. history through the Infrastructure Investment and Jobs Act (The White House 2021), complementary efforts are needed at the local level to take full advantage of this investment and generate long-term funding for transit. A number of municipalities across the United States have come up with inventive funding mechanisms to foster transit development with local monies, indicating their interest in promoting public transit as a reliable means of transportation. Local funding for transportation is generated in a variety of ways and can make up a significant portion of expenditures on transit expansion. Common strategies for funding transit include sales taxes and property taxes, road user fees, revenues from toll roads and parking fees, and transit fares. For example, in 2020 Cincinnati voters passed a referendum to replace the 0.3% city earnings tax that was funding the region's public transit with a 0.8% countywide sales tax to increase revenue (Hanselman 2020).

To evaluate a city's progress on funding public transit, we summed spending data from the largest contributing entity under the city's jurisdiction and the transit agency with the largest spending over the period of 2017–2021. This five-year average was then normalized by service territory population for the transit agency in question. We did not consider state and federal funding when calculating per capita funding. Cities could earn up to 4 points for transit funding per capita. Table 29 outlines the scoring criteria.

4 POINTS

Access to Transit Service

The development of quality transit services, including adequate coverage and service frequency, is essential for public transit to be a viable option in a city. Well-connected transit systems in metropolitan areas that are designed in connection with land use planning can make public transportation a practical substitute for automobile trips. To increase transit ridership and improve overall access to transit, local agencies can work to boost the frequency of service and ensure that modes and routes are coordinated so that the transit system is efficient, usable, and attractive to potential customers. Other strategies to boost ridership include price reductions and educational initiatives that highlight the benefits of using public transit.

We scored cities on their transit service using the Center for Neighborhood Technology's (CNT) AllTransit Performance Score, which rates transit connectivity, access to jobs, and frequency of service (CNT 2023). Cities could earn up to 2 points based on their CNT score, which falls on a scale of 1–10.

Table 29 summarizes the scoring, and table 30 lists scores for the transit-related metrics. Table E12 in Appendix E provides more detailed city scores.

5 POINTS

Low-Income Access to High-Quality Transit

Cities can reduce the transportation burden faced by low-income households by providing them with frequent, full-day transit service that connects them to jobs, grocery stores, educational opportunities, and more. Conversely, those without access to this type of transit may have to rely on ridesharing, carsharing, or owning a personal vehicle, which is often much more expensive than public transit. We used the Center for Neighborhood Technology's AllTransit tool (CNT 2023) to score cities on low- and moderate-income households' access to high-quality transit. We based the scoring on the percentage of households with incomes below $50,000 within half a mile of high-frequency, full-day transit.

Table 32 summarizes the scoring for this section's metrics, and table 33 lists the scores for transit metrics. Table E11 in Appendix E provides more detailed city scores.

Table 32. Scoring for public transit metrics

Transit funding per capita (5-year average)*	Score
$500 or more	4
$300 to $499.99	3
$100 to $299.99	2
$50 to $99.99	1
City's CNT AllTransit performance score**	
9.0 and above	4
8.0 to 8.9	3
7.0 to 7.9	2
5.0 to 6.9	1
Low-income access to high-quality transit**	
At least 90% of low-income households have access to high-quality transit.	5
Between 80% and 89.9% of low-income households have access to high-quality transit.	4
Between 70% and 79.9% of low-income households have access to high-quality transit.	3
Between 60% and 69.9% of low-income households have access to high-quality transit.	2
Between 50% and 59.9% of low-income households have access to high-quality transit.	1

*Funding data from FTA 2021. **Score from CNT 2023.

Table 33. Transit scores (out of 13 possible points)

San Francisco (13)	Salt Lake City (5)	Austin (3)	San Antonio (3)	Orlando (1)	Indianapolis (1)
Chicago (12)	Los Angeles (5)	Springfield (3)	Saint Paul (2)	Aurora (1)	Bridgeport (1)
Portland (11)	Pittsburgh (5)	Spokane (3)	Las Vegas (2)	Albuquerque (1)	Chattanooga (1)
New York (11)	Miami (5)	Phoenix (3)	Nashville (2)	Oxnard (1)	Fayetteville (0)
Seattle (11)	St. Louis (5)	Dallas (3)	Tucson (2)	Raleigh (1)	Memphis (0)
Oakland (11)	Denver (4)	Charlotte (3)	San Diego (2)	Chula Vista (1)	Durham (0)
Boston (10)	San José (4)	Lansing (3)	New Haven (2)	Riverside (1)	Charleston (0)
Philadelphia (10)	Long Beach (4)	Hartford (3)	Des Moines (2)	Grand Rapids (1)	Boise (0)
Cleveland (10)	Baltimore (4)	Columbus (3)	Kansas City (2)	Tampa (1)	Toledo (0)
Washington, DC (9)	New Orleans (4)	Providence (3)	Akron (2)	Rochester (1)	Mesa (0)
Minneapolis (7)	Madison (3)	Cincinnati (3)	Louisville (2)	Reno (1)	
Honolulu (7)	Milwaukee (3)	Houston (3)	St. Petersburg (2)	Fresno (1)	
Atlanta (6)	Sacramento (3)	Richmond (3)	Detroit (1)	Knoxville (1)	

EFFICIENT VEHICLES

The U.S. vehicle market has seen an increase in high-efficiency, low-emissions options for consumers in recent years. Manufacturers are improving the efficiency of conventional internal combustion vehicles, and many more hybrids, plug-in hybrids, and electric vehicles (EVs) are now available for sale in dealerships across the country. Simultaneously, cities are looking to encourage the purchase of high-efficiency vehicles, especially electric vehicles, to help meet their ambitious climate targets and to ensure that their residents are using cleaner, more efficient forms of mobility. Faced with the need to provide the relevant charging infrastructure, a number of cities have begun evaluating their EV readiness and developing policies to encourage deployment of EVs and to enable consistent access to charging sites.

In this section, we evaluated cities on the basis of

- Efficient vehicle purchase incentives (2 points)
- Vehicle charging infrastructure incentives (2 points)
- Vehicle charging infrastructure requirements (2 points)
- EV charging ports per 100,000 people (3 points)
- Electric school bus deployment goals (1 points)
- Electric transit bus deployment goals (1 points)

We scored EV-ready building codes in our chapter on Buildings Policies, but moved the vehicle charging infrastructure requirements metric to this chapter because these requirements are often found in zoning codes. Additionally, government vehicle fleet procurement practices that advance efficient vehicles are credited in our Local Government Operations chapter.

2 POINTS

Vehicle Purchase Incentives

A key barrier to entry in the market for fuel-efficient, advanced-technology vehicles is the high upfront cost. To encourage consumers to purchase these vehicles, financial incentives, including rebates, tax credits, and sales tax exemptions, are important policy levers. In the case of EVs, the federal government provides the largest incentives, followed by the states. However, a few cities and utilities, like Xcel Energy, further subsidize the purchase of these vehicles. In addition, some cities and utilities offer purchase incentives for used vehicles, further lowering the barrier for disadvantaged communities. Others offer special rebates for income-qualifying individuals. For example, Los Angeles Department of Water and Power offers a $1,500 rebate on used electric vehicles, with an additional $1,000 rebate for income-qualifying, senior, and disabled customers. We awarded cities 1 point if either the city or local utility provides purchase incentives for new hybrid, plug-in hybrid, or electric vehicles—all of which typically have high fuel efficiency—or for conventional vehicles with high fuel efficiency. We also awarded 1 point if either the city or local utility provides purchase incentives for used efficient vehicles, or incentives for disadvantaged communities, for a maximum of 2 points.

While alternative-fuel vehicles, such as those that run on ethanol or compressed natural gas, may reduce smog-forming pollution, they do not generally improve vehicle fuel efficiency, nor do they have clear climate benefits. Therefore, policies to promote the purchase of alternative-fuel vehicles without regard to their efficiency did not receive any points.

7 POINTS

Vehicle Charging Infrastructure

Plug-in electric vehicles require charging infrastructure, which must be conveniently available in homes, at businesses, and in other public locations in order for EVs to be widely adopted. Level 2 chargers for homes can be prohibitively expensive, and residents of multifamily properties face additional challenges as they must often rely on property managers to buy and install charging infrastructure. Several cities and utilities in the United States offer rebates for the installation of electric vehicle chargers on private properties. For example, Public Service Company of New Mexico (PNM) offers rebates on charging installation for commercial, single-family, and multifamily properties, as well as additional rebates for income-qualifying individuals and communities. A city earned 1 point if either the city or local utility has an incentive program to support the implementation of electric vehicle charging infrastructure. A city earned an additional 1 point if either the city or local utility has a separate or additional incentive program to support the implementation of electric vehicle charging infrastructure in multifamily developments or targeting disadvantaged communities, for a maximum of 2 points.

Some cities also mandate that building owners and developers install EV charging infrastructure. Typically, these policies require a certain percentage of new parking spaces to include EV chargers. Hartford, Connecticut, for example, requires the installation of EV chargers for 3% of the total number of parking spaces provided for all new residential, government, school, hospital, office, and industrial developments with 35 or more parking spaces. We awarded 2 points for EV charging infrastructure requirements.

Finally, we awarded up to 3 points based on the number of available charging ports for public use within a city. We determined our scoring criteria based on the collected data, with roughly a quarter of cities in the *City Scorecard* having 90 or more ports per 100,000 people and about half having 50 or more. Thus, we awarded the full 3 points to cities with at least 90 ports per 100,000 people. Cities with 50 to 89.9 ports per 100,000 people earned 1.5 points.

1 POINT

Electric Transit Bus Goals

Buses are the backbone of most public transit systems in the United States. They move people around far more efficiently than personal vehicles and provide a service that many members of low-income communities and communities of color rely on to get to work, school, and essential services. As a result, transitioning public transit bus fleets from diesel to electric will have significant GHG and pollution reduction impacts, particularly for those communities that use them the most.

Procurement decisions made by transit agencies have long-lasting effects, as a public bus generally has a useful life of around 14 years (FTA 2016). Although transit procurement policies are typically determined by transit agencies, cities can still play a role in helping to set goals and fund the transition to electric buses. We awarded 0.5 points if a city or local transit agency formally adopted a concrete goal for increasing the number of EV buses in operation. Only goals for the procurement of pure EVs, not hybrids, were considered for this metric. We awarded an additional 0.5 points, for a maximum of 1 point, if the city or transit agency had criteria for deployment of EV buses prioritizing the city's defined disadvantaged communities, or communities identified as transportation disadvantaged by federal mapping tools. As an example, Chicago Transit Authority's bus electrification roadmap, "Charging Forward," provides an equity analysis detailing which bus garages and routes have a high proportion of low-income and minority populations living near them, as well as the air quality in these areas. The report uses this analysis to inform which garages will be the first to receive chargers and other upgrades.

1 POINT

Electric School Bus Goals

As with transit buses, replacing gasoline-powered school buses with EV models will have direct health benefits for disadvantaged communities, particularly in the absence of other EV programs. School buses commonly idle in place for hours at a time, and exposure to engine particulates can have negative impacts on young people's respiratory health and development (CARB 2021). Research shows that children riding in a school bus may be exposed to as much as four times the level of diesel exhaust as someone riding in the car ahead of it (Weir 2002; Liu and Grigg 2018). We awarded 0.5 points if a city or local school district within the city has formally adopted a concrete

goal to increase the number of electric school buses. We awarded an additional 0.5 points, for a maximum of 1 point, if the city or school district had criteria for deployment of electric school buses prioritizing the city's defined disadvantaged communities.

BONUS 2 POINTS

Equitable EV Charging

Currently the upfront investment required for EVs and their charging equipment can be cost prohibitive for disadvantaged communities. To make EVs accessible to all, cities should include goals and funding streams specifically aimed at EV deployment and the installation of charging infrastructure within those communities (Howard et al. 2021). Cities that gave special consideration to disadvantaged communities when siting EV charging equipment were granted 2 bonus points in this year's *Scorecard* for their efforts. Note that unlike the charging infrastructure incentives metric, this metric awards points for cities actively installing or funding the installation of charging stations in public areas. Austin, Baltimore, Boston, Charlotte, Denver, Knoxville, Minneapolis, New Orleans, Oakland, Sacramento, and Saint Paul earned this bonus.

Table 34 summarizes the scoring, and table 35 lists the scores for efficient vehicles. Table E12 in Appendix E provides more detailed city scores.

Table 34. Scoring for efficient vehicles

Efficient vehicle purchase incentives	Score
City or utility has an incentive program in place for (a) the purchase of new high-efficiency vehicles and (b) the purchase of used high-efficiency vehicles or a separate incentive for disadvantaged communities.	2
City or utility has an incentive program in place for (a) the purchase of new high-efficiency vehicles or (b) the purchase of used high-efficiency vehicles (or a separate incentive for disadvantaged communities), but not both.	1
Vehicle charging infrastructure incentives	
City or utility offers incentives for installation of EV charging infrastructure and a separate or additional incentive for charging infrastructure in multifamily developments or targeting disadvantaged communities.	2
City or utility offers incentives for installation of EV charging infrastructure, but does not offer incentives for multifamily developments or incentives targeting disadvantaged communities.	1
Vehicle charging infrastructure requirements	
City has EV charging infrastructure requirements for residential or commercial new construction.	2
EV charging ports per 100,000 people*	
City has at least 90 ports per 100,000 people.	3
City has between 50 and 89.9 ports per 100,000 people.	1.5
Electric transit bus goal	
City or transit agency has a goal to increase the number of EV transit buses in service and has criteria for deployment prioritizing disadvantaged communities.	1
City or transit agency has a goal to increase the number of EV transit buses in service but does not have criteria for deployment prioritizing disadvantaged communities.	0.5
Electric school bus goal	
City or school district has a goal to increase the number of EV school buses in service and has criteria for deployment prioritizing disadvantaged communities.	1
City or school district has a goal to increase the number of EV school buses in service but does not have criteria for deployment prioritizing disadvantaged communities.	0.5

*Data from DOE 2023

Table 35. Efficient vehicles scores (out of 11 possible points)

San Francisco (10)	Rochester (6)	Grand Rapids (4)	Madison (3)	Nashville (1.5)	Louisville (0.5)
Orlando (9)	Austin (5.5)	Honolulu (4)	New Orleans (3)	Philadelphia (1.5)	Memphis (0.5)
Sacramento (9)	Baltimore (5.5)	New York (4)	Richmond (3)	Phoenix (1.5)	Toledo (0.5)
Salt Lake City (8.5)	Miami (5.5)	Portland (4)	New Haven (2.5)	Tampa (1.5)	Akron (0)
Los Angeles (8)	Pittsburgh (5.5)	Providence (4)	St. Petersburg (2.5)	Aurora (1)	Boise (0)
Riverside (8)	St. Louis (5.5)	Tucson (4)	Albuquerque (2)	Bridgeport (1)	Des Moines (0)
San Diego (8)	Washington, DC (5.5)	Spokane (3.5)	Houston (2)	Charleston (1)	Indianapolis (0)
San José (8)	Boston (5)	Springfield (3.5)	Las Vegas (2)	Chicago (1)	Mesa (0)
Seattle (8)	Denver (5)	Chula Vista (3)	Minneapolis (2)	Cleveland (1)	Reno (0)
Oakland (7.5)	Atlanta (4.5)	Cincinnati (3)	Raleigh (2)	Dallas (1)	San Antonio (0)
Fresno (6.5)	Charlotte (4.5)	Columbus (3)	Saint Paul (2)	Fayetteville (1)	
Long Beach (6)	Hartford (4.5)	Detroit (3)	Chattanooga (1.5)	Lansing (1)	
Oxnard (6)	Kansas City (4.5)	Knoxville (3)	Durham (1.5)	Milwaukee (1)	

FREIGHT SYSTEM EFFICIENCY

Domestic freight transportation accounted for 30.2% of transportation sector GHG emissions in 2018 (Langer and Vaidyanathan 2020) and is an area that offers substantial opportunities for energy efficiency gains. In April of 2023, the EPA announced new proposed standards to limit GHG emissions from medium- and heavy-duty vehicles beginning in model year 2027. As of early 2024, these standards have not been adopted. However, even if adopted as proposed, these standards would likely be insufficient in reducing heavy-duty vehicle emissions enough to attain national climate goals (Langer and Vaidyanathan 2023). This makes city action on freight efficiency and emissions all the more important. The new National Blueprint for Transportation Decarbonization lists several strategies for reducing emissions from the freight sector, including land use policies that facilitate the use of cleaner vehicles like delivery e-bikes and encouraging the shift from truck trips to rail or maritime trips when possible. While the federal government can provide funding and support, many of the listed actions will ultimately be up to local governments to implement (USDOT 2023).

Urban areas are major sources of and destinations for freight. Policies and infrastructure for the movement of freight in cities and their metropolitan areas can facilitate improvements in efficiency. Strategies that reduce the fuel used in the movement of goods, such as load consolidation and streamlining logistics, are particularly useful for improving the overall efficiency of the freight system.

In this section, we scored cities on

- Sustainable freight plans (3 points)
- Open data portals (3 points)

Sustainable Freight Plans

3 POINTS

Locally developed freight plans can go above and beyond state planning requirements and policies. They can serve as the foundation for strategies to increase freight efficiency, which may include truck loading plans to ensure that truck space is fully and efficiently utilized, multimodal infrastructure requirements, street design, last-mile delivery solutions (such as delivery lockers or bicycle deliveries), zoning provisions, and off-hour delivery programs (Portland 2015). Each strategy can improve freight efficiency, but a plan with a comprehensive package of strategies can result in greater fuel savings.

We awarded a city 3 points if it had a stand-alone sustainable freight plan or a freight mobility plan with multiple strategies to increase efficiency. If a city did not have a sustainable freight or freight mobility plan but was still pursuing freight efficiency strategies, we awarded the city 0.5 points per strategy, up to 1.5 points. Strategies for which we awarded points include incentives for multimodal freight, clean vehicle technology standards for freight vehicles, low-emission zones, and urban consolidation centers (micro-hubs to which shippers send deliveries, rather than sending them directly to recipients' buildings). We also awarded points for last-mile solutions or off-hours delivery programs.

3 POINTS

Open Data Portals

Stakeholder access to real-time data in the freight industry can lead to efficiency improvements and ultimately emissions reductions (Langer 2021). Some cities and their airports or seaports have taken steps to collect and distribute data on a variety of metrics.

We awarded 3 points to cities with data portals that provided at least two types of real-time or same-day data that supports freight efficiency. This includes truck turn times, vessel locations, expected arrival times, and empty container returns, all of which can help carriers avoid congestion and idling. We awarded 1.5 points to cities with data portals that provided one type of real-time or same-day data that supports freight efficiency. Data on traffic congestion and traffic crashes were not counted in our criteria.

Table 36 summarizes the scoring, and table 37 lists scores for freight system efficiency. Table E13 in Appendix E provides more detailed city scores.

Table 36. Scoring for freight system efficiency

Sustainable freight plans	Score
City has a stand-alone sustainable freight plan or a multimodal freight plan outlining multiple strategies to increase efficiency.	3
City does not have a freight plan but has pursued freight efficiency strategies.	0.5 each, up to 1.5
Open Data Portals	
City, port, or airport hosts data portal with at least two types of real-time or same-day data.	3
City, port, or airport hosts data portal with one type of real-time or same-day data.	1.5

Table 37. Freight system efficiency scores (out of 6 possible points)

Los Angeles (6)	Charlotte (1)	Richmond (0.5)	Cleveland (0)	Lansing (0)	Reno (0)
Oakland (6)	Chattanooga (1)	San Antonio (0.5)	Dallas (0)	Las Vegas (0)	Riverside (0)
Atlanta (4)	Chicago (1)	San Francisco (0.5)	Des Moines (0)	Louisville (0)	Sacramento (0)
Long Beach (4)	Rochester (1)	Spokane (0.5)	Detroit (0)	Madison (0)	Salt Lake City (0)
New York (4)	Saint Paul (1)	Akron (0)	Durham (0)	Memphis (0)	San Diego (0)
Portland (3)	Tucson (1)	Albuquerque (0)	Fayetteville (0)	Mesa (0)	Springfield (0)
Seattle (3)	Boston (0.5)	Aurora (0)	Fresno (0)	New Haven (0)	St. Louis (0)
Washington, DC (3)	Columbus (0.5)	Austin (0)	Grand Rapids (0)	New Orleans (0)	St. Petersburg (0)
Miami (2)	Houston (0.5)	Baltimore (0)	Hartford (0)	Oxnard (0)	Tampa (0)
Charleston (1.5)	Milwaukee (0.5)	Boise (0)	Honolulu (0)	Philadelphia (0)	Toledo (0)
Denver (1.5)	Minneapolis (0.5)	Bridgeport (0)	Indianapolis (0)	Phoenix (0)	
Pittsburgh (1.5)	Nashville (0.5)	Chula Vista (0)	Kansas City (0)	Providence (0)	
San José (1.5)	Orlando (0.5)	Cincinnati (0)	Knoxville (0)	Raleigh (0)	

Issue in Focus:
Energy-Efficient Transportation Systems and Open Data Portals

ENERGY-EFFICIENT TRANSPORTATION SYSTEMS

Electrifying vehicles will go a long way to reduce GHG emissions from the transportation sector, but these efforts will need to be supported by sustainable, accessible, and equitable urban transportation systems. Getting passengers out of personal vehicles and into more efficient modes of transportation will be particularly critical to making a dent in GHG emissions in the period during which we transition to shared, electrified, and efficient mobility alternatives. Additionally, creating a sustainable transportation system that supports multiple modes of efficient travel is an important first step in improving access to reliable transportation for disadvantaged communities, connecting them to key job centers and services while also improving overall quality of life by reducing congestion and local air pollution.

Cities can create these sustainable transportation systems by shifting trips away from single-occupancy vehicles and investing in public transportation, bicycle and pedestrian infrastructure, and shared-use mobility programs such as bike and scooter sharing. To evaluate a city's progress on sustainable passenger mobility, we can look to the Mobility Energy Productivity (MEP) metric, developed at the National Renewable Energy Laboratory (NREL) with support from the U.S. DOE's Energy Efficient Mobility Systems (EEMS) Program. The MEP metric significantly expands on existing measures of mobility such as walk, bike, and transit scores to quantify the potential of a city's transportation system to connect people to services and activities in an energy-efficient, convenient, and cost-effective way (Hou et al. 2019; NREL 2019). It provides overall scores for a transportation system as well as mode-specific scores for driving, transit, biking, and walking.

MEP values vary by city, with higher MEP values indicating a larger number of opportunities that can be accessed efficiently in terms of cost, time, and energy by a particular mode. To obtain generic measures that we could use to compare progress on sustainable mobility across the 75 cities included in this year's *Scorecard*, we calculated the contribution of driving and efficient modes (transit, biking, and walking) to a city's overall MEP. In cities with a relatively high ratio of MEP scores for efficient modes to overall MEP scores, modes like transit, biking, and walking are likely to be realistic alternatives to personal vehicles for residents.

The data below are not included in transportation scoring for 2023 but are meant to be an informative comparison of how cities are making progress on overall transportation system efficiency. Table 38 displays the MEP scores and ratios for the 75 evaluated cities. Figure 19 maps cities' ratios of efficient modes MEP to overall MEP using percentages.

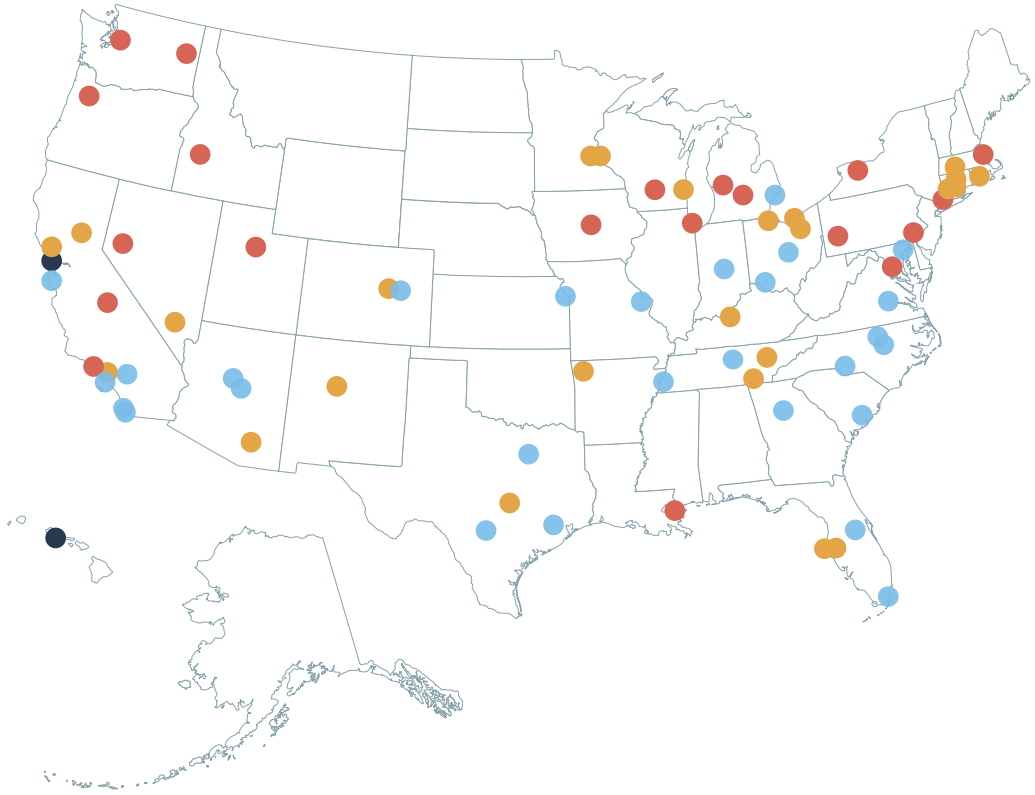
Table 38. MEP scores and ratios for *Scorecard* cities

City	MEP score	Drive score	Combined MEP for efficient modes	Ratio of drive MEP to overall MEP	Ratio of efficient modes MEP to overall MEP
Akron	151.50	120.90	30.50	0.80	0.20
Albuquerque	113.40	81.70	31.60	0.72	0.28
Atlanta	235.40	199.40	36.00	0.85	0.15
Aurora	161.90	139.40	22.40	0.86	0.14
Austin	140.60	109.50	31.10	0.78	0.22
Baltimore	159.90	137.50	22.40	0.86	0.14
Boise	93.00	62.60	30.40	0.67	0.33
Boston	279.90	183.20	96.60	0.65	0.35
Bridgeport	92.80	71.00	21.80	0.77	0.23
Charleston	67.50	54.40	13.10	0.81	0.19
Charlotte	120.30	102.20	18.10	0.85	0.15
Chattanooga	57.40	43.10	14.30	0.75	0.25

City	MEP score	Drive score	Combined MEP for efficient modes	Ratio of drive MEP to overall MEP	Ratio of efficient modes MEP to overall MEP
Chicago	325.90	228.30	97.60	0.70	0.30
Chula Vista	144.00	121.80	22.20	0.85	0.15
Cincinnati	181.20	146.70	34.50	0.81	0.19
Cleveland	165.50	132.40	33.10	0.80	0.20
Columbus	158.10	129.90	28.30	0.82	0.18
Dallas	270.50	235.00	35.50	0.87	0.13
Denver	259.30	184.90	74.30	0.71	0.29
Des Moines	80.20	55.40	24.80	0.69	0.31
Detroit	265.20	224.60	40.50	0.85	0.15
Durham	100.40	81.10	19.30	0.81	0.19
Fayetteville	38.70	28.60	10.10	0.74	0.26
Fresno	107.30	75.20	32.10	0.70	0.30
Grand Rapids	149.90	101.70	48.20	0.68	0.32
Hartford	146.10	112.10	34.00	0.77	0.23
Honolulu	85.30	50.00	35.20	0.59	0.41
Houston	217.50	188.10	29.50	0.86	0.14
Indianapolis	130.20	106.00	24.20	0.81	0.19
Kansas City	136.10	112.70	23.40	0.83	0.17
Knoxville	102.50	78.50	24.00	0.77	0.23
Lansing	101.10	69.70	31.50	0.69	0.31
Las Vegas	176.40	137.00	39.50	0.78	0.22
Long Beach	370.80	300.00	70.80	0.81	0.19
Los Angeles	183.5	137.1	46.40	0.75	0.25
Louisville	142.30	113.20	29.10	0.80	0.20
Madison	77.60	50.50	27.10	0.65	0.35
Memphis	117.40	95.10	22.30	0.81	0.19
Mesa	152.30	130.80	21.50	0.86	0.14
Miami	159.50	133.20	26.30	0.84	0.16
Milwaukee	197.50	140.00	57.40	0.71	0.29
Minneapolis	315.90	234.40	81.50	0.74	0.26
Nashville	120.90	99.10	21.90	0.82	0.18
New Haven	100.10	77.40	22.70	0.77	0.23
New Orleans	121.70	79.70	42.00	0.65	0.35
New York	477.40	327.30	150.00	0.69	0.31
Oakland	315.20	228.60	86.60	0.73	0.27
Orlando	206.10	174.00	32.10	0.84	0.16
Oxnard	65.20	45.20	19.90	0.69	0.31
Philadelphia	329.20	218.50	110.80	0.66	0.34
Phoenix	181.60	152.80	28.70	0.84	0.16
Pittsburgh	182.40	125.00	57.30	0.69	0.31
Portland	203.80	140.70	63.10	0.69	0.31
Providence	169.50	122.90	46.50	0.73	0.27

City	MEP score	Drive score	Combined MEP for efficient modes	Ratio of drive MEP to overall MEP	Ratio of efficient modes MEP to overall MEP
Raleigh	117.60	95.60	22.00	0.81	0.19
Reno	63.50	41.30	22.20	0.65	0.35
Richmond	98.60	80.40	18.10	0.82	0.18
Riverside	161.60	138.90	22.70	0.86	0.14
Rochester	127.50	84.50	43.10	0.66	0.34
Sacramento	187.00	143.20	43.70	0.77	0.23
Salt Lake City	168.50	118.70	49.70	0.70	0.30
San Antonio	160.40	130.80	29.50	0.82	0.18
San Diego	186.30	154.20	32.10	0.83	0.17
San Francisco	354.60	202.60	152.10	0.57	0.43
San José	205.60	166.50	39.00	0.81	0.19
Seattle	204.60	137.10	67.50	0.67	0.33
Spokane	84.00	52.60	31.40	0.63	0.37
Springfield	90.20	69.10	21.10	0.77	0.23
St. Louis	114.10	94.30	19.80	0.83	0.17
Saint Paul	251.20	201.60	49.60	0.80	0.20
St. Petersburg	138.00	108.60	29.30	0.79	0.21
Tampa	158.60	126.40	32.20	0.80	0.20
Toledo	124.90	92.80	32.00	0.74	0.26
Tucson	111.30	79.30	32.10	0.71	0.29
Washington, DC	226.80	156.20	70.50	0.69	0.31

Figure 19. Map showing percentage of *Scorecard* cities' efficient modes MEP to overall MEP



Percentage of efficient modes MEP to overall MEP

> 40%

San Francisco (43%)
Honolulu (41%)

30%–40%

Spokane (37%)	Reno (35%)	Seattle (33%)	New York (31%)	Washington, DC (31%)
Boston (35%)	Philadelphia (34%)	Grand Rapids (32%)	Oxnard (31%)	Chicago (30%)
Madison (35%)	Rochester (34%)	Des Moines (31%)	Pittsburgh (31%)	Fresno (30%)
New Orleans (35%)	Boise (33%)	Lansing (31%)	Portland (31%)	Salt Lake City (30%)

20%–30%

Denver (29%)	Providence (27%)	Los Angeles (25%)	Sacramento (23%)	Akron (20%)
Milwaukee (29%)	Fayetteville (26%)	Bridgeport (23%)	Springfield (23%)	Cleveland (20%)
Tucson (29%)	Minneapolis (26%)	Hartford (23%)	Austin (22%)	Louisville (20%)
Albuquerque (28%)	Toledo (26%)	Knoxville (23%)	Las Vegas (22%)	Saint Paul (20%)
Oakland (27%)	Chattanooga (25%)	New Haven (23%)	St. Petersburg (21%)	Tampa (20%)

< 20%

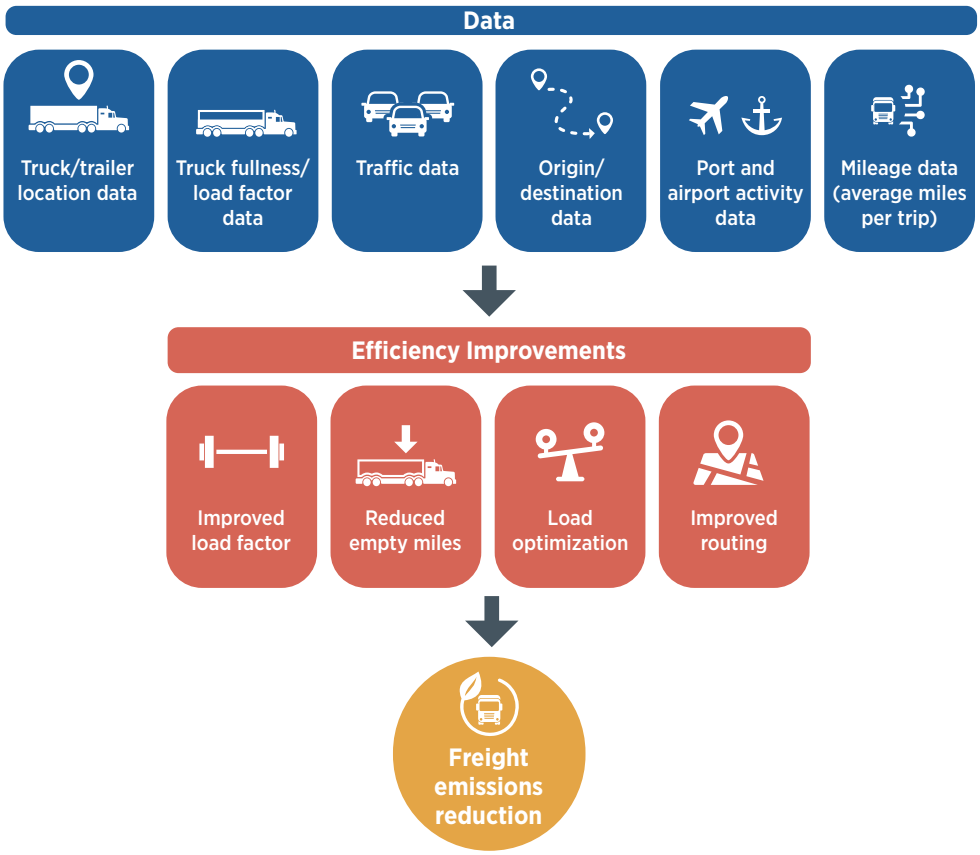
Charleston (19%)	Raleigh (19%)	Kansas City (17%)	Atlanta (15%)	Houston (14%)
Cincinnati (19%)	San Jose (19%)	San Diego (17%)	Charlotte (15%)	Mesa (14%)
Durham (19%)	Columbus (18%)	St. Louis (17%)	Chula Vista (15%)	Riverside (14%)
Indianapolis (19%)	Nashville (18%)	Miami (16%)	Detroit (15%)	Dallas (13%)
Long Beach (19%)	Richmond (18%)	Orlando (16%)	Aurora (14%)	
Memphis (19%)	San Antonio (18%)	Phoenix (16%)	Baltimore (14%)	

OPEN DATA PORTALS

One strategy for reducing emissions from the transportation sector involves the use of open transportation data portals to enable planning and policy efforts. Access to comprehensive transportation data is particularly important in the freight sector, where information, particularly information on emissions and environmental impacts, has historically been scant. Online data platforms can allow shippers, carriers, freight brokers, and other freight industry stakeholders to view and share data to improve the coordination and efficiency of shipping. These portals are relatively new and tend to be hosted by a specific port or airport. Sharing data through these platforms can improve efficiency by reducing idling and helping carriers avoid pick-ups or drop-offs during congested hours (Langer 2021b). While the type of data being shared is not specifically tied to emissions or energy usage at freight hubs, cities with open data portals are building the framework and digital infrastructure now that can be used for emissions tracking and reduction in the future. Researchers and policymakers can also use the data that are shared to conduct analysis and recommend specific policies for emissions reductions. Cities can improve on existing data portals by aggregating real-time data from all multimodal freight hubs and stakeholders in the city for greater data visibility (see figure 20).

This is the first year we are scoring cities on open data portals, and Atlanta, Los Angeles, and Oakland were the only cities to receive full points. Charleston, Long Beach, Miami, and New York received half points. The portal hosted by the Port of Los Angeles is a strong example of what an open data portal can look like and the types of data they can host. In 2017 the port launched Port Optimizer, which provides real-time port-level views of truck turn times by terminal, container tracking, terminals accepting empty containers, and other data (Wabtec Corporation 2023). The Port of Los Angeles also hosts a Cargo Operations Dashboard, which features other data updated daily, monthly, or in real time, including current vessel activity. Finally, the Port offers a mobile app called DrayFLEX-Trip, which provides truck drivers with more fuel-efficient routing and terminal wait times (The Port of Los Angeles 2023).

Figure 20. Using data to reduce emissions from freight transportation. Visibility into a variety of data types, including origin and destination data for trucks and truck load factor data, can support improvements to freight efficiency through improved routing, improved load factor, and more. These optimizations ultimately reduce energy consumption and emissions. Load factor refers to the proportion of a truck or trailer that is full during a trip.



CHAPTER 4

Community Energy Infrastructure

Lead Authors: Diana Morales, Ian Becker, and Carmen Wagner

INTRODUCTION

Decarbonizing the electricity grid—switching to cleaner fuels with few or no GHG emissions—is a crucial strategy to help the United States meet its climate goals. Energy efficiency improvements in buildings, transportation, and industry will play an even more important role in reaching deep decarbonization. It is estimated that energy efficiency could help reduce energy waste and GHG emissions by about 50% by 2050 (Nadel and Ungar 2019).

As the owners and operators of local energy generation and distribution infrastructure, utilities have an important role in advancing energy efficiency and decarbonization. In recent years, cities have taken on an expanded role in decarbonizing their community's energy infrastructure, supporting the deployment of renewable and other clean distributed energy systems. Together, energy and water utilities and cities can be effective partners in delivering clean energy programs to their communities. This chapter includes metrics that measure clean energy activities across electric and natural gas utilities serving each city, as well as actions cities have taken to spur more equitable decarbonization programs and projects.

Cities have differing levels of control over their energy utilities depending on the type of utility. Cities served by municipally owned electric and natural gas utilities (munis) generally have influence over the level of investment and the types of efficiency programs they offer. Municipal utility efficiency programs often work in tandem with local policies and sustainability or climate plans. In contrast, local governments served by investor-owned utilities (IOUs) have less influence over utility programs and operations because they rarely have regulatory control over IOUs.[43] The primary drivers of utility-administered energy efficiency and renewable energy programs include independent or voluntary energy and carbon commitments and/or state policy.

Cities that want to influence IOU clean energy policies can often become formal participants in state-level regulatory proceedings that determine utility energy efficiency goals; this allows them to advocate for improvements and expansion of programs that better serve their communities. They can also ask that municipal and community-wide energy efficiency and renewable energy goals be accounted for in long-term resource plans. Finally, they can partner with utilities to promote ratepayer-funded programs, assist in reaching shared targets, and leverage utility resources for city-funded programs. By partnering with utilities on program development and more, cities can help to align utility incentives with local policy goals.

43 New Orleans (Entergy) and DC (Pepco and Washington Gas) are exceptions.

Cities and utilities can also increase their clean energy production from renewable sources. As of spring 2022, more than 200 cities and towns had committed to transition to 100% clean, renewable energy, and nearly 100 communities are currently powered by 100% renewable energy, including cities in Alaska, California, Colorado, Kansas, Missouri, and Texas (Sierra Club 2022). To meet these commitments, many cities are working with their energy utilities to procure and move toward renewable and carbon-free generation.

Many utilities have programs to reach customers with lower incomes or residents of multifamily buildings (Samarripas and York 2019). Groups such as low-income households, people of color, older adults, and renters have considerably higher energy burdens than the median household nationally and across metro areas (Drehobl, Ross, and Ayala 2020). Energy efficiency programs can help alleviate energy burdens, especially those designed through equitable procedural practices, such as in partnership with affected communities. Cities can partner with utilities to better serve low-income and disadvantaged households; they can also champion partnerships that are defined and driven by community-based organizations and the residents they represent.

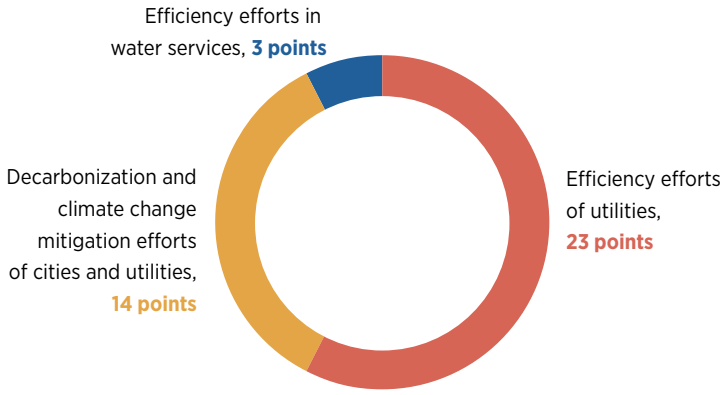
Drinking water and wastewater utilities are also important influencers of efficiency, often implementing programs to improve both energy and water efficiency throughout the water treatment and delivery system and among their customers. Water usage consumes a substantial amount of energy. Electricity and natural gas are used to source, treat, and transport potable water and to collect, transport, treat, and discharge wastewater, as well as to heat hot water at the point of use. Wastewater and drinking water plants account for 40% of the energy expenditures of many local governments (EPA 2021b). Energy efficiency can cut water-related energy use substantially and save thousands of dollars for local drinking water and wastewater plants. In addition, water utilities can generate electricity and/or fuel from their wastewater influent to use internally, and they can also install renewable resources, such as solar panels, to support drinking water and wastewater plant operations.

SCORING

We scored cities based on the energy efficiency and climate change mitigation efforts of their primary electric, gas, and water utilities, as well as the actions cities have taken to decarbonize their grid. We allocated 40 points across three categories, as shown in figure 21.

We discuss the scoring methodology for each metric following the presentation of results.

Figure 21. Energy and water utilities scoring overview



RESULTS

Los Angeles earned the most points in this chapter. San José earned the second highest points and Minneapolis earned the third spot, followed by San Francisco and Boston, which tied for fourth place. Several (14) cities and their utilities earned full points for their actions to decarbonize the grid through emissions reductions and renewable energy actions.[44] Twenty-five cities earned maximum points for water services. No cities earned the maximum points (9) for city-led decarbonization. The top scoring cities for city-led decarbonization include Los Angeles, San José, and Denver with 7 points and Minneapolis with 6.5 points.

Table 39 lists the scores for energy and water utilities. Subsequent tables within this chapter show how we allocated points for individual metrics within these categories.[45]

44 For this metric, cities received points based on their utility and whether they had (1) involvement in utility renewable planning efforts, (2) collaboration with the utility to develop renewable energy plans and/or strategies, and (3) exploration or enablement of CCA.

45 Appendixes E and F provide more detailed scoring information on each metric.

Table 39. Energy and water utilities scores

City	Efficiency efforts of utilities (23 pts)	Decarbonization and climate change mitigation efforts of cities and utilities (14 pts)	Efficiency in water services (3 pts)	Total (40 pts)
Los Angeles	19	12	3	34
San José	19	11.5	3	33.5
Minneapolis	19	11	2	32
Boston	20.5	8	3	31.5
San Francisco	19	9.5	3	31.5
San Diego	19	9	3	31
Oakland	19	8.5	3	30.5
New York	17	9.5	3	29.5
Chula Vista	18	8.5	3	29.5
Hartford	14.5	11	3	28.5
Madison	14	11.5	3	28.5
Denver	13	12	3	28
Fresno	18	6.5	3	27.5
Saint Paul	16.5	7.5	3	27
Providence	17	7	2	26
Sacramento	14	10	2	26
Seattle	15	8	3	26
Chicago	15.5	7	3	25.5
Springfield	19	6.5	0	25.5
Grand Rapids	15	7.5	2	24.5
Riverside	14	7	3	24
Orlando	15.5	5.5	3	24
Baltimore	12	9.5	2	23.5
Atlanta	13.5	7	2	22.5
Portland	10.5	8.5	3	22
Charlotte	13	6.5	2	21.5
Honolulu	13	6	2	21
Knoxville	10	8	3	21
Austin	11	6.5	3	20.5
Phoenix	8.5	10	2	20.5
Washington, DC	11	7.5	2	20.5
Albuquerque	7	10	3	20
New Haven	10	8	2	20
Detroit	16	2.5	1	19.5
Salt Lake City	11.5	7	1	19.5
Kansas City	10	7.5	2	19.5
Aurora	12	4	3	19
Pittsburgh	12	5	2	19
Raleigh	14	3	2	19
Rochester	10	9	0	19

City	Efficiency efforts of utilities (23 pts)	Decarbonization and climate change mitigation efforts of cities and utilities (14 pts)	Efficiency in water services (3 pts)	Total (40 pts)
Philadelphia	9.5	6	3	18.5
Milwaukee	7.5	8.5	2	18
Columbus	9.5	6.5	2	18
Nashville	7.5	7.5	2	17
St. Louis	12	4	0	16
Durham	11	4	1	16
Oxnard	10	4.5	1	15.5
Des Moines	8	5.5	2	15.5
Las Vegas	5	7	2	14
Bridgeport	10	3.5	0	13.5
Cleveland	4	7.5	2	13.5
Houston	4	8.5	1	13.5
Memphis	7	5.5	1	13.5
Long Beach	6	5	2	13
Boise	2.5	6	3	11.5
New Orleans	5	4.5	2	11.5
Indianapolis	5.5	4.5	1	11
Miami	1.5	7	2	10.5
Lansing	8.5	2	0	10.5
San Antonio	3.5	4.5	2	10
Dallas	2.5	5	2	9.5
Cincinnati	0	8	1	9
Louisville	0	7	2	9
Tucson	5	4	0	9
Akron	3	4.5	1	8.5
Richmond	6	2.5	0	8.5
St. Petersburg	0.5	5.5	2	8
Mesa	5	2	1	8
Toledo	5	2	1	8
Reno	4.5	3	0	7.5
Tampa	4.5	2	0	6.5
Chattanooga	0	2.5	3	5.5
Charleston	3	2	0	5
Fayetteville	0	4.5	0	4.5
Spokane	0	1	1	2

Leading Cities

Los Angeles. Los Angeles Department of Water and Power (LADWP) and SoCal Gas are the energy utilities that serve the City of Los Angeles. The utilities partner to deliver low-income program offerings under the Energy Savings Assistance program, which includes measures like weatherization improvements, water heater blankets, and low-flow showerheads. To reach historically underserved communities in their low-income programs, LADWP has created the Community Partnership Grants program, which provides grants to nonprofit organizations to creatively reach populations and improve energy efficiency and water conservation throughout the City of Los Angeles. In 2021 LADWP launched its Comprehensive Affordable Multifamily Retrofits program to provide financial incentives for low-income home retrofits. Los Angeles also earned full points for municipal carbon-free electricity procurement and LADWP has committed to 100% carbon-free power by 2035 with an interim target of 80% renewables by 2030.

San José. Pacific Gas & Electric (PG&E), the electric and natural gas utility serving San José, achieved high electric and natural gas savings in 2021. It offers comprehensive low-income efficiency programs that include health measures, as well as multifamily programs that provide comprehensive services to low-income households. The city administers the Silicon Valley Energy Watch, a PG&E ratepayer-funded program that provides energy efficiency resources and programs, as directed by the California Public Utility Commission. PG&E set a goal to achieve carbon neutrality by 2045, which will require 4.5% average annual emissions reductions from 2019 levels through 2045. San José received full credit for metrics tracking efficiency efforts in water services, due to the efficiency efforts of the San José Municipal Water System, PG&E's rebates for water-saving devices, and the water utility's self-generation efforts. The city is also capable of generating 6.5 megawatts of solar energy from municipally owned sites.

Minneapolis. The city of Minneapolis has established the Clean Energy Partnership with Xcel Energy and CenterPoint Energy, to support the city's Climate Action Plan and Energy Vision for 2040, which seeks to reduce GHG emissions by 15% by 2015, 30% by 2025, and 80% by 2050. This alliance expanded the conditions of the city's franchise agreement to include an active role for utilities in achieving the city's energy and climate goals. Xcel and CenterPoint offer robust low-income and multifamily programs. Minneapolis is involved with Minnesota Public Utility Commission proceedings related to improving data access and expanding renewable energy. The city engages with Xcel Energy in their Integrated Resource Plan (IRP) planning process by advocating for increases in renewable electricity generation at the utility scale, community scale, and building scale.

EFFICIENCY EFFORTS OF ENERGY UTILITIES

Utilities typically fund energy efficiency programs through a surcharge on customers' utility bills.[46] Energy efficiency programs—implemented by the electric and gas utilities or through independent, statewide program administrators—have a long record of delivering energy and cost savings to residential, commercial, and industrial customers (Nowak, Kushler, and Witte 2019). Utilities can ramp up efforts to save energy by offering comprehensive and targeted programs, by partnering with cities to promote higher energy savings and effective program delivery, and by improving data access.

In this category, we scored cities on

- Electric efficiency savings (5 points munis/4 points IOUs)
- Natural gas efficiency savings (2 points)
- City–utility partnerships (1 point, IOUs only)
- Equitable city, utility, and community partnerships (2 bonus points)
- Low-income and multifamily efficiency programs (11 points)
- Provision of energy data by utilities (2 points)

4 POINTS IOUs **5 POINTS MUNIS**

Electricity Efficiency Savings

Although the purpose of this section of the *Scorecard* is to evaluate energy efficiency programs serving each city, we included utility-wide electricity savings across the entire utility service territory in each city's state. For nonmunicipal utilities, this typically encompasses more than just the city itself. We used this methodology because city-level data are often not available from utilities. In cities where customer-funded programs are administered by independent, statewide administrators, we scored the savings that were

46 In many cases this revenue is supplemented by other funding streams, such as tax revenue, Regional Greenhouse Gas Initiative (RGGI) funds in the Northeast, or federal weatherization funding.

attributable to the city's local utility.[47] Unless otherwise noted, we retrieved data from 2021 electric efficiency program savings and total sales as well as information on city–utility partnerships through data requests that we sent to both the utility and city staff.[48]

We awarded points differently depending on the type of utility serving each city. For cities served by an IOU, we awarded up to 4 of the possible 5 points for savings (using tiered amounts to score achieved savings) and 1 point for city–utility partnerships. For cities served by a muni, we awarded up to 5 points for electricity savings. See table 39 below for more details on scoring.

Our scoring for electricity savings was based on the net annual incremental savings from efficiency programs as a percentage of total electricity sales for the primary electric utility serving the most customers in the city. Unless otherwise noted, we collected data on 2021 electricity efficiency program savings and total retail sales, and we scored the utilities on net meter-level savings data.[49]

2 POINTS

Natural Gas Efficiency Savings

We scored the net annual incremental natural gas savings from efficiency programs as a percentage of natural gas residential and commercial sales for the primary natural gas utility serving each city.[50] Although we scored electric IOUs and munis differently, we did not score the 10 cities with municipal gas utilities differently from those with IOU gas utilities here.

Unless otherwise noted, we retrieved data on natural gas savings from utility data requests, and we retrieved data on 2021 retail sales from the EIA-176 form for all utilities (EIA 2021).[51] Due to the limited availability of public energy efficiency reports for natural gas utilities, we had difficulty collecting these data for utilities that did not respond to our request.[52]

1 POINT IOUs

City–Utility Partnerships (IOUs Only)

Cities earned 1 point if the city and both its electric and natural gas utility have a formal partnership in the form of a jointly developed or administered energy savings strategy, plan, or agreement. Cities earned 0.5 points for a formal partnership with just one of their utilities (i.e., a formal partnership with just their electric utility or just their natural gas utility). City–utility partnerships allow the two parties to align on climate and energy goals and explore long-term collaboration (Bonugli et al. 2019). Minneapolis's Clean Energy Partnership—among the city, Xcel Energy, and CenterPoint Energy—is a leading example of a formal partnership to advance clean energy and energy efficiency policies.

2 POINTS

Equitable City, Utility, and Community Partnerships

Cities can employ equitable community engagement processes to create policies and programs that empower and reflect the needs of communities. Community empowerment is the process of building community capacity for increased community-led decision making and is an important strategy to address social, economic, and political inequities (Leon et al. 2019). Cities can work toward community empowerment by using community engagement practices that establish trust, address barriers and biases, build organizational capacity, and mobilize resources for communities.

47 For example, Energy Trust of Oregon (ETO) administers utility customer–funded energy efficiency programs. For Portland, we scored the savings that ETO attributed to Portland General Electric, the local utility. Details on whether customer-funded programs are administered by independent statewide program administrators can be found in ACEEE's State and Local Policy Database at database.aceee.org.

48 While levels of control and influence vary, cities generally have less direct control over energy savings of IOUs compared to munis. We treated Entergy New Orleans as a muni because it is an IOU regulated by the New Orleans City Council. Similarly, we treated Pepco and Washington Gas as munis because the DC Council oversees their utility programs in the District of Columbia. In both cases, the local government can influence the utility's efficiency spending, as is the case with municipal utilities.

49 Meter savings do not include savings due to avoided line losses. We included residential, commercial, and industrial sales for electric programs, and we included residential and commercial sales for natural gas programs. Net savings are attributable to energy efficiency programs and may implicitly or explicitly include the effects of factors such as free ridership, participant and nonparticipant spillover, and induced market effects. ACEEE recognizes that utilities calculate and report net savings in various ways and for various purposes (or, in some cases, do not use a net savings metric at all). Therefore, in our data request we asked for clarification and sources for the figures provided for the purpose of improving comparison across utilities.

50 Because Hawaii consumes almost no natural gas, we scored Honolulu only on electric efficiency savings. To address this, we awarded Hawaii points for natural gas efficiency savings equivalent to the proportion of points it earned for corresponding electricity savings.

51 Local and state governments do not have control over wholesale commodity gas (i.e., most industrial gas). Therefore, we include only residential and commercial sales volume (excluding industrial sales) in our natural gas savings calculations.

52 We adjusted gross savings to net savings using a factor of 0.9056. We based the 0.9056 net-to-gross factor for gas savings on the median 2021 net-to-gross ratio calculated from states that reported both net and gross natural gas savings for *The 2020 State Energy Efficiency Scorecard* (Berg et al. 2020). These states include California, Connecticut, Maryland, Massachusetts, Montana, New Mexico, New York, and Wisconsin. Detailed information about natural gas savings is included in table F10 in Appendix F.

Cities with both IOUs and munis could earn 2 points if the city *and* utility are working in partnership with at least one CBO through a formal strategy, partnership, or program in which the CBO specifically defines and drives policies or programs to direct clean energy resources to households in marginalized communities. To receive these points, cities needed to provide details showing that their partnership includes the following elements: (1) at least one CBO working to define and drive the outcomes of the partnership, (2) at least one CBO with decision-making power to impact the outcome of the partnership (i.e., with involvement in the development of the policy or program from the beginning), and (3) accountability measures to ensure that the desired outcomes are met. In this year's *Scorecard*, no cities earned credit for this metric. However, the Community First Partnership between the city of Boston, Eversource, and National Grid is a partnership to watch. Through the Community First Partnership, Boston's utilities are working with CBOs to guide and implement equity-focused energy efficiency outreach for renters and household that speak a primary language other than English.

Low-Income and Multifamily Efficiency Programs

11 POINTS

Low- and moderate-income households, renters, those living in multifamily buildings, and households identifying as Black, Latino/a, Indigenous, rural, or non-English speaking are often underserved by utility programs. Moreover, inequities in programs can result in high energy burdens and adverse impacts on the health and safety of these residents (Amann, Tolentino, and York 2023). Many utilities design and implement programs that specifically target these households, though those programs have varying levels of reach and impact.

Residential efficiency programs generally provide rebates for efficiency measures or encourage behavioral changes in customers, but these are not always well suited to low-income or multifamily markets. Low-income programs often include whole-home retrofits or single and/or multifamily direct-install programs, offered at no cost or low cost to qualifying households or building owners. These programs have benefits beyond energy savings, such as improved health and safety and increased comfort (Hayes, Kubes, and Gerbode 2020).

The available funding for income-qualified customer programs varies based on many factors, including state policy, regulatory decisions, and stated utility goals (Amann, Tolentino, and York 2023). Often, these programs are underfunded relative to the number of customers that would qualify and benefit. A recent ACEEE study, for instance, estimated that the median participation rate in utility low-income efficiency programs was 5% of eligible customers (Morales and Nadel 2022).[53]

Multifamily buildings present unique opportunities for substantial energy savings. Cost-effective energy efficiency upgrades for apartments and condominiums that fall in the top 25% of multifamily energy users have the potential to reduce multifamily residential energy use across the United States by approximately 17% and save residents $3 billion annually in energy costs (Samarripas and Tanabe 2020). Even with this potential, these buildings have been historically underserved by traditional energy efficiency programs, most of which are designed for owner-occupied, single-family homes. Multifamily buildings often face split incentives between renters and building owners regarding who pays for energy and who pays for efficiency upgrades. If the renter pays for energy, the owner has less incentive to lower those costs through energy efficiency upgrades. If the owner pays for energy, then the tenant has less incentive to reduce energy use.

Program implementers often design programs specifically to address these split incentives and provide benefits to both residents and building owners. Multifamily and low-income utility programs are also not necessarily mutually exclusive: Some programs target both multifamily and low-income households. While these programs can result in reducing energy use, they provide many non-energy benefits as well, such as healthier indoor environments, improved indoor comfort, fewer bill arrearages, reduced resident turnover, increased property values, and preservation of affordable housing (Cluett and Amann 2015; Samarripas, Ross, and Bailey 2017; Samarripas and York 2018).

Recent ACEEE research has identified numerous approaches to structuring multifamily and low-income programs that best cater to underserved utility customers; these include structuring a portfolio of program offerings (Specian et al. 2023), conducting equity evaluations of programs, expanding weatherization and pre-weatherization offerings (Amann, Tolentino, and York 2023), and proactively leveraging external sources of funding (Nadel 2023).

53 The median program spending for both gas and electric utilities on low-income programs is about 13%, which falls short of the Justice40 Initiative's goals, adopted by the federal government and some state governments, to increase to 40% the portion of climate and clean energy spending that reaches and benefits low-income communities (Amann, Tolentino, and York 2023).

Cities could earn up to 12 points for low-income energy efficiency programs and those that include a comprehensive multifamily program component.[54] This score is based on the particularities of the low-income programs provided, to what extent these programs leverage outside funding sources, whether the programs proactively address health and safety measures to reduce Weatherization Assistance Program (WAP) deferral rates, and whether the programs have explicit equity-related goals and identify barriers to program participation. Detailed scores for low-income programs and multifamily programs are provided in table 40.

2 POINTS

Provision of Energy Data by Utilities

Information about energy consumption enables better energy management in residential and commercial buildings. Household, whole-building, and community-wide utility data can also be used to better target efficiency programs and to carry out evaluations. Utilities are critical partners in providing customers, building owners, and local planners with energy consumption data in a usable format via a delivery mechanism appropriate for the user's needs. In this section, cities could earn up to 2 points for the accessibility of energy usage data from their electric and gas utilities.[55]

Cities could earn up to 1 point if their utility provides automated benchmarking services for multi-tenant commercial and/or multifamily buildings. Alternatively, cities could earn up to 0.5 points if they have advocated for improvements in data provision by their utilities or have established data-sharing agreements with them.

Cities could earn another full point if the city and/or energy utility has made community-wide, aggregated energy usage information for both electric and natural gas publicly available for community planning and evaluation purposes. Cities could alternatively earn 0.5 points if the city has requested community-wide energy usage data for both electricity and natural gas but has not received it from the energy utility, or the city has community-wide energy usage data for internal planning purposes but does not make these data publicly available.

Table 40 summarizes the scoring for efficiency efforts of energy utilities, and table 41 lists the scores. Tables E14 through E17 in Appendix E provides more detailed scores.

Table 40. Scoring for efficiency efforts of energy utilities

	Score	
Electric efficiency savings as a percentage of sales	**Munis**	**IOUs**
2% or greater*	5	4
1.75–1.99%	4	3.5
1.50–1.74%	3	3
1.25–1.49%	2	2
1.00–1.24%	1	1
0.50–0.99%	0.5	0.5
0.00–0.49%	0	0
Natural gas savings as a percentage of sales	**Munis**	**IOUs**
1.20% or greater**	2	2
0.70–1.19%	1.5	1.5
0.20–0.69%	1	1
City–utility partnerships	**Munis**	**IOUs**
City has a formal partnership with the electric and natural gas utility in the form of a jointly developed or administered energy savings strategy, plan, or agreement.	N/A	1
City has informally collaborated with the electric and/or natural gas utility on an energy efficiency project or program.	N/A	0.5

54 Comprehensive low-income programs provide efficiency measures that go beyond direct-install options to address the whole building envelope. Comprehensive multifamily programs include measures such as insulation and air sealing of building envelopes, upgrades to hot-water and HVAC equipment and systems, improved building controls, and lighting efficiency improvements in common areas and individual units.

55 Detailed scores for the provision of energy data by utilities are provided in table E17 in Appendix E.

Equitable city, utility, and community partnerships	Munis	IOUs
City *and* utility are working with at least one community-based organization through a formal strategy, partnership, or program that specifically defines and drives clean energy resources to households in marginalized communities.	2	2

Energy efficiency programs	
Low-income energy efficiency program portfolio	**Munis and IOUs**
1 pt could be earned if the electric and/or natural gas utility offers a portfolio of low-income programs (i.e., more than one program) to specifically address low-income customer needs. Cities and utilities could earn an additional 2 pts if one program in the portfolio was comprehensive and 1 pt if the portfolio included a *low-income* multifamily program.	4 max.
Multifamily energy efficiency program	**Munis and IOUs**
Electric and/or natural gas utility offers a multifamily program.	1
Low-income energy efficiency programs	**Munis and IOUs**
Electric and/or natural gas utility leverages funding sources beyond utility funding (braiding funding) to cover low-income program costs not covered by utility funds.	1
Electric and/or natural gas utility has dedicated funds or programs that aim to reduce deferral rates in low-income weatherization programs such as WAP.	2
Electric and/or natural gas utility's low-income program has equity related goals including publicly available and transparent evaluation processes to track progress and a process for adjusting approaches if not on track to reach goals.	2
Electric and/or natural gas utility has conducted a gap analysis or worked with partners to identify barriers to participation in low-income programs and has used this data to remove and address barriers to participation in low-income programs.	2
Provision of energy data by utilities	**Munis and IOUs**
Utilities provide automated benchmarking services for multi-tenant commercial and/or multifamily buildings.	1
City advocates for improvements in data provision by its utilities or has established a data-sharing agreement with them.	0.5
Community energy data	**Munis and IOUs**
City and/or energy utility has made community-wide, aggregated energy usage information for *both* electric and natural gas publicly available for community planning and evaluation purposes in the past five years.	1
City has requested community-wide energy usage data for *both* electricity and natural gas but has not received it from the energy utility, OR the city has community-wide energy usage data for internal planning purposes but does not make these data publicly available.	0.5

Table 41. Efficiency efforts of energy utilities scores (out of 23 possible points)

Boston (20.5)	Detroit (16)	Honolulu (13)	Rochester (10)	Richmond (6)	Charleston (3)
San José (19)	Chicago (15.5)	Baltimore (12)	Oxnard (10)	Indianapolis (5.5)	Boise (2.5)
Los Angeles (19)	Orlando (15.5)	Pittsburgh (12)	Bridgeport (10)	Las Vegas (5)	Dallas (2.5)
Minneapolis (19)	Seattle (15)	Aurora (12)	Philadelphia (9.5)	New Orleans (5)	Miami (1.5)
San Diego (19)	Grand Rapids (15)	St. Louis (12)	Columbus (9.5)	Tucson (5)	St. Petersburg (0.5)
San Francisco (19)	Hartford (14.5)	Salt Lake City (11.5)	Phoenix (8.5)	Mesa (5)	Louisville (0)
Oakland (19)	Madison (14)	Austin (11)	Lansing (8.5)	Toledo (5)	Cincinnati (0)
Springfield (19)	Sacramento (14)	Washington (11)	Des Moines (8)	Reno (4.5)	Chattanooga (0)
Chula Vista (18)	Riverside (14)	Durham (11)	Milwaukee (7.5)	Tampa (4.5)	Fayetteville (0)
Fresno (18)	Raleigh (14)	Portland (10.5)	Nashville (7.5)	Cleveland (4)	Spokane (0)
New York (17)	Atlanta (13.5)	New Haven (10)	Albuquerque (7)	Houston (4)	
Providence (17)	Denver (13)	Kansas City (10)	Memphis (7)	San Antonio (3.5)	
Saint Paul (16.5)	Charlotte (13)	Knoxville (10)	Long Beach (6)	Akron (3)	

DECARBONIZATION AND CLIMATE CHANGE MITIGATION EFFORTS OF CITIES AND ENERGY UTILITIES

Many cities are adopting policies, ramping up programs, and taking steps to influence their electric utilities to increase the deployment of renewable energy systems because they bring wide-ranging benefits to communities (UCS 2017; American Cities Climate Challenge 2020). Cutting utility GHG emissions is especially crucial for cities to achieve their climate goals. Renewable portfolio standards mandate that electric utilities take steps to decarbonize their grid. These exist in 30 states and the District of Columbia and Puerto Rico, which account for 58% of total U.S. retail electricity sales (Barbose 2021). Additionally, many electric utilities are taking the initiative to set goals for themselves to reduce GHG emissions and climate impacts; in fact, utilities with carbon or emissions reduction goals serve 82% of customer accounts in the United States (SEPA 2023). These commitments indicate that the transition to a cleaner electrical system is already underway, and cities can help accelerate this process through several complementary policies and actions captured in this section's metrics.

In this category, we scored cities on

- City-led efforts to decarbonize the electric grid (3 points, IOUs only)
- Electric utility carbon emissions per capita (3 points, munis only)
- Electric utility emissions reduction goal stringency (2 points)
- City support for shared distributed energy systems (1.5 points)
- City efforts to advance equitable distributed energy system planning (1.5 points)
- Municipal carbon-free electricity procurement (2 points)
- City renewable energy incentive and financing programs (4 points)

3 POINTS

City-Led Efforts to Decarbonize their Electric Grid (IOUs)

Cities can influence the decarbonization efforts of their local electric utilities by participating in utility renewable energy programs, developing local policy, and forming city–utility partnerships. State and local governments can also implement policies and programs to transition their electric utilities' generation mixes to carbon-neutral sources and help distributed generation overcome market and regulatory barriers to implementation. City actions can include regulatory involvement or participation in public utility commission proceedings on topics such as net metering and other distributed generation rate design practices, as well as creation of city–utility partnerships or other engagement to increase the use of renewables.

Some cities have enacted community choice aggregation (CCA) programs, which allow local governments to procure clean power on behalf of their communities from an alternative supplier while still using the transmission and distribution services of the existing utility provider. CCAs allow cities to procure more green and renewable power to help meet climate goals and achieve cost savings (Dewey and Henner 2021). Ten states—California, Illinois, Maryland, Massachusetts, New

Hampshire, New Jersey, New York, Ohio, Rhode Island, and Virginia—have enacted CCA legislation, though no cities in New Hampshire or Virginia have active programs yet (LEAN Energy US 2023).

Cities with IOUs could earn up to 3 points for their efforts to spur utility-scale or distributed energy generation from their local electric utility, through four actions. First, cities could earn 1 point if they are involved in or have submitted comments relating to public utility commission proceedings on renewable energy to encourage more distributed renewable development. Second, they could earn 1 point if they have a formal partnership with the electric energy utility in the form of a jointly developed or administered renewable energy strategy, plan, or agreement to promote renewable energy initiatives. Third, cities could earn 1 point if they have direct involvement in utility renewable planning efforts, such as sitting on a planning committee or working group or providing direct feedback or comments on the utility's renewable planning efforts. Finally, they could earn 1 point for additional efforts to encourage the utility to adopt more utility-scale renewable generation, such as through letters to the utility or informal partnerships.

Alternatively, cities could earn 3 points if they are served by a CCA that provides clean energy options, 2 points if they have enabled a CCA but do not yet have one in operation, and 1 point if they have introduced legislation to enable a CCA but it has not yet passed. Unless otherwise noted, we retrieved data on city efforts from the data requests completed by city staff. [56]

3 POINTS

Electric Utility Carbon Emissions per Capita (Munis)

Since cities with munis have more influence over their utilities' renewable generation and GHG emissions, they received points based on GHG emissions per capita from their electric utility rather than on actions to move toward a decarbonized grid. Cities with munis earned up to 3 points based on 2021 GHG emissions per capita from electric generation, unless otherwise noted. Table E20 in Appendix E has more information on municipal utilities' emissions per capita in 2021.

2 POINTS

Electric Utility GHG Emissions Reduction Goal Stringency

For this metric, cities could earn up to 2 points based on the stringency of their electric utility's GHG goal. If the electric utility was not able to provide baseline GHG emissions and/or current GHG emissions data allowing us to assess the stringency of its goal, the city and utility did not receive points. Utilities reporting that at least 90% of their electricity is generated from renewable or carbon-free energy sources received 1.5 points in lieu of credit for goal stringency. Table E19 in Appendix E has more details on electric utility emissions reduction goals.

Figure 22 summarizes the scoring for the above three metrics. Detailed scoring on IOU efforts to decarbonize the electric grid can be found in tables E18 through E20 of Appendix E.

56 Table F14 in Appendix F has more information on city-led efforts to decarbonize the electric grid.

Figure 22. Scoring for decarbonization efforts of cities and utilities

Scoring for Decarbonization Efforts of Utilities

Cities can earn up to 5 points in this category.

→ 3 of these points are earned through separate metrics based on whether the city uses investor-owned utilities or municipal-owned utilities.

→ The remaining 2 points are earned based on the stringency of electric utility emissions reductions goals.

First, cities earn up to 3 points based on their type of utility:

Cities with ***investor-owned utilities*** are scored on the basis of city-led efforts to decarbonize the utility electric grid.

Cities can earn up to 3 points through any combination of metrics below.

1 point each	☐ City has submitted comments or has been involved in public utility commission proceedings regarding renewable energy advocacy (e.g., net metering legislation). ☐ City and electric utility have a formal partnership to advance the development of renewable energy. ☐ City has participated in planning efforts with its electric utility to promote renewables or has made additional efforts to encourage more utility-scale renewable generation. ☐ City has been directly involved in utility planning efforts around expanding utility-scale renewable generation. ☐ City has introduced legislation to enable community choice aggregation, but it has not yet passed.
2 points	☐ City has enacted enabling legislation for community choice aggregation program but is not yet served by a CCA.
3 points	☐ City has community choice aggregation program in place with a green option.

Cities with ***municipal-owned utilities*** are scored on the basis of electric utility GHG emissions per residential customer*.

Cities can earn up to 3 points based on the metrics below.

3 points	< 5,000 metric tons CO_2e
2 points	5,000—9,999 metric tons CO_2e
1 point	10,000—20,000 metric tons CO_2e
0 points	> 20,000 metric tons CO_2e or lack of data to score

Then cities can add up to 2 additional points for their utility emission goals for a total of up to 5 points:

Electric utility emission goal stringency**

Category total of up to 2 points

2 points	> 5% per year
1.5 points	3–4.99% per year
1 point	< 3% per year
0 points	No emissions reduction goal, no reduction needed to meet goal, or lack of data to score

* This includes scope 1 and 2 emissions from electric generation. Lowest electric utility GHG emissions scored were 0.25 CO_2e per capita from Eversource.

** Highest GHG reduction per year was 9.1%, achieved by Eversource Energy.

*** Utilities reporting that at least 90% of their electricity was generated from renewable or carbon-free energy sources received 2 points in lieu of credit for the stringency of an electric utility GHG emissions goal.

1.5 POINTS

Shared Distributed Energy Systems

While cities are taking steps to reduce GHG emissions across their entire electric grid, they are also supporting shared clean energy generation and distribution in specific communities through district energy, microgrid, and community solar array projects. Cities that integrate clean distributed energy technologies into district energy and microgrid systems can reduce GHG emissions and amplify the other benefits these systems provide, such as expanding access to clean energy and providing benefits including reliability and grid resilience to a large cohort of businesses and residents.

For example, a district energy system that incorporates combined heat and power (CHP) will achieve improved plant efficiency.[57] The U.S. Department of Energy (DOE) notes that CHP can typically "deliver electricity and thermal energy services at overall efficiencies of 65% to 80%, an improvement over the national average of 51% for these services when provided separately by central station power generation and onsite boilers" (DOE 2020a). A microgrid that includes both conventional and renewable energy resources is more likely to survive a power outage longer than 3.5 days compared to a microgrid powered by diesel alone, bolstering community resilience (Anderson et al. 2017). Further, incorporating energy efficiency into critical facilities can reduce the size and cost of the distributed energy resources integrated into a microgrid (DOE 2019).

We awarded points to cities that have integrated at least one clean distributed energy resource into a new or existing district energy or microgrid system. We also recognized city actions that require or directly support the creation of a community solar system.

District energy systems produce steam, hot water, or chilled water at a central plant. Buildings served by district energy systems often do not need their own heating or cooling equipment. Furthermore, buildings connected to district energy systems can use energy sources often unavailable to individual buildings. Well-designed and -operated district energy systems can convey efficiency benefits to users, including improved energy efficiency, lower energy costs, and better reliability and resilience (DOE 2020a). Given that one-third of U.S. energy consumption goes to industrial processes and the heating and cooling of buildings, district energy systems can drastically decrease energy use in these sectors (Chittum 2012).

Microgrids are a localized approach to the generation and distribution of electricity. A microgrid can disconnect from the main grid and operate independently in the event of a main grid failure, strengthening resilience and mitigating grid disturbances (DOE 2020b). Microgrids are inherently efficient systems because their proximity to end users reduces line losses by an annual average of 4% to 5% compared with the main grid's transmission and distribution system; this also means generation resources may be able to produce less electricity to meet the same demand, achieving additional energy savings of 30% to 40% relative to a traditional generation system (Moran and Lorentzen 2016).[58] Meanwhile, renewable energy frequently serves an auxiliary—yet increasing—role in these systems. Because cities often create microgrids for their resilience value, they install a diverse portfolio of generation and storage resources within them, so microgrids can house both renewable energy and fossil fuel resources (Bakke 2016).

Community solar programs are shared solar systems that allow several energy customers to subscribe to a project in their community and, in some models, receive credit on their utility bill for the amount of clean energy produced by their share (Garren et al. 2017). Community solar systems can provide several benefits to cities. For example, they can expand access to renewable energy for the estimated 75 million to 113 million households and businesses in the United States that lack access to onsite solar energy (GTM 2018).

District energy and microgrids are both different from community solar in that the latter is a generation system and the two others are distribution systems that can incorporate an array of generation technologies. Therefore, we scored district energy and microgrids on the extent to which these systems incorporate emissions-reducing technology. Cities received points for the generation technologies across all three systems. They could earn up to 0.5 points per system for requiring the integration of clean energy technologies such as combined heat and power, energy storage, renewable energy, and other clean energy resources into district energy systems and microgrids through a formal policy, rule, or agreement. Cities could also earn 0.5 points for adopting a formal policy, rule, or agreement supporting the creation of community solar energy systems.

57 According to the Combined Heat and Power Alliance (n.d.), CHP "is a technology that uses a single fuel source to generate both heat and electricity. CHP systems generate electricity and capture the heat that would otherwise be wasted to provide useful thermal energy."

58 For more information on line losses, visit www.eia.gov/tools/faqs/faq.php?id=105.

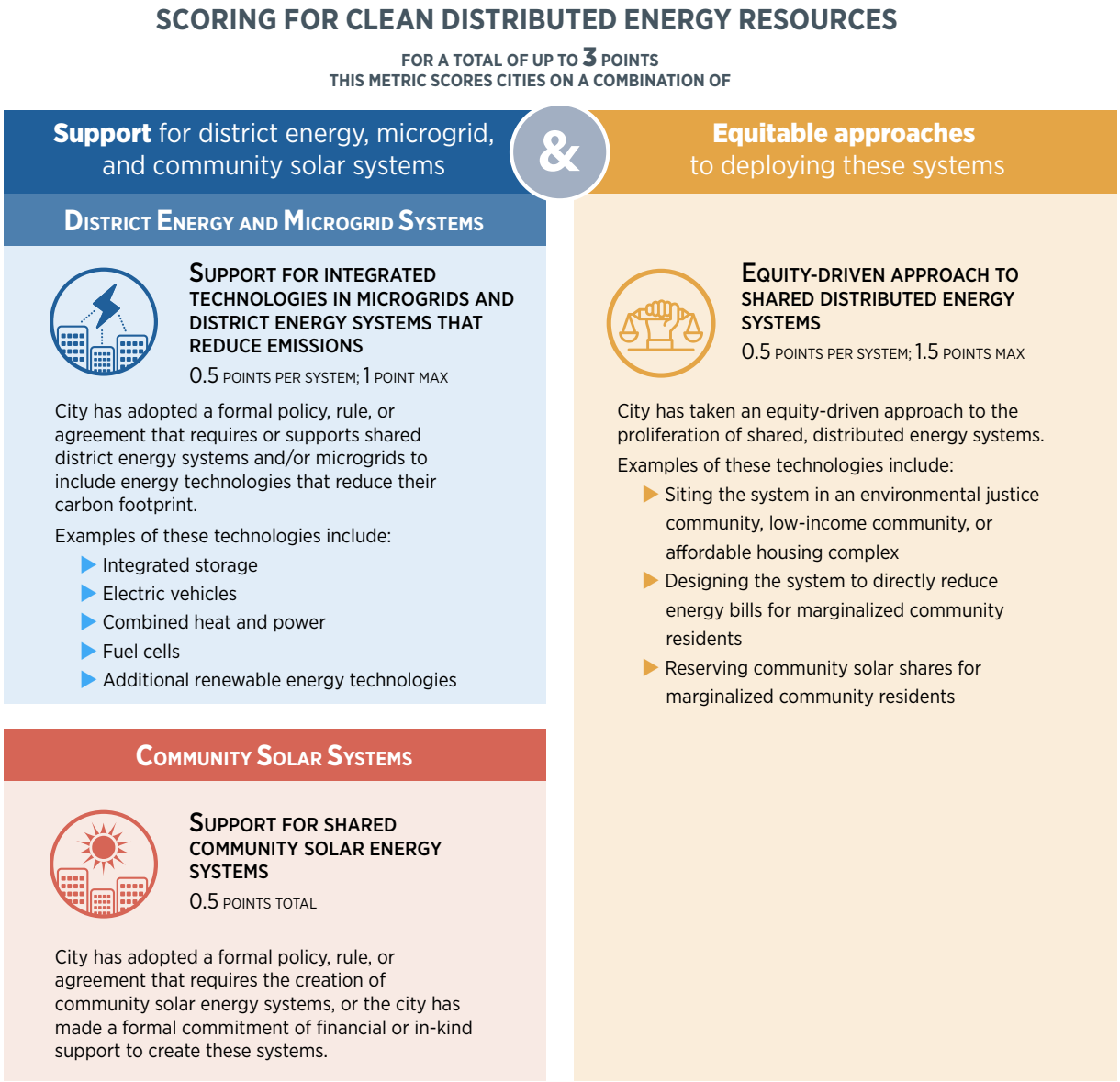
1.5 POINTS

Equity in Distributed Energy Resource Planning

We also scored cities on their efforts to incorporate the principle of distributional equity into their support of shared distributed energy systems. Marginalized community residents often lack access to shared distributed energy systems and thus miss out on the aforementioned benefits they provide. For example, as of 2018, only 44% of the nation's community solar programs had any low- and moderate-income subscribers, and low- and moderate-income subscriber rates were below 10% of available shares in most programs (Chwastyk et al. 2018). Notably, community solar can help cities remedy energy burdens for low- and middle-income households (Chan et al. 2017). Cities can address the disparities in this distribution of benefits by siting these systems in marginalized communities, reserving shares for marginalized residents to purchase, or using these systems to lower energy costs for marginalized community residents.

Cities could earn up to 1.5 points for taking an equity-driven approach to the proliferation of distributed energy systems. Figure 23 further describes the scoring for clean distributed energy systems and table E21 in Appendix E provides more detailed scoring information for these metrics.

Figure 23. Scoring for clean distributed energy resources



2 POINTS

Municipal Carbon-Free Electricity Procurement

Local governments can set a decarbonization example for the broader community by generating carbon-free electricity on municipal property or investing in carbon-free generation capacity elsewhere to power their operations. Beyond demonstrating leadership, cities can use these systems to reduce their own GHG emissions and energy costs. Using them also supports economic growth by creating long-term local jobs (EPA 2014). In this metric, we awarded credit for local government-led projects that installed onsite and off-site carbon-free generation.

Onsite carbon-free electricity systems are placed at or near the end user (e.g., solar photovoltaic panels on roofs). Depending on their facility capacity and opportunities for partnership in their area, cities can also choose to invest in or purchase carbon-free electricity systems at off-site locations away from municipal properties.

Cities could earn up to 1 point for onsite and off-site carbon-free electricity systems. [59] Cities with at least 4 watts per capita of combined onsite and off-site municipal carbon-free electricity generation capacity earned 2 points. We awarded 1 point to cities that have installed at least 1 watt per capita but less than 4 watts per capita of municipal carbon-free electricity generation capacity.[60]

2 POINTS

City Renewable Energy Incentive and Financing Programs

In addition to the policy levers and projects mentioned above, cities can take steps to encourage the private sector to install renewable energy systems using incentive and financing programs. Cities with at least two programs offering incentives or financing that encourage private sector individuals and companies to deploy renewable energy systems received 2 points, and those with one program received 1 point. Similarly, cities offering two low-income renewable energy incentive or financing programs received an additional 2 points while those offering one such program received an additional 1 point.

Figures 22 and 23 on the previous pages summarize the scoring for our metrics involving utility decarbonization and shared distributed energy systems. Table 42 summarizes the scoring for the remaining two metrics in this section, and table 43 lists the scores for all the metrics in this section. Table E22 in Appendix E provides more detailed scoring information for these metrics.

Table 42. Scoring for remaining metrics tracking decarbonization and climate change mitigation efforts of cities and energy utilities

Municipal carbon-free electricity procurement	Score
City has installed at least 4 watts per capita of municipal carbon-free electricity generation capacity.	2
City has installed at least 1 watt per capita but less than 4 watts per capita of municipal carbon-free electricity generation capacity.	1
City renewable energy incentive and financing programs	
Financial or nonfinancial renewable energy incentive and financing programs	2 (2+ programs) 1 (1 program)

59 We awarded points for photovoltaic, solar thermal, geothermal energy, and wind systems.

60 Data from cities informed our 1 watt per capita and 4 watt per capita thresholds. Of cities with installed renewable generation capacity, approximately 4 watts per capita represented the median, while 1 watt per capita represented the first (lowest) quartile. Renewable energy system capacity data were collected from city responses, publicly available information on city websites, and the World Resources Institute's Local Government Renewables Action Tracker.

Table 43. Decarbonization and climate change mitigation efforts scores (out of 14 possible points)

Los Angeles (12)	Rochester (9)	Washington (7.5)	Fresno (6.5)	Dallas (5)	Reno (3)
Denver (12)	Oakland (8.5)	Kansas City (7.5)	Charlotte (6.5)	Oxnard (4.5)	Detroit (2.5)
San José (11.5)	Chula Vista (8.5)	Nashville (7.5)	Austin (6.5)	Indianapolis (4.5)	Richmond (2.5)
Madison (11.5)	Portland (8.5)	Cleveland (7.5)	Columbus (6.5)	New Orleans (4.5)	Chattanooga (2.5)
Minneapolis (11)	Milwaukee (8.5)	Providence (7)	Honolulu (6)	San Antonio (4.5)	Lansing (2)
Hartford (11)	Houston (8.5)	Chicago (7)	Philadelphia (6)	Akron (4.5)	Mesa (2)
Sacramento (10)	Boston (8)	Riverside (7)	Boise (6)	Fayetteville (4.5)	Toledo (2)
Phoenix (10)	Seattle (8)	Atlanta (7)	Orlando (5.5)	Aurora (4)	Tampa (2)
Albuquerque (10)	Knoxville (8)	Salt Lake City (7)	Des Moines (5.5)	St. Louis (4)	Charleston (2)
San Francisco (9.5)	New Haven (8)	Las Vegas (7)	Memphis (5.5)	Durham (4)	Spokane (1)
New York (9.5)	Cincinnati (8)	Miami (7)	St. Petersburg (5.5)	Tucson (4)	
Baltimore (9.5)	Saint Paul (7.5)	Louisville (7)	Pittsburgh (5)	Bridgeport (3.5)	
San Diego (9)	Grand Rapids (7.5)	Springfield (6.5)	Long Beach (5)	Raleigh (3)	

EFFICIENCY EFFORTS IN WATER SERVICES

Regardless of climate zone, water services use a great deal of energy at a substantial cost to local governments and their communities. Water treatment plants use energy for sourcing, moving, treating, heating, collecting, and disposing of water. Households use energy for water heating. Nationally, drinking water and wastewater plants account for approximately 3–4% of energy use; this represents $4 billion in expenses and 45 million tons of GHG emissions annually (EPA 2021b, 2021e). In addition, water is required to produce energy in hydropower generation, thermoelectric power plants, oil and gas extraction, and nuclear power plants.

In California, energy use by water treatment plants accounts for an estimated 20% of the state's electricity use, 30% of business and home natural gas use, and 5% of the state's GHG emissions (PPIC 2022).

Municipalities and utilities can cut 15–30% of their energy use through energy efficiency upgrades that save thousands of dollars, with payback periods of only a few months to a few years (EPA 2021b). Reducing energy use by 10% equates to about $400 million in annual savings for water and wastewater utilities (EPA 2021b).

The energy costs of drinking water and wastewater utilities make up 25–30% of a water utility's total operation and maintenance expenditures. These utilities can save energy by improving pumps and motors and can generate energy for use onsite through the processing of wastewater. Energy utilities can also partner with water utilities to provide joint energy- and water-saving measures to customers. Programs that include new appliances such as washing machines, dishwashers, toilets, and new hot-water heaters can greatly reduce both water and energy use.

City governments often directly control their water utilities. In other cases, water utilities are independent agencies serving a region. A single city may have multiple utilities providing drinking water supply and distribution, wastewater management and treatment, and stormwater management. Local governments can take advantage of the opportunities for water and energy efficiency by partnering with the independent or municipal water utilities that serve them.

In this category, we highlight how cities are tackling efficiency within their water systems. We examined policies targeting both energy efficiency and water efficiency and awarded points regardless of whether the city has direct control over its water utilities or is served by regional providers.

In this category, we scored cities on

- Joint energy–water programs (1 point)
- Water utility energy efficiency programs (1 point)
- Water utility energy recovery and renewables (1 point)

Joint Energy–Water Programs

1 POINT

Cities received 1 point for this metric if the local water utility and/or energy utility provides deep water-saving measures alongside energy-saving measures. To earn credit, the program must offer water efficiency measures that go beyond faucet aerators and water-saving kits to involve direct installation and/or rebates for measures such as efficient toilets, washing machines, dishwashers, water heaters, shower heads, irrigation systems, and leak repairs.

Water Utility Energy Efficiency Strategies

1 POINT

We awarded 1 point if at least one drinking water or wastewater utility serving the city has adopted a strategic and comprehensive energy management approach. To earn 1 point, water utilities must incorporate both capital improvements (e.g., equipment replacement and building shell upgrades) and operational improvements (e.g., active energy management, audits, and retrocommissioning), and provide data on results of their completed retrofit projects, such as the number of buildings that have undergone retrofits or energy cost savings.

Water Utility Energy Recovery and Renewables

1 POINT

We awarded 1 point if the wastewater utility generates electricity and/or fuel from its wastewater influent. If the city does not self-generate energy, it could earn 0.5 points if the wastewater utility has installed onsite renewable energy, such as solar panels.

Table 44 summarizes the scoring, and table 45 lists scores for energy efficiency in water services. Table E23 in Appendix E provides more detailed scoring information for these metrics.

Table 44. Scoring for energy efficiency in water services

Joint energy–water programs	Score
The local water utility and/or energy utility provides deep water-saving measures streamlined with energy-saving measures. Note efficiency measures considered here go beyond faucet aerators and water-saving kits and must involve direct installation and/or rebates for measures such as efficient toilets, washing machines, dishwashers, water heaters, shower heads, irrigation systems, and leak repairs.	1
Water utility energy efficiency strategies	
At least one drinking water or wastewater utility serving the city has adopted a strategic and comprehensive energy management approach.	1
Water utility energy recovery and renewables	
Wastewater utility generates electricity and/or fuel from its wastewater influent or has installed onsite renewable energy at its wastewater treatment plant.	1

Table 45. Efficiency efforts in water services scores (out of 3 possible points)

San José (3)	Seattle (3)	Providence (2)	Milwaukee (2)	Salt Lake City (1)	Rochester (0)
Los Angeles (3)	Chicago (3)	Sacramento (2)	Columbus (2)	Detroit (1)	St. Louis (0)
Boston (3)	Riverside (3)	Grand Rapids (2)	Nashville (2)	Oxnard (1)	Bridgeport (0)
San Diego (3)	Orlando (3)	Baltimore (2)	Des Moines (2)	Durham (1)	Lansing (0)
San Francisco (3)	Portland (3)	Atlanta (2)	Long Beach (2)	Houston (1)	Tucson (0)
Oakland (3)	Austin (3)	Charlotte (2)	Cleveland (2)	Memphis (1)	Richmond (0)
New York (3)	Albuquerque (3)	Honolulu (2)	Las Vegas (2)	Indianapolis (1)	Reno (0)
Chula Vista (3)	Knoxville (3)	Washington (2)	Miami (2)	Cincinnati (1)	Tampa (0)
Madison (3)	Aurora (3)	New Haven (2)	New Orleans (2)	Akron (1)	Charleston (0)
Hartford (3)	Philadelphia (3)	Phoenix (2)	San Antonio (2)	Mesa (1)	Fayetteville (0)
Fresno (3)	Boise (3)	Kansas City (2)	Dallas (2)	Toledo (1)	
Saint Paul (3)	Chattanooga (3)	Pittsburgh (2)	Louisville (2)	Spokane (1)	
Denver (3)	Minneapolis (2)	Raleigh (2)	St. Petersburg (2)	Springfield (0)	

Issue in Focus:
Utility Funding for Pre-Weatherization Health and Safety Measures

Weatherization is an essential tool for improving the energy efficiency of buildings, lowering energy costs and high energy burdens for low-income households, and improving resident health (Specian 2023). Through weatherization improvements, households save an average of $372 annually (DOE 2022). Weatherization on average returns $2.78 in non-energy benefits (e.g., less missed work and decreased medical expenses) for every $1 invested. Funding for the Department of Energy's (DOE) Weatherization Assistance Program (WAP) was bolstered in 2021 by an infusion of $3.5 billion of additional funding over five years through the Infrastructure Investment and Jobs Act. However, many low-income homes are deferred from WAP due to poor health and safety conditions in buildings, which would make weatherization measures ineffective or unsafe (NASCSP 2023). This is a significant equity issue, as WAP deferrals tend to impact the households that would benefit the most from weatherization but cannot afford the necessary structural repairs.[61]

Recent studies estimate that deferral rates range from 10–30% nationally (E4TheFuture 2022). To reach households that would benefit most, funding for pre-weatherization repairs should target customer segments with high energy burdens that fit environmental justice criteria. DOE began requiring states to track WAP deferrals in 2023 (Graham 2022), which can also assist with identification and mapping efforts.

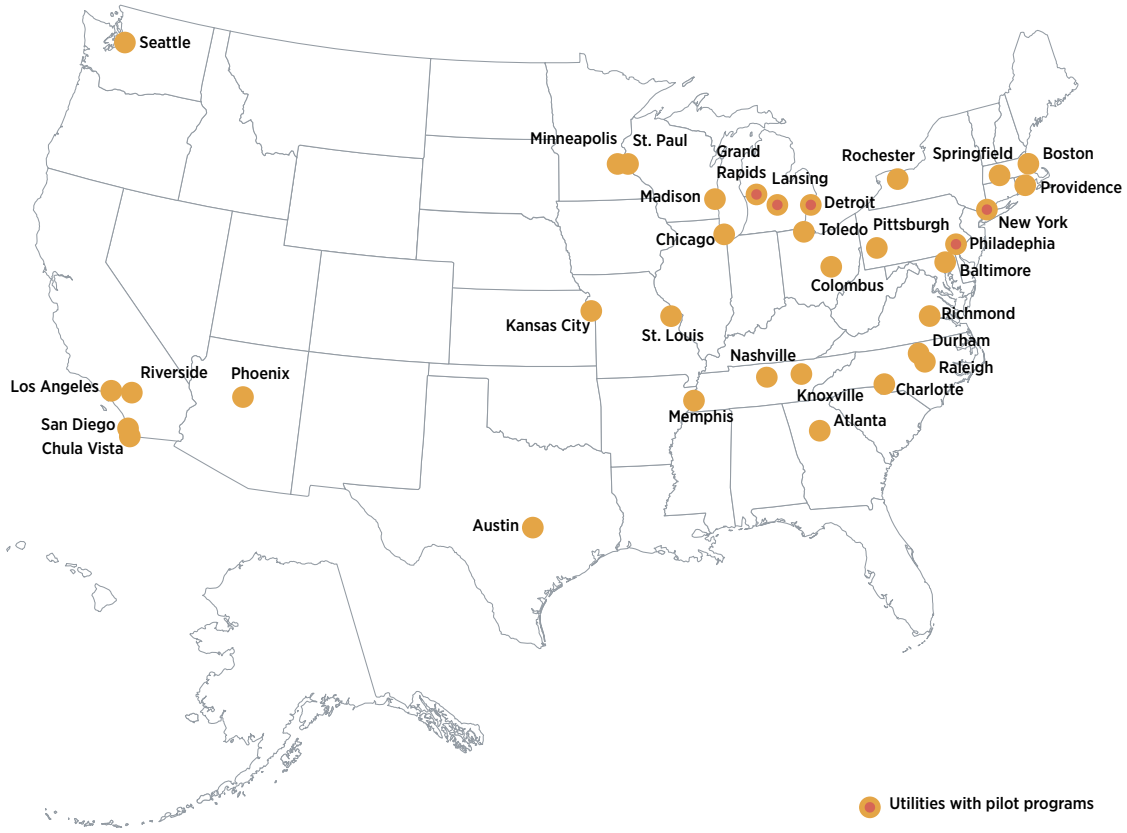
Pre-weatherization programs are used to prepare a home for weatherization, and the federal government has recently prioritized reducing deferrals. The Weatherization Readiness Fund (WRF) was implemented in 2022 as part of the Consolidated Appropriations Act (DOE 2023). This program made available $15 million in funds to address necessary repairs for houses that were deferred from WAP. These funds can be used by cities and utilities to start or strengthen pre-weatherization programs.

However, a variety of funds can be leveraged by both cities and utilities to implement pre-weatherization programs and reduce weatherization deferrals. Utility funding for pre-weatherization programs is another avenue for increased health and safety measures in low-income households (E4TheFuture 2022).

Utilities in high-scoring cities often include health and safety measures in low-income and weatherization programs to address deferrals. For instance, Seattle's HomeWise Weatherization Program provides free weatherization to qualifying homes through a partnership with the Seattle Office of Housing and Seattle City Light. Up to 15% of Seattle City Light's funding of this program covers health and safety measures, including improved ventilation and other indoor air quality issues like pest and mold abatement. Out of the 75 cities scored, only 29 have utilities with dedicated funds or programs that address health and safety measures in part to reduce deferral rates in low-income weatherization programs. An additional five cities have utilities operating such programs in the pilot stage. We will continue to track progress of funding for pre-weatherization measures from various sources and the extent to which such programs are enacted through partnerships among various stakeholders. Because pre-weatherization measures can extend the reach of federal funding and have numerous positive impacts for utility customers, particularly in low-income communities, we recommend that utilities enact pre-weatherization programs in partnership with cities whenever possible. Communities without these programs can look to those that do for guidance, shown in figure 24 on the following page.

61 These conditions include structural/roofing deficiencies, moisture/mold, wiring/electrical issues, environmental contaminants (e.g., asbestos), and others. Importantly, the conditions causing deferrals also layer health issues on top of energy burdens.

Figure 24. Geographic dispersion of cities receiving points for utilities that have dedicated funds or programs to support pre-weatherization work



CHAPTER 6

Local Government Operations

Lead Author: Emma Runge

INTRODUCTION

Local governments can lead by example on climate action by addressing energy use in their own operations. A growing commitment to mitigating climate change is driving many energy efficiency and renewable energy initiatives in government operations. To orient their operations toward clean energy, cities can adopt GHG emissions reduction goals, energy savings targets, or renewable energy goals to guide policies and programs. Local governments can achieve their objectives by incorporating energy efficiency, renewable energy, and equity considerations into procurement and construction practices and by focusing on energy management in their assets and investments. Adopting new strategies and technologies in standard practices such as fleet procurement and employee commute transportation benefits will enhance clean energy use throughout local government operations, and inclusive contracting and procurement practices can help cities to achieve equitable outcomes as they pursue their energy goals.

Although energy use in city operations typically accounts for a small percentage of community-wide energy consumption, local government actions can drive broader community efforts and activities (Ribeiro et al. 2017, 5). Local government clean energy initiatives can be included in sustainability plans, climate action plans, or energy-specific strategies to address long-term community priorities. Successful efforts not only will save energy and money but can also attract private sector investment by demonstrating the feasibility of clean energy technologies and practices.

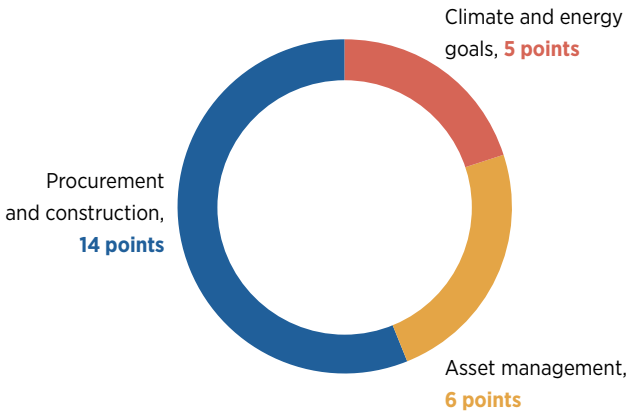
Energy efficiency and renewable energy investments can benefit local governments in several ways. When local governments pursue energy efficiency upgrades, they lead by example while reducing energy waste, increasing operational efficiency, and improving economic performance. With energy use accounting for as much as 10% of a local government's annual operating budget, energy efficiency can make sense financially because it reduces costs and exposure to energy price volatility (EPA 2011a). Local governments can also take advantage of the falling cost of renewable energy to reach their climate change mitigation goals. Investing in renewable energy can help local governments decrease greenhouse gas emissions while further demonstrating leadership and supporting local economic growth (EPA 2014).

SCORING

Cities could earn up to 25 points for local government operations, as shown in figure 25.

Many of the policies related to government operations included in this chapter have equivalents in the private sector (e.g., energy benchmarking requirements in private buildings). We discussed these community-facing efforts in Chapters 2, 3, and 4.

Figure 25. Local government operations scoring overview



RESULTS

Portland and Seattle tied for leading city in local government operations, with Madison and Boston following close behind. Overall, cities earned the highest share of available points for asset management, such as through building energy benchmarking and retrofit strategies. While procurement and construction policies represented the highest-scoring area in the 2021 edition, many cities received few points for expanded metrics on inclusive procurement and construction policies in this edition, resulting in lower overall scores in this area. Overall, cities did not score highly on our climate and energy goal metrics; while 78% of cities had at least one type of climate or energy goal, only 56% received any points toward stringency of and progress toward those goals. Cities have significant room for growth in all categories.

Table 46 presents the overall scores for local government operations. We discuss the point allocation for individual metrics within these categories in subsequent tables in this chapter. Appendix E provides more detailed scoring information on each metric.

Table 46. Local government operations scores

City	Goals	Asset management	Procurement and construction	Total
Portland	3.5	5.5	10.0	19.0
Seattle	2.5	5.5	11.0	19.0
Madison	1.0	6.0	11.0	18.0
Boston	0.5	6.0	11.0	17.5
Oakland	1.5	4.5	11.0	17.0
San Francisco	1.0	5.5	10.0	16.5
Houston	2.0	4.0	9.0	15.0
San Antonio	0.5	6.0	8.0	14.5
Pittsburgh	2.0	3.5	9.0	14.5
Nashville	0.5	6.0	8.0	14.5
New York	0.0	4.5	9.0	13.5
Chicago	0.0	3.5	10.0	13.5
Denver	1.0	5.5	7.0	13.5
Charlotte	1.0	6.0	6.0	13.0
Atlanta	1.5	4.5	7.0	13.0
Columbus	1.0	2.5	9.0	12.5
Los Angeles	3.0	2.5	6.0	11.5
Cleveland	2.0	2.5	7.0	11.5
Washington, DC	3.5	3.0	5.0	11.5
Orlando	1.5	5.5	4.0	11.0

City	Goals	Asset management	Procurement and construction	Total
Philadelphia	0.5	5.5	5.0	11.0
New Orleans	0.0	5.0	6.0	11.0
Las Vegas	3.5	4.5	3.0	11.0
Knoxville	0.5	4.0	6.0	10.5
Cincinnati	1.0	3.5	6.0	10.5
Chula Vista	1.0	5.0	4.0	10.0
Honolulu	1.5	3.5	5.0	10.0
Albuquerque	0.5	5.0	4.0	9.5
Saint Paul	0.0	5.5	4.0	9.5
Baltimore	0.5	2.0	7.0	9.5
Dallas	0.5	3.0	6.0	9.5
Grand Rapids	1.5	3.0	5.0	9.5
Boise	2.0	5.0	2.0	9.0
San Diego	1.0	4.0	4.0	9.0
Phoenix	1.0	4.0	4.0	9.0
Sacramento	0.5	4.5	4.0	9.0
Indianapolis	0.0	0.5	8.0	8.5
St. Petersburg	0.0	3.5	5.0	8.5
Long Beach	0.0	3.5	5.0	8.5
Kansas City	2.0	1.5	5.0	8.5
Minneapolis	1.5	3.5	3.0	8.0
Durham	0.0	3.0	5.0	8.0
Hartford	0.0	4.0	4.0	8.0
San José	0.0	3.0	5.0	8.0
Salt Lake City	1.0	3.0	3.0	7.0
Providence	0.5	2.0	4.0	6.5
Milwaukee	0.0	3.5	3.0	6.5
Raleigh	0.0	2.0	4.0	6.0
New Haven	1.0	0.0	5.0	6.0
Memphis	0.5	1.5	4.0	6.0
Austin	1.5	1.0	3.0	5.5
Akron	0.0	0.0	5.0	5.0
Mesa	0.0	2.5	2.0	4.5
Detroit	0.0	0.5	4.0	4.5
Rochester	0.0	1.5	3.0	4.5
Miami	0.0	0.0	4.0	4.0
Riverside	0.0	0.0	4.0	4.0
Charleston	1.0	3.0	0.0	4.0
Toledo	0.0	0.0	4.0	4.0
Bridgeport	0.0	1.0	2.0	3.0
Spokane	0.0	1.0	2.0	3.0
Lansing	0.0	0.0	3.0	3.0

City	Goals	Asset management	Procurement and construction	Total
Louisville	0.0	2.0	1.0	3.0
Reno	0.0	3.0	0.0	3.0
Tucson	1.0	0.0	2.0	3.0
St. Louis	0.5	0.0	2.0	2.5
Chattanooga	0.0	0.0	2.0	2.0
Fresno	0.0	0.0	2.0	2.0
Richmond	0.0	1.0	1.0	2.0
Springfield	0.0	2.0	0.0	2.0
Fayetteville	0.5	0.0	1.0	1.5
Des Moines	0.0	0.5	1.0	1.5
Aurora	0.0	0.0	1.0	1.0
Oxnard	0.0	0.0	1.0	1.0
Tampa	0.0	0.0	1.0	1.0

Leading Cities

Portland. Portland is on track to achieve its goal of reducing local government greenhouse gas emissions 53% below 2006–2007 levels by 2030. The city has also set a goal to reduce energy consumption in municipal operations by 2% annually through 2030, and it already powers municipal operations with 100% renewable energy. Efficient vehicles make up 15% of Portland's fleet. Portland has an overarching goal to reach net-zero emissions from its vehicle fleet by 2050, with stepping stones along the way such as requiring that 20% of its fleet be electric vehicles by 2030. In Portland, 100% of streetlights have been converted to light-emitting diodes (LEDs). The city approaches inclusive procurement and contracting in multiple ways: It has policies for construction diversity and inclusion and programs to provide resources and opportunities for contractor development and workforce training. It also has an advisory group on fair contracting and provides annual reports on social equity in contracting processes. The city benchmarks 100% of municipal buildings and has a strategic planning group that manages maintenance and prioritizes energy efficiency. Portland provides trip reduction incentives for city staff including public transportation, carpooling, biking, and walking to work.

Seattle. Seattle has set a goal to reduce local government GHG emissions 40% by 2024, using a 2008 baseline. The City of Seattle's Green Fleet Action Plan requires a 50% reduction in greenhouse gas pollution from a 2013 baseline across the municipal fleet by 2025; currently, efficient vehicles make up 28% of its vehicle fleet. In Seattle, 86% of streetlights have been converted to LEDs. Each city department establishes plans and annual goals for inclusion of minority, women, and disadvantaged business enterprises (MWDBEs) in contracts, and Seattle has outreach, training, and capacity-building programs to support MWDBEs. Seattle benchmarks energy use in 100% of municipal buildings over 5,000 square feet monthly, with annual analysis. It invests $2.5 million per year in the Municipal Energy and Emissions Program to fund retrofit projects intended to reduce energy use in municipal facilities.

Madison. Madison has a goal of net-zero local government operations by 2030. Efficient vehicles make up 19% of Madison's vehicle fleet. In Madison, 49% of streetlights have been converted to LEDs. Madison's approach to inclusive procurement includes significant communications and advertising to MWDBEs, negotiation with MWDBEs, and best-value contracting. It follows internal inclusive procurement guidelines and tracks the contracting process through the duration of a project. Madison benchmarks 100% of its municipal facilities using ENERGY CAP. Madison's team managing municipal energy use meets monthly and develops schedules for renewable energy and energy efficiency projects for the current budgeted year as well as strategic long-term planning. They have a dedicated budget line item for energy improvements. Madison provides a free Unlimited Ride Pass program on Madison Metro for city employees, and tracks the number of employees who use this benefit. The city also supports the Round Trip program, which connects individuals and employers in the Madison region with convenient alternatives to driving alone.

Boston. Boston has a zero-emission vehicle roadmap that directs its efforts to reduce greenhouse gases from transportation and improve air quality. Efficient vehicles make up 18% of Boston's vehicle fleet. In Boston, 86% of streetlights have been converted to LEDs. The city has a goal to utilize at least 25% minority- and women-owned businesses across all contracts awarded in any fiscal year, with a goal of 15% utilization for women-owned businesses and a goal of 10% utilization for minority-owned businesses. Boston uses Energy Star Portfolio Manager to benchmark energy usage in all its municipal buildings. Renew Boston Trust is a strategic program that conducts energy audits and invests in conservation upgrades for municipal buildings; the city has seen significant energy and financial savings from these upgrades. This self-financing program accounts for 3% of the city's annual capital budget. Boston offers the MBTA Pass program and Bluebikes memberships to its municipal employees. It also collaborated with A Better City to conduct and release two reports to better understand post-pandemic commuter trends.

LOCAL GOVERNMENT CLIMATE CHANGE MITIGATION AND ENERGY GOALS

Many local governments have adopted goals for their operations that focus on reducing energy use, increasing the share of electricity generated from renewable sources, and decreasing GHG emissions, all of which can contribute to climate change mitigation goals. These targets help to coordinate and focus sustainability efforts across departments. By making a clear and specific commitment, cities have a point of reference against which to measure progress.

Some municipalities begin with government operations goals as a first step before establishing citywide targets. Others adopt goals for government operations to mirror citywide goals. And some cities adopt energy savings targets for municipal operations to reduce operating costs even in the absence of goals for the rest of the community. We discussed community-wide climate and energy goals in Chapter 2.

In this category, we scored cities on

- Stringency of their climate change mitigation goals (1 point)
- Progress toward their climate change mitigation goals (2 points)
- Stringency of their renewable electricity generation goals (1 point)
- Stringency of their energy savings goals (1 point)

In an effort to assess more aspects of city clean energy performance, we no longer include metrics assessing the existence of energy efficiency and renewable energy goals.

2 POINTS

Climate Change Mitigation Goal Stringency and Progress

As with our approach to scoring community-wide GHG emissions reduction goals, we chose to score cities only on the stringency of their municipal climate mitigation goals and their progress toward them. We did not award points solely for the adoption of a climate mitigation goal, since these have become increasingly common. Cities were assessed based on the average annual per capita percentage reduction in GHG emissions required to meet their nearest-term municipal climate change mitigation goal.

Stringency of Goals

This metric recognizes cities that are striving to set ambitious climate goals relative to those of other communities. We used the same approach to score the stringency of municipal goals as we did to score community-wide goals. Chapter 2 contains a detailed description of this approach.

Cities could earn up to 1 point in this metric, as shown in table 47. Cities with stringencies that fell roughly into the top quintile earned full points, while those with stringencies that fell roughly in the third and fourth quintiles earned 0.5 point. Those that were roughly aligned with the first and second quintiles did not earn points.

Progress Toward Goals

This metric assesses cities' progress toward achieving their near-term municipal GHG goals. To be considered on track, cities had to demonstrate past average annual percentage reductions in GHG emissions that, assuming such reductions continue for all future years until the near-term goal year, would result in GHG emissions at or below the goal in the near-term target year.

To calculate progress toward municipal goals, we used the same approach that we used to calculate progress toward community-wide goals. Chapter 2 contains a detailed description of this approach. Cities could earn up to 2 points in this metric, as shown in table 47. Cities on track to meet their nearest term goal earned 2 points, while cities that are not on track to meet their nearest-term goal but are projected to achieve savings within 25% of stated goal received 1 point.

2 POINTS

Stringency of Renewable Electricity Generation and Energy Savings Goals

As with climate change mitigation goals, cities were eligible to earn points based on the stringency of their energy-specific goals. Stringency was assessed for renewable electricity generation goals and energy savings goals.

We evaluated renewable electricity generation goals by calculating the electricity consumption that a city needs to convert or offset using renewable sources to achieve the near-term renewable electricity goal. We recognize that cities may pursue several strategies to achieve a renewable electricity goal. They may work to add renewable energy sources to their local electric grid, encourage utilities to retire fossil fuel–powered plants as electricity demand declines, or purchase renewable energy or zero emissions credits to offset carbon-emitting electricity generation. Our approach for calculating the stringency of municipal renewable electricity goals follows our approach to community-wide renewable electricity goals outlined in Appendix B.[62] Cities could earn up to 1 point for the stringency of their renewable electricity generation goal. Cities with stringencies that fell roughly into the top quintile earned the full point, while those with stringencies that fell roughly in the third and fourth quintiles earned 0.5 point. Those that were roughly aligned with the first and second quintiles did not earn points.

We evaluated a city's energy savings goal by calculating the annual energy per capita reduction needed to meet the nearest-term goal. We used our approach for calculating climate change mitigation goal stringency to calculate energy savings goal stringency, substituting energy use values for GHG emissions.[63] Cities could earn up to 1 point for the stringency of their energy reduction goal. Cities with stringencies that fell roughly into the top quintile earned the full point, while those with stringencies that fell roughly in the third and fourth quintiles earned 0.5 point. Those that were roughly aligned with the first and second quintiles did not earn points.

Table 47 summarizes the scoring, and table 48 lists the scores for local government climate and energy goals. Table E24 in Appendix E provides more detailed city scores, such as for climate change mitigation goal stringency and progress.

Table 47. Scoring for local government climate change mitigation and energy goals

Climate change mitigation goal stringency	Score
Average annual greenhouse gas emissions reductions per capita are greater than or equal to 5%.	1
Average annual greenhouse gas emissions reductions per capita are less than 5% but greater than 3%.	0.5
Climate change mitigation goal progress	
City is on track to meet its nearest-term goal.	2
City is not on track to meet nearest-term goal but is projected to achieve savings within 25% of stated goal.	1
Carbon-free electricity generation goal stringency	
Annual per household conversion target is greater than or equal to 140 kWh.	1
Annual per household conversion target is at least 45 kWh but less than 140 kWh.	0.5
Energy savings goal stringency	
Average annual energy savings per capita are greater than or equal to 4%.	1
Average annual energy savings per capita are less than 4% but greater than 2.5%.	0.5

62 Our methodology for scoring municipal renewable goals is different in one respect from our approach to community-wide renewable goals: In this chapter we do not award credit for the proportion of energy initially supplied by renewables.

63 We did not give points for peak demand energy savings goals because such goals focus only on reducing peaks in energy use. While such decreases can be achieved through overall increases in the deployment of distributed electricity generation systems or decreases in total energy use, this is not always the case.

Table 48. Local government climate and energy goal scores (out of 5 possible points)

Las Vegas (3.5)	Honolulu (1.5)	Salt Lake City (1)	Providence (0.5)	Hartford (0)	Richmond (0)
Portland (3.5)	Minneapolis (1.5)	San Diego (1)	Sacramento (0.5)	Indianapolis (0)	Riverside (0)
Washington (3.5)	Oakland (1.5)	San Francisco (1)	San Antonio (0.5)	Lansing (0)	Rochester (0)
Los Angeles (3)	Orlando (1.5)	Tucson (1)	St. Louis (0.5)	Long Beach (0)	Saint Paul (0)
Seattle (2.5)	Charleston (1)	Albuquerque (0.5)	Akron (0)	Louisville (0)	San José (0)
Boise (2)	Charlotte (1)	Baltimore (0.5)	Aurora (0)	Mesa (0)	Spokane (0)
Cleveland (2)	Chula Vista (1)	Boston (0.5)	Bridgeport (0)	Miami (0)	Springfield (0)
Houston (2)	Cincinnati (1)	Dallas (0.5)	Chattanooga (0)	Milwaukee (0)	St. Petersburg (0)
Kansas City (2)	Columbus (1)	Fayetteville (0.5)	Chicago (0)	New Orleans (0)	Tampa (0)
Pittsburgh (2)	Denver (1)	Knoxville (0.5)	Des Moines (0)	New York (0)	Toledo (0)
Atlanta (1.5)	Madison (1)	Memphis (0.5)	Detroit (0)	Oxnard (0)	
Austin (1.5)	New Haven (1)	Nashville (0.5)	Durham (0)	Raleigh (0)	
Grand Rapids (1.5)	Phoenix (1)	Philadelphia (0.5)	Fresno (0)	Reno (0)	

PROCUREMENT AND CONSTRUCTION POLICIES

Procurement and construction policies set standards and practices for purchasing goods and services and for city infrastructure development. Integrating energy savings, clean energy, and inclusivity requirements into these policies helps institutionalize sustainability and equity across all departments. This section assesses whether cities factor energy efficiency, renewable energy, and inclusivity into their everyday decision-making processes.

Typically, cities have focused their clean energy investments on vehicle fleets, public lighting, and the procurement or construction of renewable energy systems. Procurement and construction of renewable energy systems is assessed in the community energy infrastructure chapter. Cities could receive up to 14 points for their procurement and construction activities in the following areas:

- Fleet procurement policies and composition (3 points)
- Efficient public lighting (3 points)
- Inclusive procurement and contracting (8 points)

3 POINTS

Fleet Procurement Policies and Composition

Municipal vehicle fleet policies are effective in reducing carbon emissions and fuel expenditures, and thus can be an appealing action for cities to take that advances sustainability. Using advanced-technology fuel-efficient vehicles in the municipal fleet can also help familiarize the public with these types of vehicles.

Our scoring methodology included two metrics for this area, with one based on the composition of the city's vehicle fleet and the other based on the city's strategy to procure fuel-efficient, low-emissions vehicles or vehicle types. Cities could earn up to 3 points for these metrics.[64]

Municipal fleet composition of efficient vehicles: We credited 2 points to cities if hybrid, plug-in hybrid, battery electric, and/or fuel cell vehicles composed at least 13% of their fleets.[65] We mainly included light-duty vehicles in this metric.[66] We did not include alternative-fuel vehicles (such as ethanol or compressed natural gas vehicles). Some alternative-fuel vehicles may reduce emissions, including carbon emissions, but ethanol vehicles, which are flexible-fuel vehicles, do not consistently run on ethanol (E85), and research on full-fuel-cycle emissions of natural gas vehicles indicates substantial complexity and uncertainty regarding their net carbon impacts (Camuzeaux et al. 2015).[67] Therefore, in this metric, we considered only vehicles that save energy.

64 As described below, cities could earn 2 points for efficient fleet compositions and 1 point for efficient fleet procurement strategies. We gave fleet composition more available points than fleet procurement strategies because fleet composition shows impacts and results of city strategies.

65 Data from cities informed our 13% threshold. Among the cities for which we had fleet data, 13% was the third quartile.

66 Light-duty vehicles include personal cars and trucks and small commercial vehicles.

67 We excluded municipal vehicles using compressed natural gas (CNG), propane, biodiesel, flex-fuel (e.g., E85 or E54), and other alternative fuels.

Efficient fleet procurement strategies: We awarded 1 point if the city has adopted a strategy to procure fuel-efficient, low-emissions vehicles or vehicle types. Procurement strategies could include fuel efficiency requirements or requirements for fuel-efficient vehicle types such as hybrid or all electric. We did not award points to cities with alternative-fuel (e.g., ethanol or compressed natural gas) vehicle requirements, since alternative fuels are not inherently energy saving (DOE 2021a).

Efficient Public Lighting

3 POINTS

Cities can make some of their simplest energy efficiency improvements by upgrading public lighting. LED technologies can offer savings of 70% relative to traditional light sources (DOE 2016). LEDs also have longer lifetimes than traditional outdoor fixtures and consequently require less maintenance. Scheduling lighting to turn on only when it is needed can also extend lamp lifetimes and save energy.

We assessed two metrics for efficient public lighting: one on streetlight composition and the other on adoption of lighting policies. Cities could earn up to 3 points for these metrics.[68]

LED streetlight composition: We awarded 2 points to cities if 85% or more of their streetlights have been converted to LEDs. We awarded 1 point to cities if more than 50% but less than 85% of their streetlights have been upgraded to LEDs.[69] Table F8 in Appendix F shares city LED streetlight composition data.

Outdoor lighting policies: We awarded 1 point if the city has adopted provisions of the Illuminating Engineering Society and International Dark-Sky Association's Model Lighting Ordinance (IES and IDA 2011), or if the city has adopted its own lighting policy with a provision that directs those installing lighting to reduce lighting under certain conditions. We did not credit policies or actions targeting only private sector lighting. We also did not provide credit for initiatives targeting traffic signal efficiency because the U.S. Energy Policy Act of 2005 already requires traffic lights to have LED-equivalent efficiency.[70]

Inclusive Procurement and Contracting

8 POINTS

As described in the community-wide initiatives chapter, clean energy jobs are not always distributed equally across demographics: For example, Black workers and women are not proportionally represented in the clean energy workforce (ACEEE 2019; Solar Foundation 2018a). Cities can help address these disparities by awarding city contracts to women- or minority-owned businesses and targeting marginalized groups for participation in workforce development initiatives (Shoemaker and Ribeiro 2018).

Recognizing the important role cities can play in ensuring that the clean energy transition amends disparities and benefits disadvantaged communities, we significantly increased the points and expanded the metrics around inclusive procurement and contracting. We assessed four metrics in this area; we gave credit for the existence of city inclusive procurement and contracting processes, but looked further to ascertain the strategies they employ, how those policies are being implemented, how cities are assessing their procurement and contracting, and what actions cities are taking to ensure high-quality jobs.

City inclusive procurement and contracting processes and strategies: Cities were eligible for up to 2 points for this metric. We awarded 1 point to cities that have inclusive procurement and/or contracting processes for awarding city contracts and purchasing, such as for energy efficiency, renewable energy, or efficient or low-carbon transportation projects. Inclusive processes include those that favor minority- and women-owned businesses, such as through setting percentage participation goals for minority-owned, women-owned, and disadvantaged businesses or contractors (MWDBEs).

68 As described in table 49, cities could earn 2 points for LED streetlight composition and 1 point for outdoor lighting policies. We gave streetlight composition more available points than outdoor lighting policies because streetlight composition shows results and impacts.

69 Data from cities informed our thresholds for public lighting composition scores. Among the cities for which we had streetlight data, 85% percent LED composition represented the median, while 50% represented the first quartile.

70 To learn more about federal standards for traffic signals, see appliance-standards.org/product/traffic-signals.

We also awarded 1 point to cities with voluntary programs that encourage MWDBE participation and that demonstrated work beyond outreach to and certification of MWDBEs, recognizing that some cities are unable to enact race- or gender-conscious policies due to state restrictions (Fairchild and Rose 2018). Efforts to engage MWDBEs[71] can include actions such as

- Streamlining contractor access to project opportunities and support services by collaborating across departments and regional ecosystems
- Using best-value contracts and negotiations with MWDBEs
- Matching right-size projects with right-size contractors
- Engaging community organizations to assist contractors in reaching MWDBE goals
- Establishing project fees to fund support services infrastructure
- Establishing financial incentives for general contractors to subcontract with MWDBEs
- Providing bid discounts or other financial incentives to MWDBEs
- Assisting with capacity building and succession strategies for MWDBEs through workforce training on green construction policies and technologies
- Collaborating with community organizations to develop communication campaigns designed for the local audience

We awarded 1 additional point to cities if they demonstrated multiple efforts to engage MWDBEs in their inclusive procurement and/or contracting processes, using the above list of strategies. Recognizing that mandatory requirements compel more action than voluntary programs, cities with mandatory requirements needed to demonstrate only one additional strategy to engage with MWDBEs to earn this point. Cities with voluntary programs needed to demonstrate two additional strategies to earn this point.

Use of inclusive procurement and contracting processes: Cities were eligible for up to 2 points for this metric. We awarded 2 points to cities that provided evidence that an inclusive procurement policy had been used in more than one energy efficiency, renewable energy, or efficient or low-carbon transportation project. Cities received 1 point for evidence that the inclusive procurement policy was used in one project.

Disparity studies: We awarded 2 points to cities that have conducted a disparity study of procurement processes within the last five years and/or track procurement processes to ensure fair treatment throughout contracts. To earn 2 points, cities also had to demonstrate how they have used these data to improve their processes. If cities have conducted a disparity study or tracked procurement processes but were unable to show how these data have been used, they received 1 point rather than the full 2 points.

Actions to advance high-quality jobs: We awarded 2 points if a city takes two or more of the following actions: screens contractors for a history of violating workplace laws or other regulatory protections, ensures contractors allow returning citizens[72] to apply for their work, and establishes project labor agreements (PLAs) with contractors and/or collective bargaining agreements (CBAs) with union(s) representing contracted workers to determine fair wages, benefits, and other terms of employment across a project. Cities earned 1 point if they took one of the listed actions. These actions have been shown to help create high-quality, equitable jobs (Walter 2022). Table F10 in Appendix F provides city information for this metric.

Table 49 summarizes our approach to scoring procurement and construction policies, and table 50 lists the scores for these metrics. Table E25 in Appendix E provides more detailed city scores.

71 These actions were informed by "Inclusive procurement and contracting: building a field of policy and practice" (Fairchild and Rose 2018). More recommendations for inclusive procurement policies and practices can be found at https://emeraldcities.org/wp-content/uploads/2021/06/Inclusive-procurement_02.21.18-002-1.pdf.

72 Returning citizens refers to individuals who were previously incarcerated or who have a conviction or arrest record.

Table 49. Scoring for procurement and construction policies

Municipal fleet composition of efficient vehicles	Score
At least 13% of the city's fleet is composed of efficient vehicle types (hybrid, plug-in hybrid, battery electric, and fuel cell vehicles).	2
Efficient fleet procurement strategies	
The city has a strategy to procure fuel-efficient, low-emissions vehicles or vehicle types.	1
LED streetlight composition	
At least 85% of streetlights have been converted to LEDs.	2
At least 50% but less than 85% of streetlights have been converted to LEDs.	1
Outdoor lighting policies	
The city has adopted Model Lighting Ordinance or similar policy.	1
Inclusive procurement and contracting process	
City has inclusive procurement and contracting processes for city energy projects and has demonstrated multiple efforts to engage minority-owned, women-owned, and disadvantaged businesses or contractors (MWDBEs).	2
City has inclusive procurement and contracting processes for city energy projects.	1
Use of inclusive procurement and contracting processes	
City provided evidence that an inclusive procurement policy has been used in more than one energy efficiency, renewable energy, or efficient or low-carbon transportation project.	2
City provided evidence that an inclusive procurement policy has been used in one energy efficiency, renewable energy, or efficient or low-carbon transportation project.	1
Procurement disparity study	
City has conducted a disparity study of procurement processes and/or tracks procurement processes to ensure fair treatment throughout contracts. City documented how it has used these data to improve its processes.	2
City has conducted a disparity study of procurement processes and/or tracks procurement processes to ensure fair treatment throughout contracts.	1
Actions to ensure high-quality jobs	
City takes two or more of the following actions: screens contractors, ensures contractors allow returning citizens to apply for their work, establishes PLAs with contractors, establishes CBAs with unions.	2
City takes one of the following actions: screens contractors, ensures contractors allow returning citizens to apply for their work, establishes PLAs with contractors, establishes CBAs with unions.	1

Table 50. Local government procurement and construction policies scores (out of 14 possible points)

Boston (11)	San Antonio (8)	Grand Rapids (5)	Memphis (4)	Las Vegas (3)	Aurora (1)
Madison (11)	Atlanta (7)	Honolulu (5)	Miami (4)	Milwaukee (3)	Des Moines (1)
Oakland (11)	Baltimore (7)	Kansas City (5)	Orlando (4)	Minneapolis (3)	Fayetteville (1)
Seattle (11)	Cleveland (7)	Long Beach (5)	Phoenix (4)	Rochester (3)	Louisville (1)
Chicago (10)	Denver (7)	New Haven (5)	Providence (4)	Salt Lake City (3)	Oxnard (1)
Portland (10)	Charlotte (6)	Philadelphia (5)	Raleigh (4)	Boise (2)	Richmond (1)
San Francisco (10)	Cincinnati (6)	San José (5)	Riverside (4)	Bridgeport (2)	Tampa (1)
Columbus (9)	Dallas (6)	St. Petersburg (5)	Sacramento (4)	Chattanooga (2)	Charleston (0)
Houston (9)	Knoxville (6)	Washington (5)	Saint Paul (4)	Fresno (2)	Reno (0)
New York (9)	Los Angeles (6)	Albuquerque (4)	San Diego (4)	Mesa (2)	Springfield (0)
Pittsburgh (9)	New Orleans (6)	Chula Vista (4)	Toledo (4)	Spokane (2)	
Indianapolis (8)	Akron (5)	Detroit (4)	Austin (3)	St. Louis (2)	
Nashville (8)	Durham (5)	Hartford (4)	Lansing (3)	Tucson (2)	

ASSET MANAGEMENT

Local governments can save energy, reach clean energy targets, and spend less money by managing their existing physical assets more efficiently. These assets—including their buildings and other infrastructure—require large-scale, long-term investments. It is not feasible to reconstruct a building solely to save energy or to mandate that employees make energy-efficient decisions. But cities can help save energy by systematically managing energy use, upgrading buildings, and encouraging changes in employee behavior.

This category covers four topics: building energy benchmarking, retrofit strategies, funding for energy efficiency improvements, and employee transportation benefits. Cities could earn up to 6 points.

In this category, we scored cities on

- Building energy benchmarking (1 point)
- Building energy efficiency retrofit strategies (2 points)
- Funding for energy efficiency improvement work (2 points)
- Municipal employee transportation benefits (1 point)

1 POINT

Building Energy Benchmarking

Buildings account for a large portion of city energy use, and rising energy costs are an increasing portion of cities' operating budgets. Local governments use a variety of strategies to manage and reduce their energy use in existing buildings (DOE 2021b). One such strategy is building benchmarking, which is an important step in understanding energy performance. By consistently tracking energy use, building managers can identify energy efficiency investment opportunities and track energy savings. Building benchmarking has become a common strategy employed by cities.

We awarded up to 1 point based on the percentage of municipal buildings that cities have benchmarked, as shown in table 51. Because benchmarking of municipal buildings covers fewer properties than a citywide benchmarking effort, cities earn fewer points for benchmarking in the local government sector. Cities that have benchmarked 90% of municipal buildings larger than 10,000 square feet earned 1 point. For this metric, we used the most recent data available and did not account for municipally owned residential buildings.

2 POINTS

Retrofit Strategies

Cities can use benchmarking results and additional assessments, including building audits, to help develop an energy-saving retrofit plan that is tailored to individual buildings and prioritizes future capital investments. The efficiency opportunities cities uncover through benchmarking and realize through retrofitting can help lower energy costs.

We awarded up to 2 points based on the rigor of a city's retrofit requirements or activities, as described in table 51. We gave 2 points to local governments that evaluate their portfolio of buildings to determine and prioritize energy efficiency retrofit opportunities and have completed upgrades within the past five years. To receive credit, these retrofit strategies must incorporate both capital improvements (e.g., equipment replacement and building shell upgrades) and operational improvements (e.g., active energy management, audits, and retrocommissioning). To earn the full two points, cities also had to provide data on the results of their completed retrofit projects (e.g., number of buildings that have undergone retrofits, cost, or energy savings). We used the data as an indication that retrofit strategies were driving actual retrofit projects; we did not analyze data and award points based on the extent to which retrofits achieved savings or were widespread across facilities. If cities reported having a strategic approach to retrofits in place but we were unable to verify that the strategy had been carried out, they earned only 1 point. Cities that include energy service company partnerships as part of a larger strategy were eligible for the full points, but these partnerships did not receive credit on their own.

2 POINTS

Funding for Energy Efficiency Improvements

We awarded 2 points to cities that have a dedicated funding source for energy efficiency improvement work beyond regular maintenance. Dedicating an annual source of funding for energy efficiency work enables cities to regularly take energy efficiency actions, as opposed to developing and funding them on an ad hoc basis. Cities can appropriate energy efficiency budgets through their regular budget cycle, develop internal revolving loan or efficiency reinvestment funds, or set aside energy efficiency funds from their municipal utility.

1 POINT

Transportation Benefits for Municipal Employees

Providing high-quality jobs with robust benefits improves staff well-being and performance. Additionally, providing clean or reduced-emission transportation benefits to employees increases employee commuting mode options and influences behavior (Hamre and Buehler 2014). Transportation benefits are most effective at reducing emissions when benefits incentivize alternative modes of transit like public transportation, walking, or biking, and disincentivize driving, such as through parking fees (Bueno et al. 2017). Cities can reduce their transportation emissions from employee commutes and enhance staff well-being by providing these benefits. While municipal employee commutes make up a small portion of city-wide transportation emissions, municipal transportation benefits can set an example for other employers looking to reduce emissions.

Cities could earn up to 1 point if they provide clean or reduced-emission transportation benefits to municipal employees above and beyond what is offered to all city residents. These benefits could include, but aren't limited to, benefits for public transportation, walking, biking, and car-sharing. We did not award points for single-occupant car related transportation benefits (such as parking benefits or gas money for single-occupant cars). To receive the full 1 point, cities had to provide data showing employee use of the benefit or reduction in employee emissions. Reduction in employee commute emissions can come from transportation benefits and/or remote work. Cities that provide clean or reduced-emission transportation benefits to employees but were unable to provide associated data received 0.5 points.

Table 51 summarizes the scoring criteria and table 52 lists the scores for asset management. Table E26 in Appendix E provides more detailed city scores.

Table 51. Scoring for asset management

Building energy benchmarking	Score
City benchmarks 90% of public buildings over 10,000 square feet.	1
Municipal building energy retrofit strategy	
City evaluates public buildings to determine and prioritize energy efficiency retrofit opportunities, has completed projects in the past five years, and provides data on results of retrofit projects.	2
City has a comprehensive retrofit strategy in place, but we were unable to verify that the strategy has been carried out.	1
Municipal building energy retrofit funding	
City has a dedicated funding source for energy efficiency work.	2
Municipal staff transportation benefit	
City provides clean or reduced-emission transportation benefits to municipal employees above and beyond what is offered to all city residents. City provides data showing employee use of the benefit or reduction in employee emissions.	1
City provides clean or reduced-emission transportation benefits to municipal employees but was unable to provide data showing employee use of the benefit or reduction in employee emissions.	0.5

Table 52. Asset management scores (out of 6 possible points)

Boston (6)	Boise (5)	Chicago (3.5)	Salt Lake City (3)	Memphis (1.5)	Fresno (0)
Charlotte (6)	Chula Vista (5)	Cincinnati (3.5)	San José (3)	Rochester (1.5)	Lansing (0)
Madison (6)	New Orleans (5)	Honolulu (3.5)	Washington (3)	Austin (1)	Miami (0)
Nashville (6)	Atlanta (4.5)	Long Beach (3.5)	Cleveland (2.5)	Bridgeport (1)	New Haven (0)
San Antonio (6)	Las Vegas (4.5)	Milwaukee (3.5)	Columbus (2.5)	Richmond (1)	Oxnard (0)
Denver (5.5)	New York (4.5)	Minneapolis (3.5)	Los Angeles (2.5)	Spokane (1)	Riverside (0)
Orlando (5.5)	Oakland (4.5)	Pittsburgh (3.5)	Mesa (2.5)	Des Moines (0.5)	St. Louis (0)
Philadelphia (5.5)	Sacramento (4.5)	St. Petersburg (3.5)	Baltimore (2)	Detroit (0.5)	Tampa (0)
Portland (5.5)	Hartford (4)	Charleston (3)	Louisville (2)	Indianapolis (0.5)	Toledo (0)
Saint Paul (5.5)	Houston (4)	Dallas (3)	Providence (2)	Akron (0)	Tucson (0)
San Francisco (5.5)	Knoxville (4)	Durham (3)	Raleigh (2)	Aurora (0)	
Seattle (5.5)	Phoenix (4)	Grand Rapids (3)	Springfield (2)	Chattanooga (0)	
Albuquerque (5)	San Diego (4)	Reno (3)	Kansas City (1.5)	Fayetteville (0)	

Looking Forward

Cities are continuing to expand the scope of their clean energy work to address the climate crisis while also finding ways to advance racial and social equity through these efforts. In the 2021 *Scorecard*, we identified a pressing need for cities to do more to reduce their transportation GHG emissions. In the time since the last *Scorecard*, most of the 158 new clean energy actions that cities took were focused on the transportation sector. The share of new city clean energy actions with an equity focus doubled from the last *Scorecard* as well.

While recognizing the strides that cities are making to reduce energy use and GHG emissions, we also find that opportunities exist for all cities, even those with the highest rankings, to further advance clean energy through new initiatives. These include

- *Advancing racial and social equity through clean energy strategies.* While some cities are taking steps to advance equity through their clean energy work, all have room to do more. In particular, cities tended to have lower scores for equity metrics tracking their efforts in the buildings sector. Moving forward, cities can create more equitable electrification programs, adopt rental energy disclosure policies, undertake low-income energy incentive and financing program best practices, and provide building performance standard compliance support for affordable housing providers and underserved commercial properties.

- *Adopting building energy performance standards that require existing buildings to meet energy or GHG emissions reduction targets.* In *The 2021 City Clean Energy Scorecard* only seven cities had adopted building energy performance standards. As of fall 2023, 11 of our *Scorecard* cities had these mandates. While we recognize that some cities are prevented by their state governments from adopting these kinds of policies, many more have the opportunity to do so and make substantial cuts to their building sector GHG emissions.

- *Adopting and carrying out commitments to reduce transportation energy use and GHG emissions.* The 2021 edition of the *Scorecard* identified only 25 cities that had adopted goals to reduce VMT or transportation GHG emissions, and only 3 of those were on track to achieve them. In many cases, cities did not provide us with sufficient data to assess their progress toward their transportation goals. As of this *Scorecard*, 31 cities have adopted VMT or transportation GHG emissions goals, but only San Diego is on track to achieve its goal. San Diego is also the only city on track to achieve its community-wide and transportation climate goals.

We also identified clean energy policy and program opportunities for each city typology group outlined in the section beginning on page 26. These are shown in table 53.

Table 53. Clean energy policy and program opportunities and model cities for each typology group

City type	Policy and program	Model city with policy or program
Stable cities in large metros	Adopt energy benchmarking and retrocommissioning (RCx) policies, laying a foundation for more comprehensive building energy improvement requirements such as building performance standards.	Philadelphia, PA St. Louis, MO
Accelerated-growth cities in large metros	Create more programs designed to increase disadvantaged communities' access to renewable energy resources.	Fresno, CA
	Create or expand bike networks that connect people of all ages and abilities with a diversity of community destinations using protected bike lanes, off-street paths, slow shared streets, and safe crossings.	Salt Lake City, UT
Stable cities in midsize metros	Improve the energy performance of municipal operations and assets.	Knoxville, TN
	Encourage and incentivize energy efficiency building retrofits.	Albuquerque, NM
Accelerated-growth cities in midsize metros	Improve transportation system efficiency by encouraging a shift to active transportation and transit modes.	Madison, WI Spokane, WA
	Form partnerships to encourage utility clean energy goals, programs, and investments	Madison, WI

Cities that undertake the initiatives outlined in table 53 will improve their odds of successfully reducing energy use and GHG emissions, but we also recognize that uncertainty exists around the effectiveness of any one policy or program achieving these goals. We urge cities to do more to track and report the outcomes of their current and future clean energy initiatives so that they and other local governments can make informed decisions regarding which policy or program may be an appropriate fit for their community. As more cities report the outcomes of their initiatives, we will expand both the number and share of metrics that are focused on this element of performance. In making more performance data available, cities can have more confidence that replicating one another's policies and programs will result in substantial cuts to their GHG emissions.

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CHAPTER 1. METHODOLOGY AND RESULTS AND ISSUE IN FOCUS: NEW AND EXPANDED EQUITABLE CLEAN ENERGY POLICIES IN THE CITY SCORECARD

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