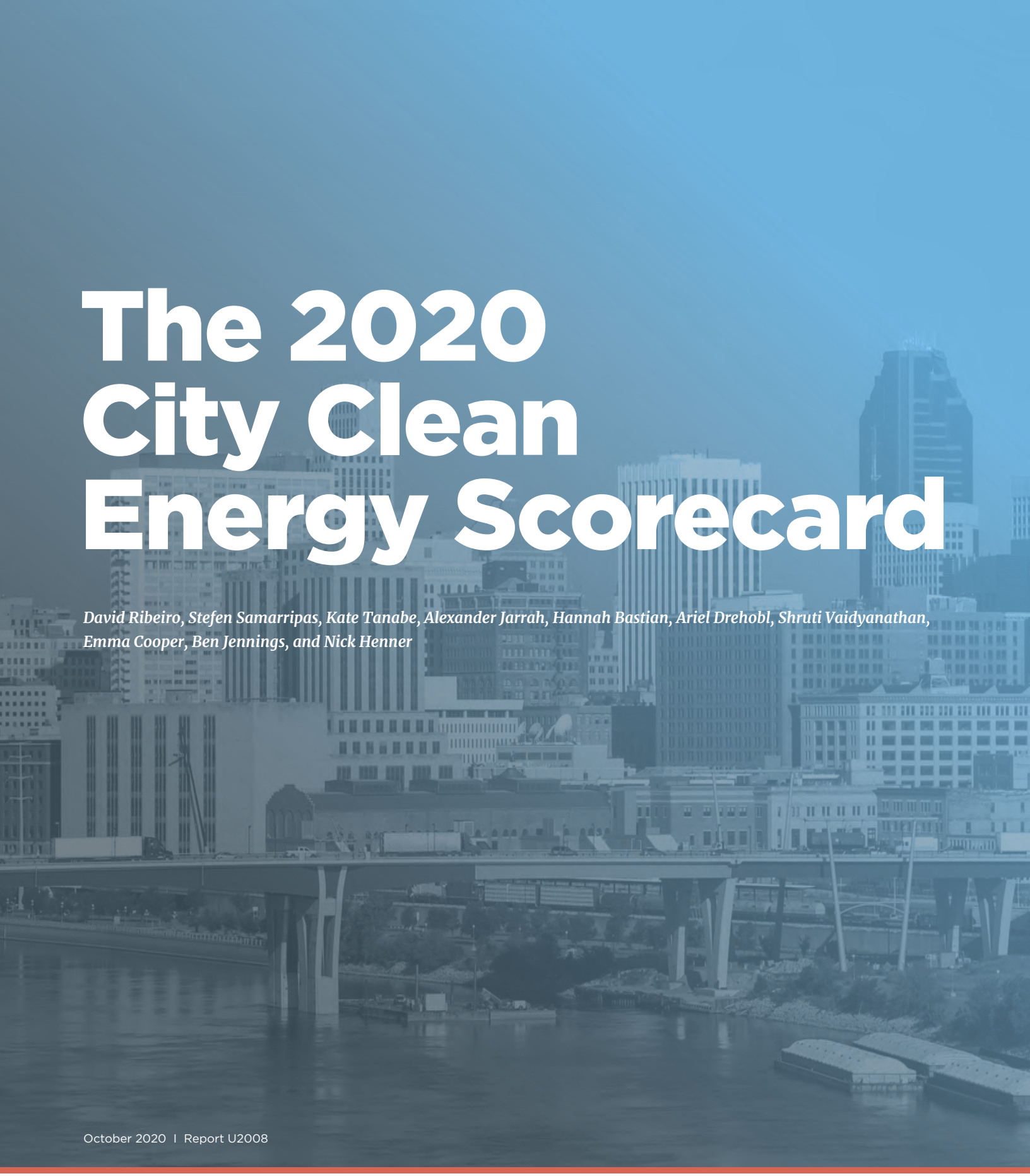

The 2020 City Clean Energy Scorecard

David Ribeiro, Stefen Samarripas, Kate Tanabe, Alexander Jarrah, Hannah Bastian, Ariel Drehobl, Shruti Vaidyanathan, Emma Cooper, Ben Jennings, and Nick Henner

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ACEEE
American Council for an Energy-Efficient Economy

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

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ABOUT THE AUTHORS

David Ribeiro focuses on energy efficiency planning and implementation in cities and communities. He is the lead author of the annual *City Clean Energy Scorecard* and coordinates technical assistance to cities included in the *Scorecard*. He also conducts research, analysis, and outreach on community resilience, the water–energy nexus, and workforce development, and he contributes to international projects related to local energy efficiency policy. David holds a bachelor of arts in history from the College of the Holy Cross and a master of science in energy policy and climate from Johns Hopkins University.

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. Prior to joining ACEEE, he worked with community development and housing organizations in Atlanta. Stefen holds a master of city and regional planning from Georgia Tech, where he focused on environmental and community development planning. He earned a bachelor of science in anthropology from the University of Tennessee at Chattanooga.

Kate Tanabe contributes to the Local Policy Program with research, writing, and technical assistance, and she supports ACEEE's research on energy efficiency in multifamily buildings. Before joining ACEEE, Kate interned with the District of Columbia Department of Transportation, where she supported the green infrastructure team with stormwater management spatial data and analysis. She has also worked for the Chesapeake Bay Foundation assisting the communications director with report analysis. Kate earned a bachelor of arts in environmental studies with a focus on sustainable development and policy from Dickinson College.

Alexander Jarrah is a research assistant on the Local Policy team. He contributes to the *City Scorecard* and community resilience research. Prior to joining ACEEE, he interned at the American Council on Renewable Energy, where he researched corporate sustainability initiatives and resilience planning. He earned a bachelor of science in economics and literature from American University.

Hannah Bastian conducts research for ACEEE's Buildings Program. Before joining ACEEE, she interned at the UC Davis Energy Efficiency Center, where she assisted with research on the marketability of a direct-install HVAC program. She also worked as an assistant to the program manager and outreach director at the National Center for Sustainable Transportation. Hannah earned a bachelor of science in environmental and resource economics from the University of California, Davis.

Ariel Drehobl conducts research, analysis, and outreach on local-level energy efficiency policies and initiatives, with a focus on energy affordability and low-income communities. She worked on energy efficiency research at Opower before joining ACEEE. She also interned for the U.S. Climate Action Network, the National Park Service, and the U.S. Forest Service. Ariel earned a master of science in environmental science, policy, and management from a joint-degree program that awarded degrees from Central European University in Hungary, Lund University in Sweden, and the University of Manchester in the United Kingdom. She earned a bachelor of arts in history and international studies from Northwestern University.

Shruti Vaidyanathan oversees research on vehicle efficiency and systemwide transportation efficiency. She has 10 years of experience in transportation efficiency issues, and her work has most recently focused on passenger and freight mobility best practices at the state and local levels and the role of emerging mobility options and autonomous vehicles in sustainable urban transportation systems. Shruti holds a master of science in public policy and management from Heinz College at Carnegie Mellon University and a bachelor of arts in economics and environmental studies from Grinnell College.

Emma Cooper assists with research for the State and Local Policy teams, including research for ACEEE's *City Scorecard* and *State Scorecard*. She also conducts and tracks ACEEE's technical assistance for state energy efficiency efforts. Before coming to ACEEE, Emma worked at the Alliance to Save Energy on the policy and research teams and as a consultant at SB Works, where she helped small businesses develop sustainable business practices. Emma holds a master of science in climate change and policy from the Bard Center for Environmental Policy and a bachelor of arts in earth science and psychology from DePauw University.

Ben Jennings assists ACEEE's Transportation Program with various projects including research tasks related to ACEEE's *City Scorecard* and *International Scorecard*. Prior to joining ACEEE, Ben interned with the City Bureau of Planning in Lancaster, Pennsylvania, where he helped to research, write, and edit the city's Municipal Operations Climate Action Plan. Ben holds a bachelor of arts in environmental studies and politics from Oberlin College.

Nick Henner conducts research and analysis on clean energy finance strategies, working within ACEEE's State Policy Program and collaborating with teams across the organization. Before joining ACEEE, Nick worked at the City and County of Honolulu's Office of Climate Change, Sustainability and Resiliency, where he focused on energy efficiency and equity projects. Nick earned a master of science in sustainability management from American University and a bachelor of science in finance from the University of Arizona.

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ACEEE is solely responsible for the content of this report.

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Executive Summary

KEY FINDINGS

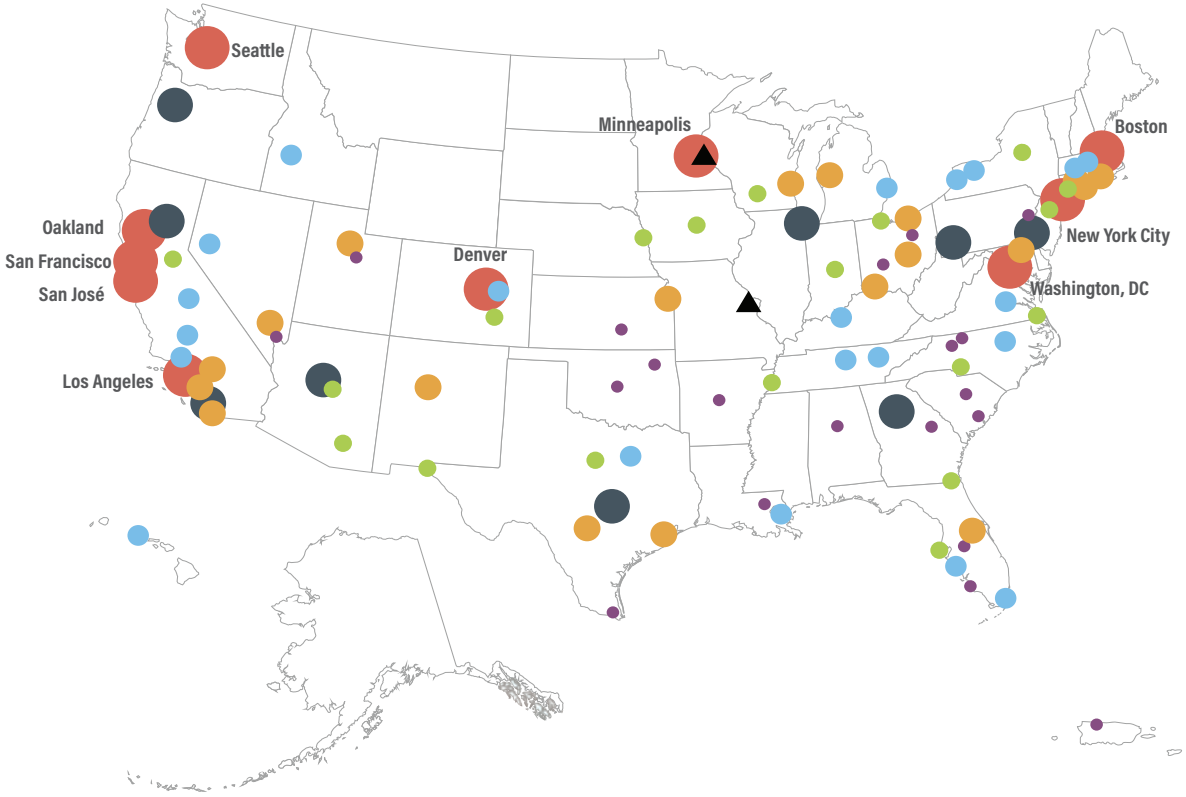
This report scores 100 U.S. cities on their efforts to achieve a clean energy future by improving energy efficiency and scaling up renewable energy.

- First place goes to **New York**, earning the top spot for the first time.
- Rounding out the top 10 cities are **Boston** and **Seattle**, tied at #2, followed by **Minneapolis** and **San Francisco** (tied at #4); **Washington, DC**; **Denver**; **Los Angeles**; **San José**; and **Oakland**.
- **St. Paul** and **St. Louis** are this year's most-improved cities. Among its improvements, St. Paul adopted a building benchmarking policy and a goal to reduce vehicle miles traveled. St. Louis became the third city in the country to enact a building energy performance standard.
- Between April 2019 and May 2020, local governments across the cities we assessed took **more than 160 actions**—new initiatives or expansions of past ones—to advance clean energy. Some actions were cutting edge, including New York's setting of performance standards for existing buildings.
- Bottom-scoring cities are years behind the policy efforts of the leaders. If cities are to scale up climate efforts broadly across the country, more will need to adopt and implement impactful clean energy policies.
- Efforts are emerging to increase public engagement with, and clean energy investments in, low-income communities and communities of color, but cities have substantial room to ramp up their efforts. Cities can leverage models used in Minneapolis, Providence, Portland, and Seattle to jump-start their activities.
- **Sixty-three cities** have community-wide climate goals. Based on available data, we found that **20 cities** are on track to achieve their goals; this is an increase of **9 cities** since the last edition but still leaves significant room for improvement.
- Cities continue to use energy codes to achieve savings in new buildings and are beginning to pursue groundbreaking policies for existing buildings. **Seven cities** have adopted more stringent building energy codes since the last edition. **Three cities** now have performance standards for large existing buildings.
- Cities are encouraging electric utilities and state regulators to increase the use of renewable energy in the power system. **Twenty-four** cities submitted comments on public utility commission proceedings, entered into utility partnerships, enacted community choice aggregation programs, and participated in planning efforts with utilities.

The *City Clean Energy Scorecard* continues to be the go-to resource for tracking clean energy progress in municipalities across the nation. It compiles information on policies and local actions to advance energy efficiency and renewable energy, comparing 100 large cities in five policy areas. It also assesses cities' focus on equity in planning and program delivery. The 2020 *City Scorecard* accounts for all local policies adopted by May 1, 2020. The scores we report identify high-achieving cities and others with significant room to accelerate their policy efforts. The increase in the number of cities included in the report—from 75 in 2019 to 100 this year—provides a more in-depth analysis of the local clean energy landscape across the country.[1] Our focus on policies and programs also makes the *Scorecard* a road map for local governments aiming to scale up their clean energy initiatives and their pursuit of climate change mitigation goals.

[1] D. Ribeiro, S. Samarripas, K. Tanabe, H. Bastian, E. Cooper, A. Drehobl, S. Vaidyanathan, A. Jarrah, and M. Shoemaker, *The 2019 City Energy Efficiency Scorecard* (Washington, DC: ACEEE, 2019), aceee.org/research-report/u1904.

Figure ES1. City rankings



2020 City Clean Energy Scorecard

▲ Most Improved Cities: St. Paul, St. Louis

1—10

1. New York, NY
2. Boston, MA
2. Seattle, WA
4. Minneapolis, MN
4. San Francisco, CA
6. Washington, DC
7. Denver, CO
8. Los Angeles, CA
9. San José, CA
10. Oakland, CA

11—20

11. Portland, OR
12. Austin, TX
13. Chicago, IL
14. Atlanta, GA
15. Philadelphia, PA
16. St. Paul, MN
17. Sacramento, CA
18. San Diego, CA
19. Phoenix, AZ
19. Pittsburgh, PA

21—40

21. Orlando, FL
22. Chula Vista, CA
23. Hartford, CT
23. Providence, RI
25. Kansas City, MO
26. Long Beach, CA
27. Salt Lake City, UT
28. St. Louis, MO
29. Cleveland, OH
29. Columbus, OH
31. San Antonio, TX
32. Baltimore, MD
33. Grand Rapids, MI
34. Houston, TX
34. Riverside, CA
36. Cincinnati, OH
36. Las Vegas, NV
36. Milwaukee, WI
36. New Haven, CT
40. Albuquerque, NM

41—60

41. Honolulu, HI
42. Boise, ID
43. Aurora, CO
43. Buffalo, NY
43. Richmond, VA
43. Rochester, NY
43. Springfield, MA
48. Dallas, TX
48. Louisville, KY
50. Worcester, MA
51. Knoxville, TN
51. Miami, FL
51. New Orleans, LA
51. St. Petersburg, FL
55. Detroit, MI
55. Oxnard, CA
55. Raleigh, NC
58. Nashville, TN
58. Reno, NV
60. Bakersfield, CA
60. Fresno, CA

61—80

62. Des Moines, IA
62. Indianapolis, IN
64. Madison, WI
65. Charlotte, NC
66. Fort Worth, TX
66. Stockton, CA
68. Bridgeport, CT
68. Tucson, AZ
70. Memphis, TN
70. Syracuse, NY
72. Colorado Springs, CO
72. Virginia Beach, VA
74. Jacksonville, FL
75. Tampa, FL
76. Mesa, AZ
76. Newark, NJ
78. Omaha, NE
79. Toledo, OH
80. El Paso, TX

81—100

81. Dayton, OH
82. Lakeland, FL
83. Akron, OH
83. Winston-Salem, NC
85. Tulsa, OK
86. Allentown, PA
86. Henderson, NV
88. Birmingham, AL
89. Charleston, SC
89. Greensboro, NC
91. Columbia, SC
91. Little Rock, AR
93. Cape Coral, FL
93. Provo, UT
95. McAllen, TX
96. San Juan, PR
97. Baton Rouge, LA
97. Oklahoma City, OK
99. Wichita, KS
100. Augusta, GA

The last edition of the *City Clean Energy Scorecard* documented cities' increasing commitment to energy efficiency and renewable energy; it found that between January 2017 and April 2019, cities had taken more than 265 actions to advance efficiency and renewables.[2] The 2020 *City Scorecard* shows that local leaders have continued to forge ahead with new and expanded policies and programs. Over the past year, local governments across the cities we assess took more than 160 new actions—new initiatives or expansions of past ones—to advance their clean energy efforts. New York and St. Louis

[2] Ibid.

became the second and third cities in the nation—after Washington, DC—to establish performance standards for large buildings. Philadelphia passed a tune-up policy that will save energy in the city's large buildings. Detroit developed its first Sustainable Action Agenda and, in the process, codified goals to reduce greenhouse gas (GHG) emissions, ramp up energy savings and renewable energy use, and mitigate urban heat islands. Los Angeles, Providence, and St. Paul are tackling transportation, having adopted vehicle-miles-traveled reduction targets over the past year.

The increasing policy activity in the past year is encouraging, but cities—especially low-ranking cities—still have a long way to go in tracking the performance of their policies to ensure success. Cities also need to give community input a stronger role in shaping their actions, and they need to ensure that those actions are designed to serve all residents.

POLICY AREAS

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

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

Table ES1. Highest-scoring cities by policy area

Area	Cities*	Achievements
Local government operations	Austin and Boston; Portland, San Francisco, and Washington, DC, tied for third-highest score	All have set policies to increase efficiency in city government, procurement, and asset management.
Community-wide initiatives	Washington, DC; Denver; Los Angeles; and Minneapolis tied for second-highest score (two other cities tied for fifth-highest score)	These cities have GHG reduction goals for the community and strategies to mitigate urban heat islands. They also have policies or programs to plan for distributed energy systems.
Buildings policies	New York, Seattle, Boston, Chicago, and San Francisco	These cities have adopted or advocated for stringent building energy codes; devoted resources to building code compliance; and used incentives, financing programs, or requirements to address energy consumption in large existing buildings.
Energy and water utilities	Boston, Chula Vista, Minneapolis, and San Diego tied for highest score (two other cities tied for fifth-highest score)	The energy efficiency programs of the utilities serving these cities achieve high levels of savings. Utilities and cities are working to increase their supply of and use of renewable energy. Ratepayers of water utilities have access to efficiency programs designed to save water and energy simultaneously.
Transportation policies	San Francisco; Washington, DC; New York and Portland (tied); and Seattle	These cities' initiatives include location efficiency strategies, shifts to efficient modes of transportation, transit investments, efficient vehicles and vehicle infrastructure, freight system efficiency, and clean transportation for low-income communities.

*We list the cities with the five highest scores in each policy area.

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	Local government operations (10 pts)	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Energy and water utilities (15 pts)	Transportation policies (30 pts)	Total (100 pts)	Change in score from 2019	Change in rank from 2019*	Direction of rank change†
1	New York	NY	6.5	8	28.5	10.5	24	77.5	10.5	5	▲
2	Boston	MA	8	8.5	20.5	13.5	22.5	73	-4.5	-1	▼
2	Seattle	WA	6.5	9.5	22.5	11.5	23	73	3	1	▲
4	Minneapolis	MN	7	11	18.5	13.5	22.5	72.5	3.5	0	—
4	San Francisco	CA	7.5	7.5	19.5	12.5	25.5	72.5	1	-2	▼
6	Washington	DC	7.5	11.5	19	9.5	24.5	72	4	-1	▼
7	Denver	CO	7	11	18.5	12	17.5	66	1.5	1	▲
8	Los Angeles	CA	6	11	17.5	13	18	65.5	0	-1	▼
9	San José	CA	4.5	9	17.5	13	21	65	3	2	▲
10	Oakland	CA	7	9.5	16	11.5	19.5	63.5	4	2	▲
11	Portland	OR	7.5	9	12.5	10	24	63	0.5	-1	▼
12	Austin	TX	8	9.5	17.5	9	15.5	59.5	-3.5	-3	▼
13	Chicago	IL	2.5	8	20	11.5	15	57	0.5	1	▲
14	Atlanta	GA	6	10	12.5	8	18	54.5	9.5	8	▲
15	Philadelphia	PA	5	7.5	14.5	7.5	17	51.5	0.5	1	▲
16	St. Paul	MN	3.5	6.5	13	12.5	15.5	51	16	15	▲
17	Sacramento	CA	5.5	7.5	12.5	10.5	14	50	4.5	3	▲
18	San Diego	CA	4	6	12	13.5	14	49.5	-9	-5	▼
19	Phoenix	AZ	6.5	9.5	10.5	8.5	14	49	-1.5	-2	▼
19	Pittsburgh	PA	4.5	8.5	10	6	20	49	3	0	—
21	Orlando	FL	7	8.5	11	6	15	47.5	-4	-6	▼
22	Chula Vista	CA	4	3	16	13.5	9	45.5	0	-2	▼
23	Hartford	CT	3	5.5	11.5	9.5	14.5	44	0.5	1	▲
23	Providence	RI	7	6	3.5	11.5	16	44	2.5	2	▲
25	Kansas City	MO	3.5	7.5	13.5	7	12	43.5	-1	-2	▼
26	Long Beach	CA	4.5	5.5	13.5	7	12.5	43	-6	-8	▼
27	Salt Lake City	UT	6	6	8	9	13.5	42.5	7	3	▲
28	St. Louis	MO	2.5	7.5	17.5	5.5	9	42	11	8	▲
29	Cleveland	OH	4.5	10	6.5	6.5	13.5	41	0.5	-2	▼
29	Columbus	OH	3.5	8.5	7.5	9.5	12	41	-0.5	-4	▼
31	San Antonio	TX	4.5	7.5	11	4.5	10	37.5	3.5	1	▲
32	Baltimore	MD	3	6	7	6.5	13.5	36	-3.5	-3	▼
33	Grand Rapids	MI	4	2	8.5	10.5	10	35	6	5	▲
34	Houston	TX	4	4	8.5	4.5	13.5	34.5	3	1	▲
34	Riverside	CA	2.5	4	11.5	9	7.5	34.5	-6	-7	▼
36	Cincinnati	OH	4.5	5.5	6.5	5.5	9	31	-2	-2	▼
36	Las Vegas	NV	6	2	9	4	10	31	-3	-4	▼

Rank	City	State	Local government operations (10 pts)	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Energy and water utilities (15 pts)	Transportation policies (30 pts)	Total (100 pts)	Change in score from 2019	Change in rank from 2019*	Direction of rank change†
36	Milwaukee	WI	2	5	7.5	8	8.5	31	4.5	8	▲
36	New Haven	CT	2.5	4.5	6	6.5	11.5	31	7.5	15	▲
40	Albuquerque	NM	6	2	4	8.5	10	30.5	7.5	12	▲
41	Honolulu	HI	2.5	4	1.5	7.5	13.5	29	3	6	▲
42	Boise	ID	5.5	3.5	7.5	6.5	5	28	N/A	N/A	N/A
43	Aurora	CO	0.5	3.5	7.5	8.5	7.5	27.5	9.5	21	▲
43	Buffalo	NY	3.5	1.5	7	6.5	9	27.5	-0.5	-2	▼
43	Richmond	VA	2	3.5	7	3.5	11.5	27.5	-0.5	-2	▼
43	Rochester	NY	2	0	8.5	6	11	27.5	5.5	16	▲
43	Springfield	MA	0	4.5	8	7	8	27.5	N/A	N/A	N/A
48	Dallas	TX	3.5	3	8.5	5	7	27	-2.5	-9	▼
48	Louisville	KY	2	6.5	5.5	1.5	11.5	27	4.5	9	▲
50	Worcester	MA	4.5	1	7	9.5	4.5	26.5	4	7	▲
51	Knoxville	TN	5	2	4.5	3	11	25.5	-1.5	-7	▼
51	Miami	FL	2	4	7	1.5	11	25.5	3	6	▲
51	New Orleans	LA	3	5.5	6.5	2	8.5	25.5	2.5	3	▲
51	St. Petersburg	FL	3.5	5.5	5.5	2	9	25.5	-3	-10	▼
55	Detroit	MI	1	3.5	7	5.5	8	25	7	10	▲
55	Oxnard	CA	0.5	2	10	9	3.5	25	N/A	N/A	N/A
55	Raleigh	NC	4	2	5.5	5	8.5	25	-1.5	-9	▼
58	Nashville	TN	5.5	2	5.5	3	8	24	-2	-8	▼
58	Reno	NV	2	2.5	12.5	1.5	5.5	24	4.5	6	▲
60	Bakersfield	CA	1	0	11	8.5	3	23.5	-1	-8	▼
60	Fresno	CA	0	0	12	8.5	3	23.5	N/A	N/A	N/A
62	Des Moines	IA	0	3	9.5	5.5	5	23	N/A	N/A	N/A
62	Indianapolis	IN	2	5.5	1.5	4.5	9.5	23	-1	-8	▼
64	Madison	WI	2.5	2.5	2.5	6.5	8.5	22.5	N/A	N/A	N/A
65	Charlotte	NC	3	1.5	5	6	6.5	22	6	9	▲
66	Fort Worth	TX	1.5	1	5.5	6	7.5	21.5	-5	-16	▼
66	Stockton	CA	0	0.5	9	7.5	4.5	21.5	N/A	N/A	N/A
68	Bridgeport	CT	3.5	2.5	4	4	7	21	-6	-19	▼
68	Tucson	AZ	3	1	8.5	3	5.5	21	-2	-9	▼
70	Memphis	TN	1	1.5	7	3	8	20.5	2	-1	▼
70	Syracuse	NY	2	1.5	5	5	7	20.5	N/A	N/A	N/A
72	Colorado Springs	CO	1.5	3.5	9	3	2.5	19.5	N/A	N/A	N/A
72	Virginia Beach	VA	3	2	7.5	2	5	19.5	1.5	-1	▼
74	Jacksonville	FL	0.5	3	6	3	6	18.5	2	1	▲
75	Tampa	FL	0.5	2	5.5	3	6.5	17.5	-3.5	-7	▼

Rank	City	State	Local government operations (10 pts)	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Energy and water utilities (15 pts)	Transportation policies (30 pts)	Total (100 pts)	Change in score from 2019	Change in rank from 2019*	Direction of rank change†
76	Mesa	AZ	0.5	1.5	6	4.5	4.5	17	0.5	–1	▼
76	Newark	NJ	0.5	1	7	2	6.5	17	2.5	3	▲
78	Omaha	NE	0	2.5	1	2.5	10	16	0.5	0	—
79	Toledo	OH	1	3	3.5	4.5	3	15	N/A	N/A	N/A
80	El Paso	TX	1.5	0.5	4.5	3.5	4	14	–6.5	–10	▼
81	Dayton	OH	0	0	4	3.5	6	13.5	N/A	N/A	N/A
82	Lakeland	FL	0	1.5	5	1	5	12.5	N/A	N/A	N/A
83	Akron	OH	0	1.5	3.5	2	5	12	N/A	N/A	N/A
83	Winston–Salem	NC	1	0	3	3.5	4.5	12	N/A	N/A	N/A
85	Tulsa	OK	1	0.5	0	4.5	5.5	11.5	5	3	▲
86	Allentown	PA	0.5	0	5	2.5	2.5	10.5	N/A	N/A	N/A
86	Henderson	NV	0	0	7	1.5	2	10.5	–1	–1	▼
88	Birmingham	AL	2	0.5	2.5	1	4	10	–1	–1	▼
89	Charleston	SC	1.5	0	2	0	5.5	9	N/A	N/A	N/A
89	Greensboro	NC	0	0	3	2	4	9	N/A	N/A	N/A
91	Columbia	SC	0	2	1	0	5.5	8.5	N/A	N/A	N/A
91	Little Rock	AR	0	0.5	1	1	6	8.5	N/A	N/A	N/A
93	Cape Coral	FL	0	0	4.5	0.5	2.5	7.5	N/A	N/A	N/A
93	Provo	UT	0	2	2.5	1.5	1.5	7.5	N/A	N/A	N/A
95	McAllen	TX	0	0	5	1	1	7	–3	–1	▼
96	San Juan	PR	0	0	6	0	0.5	6.5	N/A	N/A	N/A
97	Baton Rouge	LA	0	0	2	0	4	6	N/A	N/A	N/A
97	Oklahoma City	OK	0.5	0	1	2.5	2	6	0.5	0	—
99	Wichita	KS	0	0	0	2	3	5	N/A	N/A	N/A
100	Augusta	GA	0	0	1	2	1.5	4.5	N/A	N/A	N/A
	Median		**2.5**	**3**	**7**	**5.5**	**8.5**	**26**			

* We have adjusted these values to compensate for this year's addition of 25 new cities. † Cities labeled with "—" had the same rank as in the 2019 *City Scorecard*. Cities labeled with "N/A" are new to the 2020 *City Scorecard*.

STRATEGIES FOR ADVANCING CLEAN ENERGY

All cities, even those ranked in the top tier, have considerable opportunity to improve. Below are high-level recommendations for cities wanting to advance their clean energy efforts. While we provide recommendations based on city rank, lower-ranked cities may want to pursue the more ambitious policies recommended for top-ranking cities, in parallel with foundational policies.

Cities in the lowest one-third of the rankings (#68 through #100) can consider foundational policy steps:

- *Lead by example in local government operations and facilities.* Adopt policies and programs to save energy in public sector buildings and fleets and in standard practices such as procurement.
- *Adopt GHG reduction, energy savings, and renewable energy targets.* Develop and codify measurable goals for the public and private sectors to lay the foundation for further policy activity.
- *Engage low-income communities and communities of color as part of clean energy planning, implementation, and evaluation processes.* Structure public engagement strategies to increase feedback from marginalized groups and provide a formal role in decision making for them. Create goals and metrics that hold the city accountable to the principles of social equity.

Cities in the middle rankings (#34 through #66) can build on past successes and prioritize new sectors they have not yet addressed:

- *Manage, track, and communicate energy performance, and enable broader access to energy-use information.* If not already established, put in place mechanisms to track progress toward climate and energy goals. Work with utilities to improve local governments' and residents' access to data.
- *Partner with energy and water utilities to develop and administer energy-saving plans and spur the greater adoption of renewable energy*. Work with the utilities to leverage resources and design programs to reach low-income and multifamily households.
- *Adopt clean energy policies for new buildings.* Ensure that energy code enforcement and compliance for new buildings are effective and well funded. If the city has authority under state law to do so, adopt more stringent building energy codes; if not, advocate for the state to do so.
- *Decrease transportation energy use through sustainable transportation planning and policy implementation and through support for cleaner vehicles.* Create sustainable transportation plans that include goals for reducing vehicle miles traveled or GHG emissions from transportation and for increasing the number of trips taken using non-automobile modes of transportation. Use location-efficient zoning and integrate transportation and land use planning so that all residents can access major destinations via multiple transportation modes. Take steps to encourage more high-efficiency vehicles in communities by offering incentives for efficient vehicles and electric vehicle charging infrastructure.

Top cities (#1 through #33) can consider more advanced or cutting-edge policies:

- *Create clean energy requirements for existing buildings.* If cities have authority to do so under state law, create energy action mandates like building energy performance requirements or residential energy disclosure policies; if not, run voluntary programs addressing energy use in existing buildings. Work to ensure that policy addresses the various building segments, including single-family and small and large multifamily buildings.
- *Pursue innovative strategies in the transportation sector, and track results.* Become an early adopter of high-impact transportation efficiency strategies, like increasing freight system efficiency. Track progress toward transportation-related goals to ensure continued gains.
- *Design cutting-edge, equitable policies.* Create better, more impactful policies that achieve significant GHG emissions reductions while also advancing energy equity. Do so by prioritizing engagement with and involvement of marginalized groups during program design. Use goals, metrics, screening tools, and protocols to ensure that policy implementation leads to better outcomes for low-income communities and communities of color.

Introduction

Over the last several years, cities' sense of urgency about climate change has compelled mayors and local policymakers to consider ways to use energy efficiency and renewable energy to reduce greenhouse gas (GHG) emissions, cut energy costs for residents and businesses, and make their communities more resilient. The last edition of the *City Clean Energy Scorecard* documented cities' increasing commitment to energy efficiency and renewable energy; it found that between January 2017 and April 2019, cities had taken more than 265 actions to advance efficiency and renewables (Ribeiro et al. 2019).

The 2020 *City Scorecard* shows that many local leaders have continued to forge ahead with new and expanded policies and programs. Over the last year, local governments across the cities we assess took more than 160 new actions—new initiatives or expansions of past ones—to advance their clean energy efforts. New York and St. Louis became the second and third cities in the nation—after Washington, DC—with performance standards for large buildings. Philadelphia passed a tune-up policy that will save energy in the city's large buildings. Detroit developed its first Sustainable Action Agenda and, in the process, codified goals to reduce GHG emissions, ramp up energy savings and renewable energy use, and mitigate urban heat islands. Los Angeles, Providence, and St. Paul are tackling transportation, having adopted vehicle-miles-traveled reduction targets over the last year.

The increasing policy activity is encouraging, but cities—most especially those low in our rankings—still have a long way to go in adopting policies and tracking their performance. For example, 63 of the 100 cities assessed had community-wide goals to reduce GHG emissions, but only 34 had data allowing us to track progress toward those goals. Promisingly, though, we projected that most cities with data (20 out of 34) were on track for their goals. Cities also have significant room to improve the extent to which their actions are based on community input and designed to serve all residents. For example, while Minneapolis, Portland, Providence, and Seattle have a focus on equity-driven planning, the vast majority of cities do not. Never before has it been more essential to design and implement programs to achieve equitable outcomes.

Recent events—namely the public health and economic devastation wrought by COVID-19, as well as the growing outrage over racial disparities and their impacts on communities of color—could cause policy priorities to change as cities address these challenges. Consequently, the outlook for clean energy policy adoption is more uncertain now than it was at the beginning of 2020. The 2020 *City Scorecard* does not yet detect such potential shifts because data collection concluded in the spring. As local leadership responds to these challenges, clean energy policy will, we hope, remain a high priority. As cities focus on economic recovery in the context of COVID-19, energy efficiency and renewable energy remain a crucial strategy for creating jobs and keeping investment within local communities. Furthermore, a closer focus on equitable planning and program delivery can yield benefits that have historically been unavailable to communities of color.

The *City Clean Energy Scorecard* continues to be the go-to resource for tracking clean energy progress in municipalities across the nation. It compiles information on policies and local actions to advance energy efficiency and renewable energy, comparing 100 large cities in five policy areas. It also takes steps to assess cities' focus on equity in planning and program delivery. The scores we report identify high-achieving cities and others with room for improvement. The increase in the number of cities included in the report—from 75 in 2019 to 100 this year—provides a more in-depth analysis of the local clean energy landscape across the country. Our focus on policies and programs also makes the *Scorecard* a road map for local governments aiming to scale up their clean energy initiatives and their pursuit of climate change mitigation goals.

Chapter 1. Methodology and Results

Lead Author: David Ribeiro

Cities around the globe account for two-thirds of the world's energy demand and 70% of energy-related carbon dioxide emissions (IEA 2016). That is why actions in urban areas and by local governments are critical in addressing the nation's and the world's energy and environmental challenges.

Local 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, workforce development initiatives, and sometimes the supply of energy and water services.

The thousands of local governments in the United States vary in size and authority and have diverse priorities, and as a result they have pursued different clean energy pathways. We document this variety in the *Scorecard* by focusing on the activities of 100 large U.S. cities across five policy areas. Our metrics are based on common policy categories and actions local governments can carry out or influence; most measure policies and programs that municipalities have implemented within their city limits. They are broadly applicable to local governments throughout the United States, not just those in the *Scorecard*.

GOALS AND APPROACH

The *Scorecard* describes and compares actions cities can take to enable or improve their energy efficiency and scale up renewable energy. It also benchmarks cities on their efforts to incorporate equity into planning and program delivery. Our analysis has several aims, as shown in figure 1: First, by scoring cities' energy efficiency and renewable energy policies and activities, we identify the clean energy leaders as well as those with the most room for improvement. We also identify those that have begun to integrate equity into clean energy planning and program delivery. Second, by recognizing leaders and profiling successes, we provide practical examples from which other communities can learn. With the inclusion of 25 new cities in this edition, all of which are smaller than the other 75, we now have examples of city leadership that are relevant to midsize municipalities as well as large ones. Third, the report's focus on policies and programs makes it a road map for local governments aiming to scale up their pursuit of clean energy. This can be valuable for all cities but is especially so for those with the most room for improvement. Finally, by looking at progress over time, we can gauge cities' increasing achievements in prioritizing clean energy. Sustained success and improvement will allow cities to reach their ambitious goals.

Figure 1. *City Scorecard* aims

In some cases, we have also considered steps taken by actors other than city governments, such as state governments, investor-owned utilities, and transportation authorities. For example, each 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 those codes are set at the state level. We scored actions lying outside the direct influence of the city government for several reasons. First, 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 also need to emphasize energy efficiency and renewable energy in their policies, planning, and decision making. Second, even if city governments do not regulate or manage these actors, they can still influence them. They can do this through a variety of approaches, for example by engaging in the design and implementation of regional, state, and federal policy initiatives. Third, the *City Scorecard* is an educational resource to inform policymakers and interested citizens. We would present only a partial picture of a city's clean energy policy environment if we focused solely on city actions.

SELECTION OF CITIES

We focus on cities and their governments because of the important role cities play as centers of economic activity.[3] Central cities—the most populous cities in metropolitan regions—influence travel behavior and hold a large share of their region's commercial buildings. The largest city in a metro region can also have influence beyond its boundaries due to its ability to affect regional decisions. Even outside of their regions, leaders of large cities can influence the policy of states and the federal government.

We include 100 cities in this edition of the *Scorecard*, an increase from the 75 included in the 2019 *Scorecard.* We continue to focus primarily on the central cities of the largest metropolitan statistical areas (MSAs).[4] To reach 100 cities overall, we added the central cities of the next-largest MSAs until we reached 100 overall. However, some MSAs were excluded: We added an MSA's central city only if that city's population exceeded 100,000.[5] This threshold eliminated smaller cities that may function more as large suburbs than as major urbanized areas. Smaller cities could have been disadvantaged by metrics geared toward larger cities, especially those related to public transit and smart growth.

Our city selection includes all 25 cities participating in the American Cities Climate Challenge.[6] The *City Scorecard* is a mechanism by which to gauge the progress of these cities in the Climate Challenge.[7]

Figure 2 displays the cities scored in the 2020 *City Scorecard.*

[3] 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).

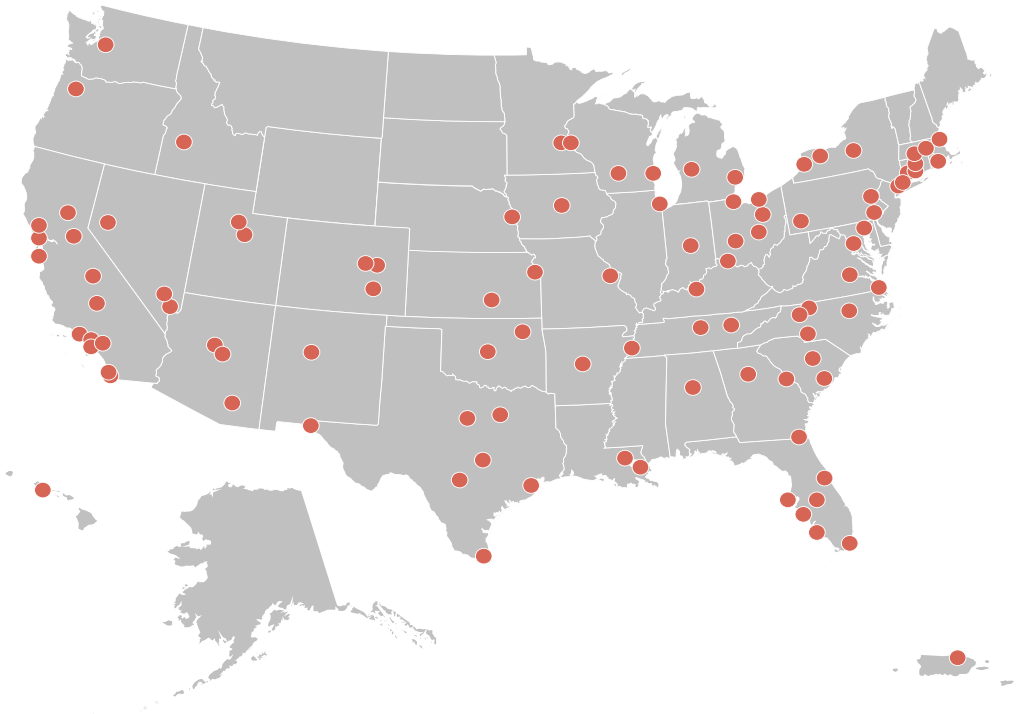
[4] In the 2019 *City Scorecard*, we included the second-most-populous city in a metro area if its population exceeded 250,000. (We allowed only one additional city per MSA in order to maintain geographic diversity and avoid overrepresenting certain metros.) This methodology change resulted in our adding nine cities to the report. No additional secondary cities met the criterion to warrant inclusion in the 2020 *City Scorecard*.

[5] This criterion disqualified North Port, Florida; Lakeland, Florida; Ogden, Utah; and Deltona, Florida. We excluded Greenville, South Carolina, and Albany, New York, from the 2019 *City Scorecar*d due to the same methodology.

[6] The Bloomberg American Cities Climate Challenge is a two-year acceleration program that gives 25 cities extensive resources and expert guidance to help them achieve or surpass carbon reduction goals. Through the Climate Challenge, cities are working to ramp up energy efficiency in buildings, increase the use of renewable energy, create more sustainable transportation networks, or pursue a combination of these efforts.

[7] Reno remains in the report even though its metro region is not populous enough to meet the requirements of our methodology. The 2019 *City Scorecard* included all potential Climate Challenge finalists; at the time of our data collection, Reno was the only city not already included in the report. We kept it in the 2020 *City Scorecard* to be consistent.

Figure 2. Cities in the 2020 *City Scorecard*



The included cities are located in 39 states, one district, and one territory. Taken together, the cities have large populations (the median is 385,478, with 108,054 in the smallest city), and each is a major city in an MSA with a large population (a median of 1,294,079, and none smaller than 464,593). These cities alone make up 18.9% of the population of the United States, and the metropolitan areas in which they are located contain 65.4% (Census Bureau 2018a, 2018b).

SCORING METHOD

Best-Practice Metrics

The *City Scorecard* uses best-practice metrics to quantitatively score cities based on nuanced, qualitative policy information. The metrics measure the adoption and implementation of government policies, actions, or public services that will likely lead to increased energy efficiency or greater use of renewable energy, thereby reducing GHG emissions. The information contained in the *Scorecard*, and upon which we score the 100 cities, reflects existing policies as of May 1, 2020.

Although the policy environments in cities vary considerably, our metrics capture a broad range of municipal actions across all energy use sectors, including transportation. They measure policies and programs that achieve one or more of the following:

- Accelerate the adoption of energy-efficient and renewable energy technologies
- Directly reduce end-use energy consumption or increase use of renewable energy
- Establish or enforce mandatory or voluntary performance codes or standards
- Provide funding for energy efficiency and renewable energy programs
- Set long-term commitments to reduce GHG emissions, save energy, and/or use renewable energy
- Reduce market, regulatory, and information barriers

Our focus on policy is in keeping with our goal of providing actionable information to policymakers, residents, and businesses. Policymakers need to know what they can do to improve their city's energy use in the context of their current situation. Residents and businesses need information on what services, policies, and incentives are available. They also need access to resources about the policies they may want their local government to support.

Metrics in the first three editions of the *City Scorecard* focused on policy adoption and implementation; only a few metrics assessed the performance of policies because the data to support such evaluation were scarce.[8] Beginning with the 2019 *City Scorecard*, we went a step further by including more policy performance–based metrics, as data allowed. The metrics assess either policy performance alone or a combination of policy adoption and performance. Examples of metrics added to the last edition include the percentage of outdoor lighting converted to LEDs, bike-share bikes per capita, and progress toward vehicle-miles-traveled (VMT) goals and mode-shift targets. Although data limitations continue to make the scoring challenging, this new focus enables a fuller evaluation of city policies and programs and their results.[9]

The past three editions of the *City Scorecard* have included an emphasis on social equity in planning and program delivery. The 2017 *City Scorecard* included our first attempt to evaluate efforts to bring energy efficiency to underserved markets, particularly low-income and multifamily households. The 2019 *City Scorecard* placed additional emphasis on equity, adding metrics on equitable clean energy planning, implementation, and evaluation; inclusivity in workforce development programs; and renewable energy incentives for low-income households. The 2019 edition also expanded our assessment of clean, efficient transportation for low-income communities. As we have added metrics over time, we have kept in mind the ways sustainability staff have sought to work with marginalized populations to address equity in accordance with a framework discussed in Park (2014), as shown in table 1.

Table 1. Approaches to equity and their relationship to clean energy

Component of equity	Link to energy efficiency and renewable energy activities
Procedural equity	Offer inclusive, accessible, authentic engagement and representation in the process of developing or implementing sustainability programs and policies.
Distributional equity	Design sustainability programs and policies to achieve fair distribution of benefits and burdens across all segments of a community, prioritizing those with highest need.
Structural equity	Institutionalize accountability so that decisions are made with a recognition of the historical, cultural, and institutional dynamics and structures that have routinely advantaged privileged groups in society while creating chronic, cumulative disadvantage for subordinated groups.
Transgenerational equity	Consider generational impacts and avoid placing unfair burdens on future generations.

Altogether, our metrics across the report attempt to capture inclusive community engagement efforts, the existence of programs designed to result in a fair distribution of benefits for all city residents, and actions to institutionalize accountability in sustainability decisions. As a result, the scores in this report better capture the extent to which city actions are based on community input and are designed to serve all residents than past city scorecards did. For more information on our approach to integrating equity into the *City Scorecard*, see the "Equity-driven approaches to clean energy planning, implementation, and evaluation" section of Chapter 3.

Metrics and Policy Areas

We grouped all our metrics into five policy areas, each with its own chapter:

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

The maximum number of points a city can earn across all policy areas is 100.[10] Figure 3 shows the point allocations across the five policy areas.

[8] Policy performance metrics in early *City Scorecard* editions were limited mostly to (1) city progress toward climate and energy goals, (2) savings achieved by utility-administered energy efficiency programs, and (3) levels of funding allocated to transit systems.

[9] We did not score outcomes—such as changes in energy use—because the exact relationship to policy actions is difficult to gauge.

[10] We established our point distribution 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 based on stakeholder and expert feedback as well as the number of actions available to cities in each policy area.

Each chapter presents, for its particular policy area, the metrics we used to score the cities. We offer detailed scores and some additional policy and program information in the appendices. And we include the complete body of policy and program information on which we score cities in the ACEEE State and Local Policy Database.[11]

Detailed Scoring

Figure 4 presents the policy areas, metrics, and maximum points available.

Figure 3. Distribution of points by policy area

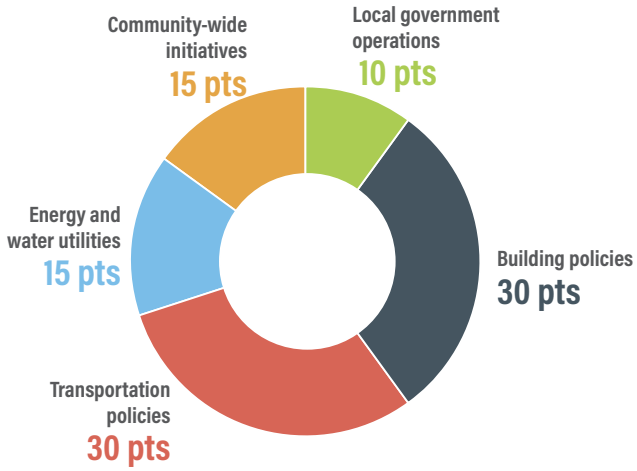
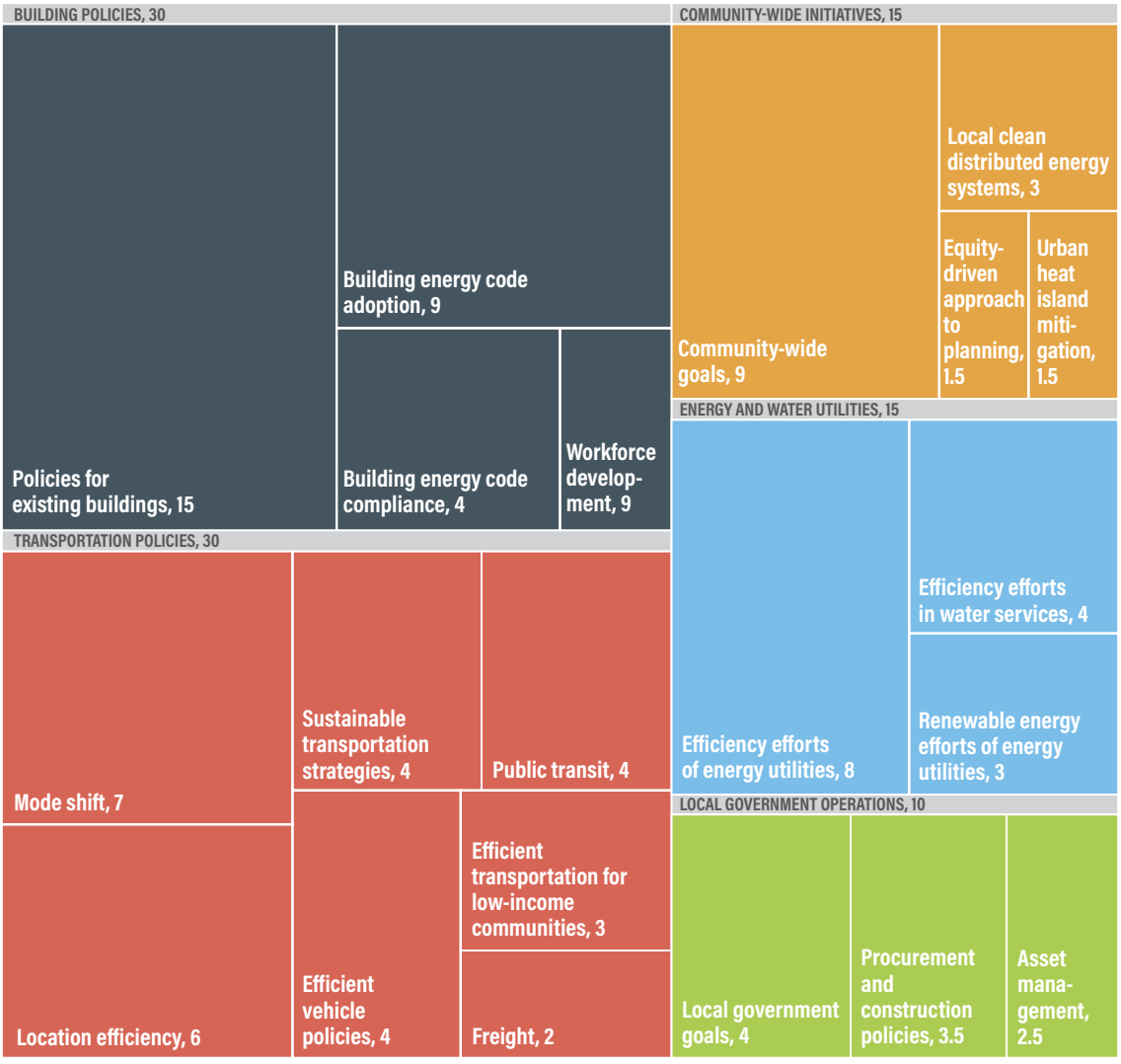


Figure 4. Scoring by policy area



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 2015; Hinge et al. 2013).

[11] 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.

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.

Appendix A offers a detailed categorization of each metric in the *City Scorecard*, showing which metrics assess energy efficiency, renewable energy, policy performance, and equity in planning and program delivery.

Methodological Improvements

Although we previously conducted an extensive methodology review that resulted in several changes to the 2019 *City Scorecard*, we made fewer changes this year in an effort to maintain methodological consistency. In this year's edition, we improved some of our metrics and focused on incorporating suggestions that we could not implement in the 2019 edition.

The most extensive improvements in this edition are to renewable energy–related metrics. Since the 2019 *City Scorecard* was the first edition to assess renewable energy activities, we used a limited number of metrics on best-practice policies and planned to reevaluate those metrics over time. Our indicators were a starting point rather than a comprehensive assessment of renewable energy policy in cities. For this edition, we refined our metrics based on lessons learned from the last *City Scorecard*. These changes affected scoring for the following activities:

- Onsite renewable energy systems on municipal buildings and their integration of storage
- Renewable energy–ready codes for new and renovated buildings
- Renewable energy generation on wastewater treatment plants
- Integration of clean distributed shared energy systems

We also improved our metrics assessing policies that encourage energy efficiency and renewable energy in existing buildings. The new methodology allocates more points to cutting-edge policies, like building performance standards; it allocates fewer points to those previously on the cutting edge, like building benchmarking and transparency policies.

See Appendix B for a more detailed discussion of changes to the methodology, including descriptions of both new metrics and metrics we removed.

DATA COLLECTION AND REVIEW

Our data collection and review process included multistep outreach to local stakeholders in the cities we scored and to clean energy experts nationwide. The steps included:

- *Baseline research for cities new to the* City Scorecard. We had policy information for the 75 cities we assessed in past scorecards, but we did not have data for the 25 new ones. To collect baseline data for these new cities, we engaged local government staff to gather key data sources detailing their energy efficiency and renewable energy activities. We reviewed these documents and used them to pre-populate the data requests to cities.

- *Data requests to cities and utilities and secondary data collection.* For the first time, we collaborated with CDP (formerly the Carbon Disclosure Project) on data collection from city staff. We asked local government staff (primarily sustainability staff) to complete a data request through CDP's online platform. Each request contained pre-populated policy data from our Local Policy Database or from the research described above. We asked local government staff to review and update the information as appropriate and provide new data for any new metrics. Respondents in 62 of the 100 cities returned completed data requests. We ran a separate data request process for staff at electric and natural gas utilities to collect data on utility-administered energy efficiency programs and renewable energy programs. Of the 108 data requests sent to utility contacts, 88 were returned to us. The city and utility staff members who completed and returned data requests are included in table C1 of Appendix C. Where relevant, we also used publicly available sources to supplement data request responses.

- *Review and revision.* We applied the scoring methodology to the data we collected and wrote up the results presented here in the *City Scorecard*. After review by ACEEE staff, we invited local government staff from all 100 cities assessed, energy utility staff from all pertinent energy utilities, and other experts to comment on the report. Experts and stakeholders reviewed and commented on the data, the scores, and the methodology. We were grateful to receive more than 88 sets of comments from 99 reviewers.

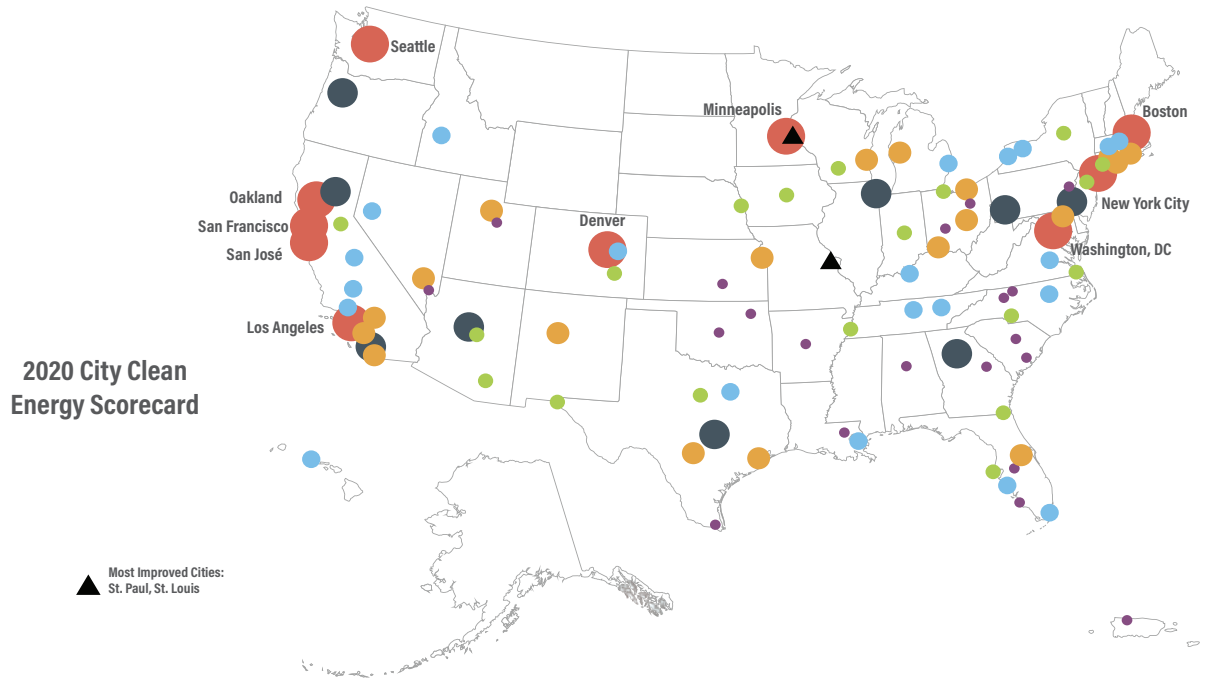
DATA LIMITATIONS

Comparing cities remains challenging due to broad differences in how cities track and report their data. We engaged city staff and energy utility staff for most of the information we used in our assessments. Our requests drew responses from 62% of cities and 81% of utilities. When a city or utility did not complete a request, ACEEE researchers independently collected data using the most recent publicly available information, including climate action plans, sustainability plans, demand-side management plans, and city and utility web pages. In these cases, our reliance on independently collected data may mean that some activities in select cities were overlooked in scoring.[12] This could especially be the case for newly included cities that did not report data. In future scorecards, we will try again to collect data from these cities. In our experience, many cities that do not actively participate in the first year they are included do participate in later years.

We also found it challenging to validate data cities submitted on the performance of their policies. We required that they include backup information allowing us to confirm the answers they provided in data requests; however, we found it easier to confirm the existence of policies than to validate their performance. For example, we could confirm whether cities had established strategies to convert their outdoor public lighting to LEDs; we could not confirm statistics they provided on the number of outdoor lights upgraded to LEDs. We generally accepted cities' performance claims, even when they could not be validated.

2020 RESULTS

We present the results of *The 2020 City Clean Energy Scorecard* in figure 5 and more fully in table 2. The last three columns of table 2 list information related to the change in rank from the 2019 *City Scorecard*. We have adjusted these values to compensate for this year's addition of 25 new cities. In the sections that follow, we discuss the leading cities and the most-improved cities and provide further analysis, including policy trends across cities and state policy impacts.



1–10

1. New York, NY
2. Boston, MA
2. Seattle, WA
4. Minneapolis, MN
4. San Francisco, CA
6. Washington, DC
7. Denver, CO
8. Los Angeles, CA
9. San José, CA
10. Oakland, CA

11–20

11. Portland, OR
12. Austin, TX
13. Chicago, IL
14. Atlanta, GA
15. Philadelphia, PA
16. St. Paul, MN
17. Sacramento, CA
18. San Diego, CA
19. Phoenix, AZ
19. Pittsburgh, PA

21–40

21. Orlando, FL
22. Chula Vista, CA
23. Hartford, CT
23. Providence, RI
25. Kansas City, MO
26. Long Beach, CA
27. Salt Lake City, UT
28. St. Louis, MO
29. Cleveland, OH
29. Columbus, OH
31. San Antonio, TX
32. Baltimore, MD
33. Grand Rapids, MI
34. Houston, TX
34. Riverside, CA
36. Cincinnati, OH
36. Las Vegas, NV
36. Milwaukee, WI
36. New Haven, CT
40. Albuquerque, NM

41–60

41. Honolulu, HI
42. Boise, ID
43. Aurora, CO
43. Buffalo, NY
43. Richmond, VA
43. Rochester, NY
43. Springfield, MA
48. Dallas, TX
48. Louisville, KY
50. Worcester, MA
51. Knoxville, TN
51. Miami, FL
51. New Orleans, LA
51. St. Petersburg, FL
55. Detroit, MI
55. Oxnard, CA
55. Raleigh, NC
58. Nashville, TN
58. Reno, NV
60. Bakersfield, CA
60. Fresno, CA

61–80

62. Des Moines, IA
62. Indianapolis, IN
64. Madison, WI
65. Charlotte, NC
66. Fort Worth, TX
66. Stockton, CA
68. Bridgeport, CT
68. Tucson, AZ
70. Memphis, TN
70. Syracuse, NY
72. Colorado Springs, CO
72. Virginia Beach, VA
74. Jacksonville, FL
75. Tampa, FL
76. Mesa, AZ
76. Newark, NJ
78. Omaha, NE
79. Toledo, OH
80. El Paso, TX

81–100

81. Dayton, OH
82. Lakeland, FL
83. Akron, OH
83. Winston-Salem, NC
85. Tulsa, OK
86. Allentown, PA
86. Henderson, NV
88. Birmingham, AL
89. Charleston, SC
89. Greensboro, NC
91. Columbia, SC
91. Little Rock, AR
93. Cape Coral, FL
93. Provo, UT
95. McAllen, TX
96. San Juan, PR
97. Baton Rouge, LA
97. Oklahoma City, OK
99. Wichita, KS
100. Augusta, GA

Figure 5. *City Scorecard* rankings

[12] We gave a city 0 points if we could not find information for a particular metric despite extensive research.

Table 2. Summary of scores

Rank	City	State	Local government operations (10 pts)	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Energy and water utilities (15 pts)	Transportation policies (30 pts)	Total (100 pts)	Change in score from 2019	Change in rank from 2019*	Direction of rank change†
1	New York	NY	6.5	8	28.5	10.5	24	77.5	10.5	5	▲
2	Boston	MA	8	8.5	20.5	13.5	22.5	73	-4.5	-1	▼
2	Seattle	WA	6.5	9.5	22.5	11.5	23	73	3	1	▲
4	Minneapolis	MN	7	11	18.5	13.5	22.5	72.5	3.5	0	—
4	San Francisco	CA	7.5	7.5	19.5	12.5	25.5	72.5	1	-2	▼
6	Washington	DC	7.5	11.5	19	9.5	24.5	72	4	-1	▼
7	Denver	CO	7	11	18.5	12	17.5	66	1.5	1	▲
8	Los Angeles	CA	6	11	17.5	13	18	65.5	0	-1	▼
9	San José	CA	4.5	9	17.5	13	21	65	3	2	▲
10	Oakland	CA	7	9.5	16	11.5	19.5	63.5	4	2	▲
11	Portland	OR	7.5	9	12.5	10	24	63	0.5	-1	▼
12	Austin	TX	8	9.5	17.5	9	15.5	59.5	-3.5	-3	▼
13	Chicago	IL	2.5	8	20	11.5	15	57	0.5	1	▲
14	Atlanta	GA	6	10	12.5	8	18	54.5	9.5	8	▲
15	Philadelphia	PA	5	7.5	14.5	7.5	17	51.5	0.5	1	▲
16	St. Paul	MN	3.5	6.5	13	12.5	15.5	51	16	15	▲
17	Sacramento	CA	5.5	7.5	12.5	10.5	14	50	4.5	3	▲
18	San Diego	CA	4	6	12	13.5	14	49.5	-9	-5	▼
19	Phoenix	AZ	6.5	9.5	10.5	8.5	14	49	-1.5	-2	▼
19	Pittsburgh	PA	4.5	8.5	10	6	20	49	3	0	—
21	Orlando	FL	7	8.5	11	6	15	47.5	-4	-6	▼
22	Chula Vista	CA	4	3	16	13.5	9	45.5	0	-2	▼
23	Hartford	CT	3	5.5	11.5	9.5	14.5	44	0.5	1	▲
23	Providence	RI	7	6	3.5	11.5	16	44	2.5	2	▲
25	Kansas City	MO	3.5	7.5	13.5	7	12	43.5	-1	-2	▼
26	Long Beach	CA	4.5	5.5	13.5	7	12.5	43	-6	-8	▼
27	Salt Lake City	UT	6	6	8	9	13.5	42.5	7	3	▲
28	St. Louis	MO	2.5	7.5	17.5	5.5	9	42	11	8	▲
29	Cleveland	OH	4.5	10	6.5	6.5	13.5	41	0.5	-2	▼
29	Columbus	OH	3.5	8.5	7.5	9.5	12	41	-0.5	-4	▼
31	San Antonio	TX	4.5	7.5	11	4.5	10	37.5	3.5	1	▲
32	Baltimore	MD	3	6	7	6.5	13.5	36	-3.5	-3	▼
33	Grand Rapids	MI	4	2	8.5	10.5	10	35	6	5	▲
34	Houston	TX	4	4	8.5	4.5	13.5	34.5	3	1	▲
34	Riverside	CA	2.5	4	11.5	9	7.5	34.5	-6	-7	▼
36	Cincinnati	OH	4.5	5.5	6.5	5.5	9	31	-2	-2	▼
36	Las Vegas	NV	6	2	9	4	10	31	-3	-4	▼
36	Milwaukee	WI	2	5	7.5	8	8.5	31	4.5	8	▲
36	New Haven	CT	2.5	4.5	6	6.5	11.5	31	7.5	15	▲
40	Albuquerque	NM	6	2	4	8.5	10	30.5	7.5	12	▲

Rank	City	State	Local government operations (10 pts)	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Energy and water utilities (15 pts)	Transportation policies (30 pts)	Total (100 pts)	Change in score from 2019	Change in rank from 2019*	Direction of rank change†
41	Honolulu	HI	2.5	4	1.5	7.5	13.5	29	3	6	▲
42	Boise	ID	5.5	3.5	7.5	6.5	5	28	N/A	N/A	N/A
43	Aurora	CO	0.5	3.5	7.5	8.5	7.5	27.5	9.5	21	▲
43	Buffalo	NY	3.5	1.5	7	6.5	9	27.5	-0.5	-2	▼
43	Richmond	VA	2	3.5	7	3.5	11.5	27.5	-0.5	-2	▼
43	Rochester	NY	2	0	8.5	6	11	27.5	5.5	16	▲
43	Springfield	MA	0	4.5	8	7	8	27.5	N/A	N/A	N/A
48	Dallas	TX	3.5	3	8.5	5	7	27	-2.5	-9	▼
48	Louisville	KY	2	6.5	5.5	1.5	11.5	27	4.5	9	▲
50	Worcester	MA	4.5	1	7	9.5	4.5	26.5	4	7	▲
51	Knoxville	TN	5	2	4.5	3	11	25.5	-1.5	-7	▼
51	Miami	FL	2	4	7	1.5	11	25.5	3	6	▲
51	New Orleans	LA	3	5.5	6.5	2	8.5	25.5	2.5	3	▲
51	St. Petersburg	FL	3.5	5.5	5.5	2	9	25.5	-3	-10	▼
55	Detroit	MI	1	3.5	7	5.5	8	25	7	10	▲
55	Oxnard	CA	0.5	2	10	9	3.5	25	N/A	N/A	N/A
55	Raleigh	NC	4	2	5.5	5	8.5	25	-1.5	-9	▼
58	Nashville	TN	5.5	2	5.5	3	8	24	-2	-8	▼
58	Reno	NV	2	2.5	12.5	1.5	5.5	24	4.5	6	▲
60	Bakersfield	CA	1	0	11	8.5	3	23.5	-1	-8	▼
60	Fresno	CA	0	0	12	8.5	3	23.5	N/A	N/A	N/A
62	Des Moines	IA	0	3	9.5	5.5	5	23	N/A	N/A	N/A
62	Indianapolis	IN	2	5.5	1.5	4.5	9.5	23	-1	-8	▼
64	Madison	WI	2.5	2.5	2.5	6.5	8.5	22.5	N/A	N/A	N/A
65	Charlotte	NC	3	1.5	5	6	6.5	22	6	9	▲
66	Fort Worth	TX	1.5	1	5.5	6	7.5	21.5	-5	-16	▼
66	Stockton	CA	0	0.5	9	7.5	4.5	21.5	N/A	N/A	N/A
68	Bridgeport	CT	3.5	2.5	4	4	7	21	-6	-19	▼
68	Tucson	AZ	3	1	8.5	3	5.5	21	-2	-9	▼
70	Memphis	TN	1	1.5	7	3	8	20.5	2	-1	▼
70	Syracuse	NY	2	1.5	5	5	7	20.5	N/A	N/A	N/A
72	Colorado Springs	CO	1.5	3.5	9	3	2.5	19.5	N/A	N/A	N/A
72	Virginia Beach	VA	3	2	7.5	2	5	19.5	1.5	-1	▼
74	Jacksonville	FL	0.5	3	6	3	6	18.5	2	1	▲
75	Tampa	FL	0.5	2	5.5	3	6.5	17.5	-3.5	-7	▼
76	Mesa	AZ	0.5	1.5	6	4.5	4.5	17	0.5	-1	▼
76	Newark	NJ	0.5	1	7	2	6.5	17	2.5	3	▲
78	Omaha	NE	0	2.5	1	2.5	10	16	0.5	0	—
79	Toledo	OH	1	3	3.5	4.5	3	15	N/A	N/A	N/A
80	El Paso	TX	1.5	0.5	4.5	3.5	4	14	-6.5	-10	▼

Rank	City	State	Local government operations (10 pts)	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Energy and water utilities (15 pts)	Transportation policies (30 pts)	Total (100 pts)	Change in score from 2019	Change in rank from 2019*	Direction of rank change†
81	Dayton	OH	0	0	4	3.5	6	13.5	N/A	N/A	N/A
82	Lakeland	FL	0	1.5	5	1	5	12.5	N/A	N/A	N/A
83	Akron	OH	0	1.5	3.5	2	5	12	N/A	N/A	N/A
83	Winston-Salem	NC	1	0	3	3.5	4.5	12	N/A	N/A	N/A
85	Tulsa	OK	1	0.5	0	4.5	5.5	11.5	5	3	▲
86	Allentown	PA	0.5	0	5	2.5	2.5	10.5	N/A	N/A	N/A
86	Henderson	NV	0	0	7	1.5	2	10.5	-1	-1	▼
88	Birmingham	AL	2	0.5	2.5	1	4	10	-1	-1	▼
89	Charleston	SC	1.5	0	2	0	5.5	9	N/A	N/A	N/A
89	Greensboro	NC	0	0	3	2	4	9	N/A	N/A	N/A
91	Columbia	SC	0	2	1	0	5.5	8.5	N/A	N/A	N/A
91	Little Rock	AR	0	0.5	1	1	6	8.5	N/A	N/A	N/A
93	Cape Coral	FL	0	0	4.5	0.5	2.5	7.5	N/A	N/A	N/A
93	Provo	UT	0	2	2.5	1.5	1.5	7.5	N/A	N/A	N/A
95	McAllen	TX	0	0	5	1	1	7	-3	-1	▼
96	San Juan	PR	0	0	6	0	0.5	6.5	N/A	N/A	N/A
97	Baton Rouge	LA	0	0	2	0	4	6	N/A	N/A	N/A
97	Oklahoma City	OK	0.5	0	1	2.5	2	6	0.5	0	—
99	Wichita	KS	0	0	0	2	3	5	N/A	N/A	N/A
100	Augusta	GA	0	0	1	2	1.5	4.5	N/A	N/A	N/A
	Median		**2.5**	**3**	**7**	**5.5**	**8.5**	**26**			

* We have adjusted these values to compensate for this year's addition of 25 new cities. † Cities labeled with "—" had the same rank as in the 2019 *City Scorecard*. Cities labeled with "N/A" are new to the 2020 *City Scorecard*.

Leading Cities

New York took the top spot in the *City Scorecard*, after falling below the top five in the 2019 edition. New York's buildings policies were the key factor in its rise to the top. The city has strong building energy codes and several policies to increase energy efficiency in existing buildings. Since the previous edition of the *City Scorecard*, New York has taken a major step forward by adopting Local Law 97 of 2019. This legislation sets GHG emissions caps for buildings larger than 25,000 square feet beginning in 2024 and makes those caps more stringent in 2030. New York; Washington, DC; and St. Louis are the only cities that have set performance standards for large buildings. New York is also the only city in the report with a congestion pricing program for its central buildings district. In addition, the city updated its community-wide climate and renewable energy goals through its updated OneNYC 2050 Plan.

Boston tied for second place this year, after leading the *City Scorecard* for the last several editions. Boston improved the buildings policies methodology to emphasize cutting-edge policies; doing so caused Boston's score to drop slightly. However, Boston still earned a top-three score in buildings policies due to its stringent building energy code—the Massachusetts Stretch Energy Code—and its energy-action requirements established by the Building Energy Reporting and Disclosure Ordinance. As in the past, Boston received a perfect score for the efficiency efforts of the energy utilities serving the city due to substantial investments in electricity and natural gas efficiency programs and comprehensive low-income and multifamily program offerings. The city also earned points for its efforts to spur a greater penetration of renewable energy in the grid mix.

Seattle tied Boston for second place this year. Seattle earned the second-highest score for buildings policies and the fifth-highest for transportation policies. As in past editions, Seattle earned high marks for the Seattle Energy Code and its enforcement of the code. The city performed well in policies for existing buildings due to its Tune-Up Policy and benchmarking and transparency ordinance. The city also advocated for a statewide performance standard for large commercial buildings, which subsequently passed. Seattle's high score for transportation policies was due to several actions, including its steps to encourage energy-efficient modes of transportation, its Freight Master Plan, and its efforts to deliver clean, efficient transportation options for low-income communities. Seattle was also a top-performing city for equity in planning and program delivery due in part to its transportation efforts and to its Equity and Environment Agenda, which seeks to advance racial equity in environmental planning.

Minneapolis maintained its fourth-place ranking due to a suite of new policies the city adopted prior to the 2019 *City Scorecard*. In particular, the city expanded its Commercial Building Energy Benchmarking and Transparency Ordinance and established policies requiring residential energy disclosures at the time of a property's sale or rental. In this edition, the city tied for the highest score in energy and water utilities and, within that policy area, earned top marks for its renewable energy–related metrics. Minneapolis earned the second-highest score in community-wide initiatives due to its progress toward its nearest GHG emissions reduction goal and equity-centric approach to planning via its Green Zones Initiative. Minneapolis also performed well for its efforts to provide clean, efficient transportation for low-income communities due to its Affordable Housing Trust Fund Program, Housing Tax Credit Program, and discounted memberships to its bike-sharing program.

San Francisco dropped slightly to fourth overall in the 2020 *City Scorecard* rankings, tying Minneapolis. Driving its strong performance was its top score for transportation policies. In location efficiency—the effort to encourage compact, mixed-use communities—the city is a leader due to its zoning regulations and parking requirements to prevent unneeded parking. San Francisco is also a high performer on mode-shift efforts. San Francisco scored well for buildings policies and local government operations as well. Its strong performance in buildings policies is due to its energy code enforcement efforts, policies for existing buildings, and the statewide California Building Energy Standards.

The competition among the five leading cities was close; only five points separated New York in first place and San Francisco and Minneapolis in fourth. Washington, DC; Denver, Los Angeles, San José; and Oakland round out the top 10.

Most-Improved Cities

The 2019 *City Scorecard* did not include a most-improved category; methodological changes between the 2017 and 2019 editions made direct score comparisons difficult.[13] In this edition, however, we have reinstated the most-improved category because consistent methodology between the 2019 and 2020 city scorecards enabled better score comparisons.

Forty-four of the returning 75 cities improved their scores since the last edition of the *City Scorecard*. We commend all cities for their improvements, but there were two with particularly notable point increases. This edition's most-improved cities are St. Paul and St. Louis. Table 3 gives information about these cities' ranks and policy improvements.

Table 3. Most-improved cities

City	2020 rank	2020 score	Change in score	Change in rank	Major policy improvements
St. Paul	16	51	+16	+15	Adopted building benchmarking ordinance; adopted community-wide climate goals; adopted VMT and modal share goals; integrated sustainable transportation strategies into broader plan; supported development of community solar system; passed resolution to support utility-scale renewable energy and storage
St. Louis	28	42	+11	+8	Adopted building performance standards; adopted solar readiness code; signed agreement with utility to promote renewable energy program

[13] The 2019 *City Scorecard* included a "Cities to Watch" category recognizing cities that had aggressively adopted or expanded a suite of clean energy policies since the 2017 edition. We selected cities on the basis of a qualitative assessment rather than a score comparison.

St. Paul is the most-improved city in the 2020 *City Scorecard*. The city made improvements across the board. By adopting its Climate Action and Resilience Plan, the city set a 2050 carbon neutrality goal with an interim target for 2030. The city passed an Energy Benchmarking Ordinance in January 2020 to increase energy efficiency in existing buildings. The ordinance requires owners of large multifamily and commercial buildings to benchmark energy use. The city council took steps to reduce transportation-related emissions by approving the St. Paul 2040 Comprehensive Plan in 2019. By doing so, it codified a goal to decrease vehicle miles traveled by 40% by 2040. The city also became the anchor subscriber for a 3.2 MW community solar system and encouraged utility-scale renewable energy.

St. Louis was the second-most-improved city in the *City Scorecard*. St. Louis's April 2020 adoption of its Building Energy Performance Standard bill was the primary driver of its improved score. By adopting it, St. Louis became the third city in the country—and the first in the Midwest—to enact a performance standard bill for buildings. The ordinance requires large existing buildings to meet a to-be-determined standard by 2025. After the initial compliance period, the standard will become more stringent through subsequent compliance cycles. St. Louis also adopted a solar readiness requirement for residential, multifamily, and commercial construction that is effective immediately. Additionally, to demonstrate support for the program, the city signed a memorandum of understanding with its electric utility, Ameren Missouri, to participate in a planned green tariff program.

Leading and Improving Cities over Time

The top-scoring cities have been consistent through all five editions of the *City Scorecard*. As table 4 shows, only 14 cities have appeared in the top 10 of any edition, and only 8 have appeared in the top 5. Cities in the top 10 of each *City Scorecard* have maintained their positions because their decision makers continue to advance clean energy policies.

Table 4. Tally of leading cities in all *City Scorecard* editions

City	Appearances in top 5	Appearancesin top 10
Boston	5	5
Seattle	5	5
New York	4	5
San Francisco	4	5
Washington, DC	2	5
Minneapolis	2	4
Portland	2	4
Los Angeles	1	3
Austin	0	4
Denver	0	4
Chicago	0	3
Oakland	0	1
Philadelphia	0	1
San José	0	1

While top scorers have been consistent, a city has broken into the top ranks in most editions. In the 2020 *City Scorecard*, two cities did so. San José earned 9th place after earning 11th in the 2019 edition; Oakland earned 10th place after being 12th in the previous edition. In the 2015 *City Scorecard*, Denver entered the top 10 for the first time, and in the 2017 *City Scorecard*, Los Angeles did the same. San José, Oakland, Denver, and Los Angeles show that it is possible to join the top 10 and stay there.

Compelling leaders have begun to emerge from cities lower in the rankings. Table 5 lists the cities whose rankings have increased by the greatest degree since their first inclusion in the *City Scorecard*.

Table 5. Improving cities over time

City	Time frame	Improvement in ranking over time
Hartford	2015–2020	+22
Los Angeles	2013–2020	+20
San José	2013–2020	+12
Orlando	2015–2020	+9
Providence	2015–2020	+9

Hartford, Orlando, and Providence are outside the top 10, and their performance shows that municipalities not in the highest tier can step up too. Hartford and Providence—both among the 15 least populated cities in the *Scorecard*—also demonstrate that small cities can move up in the rankings as well.

The combined score for all 75 cities in 2019 was 2,640.5 points out of a possible 7,500. In 2020, the total points for the same cities add up to 2,735, an increase of 94.5 points (3.6%). In 2020 the combined score for all 100 cities is 3,091 points out of a possible 10,000.

Top-Scoring Cities by Topic

The *City Scorecard* provides a holistic assessment of each city's pursuit of a clean energy agenda. However, a city's overall score or individual policy area scores do not convey each city's performance on issues and topics that cut across chapters, such as energy efficiency, equity in planning and delivery, or renewable energy. Here we reorganize city scores by these crosscutting topics. Table 6 lists the three highest-scoring cities for energy efficiency, equity, and renewable energy across the report. In Appendix D we provide comprehensive lists of all city scores for these topics.

Table 6. Top-scoring cities by crosscutting topics

	Energy efficiency policy	Equity in planning and program delivery	Renewable energy policy
Highest-scoring city	New York	Minneapolis	San José
Second-highest-scoring city	Seattle	Washington, DC	Austin, Seattle (tie)
Third-highest-scoring city	Boston, San Francisco (tie)	Seattle	

In the sections that follow, we discuss the top-scoring cities for equity and renewable energy. We do not address the leaders for energy efficiency in more detail. Energy efficiency accounts for the majority of points in the *Scorecard*, so it is unsurprising to see New York, Seattle, Boston, and San Francisco as the highest-scoring cities for energy efficiency. All rank in the top five of the *City Scorecard* and have comprehensive approaches to reducing energy use in buildings and the transportation system. We include further details on each city's policies in the "Leading Cities" section.

Equity-Driven Clean Energy Planning and Policy

Minneapolis. As it did in the last edition, Minneapolis earned the most points for integrating equity into its clean energy planning and program delivery. The city created the Minneapolis Green Zones Initiative and, through it, the Northern and Southside Green Zones. Community residents lead the green zones. Members of these communities sit on Green Zone Task Forces that advise the city on the implementation and evaluation of climate action work plans. The city and task forces use indicators to track the outcomes of sustainability initiatives that serve the zones, like participation in utility-administered low-income programs and the Solar*Rewards Community program. The energy utilities serving the city, Xcel Energy and CenterPoint Energy, offer a variety of programs for low-income customers. Minneapolis also continues to perform well in its efforts to provide clean, efficient transportation for low-income communities. The Affordable Housing Trust Fund Program and Housing Tax Credit Program encourage transit-oriented development, and Nice Ride, the bike-sharing program, offers discounted annual memberships to qualifying residents, including members of low-income households.

Washington, DC. The district took an equity-driven approach to community engagement for the Sustainable DC Plan update process. To make the process more convenient for residents of underserved communities, the city partnered with community organizations to recruit new participants; held meetings in familiar, Metro-accessible venues for community members; and restructured meeting formats. In partnership with the Georgetown Climate Center, the city also created the Equity Advisory Group. It consists of residents and leaders of neighborhoods most at risk of experiencing the negative effects of climate change. The DC Sustainable Energy Utility (DCSEU) administers utility customer–funded energy efficiency programs in the city and has a portfolio of programs focusing on different sectors of low-income customers. Through Solar Works DC, the city also provides low-income residents with solar installation job training. Additionally, the District has requirements to create more low-income housing near transit facilities and offers discounted memberships to Capital Bikeshare.

Seattle. As it did in the last edition, the city scored well for several metrics on this topic, including having an equity-driven approach to clean energy planning and offering energy efficiency programs targeting low-income and multifamily customers. The city continues to run the Environmental Justice Committee, which was formed in 2017. It allows residents most affected by environmental inequities to advise on new or existing policies and programs and provide guidance on implementation of the city's Equity and Environment Agenda. The city's electric utility, Seattle City Light, provides funding to a low-income weatherization program administered by the city of Seattle's Office of Housing, and it also offers a comprehensive multifamily program. Seattle provides a Multifamily Tax Exemption for affordable housing built in certain areas and provides discounted transit fare cards.

Renewable Energy Policy

San José. San José Clean Energy (SJCE) is San José's community choice aggregation (CCA) electricity supplier, providing all residents and businesses with carbon-free electricity. SJCE has a goal to source 100% of its power mix from non-hydro renewables by 2050 and 60% by 2030. Additionally, San José has a goal to install 1,362 megawatts (MW) of renewable energy generation capacity by 2050. It plans to pass the 1 gigawatt mark in 2038, as stated in the Climate Smart San José plan, and to have 225 MW of renewable energy generation capacity by 2021. PG&E—the electric distribution and transmission utility—also offers incentives for the installation of new distributed solar systems.

Austin. Austin Energy produced 43% of its total generation from renewable sources as of June 2019. Its Resource, Generation and Climate Protection Plan established goals to fill at least 55% of customer demand from renewable energy resources by 2025 and 65% by the end of 2027. Austin Energy also offers residential customers the option to enroll in a community solar program. Austin has used renewable energy to power 100% of its municipal operations since 2011. Additionally, Austin has a requirement that all new residential and commercial buildings be solar ready, and it has more than 50 onsite solar projects at municipal buildings.

Seattle. In 2018 Seattle City Light, the city's municipal utility, produced 94% of its electricity generation from carbon-neutral sources, with the majority stemming from hydro power. The city does not have a renewable energy goal, but the Seattle Climate Action Plan states the intention to maintain Seattle City Light's status as a carbon-neutral utility. Seattle City Light has developed five community solar projects with cumulative generating capacity of 170 kW and installed a solar-plus-storage microgrid at a community center. Additionally, the city requires commercial and multifamily buildings to install renewable energy or be solar ready. If solar is not feasible, buildings must meet energy efficiency savings requirements more stringent than the current code.

State Policy Impact

While the *City Scorecard* focuses on city government actions, variations in jurisdictional authority mean that state policy can affect city scores. Cities in states with strong clean energy policies benefit, while cities in other places may be limited in their ability to adopt policies. For example, the state of Washington's statewide building energy performance standard helped Seattle earn more points for buildings policies, while cities in Indiana and Kentucky lost points because these states impose less stringent building energy codes on their municipalities. Similarly, state policy disadvantaged localities in Arizona, Virginia, and Wisconsin; either a lack of enabling state legislation or an override prevents them from pursuing requirements for building owners to reduce energy use (e.g., building benchmarking policies).

We designed different scoring tracks to account for differences in jurisdictional authority. Regardless, it can be challenging to disaggregate state policy from city scores completely. We gauged the effect of state policy on city scores and present it in figure 6. We did not adjust city scores or ranks based on the values in figure 6 because it is impossible to know what cities

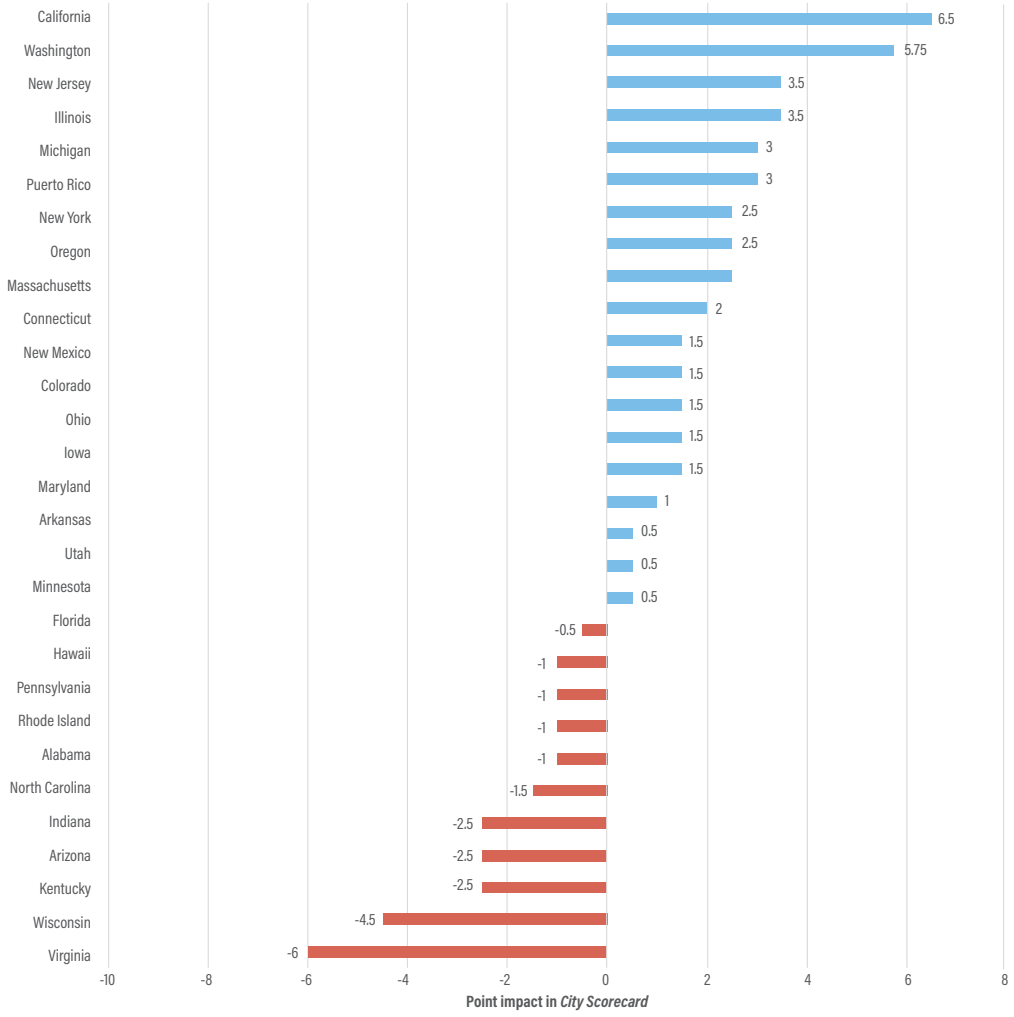
would have done in the absence of these state policies. Some leading cities would likely have adopted similar policies locally; others would not have. Rather than normalizing scores, we offer the state effects here to provide context to better interpret city scores in each of these states.

We factored the following activities into our state policy analysis.

- City authority to adopt energy-saving requirements for existing buildings
- City ability to pursue community solar
- Existence of energy efficiency resource standards
- State adoption of building energy codes
- Statewide outdoor LED lighting ordinances
- Statewide water savings targets

States in which state policy did not have a measurable effect on city scores are not listed in figure 6.

Figure 6. State policy effect on city scores



Positive numbers indicate the extent to which state policy has helped cities earn higher scores. The positive number is the combined amount of points for which state policy directly increased city scores. For example, every California city included in the *Scorecard* earned 6.5 points solely due to state policy. Negative numbers estimate the extent to which state policy reduced city scores within a state. Determining the negative values required making some assumptions, because we do not know what a city would have done if given the authority to pursue policies that a state prohibited. The number we dis-

play reflects a middle-of-the-road scenario for the points a city might add to its score if state law did not preempt it. For example, state policies in three states greatly disadvantage cities by preventing them from earning more than 2 or 3 points (of the 15 available) in our assessment of policies for existing buildings; because these cities cannot adopt requirements, several point-earning options are unavailable to them. However, based on our scoring of other cities, we do not expect that municipalities in these states would have earned the full 15 points even if they could have pursued the prohibited policies; the median score for building requirements across cities not affected by state policy was 1 out of 15. Therefore, rather than adding –12 or –13 points to the tally and potentially overstating the role of state policy, we assumed cities would have taken more limited steps (e.g., adopting a benchmarking requirement and one additional requirement) and included only –4 in the tally.

Unsurprisingly, California's statewide policies provided the most significant boost to its cities. California has a statewide benchmarking policy, statewide efficient outdoor lighting requirement, statewide water savings requirement, solar and EV readiness codes, and an energy efficiency resource standard. In other states, local governments rather than the state government are left to adopt most of these policies. State law in Virginia proved to have the most adverse effect on city scores. For example, Virginia's mandatory—and not stringent—building energy code reduces city scores. Cities are also held back by state law that prevents them from enacting energy savings requirements.

Bloomberg American Cities Climate Challenge

Cities in the Bloomberg American Cities Climate Challenge have committed themselves to aggressive actions to reduce GHG emissions. Beginning in early 2019, 25 cities accelerated their pursuit of ambitious policy proposals to increase energy efficiency, spur renewable energy use, and achieve more sustainable transportation. The Climate Challenge provided extensive technical assistance to help cities make progress toward their policy goals. Technical support included but was not limited to dedicated staff, implementation coaching, stakeholder engagement support, communications support, and access to tools and resources for program design.

The *City Scorecard* is a tool being used to gauge city progress. Each Climate Challenge city's performance in the 2019 *Scorecard*, which captured policy accomplishments through April 2019, serves as a baseline. The 2020 *City Scorecard* is assessing progress slightly more than halfway through the Challenge, and the 2021 *City Scorecard* will assess progress after the two-year period. Table 7 below details the 2020 scores of Climate Challenge cities.

Table 7. Climate Challenge cities' scores

City	Local government operations (10 pts)	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Energy and water utilities (15 pts)	Transportation policies (30 pts)	Total (100 pts)	Change in score from 2019	*City Scorecard* rank	Change in rank from 2019
Boston	8	8.5	20.5	13.5	22.5	73	–4.5	2	–1
Seattle	6.5	9.5	22.5	11.5	23	73	+3	2	+1
Minneapolis	7	11	18.5	13.5	22.5	72.5	+3.5	4	0
Washington, DC	7.5	11.5	19	9.5	24.5	72	+4	6	–1
Denver	7	11	18.5	12	17.5	66	+1.5	7	+1
Los Angeles	6	11	17.5	13	18	65.5	0	8	–1
San José	4.5	9	17.5	13	21	65	+3	9	+2
Portland	7.5	9	12.5	10	24	63	+0.5	11	-1
Austin	8	9.5	17.5	9	15.5	59.5	–3.5	12	–3
Chicago	2.5	8	20	11.5	15	57	+0.5	13	+1
Atlanta	6	10	12.5	8	18	54.5	+9.5	14	+8
Philadelphia	5	7.5	14.5	7.5	17	51.5	+0.5	15	+1
St. Paul	3.5	6.5	13	12.5	15.5	51	+16	16	+15
San Diego	4	6	12	13.5	14	49.5	–9	18	–5
Pittsburgh	4.5	8.5	10	6	20	49	+3	19	0
Orlando	7	8.5	11	6	15	47.5	–4	21	-6
St. Louis	2.5	7.5	17.5	5.5	9	42	+11	28	+8
Columbus	3.5	8.5	7.5	9.5	12	41	–0.5	29	–4
San Antonio	4.5	7.5	11	4.5	10	37.5	+3.5	31	+1
Cincinnati	4.5	5.5	6.5	5.5	9	31	–2	36	–2
Albuquerque	6	2	4	8.5	10	30.5	+7.5	40	+12
Honolulu	2.5	4	1.5	7.5	13.5	29	+3	41	+6
St. Petersburg	3.5	5.5	5.5	2	9	25.5	–3	51	–10
Indianapolis	2	5.5	1.5	4.5	9.5	23	–1	62	–8
Charlotte	3	1.5	5	6	6.5	22	+6	65	+9
Median of Climate Challenge cities	**4.5**	**8.5**	**12.5**	**9**	**15.5**	**51**			
Median of all *City Scorecard* cities	**2.5**	**3**	**7**	**5.5**	**8.5**	**26**			

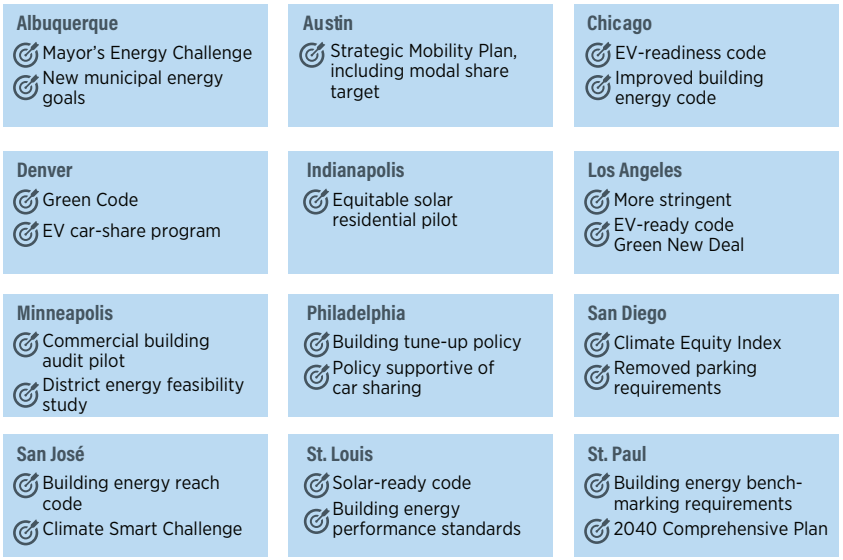
As table 7 shows, many Climate Challenge cities are already in the top tier of the *Scorecard*. Challenge cities occupy three of the top five spots, and seven of the top ten. Among the 25 cities, 22 are in the top half of our rankings. Challenge cities are also ahead of the pack in their scores for every policy area, including buildings policies and transportation policies.[14] The median score for Climate Challenge cities in the buildings and transportation sections are 12.5 and 15.5, respectively, better than the median scores of 7 and 8.5, respectively, across all 100 cities.

Closer analysis of city performance reveals that some cities have taken strides within the last year. Most notably, the two most-improved cities in the 2020 *City Scorecard*, St. Paul and St. Louis, participate in the Climate Challenge. St. Paul catapulted from 31st in the rankings in 2019 to 16th in 2020, and St. Louis moved up eight places to 28th overall. We discuss

[14] The Climate Challenge seeks to support cities in ramping up energy efficiency in buildings, increasing the use of renewable energy, creating more-sustainable transportation systems, or a combination thereof. To achieve their aims, cities developed and are pursuing different clean energy strategies that may include (but are not limited to) adopting benchmarking and transparency policies, accelerating the transition to EVs, and encouraging the use of renewable energy. While metrics capturing these efforts are scattered throughout the *City Scorecard*, they are most concentrated in the buildings policies and transportation policies sections.

each city's policy accomplishments in the "Most-Improved Cities" section above. Other Challenge cities beyond St. Paul and St. Louis also improved, with 16 of them earning higher scores than in the 2019 *City Scorecard*. Figure 7 lists some new initiatives from select Climate Challenge cities.

Figure 7. New initiatives of select Climate Challenge cities



Though Climate Challenge cities have taken positive steps over the last year, none earned more than 73 points out of 100, so clearly there is room to improve. For example, though Climate Challenge cities earned higher scores for buildings policies and transportation policies than other cities did, nearly all Climate Challenge participants can earn several more points in each area. Their median score for buildings policies was less than half the number of points available; the median for transportation policies barely exceeded half the points available. In addition, while three Climate Challenge cities earned the highest scores in the *City Scorecard* on equity considerations, most—even the best performers—can do more. Climate Challenge cities had the most room for improvement in metrics related to equity-driven planning, implementation, and evaluation, and equitable workforce development initiatives for energy efficiency and renewable energy.

Some of the cities have more room for growth than others. Lower-performing cities have foundational steps available to them as they pursue their clean energy agendas. If they replicate the policy activity of municipalities like St. Paul, St. Louis, and San José, they could quickly rise through the rankings in subsequent years.

Interpreting Results across Policy Areas for All Cities

Persistent Scoring Gap

The policy improvements from the leading and emerging cities discussed above are encouraging. However, significant room exists for other cities to emulate these leaders and adopt clean energy policy. Table 8 shows the difference between the median score of the top 10 cities and the median score of the bottom 10 cities in each *City Scorecard* since the 2015 edition.

Table 8. Comparison of top 10 and bottom 10 cities over time

City Scorecard edition	Top 10 median	Bottom 10 median	Differential of medians of top 10 cities and bottom 10 cities
2015	72.25	22.75	49.5
2017	75	22.5	52.5
2019	67.5	18	49.5
2020	72.25	19	53.25

The 51 cities we have assessed since the *City Scorecard* represents the largest sample of historical data on city scoring. (The 2013 *City Scorecard* assessed 34 cities.) We limit our analysis here to these 51 cities. We did not have several years of data for cities added in 2019 and 2020.

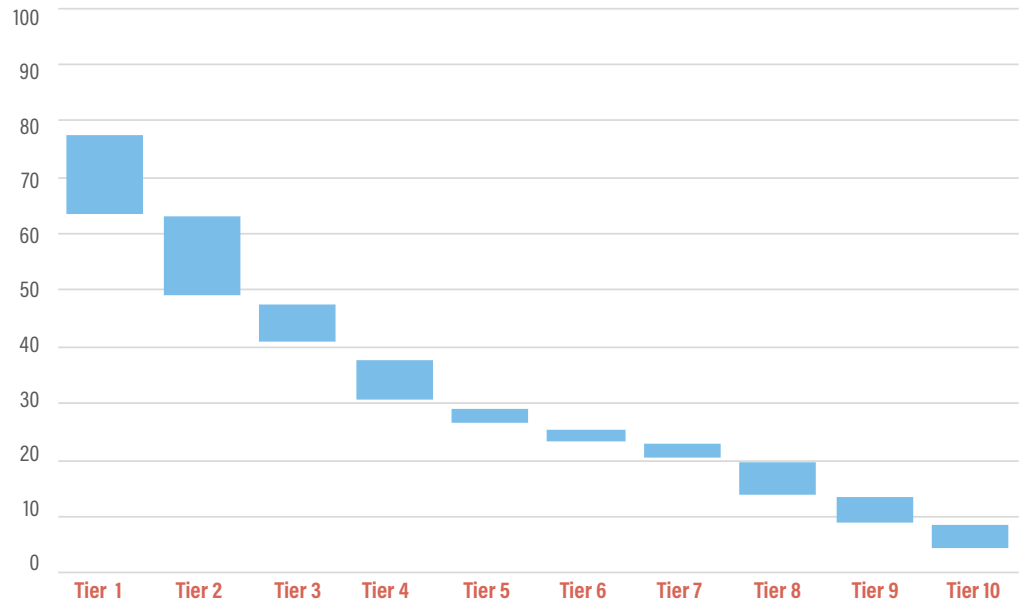
Table 8 shows that across all editions, the difference in the average top-tier city score and the average bottom-tier city score fluctuated in a narrow band between approximately 50 and 53. This wide score disparity has been a feature of each *City Scorecard* edition. The consistent scoring differential means bottom-scoring cities have not yet significantly gained ground on the high achievers. Lower-ranking cities' policy efforts have either stagnated or never started. If municipalities are to scale up efforts to reduce GHG emissions broadly, more cities throughout the rankings will need to realize more comprehensive policy accomplishments.

Score Variation among Tiers

It is often helpful to look at city scores in groups or tiers of 10 when attempting to contextualize results. In many cases, cities in the same tier exhibit similar levels of leadership on clean energy. The few points that separate individual cities from each other can be less indicative of a city's clean energy ambition than the tier in which each is grouped. For example, all the cities in the top tier are national leaders, regardless of the point differences among them; each city in the tier has lessons to offer others. Conversely, all the cities in tiers 9 and 10 have substantial room to accelerate their efforts.

Figure 8 shows the point ranges in city scores among the 10 tiers in the 2020 *City Scorecard*.[15]

Figure 8. Range of total points earned per city tier



Tiers 1 and 2—made up of the top 10 cities, and those ranked 11 through 20—have the widest ranges of scores among the city tiers. These score distributions show that clean energy leaders have emerged and distinguished themselves not only from cities in other tiers but also from others within their own tier. The wide ranges also demonstrate the level of effort needed to join the top 20: Cities outside the top two tiers must make sizable point improvements to move up the ranks. Municipalities like Denver, San José, and St. Paul have shown it is possible to gain ground on top-scoring cities, but it takes concerted policy progress to do so.

The point variations are smaller in tiers 3 and 4 but are particularly narrow in tiers 5 through 7. Just 8.5 points separate the 31 cities included in these tiers. The clustered scores in the middle tiers mean that small score improvements will likely help cities move up in future rankings. For example, Aurora was in tier 6 in the 2019 *City Scorecard* but moved up 21 spots in this edition by increasing its score by fewer than 10 points. Conversely, those that do not make improvements will fall in the rankings. Climate Change cities occur in tiers 1 through 7, with a range of total points from 22 to 73.

[15] For more information on the cities in each tier, see table 2, which uses shading to indicate the tiers.

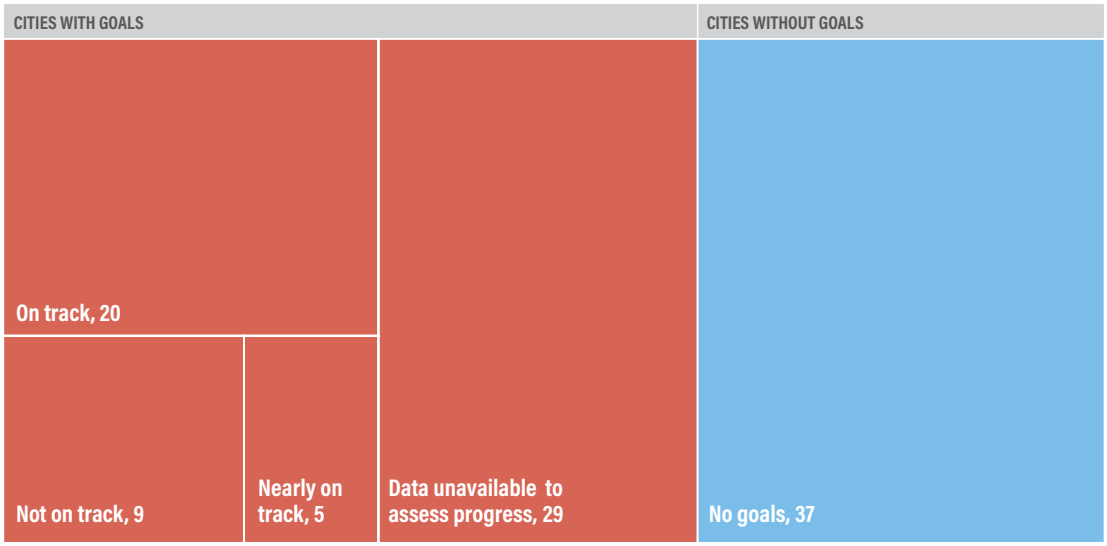
Cities in the bottom two tiers earned fewer than 15% of the points available. Fifteen of the 20 cities in these groups are new to the *Scorecard*, though, so it is also possible we did not fully capture all policy activity. Cities in these tiers are relatively new to clean energy activities, are just beginning comprehensive efficiency initiatives, or simply have not prioritized energy efficiency and renewable energy. Any one of them could quickly gain ground in future rankings if it began pursuing clean energy policies.

A comparison of the bottom tier with the top tier illustrates the gulf between the leading cities and those at the bottom of the rankings. Tier 1 is separated from tier 10 by 55 points, showing that bottom-tier cities have substantial room to improve.

Policy Trends

More cities are projected to be on track to achieve their goals than in the 2019 City Scorecard, *but these represent only a minority of the cities with goals.* Of the 63 cities with goals to reduce community-wide GHG emissions, we project that 20 are on track to meet them. This is an improvement of nine cities since the 2019 *City Scorecard*. However, the balance of cities will need to improve their tracking of progress or their actual progress. Figure 9 provides an overview of city progress toward community-wide climate goals.[16] Of the 49 cities with goals for local government operations, we project only 17 to be on track.

Figure 9. Overview of city progress toward community-wide climate goals

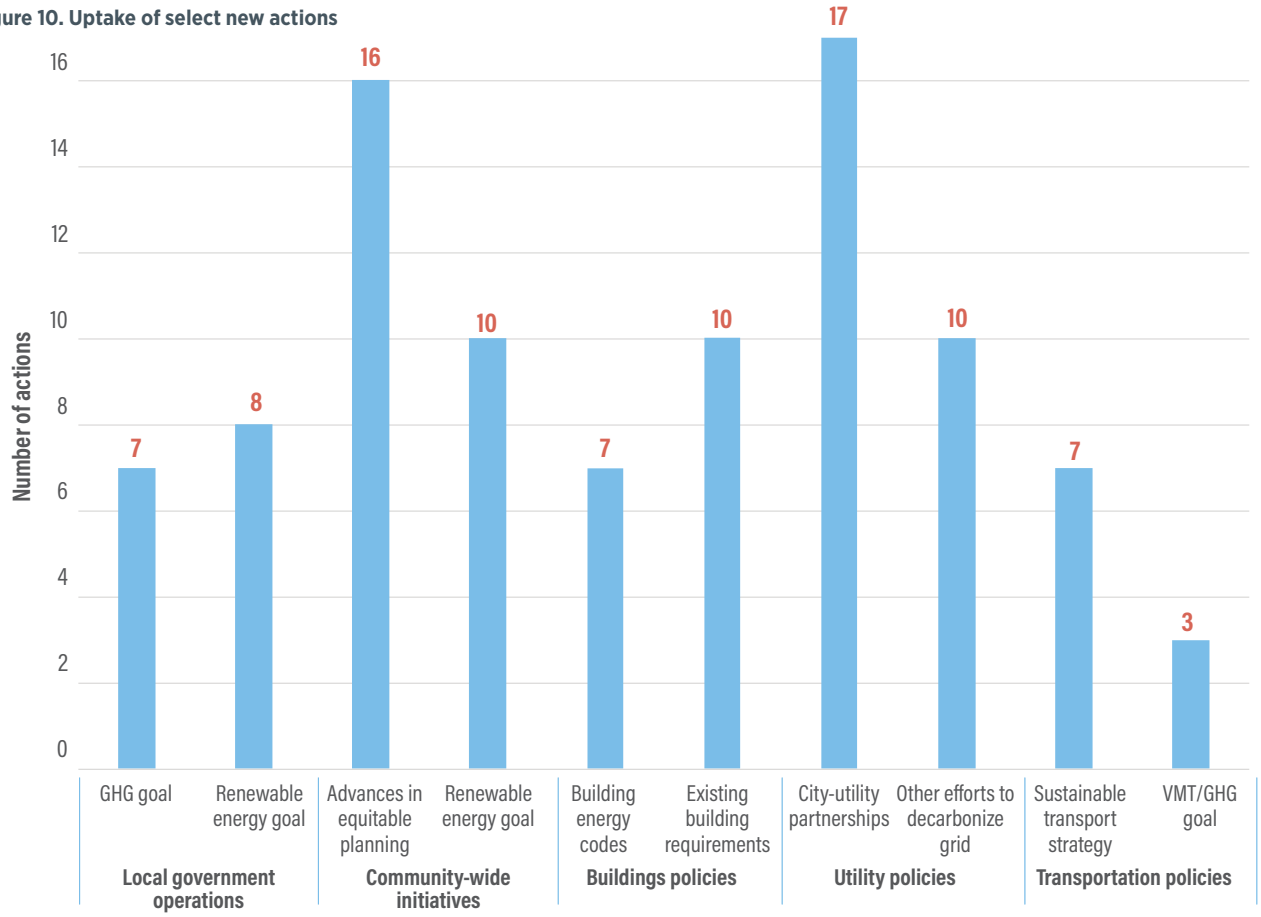


Many cities continue to ramp up their commitments to reduce GHG emissions by adopting new policies, creating new programs, and strengthening existing efforts. Between April 1, 2019, and May 1, 2020, local governments across the 100 cities we assessed took more than 160 new actions—new initiatives or expansions of past ones—to advance their clean energy efforts. Actions ranged from modest (e.g., creating telecommuting policies for local government employees, allowing them to reduce commutes) to cutting edge (e.g., setting performance standards for existing buildings). Figure 10 shows the actions in each policy area that had the most uptake since the 2019 *City Scorecard*.[17]

[16] Figure 17 displays our projections for the 34 cities with goals that have data allowing us to assess progress. Table F6 in Appendix F provides complete information on cities' climate goals, the availability of data to assess progress, and our projections.

[17] Table F1 in Appendix F provides a more comprehensive tally of cities' uptake of new actions.

Figure 10. Uptake of select new actions



Cities are encouraging utilities and state regulators to increase the use of renewable energy in the power system. Twenty-four cities took at least 27 actions to encourage the decarbonization of the power system.[18] Cities submitted comments on public utility commission proceedings, entered into formal partnerships with utilities, enacted community choice aggregation programs, and participated in planning efforts with utilities. For example, Cleveland sent letters to legislators and the utility commission encouraging them to maintain the state of Ohio's renewable and efficiency standards, and Columbus is partnering with its energy utility on renewable energy projects.

Cities continue to use building energy codes to achieve savings in new buildings and are beginning to pursue groundbreaking policies for existing buildings. Seven cities updated building energy codes, four cities adopted or updated codes for electric vehicle (EV) readiness, and four adopted or updated solar-ready codes. Each action is poised to reduce GHG emissions from new or substantially renovated buildings. Cities also continue to adopt energy efficiency requirements to reduce GHGs from existing buildings. More cities have adopted benchmarking and transparency policies to serve as a foundational steps. Now, leading cities—namely Washington, DC; St. Louis; and New York—are taking innovative next steps by adopting performance standards.

Lack of vehicle-miles-traveled and transportation-specific GHG goals suggests cities have much more to do to reduce GHG emissions from transportation. Since the last edition of the *City Scorecard*, several municipalities released sustainable transportation plans, four cities updated zoning codes to enhance location efficiency, and New York became the first city in the country with a congestion pricing program. However, our analysis of these sustainable transportation plans suggests that cities should be more deliberate about including and adopting vehicle-miles-traveled (VMT) reduction targets and transportation-specific GHG targets. Having VMT goals or transportation-specific GHG goals is a good indicator that cities are prioritizing reduction of emissions and energy use in their transportation activities. We found that of the 74 cities with some type of sustainable transportation plan, only 26 cities include specific targets for GHG or VMT reduction.

[18] See the "City-led efforts to decarbonize the utility electric grid" component of table 26 in Chapter 5, "Energy and Water Utilities," for all activities we capture.

While some cities have increased engagement with low-income communities and communities of color, all have substantial room to ramp up their efforts. As we found in the 2019 *City Scorecard*, few cities scored well on metrics assessing efforts to capture community input or achieve equitable outcomes for all communities. Some cities have taken steps since the last edition, with 14 cities taking 16 actions to improve their approaches to equitable clean energy planning in some way. However, with Portland joining Minneapolis, Providence, and Seattle as the only cities with robust equity-driven approaches to clean energy planning, implementation, and evaluation, there is significant room to improve almost everywhere. These four cities' approaches to community engagement, decision making, and accountability are models other cities can use in their own planning processes.[19] Beyond planning processes, more can be done to direct clean energy investments to low-income communities and communities of color. For example, those utilities not offering strong low-income and multifamily energy efficiency programs can learn from the activities of leading cities and utilities.

STRATEGIES FOR ADVANCING CLEAN ENERGY

All cities have considerable room for improvement, even those ranked in the top tier. Below are high-level recommendations and example policies for cities wanting to advance their clean energy efforts. We provide recommendations based on rank; we do so in order to meet cities where they are in their own policymaking process. However, lower-ranked cities may want to pursue the more ambitious policies recommended for top-ranking cities, in parallel with foundational policies.

Cities in the lower one-third of the rankings (#68 through #100) can consider foundational policy steps:

Lead by example in local government operations and facilities. Adopt policies and programs to save energy in public sector buildings and fleets and in standard practices such as procurement (Chapter 2). Boston has a carbon neutrality goal, requires municipal departments to purchase high-efficiency vehicles, and benchmarks energy use in 100% of its municipal buildings.

Adopt GHG reduction, energy savings, and renewable energy targets. Set goals for the public and private sectors to lay the foundation for further policy activity (Chapters 2 and 3). Washington, DC, adopted ambitious goals to reduce greenhouse gas emissions, lower energy use, and ramp up the use of renewable electricity by 2032.

Engage low-income communities and communities of color in clean energy planning processes. Structure public engagement strategies to increase the involvement of marginalized groups. Give marginalized residents a formal role in decision making for clean energy initiatives. Create goals, metrics, and protocols to be accountable on issues of social equity (Chapter 2). Seattle formed the Environmental Justice Committee in 2017. It allows residents most affected by environmental inequities to influence implementation of the Equity and Environment Agenda.

Cities in the middle rankings (#34 through #66) can build on past successes and prioritize new sectors they have not yet addressed:

Manage, track, and communicate energy performance, and enable broader access to energy-use information. If not already established, put in place mechanisms to track progress toward climate and energy goals. Work with utilities to improve local governments' and residents' access to data (Chapters 2, 3, and 5). Austin Energy's annual corporate reports include community-wide energy consumption information.

Partner with energy and water utilities to develop and administer energy-saving plans and spur greater adoption of renewable energy. Work in partnership with the utilities to design programs to reach low-income and multifamily households (Chapter 5). The Clean Energy Partnership between Minneapolis and the city's two largest utilities formalizes a role for the utilities in the city's efforts to achieve its energy goals.

Adopt clean energy policies for new buildings. Ensure that energy code enforcement and compliance for new buildings are effective and well funded. If the city has authority under state law, adopt more stringent building energy codes; if not, advocate for the state to do so (Chapter 4). Philadelphia adopted the 2018 International Energy Conservation Codes (IECC) for commercial construction after the passage of state legislation in 2017 (HB 409) gave the city authority to do so.

[19] Table F7 in Appendix F includes more information on approaches to equitable community engagement, decision making, and accountability in Minneapolis, Portland, Providence, and Seattle.

Decrease transportation energy use through sustainable transportation planning and policy implementation and through support for cleaner vehicles. Create sustainable transportation plans that include goals for reducing VMT or GHG emissions from transportation and for increasing the proportion of trips taken using non-automobile modes of transportation. Use location-efficient zoning and integrate transportation and land use planning so residents can access major destinations via multiple transportation modes (Chapter 6). Portland's 2035 Transportation System Plan includes sustainable transportation policies to reduce carbon emissions, air pollution, water pollution, and reliance on private vehicles. Take steps to encourage more high-efficiency vehicles in communities by offering incentives for efficient vehicles as well as electric vehicle charging infrastructure.

Top cities (#1 through #33) can consider more advanced or cutting-edge policies:

Create clean energy requirements for existing buildings. If cities have authority under state law, create energy action mandates like building energy performance requirements; if not, run voluntary programs addressing energy use in existing buildings (Chapter 4). The Clean Energy DC Omnibus Amendment Act of 2018 sets energy performance standards for large buildings.

Pursue innovative strategies in the transportation sector and track results. Become an early adopter of high-impact transportation efficiency strategies, like increasing freight system efficiency. Track progress toward transportation-related goals to ensure continued gains (Chapter 7). The Freight NYC plan highlights strategies for greening the freight supply chain through logistics consolidation, carbon-neutral shipping, and clean vehicle use.

Design cutting-edge, equitable policies. Create better, more impactful policies that provide significant GHG emissions reductions while also advancing energy equity goals. Do so by prioritizing engagement with and involvement of marginalized groups during program design. Use goals, metrics, screening tools, and protocols to ensure that policy implementation leads to better outcomes for low-income communities and communities of color. Boston is taking a collaborative governance approach to develop its building performance standard by involving community partners representing marginalized communities and compensating them for their time.

Chapter 2. Local Government Operations

Lead Authors: Kate Tanabe, Stefen Samarripas, Alexander Jarrah, and Nick Henner

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 set their operations down a clean energy path, cities can adopt GHG emissions reduction goals, energy savings targets, or renewable energy goals to guide policies and programs. Local governments can achieve these objectives by incorporating energy efficiency and renewable energy 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 management, will enhance clean energy use throughout local government operations.

Local government efforts to improve energy efficiency and increase the use of renewable energy can demonstrate a city's commitment to reducing GHG emissions. 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 elements of sustainability plans, climate action plans, or energy-specific strategies to address long-term community priorities. Not only will successful efforts save energy and money, but they 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 2014b).

SCORING

Cities could earn up to 10 points for local government operations, as shown in figure 11.

Figure 11. Local government operations scoring overview

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 discuss these community-facing efforts in the chapters that follow.

RESULTS

Austin and Boston tied for the top score in local government operations. Austin earned a perfect score for climate and energy goals, making it the only city to earn all available points for this metric. Portland, San Francisco, and Washington, DC, followed, tying for the second-highest score. Overall, though cities did not perform particularly well in any category in the policy area, they earned higher scores for their procurement and construction policies and asset management strategies than for their climate and energy goals.

Table 9 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 9. Local government operations scores

City	Climate and energy goals (4 pts)	Procurement and construction policies (3.5 pts)	Asset management (2.5 pts)	Total (10 pts)
Austin	4	2.5	1.5	8
Boston	2.5	3.5	2	8
Portland	2.5	3	2	7.5
San Francisco	2.5	2.5	2.5	7.5
Washington, DC	3	2	2.5	7.5
Denver	3	1.5	2.5	7
Oakland	3	2	2	7
Orlando	3.5	1.5	2	7
Minneapolis	2	2.5	2.5	7
Providence	1.5	3	2.5	7
New York	1	3	2.5	6.5
Phoenix	1.5	2.5	2.5	6.5
Seattle	2.5	2	2	6.5
Albuquerque	1.5	2.5	2	6
Atlanta	2	2.5	1.5	6
Las Vegas	1	3	2	6
Los Angeles	1.5	2	2.5	6
Salt Lake City	1.5	2.5	2	6
Boise	1.5	2.5	1.5	5.5
Nashville	2	2	1.5	5.5
Sacramento	1.5	2	2	5.5
Knoxville	1	2.5	1.5	5

City	Climate and energy goals (4 pts)	Procurement and construction policies (3.5 pts)	Asset management (2.5 pts)	Total (10 pts)
Philadelphia	1.5	1	2.5	5
Cincinnati	0	3	1.5	4.5
Cleveland	1.5	1	2	4.5
Long Beach	0	2	2.5	4.5
Pittsburgh	1.5	1	2	4.5
San Antonio	0.5	2	2	4.5
San José	1	2.5	1	4.5
Worcester	0.5	2.5	1.5	4.5
Chula Vista	0	2	2	4
Grand Rapids	1	1.5	1.5	4
Houston	1	1.5	1.5	4
Raleigh	0	2	2	4
San Diego	0.5	1.5	2	4
Bridgeport	0	2	1.5	3.5
Buffalo	0.5	1	2	3.5
Columbus	1.5	0.5	1.5	3.5
Dallas	0.5	0.5	2.5	3.5
Kansas City	1	1	1.5	3.5
St. Paul	0	2	1.5	3.5
St. Petersburg	1	0.5	2	3.5
Baltimore	0	1.5	1.5	3
Charlotte	0	0.5	2.5	3
Hartford	0	1.5	1.5	3
New Orleans	0	1	2	3
Tucson	0	2.5	0.5	3
Virginia Beach	0	1	2	3
Chicago	0	1.5	1	2.5
Honolulu	0	1.5	1	2.5
Madison	1	0.5	1	2.5
New Haven	1.5	1	0	2.5
Riverside	0	1.5	1	2.5
St. Louis	1	1	0.5	2.5
Birmingham	0	1.5	0.5	2
Indianapolis	0.5	1.5	0	2
Louisville	0	0	2	2
Miami	0	1	1	2
Milwaukee	0	0	2	2
Reno	0.5	0	1.5	2
Richmond	0	0	2	2
Rochester	0	0.5	1.5	2
Syracuse	0.5	0	1.5	2
Charleston	0	1	0.5	1.5
Colorado Springs	0	0.5	1	1.5

City	Climate and energy goals (4 pts)	Procurement and construction policies (3.5 pts)	Asset management (2.5 pts)	Total (10 pts)
El Paso	0	1.5	0	1.5
Fort Worth	0	0.5	1	1.5
Bakersfield	0	1	0	1
Detroit	0	1	0	1
Memphis	0	0	1	1
Toledo	0	0.5	0.5	1
Tulsa	0	0.5	0.5	1
Winston-Salem	0	1	0	1
Allentown	0	0.5	0	0.5
Aurora	0	0	0.5	0.5
Jacksonville	0	0.5	0	0.5
Mesa	0	0.5	0	0.5
Newark	0	0	0.5	0.5
Oklahoma City	0	0.5	0	0.5
Oxnard	0	0	0.5	0.5
Tampa	0	0	0.5	0.5
Akron	0	0	0	0
Augusta	0	0	0	0
Baton Rouge	0	0	0	0
Cape Coral	0	0	0	0
Columbia	0	0	0	0
Dayton	0	0	0	0
Des Moines	0	0	0	0
Fresno	0	0	0	0
Greensboro	0	0	0	0
Henderson	0	0	0	0
Lakeland	0	0	0	0
Little Rock	0	0	0	0
McAllen	0	0	0	0
Omaha	0	0	0	0
Provo	0	0	0	0
San Juan	0	0	0	0
Springfield	0	0	0	0
Stockton	0	0	0	0
Wichita	0	0	0	0
Median	**0**	**1**	**1.5**	**2.5**

Leading Cities

Boston. Boston is on track to achieve its goal of carbon neutrality in government operations by 2050. The city has also set a goal to reduce energy use in municipal buildings by 20% by 2023, and it has installed solar energy systems on municipal facilities through the Renew Boston Trust. In accordance with its Energy Reporting and Disclosure Ordinance, the city benchmarks 100% of municipal buildings. A 2007 executive order on climate action requires municipal departments to purchase hybrid or high-efficiency

vehicles. Nearly 15% of Boston's fleet is currently composed of efficient vehicles, which represents an increase of 7 percentage points since the city's reporting for the 2019 *City Scorecard.*

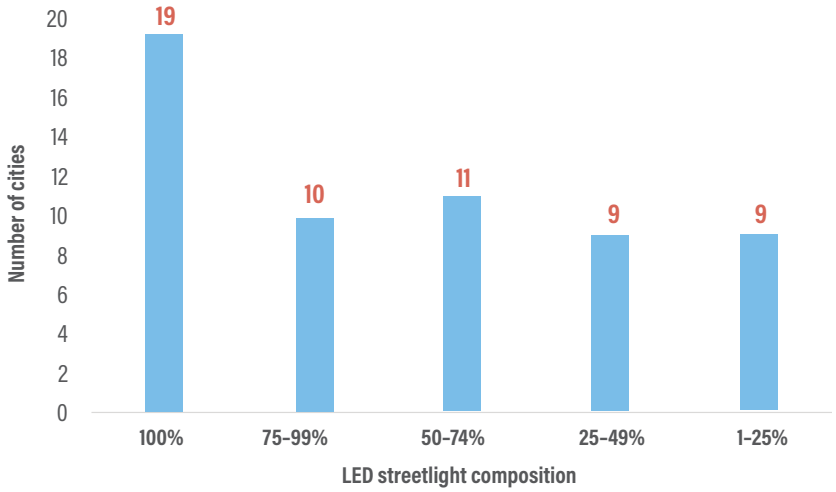
Austin. Austin aims to achieve carbon-neutral municipal operations by the end of 2020 and is currently on track to meet this climate mitigation goal. Austin has also set goals to reduce energy consumption in buildings by 5% annually and has powered all municipal buildings with 100% renewable energy since 2011. The city has also set goals for a carbon-neutral vehicle fleet. More than 14 megawatts of renewable energy generation capacity is installed on municipal buildings. Austin benchmarks nearly 100% of its municipal building square footage in accordance with the city's Energy Conservation Audit and Disclosure Ordinance.

Portland. Portland tied San Francisco and Washington, DC, for the second-highest score for local government operations. The city's Climate Action Plan establishes a goal to reduce GHG emissions by 53% below 2006 levels by 2030, and Portland is currently on track to meet it. Each year, the city aims to power 100% of municipal operations with renewable energy. Portland has deployed onsite solar installations and battery storage at a municipal facility, and its vehicle purchasing policy mandates the most efficient vehicles that meet work requirements. Some 14% of the city's fleet is composed of energy-efficient vehicles including hybrid, plug-in hybrid, and battery electric.

Issue in Focus: LED Outdoor Lighting

Converting streetlights to LEDs is a cost-effective way to reduce local governments' energy use. Over its lifetime, efficient outdoor lighting not only can cut overall energy consumption but can reduce maintenance spending as lights are replaced less often. Results show that cities across the country are prioritizing LEDs when replacing streetlights or when partnering with utilities to convert streetlights; in other cases, cities have benefited when utilities convert their utility-owned streetlights to LEDs. More than half of the cities included in the *City Scorecard* have had at least a portion of their streetlights converted to LEDs. Of the 58 cities that provided lighting conversion data, 19 have converted all streetlights to LEDs, 10 have switched 75–99% of their streetlights to LEDs, and 11 have converted 50–74%. The 19 cities with 100% conversion to LED streetlights represent an increase of 7 from the previous edition of the *Scorecard*. Figure 12 shows the extent to which cities have converted outdoor lighting to LEDs.

Figure 12. LED streetlight conversion rates (n = 58)



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 discuss community-wide climate and energy goals in Chapter 3.

In this category we scored cities on:

- Stringency of their climate change mitigation goals (1 point)
- Progress toward their climate change mitigation goals (1 point)
- Stringency of their renewable energy goals (1 point)
- Stringency of their energy efficiency goals (1 point)

1 point

Climate Change Mitigation Goal Stringency

Many cities have multiple GHG emissions goals, with different time horizons for both local government operations and the larger community. There is often one goal to achieve certain savings in the near term (e.g., 2020) and another to achieve a deeper level of savings by 2050. In assessing municipal goals in this chapter and community-wide goals in the following chapter, we evaluate cities on the basis of the average annual percentage reductions required to meet their nearest-term goal, rather than measuring annual reductions toward a city's interim and final goals. This metric recognizes city governments that are striving to set more ambitious climate goals relative to those of other cities. We have 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 GHGs and energy use. While local-level GDP data are typically unavailable, we have been able to control for population change over time by evaluating goals in terms of per capita GHG emissions. This allows 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 2017, 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) 2010 Census and American Community Survey one-year population estimates.

Cities could earn up to 1 point in this metric, as shown in table 10.

1 point

Climate Change Mitigation Goals Progress

Cities could earn up to 1 point for progress toward their climate change mitigation goals (table 10). 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 2019, using all available interim data.[20] 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 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.

1 point

Renewable Electricity Goal Stringency

This metric assesses cities based on the ambitiousness of goals to power local government operations using renewable energy sources. Cities may pursue several strategies to achieve renewable electricity goals. They may work to add 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 renewable sources to achieve their near-term renewable electricity goal.

[20] In cases where insufficient data existed 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.

We first calculated the difference between a city's targeted renewable electricity percentage and the renewable energy mix of a city's electricity consumption at or near the time the goal was adopted.[21] We then multiplied this percentage by the city's per household electricity consumption in the year closest to the goal's adoption. We refer to the resulting kilowatt-hour (kWh) per household value as a preliminary renewable electricity conversion target because it provides the closest estimate of the kWh per household that would need to be converted from carbon-emitting to renewable sources given available data at the time the goal was adopted. If per household electricity consumption were to remain unchanged over future years, this value could be used to calculate the total kWh that would need to be generated from renewable sources to achieve the city's goal given population changes.

However, electricity consumption remaining unchanged is unlikely. To account for changes in electricity use, we assumed that it will decline at an annual rate of 1%, consistent with recent local-level changes observed by Samarripas and de Campos Lopes (2020). We assumed this decline continues through 2030 and that electricity use remains unchanged in subsequent years through the target date. We have not projected electricity use changes after 2030 because it is difficult to anticipate electricity trends that far in the future.

Using the preliminary renewable electricity conversion target as a baseline, we projected each city's expected kWh per household that would need to be generated from renewable sources in the target year assuming electricity use declines at an annual rate of 1% through 2030 and remains flat thereafter through a goal's target date. We then divided this final renewable conversion target by the total years between the electricity data vintage closest to the city goal's adoption and that goal's target year. This annual renewable electricity conversion target was used to compare the stringency of city goals.

As with GHG mitigation goal stringency, we calculated targeted renewable electricity conversions for each city, as most cities do not set goals along the same timelines.[22] We did not assess sector-specific renewable electricity goals for stringency. We also did not assess city progress on these goals due to a lack of data.

1 point

Energy Reduction Goal Stringency

To recognize cities that set ambitious energy savings goals for future years, we assessed goals based on the average annual per capita energy reductions required to meet them. We used our approach for calculating climate change mitigation goal stringency to calculate energy savings goal stringency, substituting energy use values for GHG emissions. Cities could earn up to 1 point in this metric, as shown in table 10.

Table 10 summarizes the scoring, and figure 13 lists the scores for local government climate and energy goals. Table E1 in Appendix E provides more detailed city scores, such as for climate change mitigation goal stringency and progress.

Table 10. 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 4%.	1
Average annual greenhouse gas emissions reductions per capita are less than 4% but greater than 2.5%.	0.5
Climate change mitigation goal progress	
City is on track to meet its nearest-term goal.	1
City is not on track to meet nearest-term goal but is projected to achieve savings within 25% of stated goal.	0.5
Renewable energy generation goal stringency	
Annual per household conversion target is greater than or equal to 120 kWh.	1
Annual per household conversion target is at least 40 kWh but less than 120 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

[21] We used the share of a city's electricity generated from carbon-free sources if the city had adopted a carbon-free electricity goal. If a city had adopted a solar generation capacity goal, we converted its capacity target to kWh by assuming that solar PV operated with a capacity factor of 25%, consistent with the U.S. average (EIA 2019c). In evaluating each city, we considered renewable electricity generation to be that which conformed to the definition adopted by the state or local government.

[22] Cities reporting that at least 90% of its electricity was generated from renewable or carbon-free energy sources received 1 point in lieu of credit for the stringency of a local government renewable or carbon-free electricity target.

Figure 13. Local government climate change mitigation and energy goals scores (out of 4 possible points)

Austin (4)	Houston (1)	Bridgeport (0)	Memphis (0)
Orlando (3.5)	Kansas City (1)	Cape Coral (0)	Mesa (0)
Denver (3)	Knoxville (1)	Charleston (0)	Miami (0)
Oakland (3)	Las Vegas (1)	Charlotte (0)	Milwaukee (0)
Washington, DC (3)	Madison (1)	Chicago (0)	New Orleans (0)
Boston (2.5)	New York (1)	Chula Vista (0)	Newark (0)
Portland (2.5)	San José (1)	Cincinnati (0)	Oklahoma City (0)
San Francisco (2.5)	St. Louis (1)	Colorado Springs (0)	Omaha (0)
Seattle (2.5)	St. Petersburg (1)	Columbia (0)	Oxnard (0)
Atlanta (2)	Buffalo (0.5)	Dayton (0)	Provo (0)
Minneapolis (2)	Dallas (0.5)	Des Moines (0)	Raleigh (0)
Nashville (2)	Indianapolis (0.5)	Detroit (0)	Richmond (0)
Albuquerque (1.5)	Reno (0.5)	El Paso (0)	Riverside (0)
Boise (1.5)	San Antonio (0.5)	Fort Worth (0)	Rochester (0)
Cleveland (1.5)	San Diego (0.5)	Fresno (0)	St. Paul (0)
Columbus (1.5)	Syracuse (0.5)	Greensboro (0)	San Juan (0)
Los Angeles (1.5)	Worcester (0.5)	Hartford (0)	Springfield (0)
New Haven (1.5)	Akron (0)	Henderson (0)	Stockton (0)
Philadelphia (1.5)	Allentown (0)	Honolulu (0)	Tampa (0)
Phoenix (1.5)	Augusta (0)	Jacksonville (0)	Toledo (0)
Pittsburgh (1.5)	Aurora (0)	Lakeland (0)	Tucson (0)
Providence (1.5)	Bakersfield (0)	Little Rock (0)	Tulsa (0)
Sacramento (1.5)	Baltimore (0)	Long Beach (0)	Virginia Beach (0)
Salt Lake City (1.5)	Baton Rouge (0)	Louisville (0)	Wichita (0)
Grand Rapids (1)	Birmingham (0)	McAllen (0)	Winston-Salem (0)

PROCUREMENT AND CONSTRUCTION POLICIES

All local governments need purchasing and construction policies. Integrating energy savings and clean energy requirements into these policies helps institutionalize sustainability across all departments. This section assesses whether cities factor energy efficiency and renewable energy into their everyday decision-making processes.

Typically, cities have made the greatest efforts to incorporate clean energy considerations into investments in vehicle fleets, public lighting, and government buildings. Cities could receive up to 3.5 points for their procurement and construction activities in these areas.

In this category we scored cities on:

- Fleet procurement policies and composition (1 point)
- Efficient public lighting (1 point)
- Onsite renewable energy systems (1 point)
- Inclusive procurement and contracting (0.5 points)

Fleet Procurement Policies and Composition

1 point

Many city sustainability efforts have focused on municipal vehicle fleet policies because they are effective in reducing carbon emissions and fuel expenditures. Using advanced-technology fuel-efficient vehicles in the municipal fleet can also help familiarize the public with these types of vehicles.

To score each city's performance, we awarded up to 1 point based on the composition of its vehicle fleet. We mainly included passenger and light-duty vehicles in this metric. We credited 1 point to cities if hybrid, plug-in hybrid, battery electric, and/or fuel cell vehicles composed at least 10% of their fleet. We awarded 0.5 points if these vehicle types composed at

least 5% of a fleet or if the city has adopted a strategy to procure fuel-efficient, low-emissions vehicles or vehicle types.[23] Procurement strategies could include fuel efficiency requirements for public fleet vehicles 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 2016a). 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 recent research on full-fuel-cycle emissions of natural gas vehicles indicates substantial complexity and uncertainty regarding their net carbon impacts (Camuzeaux et al. 2015). Therefore, in this metric, we consider only vehicles that save energy.[24]

1 point

Efficient Public Lighting

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 2016b). LEDs also have longer lifetimes than traditional outdoor fixtures and consequently require less maintenance. Scheduling lighting to turn on only during the hours when it is needed can also extend lamp lifetimes and save energy.

Cities could earn up to 1 point for efficient public lighting. We awarded 1 point to cities if at least 50% of their streetlights have been converted to LED. Cities had three ways to earn 0.5 points. We awarded 0.5 points to cities if 25% to 49% of their streetlights have been upgraded to LEDs; 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 prohibits the use of lighting when sufficient daylight is available. We did not credit policies or actions targeting traffic signal efficiency because the U.S. Energy Policy Act of 2005 already requires traffic lights to have LED-equivalent efficiency.[25]

1 point

Onsite Renewable Energy Systems

Onsite renewable energy systems are placed at or near the end user. The 2018 International Green Construction Code defines onsite renewable energy systems as "photovoltaic, solar thermal, geothermal energy, and wind systems used to generate energy and located on the building project" (ICC 2018). Many cities are adopting policies and ramping up programs that increase the deployment of onsite renewable energy systems because of the wide-ranging benefits they bring to communities (Union of Concerned Scientists 2017). Local governments can lead by example by generating renewable energy in municipal buildings. Beyond demonstrating leadership, cities can use these systems to reduce emissions and their own energy costs. Using them also supports economic growth by creating long-term local jobs (EPA 2014b).

Cities could earn up to 1 point for onsite renewable energy systems. Cities with at least 5 watts per capita of onsite municipal renewable energy generation capacity earned 1 point. We awarded 0.5 points to cities that have installed at least 1 watt per capita but less than 5 watts per capita of onsite municipal renewable energy generation capacity. Break points in the collected data informed our scoring thresholds.

1 point

Inclusive Procurement and Contracting

Clean energy jobs have been growing in number in recent years, but they are not always distributed equally across demographics (ACEEE 2017; Solar Foundation 2018a; AWEA 2018). Women make up 47% of the national workforce, but they account for only about one-quarter of energy efficiency and solar jobs (Shoemaker and Ribeiro 2018; Solar Foundation 2018a). Black workers account for 13% of the U.S. workforce but only 8% of efficiency jobs and 7% of solar jobs (BLS 2018; Shoemaker and Ribeiro 2018; Solar Foundation 2018a). Cities can help address these disparities by awarding city contracts to women-owned or minority-owned businesses and targeting marginalized groups for participation in workforce development initiatives (Shoemaker and Ribeiro 2018).

[23] Data from cities informed our 5% and 10% thresholds. Among the cities that reported data, 5% was the median percentage of energy-efficient vehicle composition in fleets. The third quartile was 10%.

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

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

We awarded 0.5 points to cities with inclusive procurement and contracting processes for city projects, such as energy efficiency or renewable energy projects.

Table 11 summarizes the scoring, and figure 14 lists the scores for procurement and construction. Table E3 in Appendix E provides more detailed city scores.

Table 11. Scoring for procurement and construction policies

Fleet procurement policies and composition	Score
At least 10% of the city's fleet is composed of efficient vehicles types (hybrid, plug-in hybrid, battery electric, and fuel cell vehicles).	1
At least 5% but not more than 10% of the city's fleet is composed of efficient vehicles types or the city has a strategy to procure fuel-efficient, low-emissions vehicles or vehicle types.	0.5
Efficient public lighting	
At least 50% of streetlights have been converted to LED.	1
25% to 49% of streetlights have been converted to LED or the city has adopted Model Lighting Ordinance or similar policy.	0.5
Onsite renewable energy systems	
City has installed at least 5W per capita of onsite municipal renewable energy generation capacity.	1
City has installed at least 1W per capita but not more than 5W per capita of onsite municipal renewable energy generation capacity.	0.5
Inclusive procurement and contracting	
City has inclusive procurement and contracting processes for city projects.	0.5

Figure 14. Local government procurement and construction policies scores (out of 3.5 possible points)

Boston (3.5)	Sacramento (2)	New Haven (1)	Cape Coral (0)
Cincinnati (3)	St. Paul (2)	New Orleans (1)	Columbia (0)
Las Vegas (3)	San Antonio (2)	Philadelphia (1)	Dayton (0)
New York (3)	Seattle (2)	Pittsburgh (1)	Des Moines (0)
Portland (3)	Washington, DC (2)	St. Louis (1)	Fresno (0)
Providence (3)	Baltimore (1.5)	Virginia Beach (1)	Greensboro (0)
Albuquerque (2.5)	Birmingham (1.5)	Winston-Salem (1)	Henderson (0)
Atlanta (2.5)	Chicago (1.5)	Allentown (0.5)	Lakeland (0)
Austin (2.5)	Denver (1.5)	Charlotte (0.5)	Little Rock (0)
Boise (2.5)	El Paso (1.5)	Colorado Springs (0.5)	Louisville (0)
Knoxville (2.5)	Grand Rapids (1.5)	Columbus (0.5)	McAllen (0)
Minneapolis (2.5)	Hartford (1.5)	Dallas (0.5)	Memphis (0)
Phoenix (2.5)	Honolulu (1.5)	Fort Worth (0.5)	Milwaukee (0)
Salt Lake City (2.5)	Houston (1.5)	Jacksonville (0.5)	Newark (0)
San Francisco (2.5)	Indianapolis (1.5)	Madison (0.5)	Omaha (0)
San José (2.5)	Orlando (1.5)	Mesa (0.5)	Oxnard (0)
Tucson (2.5)	Riverside (1.5)	Oklahoma City (0.5)	Provo (0)
Worcester (2.5)	San Diego (1.5)	Rochester (0.5)	Reno (0)
Bridgeport (2)	Bakersfield (1)	St. Petersburg (0.5)	Richmond (0)
Chula Vista (2)	Buffalo (1)	Toledo (0.5)	San Juan (0)
Long Beach (2)	Charleston (1)	Tulsa (0.5)	Springfield (0)
Los Angeles (2)	Cleveland (1)	Akron (0)	Stockton (0)
Nashville (2)	Detroit (1)	Augusta (0)	Syracuse (0)
Oakland (2)	Kansas City (1)	Aurora (0)	Tampa (0)
Raleigh (2)	Miami (1)	Baton Rouge (0)	Wichita (0)

ASSET MANAGEMENT

Local governments can save energy, reach clean energy targets, and save money by managing their existing assets more efficiently. These assets—including their employees, 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 employees to 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 three topics: energy benchmarking, retrofit strategies, and employee energy use. Cities could earn up to 2.5 points here.

In this category we scored cities on:

- Building energy benchmarking (1 point)
- Building energy efficiency retrofit strategies (1 point)
- Public workforce commuting (0.5 points)

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 2014). One such strategy is building benchmarking, which is a crucial step in understanding energy performance. By consistently tracking energy use, building managers can identify energy efficiency investment opportunities and track energy savings.

We awarded up to 1 point based on the percentage of municipal building floor area that cities have benchmarked, as outlined in table 12. Cities that have benchmarked 100% of municipal buildings larger than 10,000 square feet earned a full point. We awarded half a point to cities that benchmark at least 75% of buildings larger than 10,000 square feet. For this metric, we used the most recent data available and did not account for municipally owned residential buildings.

1 point Retrofit Strategies

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

We awarded up to 1 point based on the rigor of a city's retrofit requirements or activities, as described in table 12. We gave a full point to local governments that evaluate their portfolio of buildings to determine and prioritize energy efficiency retrofit opportunities and have completed retrofits within the past five years. 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 point, cities also had to provide data on 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 retrofit strategies but could not provide data indicating that retrofit projects had occurred, they earned 0.5 points. Cities without formal retrofit strategies that have made building efficiency investments through an energy services company (ESCO) could also earn 0.5 points. We gave such partnerships a half point as they are typically one-off projects. Cities that include ESCO partnerships as part of a larger strategy were eligible for the full point.

1 point Public Workforce Commuting

Employee behavior is a major factor in municipal energy consumption. Public employees can reduce stress on a city's transportation infrastructure and can save energy in municipal operations by reducing the frequency with which they commute to work (Laitner, Partridge, and Vittore 2012). Cities could earn 0.5 points for adopting permanent telecommuting or flex-schedule policies or other strategies for minimizing the frequency of employee commutes.

Table 12 summarizes the scoring, and figure 15 lists the scores for asset management. Table E2 in Appendix E provides more detailed city scores.

Table 12. Scoring for asset management

Building energy benchmarking	Score
City benchmarks 100% of public buildings over 10,000 square feet.	1
City benchmarks more than 75% but less than 100% of public buildings over 10,000 square feet.	0.5
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.	1
City evaluates public buildings to determine and prioritize energy efficiency retrofit opportunities and has completed projects in the past five years but does not provide data on results or city uses ESCO partnership to conduct energy efficiency retrofits in public buildings.	0.5
Public workforce commuting	
City has a permanent telecommute or flex-schedule policy.	0.5

Figure 15. Asset management scores (out of 2.5 possible points)

Charlotte (2.5)	Raleigh (2)	Syracuse (1.5)	Baton Rouge (0)
Dallas (2.5)	Richmond (2)	Worcester (1.5)	Cape Coral (0)
Denver (2.5)	Sacramento (2)	Chicago (1)	Columbia (0)
Long Beach (2.5)	Salt Lake City (2)	Colorado Springs (1)	Dayton (0)
Los Angeles (2.5)	San Antonio (2)	Fort Worth (1)	Des Moines (0)
Minneapolis (2.5)	San Diego (2)	Honolulu (1)	Detroit (0)
New York (2.5)	Seattle (2)	Madison (1)	El Paso (0)
Philadelphia (2.5)	St. Petersburg (2)	Memphis (1)	Fresno (0)
Phoenix (2.5)	Virginia Beach (2)	Miami (1)	Greensboro (0)
Providence (2.5)	Atlanta (1.5)	Riverside (1)	Henderson (0)
San Francisco (2.5)	Austin (1.5)	San José (1)	Indianapolis (0)
Washington,DC (2.5)	Baltimore (1.5)	Aurora (0.5)	Jacksonville (0)
Albuquerque (2)	Boise (1.5)	Birmingham (0.5)	Lakeland (0)
Boston (2)	Bridgeport (1.5)	Charleston (0.5)	Little Rock (0)
Buffalo (2)	Cincinnati (1.5)	Newark (0.5)	McAllen (0)
Chula Vista (2)	Columbus (1.5)	Oxnard (0.5)	Mesa (0)
Cleveland (2)	Grand Rapids (1.5)	St. Louis (0.5)	New Haven (0)
Las Vegas (2)	Hartford (1.5)	Tampa (0.5)	Oklahoma City (0)
Louisville (2)	Houston (1.5)	Toledo (0.5)	Omaha (0)
Milwaukee (2)	Kansas City (1.5)	Tucson (0.5)	Provo (0)
New Orleans (2)	Knoxville (1.5)	Tulsa (0.5)	San Juan (0)
Oakland (2)	Nashville (1.5)	Akron (0)	Springfield (0)
Orlando (2)	Reno (1.5)	Allentown (0)	Stockton (0)
Pittsburgh (2)	Rochester (1.5)	Augusta (0)	Wichita (0)
Portland (2)	St. Paul (1.5)	Bakersfield (0)	Winston-Salem (0)

A Potential Future Metric: Bus Electrification Goals

We update the methodology of each *City Scorecard* to stay current with innovative new policies and technologies. This year we considered crediting cities that have goals for bus fleet electrification. Electric buses have multiple benefits including reduced emissions and operating costs (Li et al. 2019).

As part of our data collection this year, we asked cities if they have an electrification goal for buses and, if so, whether it was set by the city or its transit agency. While a few reported that the city operates the bus system, a large percentage said it was a regional transit agency. We have determined that before we score cities on these goals, more research is needed to develop a metric that does not disadvantage cities based on bus ownership structure. Any metric would need to account for differences in ownership of transit buses and the role of state mandates in affecting the procurement of electric buses. We will revisit this metric in future years.

Chapter 3. Community-Wide Initiatives

Lead Authors: Stefen Samarripas and Alexander Jarrah

INTRODUCTION

Cities are working to mitigate and adapt to climate change by reducing their energy consumption and increasing their reliance on energy generated from sources that do not emit carbon dioxide. 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 renewable energy sources 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.[26]

To expand beyond the lead-by-example public sector initiatives discussed in Chapter 2, 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, knowledge—to reduce energy use and GHG emissions. For example, Pittsburgh has committed to cutting both carbon emissions and energy use by 50% by 2030, but to reach this goal, it will need substantial support from the community. The city is therefore working with downtown businesses and other community partners as part of the Green Building Alliance's Pittsburgh 2030 District (2030 Districts Network 2020). Through this place-based initiative, downtown businesses receive peer-to-peer education, training, and benchmarking resources to reduce their energy use, water consumption, and transportation emissions.

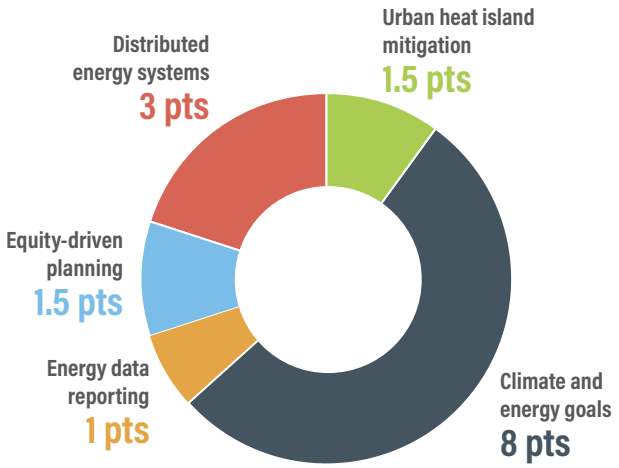
SCORING

This chapter focuses on the strategies municipalities commonly take to reduce energy consumption, increase the share of electricity generated from renewable sources, and decrease GHG emissions throughout the city. The process involves establishing community-wide goals and making specific interventions that cross multiple sectors. We also assess the extent to which cities' approaches to clean energy planning, implementation, and evaluation are equity driven. We allocated 15 points to community-wide initiatives across five categories, as shown in figure 16.

[26] For other cities, these initiatives are part of energy-specific plans developed for utility resource planning.

We do not consider individual, sector-specific elements (buildings, utilities, and transportation) of community-wide initiatives here; they will be taken up in the chapters that follow. Nor do we consider (either here or elsewhere in the *Scorecard*) formula-allocated grants, such as those available through the Weatherization Assistance Program, that federal or state governments provide to local agencies. Rather, we concentrate on the role that cities themselves play in leading, funding, and implementing community-wide climate and energy initiatives. 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.

Figure 16. Community-wide initiatives scoring overview



RESULTS

In the category of community-wide initiatives, Washington, DC, was the leading city, scoring 11.5 out of 15 possible points. Denver, Los Angeles, and Minneapolis tied for second place with 11 points each. Atlanta and Cleveland tied for third, each earning 10 points. As a whole, cities performed better in some categories than in others. Urban heat island mitigation initiatives were a notable standout: Many cities have adopted goals linked to easing the urban heat island effect, as well as policies or programs to make progress toward those goals, such as cool roof policies and tree protection ordinances. Cities have the most room to improve in the community-wide goals, equity-driven planning and implementation, and distributed energy systems categories. We discuss some of these further in the paragraphs that follow table 13.

Table 13 presents the overall scores for community-wide initiatives. In subsequent tables within this chapter, we show how we allocated points for individual metrics within these categories. Appendix E shows more detailed scoring information on each metric.

Table 13. Community-wide initiatives scores

City	Climate and energy goals (8 pts)	Energy data reporting (1 pt)	Equity-driven planning (1.5 pts)	Distributed energy systems (3 pts)	Urban heat island mitigation (1.5 pts)	Total (15 pts)
Washington, DC	7	1	1	1	1.5	11.5
Denver	6	1	0	2.5	1.5	11
Los Angeles	7	1	1	0.5	1.5	11
Minneapolis	6	1	1.5	1.5	1	11
Atlanta	7	1	0.5	0	1.5	10
Cleveland	5	1	0.5	2	1.5	10
Austin	6	1	0	1.5	1	9.5
Oakland	5.5	1	1	1	1	9.5
Phoenix	6	1	0.5	0.5	1.5	9.5
Seattle	3.5	1	1.5	2	1.5	9.5
Portland	4	1	1.5	1	1.5	9
San José	6	1	0.5	0	1.5	9
Boston	3.5	1	0.5	2	1.5	8.5
Columbus	6	1	0	0	1.5	8.5
Orlando	4	1	1	1	1.5	8.5
Pittsburgh	5	0	0.5	2	1	8.5
Chicago	4.5	1	0.5	0.5	1.5	8
New York	2	1	1	2.5	1.5	8

City	Climate and energy goals (8 pts)	Energy data reporting (1 pt)	Equity-driven planning (1.5 pts)	Distributed energy systems (3 pts)	Urban heat island mitigation (1.5 pts)	Total (15 pts)
Kansas City	5	1	0	0.5	1	7.5
Philadelphia	3	1	1	1	1.5	7.5
Sacramento	3.5	1	1	0.5	1.5	7.5
San Antonio	4	1	1	0	1.5	7.5
San Francisco	4.5	1	1	0	1	7.5
St. Louis	5	1	0	1	0.5	7.5
Louisville	4	1	0	0	1.5	6.5
St. Paul	2.5	1	1	1.5	0.5	6.5
Baltimore	3	1	0.5	0	1.5	6
Providence	2	1	1.5	0	1.5	6
Salt Lake City	4	1	0	0	1	6
San Diego	4	1	0.5	0	0.5	6
Cincinnati	3.5	0	1	0	1	5.5
Hartford	0	1	1	2	1.5	5.5
Indianapolis	2	0.5	0.5	1	1.5	5.5
Long Beach	2	0.5	0.5	1	1.5	5.5
New Orleans	3.5	0	0.5	0.5	1	5.5
St. Petersburg	4	0	0	0	1.5	5.5
Milwaukee	2.5	0	0.5	1	1	5
New Haven	3	1	0	0	0.5	4.5
Springfield	1.5	1	1	0.5	0.5	4.5
Honolulu	1.5	1	0.5	0.5	0.5	4
Houston	2.5	0	0	0	1.5	4
Miami	2	0	0.5	0	1.5	4
Riverside	2.5	0	0	0	1.5	4
Aurora	2	1	0	0.5	0	3.5
Boise	1.5	1	0	1	0	3.5
Colorado Springs	1.5	1	0	0.5	0.5	3.5
Detroit	1.5	1	0.5	0	0.5	3.5
Richmond	2	1	0	0	0.5	3.5
Chula Vista	1.5	1	0	0	0.5	3
Dallas	0.5	1	0.5	0	1	3
Des Moines	2	1	0	0	0	3
Jacksonville	0	1	0	1.5	0.5	3
Toledo	2	0	0.5	0	0.5	3
Bridgeport	0	1	0	1	0.5	2.5
Madison	2	0	0	0.5	0	2.5
Omaha	2	0	0	0	0.5	2.5
Reno	2.5	0	0	0	0	2.5
Albuquerque	0	0.5	0	0	1.5	2
Columbia	2	0	0	0	0	2
Grand Rapids	0.5	0	0	0	1.5	2
Knoxville	0	1	0	0	1	2
Las Vegas	0	1	0	0	1	2
Nashville	0	0	0	0.5	1.5	2

City	Climate and energy goals (8 pts)	Energy data reporting (1 pt)	Equity-driven planning (1.5 pts)	Distributed energy systems (3 pts)	Urban heat island mitigation (1.5 pts)	Total (15 pts)
Oxnard	1.5	0	0	0	0.5	2
Provo	0	0	0	1	1	2
Raleigh	1	0	0	0	1	2
Tampa	0.5	0	0	0	1.5	2
Virginia Beach	1	0	0	0	1	2
Akron	0	0	0	1	0.5	1.5
Buffalo	0	0	0	0.5	1	1.5
Charlotte	0	0	0	1	0.5	1.5
Lakeland	0	1	0	0	0.5	1.5
Memphis	0	1	0	0	0.5	1.5
Mesa	0	1	0	0	0.5	1.5
Syracuse	0	0	0	1	0.5	1.5
Fort Worth	0.5	0	0	0	0.5	1
Newark	0	0	0	1	0	1
Tucson	0.5	0	0	0	0.5	1
Worcester	0	0.5	0	0.5	0	1
Birmingham	0	0	0	0	0.5	0.5
El Paso	0	0	0	0	0.5	0.5
Little Rock	0	0	0	0	0.5	0.5
Stockton	0.5	0	0	0	0	0.5
Tulsa	0	0	0	0	0.5	0.5
Allentown	0	0	0	0	0	0
Augusta	0	0	0	0	0	0
Bakersfield	0	0	0	0	0	0
Baton Rouge	0	0	0	0	0	0
Cape Coral	0	0	0	0	0	0
Charleston	0	0	0	0	0	0
Dayton	0	0	0	0	0	0
Fresno	0	0	0	0	0	0
Greensboro	0	0	0	0	0	0
Henderson	0	0	0	0	0	0
McAllen	0	0	0	0	0	0
Oklahoma City	0	0	0	0	0	0
Rochester	0	0	0	0	0	0
San Juan	0	0	0	0	0	0
Wichita	0	0	0	0	0	0
Winston-Salem	0	0	0	0	0	0
Median	**1.5**	**0.5**	**0**	**0**	**0.5**	**3.0**

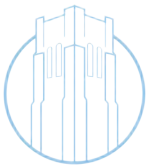
Cities had a median score of 1.5 points out of a possible 8 for community-wide goals. Relatively few cities are taking steps to track progress toward their goals. A lack of comprehensive energy and GHG emissions data—particularly for the baseline years of these goals—continues to prevent cities from scoring well for goal stringency and progress. While 63 of the 100 cities we analyzed have adopted a community-wide GHG goal, only 34 cities have released sufficient inventory data to assess progress toward these goals. Of these, 20 are on track to achieve their near-term goal.

Only 35 cities received credit for equity-driven planning, implementation, or evaluation metrics, a slight improvement from last year. Portland joins Minneapolis, Providence, and Seattle in achieving maximum points for these metrics. Going forward, cities can devote more attention to social equity objectives within their clean energy planning and implementation processes.

Leading Cities

Washington, DC. Washington, DC, has adopted several community-wide GHG mitigation and clean energy goals through the Sustainable DC plan and the Clean Energy Omnibus Act of 2018. Washington, DC, is projected to achieve its GHG emissions reduction goal. In partnership with the Georgetown Climate Center, the district formed the Equity Advisory Group to develop recommendations to be incorporated in both the Climate Ready DC Plan and Clean Energy DC Plan. The Solar for All program supports the creation of community solar gardens within the city. Washington, DC, also requires developers to incorporate low-impact development techniques to achieve a required green area ratio, and the RiverSmart Roof Rebate program incentivizes green roof installation.

Denver. Denver has adopted ambitious community-wide GHG mitigation and carbon-neutral electricity goals. The city's carbon-neutral and GHG mitigation goals are among the most stringent of cities in the *Scorecard*. To help meet these goals, the city has established an agreement with its utility, Xcel Energy, called the Energy Futures Collaboration. This partnership is setting the stage for investments in district energy, microgrid, and community solar systems. The city is also one of the few to track progress toward both energy and GHG goals with comprehensive, community-wide energy use data and GHG inventories that are published annually. Denver was also a top-scoring city for supporting clean shared distributed energy systems and working to mitigate the urban heat island effect.

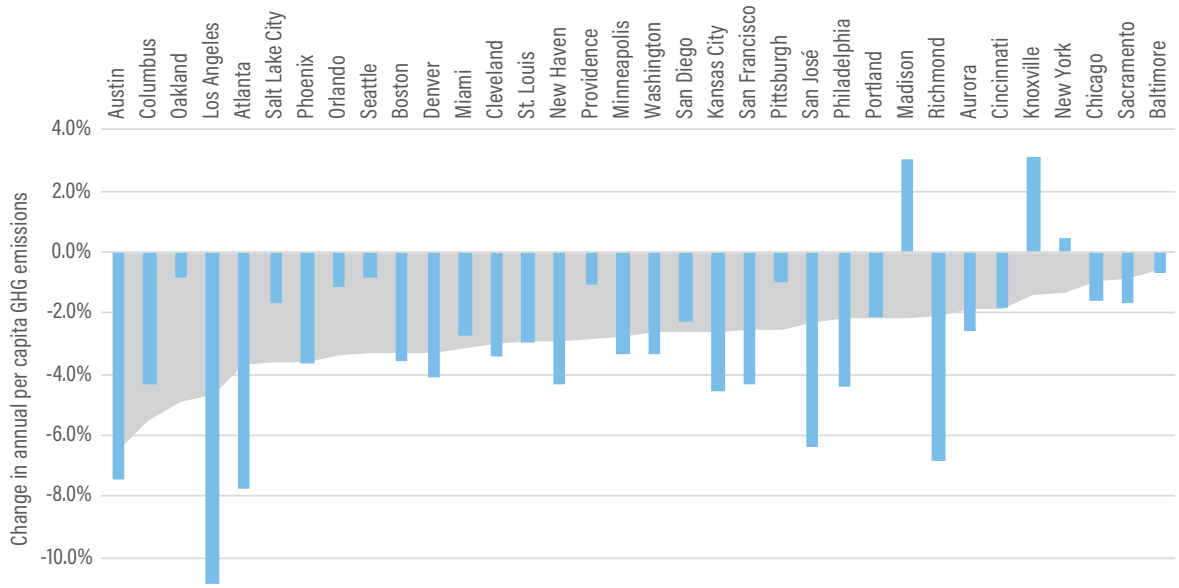


Minneapolis. Minneapolis's Climate Action Plan sets several climate and energy goals. The city is projected to achieve its goal of reducing GHG emissions 30% below 2006 levels by 2025. Minneapolis has made equity a pillar of its climate planning and implementation and, as mentioned earlier, is one of only four cities to earn full points for equity-driven planning, implementation, and evaluation. The city's Green Zones Initiative is a place-based policy that seeks to improve public health and economic outcomes in communities that disproportionally face the impacts of environmental pollution and in low-income communities, indigenous communities, and communities of color. Green Zones are community-driven and track progress using numerous sustainability indicators. Minneapolis also pursues district energy systems, microgrids, and community solar within the city.

Issue in Focus: Progress on Climate Change Mitigation Goals

While 63 of the 100 cities included in this report have adopted community-wide climate mitigation goals, we were able to determine progress toward these goals for only 34 cities. We needed GHG emissions data for a minimum of two years in order to assess a city's progress toward a GHG reduction goal, 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. Figure 17 shows how cities with these data are performing in efforts to meet their GHG reduction targets on an annual per capita basis.

Figure 17. Cities' targeted versus actual annual per capita GHG emissions change.



Of the 34 cities we assessed, most are on track to achieve their goals, and almost all are seeing annual decreases in GHG emissions. Twenty are on track to meet or exceed their climate mitigation goals. Another five are projected to achieve 75% or more of their goal by the target year. Only three are currently on a trajectory to increase their emissions.

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 renewable sources. Goals 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 and progress on climate change mitigation goals (4 points)
- Adoption and stringency of energy savings and renewable generation goals (4 points)

Climate Change Mitigation Goals

4 points

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

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 community-wide goals as we did to score municipal goals. Chapter 2 contains a detailed description of this approach.

Cities could earn up to 2 points in this metric, as shown in table 14.

Progress Toward Goals

This metric assesses cities' progress toward achieving their near-term 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 evaluate progress toward community-wide goals, we used the same approach that we used to assess progress toward local government goals. Chapter 2 contains a detailed description of this approach.

Cities could earn up to 2 points in this metric, as shown in table 14.

4 points Energy Savings and Renewable Electricity Generation Goals

Adoption of Goals

Cities were scored on their formal adoption of community-wide energy savings and renewable electricity generation goals. We gave points for goals that targeted specific quantitative reductions in energy consumption or energy intensity and conversion of electricity generated from carbon-emitting to renewable or carbon-free sources.[27] We did not give points for peak demand energy savings goals because these 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.

Cities could earn up to 2 points in this metric, as shown in table 14.

Stringency of Goals

As with climate change mitigation goals, cities were also eligible to earn points based on the stringency of their energy-specific goals. Stringency was assessed in two ways. We evaluated cities' energy savings goals by calculating the annual energy per capita reduction needed to meet their nearest-term goal. Our calculations for this followed the approach outlined for goal stringency metrics in Chapter 2.

This year we altered our approach in scoring the stringency of renewable electricity goals. 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. In recognition of these activities, we assessed the electricity consumption that cities need to convert or offset using renewable sources to achieve their near-term renewable electricity goal. Our approach for scoring the stringency of community-wide renewable electricity goals follows our approach outlined in Chapter 2.[28]

Cities could earn up to 2 points in this metric.

Table 14 summarizes the scoring, and figure 18 lists city scores for our community-wide climate and energy goal metrics. Table E4 in Appendix E provides more detailed city scores.

[27] In considering cities for points for the adoption of a renewable electricity goal, we provided points for renewable or carbon-free electricity and broader renewable and carbon-free energy goals. Cities whose primary electric utility reported that at least 90% of its electricity was generated from renewable or carbon-free energy sources received full credit for an adopted community-wide renewable electricity target.

[28] In some cases, citywide electricity data were unavailable. In these cases, we used electricity data reported by a city's primary utility, but doing so meant that we were able to normalize electricity use only by the number of households (reported as residential customers by utilities) in a utility territory, as these are the only population data regularly reported by utility companies.

Table 14. 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 3.5%.	2
Average annual per capita GHG reductions are at least 2.5% but less than 3.5%.	1
Climate change mitigation goal progress	
City is on track to meet or exceed its community-wide climate mitigation goal.	2
City is not on track to achieve its community-wide climate mitigation goal but is projected to be within 25% of the goal.	1
Existence of energy savings goals	
City has committed to a community-wide energy reduction target.	1
City has committed to an energy reduction target for a neighborhood, district, or sector.	0.5
Existence of renewable electricity goals	
City has committed to a community-wide renewable electricity target.	1
City has committed to a renewable electricity generation target for a neighborhood, district, or sector.	0.5
Stringency of energy savings goals	
Average annual energy savings per capita are equal to or greater than 3%.	1
Average annual energy savings per capita are at least 2% but less than 3%.	0.5
Stringency of renewable electricity goals	
Annual per household conversion target is greater than or equal to 800 kWh.	1
Annual per household conversion target is at least 400 kWh but less than 800 kWh.	0.5

Figure 18. Community-wide climate mitigation and energy goals scores (out of 8 possible points)

Atlanta (7)	New Orleans (3.5)	Colorado Springs (1.5)	Dayton (0)
Los Angeles (7)	Sacramento (3.5)	Detroit (1.5)	El Paso (0)
Washington, DC (7)	Seattle (3.5)	Honolulu (1.5)	Fresno (0)
Austin (6)	Baltimore (3)	Oxnard (1.5)	Greensboro (0)
Columbus (6)	New Haven (3)	Springfield (1.5)	Hartford (0)
Denver (6)	Philadelphia (3)	Raleigh (1)	Henderson (0)
Minneapolis (6)	Houston (2.5)	Virginia Beach (1)	Jacksonville (0)
Phoenix (6)	Milwaukee (2.5)	Dallas (0.5)	Knoxville (0)
San José (6)	Reno (2.5)	Fort Worth (0.5)	Lakeland (0)
Oakland (5.5)	Riverside (2.5)	Grand Rapids (0.5)	Las Vegas (0)
Cleveland (5)	St. Paul (2.5)	Stockton (0.5)	Little Rock (0)
Kansas City (5)	Aurora (2)	Tampa (0.5)	McAllen (0)
Pittsburgh (5)	Columbia (2)	Tucson (0.5)	Memphis (0)
St. Louis (5)	Des Moines (2)	Akron (0)	Mesa (0)
Chicago (4.5)	Indianapolis (2)	Albuquerque (0)	Nashville (0)
San Francisco (4.5)	Long Beach (2)	Allentown (0)	Newark (0)
Louisville (4)	Madison (2)	Augusta (0)	Oklahoma City (0)
Orlando (4)	Miami (2)	Bakersfield (0)	Provo (0)
Portland (4)	New York (2)	Baton Rouge (0)	Rochester (0)
Salt Lake City (4)	Omaha (2)	Birmingham (0)	San Juan (0)
San Antonio (4)	Providence (2)	Bridgeport (0)	Syracuse (0)
San Diego (4)	Richmond (2)	Buffalo (0)	Tulsa (0)
St. Petersburg (4)	Toledo (2)	Cape Coral (0)	Wichita (0)
Boston (3.5)	Boise (1.5)	Charleston (0)	Winston-Salem (0)
Cincinnati (3.5)	Chula Vista (1.5)	Charlotte (0)	Worcester (0)

COMPREHENSIVE ENERGY DATA

1 point

Improved access to data has helped cities measure, monitor, and manage energy use in ways they could not several years ago. Community-wide energy and GHG inventories and regular tracking of related metrics allow cities to set a benchmark for energy usage and target areas where savings can be quickly achieved. This is made possible through city programs and policies that encourage government agencies, utility companies, universities, community-based organizations, and others to collaborate in tracking energy use across a community.[29]

Taking a systematic approach to monitoring helps cities identify ways to improve their plans and meet goals by revising timelines or program strategies (Mackres and Kazerooni 2012). For example, cities that combine energy data with other community-wide data (e.g., information on buildings or demographics) can administer more precisely targeted programs for specific neighborhoods or property types. Finer targeting can lead to greater energy savings and higher levels of participation (ACEEE 2014).

In past editions of the *City Scorecard*, we found that few cities track community-wide energy data. In the last edition, we created a metric to recognize those that do. Cities that collect comprehensive energy data covering at least one of the past five years could receive up to 1 point. Table 15 summarizes the scoring, and figure 19 lists city scores for this metric. Table E6 provides detailed scoring for the metric.

Table 15. Scoring for comprehensive community-wide energy data metric

Comprehensive energy data	
City collected complete residential and nonresidential stationary sector energy consumption data for at least one of the past five years.	1
City collected complete stationary municipal facilities and infrastructure energy consumption data for at least one of the past five years.	0.5

Figure 19. Comprehensive community-wide energy data scores (out of 1 possible point)

Atlanta (1)	Memphis (1)	Long Beach (0.5)	Miami (0)
Aurora (1)	Mesa (1)	Worcester (0.5)	Milwaukee (0)
Austin (1)	Minneapolis (1)	Akron (0)	Nashville (0)
Baltimore (1)	New Haven (1)	Allentown (0)	New Orleans (0)
Boise (1)	New York (1)	Augusta (0)	Newark (0)
Boston (1)	Oakland (1)	Bakersfield (0)	Oklahoma City (0)
Bridgeport (1)	Orlando (1)	Baton Rouge (0)	Omaha (0)
Chicago (1)	Philadelphia (1)	Birmingham (0)	Oxnard (0)
Chula Vista (1)	Phoenix (1)	Buffalo (0)	Pittsburgh (0)
Cleveland (1)	Portland (1)	Cape Coral (0)	Provo (0)
Colorado Springs (1)	Providence (1)	Charleston (0)	Raleigh (0)
Columbus (1)	Richmond (1)	Charlotte (0)	Reno (0)
Dallas (1)	Sacramento (1)	Cincinnati (0)	Riverside (0)
Denver (1)	St. Paul (1)	Columbia (0)	Rochester (0)
Des Moines (1)	Salt Lake City (1)	Dayton (0)	San Juan (0)
Detroit (1)	San Antonio (1)	El Paso (0)	Stockton (0)
Hartford (1)	San Diego (1)	Fort Worth (0)	St. Petersburg (0)
Honolulu (1)	San Francisco (1)	Fresno (0)	Syracuse (0)
Jacksonville (1)	San José (1)	Grand Rapids (0)	Tampa (0)
Kansas City (1)	Seattle (1)	Greensboro (0)	Toledo (0)
Knoxville (1)	Springfield (1)	Henderson (0)	Tucson (0)
Lakeland (1)	St. Louis (1)	Houston (0)	Tulsa (0)
Las Vegas (1)	Washington, DC (1)	Little Rock (0)	Virginia Beach (0)
Los Angeles (1)	Albuquerque (0.5)	Madison (0)	Wichita (0)
Louisville (1)	Indianapolis (0.5)	McAllen (0)	Winston-Salem (0)

[29] Several cities have adopted policies that encourage or require building owners to report their buildings' energy use. Several utility companies now also provide customers with aggregate whole-building energy data. These policies and programs are analyzed further in Chapters 4 and 5.

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

As the planet warms, urban 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 2008; Hoerner and Robinson 2008, Davies et al. 2018). 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 mitigate extreme heat (Jesdale, Morello-Frosch, and Cushing 2013). 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 households can find it difficult to obtain clear information about hazards and risk or to acquire high-paying jobs, reliable transportation, home insurance, or government assistance (IPCC 2007; Dodman and Satterthwaite 2008; Hoerner and Robinson 2008; Davies et al. 2018).

They also encounter barriers to participating in energy efficiency and renewable energy programs that can reduce their energy costs (Drehobl and Ross 2016; Garren et al. 2017). Low-income households' energy bills consume a larger proportion of their incomes compared with more affluent households, adding to the struggles that many face in paying for other necessities. Compared with white households, Hispanic households' energy burdens were 24% greater on average, while Black households' energy burdens were 64% greater on average (Drehobl and Ross 2016).

Cities can address disparities such as these through their climate action, energy efficiency, and renewable energy initiatives. Over the past several years, sustainability staff in some cities have sought to work alongside marginalized populations to address equity in four respects (Park 2014):[30]

- *Procedural equity.* Cities want to offer inclusive, accessible, authentic engagement and representation in the process of developing or implementing sustainability programs and policies.
- *Distributional equity.* City officials are seeking to design sustainability programs and policies to result in fair distribution of benefits and burdens across all segments of a community, prioritizing those with highest need.
- *Structural equity.* Sustainability decision makers want to institutionalize accountability so that decisions are made with a recognition of the historical, cultural, and institutional dynamics and structures that have routinely advantaged privileged groups in society and resulted in chronic, cumulative disadvantage for subordinated groups.
- *Transgenerational equity.* Sustainability decision makers want to consider generational impacts and avoid placing unfair burdens on future generations (Park 2014).

Chapters 4 and 5 include metrics that assess cities on their approach to achieving distributional and, to at least some extent, transgenerational equity through policies and programs that are specifically targeted to address inequities. In this chapter we assess cities on their approach 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 to evaluate cities' approaches to procedural and structural equity. 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.

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 dialogue 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 community meetings in low-income communities or communities of color, or involving community-based organizations in leading these outreach efforts.

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 the creation or

[30] These constituencies could include people of color, poor and low-income residents, youth, the elderly, "new Americans" or recently arrived immigrants, individuals with limited English proficiency, people with disabilities, and the homeless (Park 2014).

implementation of a local energy, sustainability, or climate action plan. These decision-making bodies are focused on environmental justice or social equity outcomes.

Finally, cities may establish structural equity measures that hold city government accountable for actions that will specifically benefit these constituencies. These include goals, metrics, screening tools, and protocols to track how energy, sustainability, and climate action initiatives are affecting local marginalized groups.

To receive points under our metrics, a city's approach to equitable clean energy planning must align with the above descriptions of procedural and structural equity. Cities must also apply their equity-driven approaches to an entire clean energy planning process or in the implementation of multiple initiatives. Finally, community engagement must allow residents to participate in a direct dialogue with permanent city staff, and formal decision-making groups must focus on environmental justice or social equity outcomes. Table 16 outlines the scoring for equity-driven climate action or clean energy planning and implementation, and figure 20 presents the scores for cities earning points under these metrics. Table E5 in Appendix E provides more detailed city scores.

Table 16. Scoring for equity-driven clean energy initiative planning, implementation, and evaluation

Equity-driven community engagement	Score
City has structured its public engagement strategies to increase engagement with marginalized groups.	0.5
Equity-driven decision making	
City has given marginalized residents formal roles in decision-making processes for clean energy initiatives.	0.5
Accountability for social equity	
City has adopted structural equity procedures.	0.5

Figure 20. Equity-driven climate action and clean energy planning, implementation, and evaluation scores (out of 1.5 possible points)

Minneapolis (1.5)	Indianapolis (0.5)	Chula Vista (0)	Nashville (0)
Portland (1.5)	Long Beach (0.5)	Colorado Springs (0)	New Haven (0)
Providence (1.5)	Miami (0.5)	Columbia (0)	Newark (0)
Seattle (1.5)	Milwaukee (0.5)	Columbus (0)	Oklahoma City (0)
Cincinnati (1)	New Orleans (0.5)	Dayton (0)	Omaha (0)
Hartford (1)	Phoenix (0.5)	Denver (0)	Oxnard (0)
Los Angeles (1)	Pittsburgh (0.5)	Des Moines (0)	Provo (0)
New York (1)	San Diego (0.5)	El Paso (0)	Raleigh (0)
Oakland (1)	San José (0.5)	Fort Worth (0)	Reno (0)
Orlando (1)	Toledo (0.5)	Fresno (0)	Richmond (0)
Philadelphia (1)	Akron (0)	Grand Rapids (0)	Riverside (0)
Sacramento (1)	Albuquerque (0)	Greensboro (0)	Rochester (0)
St. Paul (1)	Allentown (0)	Henderson (0)	Salt Lake City (0)
San Antonio (1)	Augusta (0)	Houston (0)	San Juan (0)
San Francisco (1)	Aurora (0)	Jacksonville (0)	St. Louis (0)
Springfield (1)	Austin (0)	Kansas City (0)	St. Petersburg (0)
Washington, DC (1)	Bakersfield (0)	Knoxville (0)	Stockton (0)
Atlanta (0.5)	Baton Rouge (0)	Lakeland (0)	Syracuse (0)
Baltimore (0.5)	Birmingham (0)	Las Vegas (0)	Tampa (0)
Boston (0.5)	Boise (0)	Little Rock (0)	Tucson (0)
Chicago (0.5)	Bridgeport (0)	Louisville (0)	Tulsa (0)
Cleveland (0.5)	Buffalo (0)	Madison (0)	Virginia Beach (0)
Dallas (0.5)	Cape Coral (0)	McAllen (0)	Wichita (0)
Detroit (0.5)	Charleston (0)	Memphis (0)	Winston-Salem (0)
Honolulu (0.5)	Charlotte (0)	Mesa (0)	Worcester (0)

3 points CLEAN DISTRIBUTED ENERGY RESOURCES

Shared distributed energy systems such as district energy, microgrids, and community solar gardens are localized approaches to the generation and distribution of energy. These systems can improve efficiencies and lower GHG emissions. They can also expand access to clean energy and provide benefits such as reliability and resilience to a large cohort of businesses and residents. We awarded points to cities that created new, community-wide district energy, microgrid, and community solar systems.[31]

Cities that integrate clean distributed energy technologies into district energy, microgrids, and community solar can reduce greenhouse gas emissions and bolster the benefits these systems provide. A district energy system that incorporates combined heat and power will achieve improved plant efficiency, as CHP can reduce the amount of energy wasted from 67% to 20% in ideal circumstances (EPA 2014a). A microgrid that includes both conventional and renewable energy resources will likely survive a power outage longer than 3.5 days, bolstering community resilience (Anderson et al. 2017). Distributed energy technologies on municipal buildings were previously assessed in the "Local Government Operations" chapter. In this section, we awarded points to cities that have integrated at least one clean distributed energy resource into a new or existing district energy, microgrid, or 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 reduced energy use, lower energy costs, and reliability in the face of disasters (Chittum 2012a). Because 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 2012b).

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 the main grid fails, strengthening resilience and mitigating grid disturbances (US DOE 2020). 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 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).[32] While energy efficiency is integral to any microgrid, renewable energy often 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, 202).

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, it 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). Additionally, community solar can help cities remedy energy burdens for low- and middle-income households (Chan et al. 2017).

Cities could earn up to 3 points for supporting the creation of clean, efficient distributed energy systems. For a maximum of 1.5 points, we awarded 0.5 points for each system type (district energy systems, microgrids, and community solar) that the city supports with a formal policy, rule, or agreement. Because fossil fuels are often the main source of power in district energy systems and microgrids, we also awarded 0.5 points based on the extent to which these systems integrate clean energy technologies such as combined heat and power, energy storage, renewable energy, and other energy resources. Cities could also earn 0.5 points for integrating clean energy technologies, such as battery storage, into community solar.

Table 17 shows the scoring for this metric, and figure 21 presents city scores. Table E7 in Appendix E provides more detailed city scores, and table F8 in Appendix F provides detailed descriptions of city activities that earned credit.

[31] Energy efficiency can also serve as a distributed energy resource but is not addressed in this metric as it is accounted for throughout other chapters of the report.

[32] For more information on line losses, visit https://www.eia.gov/tools/faqs/faq.php?id=105.

Table 17. Scoring for clean distributed energy resources

Support for distributed shared energy systems	Score
City has adopted a formal policy or rule that requires the creation of one or more local distributed shared energy systems, or the city has made a formal commitment of financial or in-kind support to create these systems. Systems include: • District energy systems • Microgrids • Community solar	0.5 points per system type
Support for integrated technologies in distributed shared energy systems that reduce emissions	**Score**
City-required or -supported shared distributed energy systems include energy technologies that reduce their carbon footprint. Examples of these technologies include but are not limited to: • District energy system integrated with CHP • Microgrids integrated with fuel cells, renewable energy, or energy storage • Community solar integrated with energy storage • Systems integrated with additional renewable energy technologies	0.5 points per system

Figure 21. Clean distributed energy resources scores (out of 3 possible points)

Denver (2.5)	Syracuse (1)	Charleston (0)	New Haven (0)
New York (2.5)	Washington, DC (1)	Chula Vista (0)	Oklahoma City (0)
Boston (2)	Aurora (0.5)	Cincinnati (0)	Omaha (0)
Cleveland (2)	Buffalo (0.5)	Columbia (0)	Oxnard (0)
Hartford (2)	Chicago (0.5)	Columbus (0)	Providence (0)
Pittsburgh (2)	Colorado Springs (0.5)	Dallas (0)	Raleigh (0)
Seattle (2)	Honolulu (0.5)	Dayton (0)	Reno (0)
Austin (1.5)	Kansas City (0.5)	Des Moines (0)	Richmond (0)
Jacksonville (1.5)	Los Angeles (0.5)	Detroit (0)	Riverside (0)
Minneapolis (1.5)	Madison (0.5)	El Paso (0)	Rochester (0)
St. Paul (1.5)	Nashville (0.5)	Fort Worth (0)	Salt Lake City (0)
Akron (1)	New Orleans (0.5)	Fresno (0)	San Antonio (0)
Boise (1)	Phoenix (0.5)	Grand Rapids (0)	San Diego (0)
Bridgeport (1)	Sacramento (0.5)	Greensboro (0)	San Francisco (0)
Charlotte (1)	Springfield (0.5)	Henderson (0)	San José (0)
Indianapolis (1)	Worcester (0.5)	Houston (0)	San Juan (0)
Long Beach (1)	Albuquerque (0)	Knoxville (0)	St. Petersburg (0)
Milwaukee (1)	Allentown (0)	Lakeland (0)	Stockton (0)
Newark (1)	Atlanta (0)	Las Vegas (0)	Tampa (0)
Oakland (1)	Augusta (0)	Little Rock (0)	Toledo (0)
Orlando (1)	Bakersfield (0)	Louisville (0)	Tucson (0)
Philadelphia (1)	Baltimore (0)	McAllen (0)	Tulsa (0)
Portland (1)	Baton Rouge (0)	Memphis (0)	Virginia Beach (0)
Provo (1)	Birmingham (0)	Mesa (0)	Wichita (0)
St. Louis (1)	Cape Coral (0)	Miami (0)	Winston-Salem (0)

MITIGATION OF URBAN HEAT ISLANDS

1.5 points

Unvegetated, impermeable, and dark surfaces in cities are substantial contributors to the urban 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 °F to 5.4 °F warmer than surrounding rural areas (EPA 2020c).

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

Cities with land development policies that increase or preserve vegetated land, reduce 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 2016).

Cities could earn up to 1.5 points for efforts to reduce their urban heat island effect. We gave 0.5 points to cities that have a quantitative goal to mitigate this effect. The goal may aim at reductions in temperature or impermeable surface, increases in the tree canopy, the deployment of cool or green roofs, or the expansion of wetlands. Goals must be included in formal city plans or ordinances and must specify a future target date or annual commitment.

Cities could also receive 0.5 points, up to a total of 1 point, for each policy or program that incorporates requirements or incentives to mitigate the urban heat island effect. These include:

- *Green infrastructure policies* such as municipal or private sector requirements or incentives for low-impact-development green infrastructure, cool roof/pavement policies, and green roof policies.
- *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.

Table 18 shows the scoring for these metrics and figure 22 provides the scores. Table E8 in Appendix E provides more detailed city scores.

Table 18. Scoring for urban heat island mitigation goals and initiatives

Mitigation goal	Score
City has quantitative urban heat island mitigation goal.	0.5
Policies and programs	
City has one or more of these: • Green infrastructure policy • Private tree protection ordinance • Private tree planting program • Private land conservation policy	0.5 each, up to 1 point

Figure 22. Urban heat island mitigation goals and initiatives scores (out of 1.5 possible points)

Albuquerque (1.5)	San Antonio (1.5)	Bridgeport (0.5)	Allentown (0)
Atlanta (1.5)	San José (1.5)	Charlotte (0.5)	Augusta (0)
Baltimore (1.5)	Seattle (1.5)	Chula Vista (0.5)	Aurora (0)
Boston (1.5)	St. Petersburg (1.5)	Colorado Springs (0.5)	Bakersfield (0)
Chicago (1.5)	Tampa (1.5)	Detroit (0.5)	Baton Rouge (0)
Cleveland (1.5)	Washington, DC (1.5)	El Paso (0.5)	Boise (0)
Columbus (1.5)	Austin (1)	Fort Worth (0.5)	Cape Coral (0)
Denver (1.5)	Buffalo (1)	Honolulu (0.5)	Charleston (0)
Grand Rapids (1.5)	Cincinnati (1)	Jacksonville (0.5)	Columbia (0)
Hartford (1.5)	Dallas (1)	Lakeland (0.5)	Dayton (0)
Houston (1.5)	Kansas City (1)	Little Rock (0.5)	Des Moines (0)
Indianapolis (1.5)	Knoxville (1)	Memphis (0.5)	Fresno (0)
Long Beach (1.5)	Las Vegas (1)	Mesa (0.5)	Greensboro (0)
Los Angeles (1.5)	Milwaukee (1)	New Haven (0.5)	Henderson (0)
Louisville (1.5)	Minneapolis (1)	Omaha (0.5)	Madison (0)
Miami (1.5)	New Orleans (1)	Oxnard (0.5)	McAllen (0)
Nashville (1.5)	Oakland (1)	Richmond (0.5)	Newark (0)
New York (1.5)	Pittsburgh (1)	St. Paul (0.5)	Oklahoma City (0)
Orlando (1.5)	Provo (1)	San Diego (0.5)	Reno (0)
Philadelphia (1.5)	Raleigh (1)	Springfield (0.5)	Rochester (0)
Phoenix (1.5)	Salt Lake City (1)	St. Louis (0.5)	San Juan (0)
Portland (1.5)	San Francisco (1)	Syracuse (0.5)	Stockton (0)
Providence (1.5)	Virginia Beach (1)	Toledo (0.5)	Wichita (0)
Riverside (1.5)	Akron (0.5)	Tucson (0.5)	Winston-Salem (0)
Sacramento (1.5)	Birmingham (0.5)	Tulsa (0.5)	Worcester (0)

Chapter 4. Buildings Policies

Lead Authors: Hannah Bastian and Alexander Jarrah

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 to meet their own objectives for reducing energy use and GHG emissions.

Compared with other locations, large cities typically have more buildings, less industrial activity, and better-developed public transit systems. As a result, in large cities the buildings sector generally outpaces industry and transportation and consumes the greatest share of energy—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. Department of Energy (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 performance of both new and existing buildings to meet their energy and emissions reduction goals. They can also adopt policies that promote renewable energy, for example by encouraging building owners to install solar arrays. A number of metrics in this chapter reward cities that have implemented policies and programs to increase onsite renewable generation.

Many cities start by adopting policies for municipal buildings to demonstrate energy improvements in local government operations, then extend those policies to private buildings. Chapter 2 assessed clean energy policies and goals that local governments have established for their own operations, including buildings. In Chapter 3 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 influence. We allocated 30 points to buildings policies across four categories, as shown in figure 23.

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

RESULTS

New York earned the most points for buildings policies, with a significant lead over the other top-scoring cities. New York was the only city to receive full points in our improved metric recognizing city policies that encourage or require efficiency in existing buildings. Seattle, Boston, and Chicago were the next-highest scorers. All four leading cities earned 20 or more points—far surpassing the median score of 7—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 workforce development and policies for existing buildings, though some cities have made strides in the latter since the last edition of the *Scorecard*.

Figure 23. Buildings policies scoring overview

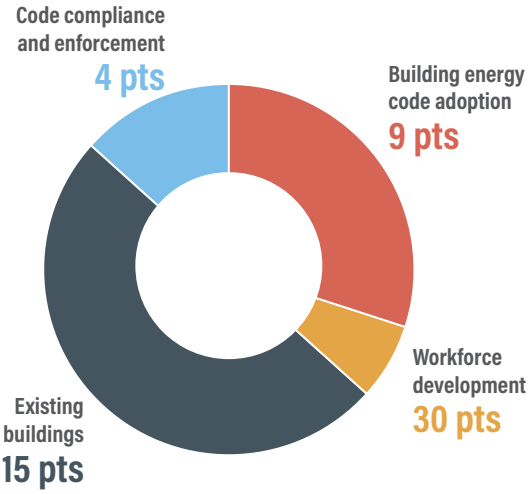


Table 19 summarizes the scores across all buildings policy categories. In subsequent tables in this chapter, we show how we allocated points for individual metrics within these categories.

Table 19. Buildings policies scores

City	Building energy code adoption (9 pts)	Code compliance and enforcement (4 pts)	Existing buildings (15 pts)	Workforce development (2 pts)	Total (30 pts)
New York	8.5	4	15	1	28.5
Seattle	8.5	4	9.5	0.5	22.5
Boston	9	3	6.5	2	20.5
Chicago	7	3	8	2	20
San Francisco	8	4	7	0.5	19.5
Washington, DC	3	4	10.5	1.5	19
Denver	8.5	4	5	1	18.5
Minneapolis	5	3	9	1.5	18.5
Austin	6	3	7.5	1	17.5
Los Angeles	5.5	3	8	1	17.5
San José	6	3	6.5	2	17.5
St. Louis	7.5	2	8	0	17.5
Chula Vista	7	4	4	1	16
Oakland	8	3	4	1	16
Philadelphia	7	2	5	0.5	14.5
Kansas City	5.5	3	4	1	13.5
Long Beach	7.5	4	2	0	13.5
St. Paul	5	3	4	1	13
Sacramento	5	3	4	0.5	12.5
Atlanta	4	3	4.5	1	12.5
Reno	6	2	4.5	0	12.5
Portland	5.5	3	4	0	12.5
San Diego	5.5	3	3	0.5	12

City	Building energy code adoption (9 pts)	Code compliance and enforcement (4 pts)	Existing buildings (15 pts)	Workforce development (2 pts)	Total (30 pts)
Hartford	5	3	1.5	2	11.5
Bakersfield	7	2	2	0	11
San Antonio	5.5	3	2	0.5	11
Orlando	3.5	2	5	0.5	11
Phoenix	4.5	3	2	1	10.5
Riverside	5	2	4	0.5	11.5
Fresno	7	2	3	0	12
Pittsburgh	4.5	2	3	0.5	10
Des Moines	6	1	2.5	0	9.5
Colorado Springs	4	3	2	0	9
Las Vegas	7	2	0	0	9
Oxnard	5	3	2	0	10
Dallas	3	4	1.5	0	8.5
Grand Rapids	5	2	1.5	0	8.5
Houston	3.5	3	1.5	0.5	8.5
Rochester	4	2	1.5	1	8.5
Salt Lake City	2.5	1	4.5	0	8
Springfield	6	2	0	0	8
Stockton	5	2	2	0	9
Aurora	5	2	0	0.5	7.5
Tucson	5.5	3	0	0	8.5
Boise	4.5	3	0	0	7.5
Virginia Beach	3.5	3	1	0	7.5
Columbus	3	1	3	0.5	7.5
Milwaukee	1.5	1	3	2	7.5
Miami	4	1	2	0	7
Baltimore	3.5	1	2	0.5	7
Buffalo	5.5	1	0	0.5	7
Detroit	4	1	2	0	7
Henderson	6	1	0	0	7
Memphis	4	1	2	0	7
Worcester	6	0	0	1	7
Richmond	4	2	1	0	7
Cincinnati	2.5	2	1.5	0.5	6.5
New Orleans	1	3	2.5	0	6.5
Cleveland	4	0	2.5	0	6.5
Jacksonville	2.5	1	2	0.5	6
Mesa	4	2	0	0	6
New Haven	3	2	1	0	6
Newark	5	1	1	0	7
San Juan	6	0	0	0	6
St. Petersburg	2.5	2	1	0	5.5
Tampa	2.5	1	2	0	5.5

City	Building energy code adoption (9 pts)	Code compliance and enforcement (4 pts)	Existing buildings (15 pts)	Workforce development (2 pts)	Total (30 pts)
Nashville	0.5	2	2	1	5.5
Fort Worth	2	3	0.5	0	5.5
Louisville	1	3	1.5	0	5.5
Raleigh	1.5	3	0	1	5.5
Lakeland	2	2	1	0	5
Allentown	4	1	0	0	5
McAllen	3	2	0	0	5
Syracuse	4	1	0	0	5
Charlotte	2	2	1	0	5
Cape Coral	2.5	2	0	0	4.5
El Paso	4	0	0	0.5	4.5
Knoxville	2	1	1	0.5	4.5
Dayton	3	1	0	0	4
Bridgeport	3	0	1	0	4
Albuquerque	0.5	2	1.5	0	4
Akron	2.5	1	0	0	3.5
Providence	1	1	0.5	1	3.5
Toledo	2.5	1	0	0	3.5
Greensboro	1	2	0	0	3
Winston-Salem	2	1	0	0	3
Provo	0.5	2	0	0	2.5
Birmingham	1.5	0	0	1	2.5
Madison	1	1	0	0.5	2.5
Baton Rouge	0	2	0	0	2
Charleston	0	2	0	0	2
Honolulu	0.5	1	0	0	1.5
Indianapolis	0.5	0	1	0	1.5
Oklahoma City	1	0	0	0	1
Augusta	0	1	0	0	1
Columbia	0	1	0	0	1
Little Rock	0	1	0	0	1
Omaha	0	1	0	0	1
Tulsa	0	0	0	0	0
Wichita	0	0	0	0	0
Median	**4**	**2**	**1.5**	**0**	**7**

Leading Cities

New York. New York received full points in two metrics and almost full points in the two others. The city's energy codes are among the most stringent in the country, and the city is by far the national leader in policies targeting energy efficiency in existing buildings, with six mandatory policies on the books. For example, Local Law 97 of 2019 regulates emissions from buildings larger than 25,000 square feet, reviewing performance on an annual basis and subjecting those properties to penalties for excessive emissions. New York also offers several financing programs to drive energy savings in existing building stock.

Seattle. Seattle has implemented stringent building energy codes and set additional low-energy requirements for some types of buildings. The city has also adopted solar-ready requirements for commercial buildings and EV-ready requirements for both residential and commercial buildings. The city received full points for code compliance and enforcement by employing full-time staff dedicated solely to energy code compliance; providing up-front support to builders on code compliance; and implementing robust compliance strategies like requiring plan reviews, site visits, and performance testing. Seattle has also implemented several energy efficiency policies targeting existing buildings, including a benchmarking ordinance and a building tune-up policy; the city also successfully advocated for the adoption of a statewide building energy performance standard.

Chicago. Chicago has implemented stringent state energy codes and set additional low-energy requirements for its municipal buildings. It has also established several energy efficiency policies targeting existing buildings. For example, the Chicago Benchmarking Energy Ordinance created the Chicago Energy Rating System, which assigns all buildings over 50,000 square feet an energy performance rating. The city requires owners to post their rating in a prominent location and to share it when they list the property for sale or lease. Since the last *Scorecard*, the city has adopted EV-ready requirements for new construction. Chicago also received full points for implementing several workforce development initiatives.

Issue in Focus: Policies Targeting Large Existing Buildings

Over the last several years, cities have begun to focus on policies that address energy efficiency in their existing building stock. Most of these policies target large commercial and multifamily buildings, which account for a significant proportion of citywide energy consumption and are generally easier to target than smaller buildings. We identified 32 cities with mandatory policies that either encourage or directly achieve energy savings in large commercial and multifamily buildings.

The most common type of policy is a benchmarking ordinance, which requires owners to measure and report their annual energy usage to the city; the city then discloses the information to the public. While benchmarking ordinances do not directly require energy savings, they typically do lead to savings and provide valuable energy consumption data that can inform other policies containing mandatory energy savings requirements. Twenty-four cities have adopted benchmarking ordinances with varying level of disclosure, and an additional 10 cities implement state benchmarking ordinances.

Sixteen cities have additional policies to drive savings in their existing building stock. Eight cities require owners to undergo an energy audit, which reveals details about a building's energy consumption and leads to recommendations for cost-effective energy-saving improvements. Four cities require large buildings to undergo retrocommissioning (RCx) to ensure all building systems are running optimally.[35] Another seven cities require owners to choose measures from a menu of energy-saving actions that often include RCx or audits.

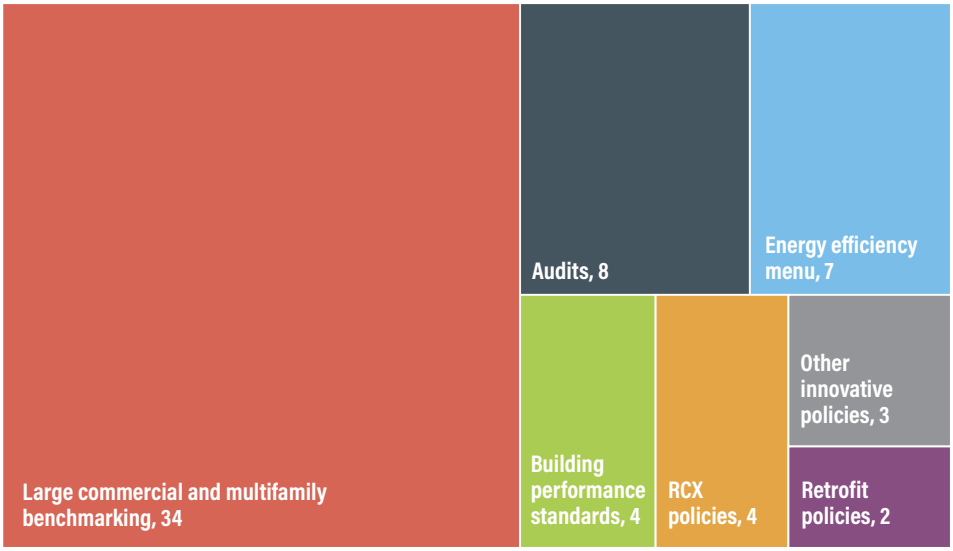
Of all the policies targeting efficiency in existing buildings, building energy performance standards (BEPS) set the most stringent energy savings requirements (Nadel and Hinge 2020). BEPS require owners of the worst-performing buildings to undergo retrofits to meet certain performance requirements. These policies can help renters in large multifamily buildings, a group that has been historically underserved by efficiency programs and policies. Currently only three cities (New York; Washington, DC; and St. Louis) and one state (Washington) have implemented BEPS, although we expect more cities to adopt these policies in the future. For example, Boston included a carbon emissions performance standard for large buildings in its most recent climate action plan.

Many cities can do more to improve their existing building stock. Sixty-eight cities have yet to adopt any policies targeting large multifamily and commercial buildings, and another 16 have adopted only a single policy. The few leading cities that have passed multiple policies demonstrate the potential and opportunity for more cities to pursue strategies that drive efficiency in their existing building stock.

Figure 24 shows the number of cities in the *City Scorecard* that have implemented the policies discussed above.

[35] Our tally includes cities with tune-up policies.

Figure 24. Number of cities in the *City Scorecard* implementing each policy.



Note. Tallies count cities that implement requirements due to state legislation. For example, we include Seattle in the tally for building performance standards due to a state-wide building performance standard, and we include California cities in the tally for benchmarking due to a state-wide requirement.

BUILDING ENERGY CODE ADOPTION

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 International Energy Conservation Code (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.[36] 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 2017).

Cities can influence model codes by joining the ICC, participating in public hearings, and voting for changes to the next versions of the codes. Ultimately, however, it is state governments that assume responsibility for adopting and amending model energy codes. 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, in South Carolina amendments may be made to the state codes only when variances have been granted, and the variance process requires statewide consistency.

In this category we scored cities on:

- Code stringency (6 points)
- Solar and EV policies (2 points)
- Low-energy-use policies (1 point)

[36] The current model energy codes, as approved by the U.S. Department of Energy (DOE), are the 2018 IECC and the ASHRAE 90.1-2016 standards. Code stringency increases more in some code cycles than others. Between 1992 and 2012, the energy codes accounted for 4.2 quads of energy savings. By 2040, increased stringency and adoption of the energy codes could save an additional 41.6 quads of energy and 6.2 billion tons of carbon dioxide (Livingston et al. 2014).

Code Stringency

6 points

Cities could earn up to 6 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. To account for cities without authority to adopt their own codes, we shifted 1 point from code stringency to code advocacy; these cities could earn a maximum of 5 points for code stringency and 1 point 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 2020). These zEPI scores rate the progress of a jurisdiction toward becoming net zero energy. 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.[37]

For residential and commercial codes, we divided all cities into quartiles based on their zEPI scores and assigned points accordingly. For cities that have energy code authority, we awarded 3 points to those in the fourth quartile, 2 to those in the third quartile, and 1 to those in the second quartile. For cities without code authority, we awarded 2.5 points to those in the fourth quartile, 1.5 to those in the third quartile, and 0.5 to those in the second quartile. We awarded these cities 0.5 points per sector for advocating for more stringent energy codes at the state level. Table 20 outlines the score ranges for both residential and commercial zEPI scores.

Renewable and Electric Vehicle (EV) Policies

2 points

Increasingly, cities are requiring new buildings to support renewable installation and/or EV charging. Mandating renewable and EV readiness encourages more building owners to invest in these technologies. Retrofitting existing buildings to enable renewable energy and EVs can be cost prohibitive for some owners; it often costs less to include these features in new construction.

Some model energy codes include EV-ready or renewable energy–ready requirements that cities have the option of adopting. The 2015 International Residential Code (IRC) Appendix U and IECC Appendix RB offer optional solar-ready requirements for buildings, and the International Green Commercial Code includes EV-ready requirements. EV-ready and EV-capable requirements for residential and commercial buildings are expected to be included in the 2021 IECC (Cheslak 2019).

While a few cities have adopted these optional appendixes, most pass their own local ordinances or other legislation to add renewable- and EV-ready provisions to their building codes. We awarded 1 point to cities with renewable-ready requirements and 1 point for EV-ready requirements. Cities that allow renewable energy use in all zones received 0.5 points 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.

Low-Energy-Use Building Requirements

1 point

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.

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

While energy codes apply to the entirety of a city's residential or commercial building stock, this 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.

Table 20 shows the scoring for these metrics, and figure 25 presents the scores. Table E9 in Appendix E provides more detailed city scores.

Table 20. Scoring for building energy code adoption

Residential code stringency		
zEPI score	Cities with authority	Cities without authority
<54.2	3	2.5
54.2–58.4	2	1.5
58.5–62.9	1	0.5
Commercial code stringency		
zEPI score	Cities with authority	Cities without authority
<50.4	3	2.5
50.4–53.6	2	1.5
53.7–57.9	1	0.5
Advocacy	**Cities with authority**	**Cities without authority**
City advocates to state for more-stringent codes.	N/A	0.5 per sector
Renewable readiness		
City has renewable-ready requirements for residential or commercial new construction.	1	
City allows renewable energy use in all zones.	0.5	
EV readiness		
City has EV-ready requirements for residential or commercial new construction.	1	
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	

Figure 25. Building energy code adoption scores (out of 9 possible points).

Boston (9)	Portland (5.5)	Miami (4)	Knoxville (2)
Denver (8.5)	San Antonio (5.5)	Richmond (4)	Lakeland (2)
New York (8.5)	San Diego (5.5)	Rochester (4)	Winston-Salem (2)
Seattle (8.5)*	Tucson (5.5)	Syracuse (4)	Birmingham (1.5)
Oakland (8)	Aurora (5)	Baltimore (3.5)	Milwaukee (1.5)
San Francisco (8)	Grand Rapids (5)	Houston (3.5)	Raleigh (1.5)
Long Beach (7.5)	Hartford (5)	Orlando (3.5)	Greensboro (1)
St. Louis (7.5)	Minneapolis (5)	Virginia Beach (3.5)	Louisville (1)
Bakersfield (7)	Newark (5)	Bridgeport (3)	Madison (1)
Chicago (7)	Oxnard (5)	Columbus (3)	New Orleans (1)
Chula Vista (7)	Riverside (5)	Dallas (3)	Oklahoma City (1)
Fresno (7)	Sacramento (5)	Dayton (3)	Providence (1)
Las Vegas (7)	St. Paul (5)	McAllen (3)	Albuquerque (0.5)
Philadelphia (7)	Stockton (5)	New Haven (3)	Honolulu (0.5)
Austin (6)	Boise (4.5)	Washington, DC (3)	Indianapolis (0.5)
Des Moines (6)	Phoenix (4.5)	Akron (2.5)	Nashville (0.5)
Henderson (6)	Pittsburgh (4.5)	Cape Coral (2.5)	Provo (0.5)
Reno (6)	Allentown (4)	Cincinnati (2.5)	Augusta (0)
San José (6)	Atlanta (4)	Jacksonville (2.5)	Baton Rouge (0)
San Juan (6)*	Cleveland (4)	Salt Lake City (2.5)	Charleston (0)
Springfield (6)	Colorado Springs (4)	St. Petersburg (2.5)	Columbia (0)
Worcester (6)	Detroit (4)	Tampa (2.5)	Little Rock (0)
Buffalo (5.5)	El Paso (4)	Toledo (2.5)	Omaha (0)
Kansas City (5.5)	Memphis (4)	Charlotte (2)	Tulsa (0)
Los Angeles (5.5)	Mesa (4)	Fort Worth (2)	Wichita (0)†

*NBI was unable to calculate a zEPI score for Seattle and San Juan because there are no available analyses comparing these cities' codes to model energy codes. NBI reviewed both cities' energy codes and determined they should receive full points for residential and commercial code stringency.
†Wichita received 0 points because it omitted the energy code requirements when adopting its building codes.

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 (Rosenberg et al. 2016). The Building Codes Assistance Project reports that every dollar spent on energy code compliance leads to $6 in energy savings (IMT and ICLEI 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 enforcement centers on the permitting process. In jurisdictions without strict 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. Some jurisdictions also require onsite inspections of construction work and building performance testing upon completion.

Permit fees and municipal taxes fund local government enforcement. State energy offices and utilities may sometimes fund training and provide technical assistance, not only to code officials but also to builders, contractors, and architects. The DOE Building Energy Codes Program provides a variety of technical resources to support state and local code implementation, like software tools and training for code officials.[38]

[38] More information is available at www.energycodes.gov.

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.

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 retrofit projects (Athalye et al. 2016). Because few reports exist for city-level compliance rates, we used several proxies in the *City Scorecard* to evaluate code compliance and enforcement efforts.

A city could earn up to 4 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 (2 points)
- Up-front 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

In most cities, code officials are responsible for enforcing all building codes, not just energy codes. Some cities have full-time employees who are responsible only for energy code compliance. Staff who specialize in these codes can perform higher-quality plan reviews and inspections, track code infractions, and raise awareness and compliance (NRDC and IMT 2018; DOE 2013). Cities received 1 point for having at least one full-time employee dedicated to energy code compliance.[39]

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 (Meres 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 IECCs 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 2015). Support prior to plan review is especially important to ensure that builders consider energy codes from the beginning. 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 2 points to cities that provide any free up-front support to help the construction community understand and navigate code compliance.

Table 21 summarizes the scoring for these metrics, and figure 26 lists the scores. Table E10 in Appendix E provides more detailed city scores.

[39] We plan to refine this metric for future scorecards. We are exploring improvements that capture how cities dedicate staff and resources to strengthen energy code enforcement.

Table 21. Scoring for code compliance

City staffing	Score
City has at least one full-time employee 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
Up-front support	
City provides free up-front support.	1

Figure 26. Code compliance scores (out of 4 possible points)

Chula Vista (4)	Portland (3)	New Haven (2)	Jacksonville (1)
Dallas (4)	Raleigh (3)	Orlando (2)	Knoxville (1)
Denver (4)	Sacramento (3)	Philadelphia (2)	Little Rock (1)
Long Beach (4)	St. Paul (3)	Pittsburgh (2)	Madison (1)
New York (4)	San Antonio (3)	Provo (2)	Memphis (1)
San Francisco (4)	San Diego (3)	Reno (2)	Miami (1)
Seattle (4)	San José (3)	Richmond (2)	Milwaukee (1)
Washington, DC (4)	Tucson (3)	Riverside (2)	Newark (1)
Atlanta (3)	Virginia Beach (3)	Rochester (2)	Omaha (1)
Austin (3)	Albuquerque (2)	Springfield (2)	Providence (1)
Boise (3)	Aurora (2)	St. Louis (2)	Salt Lake City (1)
Boston (3)	Bakersfield (2)	St. Petersburg (2)	Syracuse (1)
Chicago (3)	Baton Rouge (2)	Stockton (2)	Tampa (1)
Colorado Springs (3)	Cape Coral (2)	Akron (1)	Toledo (1)
Fort Worth (3)	Charleston (2)	Allentown (1)	Winston-Salem (1)
Hartford (3)	Charlotte (2)	Augusta (1)	Birmingham (0)
Houston (3)	Cincinnati (2)	Baltimore (1)	Bridgeport (0)
Kansas City (3)	Fresno (2)	Buffalo (1)	Cleveland (0)
Los Angeles (3)	Grand Rapids (2)	Columbia (1)	El Paso (0)
Louisville (3)	Greensboro (2)	Columbus (1)	Indianapolis (0)
Minneapolis (3)	Lakeland (2)	Dayton (1)	Oklahoma City (0)
New Orleans (3)	Las Vegas (2)	Des Moines (1)	San Juan (0)
Oakland (3)	McAllen (2)	Detroit (1)	Tulsa (0)
Oxnard (3)	Mesa (2)	Henderson (1)	Wichita (0)
Phoenix (3)	Nashville (2)	Honolulu (1)	Worcester (0)

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; when compared with 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.

Cities can implement a number of policies and requirements 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. And financial incentives like zero-interest loans or tax credits can offset the high up-front cost barriers to efficiency retrofits and renewable energy projects.

Other policies require owners to take energy-saving actions to reduce their energy use. For example, Seattle's Building Tune-Ups policy requires owners of large commercial buildings to perform energy assessments and tune-ups—a form of 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 to reduce energy usage or GHG emissions in buildings. We assigned points based on the 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. The overall allocation is as follows:

- Building performance standards (3 points per sector covered)
- Retrofit and retrocommissioning requirements (1.5 points per sector)
- Crosscutting requirements (1 point per sector)
- Benchmarking and transparency requirements (1 point per sector)
- Rental disclosure requirements (1 point per sector)
- Energy audit requirements (0.5 points per sector)
- Financial or nonfinancial incentives (points based on number of programs administered, capped at 2 points overall)
- Other innovative policies (1 point per sector)
- Voluntary programs (1 point per sector for cities without authority to enact requirements; 0.5 points for cities with authority, capped at 0.5 points)

Recognizing that cities have varying degrees of authority to pursue these actions, we provided multiple scoring pathways for cities to earn points. We capped the maximum number of points cities could earn to 15 for this metric. 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 2.5 points for each sector: 1 point for benchmarking and 1.5 points for retrocommissioning. Similarly, a city with a single-family energy-use disclosure policy that requires energy audits would receive 1.5 points: 1 point for the energy-use disclosure policy and 0.5 points for the audit requirement.

Building Performance Standards

2 points

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 from a 2005 baseline (Nadel and Hinge 2020).

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 3 points for each sector (residential and commercial) covered by a building performance standard.

Retrofit and Retrocommissioning (RCx) Requirements

1.5 points

Retrofit policies call for modifying existing buildings to reduce energy use. Comprehensive upgrades can cut commercial building energy use by 20–50% (York et al. 2015). Some cities implement policies that set 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 Law 88 of 2009, for instance, requires buildings greater than 25,000 square feet to upgrade their lighting to meet the current city energy code.

RCx policies require owners to upgrade their buildings on schedules 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 RCx can reduce energy use by up to 15% in commercial buildings, with payback period of eight to nine months (EPA 2019b).

Cities earned 1.5 points for each retrofit or RCx requirement applying to each sector (residential and commercial).

1 point

Crosscutting Requirements

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 1 point for having crosscutting requirements for residential buildings and 1 point for such requirements for commercial buildings.

1 point

Benchmarking and Transparency Requirements

These requirements include any policy that obliges building owners to measure, report, and share their energy use. Policies that earned credit were multifamily and commercial benchmarking policies and single-family disclosure policies.

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 data across all buildings are consistent and therefore readily comparable. Who this information is disclosed to 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 or lease agreement, and only to the parties involved.

Single-family energy-use 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 audit, while other cities, like Chicago, require the seller 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 1 point for each sector (commercial, multifamily, and single-family buildings) targeted by a benchmarking and transparency policy.[40] We also awarded 0.5 bonus points to cities with compliance rates greater than 91% for at least one type of building

1 point

Rental Disclosure Policies

Rental disclosure policies are another type of information disclosure requirement. These policies require owners of rental properties to disclose building energy use to prospective tenants and buyers, to allow consumers to make informed housing choices. Austin, Minneapolis, and Chicago have all adopted time-of-rent energy disclosure policies.

Cities could earn 1 point for each sector covered by a rental disclosure policy.

0.5 point

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 additional requirement in their benchmarking policies.

Cities earned 0.5 points for each building sector covered by an audit requirement.

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

Financial or Nonfinancial Incentives

1 point

Cities can provide financial and nonfinancial incentives to encourage owners to pursue energy efficiency and renewable energy projects. 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. Speeding up 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 2009). 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.

A number of cities have established or supported programs that serve low-income communities. For example, some have partnered with Grid Alternatives, an organization that helps residents and businesses in low-income areas afford onsite renewables (Grid Alternatives 2020). Cities can also help nonprofits that serve low-income communities reduce their own energy use and free up funds for their programs. For instance, Denver's Nonprofit Energy Efficiency Program helped STEP Denver reduce its energy costs by 32% and use the savings to hire an additional case manager (Energy Outreach 2018).

This scoring category captures city-provided incentives and financing programs that are not run through a utility. Cities could earn up to 2 points for financial or nonfinancial mechanisms that promote energy efficiency or onsite solar generation or target low-income communities.

We assigned points based on the number of programs a city has implemented. Programs that target both commercial and residential buildings counted as two programs.[41] Cities with at least four programs received 2 points, and cities with two or three programs earned 1 point. We based our scoring on natural cut points in the data.

Other Innovative Policies

2 points

Cities are also 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-in to benchmarking requirements. 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 1 point for having such energy-saving requirements in residential buildings and 1 point for having them in commercial buildings.

Voluntary Programs

1 point

We focus here on requirements but acknowledge that some cities do not have the authority to enact these requirements due to overriding state legislation or the lack of enabling state legislation. For example, some or all cities in Arizona (Mesa, Phoenix, and Tucson) and Virginia (Richmond and Virginia Beach) cannot pass these requirements. In these cases, we awarded cities points if they administer a voluntary program to encourage building owners to take energy actions.

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 might build momentum for requirements. For example, the Atlanta Better Buildings Challenge program 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 1 point for running voluntary programs for residential buildings and 1 point for commercial. Cities with authority could earn 0.5 points for voluntary programs.

[41] 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.

Table 22 summarizes the scoring, and figure 27 lists the scores for policies targeting existing buildings. Table E11 in Appendix E provides more detailed city scores.

Table 22. Scoring for policies targeting existing buildings

Policy	Score (Per building type)
Building performance standards	3 points
Retrofit requirements	1.5 points
Retrocommissioning requirements	1.5 points
Crosscutting requirements	1 point
Benchmarking and transparency requirements	1 point
Rental disclosure policies	1 point
Energy audit requirements	0.5 points
Financial or nonfinancial incentives	2 points (4 or more programs) 1 point (2 to 3 programs)
Other innovative policies	1 point
Voluntary programs	1 point for cities without authority 0.5 points for cities with authority

Figure 27. Policies targeting existing buildings scores (out of 15 possible points).

New York (15)	Fresno (3)	Hartford (1.5)	Columbia (0)
Washington, DC (10.5)	Milwaukee (3)*	Houston (1.5)	Dayton (0)
Seattle (9.5)	San Diego (3)	Louisville (1.5)	El Paso (0)
Minneapolis (9)	Pittsburgh (3)	Rochester (1.5)	Charleston (0)
Chicago (8)	Cleveland (2.5)	Bridgeport (1)	Greensboro (0)
Los Angeles (8)	Des Moines (2.5)	Charlotte (1)	Henderson (0)
St. Louis (8)	New Orleans (2.5)	Indianapolis (1)	Honolulu (0)
Austin (7.5)	Bakersfield (2)	Knoxville (1)	Las Vegas (0)
San Francisco (7)	Baltimore (2)	Lakeland (1)	Little Rock (0)
Boston (6.5)	Colorado Springs (2)	New Haven (1)	Madison (0)*
San José (6.5)	Detroit (2)	Newark (1)	McAllen (0)
Denver (5)	Jacksonville (2)	Richmond (1)*	Mesa (0)*
Orlando (5)	Long Beach (2)	St. Petersburg (1)	Oklahoma City (0)
Philadelphia (5)	Memphis (2)	Virginia Beach (1)*	Omaha (0)
Atlanta (4.5)	Miami (2)	Fort Worth (0.5)	Provo (0)
Reno (4.5)	Nashville (2)	Providence (0.5)	Raleigh (0)
Salt Lake City (4.5)	Oxnard (2)	Akron (0)	San Juan (0)
Chula Vista (4)	Phoenix (2)*	Allentown (0)	Springfield (0)
Kansas City (4)	San Antonio (2)	Augusta (0)	Syracuse (0)
Oakland (4)	Stockton (2)	Aurora (0)	Toledo (0)
Portland (4)	Tampa (2)	Baton Rouge (0)	Tucson (0)*
Riverside (4)	Albuquerque (1.5)	Birmingham (0)	Tulsa (0)
Sacramento (4)	Cincinnati (1.5)	Boise (0)	Wichita (0)
St. Paul (4)	Dallas (1.5)	Buffalo (0)	Winston-Salem (0)
Columbus (3)	Grand Rapids (1.5)	Cape Coral (0)	Worcester (0)

* City does not have local authority to adopt energy action requirements.

2 points ENERGY EFFICIENCY AND RENEWABLE ENERGY WORKFORCE DEVELOPMENT

Cities that invest in the development of their local clean energy workforce can save energy, reduce greenhouse gas emissions and other pollutants, and create high-quality career opportunities for their residents. In 2019 the National Association of State Energy Officials (NASEO) and the Energy Futures Initiative reported that 2.32 million people worked either in part or in full on energy efficiency in 2018. In the same year, more than 330,000 workers performed at least some solar-related work, while the wind industry employed more than 111,000 people (NASEO and EFI 2019).

Several cities are partnering with state governments, community colleges, nonprofits, utilities, unions, 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 2017; Solar Foundation 2018a; AWEA 2018). Women make up 47% of the national workforce, but they hold only about one-quarter of the country's energy efficiency and solar jobs (Shoemaker and Ribeiro 2018; Solar Foundation 2018a). Black workers account for 13% of the U.S. workforce but hold only 8% of efficiency jobs and 7% of solar jobs (BLS 2018; Shoemaker and Ribeiro 2018; Solar Foundation 2018a). 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.

For energy efficiency, we awarded 0.5 points to cities that have enacted equitable workforce development initiatives.[42] We also gave 0.5 points to cities that support workforce development programs with complementary energy efficiency policies or support third-party training opportunities with funding. We gave the same two awards of 0.5 points for renewable energy support. To receive points, city-led initiatives must have been active within the past five years.

Table 23 summarizes the scoring, and figure 28 presents city scores for this category. Table E12 in Appendix E provides more detailed city scores.

Table 23. Scoring for city support for energy efficiency and renewable energy workforce development

Energy efficiency	Score
City has equitable workforce development initiatives for residents.	0.5
City has workforce development programs complemented by or associated with energy efficiency policies, or city funds third-party training.	0.5
Renewable energy	
City has equitable workforce development initiatives for residents.	0.5
City has workforce development programs complemented by or associated with renewable energy policies, or city funds third-party training.	0.5

[42] We score cities on inclusive procurement and contracting procedures for government operations in Chapter 2.

Figure 28. City support for energy efficiency and renewable energy workforce development scores (out of 2 possible points)

Boston (2)	Buffalo (0.5)	Cape Coral (0)	Miami (0)
Chicago (2)	Cincinnati (0.5)	Charleston (0)	New Haven (0)
Hartford (2)	Columbus (0.5)	Charlotte (0)	New Orleans (0)
Milwaukee (2)	El Paso (0.5)	Cleveland (0)	Newark (0)
San José (2)	Houston (0.5)	Colorado Springs (0)	Oklahoma City (0)
Minneapolis (1.5)	Jacksonville (0.5)	Columbia (0)	Omaha (0)
Washington, DC (1.5)	Knoxville (0.5)	Dallas (0)	Oxnard (0)
Atlanta (1)	Madison (0.5)	Dayton (0)	Portland (0)
Austin (1)	Orlando (0.5)	Des Moines (0)	Provo (0)
Birmingham (1)	Philadelphia (0.5)	Detroit (0)	Reno (0)
Chula Vista (1)	Pittsburgh (0.5)	Fort Worth (0)	Richmond (0)
Denver (1)	Riverside (0.5)	Fresno (0)	Salt Lake City (0)
Kansas City (1)	Sacramento (0.5)	Grand Rapids (0)	San Juan (0)
Los Angeles (1)	San Antonio (0.5)	Greensboro (0)	Springfield (0)
Nashville (1)	San Diego (0.5)	Henderson (0)	St. Louis (0)
New York (1)	San Francisco (0.5)	Honolulu (0)	St. Petersburg (0)
Oakland (1)	Seattle (0.5)	Indianapolis (0)	Stockton (0)
Phoenix (1)	Akron (0)	Lakeland (0)	Syracuse (0)
Providence (1)	Albuquerque (0)	Las Vegas (0)	Tampa (0)
Raleigh (1)	Allentown (0)	Little Rock (0)	Toledo (0)
Rochester (1)	Augusta (0)	Long Beach (0)	Tucson (0)
St. Paul (1)	Bakersfield (0)	Louisville (0)	Tulsa (0)
Worcester (1)	Baton Rouge (0)	McAllen (0)	Virginia Beach (0)
Aurora (0.5)	Boise (0)	Memphis (0)	Wichita (0)
Baltimore (0.5)	Bridgeport (0)	Mesa (0)	Winston-Salem (0)

Chapter 5. Energy and Water Utilities

Lead Authors: Ariel Drehobl and Emma Cooper

INTRODUCTION

Energy and water utilities can be valuable partners to cities by helping to deliver clean energy programs to their communities. Energy utilities play a critical role in furthering both energy efficiency and renewable generation.

Cities served by municipally owned electric and natural gas utilities (munis) generally have some influence over the level of investment and the types of efficiency programs they offer. Many of these cities are leaders in delivering energy savings (Kushler et al. 2015). Municipal utility efficiency programs are often created in relation to local policies and sustainability or climate plans. Similarly, 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. CCAs are currently authorized in California, Illinois, Ohio, Massachusetts, New Jersey, New York, and Rhode Island (EPA 2020a).

In contrast, cities served by investor-owned utilities (IOUs) have less influence because they do not have regulatory control over IOUs. 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 looking to go further can often participate in state-level proceedings to advocate for improvements and expansion of programs to better serve their communities. They can also advocate for municipal and community-wide energy efficiency and renewable energy goals to be accounted for in long-term resource plans. Finally, they can partner with utilities to promote ratepayer-funded programs, help them reach their savings 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.

To improve energy efficiency, customers of energy utilities typically fund energy efficiency programs through a surcharge on their utility bills. 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. Energy efficiency programs—implemented by the electric and gas utilities or through statewide independent program administrators—have a long record of delivering energy and cost savings to residential, commercial, and industrial customers (Nowak, Kushler, and Witte 2019). Investments in these programs have increased steadily over the past decade, reaching $8.0 billion annually in 2018 (Berg et al. 2019).

Cities and utilities also have the opportunity to increase their clean energy production from solar and wind. As of early 2020, more than 140 cities and towns had committed to transition to 100% clean, renewable energy, and six have already achieved this goal: Aspen, Colorado; Burlington, Vermont; Georgetown, Texas; Greensburg, Kansas; Kodiak Island, Alaska; and Rock Port, Missouri (Sierra Club 2019). To meet these commitments, utilities can invest in their own renewable energy production and provide incentives to encourage customers to install distributed solar or wind systems.

To spur more clean energy production, cities can address their own consumption by participating in utility renewable energy programs, typically through a surcharge or a usage-based payment. Cities can also encourage their local utility to increase utility-scale or distributed renewable energy generation. These commitments and other policy actions can help spur utility investment in renewable energy resources and lead to a cleaner local electric grid, which impacts consumption by both local government operations and the broader community.

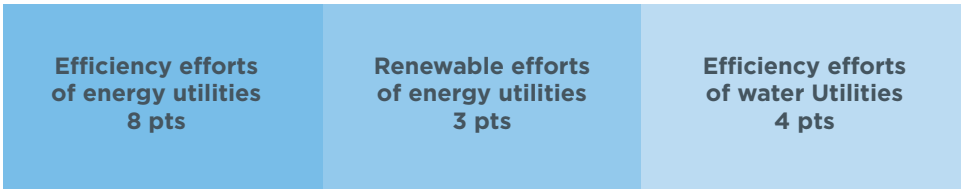
Furthermore, utilities are well suited to design and implement programs to reach traditionally underserved markets, such as customers with lower incomes or residents of multifamily buildings (Samarripas and York 2019). Cities can assist utilities by helping with program outreach and coordination. As discussed earlier in the community-wide chapter, low-income urban families pay a substantially greater percentage of their income on utility bills than the average household (Drehobl and Ross 2016). Energy efficiency programs can help alleviate this high burden.

Drinking water and wastewater utilities are also important influencers of energy 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. In fact, for many local governments, the energy required throughout the water process accounts for 40% of their energy expenditures. Energy efficiency can cut water-related energy use substantially and save thousands of dollars for local water and wastewater plants (EPA 2020b).

SCORING

We scored cities on the basis of the energy efficiency and renewable energy efforts of their primary electric, gas, and water utilities, as well as on the extent to which the cities partner or engage with the utilities to enable utility-sector investments and programs. We allocated 15 points across three categories, as shown in figure 29.

Figure 29. Energy and water utilities scoring overview



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

RESULTS

Boston, Chula Vista, Minneapolis, and San Diego all tied for the highest score with 13.5 out of 15 points. Los Angeles and San José tied for the fifth-highest score with 13 points. These high-scoring cities and the utilities serving them scored well across all the energy efficiency, renewable energy, and water efficiency metrics. Only two cities earned maximum points for efficiency efforts (Boston and Providence); three cities earned maximum points for renewable efforts (Chula Vista, Minneapolis, and San Diego); and five cities earned maximum points for water services (Denver, Los Angeles, San Diego, San José, and Seattle).

Table 24 lists the scores for energy and water utilities. Subsequent tables within this chapter show how we allocated points for individual metrics within these categories. Appendixes E and F show more detailed scoring information on each metric.

Table 24. Energy and water utilities scores

City	Efficiency efforts (8 pts)	Renewable efforts (3 pts)	Water services (4 pts)	Total (15 pts)
Boston	8	2	3.5	13.5
Chula Vista	7	3	3.5	13.5
Minneapolis	7	3	3.5	13.5
San Diego	6.5	3	4	13.5
Los Angeles	7	2	4	13
San José	6.5	2.5	4	13
St. Paul	6.5	2.5	3.5	12.5
San Francisco	6.5	2.5	3.5	12.5
Denver	6	2	4	12
Chicago	7.5	1	3	11.5
Oakland	6.5	2.5	2.5	11.5
Providence	8	1.5	2	11.5
Seattle	5	2.5	4	11.5
Grand Rapids	6.5	1	3	10.5
New York	6	1	3.5	10.5
Sacramento	5	2	3.5	10.5
Portland	6.5	1.5	2	10
Columbus	5.5	0.5	3.5	9.5
Hartford	6	1	2.5	9.5
Washington, DC	6	0.5	3	9.5
Worcester	6.5	2	1	9.5
Austin	3	2.5	3.5	9
Oxnard	5.5	2	1.5	9
Riverside	4.5	1.5	3	9
Salt Lake City	5	1	3	9
Albuquerque	4	1	3.5	8.5
Aurora	4.5	0.5	3.5	8.5
Bakersfield	5.5	1	2	8.5
Fresno	5.5	1.5	1.5	8.5
Phoenix	4.5	1	3	8.5
Atlanta	3.5	1	3.5	8
Milwaukee	4.5	1.5	2	8
Philadelphia	4.5	1	2	7.5
Honolulu	4	0.5	3	7.5
Stockton	4.5	1.5	1.5	7.5
Long Beach	4	1	2	7
Kansas City	4	1.5	1.5	7
Springfield	6.5	0.5	0	7
Baltimore	4.5	0.5	1.5	6.5
Boise	2.5	1.5	2.5	6.5
Buffalo	4.5	0.5	1.5	6.5
Cleveland	2.5	1.5	2.5	6.5
Madison	3.5	1	2	6.5
New Haven	4	1.5	1	6.5
Charlotte	2	2	2	6

City	Efficiency efforts (8 pts)	Renewable efforts (3 pts)	Water services (4 pts)	Total (15 pts)
Fort Worth	2	1	3	6
Orlando	3	0.5	2.5	6
Pittsburgh	4	0	2	6
Rochester	4.5	1.5	0	6
Cincinnati	2.5	1.5	1.5	5.5
Des Moines	5	0	0.5	5.5
Detroit	5	0	0.5	5.5
St. Louis	4.5	1	0	5.5
Dallas	1.5	1	2.5	5
Raleigh	2.5	0.5	2	5
Syracuse	5	0	0	5
Houston	2.5	0	2	4.5
Indianapolis	2	1.5	1	4.5
Mesa	4.5	0	0	4.5
San Antonio	1	1.5	2	4.5
Toledo	4	0	0.5	4.5
Tulsa	3	0	1.5	4.5
Bridgeport	3.5	0	0.5	4
Las Vegas	0	1	3	4
Dayton	3.5	0	0	3.5
El Paso	0.5	0	3	3.5
Richmond	1	0.5	2	3.5
Winston-Salem	2	0.5	1	3.5
Colorado Springs	1	1	1	3
Jacksonville	1.5	0	1.5	3
Knoxville	1	0.5	1.5	3
Memphis	0.5	0.5	2	3
Nashville	0	0.5	2.5	3
Tampa	2	0	1	3
Tucson	2.5	0	0.5	3
Allentown	1.5	0	1	2.5
Oklahoma City	1.5	0.5	0.5	2.5
Omaha	0	1.5	1	2.5
Akron	2	0	0	2
Augusta	2	0	0	2
Greensboro	1.5	0.5	0	2
New Orleans	2	0	0	2
Newark	1.5	0.5	0	2
St. Petersburg	1	0.5	0.5	2
Virginia Beach	0.5	0	1.5	2
Wichita	1	0	1	2
Henderson	0	0.5	1	1.5
Louisville	0.5	0	1	1.5
Miami	0.5	0	1	1.5
Provo	0.5	0	1	1.5
Reno	0	1	0.5	1.5

City	Efficiency efforts (8 pts)	Renewable efforts (3 pts)	Water services (4 pts)	Total (15 pts)
Birmingham	1	0	0	1
Lakeland	0.5	0	0.5	1
Little Rock	1	0	0	1
McAllen	0.5	0.5	0	1
Cape Coral	0.5	0	0	0.5
Baton Rouge	0	0	0	0
Charleston	0	0	0	0
Columbia	0	0	0	0
San Juan	0	0	0	0
Median	**3.5**	**0.5**	**1.5**	**5.5**

Leading Cities

San Diego. The city receives electric and natural gas services from San Diego Gas and Electric (SDG&E). The city and SDG&E have a franchise agreement and formal partnership with a goal of reducing citywide energy use. SDG&E currently produces 68% of its electricity from renewable sources and offered customers $3,000 per kW of installed distributed renewable generation in 2018. The city of San Diego is also partnering with other jurisdictions to launch the San Diego Regional Community Choice Energy Authority, with a goal of providing 100% renewable energy to residents by 2035. The city's Climate Action Plan includes several water savings targets and long-term strategies to achieve them. The Wastewater Branch of San Diego's Public Utilities Department also has multiple self-generating facilities and projects, with a goal of capturing 98% of wastewater treatment gases by 2035.

Los Angeles. The Los Angeles Department of Water and Power (LADWP), a municipal utility, provides electricity and water to the city, and Southern California Gas (SoCal Gas) provides natural gas. Both utilities achieved high savings in 2018, and both utilities offer low-income and multifamily-targeted programs to city residents. LADWP produced 32% of its electricity from renewable sources and continued to support renewable generation by paying $462 per kW of distributed renewable generation installed by LADWP customers in 2018. The city also scored full points for its water utility efforts, achieving its 2014 goal of reducing by 20% the city's freshwater use by 2017. In addition, the Sustainable City pLAn calls for a 22.5% reduction in per capita consumption of water by 2025 and a 25% reduction by 2035, relative to 2014.

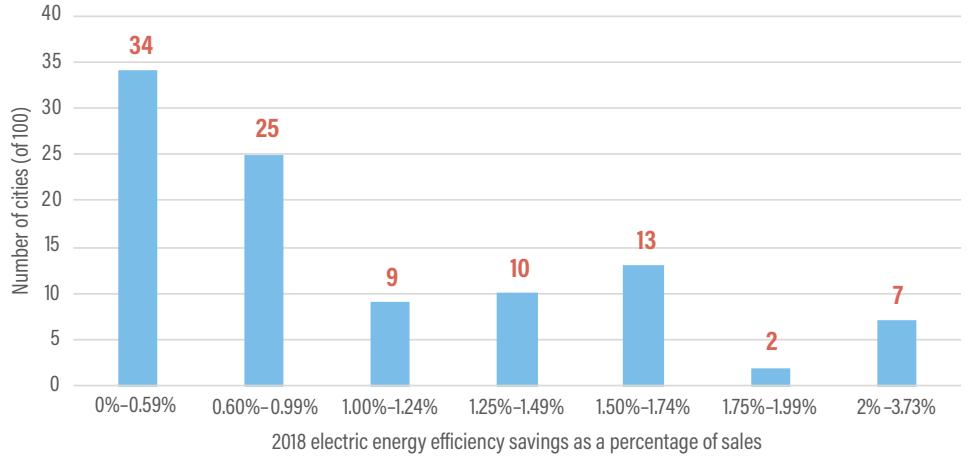
Minneapolis. In 2014 Minneapolis entered into a pact with Xcel Energy and CenterPoint Energy, creating the Clean Energy Partnership. This alliance expanded the conditions of the city's franchise agreement to include an active role for utilities in achieving the city's energy and climate goals.[43] Xcel 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. Xcel also offered customers $2,537 per kW of installed renewable generation in 2018.

Issue in Focus: Utility Energy Savings

Utilities' energy savings are a strong indicator of their level of energy efficiency investment. Cities with utilities that achieve high energy savings as a percentage of retail sales often have more opportunities to access energy-efficient investments at the municipal and community levels. In 2018 seven cities earned full points for high electric utility energy efficiency savings, with five individual utilities achieving savings of more than 2% of retail sales; the highest savings, 3.73%, were achieved by National Grid MA. At the other end of the spectrum, electric utilities in more than one-third of the cities achieved less than 0.60% savings as a percentage of retail sales. Figure 30 shows different ranges of savings and the number of cities whose electric utilities fell into each range.

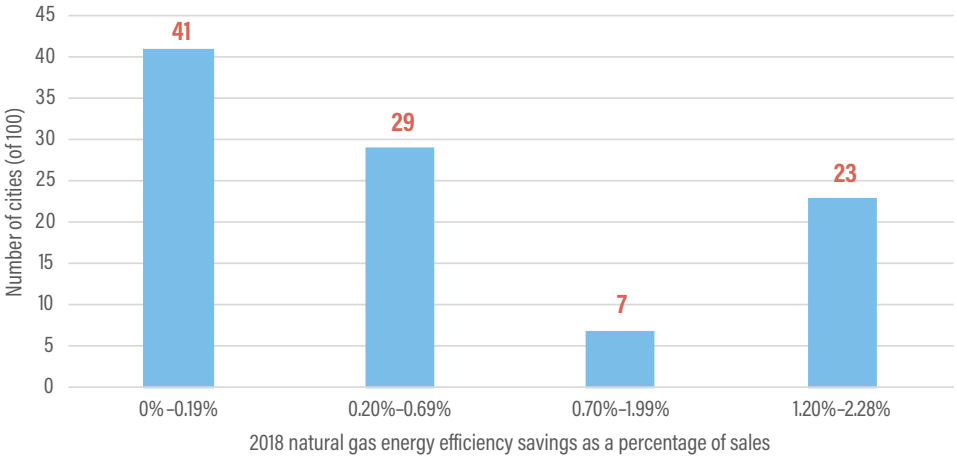
[43] A franchise agreement is a contract between a municipality and a public or private utility provider that needs access to public rights-of-way (ROWs) for service delivery. Cities and counties can grant these companies the right to use public ROWs for their services, often in exchange for help in achieving citywide energy or climate goals.

Figure 30. The number of cities with electric utilities that achieved indicated savings as a percentage of sales in 2018



For cities' natural gas utilities, about one-fifth achieved high levels of energy efficiency savings (at least 1.20% of energy sales) in 2018; the highest savings, 2.28%, were posted by National Grid MA. Even so, the natural gas utilities in almost half of all cities achieved energy efficiency savings below 0.20% in 2018, and 37 of these reported no savings at all for that year. Figure 31 shows different ranges of savings and the number of cities whose natural gas utilities fell into each range.

Figure 31. The number of cities with natural gas utilities that achieved ranged savings as a percentage of sales in 2018



While cities do not typically regulate or have control over utility energy efficiency program portfolios, they can influence their electric and natural gas utilities' energy efficiency savings through city–utility partnerships, interventions in rate cases and other proceedings, and other advocacy efforts for increased energy efficiency utility commitments and actions.

EFFICIENCY EFFORTS OF ENERGY UTILITIES

Utilities can save energy through energy efficiency programs offered to their customers. They can ramp up efforts to save energy by offering comprehensive programs, partnering with cities to promote higher energy savings and more effective program delivery, offering targeted programs, and improving data access provisions.

In this category we scored cities on:

- Electric efficiency savings (3 points munis/2 points IOUs)
- Natural gas efficiency savings (1.5 points)
- City–utility partnerships (1 point, IOUs only)
- Low-income and multifamily efficiency programs (2.5 points)
- Provision of energy data by utilities (1 point)

Electric Efficiency Savings

3 points munis

2 points IOUs

Although the purpose of this section of the *Scorecard* is to evaluate energy efficiency programs serving each city, we include utility-wide electricity savings across the entire utility service territory in each city's state, which typically encompasses more than just the city itself for non-municipal utilities. We use this methodology because city-level data are often not available for each utility. In cities where customer-funded programs are administered by independent, statewide administrators, we scored the savings that were attributable to the city's local utility.[44] Unless otherwise noted, we retrieved data on 2018 electric efficiency program savings and total sales as well as information on city and utility partnerships through data requests that we sent to both utility and city staff.

Cities' abilities to influence program savings and to require energy utilities to save energy depend on whether the utilities are municipally owned or investor owned. While levels of control and influence vary, cities generally have less direct control over energy savings of IOUs.[45]

We awarded points differently depending on the type of utility serving each city. For cities served by an IOU, we awarded up to 2 of the possible 3 points for savings and 1 point for city–utility partnerships, using tiered amounts to score achieved savings. For cities served by a muni, we awarded up to 3 points based on electricity savings. See table 25, below, for more details on scoring.

Our scoring for electricity savings is 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 2018 electricity efficiency program savings and total retail sales, and we scored the utilities on net meter savings data.[46] In cases where utilities reported gross data, we applied a standard factor of 0.841 to convert gross savings to net savings (a net-to-gross ratio).[47] Detailed information about electricity savings is included in table F9 in Appendix F. Scores for city-utility partnerships in table F9 indicate whether each city is served by an IOU or a muni.

Natural Gas Efficiency Savings

1.5 points

The number of utilities offering natural gas efficiency programs and the budgets for such programs has risen considerably in recent years (Berg et al. 2019). Further, trends suggest that investments in natural gas efficiency will continue to grow as utilities strive to reach higher savings goals. 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 the city.[48] Although we scored electric IOUs and munis differently, we did not score the 10 cities with municipal gas utilities differently from cities with IOU gas utilities.

Unless otherwise noted, we retrieved data on natural gas savings from utility data requests, and we retrieved data on 2018 retail sales from the EIA-176 form for all utilities (EIA 2019b).[49] 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. We adjusted gross savings to net savings using a factor of 0.900.[50] Detailed information about natural gas savings is included in table F10 in Appendix F.

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[44] For example, Energy Trust of Oregon (ETO) administers utility customer–funded energy efficiency programs. For Portland, we scored the spending 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.

[45] We treat Entergy New Orleans as a muni because it is an IOU regulated by the New Orleans City Council. Similarly, we treat 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.

[46] 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), so in the data request we asked for clarification and sources for the figures provided for the purpose of improving comparison across utilities.

[47] We based the 0.841 net-to-gross factor on the 2018 median net-to-gross electricity savings ratio calculated from states that reported figures for both net and gross savings for The 2019 State Energy Efficiency Scorecard (Berg et al. 2019). These included Connecticut, Delaware, District of Columbia, Maryland, Massachusetts, Missouri, New York, North Carolina, Oklahoma, Pennsylvania, Utah, Virginia, West Virginia, and Wisconsin.

[48] 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.

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

[50] We based the 0.900 net-to-gross factor for gas savings on the median 2018 net-to-gross ratio calculated from states that reported both net and gross natural gas savings for The 2019 State Energy Efficiency Scorecard (Berg et al. 2019). These states included Connecticut, District of Columbia, Maryland, Massachusetts, New York, Oklahoma, and Wisconsin.

1 point IOUs

City–Utility Partnerships (IOUs Only)

Cities earned a full 1 point if the city and its electric and/or natural gas utility have a formal partnership in the form of a jointly developed or administered energy savings strategy, plan, or agreement. 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. Cities earned 0.5 points for a strong collaboration with the electric and/or natural gas utility without a formal partnership. Details about city–utility partnerships are included in table F9 in Appendix F.

2.5 points

Low-Income and Multifamily Efficiency Programs

Low-income and multifamily households are often underserved by utility programs. Many utilities design and implement programs that specifically target these households to make their offerings accessible to more of their customers. Residential efficiency programs generally involve rebates or behavioral strategies, which are not always well suited to low-income or multifamily markets due to older housing stock and the need for whole-building weatherization improvements.

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 improvements in health and safety and increased comfort (Denson and Hayes 2018).

Multifamily buildings have opportunities for substantial energy savings. As of 2015, program administrators had increased national multifamily program spending to almost $290 million annually, three times the amount spent on such programs nationally in 2011 (Samarripas, York, and Ross 2017). Cost-effective energy efficiency upgrades can improve efficiency by 15% to 30% in multifamily buildings; on a national level, this would translate to as much as $3.4 billion in annual savings (McKibbin et al. 2012). Even with this potential, these buildings have been historically underserved by traditional energy efficiency programs, most of which are designed to target and serve owner-occupied, single-family homes. Multifamily energy efficiency programs can provide multiple benefits to residents and building owners, such as reduced maintenance costs; improved appliance and equipment performance; increased property value and building durability; and enhanced tenant health, safety, and comfort (Cluett and Amann 2015).

Typically, each state's public utility commission determines what constitutes a multifamily building and a low-income household for its regulated utilities, and these definitions may differ among states and utilities. Many utilities define multifamily buildings as those containing five or more units. As for low-income, many programs use the federal definition of 200% of the federal poverty level. Multifamily and low-income utility programs are not necessarily mutually exclusive; some programs target both multifamily and low-income households.

Cities could earn up to 1.5 points for low-income energy efficiency programs and up to 1 point for multifamily energy efficiency programs. In future editions of the *Scorecard*, we may score low-income programs on the basis of the percentage of eligible low-income customers served by a utility's low-income programs or by dollars spent per eligible low-income customer. Detailed scores for low-income programs and multifamily programs are provided in tables F11 and F12, respectively, in Appendix F.

1 point

Provision of Energy Data by Utilities

Information about energy consumption enables better energy management in homes and large 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 1 point across two metrics for the accessibility of energy usage data from their electric and gas utilities.

Table 25 summarizes the scoring for efficiency efforts of energy utilities, and figure 32 lists the scores. Table E13 in Appendix E provides more detailed scores.

Table 25. Scoring for efficiency efforts of energy utilities

	Score	
Electric efficiency savings as a percentage of sales	**Munis**	**IOUs**
2% or greater*	3	2
1.75–1.99%	2.5	1.5
1.50–1.74%	2	1
1.25–1.49%	1.5	1
1.00–1.24%	1	0.5
0.60–0.99%	0.5	0.5
City–utility partnerships	**Munis**	**IOUs**
City has a formal partnership with the electric and/or 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
Natural gas savings as a percentage of sales	**Munis**	**IOUs**
1.20% or greater**	1.5	1.5
0.70–1.19%	1	1
0.20–0.69%	0.5	0.5
Low-income energy efficiency programs	**Munis and IOUs (1.5 max)**	
Electric and/or natural gas utility provide(s) a comprehensive low-income energy efficiency program.***	0.5	
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.	0.5	
Electric and/or natural gas utility braid(s) low-income program funds with federal, state, local, nonprofit, or other funding sources to address health and safety issues.	0.5	
Local government contributes funds toward local weatherization providers or other low-income energy efficiency efforts.	0.5	
Multifamily energy efficiency	**Munis and IOUs**	
Electric and/or natural gas utility offer(s) a comprehensive energy efficiency program for multifamily customers that focuses on whole-building improvements.****	0.5	
Electric and/or natural gas utility offer(s) a low-income multifamily program.	0.5	
Provision of energy data by utilities	**Munis and IOUs**	
Utilities provide automated benchmarking services through ENERGY STAR Portfolio Manager for multi-tenant commercial and/or multifamily buildings.	0.5	
City advocates for improvements in data provision by utilities or has established a data-sharing agreement with them.	0.5	

*Highest electricity savings was 3.73% for Worcester (National Grid MA). **Highest natural gas savings was 2.28% for Boston (National Grid MA). ***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 to common areas and individual units.

Figure 32. Efficiency efforts of energy utilities scores (out of 8 possible points).

Boston (8)	Sacramento* (5)	Madison (3.5)	Colorado Springs* (1)
Providence (8)	Salt Lake City (5)	Austin* (3)	Knoxville (1)
Chicago (7.5)	Seattle* (5)	Orlando * (3)	Little Rock (1)
Chula Vista (7)	Syracuse (5)	Tulsa (3)	Richmond (1)
Los Angeles* (7)	Aurora (4.5)	Boise (2.5)	San Antonio* (1)
Minneapolis (7)	Baltimore (4.5)	Cincinnati (2.5)	St. Petersburg (1)
Grand Rapids (6.5)	Buffalo (4.5)	Cleveland (2.5)	Wichita (1)
Oakland (6.5)	Mesa* (4.5)	Houston (2.5)	Cape Coral* (0.5)
Portland (6.5)	Milwaukee (4.5)	Raleigh (2.5)	El Paso (0.5)
St. Paul (6.5)	Philadelphia (4.5)	Tucson (2.5)	Lakeland* (0.5)
San Diego (6.5)	Phoenix (4.5)	Akron (2)	Louisville (0.5)
San Francisco (6.5)	Riverside* (4.5)	Augusta (2)	McAllen (0.5)
San José (6.5)	Rochester (4.5)	Charlotte (2)	Memphis* (0.5)
Springfield (6.5)	St. Louis (4.5)	Fort Worth (2)	Miami (0.5)
Worcester (6.5)	Stockton (4.5)	Indianapolis (2)	Provo* (0.5)
Denver (6)	Albuquerque (4)	New Orleans* (2)	Virginia Beach (0.5)
Hartford (6)	Honolulu (4)	Tampa (2)	Baton Rouge (0)
New York (6)	Kansas City (4)	Winston-Salem (2)	Charleston (0)
Washington, DC* (6)	Long Beach (4)	Allentown (1.5)	Columbia (0)
Bakersfield (5.5)	New Haven (4)	Dallas (1.5)	Henderson (0)
Columbus (5.5)	Pittsburgh (4)	Greensboro (1.5)	Las Vegas (0)
Fresno (5.5)	Toledo (4)	Jacksonville (1.5)	Nashville* (0)
Oxnard (5.5)	Atlanta (3.5)	Newark (1.5)	Omaha* (0)
Des Moines (5)	Bridgeport (3.5)	Oklahoma City (1.5)	Reno (0)
Detroit (5)	Dayton (3.5)	Birmingham (1)	San Juan* (0)

* Scored on muni scoring track.

RENEWABLE ENERGY EFFORTS OF ENERGY UTILITIES

As cities make commitments to 100% renewable energy generation, they can influence their local utilities to move toward a cleaner electrical system. Fifteen states and the District of Columbia and Puerto Rico have renewable portfolio standards, and seven states and Washington, DC, and Puerto Rico enacted laws in 2019 to require that at least 50% of their electricity come from renewable sources. As of May 2020, 50 utilities across the United States had publicly stated carbon or emissions reduction goals, and 21 utilities had goals to be carbon free or reach net zero emissions by 2050. Utilities with carbon or emissions reduction goals serve 65% of customer accounts in the United States (SEPA 2020). These commitments indicate that the transition to a cleaner electrical system is already underway, and cities can help accelerate utility and private distributed energy investment through policies and actions.

In this category we scored cities on:

- Distributed and renewable energy incentives (1.5 points)
- City-led efforts to decarbonize the electric grid (1.5 points)

1.5 points Distributed and Renewable Energy Incentives

Not only can utilities invest in utility-scale and utility-owned renewable resources for their own generation mix, but they can also incentivize increased distributed renewable sources among their customers. Distributed energy can help increase the electric system's reliability and resilience; reduce peak demand; offset needed investments and improvements in generation, transmission, or distribution infrastructure; and improve energy security. Many utilities provide incentives to customers to offset the cost of installing their own distributed energy system. Based on natural cut points in the spending data, cities could earn up to 1.5 points if their electric utility provided a renewable energy incentive for the

installation of new distributed solar or wind systems in 2018 (nonutility assets). We also awarded 0.5 points to cities whose electric utility offers renewable incentives but did not have a program in 2018 or were unable to provide spending data, and we awarded 1 point to cities that have already met carbon goals (i.e., Seattle). Detailed information about renewable energy incentives is included in table E14 in Appendix E.

City-Led Efforts to Decarbonize the Electric Grid

1.5 points

Cities can influence the renewable generation efforts of their local 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 generation mixes to carbon-neutral sources and help distributed generation overcome market and regulatory barriers to implementation. Actions can include regulatory involvement or participation in related public utility commission proceedings on topics such as net metering and other distributed generation rate design practices, as well as city–utility partnerships or engagement to increase the use of renewables.

Cities with IOUs could earn up to 1.5 points for their efforts to spur utility-scale or distributed energy generation from their local electric utility, through four actions. First, cities could earn 0.5 points if they were involved in or had submitted comments relating to public utility commission proceedings on renewable energy to encourage more distributed renewable development. Second, the city could earn 0.5 points if it has 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 0.5 points 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, cities could earn 0.5 points 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 1.5 points if they are served by a CCA that provides clean energy options, 1 point if they have enabled a CCA but do not yet have one in operation, and 0.5 points if they are exploring CCA options. Unless otherwise noted, we retrieved data on city efforts from the data requests completed by city staff.

Since cities with munis have more control over their utilities' renewable generation, they received points based on their renewable generation rather than on actions to move toward a decarbonized grid. Cities with munis earned up to 1.5 points based on their percentage of generation from renewable sources in 2018.

Table 26 summarizes the scoring, and figure 33 lists the scores for renewable efforts of energy utilities. Detailed scoring on IOU efforts to decarbonize the electric grid is included in table E14 of Appendix E, and percentages of generation are detailed in table F16 in Appendix F.

Table 26. Scoring for renewable energy efforts of energy utilities

	Score
Renewable energy incentives spent per kW installed in 2018*	**Munis and IOUs**
$1,500 or more**	1.5
$600–1,499	1
$1–599	0.5
City-led efforts to decarbonize the utility electric grid	**IOUs only**
City has submitted comments or has been involved in public utility commission proceedings regarding renewable energy advocacy (e.g., net metering legislation).	0.5 points each (1.5 max)
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 explored options for community choice aggregation.	
City has enacted enabling legislation for community choice aggregation program but is not yet served by a CCA.	1 point (1.5 max)
City has community choice aggregation program in place with a green option.	1.5 points (max score)
% of 2018 electricity generation from renewable sources	**Munis only**
40% or greater***	1.5
20–39%	1
10–19%	0.5

* Note that we awarded 1 point to cities whose electric utility offers renewable incentives but did not have a program in 2018 or were unable to provide spending data. We also awarded 1 point to cities that have more than 90% renewable generation.
** Highest amount spent was $3,000/kW, paid by San Diego Gas and Electric.
*** Highest renewable generation percentage was 94%, achieved by Seattle.

Figure 33. Renewable energy efforts scores (out of 3 possible points) * Scored on muni scoring track.

Chula Vista (3)	Portland (1.5)	Baltimore (0.5)	Cape Coral* (0)
Minneapolis (3)	Providence (1.5)	Buffalo (0.5)	Charleston (0)
San Diego (3)	Riverside* (1.5)	Columbus (0.5)	Columbia (0)
Austin* (2.5)	Rochester (1.5)	Greensboro (.5)	Dayton (0)
Oakland (2.5)	San Antonio* (1.5)	Henderson (0.5)	Des Moines (0)
St. Paul (2.5)	Stockton (1.5)	Honolulu (0.5)	Detroit (0)
San Francisco (2.5)	Albuquerque (1)	Knoxville* (0.5)	El Paso (0)
San José (2.5)	Atlanta (1)	McAllen (0.5)	Houston (0)
Seattle* (2.5)	Bakersfield (1)	Memphis* (0.5)	Jacksonville* (0)
Boston (2)	Chicago (1)	Nashville* (0.5)	Lakeland* (0)
Charlotte (2)	Colorado Springs* (1)	Newark (0.5)	Little Rock (0)
Denver (2)	Dallas (1)	Oklahoma City (0.5)	Louisville (0)
Los Angeles* (2)	Fort Worth (1)	Orlando* (0.5)	Mesa* (0)
Oxnard (2)	Grand Rapids (1)	Raleigh (0.5)	Miami (0)
Sacramento* (2)	Hartford (1)	Richmond (0.5)	New Orleans* (0)
Worcester (2)	Las Vegas (1)	Springfield (0.5)	Pittsburgh (0)
Boise (1.5)	Long Beach (1)	St. Petersburg (0.5)	Provo* (0)
Cincinnati (1.5)	Madison (1)	Washington, DC* (0.5)	San Juan* (0)
Cleveland (1.5)	New York (1)	Winston-Salem (0.5)	Syracuse (0)
Fresno (1.5)	Philadelphia (1)	Akron (0)	Tampa (0)
Indianapolis (1.5)	Phoenix (1)	Allentown (0)	Toledo (0)
Kansas City (1.5)	Reno (1)	Augusta (0)	Tucson (0)
Milwaukee (1.5)	Salt Lake City (1)	Baton Rouge (0)	Tulsa (0)
New Haven (1.5)	St. Louis (1)	Birmingham (0)	Virginia Beach (0)
Omaha* (1.5)	Aurora (0.5)	Bridgeport (0)	Wichita (0)

4 points

EFFICIENCY EFFORTS IN WATER SERVICES

Energy and water are inextricably linked; reducing the use of one can impact the use of the other. Regardless of climate zone, water services use a great deal of energy at a substantial cost to local governments and citizens. According to the EPA's ENERGY STAR program, drinking water and wastewater plants typically are the largest energy consumers associated with local government operations, often accounting for 40% of total energy consumed (EPA 2020b). Nationally, water and wastewater plants account for approximately 3–4% of energy use, equating to $4 billion, and 45 million tons of GHG emissions annually (EPA 2019b, 2020b). In California, sourcing, moving, treating, heating, collecting, and disposing of water are estimated to account for approximately 20% of the state's electricity use, 30% of business and home natural gas use, and 10% of the state's GHG emissions (PPIC 2016). In addition, water is required for the production of energy, such as in hydropower generation, thermoelectric power plants, oil and gas extraction, and nuclear power plants.

The actions of drinking water and wastewater utilities play an important role in the energy efficiency of a city. Energy costs make up 25–30% of a water utility's total operation and maintenance expenditures, and energy efficiency upgrades can lead to substantial energy savings, equating to thousands of dollars per facility, with payback periods of a few months to a few years (EPA 2020b). For drinking water plants, 80% of energy is used to operate motors for pumping; wastewater plants use the most energy for aeration, pumping, and solids processing (Copeland and Carter 2017). Utilities can save energy by improving pumps and motors and can generate energy for use onsite through the processing of wastewater. Water utilities can reduce energy consumption by lowering water consumption (Berg and Ribeiro 2018). 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 clothes washers, dishwashers, and toilets, as well as new hot-water heaters, can greatly reduce both water and energy use.

City governments often directly control their water utilities. In other cases, the 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 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. We awarded points regardless of whether the city has direct control over its water utilities or is served by regional utilities.

In this category we scored cities on:

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

Table 27 summarizes the scoring, and figure 34 lists scores for energy efficiency in water services. Table E15 in Appendix E provides more detailed scores.

Table 27. Scoring for energy efficiency in water services

Joint energy–water programs	Score
Water utility or city partners with energy utility to offer joint programs including energy- and water-saving measures, or water or energy utility offers an independent program that includes water and energy efficiency measures.	1
Energy utility, water utility, or city offers a water efficiency program that includes deep water-saving measures (i.e., beyond faucet aerators and low-flow showerheads).	0.5
Water-saving strategy	
City or water utility is on track with respect to city's formalized water-saving target or utility's long-term strategy for water savings.*	1
City has a formalized water savings target, or water utility has a long-term strategy for water savings.	0.5
Water utility energy efficiency programs	
At least one drinking water or wastewater utility serving the city has an energy efficiency target or comprehensive energy efficiency strategy.	1
City has pursued some energy efficiency initiatives at its local or regional water utility.	0.5
Water utility energy recovery and renewables	
Wastewater utility generates electricity and/or fuel from its wastewater influent.	1
Wastewater utility has installed onsite renewable energy at its wastewater treatment plant.	0.5

*We do not include non-revenue water goals in our scoring.

Figure 34. Water utilities' efficiency efforts scores (out of 4 possible points)

Denver (4)	Salt Lake City (3)	Cincinnati (1.5)	Lakeland (0.5)
Los Angeles (4)	Washington, DC (3)	Fresno (1.5)	Oklahoma City (0.5)
San Diego (4)	Boise (2.5)	Jacksonville (1.5)	Reno (0.5)
San José (4)	Cleveland (2.5)	Kansas City (1.5)	St. Petersburg (0.5)
Seattle (4)	Dallas (2.5)	Knoxville (1.5)	Toledo (0.5)
Albuquerque (3.5)	Hartford (2.5)	Oxnard (1.5)	Tucson (0.5)
Atlanta (3.5)	Nashville (2.5)	Stockton (1.5)	Akron (0)
Aurora (3.5)	Oakland (2.5)	Tulsa (1.5)	Augusta (0)
Austin (3.5)	Orlando (2.5)	Virginia Beach (1.5)	Baton Rouge (0)
Boston (3.5)	Bakersfield (2)	Allentown (1)	Birmingham (0)
Chula Vista (3.5)	Charlotte (2)	Colorado Springs (1)	Cape Coral (0)
Columbus (3.5)	Houston (2)	Henderson (1)	Charleston (0)
Minneapolis (3.5)	Long Beach (2)	Indianapolis (1)	Columbia (0)
New York (3.5)	Madison (2)	Louisville (1)	Dayton (0)
Sacramento (3.5)	Memphis (2)	Miami (1)	Greensboro (0)
St. Paul (3.5)	Milwaukee (2)	New Haven (1)	Little Rock (0)
San Francisco (3.5)	Philadelphia (2)	Omaha (1)	McAllen (0)
Chicago (3)	Pittsburgh (2)	Provo (1)	Mesa (0)
El Paso (3)	Portland (2)	Tampa (1)	New Orleans (0)
Fort Worth (3)	Providence (2)	Wichita (1)	Newark (0)
Grand Rapids (3)	Raleigh (2)	Winston-Salem (1)	Rochester (0)
Honolulu (3)	Richmond (2)	Worcester (1)	San Juan (0)
Las Vegas (3)	San Antonio (2)	Bridgeport (0.5)	Springfield (0)
Phoenix (3)	Baltimore (1.5)	Des Moines (0.5)	St. Louis (0)
Riverside (3)	Buffalo (1.5)	Detroit (0.5)	Syracuse (0)

Chapter 6. Transportation Policies

Lead Authors: Shruti Vaidyanathan and Ben Jennings

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 has replaced the power sector as the largest emitter of GHGs in the United States (EPA 2020d). It is responsible for 28% of energy use in the United States and for 25–38% of energy use in most cities in industrialized countries (EIA 2019a; López Moreno et al. 2008).

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, must take the lead in shaping 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 reducing the up-front 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 are choosing new mobility options, such as ride hailing, to go about their daily activities (Clewlow and Mishra 2017). 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.

SCORING

We allocated 30 points to policies that reduce GHG emissions in the transportation sector. We awarded points across seven categories of transportation metrics with substantial energy and emissions savings potential, as shown in figure 35. We provide additional details on each of the categories later in this chapter.

Most of the metrics in this chapter focus on local government action and policies that city decision makers can influence in the short run. 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 policies and 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 this year's edition of 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. We also understand that the spread of COVID-19 has had a significant impact on passenger mobility across the United States and that metrics may have to be updated in the future to reflect new challenges that city policymakers will face in creating sustainable transportation systems.

RESULTS

San Francisco took the top spot this year with 25.5 points, the highest score a city has earned for its transportation sector efforts since the debut of the *City Scorecard* in 2013. Washington, DC; New York; Portland; and Seattle followed closely behind for their policies to reduce transportation greenhouse gases by improving services, accessibility, and efficiency in this sector. However, with the top scorer in this section receiving only 25.5 of the 30 potential points, there remain substantial opportunities for even those leading the field to continue building on the progress they have achieved so far. The median transportation score was the same this year as in the 2019 edition, 8.5 points.

Table 28 lists the transportation scores for 2020 by policy category. Subsequent tables in this chapter show how we allocated points for individual metrics within these categories. Appendixes E and F show more detailed scoring information on each metric.

Figure 35. Transportation policies scoring overview

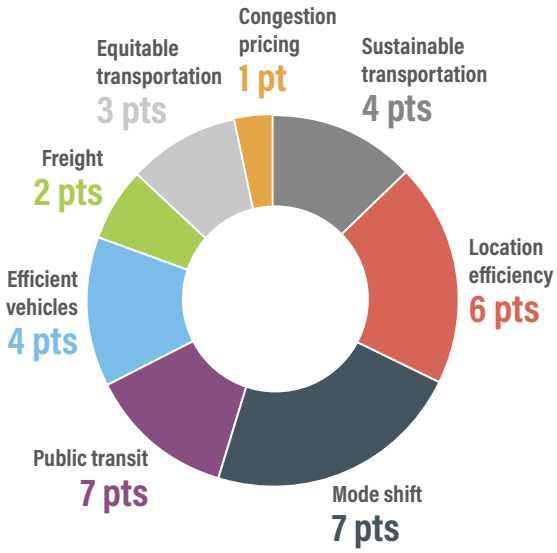


Table 28. Transportation policies scores

City	Sustainable transportation (4 pts)	Location efficiency (6 pts)	Mode shift (7 pts)	Public transit (4 pts)	Efficient vehicles (4 pts)	Freight (2 pts)	Equitable transportation (3 pts)	Congestion pricing (1-pt bonus)	Total (30 pts)
San Francisco	3.5	5.5	6	3.5	3	1	3	0	25.5
Washington, DC	4	4	5	3.5	3	2	3	0	24.5
New York	4	4.5	4.5	4	1	2	3	1	24
Portland	3.5	6	4.5	3	2	2	3	0	24
Seattle	3	3.5	5.5	3	3	2	3	0	23
Boston	4	5	5	4	2.5	0	2	0	22.5
Minneapolis	4	4.5	6	2.5	1.5	1	3	0	22.5
San José	4	3	5	2.5	3.5	1	2	0	21
Pittsburgh	4	2.5	5.5	3	3	0	2	0	20
Oakland	1	4	5.5	3	2.5	0.5	3	0	19.5
Atlanta	3	5	2.5	2.5	2	1	2	0	18
Los Angeles	3	2.5	2.5	2.5	2.5	2	3	0	18
Denver	2	4	5.5	2.5	0.5	1	2	0	17.5
Philadelphia	3.5	2.5	3.5	3.5	0	1	3	0	17
Providence	4	3	3.5	1.5	2	0	2	0	16
Austin	1	3.5	4.5	1.5	3	0	2	0	15.5
St. Paul	4	4	2	1	1.5	1	2	0	15.5
Chicago	1	3	2.5	3	2.5	0	3	0	15
Orlando	1	5	3	1	2.5	1	1.5	0	15
Hartford	1	5	2	2.5	2	0	2	0	14.5
Phoenix	3	3	3	1	2	0	2	0	14
Sacramento	1	3.5	2.5	1.5	3	0.5	2	0	14
San Diego	3.5	3	2	1.5	3	0	1	0	14
Baltimore	1	3.5	3	3	1	0	2	0	13.5
Cleveland	3	2.5	4.5	2.5	0	0	1	0	13.5
Honolulu	0	2.5	3.5	3	1.5	0	3	0	13.5
Houston	2.5	1.5	3	1.5	2	1	2	0	13.5
Salt Lake City	4	2	1	3	1.5	0	2	0	13.5
Long Beach	1	2.5	1.5	1.5	2.5	2	1.5	0	12.5
Columbus	1	4	2.5	1	2.5	1	0	0	12
Kansas City	3	3.5	1.5	0.5	2.5	0	1	0	12
Louisville	4	3.5	2	1	0	0	1	0	11.5
New Haven	4	2	2	1	1.5	0	1	0	11.5
Richmond	1	2.5	3	1.5	1	0.5	2	0	11.5
Knoxville	1	2.5	4	1	2	0	0.5	0	11
Miami	0.5	3.5	1.5	2.5	1	1	1	0	11
Rochester	0.5	3	2.5	1.5	3	0	0.5	0	11
Albuquerque	1	2.5	4	0.5	1	0	1	0	10
Grand Rapids	1	4.5	1	1	1.5	0	1	0	10
Las Vegas	1	2.5	2	1.5	2	0	1	0	10
Omaha	0.5	4.5	3	0.5	1.5	0	0	0	10
San Antonio	3	2.5	2	1.5	0	0	1	0	10
Indianapolis	1	3	3	0.5	1	0	1	0	9.5

City	Sustainable transportation (4 pts)	Location efficiency (6 pts)	Mode shift (7 pts)	Public transit (4 pts)	Efficient vehicles (4 pts)	Freight (2 pts)	Equitable transportation (3 pts)	Congestion pricing (1-pt bonus)	Total (30 pts)
Buffalo	0	3	2.5	2	1.5	0	0	0	9
Chula Vista	3.5	2	0	0.5	2	0	1	0	9
Cincinnati	1	3.5	2	1	0.5	0	1	0	9
St. Louis	1	1.5	3	2.5	1	0	0	0	9
St. Petersburg	1	2.5	4	1	0.5	0	0	0	9
Madison	0.5	2.5	3	1.5	1	0	0	0	8.5
Milwaukee	0.5	3	2.5	2	0.5	0	0	0	8.5
New Orleans	1	2.5	3	2	0	0	0	0	8.5
Raleigh	0	3	2.5	0.5	0.5	0	2	0	8.5
Detroit	1	3	1	1	1	0	1	0	8
Memphis	0	2.5	0.5	0.5	0.5	0.5	2	0	8
Nashville	1	4	1	0.5	0.5	0	1	0	8
Springfield	1	1.5	2	1.5	1	0	1	0	8
Aurora	1	3.5	1	0.5	0.5	0	1	0	7.5
Fort Worth	0	3.5	2.5	0.5	0	0	1	0	7.5
Riverside	1	2.5	0	0.5	1.5	1	1	0	7.5
Bridgeport	0.5	3	0.5	1	1	0	1	0	7
Dallas	0.5	2	2	1.5	0	0	1	0	7
Syracuse	0.5	1.5	1	1.5	2.5	0	0	0	7
Charlotte	1	2	0.5	1.5	0.5	0	1	0	6.5
Newark	0	2	1	2.5	1	0	0	0	6.5
Tampa	1	1.5	1	1	1	0	1	0	6.5
Dayton	0	1.5	2.5	1.5	0.5	0	0	0	6
Jacksonville	2	2.5	0	0.5	1	0	0	0	6
Little Rock	0	1.5	3	0	1.5	0	0	0	6
Charleston	0.5	1.5	1	0	1.5	0	1	0	5.5
Columbia	0	1	2	1	1	0	0.5	0	5.5
Reno	1	2	0	1	1.5	0	0	0	5.5
Tucson	0	1	1	1.5	1	0	1	0	5.5
Tulsa	0	1	2	0.5	1	0	1	0	5.5
Akron	0	0	2	1.5	0.5	0	1	0	5
Boise	1	1.5	0.5	0	1	0	1	0	5
Des Moines	0.5	0	1.5	1	1	0	1	0	5
Lakeland	0	1.5	1	0.5	2	0	0	0	5
Virginia Beach	1	1.5	1.5	0	0	0	1	0	5
Mesa	1	2	1.5	0	0	0	0	0	4.5
Stockton	0.5	1.5	0	0.5	2	0	0	0	4.5
Winston-Salem	1	1.5	0.5	0.5	0	0	1	0	4.5
Worcester	0.5	2.5	0.5	1	0	0	0	0	4.5
Baton Rouge	0	0	3.5	0.5	0	0	0	0	4
Birmingham	0	1.5	1.5	0.5	0.5	0	0	0	4
El Paso	0	2.5	0.5	1	0	0	0	0	4
Greensboro	0.5	1.5	1.5	0.5	0	0	0	0	4
Oxnard	0.5	0	0	1	2	0	0	0	3.5

City	Sustainable transportation (4 pts)	Location efficiency (6 pts)	Mode shift (7 pts)	Public transit (4 pts)	Efficient vehicles (4 pts)	Freight (2 pts)	Equitable transportation (3 pts)	Congestion pricing (1-pt bonus)	Total (30 pts)
Bakersfield	0.5	1	0	0.5	1	0	0	0	3
Fresno	0	1	0	1	0	0	1	0	3
Toledo	0	1.5	1	0.5	0	0	0	0	3
Wichita	0	1	1.5	0.5	0	0	0	0	3
Allentown	0.5	0.5	0	1	0.5	0	0	0	2.5
Cape Coral	0	1	1.5	0	0	0	0	0	2.5
Colorado Springs	0	0	0.5	0.5	0.5	0	1	0	2.5
Henderson	1	1	0	0	0	0	0	0	2
Oklahoma City	0	1	0.5	0.5	0	0	0	0	2
Augusta	0	0.5	0	0	1	0	0	0	1.5
Provo	0	0	0	0.5	1	0	0	0	1.5
McAllen	0	0.5	0.5	0	0	0	0	0	1
San Juan	0	0	0	0.5	0	0	0	0	0.5
Median	**1**	**2.5**	**2**	**1**	**1**	**0**	**1**	**0**	**8.5**

Leading Cities

San Francisco. San Francisco continues to raise the bar for transportation efficiency in a number of ways. The city's General Plan Housing Element codifies three levels of density for residential zoning (low, medium, and high). The intent is to increase the availability of housing stock near transit hubs where appropriate. The city has adopted several special area plans that allow increased building height and density in transit-rich locations and facilitate expanded and improved transit infrastructure and services. The Better Market Street Plan, adopted in February 2019, has established a car-free zone in the city's downtown to encourage more biking and public transit use. The plan also alleviates congestion by codifying peak-hour loading restrictions that push delivery traffic to off-peak hours.

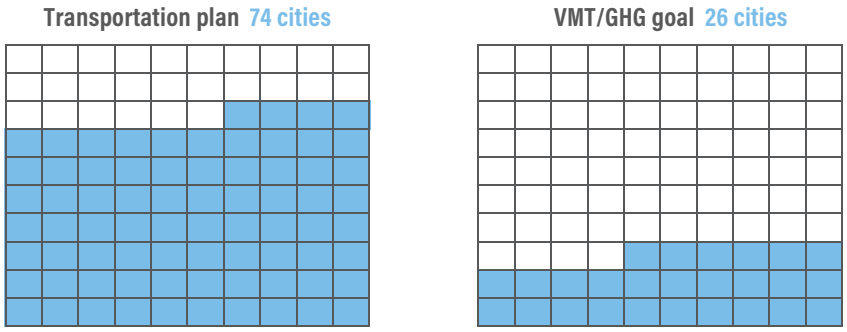
Washington, DC. Sustainable DC 2.0 outlines a set of comprehensive targets that include goals for reducing transportation-related GHGs by 2.3% a year and shifting 50% of commuter trips in all wards to public transit by 2032. The city has also taken steps to better connect low-income residents with sustainable transportation options by passing affordable housing–focused transit-oriented development (TOD) policies and providing discounts for a variety of mobility services. Washington, DC's 2015 housing code requires that 30% of housing units constructed be set aside as affordable housing if the project is located close to transit, and 20% if it is not. The city's popular Capital Bikeshare has a Community Partners Program that offers a $5 annual membership rate for qualifying residents, including low-income households. Working in tandem with 28 community partners, the program now has more than 1,300 participants.

Portland. Portland has a long history of leading on transportation efficiency and other climate-relevant issues. The 2015 Portland Climate Action Plan includes a goal to reduce vehicle miles traveled by 30% below 2008 levels by 2030. Portland also has complementary mode shift goals that aim to achieve 70% of commutes by transit, carpool, biking, or walking by 2030. This mode shift goal places heavy emphasis on the use of public transit and bicycle commuting in the future, seeking to increase their travel shares to 25% each. Portland's zoning code encourages mixed-use and infill development along nearly all portions of the city's main commercial streets and throughout most of the downtown to create compact, transit-oriented communities. In addition, Portland has a Sustainable Freight Strategy that outlines approaches to increasing its freight efficiency, including last-mile solutions (such as collection delivery points and locker banks, centralized freight distribution districts, and off-hours delivery). The city also aids affordable housing development by offering a tax abatement for construction of residences within a half mile of light-rail station areas.

Issue in Focus: VMT or Transportation-Specific GHG Goals

VMT goals or transportation-specific GHG targets are good indicators that cities are prioritizing emissions reduction and energy savings in their transportation activities. However, very few cities include these targets in their sustainable transportation plans, suggesting that only a handful of leading cities are demonstrating their intent to properly address and track transportation energy use and carbon emissions. Figure 36 shows that there are 74 cities with sustainable transportation plans, but only 26 cities that have a VMT/GHG goal associated with those plans. This year's data collection process has also highlighted that of the cities with targets, the majority are able to reliably track trends in transportation GHG emissions but fare much worse when it comes to providing VMT data.

Figure 36. Number of cities with sustainable transportation plans and VMT/GHG goals



4 points

SUSTAINABLE TRANSPORTATION PLANS AND VEHICLE MILES TRAVELED (VMT) TARGETS

Sustainable transportation plans can 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 target. Including codified targets is a best practice because these targets give cities specific benchmarks against which to measure progress and gauge success.

In this category we scored cities on:

- The presence of a sustainable transportation plan (1 point)
- Codified VMT/GHG targets (1 point)
- The stringency of these targets (1 point)
- Progress made toward these targets (1 point)

Cities with either a stand-alone sustainable transportation plan or strategies included within a broader plan, such as a climate action plan, earned 1 point. We chose not to review the quality and content of these plans in this metric as many of the strategies cities have outlined to achieve their transportation goals are captured in other metrics in this chapter. We awarded 1 additional point 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 1 full point to targets that would reduce VMT or GHG by at least 1.5% per year (a natural cut point in the data we received) and gave all other targets 0.5 points. Finally, cities could earn 1 point for providing us with data that demonstrated at least a 0.5% reduction from their baseline.

Table 29 summarizes the scoring, and figure 37 lists the scores for sustainable transportation plans and VMT targets. Table E16 in Appendix E provides more detailed city scores, and table F17 in Appendix F includes an explanation of each of these plans.

Table 29. Scoring for sustainable transportation plans and VMT 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.	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.	1
Stringency of VMT/GHG targets	
Target calls for an improvement of at least 1.5% per year.	1
Target calls for an improvement of less than 1.5% per year.	0.5
Progress toward VMT/GHG targets	
City has demonstrated a reduction of at least 0.5% from its VMT/GHG target baseline.	1

Figure 37. Sustainable transportation plan scores (out of 4 possible points)

Boston (4)	Jacksonville (2)	Riverside (1)	Augusta (0)
Louisville (4)	Albuquerque (1)	Sacramento (1)	Baton Rouge (0)
Minneapolis (4)	Aurora (1)	Springfield (1)	Birmingham (0)
New Haven (4)	Austin (1)	St. Louis (1)	Buffalo (0)
New York (4)	Baltimore (1)	St. Petersburg (1)	Cape Coral (0)
Pittsburgh (4)	Boise (1)	Tampa (1)	Colorado Springs (0)
Providence (4)	Charlotte (1)	Virginia Beach (1)	Columbia (0)
Salt Lake City (4)	Chicago (1)	Winston-Salem (1)	Dayton (0)
San José (4)	Cincinnati (1)	Allentown (0.5)	El Paso (0)
St. Paul (4)	Columbus (1)	Bakersfield (0.5)	Fort Worth (0)
Washington, DC (4)	Detroit (1)	Bridgeport (0.5)	Fresno (0)
Chula Vista (3.5)	Grand Rapids (1)	Charleston (0.5)	Honolulu (0)
Philadelphia (3.5)	Hartford (1)	Dallas (0.5)	Lakeland (0)
Portland (3.5)	Henderson (1)	Des Moines (0.5)	Little Rock (0)
San Francisco (3.5)	Indianapolis (1)	Greensboro (0.5)	McAllen (0)
San Diego (3.5)	Knoxville (1)	Madison (0.5)	Memphis (0)
Atlanta (3)	Las Vegas (1)	Miami (0.5)	Newark (0)
Cleveland (3)	Long Beach (1)	Milwaukee (0.5)	Oklahoma City (0)
Kansas City (3)	Mesa (1)	Omaha (0.5)	Provo (0)
Los Angeles (3)	Nashville (1)	Oxnard (0.5)	Raleigh (0)
Phoenix (3)	New Orleans (1)	Rochester (0.5)	San Juan (0)
San Antonio (3)	Oakland (1)	Stockton (0.5)	Toledo (0)
Seattle (3)	Orlando (1)	Syracuse (0.5)	Tucson (0)
Houston (2.5)	Reno (1)	Worcester (0.5)	Tulsa (0)
Denver (2)	Richmond (1)	Akron (0)	Wichita (0)

LOCATION EFFICIENCY

Where we choose to live and how neighborhoods are shaped by zoning policies have a huge impact on overall energy use and 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). 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 (2 points)
- The removal or reduction of minimum parking requirements (2 points)
- Incentives to encourage the creation of mixed-use, compact communities (2 points)

2 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, 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 2019b).

Changes to municipal zoning regulations can direct investment and development toward high-density, mixed-use construction near existing transit facilities. Form-based zoning codes are particularly useful for the planning of these communities, as they allow easier creation of mixed-use developments (FBCI 2019). Form-based codes focus on the relationships between building facades and the public, the shapes and masses of buildings in relation to one another, and the scale and types of streets and blocks. Additionally, form-based zoning recognizes that walkability and architectural design help create attractive communities and location-efficient development projects (Reconnecting America 2010).

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.

Zoning regulations that support location efficiency

- require mixed-use zones in areas that can support such development;
- recalibrate zoning standards to allow compact development;
- increase building density in city centers, around transit nodes, and in other targeted areas that can support denser development;
- modernize street standards or enact new standards to foster walkable communities; and
- designate preferred growth areas (Nelson 2009).

A city could earn a maximum of 2 points for location-efficient zoning policies. We awarded 2 points to cities with location-efficient zoning codes that apply to the whole city, and 1 point if the code applies only to certain areas or neighborhoods. To receive credit, codes must be designed to increase density, require mixed zones, or allow compact and walkable communities.

2 points Parking Policies for Location-Efficient Development

We awarded another 2 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.

2 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 2020). 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 for which 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 efficient transportation proximity or access.

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. Transit Score, for example, rates neighborhoods based on how well they are served by transit (Walk Score 2020). 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. Cities earned 0.5 points for each incentive or policy, up to a maximum of 2 points.

Table 30 summarizes the scoring, and figure 38 lists the scores for location efficiency. Table E17 in Appendix E provides more detailed city scores.

Table 30. Scoring for location efficiency

Location-efficient zoning codes	Score
Codes apply to the whole city.	2
Codes apply only to certain areas or neighborhoods.	1
Parking requirements	
Either parking maximums are in place for all new development, or no minimum parking requirements are in place for all new development.	2
At least one zone, neighborhood, or district has parking maximums or no minimum parking requirements, or the whole city has a requirement of 0.5 or fewer spaces per housing unit.	1.5
At least one zone, neighborhood, or district has a requirement of 0.5 or fewer spaces per housing unit, or the whole city has a requirement of one space or fewer per unit.	1
At least one neighborhood has a requirement of 1 or fewer spaces per housing unit.	0.5
Location efficiency incentive programs and disclosure policies	
4 or more	2
3	1.5
2	1
1	0.5

Figure 38. Location efficiency scores (out of 6 possible points)

Portland (6)	Seattle (3.5)	Philadelphia (2.5)	Stockton (1.5)
San Francisco (5.5)	Bridgeport (3)	Pittsburgh (2.5)	Syracuse (1.5)
Atlanta (5)	Buffalo (3)	Richmond (2.5)	Tampa (1.5)
Boston (5)	Chicago (3)	Riverside (2.5)	Toledo (1.5)
Hartford (5)	Detroit (3)	San Antonio (2.5)	Virginia Beach (1.5)
Orlando (5)	Indianapolis (3)	St. Petersburg (2.5)	Winston-Salem (1.5)
Grand Rapids (4.5)	Milwaukee (3)	Worcester (2.5)	Bakersfield (1)
Minneapolis (4.5)	Phoenix (3)	Charlotte (2)	Cape Coral (1)
New York (4.5)	Providence (3)	Chula Vista (2)	Columbia (1)
Omaha (4.5)	Raleigh (3)	Dallas (2)	Fresno (1)
Columbus (4)	Rochester (3)	Mesa (2)	Henderson (1)
Denver (4)	San Diego (3)	New Haven (2)	Oklahoma City (1)
Nashville (4)	San José (3)	Newark (2)	Tucson (1)
Oakland (4)	Albuquerque (2.5)	Reno (2)	Tulsa (1)
St. Paul (4)	Cleveland (2.5)	Salt Lake City (2)	Wichita (1)
Washington, DC (4)	El Paso (2.5)	Birmingham (1.5)	Allentown (0.5)
Aurora (3.5)	Honolulu (2.5)	Boise (1.5)	Augusta (0.5)
Austin (3.5)	Jacksonville (2.5)	Charleston (1.5)	McAllen (0.5)
Baltimore (3.5)	Knoxville (2.5)	Dayton (1.5)	Akron (0)
Cincinnati (3.5)	Las Vegas (2.5)	Greensboro (1.5)	Baton Rouge (0)
Fort Worth (3.5)	Long Beach (2.5)	Houston (1.5)	Colorado Springs (0)
Kansas City (3.5)	Los Angeles (2.5)	Lakeland (1.5)	Des Moines (0)
Louisville (3.5)	Madison (2.5)	Little Rock (1.5)	Oxnard (0)
Miami (3.5)	Memphis (2.5)	Springfield (1.5)	Provo (0)
Sacramento (3.5)	New Orleans (2.5)	St. Louis (1.5)	San Juan (0)

MODE SHIFT

More than 80% of all trips in the United States are made by private vehicles (Bureau of Transportation Statistics 2017). To improve the efficiency of a transportation system, 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 (2 points)
- Complete streets policies (2 points)
- Car and bicycle sharing (3 points)

2 points

Modal Share Targets and Strategy Implementation

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 long-run 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 1 point; they earned 0.5 points if they have targets for some but not all modes. Cities that provided us with data demonstrating quantified progress toward these modal share goals could earn an additional 1 point.

Complete Streets

2 points

Complete streets policies focus on the interconnectivity of streets to provide safe, easy access for pedestrians, bicyclists, motorists, and public transportation users. Such policies create a network of roads, sidewalks, and bicycle lanes that connect to transit facilities, making people less likely to drive, thereby lowering a community's fuel consumption and GHG emissions. Complete streets can also promote economic development by helping residents save money on transportation that can then be spent elsewhere, and by creating vibrant neighborhoods that increase the exposure of local businesses.

According to the National Complete Streets Coalition (NCSC), 30% of all trips in metropolitan areas are of one mile or less and thus could be made by walking or using other forms of non-automobile transportation. Using these alternatives reduces the need to own or fuel a car. Households located in neighborhoods near transit hubs with well-connected street networks drive, on average, 16 fewer miles per day than do those in traditional suburbs (National Complete Streets Coalition 2012). Many states and municipalities have incorporated complete streets policies into their land use planning tools. As of 2017, 1,348 complete streets policies had been passed in municipalities across the United States (National Complete Streets Coalition 2018).

ACEEE's scoring of complete streets policies in this report leverages the NCSC's complete streets policy scores, which range from 0 to 100 according to the quality of each adopted policy (NCSC 2018). NCSC separates its rankings by policy type—resolution, city ordinance, and so on.[51] In our scoring, a city with an NCSC complete streets policy score of 75 or above earned 2 points, one that scored 50 to 74.9 earned 1.5 points, one with a score of 25 to 49.9 earned 1 point, and one that scored between 0.1 and 24.9 earned 0.5 points. Table F18 in Appendix F lists complete streets policies by city.

Car and Bicycle Sharing

3 points

Car-sharing services give drivers access to shared vehicles on a time-limited basis as an alternative or supplement to vehicle ownership. According to the Transportation Research Board, each shared car replaces at least five private vehicles on average (Mason, Fulton, and McDonald 2015).

The emergence of companies such as Zipcar, Getaround, and others in recent years indicates that these services are becoming more popular with city residents who do not want the cost and maintenance burden of owning underused personal vehicles. Car sharing enables households to give up owning a first, second, or third vehicle and to rely on other modes of transportation, in some cases helping to eliminate millions of VMT within American cities (Shaheen and Martin 2015). However, car sharing could also undermine the use of non-auto modes if appropriate policies are not put in place to avoid this outcome.

Bike-sharing programs give commuters and city residents another alternative to owning or driving a personal vehicle. Bike-sharing systems provide publicly accessible, shared-use bicycles that are available for trips of short to medium distances. Bike sharing has the potential to bridge gaps in transportation access and existing networks, easing urban mobility challenges (Shaheen and Martin 2015).

Cities have a critical role to play in encouraging the deployment of private and public car- and bike-sharing programs. To encourage car sharing, one of the primary ways municipalities can show leadership is to ensure that parking policies provide an adequate network of parking spots for shared vehicles. This could mean amending parking requirements to allow shared vehicles universal access to street parking or setting aside specific parking spots for these vehicles throughout the city. Cities with parking policies that promote the use of car sharing earned 1 point.

For bike sharing, we awarded points to cities based on the total number of bike-share bikes (both docked and undocked) available per 100,000 people. Cities with at least 400 bikes per 100,000 people earned 2 points, while those with 190 to 399.9 bikes per 100,000 people were awarded 1.5 points. Cities with 75 to 189.9 bikes per 100,000 earned 1 point, and 20 to 74.9 bikes per 100,000 earned 0.5 points.

Table 31 summarizes the scoring, and figure 39 lists the scores for mode shift. Table E18 in Appendix E provides more detailed city scores.

[51] For more information on specific policy types, see NCSC (2018).

Table 31. 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).	1
City has a modal share target for only some modes of transportation.	0.5
Progress toward modal share targets	
City demonstrates any quantitative progress toward modal share target.	1
NCSC complete streets policy score*	
75 or above	2
50–74.9	1.5
25–49.9	1
0.1–24.9	0.5
Car sharing	
City has a formal policy that provides dedicated on-street and/or off-street parking for car-sharing use.	1
Bike-share bikes per 100,000 people	
At least 400	2
190–399.9	1.5
75–189.9	1
20–74.9	0.5

*Score from NCSC 2018

Figure 39. Mode shift scores (out of 7 possible points)

Minneapolis (6)	New Orleans (3)	New Haven (2)	Tampa (1)
San Francisco (6)	Omaha (3)	St. Paul (2)	Toledo (1)
Denver (5.5)	Orlando (3)	San Antonio (2)	Tucson (1)
Oakland (5.5)	Phoenix (3)	San Diego (2)	Boise (0.5)
Pittsburgh (5.5)	Richmond (3)	Springfield (2)	Bridgeport (0.5)
Seattle (5.5)	St. Louis (3)	Tulsa (2)	Charlotte (0.5)
Boston (5)	Atlanta (2.5)	Birmingham (1.5)	Colorado Springs (0.5)
San José (5)	Buffalo (2.5)	Cape Coral (1.5)	El Paso (0.5)
Washington, DC (5)	Chicago (2.5)	Des Moines (1.5)	McAllen (0.5)
Austin (4.5)	Columbus (2.5)	Greensboro (1.5)	Oklahoma City (0.5)
Cleveland (4.5)	Dayton (2.5)	Kansas City (1.5)	Winston-Salem (0.5)
New York (4.5)	Fort Worth (2.5)	Long Beach (1.5)	Worcester (0.5)
Portland (4.5)	Los Angeles (2.5)	Mesa (1.5)	Allentown (0)
Albuquerque (4)	Memphis (2.5)	Miami (1.5)	Augusta (0)
Knoxville (4)	Milwaukee (2.5)	Virginia Beach (1.5)	Bakersfield (0)
St. Petersburg (4)	Raleigh (2.5)	Wichita (1.5)	Chula Vista (0)
Baton Rouge (3.5)	Rochester (2.5)	Aurora (1)	Fresno (0)
Honolulu (3.5)	Sacramento (2.5)	Charleston (1)	Henderson (0)
Philadelphia (3.5)	Akron (2)	Detroit (1)	Jacksonville (0)
Providence (3.5)	Cincinnati (2)	Grand Rapids (1)	Oxnard (0)
Baltimore (3)	Columbia (2)	Lakeland (1)	Provo (0)
Houston (3)	Dallas (2)	Nashville (1)	Reno (0)
Indianapolis (3)	Hartford (2)	Newark (1)	Riverside (0)
Little Rock (3)	Las Vegas (2)	Salt Lake City (1)	San Juan (0)
Madison (3)	Louisville (2)	Syracuse (1)	Stockton (0)

PUBLIC TRANSIT

Well-connected public transit networks reduce residents' need to drive and therefore decrease the number of vehicle miles traveled and transportation-related emissions in metropolitan areas. Although recently impacted by COVID-19, public transit ridership across the United States rose 2.2% between 2018 and 2019, reversing the downward trend that had persisted for the previous 10 years (Bliss 2020). A number of cities have put substantial effort into financing and expanding their transit infrastructure to maintain this growth.

For public transit, we scored cities on:

- Transit funding (2 points)
- Access to transit service (2 points)

2 points Transit Funding

Federal, state, and local transportation funding continues to grow year by year (FTA 2020). Although much transportation funding comes from entities at the federal and state levels, 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 and property taxes, road user fees, revenues from toll roads and parking fees, and transit fares. In May 2020, Cincinnati voters approved a 0.8% tax levy to fund public transit operations and infrastructure (Sparling 2020).

We scored cities based on total transit funding (federal, state, and local sources) for all transit systems per capita, using Metropolitan Statistical Area (MSA) population data and an average of transit expenditures from 2014 to 2018 as reported in the National Transit Database (FTA 2020). Cities could earn up to 2 points for transit funding. Table 32 outlines the scoring criteria.

2 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. Efficient transit systems within metropolitan areas 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 increase transit 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 AllTransit Performance Score, which rates transit connectivity, access to jobs, and frequency of service (CNT 2019a). Cities could earn up to 2 points based on their CNT score, which falls on a scale of 1–10. Table 32 summarizes the scoring, and figure 40 lists scores for the transit-related metrics. Table E19 in Appendix E provides more detailed city scores.

Table 32. Scoring for public transit metrics

Transit funding per capita*	Score
$500 or more	2
$200 to $499.99	1.5
$80 to $199.99	1
$20 to $79.99	0.5
City's transit performance score**	
9.0 and above	2
8.0 to 8.9	1.5
7.0 to 7.9	1
5.0 to 6.9	0.5

*Funding data from FTA 2020. **Score from CNT 2019a.

Figure 40. Transit scores (out of 4 possible points)

Boston (4)	New Orleans (2)	Detroit (1)	Jacksonville (0.5)
New York (4)	Akron (1.5)	El Paso (1)	Kansas City (0.5)
Philadelphia (3.5)	Austin (1.5)	Fresno (1)	Lakeland (0.5)
San Francisco (3.5)	Charlotte (1.5)	Grand Rapids (1)	Memphis (0.5)
Washington, DC (3.5)	Dallas (1.5)	Knoxville (1)	Nashville (0.5)
Baltimore (3)	Dayton (1.5)	Louisville (1)	Oklahoma City (0.5)
Chicago (3)	Houston (1.5)	New Haven (1)	Omaha (0.5)
Honolulu (3)	Las Vegas (1.5)	Orlando (1)	Provo (0.5)
Oakland (3)	Long Beach (1.5)	Oxnard (1)	Raleigh (0.5)
Pittsburgh (3)	Madison (1.5)	Phoenix (1)	Riverside (0.5)
Portland (3)	Providence (1.5)	Reno (1)	San Juan (0.5)
Salt Lake City (3)	Richmond (1.5)	St. Paul (1)	Stockton (0.5)
Seattle (3)	Rochester (1.5)	St. Petersburg (1)	Toledo (0.5)
Atlanta (2.5)	Sacramento (1.5)	Tampa (1)	Tulsa (0.5)
Cleveland (2.5)	San Antonio (1.5)	Worcester (1)	Wichita (0.5)
Denver (2.5)	San Diego (1.5)	Albuquerque (0.5)	Winston-Salem (0.5)
Hartford (2.5)	Springfield (1.5)	Aurora (0.5)	Augusta (0)
Los Angeles (2.5)	Syracuse (1.5)	Bakersfield (0.5)	Boise (0)
Miami (2.5)	Tucson (1.5)	Baton Rouge (0.5)	Cape Coral (0)
Minneapolis (2.5)	Allentown (1)	Birmingham (0.5)	Charleston (0)
Newark (2.5)	Bridgeport (1)	Chula Vista (0.5)	Henderson (0)
San José (2.5)	Cincinnati (1)	Colorado Springs (0.5)	Little Rock (0)
St. Louis (2.5)	Columbia (1)	Fort Worth (0.5)	McAllen (0)
Buffalo (2)	Columbus (1)	Greensboro (0.5)	Mesa (0)
Milwaukee (2)	Des Moines (1)	Indianapolis (0.5)	Virginia Beach (0)

EFFICIENT VEHICLES

4 points

The U.S. vehicle market has seen an increase in high-efficiency, low-emission 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 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 enable consistent access to EV charging sites.

In this section, we evaluated cities based on:

- Efficient vehicle purchase incentives (1 point)
- Vehicle charging infrastructure incentives (1 point)
- EV charging locations (1 point)
- Renewable charging infrastructure incentives (1 point)

Government vehicle fleet procurement practices that advance vehicle efficiency were credited in Chapter 2, "Local Government Operations." Additionally, we scored EV-ready building codes in Chapter 4, "Buildings Policies."

A key barrier to entry in the market for fuel-efficient, advanced-technology vehicles is high cost. To encourage consumers to purchase these vehicles, financial incentives, including tax credits, rebates, and sales tax exemptions, are important policy levers. In the case of EVs, the federal government provides the largest incentives, followed by state incentives. However, a few cities across the country further subsidize the purchase of these vehicles. We awarded cities 1 point if

they provide purchase incentives for hybrid, plug-in hybrid, or electric vehicles—all of which typically have high fuel efficiency—or for conventional vehicles with high fuel efficiency. We awarded 0.5 points to cities that partner with Nissan on their program to offer a rebate for Nissan Leaf purchases. 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 for their efficincy did not receive any points.

Plug-in electric vehicles require charging infrastructure. Several cities and utilities in the United States offer rebates for the installation of electric vehicle chargers. Los Angeles, for example, provides incentives for residential and commercial electric vehicle chargers. A city earned 1 point if it has an incentive program to support the implementation of electric vehicle charging infrastructure. We awarded 0.5 points if a city offered nonfinancial incentives or incentives for specific EV users for EV charging infrastructure. We also awarded up to 1 point based on the number of charging stations available to the public. Using natural cut points in the collected data, we awarded cities with at least 20 stations per 100,000 people a full 1 point. Cities with 10 to 19.9 stations per 100,000 people earned 0.5 points.

Finally, an additional 1 point was available for cities that promote the construction of charging facilities that provide electricity from renewables. We automatically awarded this additional point to cities with a high proportion of renewables (more than 85%) in their grid mix that offer charging infrastructure incentives.

Table 33 summarizes the scoring, and figure 41 lists the scores for efficient vehicles. Table E20 in Appendix E provides more detailed city scores.

Table 33. Scoring for efficient vehicles

Efficient vehicle purchase incentives	Score
City or utility has incentive program in place for the purchase of high-efficiency vehicles.	1
City partners with Nissan on program to offer rebate for Nissan Leaf purchases	0.5
Vehicle charging infrastructure incentives	
City or utility offers incentives for installation of public or private EV charging infrastructure.	1
City or utility offers nonfinancial incentives or incentives for specific EV users for EV charging infrastructure	0.5
EV charging stations per 100,000 people*	
At least 20	1
10 to 19.9	0.5
Renewable charging incentives	
City has incentives or requirements for the installation of public or private EV charging infrastructure powered by renewable energy.	1

*Data from DOE 2019a

Figure 41. Efficient vehicles scores (out of 4 possible points)

San José (3.5)	Oxnard (2)	Detroit (1)	Raleigh (0.5)
Austin (3)	Phoenix (2)	Indianapolis (1)	St. Petersburg (0.5)
Pittsburgh (3)	Portland (2)	Jacksonville (1)	Baton Rouge (0)
Rochester (3)	Providence (2)	Madison (1)	Cape Coral (0)
Sacramento (3)	Stockton (2)	Miami (1)	Cleveland (0)
San Diego (3)	Buffalo (1.5)	New York (1)	Dallas (0)
San Francisco (3)	Charleston (1.5)	Newark (1)	El Paso (0)
Seattle (3)	Grand Rapids (1.5)	Provo (1)	Fort Worth (0)
Washington, DC (3)	Honolulu (1.5)	Richmond (1)	Fresno (0)
Boston (2.5)	Little Rock (1.5)	Springfield (1)	Greensboro (0)
Chicago (2.5)	Minneapolis (1.5)	St. Louis (1)	Henderson (0)
Columbus (2.5)	New Haven (1.5)	Tampa (1)	Louisville (0)
Kansas City (2.5)	Omaha (1.5)	Tucson (1)	McAllen (0)
Long Beach (2.5)	Reno (1.5)	Tulsa (1)	Memphis (0)
Los Angeles (2.5)	Riverside (1.5)	Akron (0.5)	Mesa (0)
Oakland (2.5)	St. Paul (1.5)	Allentown (0.5)	New Orleans (0)
Orlando (2.5)	Salt Lake City (1.5)	Aurora (0.5)	Oklahoma City (0)
Syracuse (2.5)	Albuquerque (1)	Birmingham (0.5)	Philadelphia (0)
Atlanta (2)	Augusta (1)	Charlotte (0.5)	San Antonio (0)
Chula Vista (2)	Bakersfield (1)	Cincinnati (0.5)	San Juan (0)
Hartford (2)	Baltimore (1)	Colorado Springs (0.5)	Toledo (0)
Houston (2)	Boise (1)	Dayton (0.5)	Virginia Beach (0)
Knoxville (2)	Bridgeport (1)	Denver (0.5)	Wichita (0)
Lakeland (2)	Columbia (1)	Milwaukee (0.5)	Winston-Salem (0)
Las Vegas (2)	Des Moines (1)	Nashville (0.5)	Worcester (0)

2 points

FREIGHT SYSTEM EFFICIENCY

Freight movement accounts for 18% of oil consumption in the United States (Foster and Langer 2013) and offers substantial opportunities for energy efficiency gains. In 2016, the EPA and the U.S. Department of Transportation adopted the second phase of the fuel efficiency and GHG standards for medium- and heavy-duty vehicles. While Phase 1 and Phase 2 of the standards would improve vehicle fuel economy by up to 48% between model years 2010 and 2027 (depending on vehicle type), certain components of the standards are in danger of elimination by the current administration. This makes city action on freight efficiency and emissions all the more important.

Urban areas are major sources of and destinations for freight. Policies and infrastructure for the movement of freight in small to large 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.

Locally developed freight plans can go above and beyond state freight plan 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 2012). 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 2 points if it had a stand-alone sustainable freight plan or a freight mobility plan with multiple strategies to increase efficiency. We awarded a city 1 point if it did not have a freight plan but still pursued at least one

freight efficiency strategy. Strategies for which we awarded points include incentives for multimodal freight, clean vehicle technology standards, low-emission zones, and urban consolidation centers (micro hubs to which shippers send deliveries, rather than sending them directly to the recipient's building). We also awarded points for last-mile solutions or off-hours delivery programs.

Table 34 summarizes the scoring, and figure 42 lists scores for sustainable freight. Table E21 in Appendix E provides more detailed city scores, and table F19 in Appendix F offers more detail on the freight plans and strategies that earned points in this metric.

Table 34. Scoring for sustainable freight

Sustainable freight plans	Score
City has a stand-alone sustainable freight plan or a freight modality plan outlining multiple strategies to increase efficiency.	2
City does not have a freight plan but has pursued at least one freight efficiency strategy.	1
City has a freight plan that focus on a single mode of freight or on road-based infrastructure expansion	0.5

Figure 42. Sustainable freight scores (out of 2 possible points)

Long Beach (2)	Augusta (0)	Fort Worth (0)	Oxnard (0)
Los Angeles (2)	Aurora (0)	Fresno (0)	Phoenix (0)
New York (2)	Austin (0)	Grand Rapids (0)	Pittsburgh (0)
Portland (2)	Bakersfield (0)	Greensboro (0)	Providence (0)
Seattle (2)	Baltimore (0)	Hartford (0)	Provo (0)
Washington, DC (2)	Baton Rouge (0)	Henderson (0)	Raleigh (0)
Atlanta (1)	Birmingham (0)	Honolulu (0)	Reno (0)
Columbus (1)	Boise (0)	Indianapolis (0)	Rochester (0)
Denver (1)	Boston (0)	Jacksonville (0)	Salt Lake City (0)
Houston (1)	Bridgeport (0)	Kansas City (0)	San Antonio (0)
Miami (1)	Buffalo (0)	Knoxville (0)	San Diego (0)
Minneapolis (1)	Cape Coral (0)	Lakeland (0)	San Juan (0)
Orlando (1)	Charleston (0)	Las Vegas (0)	Springfield (0)
Philadelphia (1)	Charlotte (0)	Little Rock (0)	St. Louis (0)
Riverside (1)	Chicago (0)	Louisville (0)	St. Petersburg (0)
San Francisco (1)	Chula Vista (0)	Madison (0)	Stockton (0)
San José (1)	Cincinnati (0)	McAllen (0)	Syracuse (0)
St. Paul (1)	Cleveland (0)	Mesa (0)	Tampa (0)
Memphis (0.5)	Colorado Springs (0)	Milwaukee (0)	Toledo (0)
Oakland (0.5)	Columbia (0)	Nashville (0)	Tucson (0)
Richmond (0.5)	Dallas (0)	New Haven (0)	Tulsa (0)
Sacramento (0.5)	Dayton (0)	New Orleans (0)	Virginia Beach (0)
Akron (0)	Des Moines (0)	Newark (0)	Wichita (0)
Albuquerque (0)	Detroit (0)	Oklahoma City (0)	Winston-Salem (0)
Allentown (0)	El Paso (0)	Omaha (0)	Worcester (0)

CLEAN, EFFICIENT TRANSPORTATION FOR LOW-INCOME COMMUNITIES

3 points

As cities have sprawled and jobs have moved away from urban cores, many low-income communities have become geographically isolated and inadequately served by affordable, efficient transportation. These communities' transportation options are often limited to automobiles and unreliable public transport services. Expenditures for vehicles, including the cost of fuel, insurance, and maintenance, can be large and unpredictable for these households (Vaidyanathan 2016). Cities can use a number of policy levers to increase access to mobility options other than personal vehicles in low-income communities.

In this category, we scored cities on:

- Low-income housing around transit (1 point)
- Low-income access to high-quality transit (1 point)
- Subsidized access to efficient transportation options (1 point)

We gave up to 1 point to cities that increase transit access for low-income communities by requiring affordable housing in new, transit-oriented developments or by preserving existing affordable housing in transit-served areas.

We used the Center for Neighborhood Technology's AllTransit tool (CNT 2019a) to score cities on low-income households' access to high-quality transit. We based the scoring on the percentage of households making less than $50,000 within half a mile of high-frequency full-day transit. Cities with 40% to 54.9% of low-income households near high-quality transit earned 0.5 points, while those with more than 55% earned a full point.

Finally, we awarded 1 point to cities that provide subsidized access to efficient transportation options (bike sharing, EV car sharing, transit) through incentives and rebates to low-income residents.

Table 35 summarizes the scoring, and figure 43 lists scores for clean, efficient transportation for low-income communities. Table E22 in Appendix E provides more detailed city scores.

Table 35. Scoring for clean, efficient transportation for low-income communities

Low-income housing around transit	Score
City policy encourages low-income housing development around transit facilities.	1
Low-income access to high-quality transit*	
More than 55% of low-income households have access to high-quality transit.	1
More than 40% and less than 54.9% of low-income households have access to high-quality transit.	0.5
Subsidized access to efficient transportation options	
City provides rebates or incentives to low-income residents for efficient transportation options.	1

*Data from CNT 2019a

Figure 43. Clean, efficient transportation for low-income communities scores (out of 3 possible points)

Chicago (3)	Salt Lake City (2)	Louisville (1)	El Paso (0)
Honolulu (3)	San José (2)	Miami (1)	Greensboro (0)
Los Angeles (3)	St. Paul (2)	Nashville (1)	Henderson (0)
Minneapolis (3)	Long Beach (1.5)	New Haven (1)	Jacksonville (0)
New York (3)	Orlando (1.5)	Riverside (1)	Lakeland (0)
Oakland (3)	Akron (1)	San Antonio (1)	Little Rock (0)
Philadelphia (3)	Albuquerque (1)	San Diego (1)	Madison (0)
Portland (3)	Aurora (1)	Springfield (1)	McAllen (0)
San Francisco (3)	Boise (1)	Tampa (1)	Mesa (0)
Seattle (3)	Bridgeport (1)	Tucson (1)	Milwaukee (0)
Washington, DC (3)	Charleston (1)	Tulsa (1)	New Orleans (0)
Atlanta (2)	Charlotte (1)	Virginia Beach (1)	Newark (0)
Austin (2)	Chula Vista (1)	Winston-Salem (1)	Oklahoma City (0)
Baltimore (2)	Cincinnati (1)	Columbia (0.5)	Omaha (0)
Boston (2)	Cleveland (1)	Knoxville (0.5)	Oxnard (0)
Denver (2)	Colorado Springs (1)	Rochester (0.5)	Provo (0)
Hartford (2)	Dallas (1)	Allentown (0)	Reno (0)
Houston (2)	Des Moines (1)	Augusta (0)	San Juan (0)
Memphis (2)	Detroit (1)	Bakersfield (0)	St. Louis (0)
Phoenix (2)	Fort Worth (1)	Baton Rouge (0)	St. Petersburg (0)
Pittsburgh (2)	Fresno (1)	Birmingham (0)	Stockton (0)
Providence (2)	Grand Rapids (1)	Buffalo (0)	Syracuse (0)
Raleigh (2)	Indianapolis (1)	Cape Coral (0)	Toledo (0)
Richmond (2)	Kansas City (1)	Columbus (0)	Wichita (0)
Sacramento (2)	Las Vegas (1)	Dayton (0)	Worcester (0)

Bonus 1 point

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.[52] The New York State Legislature approved the first congestion pricing program in the United States this year, to go into effect in Manhattan's central business district in 2021 (Vaidyanathan 2019). Other cities, including Portland, Seattle, and Los Angeles, are looking at 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. Cities with congestion pricing mechanisms in place earn a bonus point in this year's *Scorecard* to acknowledge their initiative in leading the country on this front. New York is the only city to earn a point this year.

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

Conclusions

Several conclusions emerge from our expanded analysis of city clean energy efforts. Our assessment of 25 additional cities has broadened our view of what local governments have been able to achieve in this country. Cities are showing leadership on clean energy in local government operations, buildings, transportation, energy and water utilities, and community-wide initiatives. By doing so they are taking steps to reduce GHG emissions, save households and businesses money, create jobs, and make their communities more resilient. Energy efficiency and renewables are partners in these efforts.

For the first time, New York earned the top spot in the rankings, leading the way with outstanding clean energy policies, especially for buildings. Boston's and Seattle's policies also continue to be models for the country. Other cities like Minneapolis and San Francisco are continuing their efforts to reduce GHG emissions by developing innovative policies to increase energy efficiency in existing buildings and transportation.

The top cities face competition from several that have redoubled their efforts since we published the 2019 edition of the Scorecard. San José and Oakland broke into the top 10 for the first time. We also identified the most improved since the last edition, St. Paul and St. Louis, which have improved their scores and pursued new clean energy policies. If they continue to take positive steps, these cities are poised to move up in future Scorecard rankings

At the same time, all cities—even the top five—have room to do more. The top city—New York—could still earn more than 20 additional points. In fact, only 17 earned at least half of the available points across the Scorecard. Cities also have room to improve in specific areas, such as tracking progress toward GHG and energy goals and putting equity front and center in planning and program delivery.

Across several editions of the report, a wide gap has remained between the cities at the top of the Scorecard rankings and those near the bottom. Disappointing performance may be due to myriad factors specific to each jurisdiction. Lower-ranking cities may have allowed efforts to stagnate or may not have enacted meaningful policies or programs yet. In some cases, city leadership may not have identified clean energy as a policy priority. Other cities may encounter structural obstacles, such as challenging state policy environments, that prevent them from pursuing initiatives.

If municipalities are to scale up efforts to reduce GHG emissions broadly, more cities throughout the rankings will need more comprehensive policy accomplishments. The challenge going forward for many communities is to prioritize the energy efficiency and renewable energy activities that will have the most impact. We have provided general recommendations for improving scores in Chapter 1 and highlighted leading city examples throughout this report. Each city will need to develop or refine its own plan for advancing efficiency and clean energy based on its own needs and priorities. We hope this Scorecard will serve as a guide for them.

References

2030 Districts Network. 2020. "Pittsburgh 2030 District." **2030districts.org/pittsburgh.**

ACEEE. 2014. "Best Practices for Working with Utilities to Improve Access to Energy Usage Data." **aceee.org/files/pdf/toolkit/utility-data-access.pdf.**

———. 2017. *Energy Efficiency—Jobs and Investments.* Washington, DC: ACEEE. **aceee.org/fact-sheet/jobs-investment.**

Amann, J. 2017. *Unlocking Ultra-Low Energy Performance in Existing Buildings.* Washington, DC: ACEEE. **aceee.org/sites/default/files/ultra-low-energy-0717.pdf.**

Anderson, K., N. DiOrio, B. Butt, D. Cutler, and A. Richards. 2017. *Resilient Renewable Energy Microgrids*. Golden, CO: NREL (National Renewable Energy Laboratory). **www.nrel.gov/docs/fy18osti/70033.pdf.**

Athalye, R., D. Sivaraman, D. Elliott, B. Liu, and R. Bartlett. 2016. *Impacts of Model Building Energy Codes*. Prepared by Pacific Northwest National Laboratory. Washington, DC: DOE. **www.energycodes.gov/sites/default/files/documents/Impacts_Of_Model_Energy_Codes.pdf.**

Atlanta. 2019. *Building Atlanta's Sustainable Future: Final Report 2019*. Atlanta: City of Atlanta. **www.atlantabbc.com/wp-content/uploads/2019/10/ABBC-Annual-Report-and-Case-Study.pdf.**

AWEA (American Wind Energy Association). 2018. *U.S. Wind Industry Annual Market Report 2017: Executive Summary*. Washington, DC: AWEA. **awea.org/Awea/media/Resources/Publications%20and%20Reports/Market%20Reports/AWEA-Annual-Market-Report-2017-Executive-Summary.pdf.**

Bakke, G. 2016. *The Grid: The Fraying Wires between Americans and Our Energy Future*. New York: Bloomsbury USA.

Barcik, M. 2013. "2012 IEEC Performance Testing: Lessons from the Duct and Envelope Tightness (DET) Verifier Program." In *Proceedings of the Thermal Performance of the Exterior Envelopes of Whole Buildings XII International Conference* 1: 1–11. Oak Ridge, TN: Oak Ridge National Laboratory. **web.ornl.gov/sci/buildings/conf-archive/2013%20B12%20papers/093-Barcik.pdf.**

Berg, W., and D. Ribeiro. 2018. *Saving Watts to Save Drops: Inclusion of Water Efficiency in Energy Efficiency Programs.* Washington, DC: ACEEE. **aceee.org/research-report/u1801.**

Berg, W., S. Vaidyanathan, E. Junga, E. Cooper, C. Perry, G. Relf, A. Whitlock, M. DiMascio, C. Waters, and N. Cortez. 2019. *The 2019 State Energy Efficiency Scorecard.* Washington, DC: ACEEE. **aceee.org/research-report/u1908.**

Bliss, L. 2020. "Behind the Gains in U.S. Public Transit Ridership." *Citylab*, January 13. **www.citylab.com/transportation/2020/01/public-transit-ridership-data-bus-subway-metro-train-nyc-dc/604846/**.

BLS (Bureau of Labor Statistics). 2018. *Labor Force Characteristics by Race and Ethnicity, 2017*. Washington, DC: BLS. **bls.gov/opub/reports/race-and-ethnicity/2017/pdf/home.pdf.**

Bonugli, C., J. Duncan, K. Crandall, and C. Etter-Wenzel. 2019. *Utilizing City-Utility Partnership Agreements to Achieve Climate and Energy Goals*. Washington, DC: WRI (World Resources Institute) and IMT (Institute for Market Transformation). **www.wri.org/publication/city-utility-partnership-agreements.**

Bureau of Transportation Statistics. 2017. "National Household Travel Survey Daily Travel Quick Facts." **www.bts.gov/statistical-products/surveys/national-household-travel-survey-daily-travel-quick-facts.**

C40 and Arup. 2015. *Powering Climate Action: Cities as Global Changemakers.* London: C40 and Arup. c40-production-images.s3.amazonaws.com/other_uploads/images/295_Powering_Climate_Action_Full_Report.original.pdf?1435760139.

Camuzeaux, J., R. Alvarez, S. Brooks, J. Browne, and T. Sterner. 2015. "Influence of Methane Emissions and Vehicle Efficiency on the Climate Implications of Heavy-Duty Natural Gas Trucks." *Environmental Science & Technology* 49 (11): 6402–10. pubs.acs.org/doi/abs/10.1021/acs.est.5b00412.

Census Bureau. 2018a. "City and Town Population Totals: 2010–2017." www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns.html.

———. 2018b. "Metropolitan and Micropolitan Statistical Areas Population Totals: 2010–2017." www.census.gov/content/census/en/data/tables/time-series/demo/popest/2010s-total-metro-and-micro-statistical-areas.html.

———. 2019. "American FactFinder." factfinder.census.gov.

Chan, G., I. Evans, M. Grimley, B. Ihde, and P. Mazumder. 2017. "Design Choices and Equity Implications of Community Shared Solar." *The Electricity Journal* 30 (9): 37–41. www.sciencedirect.com/science/article/abs/pii/S1040619017302634.

Cheslak, K. 2019. "Getting Up to Code: What You Need to Know before Voting On the 2021 IECC." *IMT Blog*, November 21. www.imt.org/getting-up-to-code-what-you-need-know-before-voting-on-the-2021-iecc/.

Chittum, A. 2012a. "How CHP Stepped Up when the Power Went Out during Hurricane Sandy." *ACEEE Blog*, December 6.

———. 2012b. "Local Power: Lessons from Recent District Energy System Development." In *Proceedings of the 2012 ACEEE Summer Study on Energy Efficiency in Buildings* 11: 20–33. Washington, DC: ACEEE. aceee.org/files/proceedings/2012/data/papers/0193-000353.pdf.

Clelow, R., and G. Mishra 2017. *Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride Hailing in the United States*. Davis: Institute of Transportation Studies at University of California, Davis. merritt.cdlib.org/d/ark%253A%252F13030%252Fm5sj6gbk/1/producer%252FUCD-ITS-RR-17-07.pdf.

Cluett, R., and J. Amann. 2015. *Multiple Benefits of Multifamily Energy Efficiency for Cost-Effectiveness Screening*. Washington, DC: ACEEE. www.aceee.org/research-report/a1502.

CNT (Center for Neighborhood Technology). 2019a. "AllTransit™." alltransit.cnt.org/.

———. 2019b. "Location Efficiency Hub." www.cnt.org/projects/location-efficiency-hub.

Copeland, C., and N. Carter. 2017 *Energy-Water Nexus: The Water Sector's Energy Use.* Washington, DC: CRS (Congressional Research Service). fas.org/sgp/crs/misc/R43200.pdf.

Davies, I., R. Haugo, J. Robertson, and P. Levin. 2018. "The Unequal Vulnerability of Communities of Color to Wildfire." *PLoS ONE* 13 (11): 1–15. journals.plos.org/plosone/article?id=10.1371/journal.pone.0205825.

Denson, R., and S. Hayes. 2018. *The Next Nexus: Exemplary Programs That Save Energy and Improve Health.* Washington, DC: ACEEE. aceee.org/research-report/h1802.

Dodman, D., and D. Satterthwaite. 2008. "Institutional Capacity, Climate Change Adaptation and the Urban Poor." *Institute of Development Studies Bulletin* 39 (4): 67–74. core.ac.uk/download/pdf/43539268.pdf.

DOE (Department of Energy). 2013. "Energy Saver 101 Infographic: Home Energy Audits." energy.gov/articles/energy-saver-101-infographic-home-energy-audits.

———. 2014. "Better Buildings Challenge: Partners A–Z." Accessed November. betterbuildingssolutioncenter.energy.gov/challenge/partner-list-a-z.

———. 2015. *Achieving Energy Savings and Emission Reductions from Building Energy Codes: A Primer for State Planning*. Washington, DC: DOE. **www.energycodes.gov/sites/default/files/documents/Codes_Energy_Savings_State_Primer.pdf.**

———. 2016a. "Alternative Fuels Data Center: Natural Gas Vehicles." Accessed December. **www.afdc.energy.gov/vehicles/natural_gas.html.**

———. 2016b. *CALiPER Snapshot: Outdoor Area Lighting*. Washington, DC: DOE. **energy.gov/sites/prod/files/2016/10/f33/snapshot2016_outdoor-area.pdf.**

———. 2017. "The Impact of Building Energy Codes." **www.energycodes.gov/program-impact-analysis.**

———. 2019a. "Alternative Fuels Data Center: Electric Vehicle Charging Station Locations." Accessed January. **www.afdc.energy.gov/fuels/electricity_locations.html.**

———. 2019b. "State & Local Energy Data." Accessed December. **www.eere.energy.gov/sled/#/.**

———. 2020. "State and Local Energy Data." Accessed February. **www.eere.energy.gov/sled/#/.**

Drehobl, A., and L. Ross. 2016. *Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low-Income and Underserved Communities*. Washington, DC: ACEEE. **aceee.org/research-report/u1602.**

EIA (Energy Information Administration). 2019a. "Annual Electric Power Industry Report, Form EIA-861, Detailed Data Files for 2018." Accessed October. **www.eia.gov/electricity/data/eia861/.**

———. 2019b. "Natural Gas Annual Respondent Query System (EIA-176 Data through 2018)." **www.eia.gov/cfapps/ngqs/ngqs.cfm?f_report=RP1.**

———. 2019c. "Southwestern States Have Better Solar Resources and Higher Solar PV Capacity Factors." *Today in Energy*, June 12. **eia.gov/todayinenergy/detail.php?id=39832.**

Energy Outreach Colorado. 2018. *2018 Annual Report.* Denver: Energy Outreach Colorado. **www.energyoutreach.org/wp-content/uploads/2018/12/2018-Annual-Report.pdf.**

EPA (Environmental Protection Agency). 2011a. *Energy Efficiency in Local Government Operations: A Guide to Developing and Implementing Greenhouse Gas Reduction Programs*. Washington, DC: EPA. **www.epa.gov/sites/production/files/2015-08/documents/ee_municipal_operations.pdf.**

———. 2011b. *Smart Growth: A Guide to Developing and Implementing Greenhouse Gas Reductions Programs*. Washington, DC: EPA. **reconnectingamerica.org/assets/Uploads/20110517EPAsmgrowthguide.pdf.**

———. 2014a. *Combined Heat and Power: A Guide to Developing and Implementing Greenhouse Gas Reduction Programs*. Washington, DC: EPA. **www.epa.gov/sites/production/files/2015-08/documents/chpguide508.pdf.**

———. 2014b. *On-Site Renewable Energy Generation: A Guide to Developing and Implementing Greenhouse Gas Reduction Programs.* Washington, DC: EPA. **www.epa.gov/file/site-renewable-energy-generation-guide-developing-and-implementing-greenhouse-gas-reduction.**

———. 2016. "Cool Pavements." **www.epa.gov/heat-islands/heat-island-cooling-strategies.**

———. 2019a. "Media FAQs about ENERGY STAR for Commercial and Industrial Buildings." Accessed February. **www.energystar.gov/buildings/press-room/media-faqs.**

———. 2019b. "Water and Energy Efficiency at Utilities and in the Home: Make the Drops-to-Watts Connection." **www.epa.gov/sustainable-water-infrastructure/water-and-energy-efficiency-utilities-and-home.**

———. 2020a. "Community Choice Aggregation." **www.epa.gov/greenpower/community-choice-aggregation.**

———. 2020b. "Energy Efficiency for Water Utilities." www.epa.gov/sustainable-water-infrastructure/energy-efficiency-water-utilities.

———. 2020c. "Heat Island Effect." www.epa.gov/hiri/mitigation/index.htm.

———. 2020d. "Sources of Greenhouse Gas Emissions." www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions.

FBCI (Form-Based Codes Institute). 2019. "Form-Based Codes Defined." formbasedcodes.org/definition/.

Foster, B., and T. Langer. 2013. *Energy Efficiency Potential of the U.S. Freight System: A Scoping Exercise.* Washington, DC: ACEEE. aceee.org/sites/default/files/publications/researchreports/t132.pdf.

Freudenburg, W., R. Gramling, S. Laska, and K. Erikson. 2008. "Organizing Hazards, Engineering Disasters? Improving the Recognition of Political-Economic Factors in the Creation of Disasters." *Social Forces* 87 (2): 1015–38. researchgate.net/publication/236778638_Organizing_Hazards_Engineering_Disasters_Improving_the_Recognition_of_Political-Economic_Factors_in_the_Creation_of_Disasters.

FTA (Federal Transit Administration). 2019. "TS1.1—Total Funding Time-Series." www.transit.dot.gov/ntd/data-product/ts11-total-funding-time-series-3.

———. 2020. "The National Transit Database." www.transit.dot.gov/ntd.

Garren, S., A. Giancatarino, S. Greschner, R. Jackson, M. Santiago-Mosier, and I. Schwingler. 2017. *Low-Income Solar Policy Guide*. Oakland: GRID Alternatives. lowincomesolar.org/wp-content/uploads/2017/03/Policy-Guide_3.7.17.pdf.

Grid Alternatives. 2020. "Who We Are." gridalternatives.org/about.

GTM (GTM Research and Wood Mackenzie). 2018. *The Vision for U.S. Community Solar: A Roadmap to 2030. Submitted to Vote Solar*. votesolar.org/policy/policy-guides/shared-renewables-policy/csvisionstudy/#reportdownload.

Hawkins, A. 2019 "Why Congestion Pricing Can Save Cities from Their Worst Possible Future." *The Verge*, March 29. www.theverge.com/2019/3/29/18286830/congestion-pricing-nyc-gridlock-autonomous-vehicles-traffic.

Hinge, A., H. Beber, J. Laski, and Y. Nishida. 2013. "Building Efficiency Policies in World Leading Cities: What Are the Impacts?" In *Proceedings of the 2013 ECEEE Summer Study on Energy Efficiency* 771–81. Stockholm: ECEEE (European Council for an Energy Efficient Economy). proceedings.eceee.org/visabstrakt.php?event=3&doc=3-195-13.

Hoerner, J., and N. Robinson. 2008. *A Climate of Change: African Americans, Global Warming, and a Just Climate Policy for the U.S.* Oakland: EJCC (Environmental Justice and Climate Change Initiative). reimaginerpe.org/files/climateofchange-2.pdf.

ICC (International Code Council). 2018. *International Green Construction Code*. Washington, DC: ICC. codes.iccsafe.org/content/IGCC2018.

IEA (International Energy Agency). 2016. *Energy Technology Perspectives 2016: Towards Sustainable Urban Energy Systems*. Paris: IEA. www.iea.org/etp2016/.

IES (Illuminating Engineering Society) and IDA (International Dark-Sky Association). 2011. *Joint IDA-IES Model Lighting Ordinance (MLO) with User's Guide*. New York: IES. Tucson: IDA. darksky.org/wp-content/uploads/bsk-pdf-manager/16_MLO_FINAL_JUNE2011.PDF.

IMT (Institute for Market Transformation). 2011. *Third-Party Plan Review*. Washington, DC: IMT. www.imt.org/resources/detail/case-study-3-third-party-plan-review.

IMT and ICLEI (Local Governments for Sustainability). 2010. *Commercial Buildings Toolkit: Energy Code Compliance*. Washington, DC: IMT. Bonn: ICLEI. www.imt.org/wp-content/uploads/2018/02/Commercial_Energy_Policy_Fact_Sheet_-_Code_Compliance.pdf.

IPCC (Intergovernmental Panel on Climate Change). 2007. *Climate Change 2007 Synthesis Report*. Geneva: IPCC. **ipcc.ch/site/assets/uploads/2018/02/ar4__syr__full__report.pdf.**

Jesdale, B., R. Morello-Frosch, and L. Cushing. 2013. "The Racial/Ethnic Distribution of Heat Risk-Related Land Cover in Relation to Residential Segregation." *Environmental Health Perspectives* 121 (7): 811–7. **ehp.niehs.nih.gov/doi/10.1289/ehp.1205919.**

Kenward, A., and D. Adams-Smith. 2014. *Shifting Cities: 1,001 Blistering Future Cities*. Princeton, NJ: Climate Central. **assets.climatecentral.org/pdfs/ShiftingCitiesAnalysis.pdf.**

Kushler, M., B. Baatz, S. Nowak, and P. Witte. 2015. *Municipal Utility Energy Efficiency: Successful Examples around the Nation*. Washington, DC: ACEEE. **aceee.org/research-report/u1510.**

Laitner, J., B. Partridge, and V. Vittore. 2012. *Measuring the Energy Reduction Impact of Selected Broadband-Enabled Activities within Households*. Washington, DC: ACEEE. **aceee.org/research-report/e128.**

Li, X., C. Gorguinpour, R. Sclar, and S. Castellanos. 2019. *How to Enable Electric Bus Adoption in Cities Worldwide.* Washington, DC: WRI (World Resources Institute). **wriorg.s3.amazonaws.com/s3fs-public/how-to-enable-electric-bus-adoption-cities-worldwide-executive-summary.pdf.**

Livingston, O., D. Elliott, P. Cole, and R. Bartlett. 2014. *Building Energy Codes Program: National Benefits Assessment, 1992–2040*. Prepared by Pacific Northwest National Laboratory. Washington, DC: DOE. **www.energycodes.gov/sites/default/files/documents/BenefitsReport__Final__March20142.pdf.**

López Moreno, E., N. Bazoglu, G. Mboup, and R. Warah. 2008. *State of the World's Cities 2008/2009: Harmonious Cities*. London: Earthscan. **sustainabledevelopment.un.org/content/documents/11192562__alt-1.pdf.**

Mackres, E., and B. Kazerooni. 2012. *Local Energy Planning in Practice: A Review of Recent Experiences.* Washington, DC: ACEEE. **aceee.org/research-report/e123.**

Mason, J., L. Fulton, and Z. McDonald. 2015. *A Global High Shift Cycling Scenario: The Potential for Dramatically Increasing Bicycle and E-Bike Use in Cities around the World, with Estimated Energy, CO_2, and Cost Impacts*. Washington, DC: IDTP (Institute for Transportation and Development Policy). **www.itdp.org/wp-content/uploads/2015/11/A-Global-High-Shift-Cycling-Scenario-__-Nov-12-2015.pdf.**

McCahill, C., N. Garrick, C. Atkinson-Palombo, and A. Polinski. 2015. *Effects of Parking Provision on Automobile Use in Cities: Inferring Causality.* Washington, DC: Transportation Research Board. **www.ssti.us/wp/wp-content/uploads/2016/01/TRB__2016__Parking__causality__TRB__compendium.pdf.**

McKibbin, A., A. Evens, S. Nadel, and E. Mackres. 2012. *Engaging as Partners in Energy Efficiency: Multifamily Housing and Utilities*. Washington, DC: CNT Energy and ACEEE. **aceee.org/research-report/a122.**

Meres, R., J. Sigmon, M. DeWein, K. Garrett, and J. Brown. 2012. "Successful Strategies for Improving Compliance with Building Energy Codes." In *Proceedings of the 2012 ACEEE Summer Study on Energy Efficiency in Buildings* 4: 275–88. Washington, DC: ACEEE. **www.aceee.org/files/proceedings/2012/data/papers/0193-000112.pdf.**

MITOD (Mixed-Income Transit-Oriented Development). 2020. "Incentive-Based Zoning." **www.mitod.org/incentivebasedzoning.php.**

Moran, B., and M. Lorentzen. 2016. "Assessing the Role of Energy Efficiency in Microgrids." In *Proceedings of the 2016 ACEEE National Symposium on Market Transformation Conference*. Washington, DC: ACEEE. **aceee.org/sites/default/files/pdf/conferences/mt/2016/Lorentzen__Moran__MT16__Session3A__3.22.16.pdf.**

Nadel, S., and A. Hinge. 2020. *Mandatory Building Performance Standards: A Key Policy for Achieving Climate Goals*. Washington, DC: ACEEE. **aceee.org/white-paper/2020/06/mandatory-building-performance-standards-key-policy-achieving-climate-goals.**

Nadel, S., and L. Ungar. 2019. *Halfway There: Energy Efficiency Can Cut Energy Use and Greenhouse Gas Emissions in Half by 2050*. Washington, DC: ACEEE. aceee.org/sites/default/files/publications/researchreports/u1907.pdf.

NASEO (National Association of State Energy Officials) and EFI (Energy Futures Initiative). 2019. *The 2019 U.S. Energy & Employment Report*. Arlington, VA: NASEO. Washington, DC: EFI. www.usenergyjobs.org/previous-reports.

National Complete Streets Coalition. 2012. *Costs of Complete Streets: What We Are Learning from State and Local Governments*. Washington, DC: National Complete Streets Coalition. www.smartgrowthamerica.org/documents/cs/factsheets/cs-costs-2.pdf.

———. 2018. *The Best Complete Streets Initiatives of 2017*. Washington, DC: National Complete Streets Coalition. smartgrowthamerica.org/resources/best-complete-streets-initiatives-2017/.

NBI (New Buildings Institute). 2020. "zEPI." newbuildings.org/code_policy/zepi/.

Nelson, K. 2009. *Essential Smart Growth Fixes for Urban and Suburban Zoning Codes*. Washington, DC: EPA. www.epa.gov/sites/production/files/2014-01/documents/2009_essential_fixes_0.pdf.

Nowak, S., M. Kushler, and P. Witte. 2019. *The New Leaders of the Pack: ACEEE's Fourth National Review of Exemplary Energy Efficiency Programs*. Washington, DC: ACEEE. aceee.org/research-report/u1901.

NRDC (Natural Resources Defense Council) and IMT. 2018. *Establishing a Plan to Achieve Energy Code Compliance in Cities*. New York: NRDC. Washington, DC: IMT. www.cityenergyproject.org/wp-content/uploads/2018/12/City_Energy_Project_Resource_Library_Guide_Report_Evaluating_a_Plan_To_Code_Compliance.pdf.

Park, A. 2014. *Equity in Sustainability: An Equity Scan of Local Government Sustainability Programs*. San Francisco: USDN (Urban Sustainability Directors Network). usdn.org/uploads/cms/documents/usdn_equity_scan_sept_2014_final.pdf.

Portland. 2015. *Climate Action Plan: Local Strategies to Address Climate Change*. Portland: City of Portland and Multnomah County. www.portlandoregon.gov/bps/article/531984.

PPIC (Public Policy Institute of California). 2016. *Energy and Water Use in California Are Interconnected.* San Francisco: PPIC. www.ppic.org/content/pubs/report/R_1016AER.pdf.

Reconnecting America. 2010. *Encouraging Transit Oriented Development: Case Studies That Work*. Washington, DC: EPA. www.epa.gov/sites/production/files/2014-05/documents/phoenix-sgia-case-studies.pdf.

Ribeiro, D., T. Bailey, A. Drehobl, J. King, S. Samarripas, M. Shoemaker, S. Vaidyanathan, W. Berg, and F. Castro-Alvarez. 2017. *The 2017 City Energy Efficiency Scorecard*. Washington, DC: ACEEE. aceee.org/research-report/u1705.

Ribeiro, D., S. Samarripas, K. Tanabe, H. Bastian, E. Cooper, A. Drehobl, S. Vaidyanathan, A. Jarrah, and M. Shoemaker. 2019. *The 2019 City Clean Energy Scorecard*. Washington, DC: ACEEE. aceee.org/research-report/u1904.

Rosenberg, M., R. Hart, R. Athalye, J. Zhang, W. Wang, and B. Liu. 2016. *An Approach to Assessing Potential Energy Cost Savings from Increased Code Compliance in Commercial Buildings*. Prepared by PNNL. Washington, DC: DOE. www.pnnl.gov/main/publications/external/technical_reports/PNNL-24979.pdf.

Samarripas, S., and C. de Campos Lopes. 2020. *Taking Stock: Links between Local Policy and Building Energy Use across the United States*. Washington, DC: ACEEE: aceee.org/research-report/2020/04/taking-stock-links-between-local-policy-and-building-energy-use-across.

Samarripas, S., and D. York. 2019. *Closing the Gap in Energy Efficiency Programs for Affordable Multifamily Housing.* Washington, DC: ACEEE. aceee.org/research-report/u1903.

Samarripas, S., D. York, and L. Ross. 2017. *More Savings for More Residents: Progress in Multifamily Housing Energy Efficiency*. Washington, DC: ACEEE. aceee.org/research-report/u1702.

SEPA (Smart Electric Power Association). 2020. "Utilities' Path to Carbon Free Energy System by 2050: Utility Carbon Reduction Tracker." sepapower.org/utility-transformation-challenge/utility-carbon-reduction-tracker/.

SF Environment (San Francisco Department of the Environment). 2020. "Residential Energy Conservation Ordinance." sfenvironment.org/residential-energy-conservation-ordinance.

Shaheen, S., and E. Martin. 2015. "Unraveling the Modal Impacts of Bikesharing." *Access Magazine* 47 (Fall): 8–15. www.accessmagazine.org/wp-content/uploads/sites/7/2015/12/access47.shaheen.pdf.

Shoemaker, M., and D. Ribeiro. 2018. *Through the Local Government Lens: Developing the Energy Efficiency Workforce*. Washington, DC: ACEEE. www.aceee.org/research-report/u1805.

———.2019. "What Are 100% Clean Energy Commitments?" Accessed December. www.sierraclub.org/ready-for-100/commitments.

Solar Foundation. 2018a. *National Solar Jobs Census 2017*. Washington, DC: Solar Foundation. thesolarfoundation.org/national/#wow-modal-id-3.

———.2018b. *Strategies for Solar Workforce Development: A Toolkit for the Solar Industry*. Washington, DC: Solar Foundation. americansolarworkforce.org/wp-content/uploads/2018/09/FINAL_Strategies-for-Solar-Workforce-Development-TOOLKIT.pdf.

Sparling, H. 2020. "Metro Tax Champion Learned It Passed While Riding a Bus Today. 'The Bus Was Excited.'" *Cincinnati Enquirer*, May 14. www.cincinnati.com/story/news/2020/05/14/cincinnati-metro-sales-tax-levy-wins-ohio-primary-election/5182020002/.

Stone, B. 2012. *The City and the Coming Climate: Climate Change in the Places We Live*. New York: Cambridge University Press.

Union of Concerned Scientists. 2017. "Benefits of Renewable Energy Use." ucsusa.org/clean-energy/renewable-energy/public-benefits-of-renewable-power.

Urbanek, L. 2016. "The 2018 Building Energy Code Holds the Line for Efficiency." *NRDC Expert Blog*, December 28. www.nrdc.org/experts/lauren-urbanek/2018-building-energy-code-holds-line-efficiency.

USGBC (United States Green Building Council). 2009. *Financing and Encouraging Green Building in Your Community*. Washington, DC: USGBC. www.usgbc.org/sites/default/files/Docs6247.pdf.

Vaidyanathan, S. 2016. "America's Transportation Energy Burden for Low-Income Families." *ACEEE Blog*, July 29. aceee.org/blog/2016/07/america-s-transportation-energy.

———.2019. *Shaping Autonomous Vehicle Deployment to Meet Climate and Energy Goals: A Policy Toolkit for Cities*. Washington, DC: ACEEE. aceee.org/sites/default/files/pdfs/av_toolkit_2-16-19_1.pdf.

Vaidyanathan, S., and E. Mackres. 2012. *Improving Travel Efficiency at the Local Level*. Washington, DC: ACEEE. aceee.org/research-report/t121.

Walk Score. 2020. "Walk Score." www.walkscore.com.

York, D., S. Nadel, E. Rogers, R. Cluett, S. Kwatra, H. Sachs, J. Amann, and M. Kelly. 2015. *New Horizons for Energy Efficiency: Major Opportunities to Reach Higher Electricity Savings by 2030*. Washington, DC: ACEEE. aceee.org/research-report/u1507.

Appendix A. Metric Categorization

Table A1 categorizes each metric based on the following factors:

- What type of clean energy policy does it assess?
- Does it assess policy or performance?
- Does it relate to equity in planning and program delivery?

DEFINITIONS

Energy efficiency. Policy or activity designed primarily to save energy.

Renewable energy. Policy or activity designed primarily to increase the use of renewable sources of energy.

Climate change mitigation. Policy or activity that reduces GHG emissions but does not prescribe whether energy efficiency or renewable energy should be used to achieve emissions reductions.

Policy. The adoption of a policy, program, or plan.

Performance. The results or progress of an adopted policy, program, or plan.

Equity considerations. The extent to which city actions engage with or invest in low-income communities and communities of color.

Table A1. Metric categorization

Metric	Energy efficiency, renewable energy, or climate change mitigation	Policy or performance	Equity considerations	Maximum points
Local government (10 points)				
Climate goal stringency	Climate change mitigation	Policy		1
Progress toward climate goal	Climate change mitigation	Performance		1
Renewable energy goal stringency	Renewable energy	Policy		1
Energy efficiency goal stringency	Energy efficiency	Policy		1
Efficient fleet policies and composition	Energy efficiency	Policy/performance		1
Efficient public lighting	Energy efficiency	Policy/performance		1
Onsite renewables	Renewable energy	Performance		1
Inclusive procurement	None	Policy		0.5
Building energy benchmarking	Energy efficiency	Performance		1
Municipal building retrofit strategy	Energy efficiency	Policy/performance		1
Public workforce commuting	Energy efficiency	Policy		0.5
Community-wide (15 points)				
Climate mitigation goal stringency	Climate change mitigation	Policy		2
Climate mitigation goal progress	Climate change mitigation	Performance		2
Existence of energy efficiency goal	Energy efficiency	Policy		1
Energy efficiency goal stringency	Energy efficiency	Policy		1
Existence of renewable energy goal	Renewable energy	Policy		1
Renewable energy goal stringency	Renewable energy	Policy		1

Metric	Energy efficiency, renewable energy, or climate change mitigation	Policy or performance	Equity considerations	Maximum points
Energy data reporting	None	Policy		1
Equitable climate and energy planning	Climate change mitigation	Policy		1.5
Clean distributed energy resources systems	Energy efficiency, renewable energy	Policy		1.5
Clean distributed energy resources integration	Energy efficiency, renewable energy	Policy		1.5
Urban heat island mitigation goals	Energy efficiency	Policy		0.5
Urban heat island mitigation policies and programs	Energy efficiency	Policy		1
Buildings policies (30 points)				
Residential code	Energy efficiency	Policy		3
Commercial code	Energy efficiency	Policy		3
Solar readiness	Renewable energy	Policy		1
EV readiness	Energy efficiency	Policy		1
Low-energy-use requirements	Energy efficiency	Policy		1
Dedicated staffing for building energy code compliance	Energy efficiency	Policy		1
Energy code compliance strategies	Energy efficiency	Policy		2
Up-front support for building energy code compliance	Energy efficiency	Policy		1
Policies targeting existing buildings	Energy efficiency, renewable energy	Policy*		15
Energy efficiency workforce development	Energy efficiency	Policy		1
Renewable energy workforce development	Renewable energy	Policy		1
Energy and water utilities (15 points)				
Electric and natural gas efficiency savings	Energy efficiency	Performance		4.5
Low-income and multifamily programs	Energy efficiency	Policy		2.5
Energy data provision	Energy efficiency	Policy		0.5
Advocacy	Energy efficiency	Policy		0.5
Renewable energy incentives	Renewable energy	Performance		1.5
Decarbonizing electric grid	Renewable energy	Policy/performance		1.5
Joint water–energy program	Energy efficiency	Policy		1
Water savings strategy	Energy efficiency	Policy/performance		1
Water utility energy efficiency programs	Energy efficiency	Policy		1
Water utility self-generation	Energy efficiency, renewable energy	Policy		1

Metric	Energy efficiency, renewable energy, or climate change mitigation	Policy or performance	Equity considerations	Maximum points
Transportation (30 points)				
Sustainable transportation plan	Climate change mitigation	Policy		1
Codified VMT/GHG targets	Climate change mitigation	Policy		1
Stringency of VMT/GHG targets	Climate change mitigation	Policy		1
Progress achieved toward VMT/GHG goal	Climate change mitigation	Performance		1
Location-efficient zoning codes	Energy efficiency	Policy		2
Parking policies	Energy efficiency	Policy		2
Location efficiency incentives and disclosure	Energy efficiency	Policy		2
Mode shift targets	Energy efficiency	Policy		1
Progress achieved toward mode shift target	Energy efficiency	Performance		1
Complete streets	Energy efficiency	Policy		2
Car sharing	Energy efficiency	Policy		1
Bike sharing	Energy efficiency	Performance		2
Transportation funding	Energy efficiency	Performance		2
Access to transit services	Energy efficiency	Performance		2
Vehicle infrastructure incentives	Energy efficiency	Policy		1
Vehicle purchase incentives	Energy efficiency	Policy		1
EV charging locations	Energy efficiency	Performance		1
Renewable charging incentives	Renewable energy	Policy		1
Sustainable freight plans	Energy efficiency	Policy		2
Low-income housing around transit	Energy efficiency	Performance		1
Rebates and incentives for efficient transportation	Energy efficiency	Policy		1
Low-income access to high-quality transit	Energy efficiency	Performance		1
Congestion pricing	Energy efficiency	Policy		1 bonus

* While most of the 15 available points in the metric are categorized as policy and non-equity considerations, cities could earn 2 points for equity and 1 point for performance.

Appendix B. Methodology Updates

We conducted an extensive methodology review for the 2019 *City Scorecard* that resulted in several changes. We made fewer changes this year than in the past because we aimed to maintain more consistency in the methodology. We focused on suggestions that we were not able to implement prior to the last edition's publication. We also made improvements to select metrics, most notably our assessment of policies for existing buildings.

Table B1 summarizes scoring changes by policy area and metric category. We describe improvements in the sections that follow the table.

Table B1. Scoring by policy areas and their subcategories, with changes in scoring methodology

Policy area and subcategory	Maximum score 2020	Maximum score 2019	Change
Local government operations	10	9	1
Local government goals	4	4	0
Procurement and construction policies	3.5	2.5	1
Asset management	2.5	2.5	0
Community-wide initiatives	15	16	–1
Community-wide goals	9	9	0
Equity-driven approaches to clean energy planning	1.5	1.5	0
Local clean distributed energy systems	3	4	–1
Urban heat island mitigation	1.5	1.5	0
Buildings policies	30	30	0
Building energy code stringency	9	8	1
Building energy code compliance	4	5	–1
Benchmarking and transparency*	15	5	0
Incentives and financing*		3	0
Required energy actions*		7	0
Workforce development	2	2	0
Energy and water utilities	15	15	0
Utility efficiency savings	4.5	4.5	0
Targeted energy efficiency programs	2.5	2.5	0
Energy data provision	1	1	0
Renewable energy incentives and efforts	3	3	0
Efficiency efforts in water services	4	4	0
Transportation policies	30	30	0
Sustainable transportation strategies	4	4	0
Location efficiency	6	6	0
Mode shift	7	7	0
Public transit	4	4	0
Efficient vehicles policies	4	4	0
Freight	2	2	0
Efficient transportation for low-income communities	3	3	0
Congestion pricing**	1	0	1

* In the 2020 *Scorecard*, we combined these metrics into one broader metric titled "Policies for Existing Buildings." Fifteen points in total are available for the new metric; the same total points were available when the activities were separated into three metrics. ** This new metric serves as a bonus point available to cities that have not earned a perfect score for transportation policies.

LOCAL GOVERNMENT OPERATIONS

We increased the total number of points for local government operations from 9 to 10. We used the additional point to assess onsite renewable energy systems and inclusive procurement policies.

In previous editions, cities earned points for the existence of energy savings and generation goals. We no longer award points here and focus instead on the stringency of these goals and progress made toward targets.

Cities earned up to 1 point based on the extent to which they installed **onsite renewable energy systems** on public buildings. Cities with at least 5W per capita of onsite municipal renewable energy generation capacity earned 1 point; those with more than 1W per capita but less than 5W per capita earned 0.5 points.

We altered our approach to scoring the **stringency of renewable electricity goals**. We discuss the methodology in detail in Chapter 2.

Previous city scorecards assessed workforce development efforts solely in the buildings policies chapter. In this edition, we split workforce development–related metrics between the "Local Government Operations" and "Buildings Policies" chapters. The "Buildings Policies" chapter continued to assess community-facing workforce development programs. In the "Local Government Operations" chapter, cities earned 0.5 points for having **inclusive procurement and contracting processes** for energy efficiency or renewable energy projects.

To accommodate the two new metrics, we moved a previous metric on **green building requirements for new buildings** to the buildings policies chapter.

COMMUNITY-WIDE INITIATIVES

We revised our scoring of **clean, efficient distributed energy systems**. In the 2019 *City Scorecard*, cities earned credit by adopting a formal policy, rule, or agreement to support 1) district energy systems or microgrids, 2) combined heat and power, 3) onsite renewable energy systems, and 4) community solar. In this edition, we no longer assessed onsite renewable energy systems in this metric, instead scoring it elsewhere in the report. We also added another element to the metric, capturing the extent to which these systems integrated at least one clean energy technology to reduce greenhouse gas emissions.

We altered our approach in scoring the **stringency of community-wide renewable electricity goals**. We used a similar methodology to assess renewable electricity goals whether they are for local government operations or are community-wide. We discuss the methodology in detail in Chapter 2.

BUILDINGS POLICIES

We improved our metrics assessing **policies that encourage energy efficiency and renewable energy in existing buildings**. Rather than evaluate policies across three different sets of metrics, we scored cities on a menu of actions to reduce GHGs in buildings. We assigned points to each action or policy on the basis of the impact we gauged it could have. Those that we deemed would achieve greater energy savings earned more points; those that would result in lower savings or whose effectiveness was difficult to gauge earned fewer points. The new methodology allocated more points to cutting-edge policies, like building performance standards; it allocated fewer points to those previously on the cutting edge, like building benchmarking and transparency policies. It allocated the fewest points to voluntary initiatives and incentives.

We moved the inclusive procurement aspect of the workforce development metrics to the local government chapter. Additionally, we moved the low-energy-use requirement metric from the local government chapter to the buildings chapter.

ENERGY AND WATER UTILITIES

We made limited changes to our methodology for assessing energy and water utilities.

We revised the methodology for scoring utility-administered **multifamily energy efficiency programs** to assess utilities on whether they run a low-income multifamily program. We also adjusted the **low-income energy efficiency programs** metric so cities no longer receive credit if their utility partners with the local government, local nonprofits, and/or community organizations on low-income programs.

For the first time, cities earned credit for running community choice aggregation programs, in our metric capturing **efforts to decarbonize the utility electric grid**.

TRANSPORTATION POLICIES

We assess **bike-sharing programs** based on the total bike-share bikes available per 100,000 people. In the past, we counted only the bike-share bikes in docked bike-share systems. In the 2020 *Scorecard*, we counted the total number of bikes available in both docked and undocked bike-share systems.

For the first time, the *Scorecard* included a metric assessing **congestion pricing programs**. Cities that have congestion pricing mechanisms in place earned a bonus point to acknowledge their initiative in leading the country on this front.

Appendix C. Data Request Respondents

Table C1. Data request respondents by city, electric utility, and natural gas utility

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
Akron	———	———	Jonathan Hill, Regulatory Analyst II, Dominion Energy Ohio
Albuquerque	Kelsey Rader, Sustainability Officer, Environmental Health Department	Sharon James, Program Manager, Public Service Co. of NM	Dru Jones, Program Developer, New Mexico Gas
Allentown	David Kimmerly, Senior Planner	Dirk Chiles, Energy Efficiency Manager, PPL Electric Utilities	Brian Meilinger, UGI Utilities
Atlanta	Kate Taber, Clean Energy Programs Associate, Mayor's Office of Resilience	Andrea Sieber, Energy Efficiency Regulatory Manager, Georgia Power	———
Augusta	———	Andrea Sieber, Energy Efficiency Regulatory Manager, Georgia Power	———
Aurora	Karen Hancock, Planning Supervisor, Planning and Development Services Department	Aaron Tinjum, Senior Regulatory Analyst, Xcel Energy (Northern States Power)	Xcel Energy also provides Aurora with natural gas service
Austin	Cavan Merski, Senior Business Systems Analyst, Office of Sustainability	Zach Baumer, Climate Program Manager, Austin Energy	Hayley Cunningham, Energy Efficiency Programs Manager, Texas Gas Service
Bakersfield	———	Ryan Chan, Manager, Policy Shaping, Analysis & Compliance, PG&E	Erin Brooks, Customer Programs Policy & Support Manager, SoCal Gas
Baltimore	Anne Draddy, Sustainability Coordinator, Office of Sustainability Amy Gilder-Busatti, Landscape Architect and Environmental Planner, Office of Sustainability	Doug Gargano, Senior Business Analyst, BGE	BGE also provides natural gas service to Baltimore
Baton Rouge	———	Heather LeBlanc, Senior Staff Analyst, Entergy Louisiana	Entergy Louisiana also provides natural gas service to Baton Rouge
Birmingham	———	———	———
Boise	Jami Goldman, Sustainability Coordinator, Public Works Steve Hubble, Stormwater Environmental Coordinator, Public Works	Pete Pengilly, Customer Research & Analysis Leader, Customer Relations & Energy Efficiency, Idaho Power	———
Boston	Chris Kramer, Energy Manager, Environment Department	Michael Goldman, Energy Efficiency Regulatory, Planning and Evaluation Director, Eversource	Scott Berthiaume, Policy Analyst, Customer Energy Management, National Grid (Boston Gas & Colonial Gas)
Bridgeport	Jacob Robinson, City Planner, Office of Planning and Economic Development	Sheri Borrelli, Senior Business Development Professional, United Illuminating Co.	Sheri Borrelli, Senior Business Development Professional, Southern Connecticut Gas
Buffalo	Kelley Mosher, Resiliency Grants Manager	Ken Chan, Product Reporting Analyst, National Grid NY	———
Cape Coral	———	———	Leslie Silvey, Sr. Regulatory Analyst, TECO Peoples Gas

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
Charleston	Katie McKain, Director of Sustainability [b]	Sheryl Shelton, DSM Administration/ EM&V Manager, Dominion Energy South Carolina	Dominion Energy South Carolina also provides natural gas service to Charleston
Charlotte	John Thigpen, Climate Adviser to City of Charlotte, NRDC [a,d] Catherine Kummer, Climate Adviser to City of Charlotte, NRDC [a,d]	Melissa Adams, Regulatory Filings and Analysis Manager, Duke Energy Carolinas/Ohio	———
Chicago	Mary Nicol, Climate Adviser to City of Chicago, NRDC [b,d]	Shikha Kapoor, Business Analyst I, ComEd	Christina Pagnusat, Director Energy Efficiency & Business Customer Engagement, Peoples Gas
Chula Vista	Coleen Wisniewski, Environmental Sustainability Manager	Brittany Lee, Regulatory Compliance Supervisor, San Diego Gas & Electric	San Diego Gas & Electric also provides natural gas to Chula Vista
Cincinnati	Michael Forrester, Energy Manager, Office of Environment and Sustainability	Melissa Adams, Regulatory Filings and Analysis Manager, Duke Energy Carolinas/Ohio	Duke Energy Ohio also provides natural gas service to Cincinnati
Cleveland	Anand Natarajan, Energy Manager, Mayor's Office of Sustainability	———	Jonathan Hill, Regulatory Analyst II, Dominion Energy Ohio
Colorado Springs	———	——	——
Columbia	Mary Pat Baldauf, Sustainability Facilitator[b]	Sheryl Shelton, DSM Administration/ EM&V Manager, Dominion Energy South Carolina	Dominion Energy South Carolina also provides natural gas service to Columbia
Columbus	Jeffrey Ortega, Assistant Director/ Sustainable Columbus Coordinator, Department of Public Utilities Alana Shockey, Assistant Director of Sustainability, Department of Public Utilities	Brian Billing, Compliance Manager, American Electric Power (Ohio Power)	Sarah Poe, Team Leader, Evaluation Demand Side Management,
Dallas	Susan Alvarez, Assistant Director, Environmental Quality & Sustainability	———	Christopher Felan, Vice President of Regulatory Affairs, ATMOS Energy
Dayton	———	Stefanie Campbell, Manager, Customer Programs, Dayton Power & Light	Audrey Smith, Implementation Manager, Energy Efficiency, Vectren
Denver	Elizabeth Babcock, Climate Action Team Manager, Office of Climate Action, Sustainability and Resiliency	George McGuirk, Xcel Energy, CIP/ DSM Technical Consultant, (Public Service Co. of Colorado)	Xcel Energy also provides Denver with natural gas service
Des Moines	Pa Goldbeck, Management Analyst [b]	David McCammant, Product Manager, MidAmerican Energy	MidAmerican Energy also provides Des Moines with natural gas service
Detroit	Joel Howrani Heeres, Director, Office of Sustainability Nishaat Killeen, Project Manager, Office of Sustainability	Kevin Bilyeu, Principal Supervisor, DTE Energy	DTE also provides Detroit with natural gas service
El Paso	Fernando Berjano, Sustainability Coordinator, Community and Human Development Department	Desmond Machuca, Energy Efficiency Program Coordinator, El Paso Electric	Hayley Cunningham, Energy Efficiency Programs Manager, Texas Gas Service

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
Fort Worth	Justin Newhart, Acting Manager of Preservation and Design, Development Services	———	Christopher Felan, Vice President of Regulatory Affairs, ATMOS Energy
Fresno	———	Ryan Chan, Manager, Policy Shaping, Analysis & Compliance, PG&E	PG&E also provides Fresno with natural gas service
Grand Rapids	Alison Sutter, Sustainability Manager, Executive Office	Todd Duncan, Corporate Account Manager, Consumers Energy Co.	Kevin Bilyeu, Principal Supervisor, DTE Energy
Greensboro	———	Melissa Adams, Regulatory Filings and Analysis Manager, Duke Energy Carolinas/Ohio	———
Hartford	Shubhada Kambli, Sustainability Coordinator	Karlyn Lempa, Senior Analyst, Energy Efficiency, Eversource (Connecticut Light & Power)	Sheri Borrelli, Senior Business Development Professional, Connecticut Natural Gas
Henderson	———	Patricia Rodriguez, Director, DSM, NV Energy	Celine Apo, Supervisor, Regulation and Energy Efficiency, Southwest Gas
Honolulu	Rocky Mould, Energy Program Manager, Office of Climate Change, Sustainability and Resiliency	Vinh-Phong Ngo, Energy Engineer, Hawai'i Energy	———
Houston	Larissa Williams, Energy Manager, Administration & Regulatory Affairs Department	Shea Richardson, CenterPoint Energy	CenterPoint Energy also provides natural gas to Houston
Indianapolis	Katie Robinson, Director, Office of Sustainability	Jake Allen, DSM Program Development Manager, Indianapolis Power and Light	Brett McClellan, Energy Efficiency Program Coordinator, Citizens Energy Group
Jacksonville	———	Donald Wucker, Research Project Consultant, JEA	Leslie Silvey, Sr. Regulatory Analyst, TECO Peoples Gas
Kansas City	Jerry Shechter, Sustainability Coordinator, Office of the City Manager, Office of Environmental Quality	Chris DeLaTorre, Sr. Product Manager, Energy Efficiency, Evergy	———
Knoxville	Erin Gill, Sustainability Director, Office of Sustainability	Liz Hannah, Executive Services and Environmental Stewardship Manager, Knoxville Utilities Board	Knoxville Utilities Board also provides natural gas to Knoxville
Lakeland	———	———	Leslie Silvey, Sr. Regulatory Analyst, TECO Peoples Gas
Las Vegas	Marco N. Velotta, Long-Range Planning, Office of Sustainability	Patricia Rodriguez, Director, DSM, NV Energy	Celine Apo, Supervisor, Regulation and Energy Efficiency, Southwest Gas
Little Rock	———	Jessica Szenher, Business & Economic Development Former Director, Entergy Arkansas	Jose Laboy, CenterPoint Energy
Long Beach	Kristyn Payne, Sustainability Analyst, Office of Sustainability	Jose Monterroso, Program/Project Analyst, Southern California Edison	Dennis Burke, Administrative Analyst, Long Beach Energy
Los Angeles	Jessica Jinn, Climate Adviser to City of Los Angeles, NRDC [b,d]	Craig Tranby, Environmental Supervisor, LADWP	Erin Brooks, Customer Programs Policy & Support Manager, SoCal Gas
Louisville	Natalie Vezina, Sustainability Coordinator, Office of Advanced Planning and Sustainability	———	———
Madison	Stacie Reese, Sustainability Program Manager	Matt Matenaer, Senior Account Manager, Commercial and Industrial Marketing, Madison Gas & Electric	Madison Gas & Electric also provides natural gas services to Madison

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
McAllen	———	———	Hayley Cunningham, Energy Efficiency Programs Manager, Texas Gas Service
Memphis	Vivian Ekstrom, Planner, Sustainability Office	Becky Williamson, Strategic Planning and Innovation, Memphis Light, Gas, & Water	Memphis Light, Gas, & Water also provides natural gas services to Memphis
Mesa	———	———	Celine Apo, Supervisor, Regulation and Energy Efficiency, Southwest Gas
Miami	Melissa Hew, Programs Manager, Office of Resilience and Sustainability Alissa Farina, Resilience Programs Manager, Office of Resilience and Sustainability	———	———
Milwaukee	Erick Shambarger, Environmental Sustainability Director [b]	Missie Muth, Services Manager, We Energies	We Energies also administers natural gas efficiency programs to Milwaukee
Minneapolis	Luke Hollenkamp, Sustainability Program Coordinator	Aaron Tinjum, Senior Regulatory Analyst, Xcel Energy (Northern States Power)	Emma Schoppe, Local Energy Policy Manager, CenterPoint Energy
Nashville	Laurel Creech, Assistant Director, Division of Sustainability, Metro Nashville Department of General Services	Tony Richman, Energy Services Engineering Manager, Nashville Electric Services	———
New Haven	Dawn Henning, Project Manager, Engineering Department	Sheri Borrelli, Senior Business Development Professional, United Illuminating Co.	Sheri Borrelli, Senior Business Development Professional, Southern Connecticut Gas
New Orleans	Camille Pollan, Energy Efficiency Program Manager, Office of Resilience and Sustainability	Derek Mills, Demand Side Management Manager, Entergy New Orleans	Entergy New Orleans also provides natural gas to New Orleans
New York	Nicole Joseph, Clean Energy Communities Coordinator, NYC Mayor's Office of Sustainability	David Donovan, Senior Analyst, ConEdison Robert Bergen, Project Manager, NYSERDA	Ken Chan, Product Reporting Analyst, National Grid NY Robert Bergen, Project Manager, NYSERDA
Newark	———	Tim Fagan, Evaluation Manager, PSE&G Jessica Brand, Program Administrator, Energy Efficiency, NJ Office of Clean Energy	PSE&G also provides natural gas to Newark
Oakland	Daniel Hamilton, Sustainability Program Manager	Ryan Chan, Manager, Policy Shaping, Analysis & Compliance, PG&E	PG&E also provides natural gas to Oakland
Oklahoma City	T. O. Bowman, Sustainability Manager, Office of Sustainability	Randy Warren, Products and Programs Manager, Oklahoma Gas & Electric	Teri Green, Energy Efficiency Programs Manager, Oklahoma Natural Gas
Omaha	———	Heather Siebken, Director of Product Development and Marketing, Omaha Public Power District	———

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
Orlando	Chris Castro, Director, Office of Sustainability & Resilience Brittany Sellers, Sustainability Project Manager, Office of Sustainability & Resilience	Melissa Lucas, Sustainability and Development Services Manager, Orlando Utilities Commission	Leslie Silvey, Sr. Regulatory Analyst, TECO Peoples Gas
Oxnard	———	Jose Monterroso, Program/Project Analyst, Southern California Edison	Erin Brooks, Customer Programs Policy & Support Manager, SoCal Gas
Philadelphia	Zachary Greene, Climate Adviser to City of Los Angeles, NRDC [b, c, d]	Maria Mancuso, Senior Business Analyst, PECO	Jon David, Customer Programs Director, Philadelphia Gas Works
Phoenix	Mark Hartman, Chief Sustainability Officer	Roger Krouse, Senior Account Executive, Arizona Public Service	Celine Apo, Supervisor, Regulation and Energy Efficiency, Southwest Gas
Pittsburgh	Sarah Yeager, Climate and Resilience Analyst, Office of Sustainability	Sara Walker, Clean Energy Adviser, Duquesne Light Co.	Lisa Reilly, Director, Continuous Improvement, Peoples Natural Gas
Portland	Andria Jacobs, Energy Programs and Policy Senior Manager [c]	Peter Schaffer, Planning Project Manager, Energy Trust of Oregon, Portland General Electric	Peter Schaffer, Planning Project Manager, Energy Trust of Oregon, NW Natural
Providence	Leah Bamberger, Director of Sustainability, Office of Sustainability Dino Larson, Municipal Energy Manager, Office of Sustainability	Matthew Ray, Customer Energy Management Lead Analyst, National Grid (Narragansett Electric)	National Grid (Narragansett Electric) also administers natural gas efficiency programs to Providence
Provo	———	———	———
Raleigh	Cindy Holmes, Assistant Sustainability Manager, Office of Sustainability	Melissa Adams, Regulatory Filings and Analysis Manager, Duke Energy Carolinas/Ohio	———
Reno	Lynne Barker, Sustainability Manager, City Manager's Office	Patricia Rodriguez, Director, DSM, NV Energy	NV Energy also provides natural gas services to Reno
Richmond	Khilia Logan, Management Analyst, Sustainability Office	Michael Hubbard, Energy Conservation Manager, Dominion Virginia Power	Khilia Logan, Management Analyst, Sustainability Office
Riverside	Tracy Sato, Utilities Integration Manager, Public Utilities – Resource Operations & Strategic Analytics	———	Erin Brooks, Customer Programs Policy & Support Manager, SoCal Gas
Rochester	Shalini Beath, Energy & Sustainability Analyst, Department of Environment Services	Veronica Dasher, Community Outreach & Development Manager, Rochester Gas & Electric	Rochester Gas & Electric also provides natural gas services to Rochester
Sacramento	Jennifer Venema, Sustainability Manager, Department of Public Works Jenna Hahn, Sustainability Analyst	Jamie Cutlip, Local Government Affairs Representative, SMUD	Ryan Chan, Manager, Policy Shaping, Analysis & Compliance, PG&E
St. Paul	Russ Stark, Chief Resilience Officer, Mayor's Office Kurt Schultz, Department of Planning and Economic Development	Aaron Tinjum, Senior Regulatory Analyst, Xcel Energy (Northern States Power)	Xcel Energy also provides St. Paul with natural gas service
Salt Lake City	Peter Nelson, Sustainability Coordinator, Division of Sustainability and the Environment	Michael Snow, Regulatory Affairs & Procurement Manager, Rocky Mountain Power (PacifiCorp)	———

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
San Antonio	Douglas Melnick, Chief Sustainability Officer, Office of Sustainability	Justin Chamberlain, Manager of Energy Efficiency and Demand Response, CPS Energy	CPS Energy also provides natural gas service to San Antonio
San Diego	Aaron Lu, Program Coordinator, Environmental Services Department	Brittany Lee, Regulatory Compliance Supervisor, San Diego Gas & Electric	San Diego Gas & Electric also provides natural gas service to San Diego
San Francisco	Barry Hooper, Green Built Environment Team, Department of the Environment	Ryan Chan, Manager, Policy Shaping, Analysis & Compliance, PG&E	PG&E also provides natural gas service to San Francisco
San José	Phil Cornish, Sustainability & Compliance Manager, City of San José Environmental Services Department Yael Kisel, Climate Smart Analytics Lead	Ryan Chan, Manager, Policy Shaping, Analysis & Compliance, PG&E	PG&E also provides natural gas service to San José
San Juan	———	———	———
Seattle	Christie Bunch, Climate & Energy Adviser, Office of Sustainability & Environment	Jennifer Finnigan, Energy Planning Supervisor, Seattle City Light	JoEllen Fajardo, Sr. Business Analyst, Puget Sound Energy
Springfield	———	Michael Goldman, Energy Efficiency Program Evaluation Manager, Eversource	Monica Cohen, Manager of Planning, Reporting & Evaluation, Energy Efficiency, Columbia Gas of Massachusetts
St. Louis	Catherine Werner, Sustainability Director[a]	Craig Aubuchon, Energy Analytics Manager, Ameren UE (Union Electric)	———
St. Petersburg	———	———	Leslie Silvey, Sr. Regulatory Analyst, TECO Peoples Gas
Stockton	———	Ryan Chan, Manager, Policy Shaping, Analysis & Compliance, PG&E	PG&E also provides natural gas to Stockton
Syracuse	———	Ken Chan, Product Reporting Analyst, National Grid NY	Ken Chan, Product Reporting Analyst, National Grid NY
Tampa	———	Erika Perez, Regulatory Rate Analyst Associate, Tampa Electric Co.	Leslie Silvey, Sr. Regulatory Analyst, TECO Peoples Gas
Toledo	———	———	Sarah Poe, Team Leader, Evaluation Demand Side Management, Columbia Gas of Ohio
Tucson	———	Debbie Lindeman, Supervisor/ Planning, Analysis & Services, Tucson Electric Power	Celine Apo, Supervisor, Regulation and Energy Efficiency, Southwest Gas
Tulsa	———	Jeff Brown, Energy Efficiency & Consumer Programs Manager, Public Service Co. of Oklahoma	Teri Green, Energy Efficiency Programs, Oklahoma Natural Gas
Virginia Beach	Lori J. Herrick, Energy Management Administrator	Michael Hubbard, Energy Conservation Manager, Dominion Virginia Power	Tyler Lake, State Regulatory Affairs, Virginia Natural Gas (AGL Resources)
Washington, DC	Kate Johnson, Green Building & Climate Branch Chief, Department of Energy & Environment Jenn Hatch, Program Analyst, Urban Sustainability Administration	Benjamin Plotzker, Technical Energy Analyst, DCSEU	DCSEU also administers natural gas efficiency programs to Washington, DC
Wichita	———	———	———

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
Winston-Salem	Helen Peploswki, Director of Sustainability, Office of Sustainability	Melissa Adams, Regulatory Filings and Analysis Manager, Duke Energy Carolinas/Ohio	———
Worcester	Luba Zhaurova, Sustainability Project Manager [b]	Scott Berthiaume, Policy Analyst, Customer Energy Management, National Grid (Boston Gas & Colonial Gas)	Michael Goldman, Energy Efficiency Program Evaluation Manager, Eversource (MA)

[a] Contact submitted data during external review period. [b] Contact did not complete data request but submitted brief comments in response to the external review draft. [c] Primary contact changed during report process. Name listed is latest contact. [d] Contact serves as climate adviser to the city through the American Cities Climate Challenge.

Appendix D. Top-Scoring Cities by Topic

Below we provide total city scores for three topics that cut across chapters in the report, namely energy efficiency policy (figure D1), renewable energy policy (figure D2), and equity in planning and program delivery (figure D3).

Figure D1. Cities by energy efficiency total score (out of 79 possible points)

New York (65.5)	St. Louis (31.5)	Boise (20.5)	Omaha (14)
Seattle (57)	Providence (31)	Detroit (20.5)	El Paso (13.5)
Boston (55)	Grand Rapids (29.5)	Fort Worth (20.5)	Colorado Springs (13.5)
San Francisco (55)	Kansas City (29.5)	Fresno (20)	Jacksonville (13.5)
Washington (54)	Baltimore (29)	Knoxville (20)	Dayton (13)
Denver (52)	Riverside (28.5)	Syracuse (20)	Toledo (12)
Minneapolis (52)	Salt Lake City (28.5)	Richmond (19.5)	Tulsa (11.5)
Los Angeles (48.5)	Cleveland (28)	Madison (19.5)	Akron (11)
Oakland (48.5)	Honolulu (26.5)	New Orleans (19.5)	Lakeland (10.5)
Portland (47.5)	Houston (26)	Miami (19)	Allentown (10)
Chicago (47)	San Antonio (26)	St. Petersburg (19)	Birmingham (9)
San Jose (46.5)	Buffalo (25.5)	Des Moines (18.5)	Henderson (9)
Austin (41)	Las Vegas (25.5)	Stockton (18.5)	Little Rock (8.5)
Long Beach (39)	Albuquerque (24)	Louisville (18)	Winston Salem (8.5)
Philadelphia (39)	Springfield (24	Tucson (18)	Greensboro (8)
Pittsburgh (38.5)	Rochester (23)	Indianapolis (17.5)	Provo (7.5)
Atlanta (37.5)	Milwaukee (22.5)	Nashville (17.5)	Cape Coral (7)
Orlando (37)	Aurora (22)	Bridgeport (17)	Columbia (7)
Hartford (36.5)	Cincinnati (22)	New Haven (17	Charleston (6.5)
Sacramento (36.5)	Raleigh (22)	Newark (16.5	McAllen (6.5)
San Diego (36.5)	Dallas (21.5)	Virginia Beach (16.5)	San Juan (6.5)
Phoenix (35)	Oxnard (21.5	Memphis (16)	Baton Rouge (6)
Saint Paul (35)	Worcester (21.5)	Charlotte (16)	Oklahoma City (5.5)
Columbus (34.5)	Bakersfield (21)	Mesa (14.5)	Wichita (5)
Chula Vista (34)	Reno (21)	Tampa (14.5)	Augusta (4.5)

Figure D2. Cities by renewable energy total score (out of 17 possible points)

San José (14.5)	Milwaukee (7)	Madison (4)	Tucson (1.5)
Austin (13)	Phoenix (7)	Oxnard (4)	Winston Salem (1.5)
Seattle (13)	Pittsburgh (7)	Dallas (3.5)	Akron (1)
Minneapolis (12.5)	Houston (6)	Fresno (3.5)	Allentown (1)
Denver (12)	Long Beach (6)	Honolulu (3.5)	Charleston (1)
Oakland (12)	Orlando (6)	Memphis (3.5)	Lakeland (1)
Washington, DC (11.5)	Philadelphia (6)	Omaha (3.5)	Provo (1)
Boston (10.5)	St. Louis (6)	Rochester (3.5)	Raleigh (1)
Portland (10)	Nashville (5.5)	Springfield (3.5)	Syracuse (1)
San Francisco (10)	San Antonio (5.5)	St. Petersburg (3.5)	Tulsa (1)
Los Angeles (9.5)	Albuquerque (5)	Aurora (3)	Birmingham (0.5)
New York (9.5)	Colorado Springs (5)	Bridgeport (3)	Cape Coral (0.5)
Atlanta (9)	New Orleans (5)	Buffalo (3)	Dayton (0.5)
Chula Vista (9)	Providence (5)	Stockton (3)	Greensboro (0.5)
Sacramento (9)	Baltimore (4.5)	Virginia Beach (3)	Henderson (0.5)
Cleveland (8.5)	Columbus (4.5)	Fort Worth (2.5)	McAllen (0.5)
Riverside (8.5)	Grand Rapids (4.5)	Knoxville (2.5)	Mesa (0.5)
St. Paul (8.5)	Indianapolis (4.5)	Miami (2.5)	Oklahoma City (0.5)
San Diego (8.5)	Jacksonville (4.5)	Reno (2.5)	Augusta (0)
Chicago (8)	Las Vegas (4.5)	Tampa (2.5)	Baton Rouge (0)
Salt Lake City (8)	New Haven (4.5)	Bakersfield (2)	Des Moines (0)
Cincinnati (7.5)	Worcester (4.5)	Columbia (2)	Little Rock (0)
Boise (7)	Charlotte (4)	Richmond (2)	San Juan (0)
Hartford (7)	Detroit (4)	El Paso (1.5)	Toledo (0)
Kansas City (7)	Louisville (4)	Newark (1.5)	Wichita (0)

Figure D3. Cities by equity in planning and program delivery total score (out of 11.5 possible points)

Minneapolis (11)	Phoenix (5.5)	Tampa (3.5)	St. Petersburg (1.5)
Washington, DC (10.5)	Pittsburgh (5.5)	Toledo (3.5)	Stockton (1.5)
Seattle (10)	Salt Lake City (5.5)	Worcester (3.5)	Winston Salem (1.5)
Boston (9.5)	Springfield (5.5)	Albuquerque (3)	Dayton (1)
Chicago (9.5)	Orlando (5)	Dallas (3)	El Paso (1)
Los Angeles (9)	Riverside (5)	Indianapolis (3)	Greensboro (1)
New York (9)	San Diego (5)	Knoxville (3)	Lakeland (1)
Oakland (9)	Bridgeport (4.5)	Long Beach (3)	Las Vegas (1)
Philadelphia (8.5)	Cincinnati (4.5)	Nashville (3)	Oklahoma City (1)
Portland (8.5)	Honolulu (4.5)	Colorado Springs (2.5)	Tucson (1)
San Francisco (8.5)	Houston (4.5)	Des Moines (2.5)	Wichita (1)
Hartford (8)	Rochester (4.5)	Fort Worth (2.5)	Akron (0.5)
St. Paul (8)	Aurora (4)	Louisville (2.5)	Allentown (0.5)
Baltimore (7.5)	Columbus (4)	Madison (2.5)	McAllen (0.5)
San José (7.5)	Miami (4)	Richmond (2.5)	Mesa (0.5)
Milwaukee (6.5)	Raleigh (4)	Syracuse (2.5)	Baton Rouge (0)
Providence (6.5)	San Antonio (4)	Tulsa (2.5)	Cape Coral (0)
Atlanta (6)	St. Louis (4)	Charlotte (2)	Charleston (0)
Austin (6)	Buffalo (3.5)	Virginia Beach (2)	Columbia (0)
Detroit (6)	Fresno (3.5)	Augusta (1.5)	Henderson (0)
Sacramento (6)	Grand Rapids (3.5)	Bakersfield (1.5)	Little Rock (0)
Chula Vista (5.5)	Jacksonville (3.5)	Birmingham (1.5)	Omaha (0)
Cleveland (5.5)	Memphis (3.5)	Boise (1.5)	Provo (0)
Denver (5.5)	New Haven (3.5)	Newark (1.5)	Reno (0)
Kansas City (5.5)	New Orleans (3.5)	Oxnard (1.5)	San Juan (0)

Appendix E. Comprehensive Scores

LOCAL GOVERNMENT OPERATIONS

Table E1. Scores for local government climate change mitigation and energy goals

City	Energy reduction goal stringency (1 pt)	Renewable energy goal stringency (1 pt)	Climate goal stringency (1 pt)	Climate goal progress (1 pt)	Total (4 pts)
Austin	1	1	1	1	4
Orlando	1	0.5	1	1	3.5
Denver	1	1	0	1	3
Oakland	0	1	1	1	3
Washington, DC	0.5	1	0.5	1	3
Boston	1	0	0.5	1	2.5
Portland	0	1	0.5	1	2.5
San Francisco	0	1	0.5	1	2.5
Seattle	1	1	0.5	0	2.5
Atlanta	0	1	1	0	2
Minneapolis	0	0.5	0.5	1	2
Nashville	0.5	1	0.5	0	2
Albuquerque	1	0.5	0	0	1.5
Boise	1	0.5	0	0	1.5
Cleveland	0	0	0.5	1	1.5
Columbus	1	0	0.5	0	1.5
Los Angeles	0	0	0.5	1	1.5
New Haven	0	1	0.5	0	1.5
Philadelphia	0	0	0.5	1	1.5
Phoenix	0.5	0	1	0	1.5
Pittsburgh	0.5	0	0	1	1.5
Providence	0.5	0	1	0	1.5
Sacramento	0.5	0	0	1	1.5
Salt Lake City	0	1	0.5	0	1.5
Grand Rapids	0	0.5	0.5	0	1
Houston	0	1	0	0	1
Kansas City	0	0	0	1	1
Knoxville	0	0	0	1	1
Las Vegas	0	1	0	0	1
Madison	0	0	1	0	1
New York	0	0	0	1	1
San José	0	1	0	0	1
St. Louis	0	0	1	0	1
St. Petersburg	0	0	1	0	1
Buffalo	0.5	0	0	0	0.5
Dallas	0	0	0.5	0	0.5
Indianapolis	0	0	0.5	0	0.5

City	Energy reduction goal stringency (1 pt)	Renewable energy goal stringency (1 pt)	Climate goal stringency (1 pt)	Climate goal progress (1 pt)	Total (4 pts)
Reno	0.5	0	0	0	0.5
San Antonio	0	0	0.5	0	0.5
San Diego	0.5	0	0	0	0.5
Syracuse	0.5	0	0	0	0.5
Worcester	0.5	0	0	0	0.5
Akron	0	0	0	0	0
Allentown	0	0	0	0	0
Augusta	0	0	0	0	0
Aurora	0	0	0	0	0
Bakersfield	0	0	0	0	0
Baltimore	0	0	0	0	0
Baton Rouge	0	0	0	0	0
Birmingham	0	0	0	0	0
Bridgeport	0	0	0	0	0
Cape Coral	0	0	0	0	0
Charleston	0	0	0	0	0
Charlotte	0	0	0	0	0
Chicago	0	0	0	0	0
Chula Vista	0	0	0	0	0
Cincinnati	0	0	0	0	0
Colorado Springs	0	0	0	0	0
Columbia	0	0	0	0	0
Dayton	0	0	0	0	0
Des Moines	0	0	0	0	0
Detroit	0	0	0	0	0
El Paso	0	0	0	0	0
Fort Worth	0	0	0	0	0
Fresno	0	0	0	0	0
Greensboro	0	0	0	0	0
Hartford	0	0	0	0	0
Henderson	0	0	0	0	0
Honolulu	0	0	0	0	0
Jacksonville	0	0	0	0	0
Lakeland	0	0	0	0	0
Little Rock	0	0	0	0	0
Long Beach	0	0	0	0	0
Louisville	0	0	0	0	0
McAllen	0	0	0	0	0
Memphis	0	0	0	0	0
Mesa	0	0	0	0	0
Miami	0	0	0	0	0
Milwaukee	0	0	0	0	0
New Orleans	0	0	0	0	0
Newark	0	0	0	0	0
Oklahoma City	0	0	0	0	0

City	Energy reduction goal stringency (1 pt)	Renewable energy goal stringency (1 pt)	Climate goal stringency (1 pt)	Climate goal progress (1 pt)	Total (4 pts)
Omaha	0	0	0	0	0
Oxnard	0	0	0	0	0
Provo	0	0	0	0	0
Raleigh	0	0	0	0	0
Richmond	0	0	0	0	0
Riverside	0	0	0	0	0
Rochester	0	0	0	0	0
St. Paul	0	0	0	0	0
San Juan	0	0	0	0	0
Springfield	0	0	0	0	0
Stockton	0	0	0	0	0
Tampa	0	0	0	0	0
Toledo	0	0	0	0	0
Tucson	0	0	0	0	0
Tulsa	0	0	0	0	0
Virginia Beach	0	0	0	0	0
Wichita	0	0	0	0	0
Winston-Salem	0	0	0	0	0

Table E2. Scores for asset management

City	Benchmarking (1 pt)	Retrofit (1 pt)	Commuting (0.5 pts)	Total (2.5 pts)
Charlotte	1	1	0.5	2.5
Dallas	1	1	0.5	2.5
Denver	1	1	0.5	2.5
Long Beach	1	1	0.5	2.5
Los Angeles	1	1	0.5	2.5
Minneapolis	1	1	0.5	2.5
New York	1	1	0.5	2.5
Philadelphia	1	1	0.5	2.5
Phoenix	1	1	0.5	2.5
Providence	1	1	0.5	2.5
San Francisco	1	1	0.5	2.5
Washington, DC	1	1	0.5	2.5
Albuquerque	1	1	0	2
Boston	1	1	0	2
Buffalo	1	1	0	2
Chula Vista	1	0.5	0.5	2
Cleveland	0.5	1	0.5	2
Las Vegas	1	0.5	0.5	2
Louisville	1	0.5	0.5	2
Milwaukee	1	0.5	0.5	2
New Orleans	1	1	0	2
Oakland	1	0.5	0.5	2
Orlando	1	1	0	2

City	Benchmarking (1 pt)	Retrofit (1 pt)	Commuting (0.5 pts)	Total (2.5 pts)
Pittsburgh	1	0.5	0.5	2
Portland	1	0.5	0.5	2
Raleigh	0.5	1	0.5	2
Richmond	1	0.5	0.5	2
Sacramento	0.5	1	0.5	2
Salt Lake City	1	0.5	0.5	2
San Antonio	0.5	1	0.5	2
San Diego	1	0.5	0.5	2
Seattle	0.5	1	0.5	2
St. Petersburg	1	0.5	0.5	2
Virginia Beach	1	0.5	0.5	2
Atlanta	0.5	0.5	0.5	1.5
Austin	0.5	0.5	0.5	1.5
Baltimore	0	1	0.5	1.5
Boise	1	0	0.5	1.5
Bridgeport	1	0.5	0	1.5
Cincinnati	1	0.5	0	1.5
Columbus	0.5	0.5	0.5	1.5
Grand Rapids	1	0.5	0	1.5
Hartford	0.5	1	0	1.5
Houston	1	0.5	0	1.5
Kansas City	1	0	0.5	1.5
Knoxville	1	0.5	0	1.5
Nashville	1	0.5	0	1.5
Reno	1	0.5	0	1.5
Rochester	1	0.5	0	1.5
St. Paul	0.5	0.5	0.5	1.5
Syracuse	1	0.5	0	1.5
Worcester	1	0.5	0	1.5
Chicago	0.5	0.5	0	1
Colorado Springs	0	0.5	0.5	1
Fort Worth	0	0.5	0.5	1
Honolulu	0	0.5	0.5	1
Madison	1	0	0	1
Memphis	1	0	0	1
Miami	0	0.5	0.5	1
Riverside	0	0.5	0.5	1
San José	0	0.5	0.5	1
Aurora	0	0	0.5	0.5
Birmingham	0	0.5	0	0.5
Charleston	0	0.5	0	0.5
Newark	0	0.5	0	0.5
Oxnard	0	0.5	0	0.5
St. Louis	0	0.5	0	0.5
Tampa	0	0	0.5	0.5
Toledo	0	0.5	0	0.5
Tucson	0	0	0.5	0.5

City	Benchmarking (1 pt)	Retrofit (1 pt)	Commuting (0.5 pts)	Total (2.5 pts)
Tulsa	0	0	0.5	0.5
Akron	0	0	0	0
Allentown	0	0	0	0
Augusta	0	0	0	0
Bakersfield	0	0	0	0
Baton Rouge	0	0	0	0
Cape Coral	0	0	0	0
Columbia	0	0	0	0
Dayton	0	0	0	0
Des Moines	0	0	0	0
Detroit	0	0	0	0
El Paso	0	0	0	0
Fresno	0	0	0	0
Greensboro	0	0	0	0
Henderson	0	0	0	0
Indianapolis	0	0	0	0
Jacksonville	0	0	0	0
Lakeland	0	0	0	0
Little Rock	0	0	0	0
McAllen	0	0	0	0
Mesa	0	0	0	0
New Haven	0	0	0	0
Oklahoma City	0	0	0	0
Omaha	0	0	0	0
Provo	0	0	0	0
San Juan	0	0	0	0
Springfield	0	0	0	0
Stockton	0	0	0	0
Wichita	0	0	0	0
Winston-Salem	0	0	0	0

Table E3. Scores for procurement and construction policies

City	Fleet policies and composition (1 pt)	Efficient lighting (1 pt)	Onsite renewables (1 pt)	Inclusive procurement (0.5 pts)	Total (3.5 pts)
Boston	1	1	1	0.5	3.5
Cincinnati	0.5	1	1	0.5	3
Las Vegas	1	1	1	0	3
New York	1	1	0.5	0.5	3
Portland	1	1	0.5	0.5	3
Providence	0.5	1	1	0.5	3
Albuquerque	0.5	1	1	0	2.5
Atlanta	0.5	1	0.5	0.5	2.5
Austin	0.5	1	0.5	0.5	2.5
Boise	0.5	1	1	0	2.5
Knoxville	0.5	1	1	0	2.5

City	Fleet policies and composition (1 pt)	Efficient lighting (1 pt)	Onsite renewables (1 pt)	Inclusive procurement (0.5 pts)	Total (3.5 pts)
Minneapolis	0.5	1	0.5	0.5	2.5
Phoenix	0.5	1	1	0	2.5
Salt Lake City	0.5	1	1	0	2.5
San Francisco	1	1	0.5	0	2.5
San José	1	0.5	1	0	2.5
Tucson	0.5	1	1	0	2.5
Worcester	0.5	1	1	0	2.5
Bridgeport	0.5	1	0	0.5	2
Chula Vista	1	1	0	0	2
Long Beach	1	1	0	0	2
Los Angeles	1	1	0	0	2
Nashville	0.5	1	0.5	0	2
Oakland	0.5	1	0.5	0	2
Raleigh	0.5	1	0	0.5	2
Sacramento	0.5	0.5	1	0	2
St. Paul	0.5	0.5	0.5	0.5	2
San Antonio	1	1	0	0	2
Seattle	0.5	1	0	0.5	2
Washington, DC	0.5	0	1	0.5	2
Baltimore	0.5	1	0	0	1.5
Birmingham	0	1	0	0.5	1.5
Chicago	0.5	0.5	0	0.5	1.5
Denver	0.5	1	0	0	1.5
El Paso	0.5	1	0	0	1.5
Grand Rapids	1	0.5	0	0	1.5
Hartford	0	1	0	0.5	1.5
Honolulu	0.5	1	0	0	1.5
Houston	0.5	1	0	0	1.5
Indianapolis	0.5	1	0	0	1.5
Orlando	0.5	0.5	0	0.5	1.5
Riverside	1	0.5	0	0	1.5
San Diego	0.5	1	0	0	1.5
Bakersfield	0	1	0	0	1
Buffalo	0.5	0	0	0.5	1
Charleston	0	0	1	0	1
Cleveland	0	0.5	0	0.5	1
Detroit	0	1	0	0	1
Kansas City	0	0	0.5	0.5	1
Miami	0.5	0	0.5	0	1
New Haven	0	1	0	0	1
New Orleans	0	1	0	0	1
Philadelphia	0.5	0	0	0.5	1
Pittsburgh	0.5	0.5	0	0	1
St. Louis	0	0.5	0	0.5	1
Virginia Beach	0	1	0	0	1

City	Fleet policies and composition (1 pt)	Efficient lighting (1 pt)	Onsite renewables (1 pt)	Inclusive procurement (0.5 pts)	Total (3.5 pts)
Winston-Salem	0	1	0	0	1
Allentown	0	0.5	0	0	0.5
Charlotte	0.5	0	0	0	0.5
Colorado Springs	0	0	0	0.5	0.5
Columbus	0.5	0	0	0	0.5
Dallas	0.5	0	0	0	0.5
Fort Worth	0	0.5	0	0	0.5
Jacksonville	0.5	0	0	0	0.5
Madison	0.5	0	0	0	0.5
Mesa	0	0	0.5	0	0.5
Oklahoma City	0.5	0	0	0	0.5
Rochester	0	0.5	0	0	0.5
St. Petersburg	0	0.5	0	0	0.5
Toledo	0	0	0	0.5	0.5
Tulsa	0.5	0	0	0	0.5
Akron	0	0	0	0	0
Augusta	0	0	0	0	0
Aurora	0	0	0	0	0
Baton Rouge	0	0	0	0	0
Cape Coral	0	0	0	0	0
Columbia	0	0	0	0	0
Dayton	0	0	0	0	0
Des Moines	0	0	0	0	0
Fresno	0	0	0	0	0
Greensboro	0	0	0	0	0
Henderson	0	0	0	0	0
Lakeland	0	0	0	0	0
Little Rock	0	0	0	0	0
Louisville	0	0	0	0	0
McAllen	0	0	0	0	0
Memphis	0	0	0	0	0
Milwaukee	0	0	0	0	0
Newark	0	0	0	0	0
Omaha	0	0	0	0	0
Oxnard	0	0	0	0	0
Provo	0	0	0	0	0
Reno	0	0	0	0	0
Richmond	0	0	0	0	0
San Juan	0	0	0	0	0
Springfield	0	0	0	0	0
Stockton	0	0	0	0	0
Syracuse	0	0	0	0	0
Tampa	0	0	0	0	0
Wichita	0	0	0	0	0

COMMUNITY-WIDE INITIATIVES

Table E4. Scores for community-wide goals

City	Existence of energy goals (2 pts)	Energy savings goal stringency (1 pt)	Carbon-neutral energy goal stringency (1 pt)	Climate goal stringency (2 pts)	Climate goal progress (2 pts)	Total (8 pts)
Atlanta	2	0	1	2	2	7
Los Angeles	2	0.5	0.5	2	2	7
Washington, DC	2	1	1	1	2	7
Austin	1	0	1	2	2	6
Columbus	2	1	0	2	1	6
Denver	2	0	1	1	2	6
Minneapolis	2	0.5	0.5	1	2	6
Phoenix	2	0	0	2	2	6
San José	2	1	1	0	2	6
Oakland	2	0.5	1	2	0	5.5
Cleveland	2	0	0	1	2	5
Kansas City	2	0	0	1	2	5
Pittsburgh	2	1	1	1	0	5
St. Louis	1	0	1	1	2	5
Chicago	1.5	0	1	0	2	4.5
San Francisco	1	0	0.5	1	2	4.5
Louisville	2	0	1	1	0	4
Orlando	2	0	1	1	0	4
Portland	2	0	1	0	1	4
Salt Lake City	1	0	1	2	0	4
San Antonio	2	0	0	2	0	4
San Diego	1.5	0	0.5	1	1	4
St. Petersburg	1	0	1	2	0	4
Boston	0.5	0	0	1	2	3.5
Cincinnati	2	0	0.5	0	1	3.5
New Orleans	2	0	0.5	1	0	3.5
Sacramento	1	0.5	0	0	2	3.5
Seattle	1.5	0	1	1	0	3.5
Baltimore	1	0	0	0	2	3
New Haven	0	0	0	1	2	3
Philadelphia	1	0	0	0	2	3
Houston	1.5	0	0	1	0	2.5
Milwaukee	0.5	0	0	2	0	2.5
Reno	1.5	0	0	1	0	2.5
Riverside	2	0	0.5	0	0	2.5
St. Paul	0.5	0	0	2	0	2.5
Aurora	0	0	0	0	2	2
Columbia	1	0	1	0	0	2
Des Moines	0	0	0	2	0	2
Indianapolis	1	0	0	1	0	2
Long Beach	2	0	0	0	0	2
Madison	2	0	0	0	0	2

City	Existence of energy goals (2 pts)	Energy savings goal stringency (1 pt)	Carbon-neutral energy goal stringency (1 pt)	Climate goal stringency (2 pts)	Climate goal progress (2 pts)	Total (8 pts)
Miami	0	0	0	1	1	2
New York	1	0	1	0	0	2
Omaha	2	0	0	0	0	2
Providence	1	0	0	1	0	2
Richmond	0	0	0	0	2	2
Toledo	0	0	0	2	0	2
Boise	1	0	0.5	0	0	1.5
Chula Vista	1.5	0	0	0	0	1.5
Colorado Springs	1	0	0.5	0	0	1.5
Detroit	1.5	0	0	0	0	1.5
Honolulu	1	0	0.5	0	0	1.5
Oxnard	1	0.5	0	0	0	1.5
Springfield	1.5	0	0	0	0	1.5
Raleigh	0	0	0	1	0	1
Virginia Beach	1	0	0	0	0	1
Dallas	0.5	0	0	0	0	0.5
Fort Worth	0.5	0	0	0	0	0.5
Grand Rapids	0.5	0	0	0	0	0.5
Stockton	0.5	0	0	0	0	0.5
Tampa	0.5	0	0	0	0	0.5
Tucson	0.5	0	0	0	0	0.5
Akron	0	0	0	0	0	0
Albuquerque	0	0	0	0	0	0
Allentown	0	0	0	0	0	0
Augusta	0	0	0	0	0	0
Bakersfield	0	0	0	0	0	0
Baton Rouge	0	0	0	0	0	0
Birmingham	0	0	0	0	0	0
Bridgeport	0	0	0	0	0	0
Buffalo	0	0	0	0	0	0
Cape Coral	0	0	0	0	0	0
Charleston	0	0	0	0	0	0
Charlotte	0	0	0	0	0	0
Dayton	0	0	0	0	0	0
El Paso	0	0	0	0	0	0
Fresno	0	0	0	0	0	0
Greensboro	0	0	0	0	0	0
Hartford	0	0	0	0	0	0
Henderson	0	0	0	0	0	0
Jacksonville	0	0	0	0	0	0
Knoxville	0	0	0	0	0	0
Lakeland	0	0	0	0	0	0
Las Vegas	0	0	0	0	0	0
Little Rock	0	0	0	0	0	0

City	Existence of energy goals (2 pts)	Energy savings goal stringency (1 pt)	Carbon-neutral energy goal stringency (1 pt)	Climate goal stringency (2 pts)	Climate goal progress (2 pts)	Total (8 pts)
McAllen	0	0	0	0	0	0
Memphis	0	0	0	0	0	0
Mesa	0	0	0	0	0	0
Nashville	0	0	0	0	0	0
Newark	0	0	0	0	0	0
Oklahoma City	0	0	0	0	0	0
Provo	0	0	0	0	0	0
Rochester	0	0	0	0	0	0
San Juan	0	0	0	0	0	0
Syracuse	0	0	0	0	0	0
Tulsa	0	0	0	0	0	0
Wichita	0	0	0	0	0	0
Winston-Salem	0	0	0	0	0	0
Worcester	0	0	0	0	0	0

Table E5. Scores for equity-driven planning, implementation, and evaluation

City	Appendix E. Comprehensive scores	Equity-driven decision making (0.5 pts)	Accountability to equity (0.5 pts)	Total (1.5 pts)
Minneapolis		0.5	0.5	1.5
Portland		0.5	0.5	1.5
Providence	0.5	0.5	0.5	1.5
Seattle	0.5	0.5	0.5	1.5
Cincinnati	0.5	0	0.5	1
Hartford	0.5	0	0.5	1
Los Angeles	0	0.5	0.5	1
New York	0	0.5	0.5	1
Oakland	0.5	0	0.5	1
Orlando	0.5	0	0.5	1
Philadelphia	0	0.5	0.5	1
Sacramento	0.5	0.5	0	1
St. Paul	0.5	0	0.5	1
San Antonio	0	0.5	0.5	1
San Francisco	0	0.5	0.5	1
Springfield	0.5	0	0.5	1
Washington, DC	0.5	0.5	0	1
Atlanta	0	0	0.5	0.5
Baltimore	0	0	0.5	0.5
Boston	0	0	0.5	0.5
Chicago	0	0	0.5	0.5
Cleveland	0	0	0.5	0.5
Dallas	0	0	0.5	0.5
Detroit	0.5	0	0	0.5
Honolulu	0	0	0.5	0.5

City	Appendix E. Comprehensive scores	Equity-driven decision making (0.5 pts)	Accountability to equity (0.5 pts)	Total (1.5 pts)
Indianapolis	0.5	0	0	0.5
Long Beach	0.5	0	0	0.5
Miami	0.5	0	0	0.5
Milwaukee	0	0.5	0	0.5
New Orleans	0.5	0	0	0.5
Phoenix	0	0.5	0	0.5
Pittsburgh	0	0	0.5	0.5
San Diego	0	0	0.5	0.5
San José	0.5	0	0	0.5
Toledo	0	0	0.5	0.5
Akron	0	0	0	0
Albuquerque	0	0	0	0
Allentown	0	0	0	0
Augusta	0	0	0	0
Aurora	0	0	0	0
Austin	0	0	0	0
Bakersfield	0	0	0	0
Baton Rouge	0	0	0	0
Birmingham	0	0	0	0
Boise	0	0	0	0
Bridgeport	0	0	0	0
Buffalo	0	0	0	0
Cape Coral	0	0	0	0
Charleston	0	0	0	0
Charlotte	0	0	0	0
Chula Vista	0	0	0	0
Colorado Springs	0	0	0	0
Columbia	0	0	0	0
Columbus	0	0	0	0
Dayton	0	0	0	0
Denver	0	0	0	0
Des Moines	0	0	0	0
El Paso	0	0	0	0
Fort Worth	0	0	0	0
Fresno	0	0	0	0
Grand Rapids	0	0	0	0
Greensboro	0	0	0	0
Henderson	0	0	0	0
Houston	0	0	0	0
Jacksonville	0	0	0	0
Kansas City	0	0	0	0
Knoxville	0	0	0	0
Lakeland	0	0	0	0
Las Vegas	0	0	0	0
Little Rock	0	0	0	0

City	Appendix E. Comprehensive scores	Equity-driven decision making (0.5 pts)	Accountability to equity (0.5 pts)	Total (1.5 pts)
Louisville	0	0	0	0
Madison	0	0	0	0
McAllen	0	0	0	0
Memphis	0	0	0	0
Mesa	0	0	0	0
Nashville	0	0	0	0
New Haven	0	0	0	0
Newark	0	0	0	0
Oklahoma City	0	0	0	0
Omaha	0	0	0	0
Oxnard	0	0	0	0
Provo	0	0	0	0
Raleigh	0	0	0	0
Reno	0	0	0	0
Richmond	0	0	0	0
Riverside	0	0	0	0
Rochester	0	0	0	0
Salt Lake City	0	0	0	0
San Juan	0	0	0	0
St. Louis	0	0	0	0
St. Petersburg	0	0	0	0
Stockton	0	0	0	0
Syracuse	0	0	0	0
Tampa	0	0	0	0
Tucson	0	0	0	0
Tulsa	0	0	0	0
Virginia Beach	0	0	0	0
Wichita	0	0	0	0
Winston-Salem	0	0	0	0
Worcester	0	0	0	0

Table E6. Scores for energy data reporting

City	Total (1 pt)
Atlanta	1
Aurora	1
Austin	1
Baltimore	1
Boise	1
Boston	1
Bridgeport	1
Chicago	1
Chula Vista	1
Cleveland	1
Colorado Springs	1
Columbus	1
Dallas	1
Denver	1
Des Moines	1
Detroit	1
Hartford	1
Honolulu	1
Jacksonville	1
Kansas City	1
Knoxville	1
Lakeland	1
Las Vegas	1
Los Angeles	1
Louisville	1
Memphis	1
Mesa	1
Minneapolis	1
New Haven	1
New York	1
Oakland	1
Orlando	1
Philadelphia	1
Phoenix	1
Portland	1
Providence	1
Richmond	1
Sacramento	1
St. Paul	1
Salt Lake City	1
San Antonio	1
San Diego	1
San Francisco	1
San José	1
Seattle	1
Springfield	1
St. Louis	1
Washington, DC	1
Albuquerque	0.5
Indianapolis	0.5
Long Beach	0.5
Worcester	0.5
Akron	0
Allentown	0
Augusta	0
Bakersfield	0
Baton Rouge	0
Birmingham	0
Buffalo	0
Cape Coral	0
Charleston	0
Charlotte	0
Cincinnati	0
Columbia	0
Dayton	0
El Paso	0
Fort Worth	0
Fresno	0
Grand Rapids	0
Greensboro	0
Henderson	0
Houston	0
Little Rock	0
Madison	0
McAllen	0
Miami	0
Milwaukee	0
Nashville	0
New Orleans	0
Newark	0
Oklahoma City	0
Omaha	0
Oxnard	0
Pittsburgh	0
Provo	0
Raleigh	0
Reno	0
Riverside	0
Rochester	0
San Juan	0
Stockton	0
St. Petersburg	0
Syracuse	0
Tampa	0
Toledo	0
Tucson	0
Tulsa	0
Virginia Beach	0
Wichita	0
Winston-Salem	0

Table E7. Scores for support of clean shared distributed energy systems

City	District energy (0.5 pts)	Clean technology addition to district energy (0.5 pts)	Microgrids (0.5 pts)	Clean technology addition to microgrid (0.5 pts)	Community solar (0.5 pts)	Clean technology addition to community solar (0.5 pts)	Total (3 pts)
Denver	0.5	0.5	0.5	0.5	0.5	0	2.5
New York	0.5	0.5	0.5	0.5	0.5	0	2.5
Boston	0.5	0.5	0.5	0.5	0	0	2
Cleveland	0.5	0.5	0.5	0.5	0	0	2
Hartford	0	0	0.5	0.5	0.5	0.5	2
Pittsburgh	0.5	0.5	0.5	0.5	0	0	2
Seattle	0.5	0	0.5	0.5	0.5	0	2
Austin	0.5	0.5	0	0	0.5	0	1.5
Jacksonville	0.5	0	0	0	0.5	0.5	1.5
Minneapolis	0.5	0	0.5	0	0.5	0	1.5
St. Paul	0.5	0.5	0	0	0.5	0	1.5
Akron	0.5	0.5	0	0	0	0	1
Boise	0.5	0.5	0	0	0	0	1
Bridgeport	0	0	0.5	0.5	0	0	1
Charlotte	0	0	0.5	0.5	0	0	1
Indianapolis	0.5	0.5	0	0	0	0	1
Long Beach	0	0	0.5	0.5	0	0	1
Milwaukee	0.5	0	0	0.5	0	0	1
Newark	0.5	0.5	0	0	0	0	1
Oakland	0	0	0.5	0.5	0	0	1
Orlando	0.5	0	0	0	0.5	0	1
Philadelphia	0	0	0.5	0.5	0	0	1
Portland	0	0	0.5	0.5	0	0	1
Provo	0.5	0.5	0	0	0	0	1
St. Louis	0.5	0	0	0	0.5	0	1
Syracuse	0	0	0.5	0.5	0	0	1
Washington, DC	0	0	0	0	0.5	0.5	1
Aurora	0	0	0	0	0.5	0	0.5
Buffalo	0.5	0	0	0	0	0	0.5
Chicago	0	0	0	0	0.5	0	0.5
Colorado Springs	0	0	0	0	0.5	0	0.5
Honolulu	0.5	0	0	0	0	0	0.5
Kansas City	0.5	0	0	0	0	0	0.5
Los Angeles	0	0	0	0	0.5	0	0.5
Madison	0	0	0	0	0.5	0	0.5
Nashville	0	0	0	0	0.5	0	0.5
New Orleans	0	0	0	0	0.5	0	0.5
Phoenix	0.5	0	0	0	0	0	0.5
Sacramento	0	0	0	0	0.5	0	0.5
Springfield	0	0	0	0	0.5	0	0.5
Worcester	0	0	0.5	0	0	0	0.5
Albuquerque	0	0	0	0	0	0	0

City	District energy (0.5 pts)	Clean technology addition to district energy (0.5 pts)	Microgrids (0.5 pts)	Clean technology addition to microgrid (0.5 pts)	Community solar (0.5 pts)	Clean technology addition to community solar (0.5 pts)	Total (3 pts)
Allentown	0	0	0	0	0	0	0
Atlanta	0	0	0	0	0	0	0
Augusta	0	0	0	0	0	0	0
Bakersfield	0	0	0	0	0	0	0
Baltimore	0	0	0	0	0	0	0
Baton Rouge	0	0	0	0	0	0	0
Birmingham	0	0	0	0	0	0	0
Cape Coral	0	0	0	0	0	0	0
Charleston	0	0	0	0	0	0	0
Chula Vista	0	0	0	0	0	0	0
Cincinnati	0	0	0	0	0	0	0
Columbia	0	0	0	0	0	0	0
Columbus	0	0	0	0	0	0	0
Dallas	0	0	0	0	0	0	0
Dayton	0	0	0	0	0	0	0
Des Moines	0	0	0	0	0	0	0
Detroit	0	0	0	0	0	0	0
El Paso	0	0	0	0	0	0	0
Fort Worth	0	0	0	0	0	0	0
Fresno	0	0	0	0	0	0	0
Grand Rapids	0	0	0	0	0	0	0
Greensboro	0	0	0	0	0	0	0
Henderson	0	0	0	0	0	0	0
Houston	0	0	0	0	0	0	0
Knoxville	0	0	0	0	0	0	0
Lakeland	0	0	0	0	0	0	0
Las Vegas	0	0	0	0	0	0	0
Little Rock	0	0	0	0	0	0	0
Louisville	0	0	0	0	0	0	0
McAllen	0	0	0	0	0	0	0
Memphis	0	0	0	0	0	0	0
Mesa	0	0	0	0	0	0	0
Miami	0	0	0	0	0	0	0
New Haven	0	0	0	0	0	0	0
Oklahoma City	0	0	0	0	0	0	0
Omaha	0	0	0	0	0	0	0
Oxnard	0	0	0	0	0	0	0
Providence	0	0	0	0	0	0	0
Raleigh	0	0	0	0	0	0	0
Reno	0	0	0	0	0	0	0
Richmond	0	0	0	0	0	0	0
Riverside	0	0	0	0	0	0	0
Rochester	0	0	0	0	0	0	0

City	District energy (0.5 pts)	Clean technology addition to district energy (0.5 pts)	Microgrids (0.5 pts)	Clean technology addition to microgrid (0.5 pts)	Community solar (0.5 pts)	Clean technology addition to community solar (0.5 pts)	Total (3 pts)
Salt Lake City	0	0	0	0	0	0	0
San Antonio	0	0	0	0	0	0	0
San Diego	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0
San José	0	0	0	0	0	0	0
San Juan	0	0	0	0	0	0	0
St. Petersburg	0	0	0	0	0	0	0
Stockton	0	0	0	0	0	0	0
Tampa	0	0	0	0	0	0	0
Toledo	0	0	0	0	0	0	0
Tucson	0	0	0	0	0	0	0
Tulsa	0	0	0	0	0	0	0
Virginia Beach	0	0	0	0	0	0	0
Wichita	0	0	0	0	0	0	0
Winston-Salem	0	0	0	0	0	0	0

Table E8. Scores for urban heat island mitigation goals and policy

City	UHI goal (0.5 pts)	UHI policies and programs (1 pt)	Total (1.5 pts)
Albuquerque	0.5	1	1.5
Atlanta	0.5	1	1.5
Baltimore	0.5	1	1.5
Boston	0.5	1	1.5
Chicago	0.5	1	1.5
Cleveland	0.5	1	1.5
Columbus	0.5	1	1.5
Denver	0.5	1	1.5
Grand Rapids	0.5	1	1.5
Hartford	0.5	1	1.5
Houston	0.5	1	1.5
Indianapolis	0.5	1	1.5
Long Beach	0.5	1	1.5
Los Angeles	0.5	1	1.5
Louisville	0.5	1	1.5
Miami	0.5	1	1.5
Nashville	0.5	1	1.5
New York	0.5	1	1.5
Orlando	0.5	1	1.5
Philadelphia	0.5	1	1.5
Phoenix	0.5	1	1.5
Portland	0.5	1	1.5
Providence	0.5	1	1.5
Riverside	0.5	1	1.5
Sacramento	0.5	1	1.5
San Antonio	0.5	1	1.5
San José	0.5	1	1.5
Seattle	0.5	1	1.5
St. Petersburg	0.5	1	1.5
Tampa	0.5	1	1.5
Washington, DC	0.5	1	1.5
Austin	0	1	1
Buffalo	0	1	1
Cincinnati	0	1	1
Dallas	0	1	1
Kansas City	0.5	0.5	1
Knoxville	0	1	1
Las Vegas	0.5	0.5	1
Milwaukee	0.5	0.5	1
Minneapolis	0	1	1
New Orleans	0	1	1
Oakland	0	1	1
Pittsburgh	0.5	0.5	1
Provo	0	1	1
Raleigh	0	1	1
Salt Lake City	0.5	0.5	1

City	UHI goal (0.5 pts)	UHI policies and programs (1 pt)	Total (1.5 pts)
San Francisco	0.5	0.5	1
Virginia Beach	0.5	0.5	1
Akron	0	0.5	0.5
Birmingham	0	0.5	0.5
Bridgeport	0.5	0	0.5
Charlotte	0.5	0	0.5
Chula Vista	0.5	0	0.5
Colorado Springs	0.5	0	0.5
Detroit	0.5	0	0.5
El Paso	0	0.5	0.5
Fort Worth	0	0.5	0.5
Honolulu	0.5	0	0.5
Jacksonville	0	0.5	0.5
Lakeland	0	0.5	0.5
Little Rock	0	0.5	0.5
Memphis	0.5	0	0.5
Mesa	0	0.5	0.5
New Haven	0	0.5	0.5
Omaha	0	0.5	0.5
Oxnard	0	0.5	0.5
Richmond	0	0.5	0.5
St. Paul	0.5	0	0.5
San Diego	0.5	0	0.5
Springfield	0.5	0	0.5
St. Louis	0	0.5	0.5
Syracuse	0.5	0	0.5
Toledo	0	0.5	0.5

City	UHI goal (0.5 pts)	UHI policies and programs (1 pt)	Total (1.5 pts)
Tucson	0	0.5	0.5
Tulsa	0.5	0	0.5
Allentown	0	0	0
Augusta	0	0	0
Aurora	0	0	0
Bakersfield	0	0	0
Baton Rouge	0	0	0
Boise	0	0	0
Cape Coral	0	0	0
Charleston	0	0	0
Columbia	0	0	0
Dayton	0	0	0
Des Moines	0	0	0
Fresno	0	0	0
Greensboro	0	0	0
Henderson	0	0	0
Madison	0	0	0
McAllen	0	0	0
Newark	0	0	0
Oklahoma City	0	0	0
Reno	0	0	0
Rochester	0	0	0
San Juan	0	0	0
Stockton	0	0	0
Wichita	0	0	0
Winston-Salem	0	0	0
Worcester	0	0	0

BUILDINGS POLICIES

Table E9. Scores for energy code adoption

City	Residential energy code (3 pts)	Commercial energy code (3 pts)	Advocacy (1 pt)*	Renewable readiness (1 pt)	EV readiness (1 pt)	Low-energy-use requirement (1 pt)	Total (9 pts)
Boston	2.5	2.5	1	1	1	1	9
Denver	3	3	0	1	1	0.5	8.5
New York	3	3	0	1	1	0.5	8.5
Seattle**	2.5	3	0.5	1	1	0.5	8.5
Oakland	2	3	0	1	1	1	8
San Francisco	2	3	0	1	1	1	8
Long Beach	2	3	0	1	1	0.5	7.5
St. Louis	3	3	0	1	0	0.5	7.5
Bakersfield	2	3	0	1	1	0	7
Chicago	3	2	0	0.5	1	0.5	7
Chula Vista	2	3	0	1	1	0	7
Fresno	2	3	0	1	1	0	7
Las Vegas	3	3	0	0.5	0	0.5	7
Philadelphia	3	3	0	0.5	0	0.5	7
Austin	2	2	0	1	0	1	6
Des Moines	3	3	0	0	0	0	6
Henderson	3	3	0	0	0	0	6
Reno	3	3	0	0	0	0	6
San José	1	2	0	1	1	1	6
San Juan	3	3	0	0	0	0	6
Springfield	2.5	2.5	0	1	0	0	6
Worcester	2.5	2.5	0	1	0	0	6
Buffalo	3	2	0	0.5	0	0	5.5
Kansas City	2	3	0	0	0	0.5	5.5
Los Angeles	1	2	0	1	1	0.5	5.5
Portland	1.5	0	1	1	1	1	5.5
San Antonio	2	3	0	0	0	0.5	5.5
San Diego	1	2	0	1	1	0.5	5.5
Tucson	1	3	0	1	0	0.5	5.5
Aurora	2	2	0	0.5	0	0.5	5
Grand Rapids	1.5	2.5	0	0.5	0	0.5	5
Hartford	1.5	1.5	0	1	1	0	5
Minneapolis	2.5	0.5	1	0.5	0	0.5	5
Newark	2.5	2.5	0	0	0	0	5
Oxnard	1	2	0	1	1	0	5
Riverside	1	2	0	1	1	0	5
Sacramento	1	2	0	1	1	0	5
St. Paul	2.5	0.5	1	0.5	0	0.5	5
Stockton	1	2	0	1	1	0	5
Boise	2.5	0.5	1	0.5	0	0	4.5
Phoenix	1	3	0	0	0	0.5	4.5
Pittsburgh	1.5	1.5	1	0	0	0.5	4.5
Allentown	2	2	0	0	0	0	4

City	Residential energy code (3 pts)	Commercial energy code (3 pts)	Advocacy (1 pt)*	Renewable readiness (1 pt)	EV readiness (1 pt)	Low-energy-use requirement (1 pt)	Total (9 pts)
Atlanta	2	0	0	0.5	1	0.5	4
Cleveland	2.5	0	1	0	0	0.5	4
Colorado Springs	2	2	0	0	0	0	4
Detroit	1.5	2.5	0	0	0	0	4
El Paso	2	1	0	0.5	0	0.5	4
Memphis	2	2	0	0	0	0	4
Mesa	1	3	0	0	0	0	4
Miami	0.5	1.5	1	0	0	1	4
Richmond	1.5	0.5	1	0.5	0	0.5	4
Rochester	3	1	0	0	0	0	4
Syracuse	3	1	0	0	0	0	4
Baltimore	2	1	0	0	0	0.5	3.5
Houston	1	1	0	1	0	0.5	3.5
Orlando	0.5	1.5	1	0	0	0.5	3.5
Virginia Beach	1.5	0.5	1	0	0	0.5	3.5
Bridgeport	1.5	1.5	0	0	0	0	3
Columbus	2.5	0	0	0	0	0.5	3
Dallas	1	1	0	0	0	1	3
Dayton	2.5	0	0	0.5	0	0	3
McAllen	2	1	0	0	0	0	3
New Haven	1.5	1.5	0	0	0	0	3
Washington, DC	1	0	0	1	0	1	3
Akron	2.5	0	0	0	0	0	2.5
Cape Coral	0.5	1.5	0	0.5	0	0	2.5
Cincinnati	2.5	0	0	0	0	0	2.5
Jacksonville	0.5	1.5	0	0	0	0.5	2.5
Salt Lake City	0	1	0	0	1	0.5	2.5
St. Petersburg	0.5	1.5	0	0	0	0.5	2.5
Tampa	0.5	1.5	0	0	0	0.5	2.5
Toledo	2.5	0	0	0	0	0	2.5
Charlotte	0.5	0.5	1	0	0	0	2
Fort Worth	1	1	0	0	0	0	2
Knoxville	0	2	0	0	0	0	2
Lakeland	0.5	1.5	0	0	0	0	2
Winston-Salem	0.5	0.5	1	0	0	0	2
Birmingham	0	1	0	0.5	0	0	1.5
Milwaukee	0	0.5	1	0	0	0	1.5
Raleigh	0.5	0.5	0	0	0	0.5	1.5
Greensboro	0.5	0.5	0	0	0	0	1
Louisville	0	0	1	0	0	0	1
Madison	0	0.5	0	0	0	0.5	1
New Orleans	0	0	1	0	0	0	1
Oklahoma City	0	1	0	0	0	0	1
Providence	0	0	0	0.5	0	0.5	1
Albuquerque	0	0	0	0.5	0	0	0.5

City	Residential energy code (3 pts)	Commercial energy code (3 pts)	Advocacy (1 pt)*	Renewable readiness (1 pt)	EV readiness (1 pt)	Low-energy-use requirement (1 pt)	Total (9 pts)
Honolulu	0	0	0	0	0	0.5	0.5
Indianapolis	0	0	0	0	0	0.5	0.5
Nashville	0	0	0	0	0	0.5	0.5
Provo	0	0.5	0	0	0	0	0.5
Augusta	0	0	0	0	0	0	0
Baton Rouge	0	0	0	0	0	0	0
Charleston	0	0	0	0	0	0	0
Columbia	0	0	0	0	0	0	0
Little Rock	0	0	0	0	0	0	0
Omaha	0	0	0	0	0	0	0
Tulsa	0	0	0	0	0	0	0
Wichita	0	0	0	0	0	0	0

* Point only available to cities without the authority to adopt building energy codes. Those cities without authority to adopt codes can only receive up to 2.5 points for the residential energy code and commercial energy code metrics. **In Seattle, authority to set residential codes rests with the state, while commercial codes can be set locally

Table E10. Scores for building code compliance and enforcement

City	Full-time staff (1 pt)	Compliance strategies (2 pts)	Up-front support (1 pts)	Total (4 pts)
Chula Vista	1	2	1	4
Dallas	1	2	1	4
Denver	1	2	1	4
Long Beach	1	2	1	4
New York	1	2	1	4
San Francisco	1	2	1	4
Seattle	1	2	1	4
Washington, DC	1	2	1	4
Atlanta	0	2	1	3
Austin	0	2	1	3
Boise	0	2	1	3
Boston	0	2	1	3
Chicago	0	2	1	3
Colorado Springs	0	2	1	3
Fort Worth	0	2	1	3
Hartford	0	2	1	3
Houston	0	2	1	3
Kansas City	1	1	1	3
Los Angeles	0	2	1	3
Louisville	0	2	1	3
Minneapolis	0	2	1	3
New Orleans	0	2	1	3
Oakland	0	2	1	3
Oxnard	0	2	1	3
Phoenix	0	2	1	3
Portland	0	2	1	3

City	Full-time staff (1 pt)	Compliance strategies (2 pts)	Up-front support (1 pts)	Total (4 pts)
Raleigh	0	2	1	3
Sacramento	0	2	1	3
St. Paul	0	2	1	3
San Antonio	0	2	1	3
San Diego	0	2	1	3
San José	0	2	1	3
Tucson	0	2	1	3
Virginia Beach	0	2	1	3
Albuquerque	1	1	0	2
Aurora	0	1	1	2
Bakersfield	0	2	0	2
Baton Rouge	0	2	0	2
Cape Coral	0	2	0	2
Charleston	0	1	1	2
Charlotte	0	1	1	2
Cincinnati	0	1	1	2
Fresno	0	2	0	2
Grand Rapids	0	1	1	2
Greensboro	0	2	0	2
Lakeland	0	2	0	2
Las Vegas	0	1	1	2
McAllen	0	2	0	2
Mesa	0	2	0	2
Nashville	0	2	0	2
New Haven	0	2	0	2
Orlando	0	2	0	2
Philadelphia	0	1	1	2
Pittsburgh	0	1	1	2
Provo	0	2	0	2
Reno	1	0	1	2
Richmond	0	1	1	2
Riverside	0	2	0	2
Rochester	0	2	0	2
Springfield	0	2	0	2
St. Louis	0	2	0	2
St. Petersburg	0	2	0	2
Stockton	0	2	0	2
Akron	0	1	0	1
Allentown	0	1	0	1
Augusta	0	1	0	1
Baltimore	0	1	0	1
Buffalo	0	1	0	1
Columbia	0	1	0	1
Columbus	0	0	1	1
Dayton	0	1	0	1
Des Moines	0	1	0	1

City	Full-time staff (1 pt)	Compliance strategies (2 pts)	Up-front support (1 pts)	Total (4 pts)
Detroit	0	1	0	1
Henderson	0	1	0	1
Honolulu	0	1	0	1
Jacksonville	0	1	0	1
Knoxville	0	0	1	1
Little Rock	0	1	0	1
Madison	0	0	1	1
Memphis	0	1	0	1
Miami	0	0	1	1
Milwaukee	0	1	0	1
Newark	0	1	0	1
Omaha	0	1	0	1
Providence	0	1	0	1
Salt Lake City	0	1	0	1
Syracuse	0	1	0	1
Tampa	0	0	1	1
Toledo	0	1	0	1
Winston-Salem	0	1	0	1
Birmingham	0	0	0	0
Bridgeport	0	0	0	0
Cleveland	0	0	0	0
El Paso	0	0	0	0
Indianapolis	0	0	0	0
Oklahoma City	0	0	0	0
San Juan	0	0	0	0
Tulsa	0	0	0	0
Wichita	0	0	0	0
Worcester	0	0	0	0

Table E11. Scores for policies targeting existing buildings

City	Points	Policy/program	Details and points attributed
New York	15*	Local Law 97	Residential building performance standards (3); commercial building performance standards (3)
		Local Law 87	Residential retrocommissioning requirements (1.5); commercial retrocommissioning requirements (1.5) Residential audit requirements (0.5); commercial audit requirements (0.5)
		Local Law 84 and Local Law 133	Residential benchmarking requirements (1); commercial benchmarking requirements (1); Compliance rate bonus (0.5)
		Local Law 88	Residential retrofit requirements (1.5); commercial retrofit requirements (1.5)
		Local Law 33	Residential other requirements (1); commercial other requirements (1)
		Mayor's Carbon Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	3 incentives offered (1)
Washington, DC	10.5	Clean Energy Omnibus Act of 2018	Residential building performance standards (3); commercial building performance standards (3) Residential benchmarking requirements (1); commercial benchmarking requirements (1) Compliance rate bonus (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Seattle	9.5	State of Washington Clean Buildings for Washington Act	Commercial building performance standards (3)
		Municipal Code 22.920	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Compliance rate bonus (0.5)
		Seattle Tune-Up Policy	Commercial retrocommissioning requirements (1.5) Commercial audit requirements (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Minneapolis	9	Building Energy Benchmarking and Transparency Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Residential crosscutting requirements (1); commercial crosscutting requirements (1)
		Time-of-Sale Energy Use Disclosure	Single-family disclosure requirement (1) Residential audit requirements (0.5)
		Time-of-Rent Energy Use Disclosure	Residential rental energy disclosure requirements (1)
		Low-Performing Commercial Building Audit Program	Commercial audit requirements (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)

City	Points	Policy/program	Details and points attributed
Chicago	8	Chicago Energy Use Benchmarking Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Compliance rate bonus (0.5)
		Municipal Code of Chicago Chapter 5-16	Single-family disclosure requirement (1) Residential rental energy disclosure requirements (1)
		Energy Labeling Policy	Residential other requirements (1); Commercial other requirements (1)
		Retrofit Chicago	Voluntary programs (0.5)
		Financial and nonfinancial incentives	3 incentives offered (1)
Los Angeles	8	Existing Building Energy & Water Efficiency Ordinance	Residential retrocommissioning requirements (1.5); commercial retrocommissioning requirements (1.5) Residential audit requirements (0.5); commercial audit requirements (0.5)
		State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	4+ incentives offered (2)
St. Louis	8	Board Bill 219	Residential building performance standards (3); commercial building performance standards (3)
		Building Energy Awareness Bill	Commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	2 incentives offered (1)
Austin	7.5	Energy Conservation Audit and Disclosure Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Single-family disclosure requirement (1) Residential rental energy disclosure requirements (1) Residential other requirements (1) Residential audit requirements (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)
San Francisco	7	Chapter 20 of the San Francisco Environment Code	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Commercial crosscutting requirements (1)
		Residential Energy Conservation Ordinance	Residential retrofit requirements (1.5)
		Strategic Energy Assessment	Voluntary programs (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Boston	6.5	Building Energy Reporting and Disclosure Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Residential crosscutting requirements (1); commercial crosscutting requirements (1)
		Mayor's Carbon Cup	Voluntary programs (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)

City	Points	Policy/program	Details and points attributed
San José	6.5	Energy and Water Building Performance Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Residential crosscutting requirements (1); commercial crosscutting requirements (1)
		Climate Smart Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Denver	5	Green Building Ordinance	Residential crosscutting requirements (1); commercial crosscutting requirements (1)
		Denver Benchmarking Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	3 incentives offered (1)
Orlando	5	Building Energy & Water Efficiency Strategy	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Residential crosscutting requirements (1); commercial crosscutting requirements (1)
		Financial and nonfinancial incentives	2 incentives offered (1)
Philadelphia	5	Bill No. 120428	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Building Energy Performance Standards	Commercial retrocommissioning requirements (1.5)
		2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	3 incentives offered (1)
Atlanta	4.5	Commercial Buildings Energy Efficiency Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Residential audit requirements (0.5); commercial crosscutting requirements (0.5)
		Better Buildings Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	3 incentives offered (1)
Reno	4.5	Energy and Water Efficiency Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Residential crosscutting requirements (1); commercial crosscutting requirements (1)
		ReEnergize Reno	Voluntary programs (0.5)
Salt Lake City	4.5	Energy Benchmarking & Transparency Ordinance	Commercial benchmarking requirements (1) Residential audit requirements (0.5); commercial crosscutting requirements (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Chula Vista	4	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	4+ incentives offered (2)

City	Points	Policy/program	Details and points attributed
Kansas City	4	Energy Empowerment Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Oakland	4	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Portland	4	Commercial Building Energy Performance Reporting Ordinance	Commercial benchmarking requirements (1) Compliance rate bonus (0.5)
		Home Energy Score Policy	Single-family disclosure requirement (1) Residential audit requirement (0.5)
		Financial and nonfinancial incentives	3 incentives offered (1)
Riverside	4	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	4+ incentives offered (2)
St. Paul	4	Benchmarking Ordinance	Residential benchmarking requirements (0.5); commercial benchmarking requirements (0.5)**
		Energize Saint Paul	Voluntary programs (1)***
		Financial and nonfinancial incentives	4+ incentives offered (2)
Sacramento	4	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Columbus	3	Energy and Water Benchmarking and Transparency Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	3 incentives offered (1)
Fresno	3	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	2 incentives offered (1)
Milwaukee	3	Better Buildings Challenge	Voluntary programs (1)***
		Financial and nonfinancial incentives	4+ incentives offered (2)
Pittsburgh	3	Building Benchmarking Ordinance	Commercial benchmarking requirements (1)
		Sustainable Pittsburgh	Voluntary programs (0.5)
		2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	3 incentives offered (1)
San Diego	3	Building Energy Benchmarking Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	3 incentives offered (1)

City	Points	Policy/program	Details and points attributed
Cleveland	2.5	2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Des Moines	2.5	Energy and Water Benchmarking Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Energize Des Moines	Voluntary programs (0.5)
New Orleans	2.5	NOLA Energy Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	4+ incentives offered (2)
Bakersfield	2	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
Baltimore	2	Financial and nonfinancial incentives	4+ incentives offered (2)
Colorado Springs	2	Financial and nonfinancial incentives	4+ incentives offered (2)
Detroit	2	Financial and nonfinancial incentives	4+ incentives offered (2)
Jacksonville	2	Financial and nonfinancial incentives	4 incentives offered (2)
Long Beach	2	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
Memphis	2	Financial and nonfinancial incentives	4+ incentives offered (2)
Miami	2	Financial and nonfinancial incentives	4+ incentives offered (2)
Nashville	2	Financial and nonfinancial incentives	4+ incentives offered (2)
Oxnard	2	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
Phoenix	2	Kilowatt Krackdown	Voluntary programs (1)***
		Financial and nonfinancial incentives	3 incentives offered (1)
San Antonio	2	Financial and nonfinancial incentives	4+ incentives offered (2)
Stockton	2	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
Tampa	2	Financial and nonfinancial incentives	4+ incentives offered (2)
Albuquerque	1.5	Mayor's Energy Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	3 incentives offered (1)
Cincinnati	1.5	2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	3 incentives offered (1)
Dallas	1.5	2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2 incentives offered (1)
Grand Rapids	1.5	2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2 incentives offered (1)

City	Points	Policy/program	Details and points attributed
Hartford	1.5	Energy Equity Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	3 incentives offered (1)
Houston	1.5	Better Buildings Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2 incentives offered (1)
Louisville	1.5	Kilowatt Crackdown	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2 incentives offered (1)
Rochester	1.5	Better Buildings Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2 incentives offered (1)
Bridgeport	1	Financial and nonfinancial incentives	3 incentives offered (1)
Charlotte	1	Financial and nonfinancial incentives	3 incentives offered (1)
Indianapolis	1	Financial and nonfinancial incentives	2 incentives offered (1)
Knoxville	1	Financial and nonfinancial incentives	2 incentives offered (1)
Lakeland	1	Financial and nonfinancial incentives	3 incentives offered (1)
New Haven	1	Financial and nonfinancial incentives	2 incentives offered (1)
Newark	1	Clean Energy Act of 2018	Commercial benchmarking requirements (1)
Richmond	1	Financial and nonfinancial incentives	2 incentives offered (1)
St. Petersburg	1	Financial and nonfinancial incentives	2 incentives offered (1)
Virginia Beach	1	Financial and nonfinancial incentives	2 incentives offered (1)
Fort Worth	0.5	Better Buildings Challenge	Voluntary programs (0.5)
Providence	0.5	RePower PVD	Voluntary programs (0.5)
Akron	0	N/A	N/A
Allentown	0	N/A	N/A
Augusta	0	N/A	N/A
Aurora	0	N/A	N/A
Baton Rouge	0	N/A	N/A
Birmingham	0	N/A	N/A
Boise	0	N/A	N/A
Buffalo	0	N/A	N/A
Cape Coral	0	N/A	N/A
Charleston	0	N/A	N/A
Columbia	0	N/A	N/A
Dayton	0	N/A	N/A
El Paso	0	N/A	N/A
Greensboro	0	N/A	N/A
Henderson	0	N/A	N/A
Honolulu	0	N/A	N/A

City	Points	Policy/program	Details and points attributed
Las Vegas	0	N/A	N/A
Little Rock	0	N/A	N/A
Madison	0	N/A	N/A
McAllen	0	N/A	N/A
Mesa	0	N/A	N/A
Oklahoma City	0	N/A	N/A
Omaha	0	N/A	N/A
Provo	0	N/A	N/A
Raleigh	0	N/A	N/A
San Juan	0	N/A	N/A
Springfield	0	N/A	N/A
Syracuse	0	N/A	N/A
Toledo	0	N/A	N/A
Tucson	0	N/A	N/A
Tulsa	0	N/A	N/A
Wichita	0	N/A	N/A
Winston-Salem	0	N/A	N/A
Worcester	0	N/A	N/A

* New York scores add up to more than 15, but cities could earn a maximum of 15 points for this metric. **St. Paul's benchmarking ordinance received half points because they do not require building owners of benchmarked buildings to publicly disclose their energy use. ***Cities without authority to adopt energy efficiency requirements received 1 point for voluntary programs.

Table E12. Scores for energy efficiency and renewable energy workforce development

City	Energy efficiency workforce development (0.5 pts)	Equity in EE workforce development (0.5 pts)	Renewable energy workforce development (0.5 pts)	Equity in renewable energy workforce development (0.5 pts)	Total (2 pts)
Boston	0.5	0.5	0.5	0.5	2
Chicago	0.5	0.5	0.5	0.5	2
Hartford	0.5	0.5	0.5	0.5	2
Milwaukee	0.5	0.5	0.5	0.5	2
San José	0.5	0.5	0.5	0.5	2
Minneapolis	0.5	0	0.5	0.5	1.5
Washington, DC	0.5	0	0.5	0.5	1.5
Atlanta	0	0	0.5	0.5	1
Austin	0.5	0	0.5	0	1
Birmingham	0.5	0.5	0	0	1
Chula Vista	0.5	0	0.5	0	1
Denver	0.5	0	0.5	0	1
Kansas City	0	0.5	0	0.5	1
Los Angeles	0.5	0	0.5	0	1
Nashville	0.5	0.5	0	0	1
New York	0.5	0	0.5	0	1
Oakland	0.5	0	0.5	0	1
Phoenix	0.5	0	0.5	0	1
Providence	0.5	0.5	0	0	1
Raleigh	0.5	0	0.5	0	1
Rochester	0.5	0.5	0	0	1
St. Paul	0.5	0.5	0	0	1
Worcester	0.5	0.5	0	0	1
Aurora	0	0	0.5	0	0.5
Baltimore	0.5	0	0	0	0.5
Buffalo	0	0	0.5	0	0.5
Cincinnati	0	0	0.5	0	0.5
Columbus	0.5	0	0	0	0.5
El Paso	0.5	0	0	0	0.5
Houston	0	0	0.5	0	0.5
Jacksonville	0.5	0	0	0	0.5
Knoxville	0.5	0	0	0	0.5
Madison	0	0	0.5	0	0.5
Orlando	0.5	0	0	0	0.5
Philadelphia	0	0	0.5	0	0.5
Pittsburgh	0.5	0	0	0	0.5
Riverside	0	0	0.5	0	0.5
Sacramento	0	0	0.5	0	0.5
San Antonio	0.5	0	0	0	0.5
San Diego	0	0	0.5	0	0.5
San Francisco	0	0	0.5	0	0.5
Seattle	0.5	0	0	0	0.5
Akron	0	0	0	0	0

City	Energy efficiency workforce development (0.5 pts)	Equity in EE workforce development (0.5 pts)	Renewable energy workforce development (0.5 pts)	Equity in renewable energy workforce development (0.5 pts)	Total (2 pts)
Albuquerque	0	0	0	0	0
Allentown	0	0	0	0	0
Augusta	0	0	0	0	0
Bakersfield	0	0	0	0	0
Baton Rouge	0	0	0	0	0
Boise	0	0	0	0	0
Bridgeport	0	0	0	0	0
Cape Coral	0	0	0	0	0
Charleston	0	0	0	0	0
Charlotte	0	0	0	0	0
Cleveland	0	0	0	0	0
Colorado Springs	0	0	0	0	0
Columbia	0	0	0	0	0
Dallas	0	0	0	0	0
Dayton	0	0	0	0	0
Des Moines	0	0	0	0	0
Detroit	0	0	0	0	0
Fort Worth	0	0	0	0	0
Fresno	0	0	0	0	0
Grand Rapids	0	0	0	0	0
Greensboro	0	0	0	0	0
Henderson	0	0	0	0	0
Honolulu	0	0	0	0	0
Indianapolis	0	0	0	0	0
Lakeland	0	0	0	0	0
Las Vegas	0	0	0	0	0
Little Rock	0	0	0	0	0
Long Beach	0	0	0	0	0
Louisville	0	0	0	0	0
McAllen	0	0	0	0	0
Memphis	0	0	0	0	0
Mesa	0	0	0	0	0
Miami	0	0	0	0	0
New Haven	0	0	0	0	0
New Orleans	0	0	0	0	0
Newark	0	0	0	0	0
Oklahoma City	0	0	0	0	0
Omaha	0	0	0	0	0
Oxnard	0	0	0	0	0
Portland	0	0	0	0	0
Provo	0	0	0	0	0
Reno	0	0	0	0	0
Richmond	0	0	0	0	0
Salt Lake City	0	0	0	0	0

City	Energy efficiency workforce development (0.5 pts)	Equity in EE workforce development (0.5 pts)	Renewable energy workforce development (0.5 pts)	Equity in renewable energy workforce development (0.5 pts)	Total (2 pts)
San Juan	0	0	0	0	0
Springfield	0	0	0	0	0
St. Louis	0	0	0	0	0
St. Petersburg	0	0	0	0	0
Stockton	0	0	0	0	0
Syracuse	0	0	0	0	0
Tampa	0	0	0	0	0
Toledo	0	0	0	0	0
Tucson	0	0	0	0	0
Tulsa	0	0	0	0	0
Virginia Beach	0	0	0	0	0
Wichita	0	0	0	0	0
Winston-Salem	0	0	0	0	0

ENERGY AND WATER UTILITIES

Table E13. Scores for efficiency efforts of energy utilities*

City	Electricity savings and partnership (3 pts)	Natural gas savings (1.5 pts)	Low-income programs (1.5 pts)	Multifamily programs (1 pt)	Data provision (1 pt)	Total (8 pts)
Boston	3	1.5	1.5	1	1	8
Providence	3	1.5	1.5	1	1	8
Chicago	3	1	1.5	1	1	7.5
Chula Vista	3	0.5	1.5	1	1	7
Los Angeles	2.5	1.5	1	1	1	7
Minneapolis	2	1.5	1.5	1	1	7
Grand Rapids	2	1.5	1.5	1	0.5	6.5
Oakland	2	1.5	1	1	1	6.5
Portland	2	1	1.5	1	1	6.5
St. Paul	2	1.5	1.5	1	0.5	6.5
San Diego	3	0.5	1	1	1	6.5
San Francisco	2	1.5	1	1	1	6.5
San José	2	1.5	1	1	1	6.5
Springfield	2	1.5	1.5	1	0.5	6.5
Worcester	2	1.5	1.5	1	0.5	6.5
Denver	2	0.5	1.5	1	1	6
Hartford	2	1	1.5	1	0.5	6
New York	1	1.5	1.5	1	1	6
Washington, DC	1	1.5	1.5	1	1	6
Bakersfield	2	1.5	0.5	1	0.5	5.5
Columbus	1.5	0.5	1.5	1	1	5.5
Fresno	2	1.5	0.5	1	0.5	5.5
Oxnard	2	1.5	0.5	1	0.5	5.5
Des Moines	1	1.5	1.5	1	0	5
Detroit	1	1.5	1.5	1	0	5
Sacramento	1.5	1.5	0.5	1	0.5	5
Salt Lake City	1.5	0	1.5	1	1	5
Seattle	1	0.5	1.5	1	1	5
Syracuse	0.5	1.5	1.5	1	0.5	5
Aurora	1	0.5	1.5	1	0.5	4.5
Baltimore	1	0.5	1.5	1	0.5	4.5
Buffalo	0.5	0.5	1.5	1	1	4.5
Mesa	2.5	1	0	0.5	0.5	4.5
Milwaukee	1	1	1.5	0.5	0.5	4.5
Philadelphia	1	0	1.5	1	1	4.5
Phoenix	1	1	1.5	0.5	0.5	4.5
Riverside	0.5	1.5	0.5	1	1	4.5
Rochester	0.5	1.5	1.5	1	0	4.5

City	Electricity savings and partnership (3 pts)	Natural gas savings (1.5 pts)	Low-income programs (1.5 pts)	Multifamily programs (1 pt)	Data provision (1 pt)	Total (8 pts)
St. Louis	1	0.5	1.5	1	0.5	4.5
Stockton	1	1.5	0.5	1	0.5	4.5
Albuquerque	1	0.5	1	1	0.5	4
Honolulu	1.5	1	0.5	0.5	0.5	4
Kansas City	0.5	0.5	1	1	1	4
Long Beach	2	0	0.5	1	0.5	4
New Haven	0.5	0.5	1.5	1	0.5	4
Pittsburgh	1	0	1.5	1	0.5	4
Toledo	0.5	0.5	1.5	1	0.5	4
Atlanta	0.5	0	1.5	0.5	1	3.5
Bridgeport	0.5	0.5	1	1	0.5	3.5
Dayton	2	0.5	1	0	0	3.5
Madison	1	0.5	1.5	0.5	0	3.5
Austin	0.5	0	1	0.5	1	3
Orlando	1	0.5	0.5	0.5	0.5	3
Tulsa	0.5	0.5	1	0.5	0.5	3
Boise	1	0	1.5	0	0	2.5
Cincinnati	1	0	1	0.5	0	2.5
Cleveland	1	0.5	0.5	0	0.5	2.5
Houston	0	0	1	1	0.5	2.5
Raleigh	0.5	0	1.5	0	0.5	2.5
Tucson	0.5	1	0.5	0.5	0	2.5
Akron	1	0.5	0.5	0	0	2
Augusta	0	0	1	0.5	0.5	2
Charlotte	0.5	0	1	0	0.5	2
Fort Worth	0.5	0	1	0.5	0	2
Indianapolis	1.5	0	0.5	0	0	2
New Orleans	0.5	0	0.5	0.5	0.5	2
Tampa	0.5	0.5	0.5	0	0.5	2
Winston-Salem	0.5	0	1.5	0	0	2
Allentown	0.5	0.5	0.5	0	0	1.5
Dallas	0	0	1	0.5	0	1.5
Greensboro	0.5	0	1	0	0	1.5
Jacksonville	0	0.5	1	0	0	1.5
Newark	0	0	1	0.5	0	1.5
Oklahoma City	0	0.5	1	0	0	1.5
Birmingham	0.5	0	0	0	0.5	1
Colorado Springs	0.5	0.5	0	0	0	1
Knoxville	0	0	1	0	0	1
Little Rock	0.5	0.5	0	0	0	1

City	Electricity savings and partnership (3 pts)	Natural gas savings (1.5 pts)	Low-income programs (1.5 pts)	Multifamily programs (1 pt)	Data provision (1 pt)	Total (8 pts)
Richmond	0	0	0.5	0	0.5	1
San Antonio	0.5	0	0.5	0	0	1
St. Petersburg	0	0.5	0.5	0	0	1
Wichita	0	0	0	1	0	1
Cape Coral	0	0.5	0	0	0	0.5
El Paso	0	0	0.5	0	0	0.5
Lakeland	0	0.5	0	0	0	0.5
Louisville	0	0	0.5	0	0	0.5
McAllen	0	0	0.5	0	0	0.5
Memphis	0	0	0.5	0	0	0.5
Miami	0	0	0.5	0	0	0.5
Provo	0	0	0	0	0.5	0.5
Virginia Beach	0	0	0	0	0.5	0.5
Baton Rouge	0	0	0	0	0	0
Charleston	0	0	0	0	0	0
Columbia	0	0	0	0	0	0
Henderson	0	0	0	0	0	0
Las Vegas	0	0	0	0	0	0
Nashville	0	0	0	0	0	0
Omaha	0	0	0	0	0	0
Reno	0	0	0	0	0	0
San Juan	0	0	0	0	0	0

*For more data on electric and natural gas savings, low-income and multifamily programs, and data provision scoring by metric, see Appendix F.

Table E14. Scores for renewable energy efforts of energy utilities*

City	Renewable energy incentives (1.5 pts)	Decarbonize electric grid (IOUs only) (1.5 pts)	Renewable generation (munis only) (1.5 pts)	Total (3 pts)
Chula Vista	1.5	1.5	N/A	3
Minneapolis	1.5	1.5	N/A	3
San Diego	1.5	1.5	N/A	3
Austin	1	N/A	1.5	2.5
Oakland	1	1.5	N/A	2.5
St. Paul	1.5	1	N/A	2.5
San Francisco	1	1.5	N/A	2.5
San José	1	1.5	N/A	2.5
Seattle	1	N/A	1.5	2.5
Boston	0.5	1.5	N/A	2
Charlotte	0.5	1.5	N/A	2
Denver	0.5	1.5	N/A	2
Los Angeles	0.5	N/A	1.5	2
Oxnard	0.5	1.5	N/A	2

City	Renewable energy incentives (1.5 pts)	Decarbonize electric grid (IOUs only) (1.5 pts)	Renewable generation (munis only) (1.5 pts)	Total (3 pts)
Sacramento	0.5	N/A	1.5	2
Worcester	0.5	1.5	N/A	2
Boise	0	1.5	N/A	1.5
Cincinnati	0	1.5	N/A	1.5
Cleveland	0	1.5	N/A	1.5
Fresno	1	0.5	N/A	1.5
Indianapolis	0	1.5	N/A	1.5
Kansas City	0.5	1	N/A	1.5
Milwaukee	0.5	1	N/A	1.5
New Haven	0	1.5	N/A	1.5
Omaha	0	N/A	1.5	1.5
Portland	0.5	1	N/A	1.5
Providence	0	1.5	N/A	1.5
Riverside	0	N/A	1.5	1.5
Rochester	0	1.5	N/A	1.5
San Antonio	0.5	N/A	1	1.5
Stockton	1	0.5	N/A	1.5
Albuquerque	0	1	N/A	1
Atlanta	0	1	N/A	1
Bakersfield	1	0	N/A	1
Chicago	0.5	0.5	N/A	1
Colorado Springs	0.5	N/A	0.5	1
Dallas	0.5	0.5	N/A	1
Fort Worth	0.5	0.5	N/A	1
Grand Rapids	0	1	N/A	1
Hartford	0	1	N/A	1
Las Vegas	0.5	0.5	N/A	1
Long Beach	0.5	0.5	N/A	1
Madison	0.5	0.5	N/A	1
New York	0	1	N/A	1
Philadelphia	0	1	N/A	1
Phoenix	0	1	N/A	1
Reno	0.5	0.5	N/A	1
Salt Lake City	0	1	N/A	1
St. Louis	0.5	0.5	N/A	1
Aurora	0.5	0	N/A	0.5
Baltimore	0	0.5	N/A	0.5
Buffalo	0	0.5	N/A	0.5
Columbus	0	0.5	N/A	0.5
Greensboro	0.5	0	N/A	0.5
Henderson	0.5	0	N/A	0.5
Honolulu	0	0.5	N/A	0.5
Knoxville	0	N/A	0.5	0.5
McAllen	0.5	0	N/A	0.5
Memphis	0	N/A	0.5	0.5

City	Renewable energy incentives (1.5 pts)	Decarbonize electric grid (IOUs only) (1.5 pts)	Renewable generation (munis only) (1.5 pts)	Total (3 pts)
Nashville	0	N/A	0.5	0.5
Newark	0.5	0	N/A	0.5
Oklahoma City	0	0.5	N/A	0.5
Orlando	0.5	N/A	0	0.5
Raleigh	0.5	0	N/A	0.5
Richmond	0	0.5	N/A	0.5
Springfield	0.5	0	N/A	0.5
St. Petersburg	0	0.5	N/A	0.5
Washington, DC	0.5	N/A	0	0.5
Winston-Salem	0.5	0	N/A	0.5
Akron	0	0	N/A	0
Allentown	0	0	N/A	0
Augusta	0	0	N/A	0
Baton Rouge	0	0	N/A	0
Birmingham	0	0	N/A	0
Bridgeport	0	0	N/A	0
Cape Coral	0	N/A	0	0
Charleston	0	0	N/A	0
Columbia	0	0	N/A	0
Dayton	0	0	N/A	0
Des Moines	0	0	N/A	0
Detroit	0	0	N/A	0
El Paso	0	0	N/A	0
Houston	0	0	N/A	0
Jacksonville	0	N/A	0	0
Lakeland	0	N/A	0	0
Little Rock	0	0	N/A	0
Louisville	0	0	N/A	0
Mesa	0	N/A	0	0
Miami	0	0	N/A	0
New Orleans	0	N/A	0	0
Pittsburgh	0	0	N/A	0
Provo	0	N/A	0	0
San Juan	0	N/A	0	0
Syracuse	0	0	N/A	0
Tampa	0	0	N/A	0
Toledo	0	0	N/A	0
Tucson	0	0	N/A	0
Tulsa	0	0	N/A	0
Virginia Beach	0	0	N/A	0
Wichita	0	0	N/A	0

*For more data on renewable energy incentives, efforts to decarbonize the electric grid, and renewable energy generation, see Appendix F.

Table E15. Scores for efficiency efforts of water utilities*

City	Joint water–energy programs (1 pt)	Water savings strategy (1 pt)	Energy efficiency programs (1 pt)	Self-generation (1 pt)	Total (4 pts)
Denver	1	1	1	1	4
Los Angeles	1	1	1	1	4
San Diego	1	1	1	1	4
San José	1	1	1	1	4
Seattle	1	1	1	1	4
Albuquerque	1	1	0.5	1	3.5
Atlanta	0.5	1	1	1	3.5
Aurora	1	0.5	1	1	3.5
Austin	0.5	1	1	1	3.5
Boston	1	0.5	1	1	3.5
Chula Vista	1	0.5	1	1	3.5
Columbus	0.5	1	1	1	3.5
Minneapolis	1	0.5	1	1	3.5
New York	1	0.5	1	1	3.5
Sacramento	1	0.5	1	1	3.5
St. Paul	1	0.5	1	1	3.5
San Francisco	1	1	0.5	1	3.5
Chicago	1	0.5	0.5	1	3
El Paso	0	1	1	1	3
Fort Worth	0.5	0.5	1	1	3
Grand Rapids	1	0	1	1	3
Honolulu	0.5	0.5	1	1	3
Las Vegas	0.5	1	0.5	1	3
Phoenix	0.5	0.5	1	1	3
Riverside	1	1	0	1	3
Salt Lake City	1	0.5	0.5	1	3
Washington, DC	0.5	1	0.5	1	3
Boise	0.5	0.5	0.5	1	2.5
Cleveland	0	0.5	1	1	2.5
Dallas	0.5	1	0	1	2.5
Hartford	0.5	0.5	0.5	1	2.5
Nashville	0	0.5	1	1	2.5
Oakland	1	1	0	0.5	2.5
Orlando	1	0.5	1	0	2.5
Bakersfield	1	0.5	0.5	0	2
Charlotte	0.5	0.5	1	0	2
Houston	0	1	1	0	2
Long Beach	0	1	0	1	2
Madison	0	1	1	0	2
Memphis	0	0	1	1	2
Milwaukee	0	0	1	1	2
Philadelphia	0	0	1	1	2
Pittsburgh	0	0	1	1	2
Portland	0	0	1	1	2

City	Joint water–energy programs (1 pt)	Water savings strategy (1 pt)	Energy efficiency programs (1 pt)	Self-generation (1 pt)	Total (4 pts)
Providence	0	0.5	0.5	1	2
Raleigh	0.5	0.5	1	0	2
Richmond	0.5	0.5	1	0	2
San Antonio	0.5	1	0.5	0	2
Baltimore	0.5	0	0	1	1.5
Buffalo	0	0	0.5	1	1.5
Cincinnati	0	0	0.5	1	1.5
Fresno	1	0.5	0	0	1.5
Jacksonville	0.5	0	0	1	1.5
Kansas City	0	0.5	1	0	1.5
Knoxville	0.5	0	1	0	1.5
Oxnard	1	0.5	0	0	1.5
Stockton	1	0.5	0	0	1.5
Tulsa	0	0	0.5	1	1.5
Virginia Beach	0.5	0	0	1	1.5
Allentown	0	0	0	1	1
Colorado Springs	0.5	0.5	0	0	1
Henderson	0.5	0.5	0	0	1
Indianapolis	0	0.5	0.5	0	1
Louisville	0	0	1	0	1
Miami	0.5	0.5	0	0	1
New Haven	0	0	0	1	1
Omaha	0.5	0.5	0	0	1
Provo	0	1	0	0	1
Tampa	0	0	1	0	1
Wichita	1	0	0	0	1
Winston-Salem	0	0	0	1	1
Worcester	1	0	0	0	1
Bridgeport	0	0	0.5	0	0.5
Des Moines	0	0	0.5	0	0.5
Detroit	0	0	0	0.5	0.5
Lakeland	0.5	0	0	0	0.5
Oklahoma City	0	0.5	0	0	0.5
Reno	0	0.5	0	0	0.5
St. Petersburg	0	0	0.5	0	0.5
Toledo	0.5	0	0	0	0.5
Tucson	0	0.5	0	0	0.5
Akron	0	0	0	0	0
Augusta	0	0	0	0	0
Baton Rouge	0	0	0	0	0
Birmingham	0	0	0	0	0
Cape Coral	0	0	0	0	0
Charleston	0	0	0	0	0
Columbia	0	0	0	0	0
Dayton	0	0	0	0	0

City	Joint water–energy programs (1 pt)	Water savings strategy (1 pt)	Energy efficiency programs (1 pt)	Self-generation (1 pt)	Total (4 pts)
Greensboro	0	0	0	0	0
Little Rock	0	0	0	0	0
McAllen	0	0	0	0	0
Mesa	0	0	0	0	0
New Orleans	0	0	0	0	0
Newark	0	0	0	0	0
Rochester	0	0	0	0	0
San Juan	0	0	0	0	0
Springfield	0	0	0	0	0
St. Louis	0	0	0	0	0
Syracuse	0	0	0	0	0

*For more data on water energy programs, water savings targets, energy efficiency strategies and targets, and self-generation scoring by metric, see Appendix F.

TRANSPORTATION POLICIES

Table E16. Scores for sustainable transportation strategies

City	Sustainable transportation plan (1 pt)	Codified VMT target (1 pt)	VMT stringency (1 pt)	Progress toward VMT goal (1 pt)	Total (4 pts)
Boston	1	1	1	1	4
Louisville	1	1	1	1	4
Minneapolis	1	1	1	1	4
New Haven	1	1	1	1	4
New York	1	1	1	1	4
Pittsburgh	1	1	1	1	4
Providence	1	1	1	1	4
St. Paul	1	1	1	1	4
Salt Lake City	1	1	1	1	4
San José	1	1	1	1	4
Washington, DC	1	1	1	1	4
Chula Vista	1	1	0.5	1	3.5
Philadelphia	1	1	0.5	1	3.5
Portland	1	1	0.5	1	3.5
San Diego	1	1	0.5	1	3.5
San Francisco	1	1	0.5	1	3.5
Atlanta	1	1	1	0	3
Cleveland	1	1	1	0	3
Kansas City	0.5	1	0.5	1	3
Los Angeles	1	1	0	1	3
Phoenix	1	1	1	0	3
San Antonio	1	1	1	0	3
Seattle	1	1	1	0	3
Houston	1	1	0.5	0	2.5
Denver	1	1	0	0	2
Jacksonville	0.5	1	0.5	0	2

City	Sustainable transportation plan (1 pt)	Codified VMT target (1 pt)	VMT stringency (1 pt)	Progress toward VMT goal (1 pt)	Total (4 pts)
Albuquerque	1	0	0	0	1
Aurora	1	0	0	0	1
Austin	1	0	0	0	1
Baltimore	1	0	0	0	1
Boise	1	0	0	0	1
Charlotte	1	0	0	0	1
Chicago	1	0	0	0	1
Cincinnati	1	0	0	0	1
Columbus	1	0	0	0	1
Detroit	1	0	0	0	1
Grand Rapids	1	0	0	0	1
Hartford	1	0	0	0	1
Henderson	1	0	0	0	1
Indianapolis	1	0	0	0	1
Knoxville	1	0	0	0	1
Las Vegas	1	0	0	0	1
Long Beach	1	0	0	0	1
Mesa	1	0	0	0	1
Nashville	1	0	0	0	1
New Orleans	1	0	0	0	1
Oakland	1	0	0	0	1
Orlando	1	0	0	0	1
Reno	1	0	0	0	1
Richmond	1	0	0	0	1
Riverside	1	0	0	0	1
Sacramento	1	0	0	0	1
Springfield	1	0	0	0	1
St. Louis	1	0	0	0	1
St. Petersburg	1	0	0	0	1
Tampa	1	0	0	0	1
Virginia Beach	1	0	0	0	1
Winston-Salem	1	0	0	0	1
Allentown	0.5	0	0	0	0.5
Bakersfield	0.5	0	0	0	0.5
Bridgeport	0.5	0	0	0	0.5
Charleston	0.5	0	0	0	0.5
Dallas	0.5	0	0	0	0.5
Des Moines	0.5	0	0	0	0.5
Greensboro	0.5	0	0	0	0.5
Madison	0.5	0	0	0	0.5
Miami	0.5	0	0	0	0.5
Milwaukee	0.5	0	0	0	0.5
Omaha	0.5	0	0	0	0.5
Oxnard	0.5	0	0	0	0.5
Rochester	0.5	0	0	0	0.5

City	Sustainable transportation plan (1 pt)	Codified VMT target (1 pt)	VMT stringency (1 pt)	Progress toward VMT goal (1 pt)	Total (4 pts)
Stockton	0.5	0	0	0	0.5
Syracuse	0.5	0	0	0	0.5
Worcester	0.5	0	0	0	0.5
Akron	0	0	0	0	0
Augusta	0	0	0	0	0
Baton Rouge	0	0	0	0	0
Birmingham	0	0	0	0	0
Buffalo	0	0	0	0	0
Cape Coral	0	0	0	0	0
Colorado Springs	0	0	0	0	0
Columbia	0	0	0	0	0
Dayton	0	0	0	0	0
El Paso	0	0	0	0	0
Fort Worth	0	0	0	0	0
Fresno	0	0	0	0	0
Honolulu	0	0	0	0	0
Lakeland	0	0	0	0	0
Little Rock	0	0	0	0	0
McAllen	0	0	0	0	0
Memphis	0	0	0	0	0
Newark	0	0	0	0	0
Oklahoma City	0	0	0	0	0
Provo	0	0	0	0	0
Raleigh	0	0	0	0	0
San Juan	0	0	0	0	0
Toledo	0	0	0	0	0
Tucson	0	0	0	0	0
Tulsa	0	0	0	0	0
Wichita	0	0	0	0	0

Table E17. Scores for location efficiency

City	Zoning codes (2 pts)	Parking requirements (2 pts)	Incentives and disclosure (2 pts)	Total (6 pts)
Portland	2	2	2	6
San Francisco	2	2	1.5	5.5
Atlanta	2	1.5	1.5	5
Boston	2	2	1	5
Hartford	2	2	1	5
Orlando	2	1.5	1.5	5
Grand Rapids	2	2	0.5	4.5
Minneapolis	2	1.5	1	4.5
New York	1	1.5	2	4.5
Omaha	2	1.5	1	4.5
Columbus	2	1.5	0.5	4
Denver	2	1.5	0.5	4

City	Zoning codes (2 pts)	Parking requirements (2 pts)	Incentives and disclosure (2 pts)	Total (6 pts)
Nashville	2	1.5	0.5	4
Oakland	2	1.5	0.5	4
St. Paul	1	2	1	4
Washington, DC	2	1.5	0.5	4
Aurora	2	0.5	1	3.5
Austin	1	1.5	1	3.5
Baltimore	2	1.5	0	3.5
Cincinnati	2	1.5	0	3.5
Fort Worth	1	1.5	1	3.5
Kansas City	2	1.5	0	3.5
Louisville	1	1.5	1	3.5
Miami	2	1	0.5	3.5
Sacramento	1	1.5	1	3.5
Seattle	1	1.5	1	3.5
Bridgeport	1	1.5	0.5	3
Buffalo	1	2	0	3
Chicago	1	1.5	0.5	3
Detroit	1	1.5	0.5	3
Indianapolis	1	1	1	3
Milwaukee	1	1.5	0.5	3
Phoenix	1	1.5	0.5	3
Providence	1	1.5	0.5	3
Raleigh	2	1	0	3
Rochester	1	1.5	0.5	3
San Diego	1	1.5	0.5	3
San José	1	1	1	3
Albuquerque	0	1	1.5	2.5
Cleveland	1	1.5	0	2.5
El Paso	2	0.5	0	2.5
Honolulu	1	1	0.5	2.5
Jacksonville	1	1.5	0	2.5
Knoxville	1	1.5	0	2.5
Las Vegas	1	0.5	1	2.5
Long Beach	1	0.5	1	2.5
Los Angeles	1	1	0.5	2.5
Madison	1	1.5	0	2.5
Memphis	1	1.5	0	2.5
New Orleans	1	1.5	0	2.5
Philadelphia	1	1.5	0	2.5
Pittsburgh	1	1	0.5	2.5
Richmond	2	0	0.5	2.5
Riverside	1	0.5	1	2.5
San Antonio	1	0.5	1	2.5
St. Petersburg	2	0.5	0	2.5
Worcester	1	1.5	0	2.5
Charlotte	1	0	1	2

City	Zoning codes (2 pts)	Parking requirements (2 pts)	Incentives and disclosure (2 pts)	Total (6 pts)
Chula Vista	1	0	1	2
Dallas	1	0.5	0.5	2
Mesa	2	0	0	2
New Haven	2	0	0	2
Newark	2	0	0	2
Reno	1	1	0	2
Salt Lake City	1	1	0	2
Birmingham	1	0.5	0	1.5
Boise	0	1	0.5	1.5
Charleston	1	0	0.5	1.5
Dayton	0	1.5	0	1.5
Greensboro	1	0.5	0	1.5
Houston	0	1.5	0	1.5
Lakeland	1	0.5	0	1.5
Little Rock	1	0.5	0	1.5
Springfield	1	0.5	0	1.5
St. Louis	1	0.5	0	1.5
Stockton	1	0.5	0	1.5
Syracuse	1	0.5	0	1.5
Tampa	1	0.5	0	1.5
Toledo	1	0	0.5	1.5
Virginia Beach	1	0	0.5	1.5
Winston-Salem	1	0.5	0	1.5
Bakersfield	1	0	0	1
Cape Coral	1	0	0	1
Columbia	1	0	0	1
Fresno	1	0	0	1
Henderson	1	0	0	1
Oklahoma City	1	0	0	1
Tucson	1	0	0	1
Tulsa	0	0	1	1
Wichita	1	0	0	1
Allentown	0	0.5	0	0.5
Augusta	0	0.5	0	0.5
McAllen	0	0.5	0	0.5
Akron	0	0	0	0
Baton Rouge	0	0	0	0
Colorado Springs	0	0	0	0
Des Moines	0	0	0	0
Oxnard	0	0	0	0
Provo	0	0	0	0
San Juan	0	0	0	0

Table E18. Scores for mode shift

City	Mode shift targets (1 pt)	Progress toward mode shift (1 pt)	Complete streets (2 pts)	Car sharing (1 pt)	Bike sharing (2 pts)	Total (7 pts)
Minneapolis	0.5	0.5	2	1	2	6
San Francisco	1	1	1	1	2	6
Denver	1	1	1.5	1	1	5.5
Oakland	1	1	1	1	1.5	5.5
Pittsburgh	1	1	2	0.5	1	5.5
Seattle	1	0	1.5	1	2	5.5
Boston	1	1	0.5	1	1.5	5
San José	1	1	1	1	1	5
Washington, DC	1	0.5	0.5	1	2	5
Austin	1	0	1	1	1.5	4.5
Cleveland	1	1	1.5	0	1	4.5
New York	1	1	1	0.5	1	4.5
Portland	1	1	0.5	1	1	4.5
Albuquerque	0.5	1	1.5	0	1	4
Knoxville	0	0	2	1	1	4
St. Petersburg	1	0	2	0	1	4
Baton Rouge	0	0	2	0	1.5	3.5
Honolulu	0	0	2	0	1.5	3.5
Philadelphia	0.5	0	1	1	1	3.5
Providence	0.5	0	0.5	0.5	2	3.5
Baltimore	0	0	1.5	1	0.5	3
Houston	0	0	1.5	1	0.5	3
Indianapolis	0	0	2	0.5	0.5	3
Little Rock	0	0	2	0	1	3
Madison	0.5	1	0.5	0	1	3
New Orleans	0	0	1.5	0	1.5	3
Omaha	0	0	2	0	1	3
Orlando	1	0	0	1	1	3
Phoenix	1	0	1.5	0	.5	3
Richmond	0	0	2	0	1	3
St. Louis	0	0	1	0	2	3
Atlanta	1	0	0.5	0	1	2.5
Buffalo	0.5	0	1	0	1	2.5
Chicago	0	0	1	0	1.5	2.5
Columbus	0	0	1	1	0.5	2.5
Dayton	0	0	1.5	0	1	2.5
Fort Worth	0	0	2	0	0.5	2.5
Los Angeles	1	0	0	1	0.5	2.5
Memphis	0	0	1.5	0	1	2.5
Milwaukee	0.5	0	1	0	1	2.5
Raleigh	0.5	0	1.5	0	0.5	2.5
Rochester	0	0	1.5	0	1	2.5
Sacramento	0.5	0	0	1	1	2.5
Akron	0	0	1.5	0	0.5	2

City	Mode shift targets (1 pt)	Progress toward mode shift (1 pt)	Complete streets (2 pts)	Car sharing (1 pt)	Bike sharing (2 pts)	Total (7 pts)
Cincinnati	0	0	0	1	1	2
Columbia	0	0	1	0	1	2
Dallas	0	0	2	0	0	2
Hartford	0	0	2	0	0	2
Las Vegas	1	0	0.5	0	0.5	2
Louisville	1	0	0.5	0	0.5	2
New Haven	0	0	1	0	1	2
San Antonio	0	0	1	0	1	2
San Diego	1	1	0	0	0	2
Springfield	0	0	2	0	0	2
St. Paul	1	0	1	0	0	2
Tulsa	0	0	1.5	0	0.5	2
Birmingham	0	0	0	0	1.5	1.5
Cape Coral	0	0	1.5	0	0	1.5
Des Moines	0	0	1	0	0.5	1.5
Greensboro	0	0	0	0	1.5	1.5
Kansas City	0.5	0	0.5	0.5	0	1.5
Long Beach	0.5	0	0	0	1	1.5
Mesa	0	0	1.5	0	0	1.5
Miami	0	0	0.5	0	1	1.5
Virginia Beach	0	0	1.5	0	0	1.5
Wichita	0	0	1	0	0.5	1.5
Aurora	0	0	0	1	0	1
Charleston	0	0	0	0	1	1
Detroit	0	0	0	0.5	0.5	1
Grand Rapids	0.5	0	0.5	0	0	1
Lakeland	0	0	1	0	0	1
Nashville	0.5	0	0	0	0.5	1
Newark	0	0	1	0	0	1
Salt Lake City	0	0	0	0	1	1
Syracuse	0	0	0	0	1	1
Tampa	0	0	1	0	0	1
Toledo	0	0	0.5	0	0.5	1
Tucson	0	0	0.5	0	0.5	1
Boise	0	0	0	0	0.5	0.5
Bridgeport	0.5	0	0	0	0	0.5
Charlotte	0	0	0	0	0.5	0.5
Colorado Springs	0	0	0	0	0.5	0.5
El Paso	0	0	0	0	0.5	0.5
McAllen	0	0	0	0	0.5	0.5
Oklahoma City	0	0	0	0	0.5	0.5
Winston-Salem	0	0	0	0	0.5	0.5
Worcester	0	0	0.5	0	0	0.5
Allentown	0	0	0	0	0	0
Augusta	0	0	0	0	0	0

City	Mode shift targets (1 pt)	Progress toward mode shift (1 pt)	Complete streets (2 pts)	Car sharing (1 pt)	Bike sharing (2 pts)	Total (7 pts)
Bakersfield	0	0	0	0	0	0
Chula Vista	0	0	0	0	0	0
Fresno	0	0	0	0	0	0
Henderson	0	0	0	0	0	0
Jacksonville	0	0	0	0	0	0
Oxnard	0	0	0	0	0	0
Provo	0	0	0	0	0	0
Reno	0	0	0	0	0	0
Riverside	0	0	0	0	0	0
San Juan	0	0	0	0	0	0
Stockton	0	0	0	0	0	0

Table E19. Scores for public transit

City	Transit funding (2 pts)	Transit performance (2 pts)	Total (4 pts)
Boston	2	2	4
New York	2	2	4
Philadelphia	1.5	2	3.5
San Francisco	1.5	2	3.5
Washington, DC	1.5	2	3.5
Baltimore	1.5	1.5	3
Chicago	1	2	3
Honolulu	2	1	3
Oakland	1.5	1.5	3
Pittsburgh	1.5	1.5	3
Portland	1.5	1.5	3
Salt Lake City	1.5	1.5	3
Seattle	1.5	1.5	3
Atlanta	1	1.5	2.5
Cleveland	1	1.5	2.5
Denver	1.5	1	2.5
Hartford	1	1.5	2.5
Los Angeles	1.5	1	2.5
Miami	1	1.5	2.5
Minneapolis	1	1.5	2.5
Newark	1	1.5	2.5
San José	1.5	1	2.5
St. Louis	1	1.5	2.5
Buffalo	1	1	2
Milwaukee	1	1	2
New Orleans	1	1	2
Akron	1	0.5	1.5
Austin	1	0.5	1.5
Charlotte	1	0.5	1.5

City	Transit funding (2 pts)	Transit performance (2 pts)	Total (4 pts)
Dallas	1	0.5	1.5
Dayton	1	0.5	1.5
Houston	1	0.5	1.5
Las Vegas	1	0.5	1.5
Long Beach	0	1.5	1.5
Madison	1	0.5	1.5
Providence	0.5	1	1.5
Richmond	0.5	1	1.5
Rochester	1	0.5	1.5
Sacramento	1	0.5	1.5
San Antonio	1	0.5	1.5
San Diego	1	0.5	1.5
Springfield	1	0.5	1.5
Syracuse	1	0.5	1.5
Tucson	1	0.5	1.5
Allentown	0.5	0.5	1
Bridgeport	0.5	0.5	1
Cincinnati	0.5	0.5	1
Columbia	0.5	0.5	1
Columbus	0.5	0.5	1
Des Moines	0.5	0.5	1
Detroit	0.5	0.5	1
El Paso	1	0	1
Fresno	0.5	0.5	1
Grand Rapids	0.5	0.5	1
Knoxville	1	0	1
Louisville	0.5	0.5	1
New Haven	0	1	1
Orlando	0.5	0.5	1
Oxnard	0.5	0.5	1
Phoenix	0.5	0.5	1
Reno	1	0	1
St. Paul	0	1	1
St. Petersburg	0.5	0.5	1
Tampa	0.5	0.5	1
Worcester	0.5	0.5	1
Albuquerque	0.5	0	0.5
Aurora	0	0.5	0.5
Bakersfield	0.5	0	0.5
Baton Rouge	0.5	0	0.5
Birmingham	0.5	0	0.5
Chula Vista	0	0.5	0.5
Colorado Springs	0.5	0	0.5
Fort Worth	0.5	0	0.5
Greensboro	0.5	0	0.5
Indianapolis	0.5	0	0.5

City	Transit funding (2 pts)	Transit performance (2 pts)	Total (4 pts)
Jacksonville	0.5	0	0.5
Kansas City	0.5	0	0.5
Lakeland	0.5	0	0.5
Memphis	0.5	0	0.5
Nashville	0.5	0	0.5
Oklahoma City	0.5	0	0.5
Omaha	0.5	0	0.5
Provo	0	0.5	0.5
Raleigh	0.5	0	0.5
Riverside	0	0.5	0.5
San Juan	0.5	0	0.5
Stockton	0.5	0	0.5
Toledo	0.5	0	0.5
Tulsa	0.5	0	0.5
Wichita	0.5	0	0.5
Winston-Salem	0.5	0	0.5
Augusta	0	0	0
Boise	0	0	0
Cape Coral	0	0	0
Charleston	0	0	0
Henderson	0	0	0
Little Rock	0	0	0
McAllen	0	0	0
Mesa	0	0	0
Virginia Beach	0	0	0

Table E20. Scores for efficient vehicles

City	Vehicle incentives (1 pt)	Charging incentives (1 pt)	EV chargers (1 pt)	Renewable energy charging incentives (1 pt)	Total (4 pts)
San José	1	1	0.5	1	3.5
Austin	0	1	1	1	3
Pittsburgh	1	1	1	0	3
Rochester	1	0	1	1	3
Sacramento	1	1	1	0	3
San Diego	1	1	1	0	3
San Francisco	1	1	1	0	3
Seattle	0	1	1	1	3
Washington, DC	1	1	1	0	3
Boston	0.5	1	1	0	2.5
Chicago	1	1	0	0.5	2.5
Columbus	1	1	0.5	0	2.5
Kansas City	0.5	1	1	0	2.5
Long Beach	1	1	0.5	0	2.5
Los Angeles	1	1	0.5	0	2.5

City	Vehicle incentives (1 pt)	Charging incentives (1 pt)	EV chargers (1 pt)	Renewable energy charging incentives (1 pt)	Total (4 pts)
Oakland	1	1	0.5	0	2.5
Orlando	0.5	1	1	0	2.5
Syracuse	1	1	0.5	0	2.5
Atlanta	0	1	1	0	2
Chula Vista	1	1	0	0	2
Hartford	0	1	1	0	2
Houston	0	1	0	1	2
Knoxville	0	1	1	0	2
Lakeland	1	1	0	0	2
Las Vegas	0	1	1	0	2
Oxnard	1	1	0	0	2
Phoenix	1	1	0	0	2
Portland	0	1	1	0	2
Providence	0	1	1	0	2
Stockton	1	1	0	0	2
Buffalo	0	1	0.5	0	1.5
Charleston	0	1	0.5	0	1.5
Grand Rapids	0	1	0.5	0	1.5
Honolulu	0.5	0	1	0	1.5
Little Rock	0	1	0.5	0	1.5
Minneapolis	0	1	0.5	0	1.5
New Haven	0	0	0.5	1	1.5
Omaha	0.5	1	0	0	1.5
Reno	0	1	0.5	0	1.5
Riverside	1	0	0.5	0	1.5
Salt Lake City	0.5	0	1	0	1.5
St. Paul	0	1	0.5	0	1.5
Albuquerque	0	1	0	0	1
Augusta	0	1	0	0	1
Bakersfield	1	0	0	0	1
Baltimore	0	0	1	0	1
Boise	0	0.5	0.5	0	1
Bridgeport	0	0	0	1	1
Columbia	0	0	1	0	1
Des Moines	1	0	0	0	1
Detroit	1	0	0	0	1
Indianapolis	0	1	0	0	1
Jacksonville	1	0	0	0	1
Madison	0	0	1	0	1
Miami	0	0	1	0	1
New York	0	1	0	0	1
Newark	0.5	0.5	0	0	1
Provo	0	1	0	0	1
Richmond	0	0	1	0	1
Springfield	1	0	0	0	1

City	Vehicle incentives (1 pt)	Charging incentives (1 pt)	EV chargers (1 pt)	Renewable energy charging incentives (1 pt)	Total (4 pts)
St. Louis	0.5	0	0.5	0	1
Tampa	0	0	1	0	1
Tucson	0	1	0	0	1
Tulsa	0	1	0	0	1
Akron	0.5	0	0	0	0.5
Allentown	0	0	0.5	0	0.5
Aurora	0.5	0	0	0	0.5
Birmingham	0	0	0.5	0	0.5
Charlotte	0	0	0.5	0	0.5
Cincinnati	0	0	0.5	0	0.5
Colorado Springs	0.5	0	0	0	0.5
Dayton	0	0	0.5	0	0.5
Denver	0	0	0.5	0	0.5
Milwaukee	0.5	0	0	0	0.5
Nashville	0	0	0.5	0	0.5
Raleigh	0	0	0.5	0	0.5
St. Petersburg	0	0	0.5	0	0.5
Baton Rouge	0	0	0	0	0
Cape Coral	0	0	0	0	0
Cleveland	0	0	0	0	0
Dallas	0	0	0	0	0
El Paso	0	0	0	0	0
Fort Worth	0	0	0	0	0
Fresno	0	0	0	0	0
Greensboro	0	0	0	0	0
Henderson	0	0	0	0	0
Louisville	0	0	0	0	0
McAllen	0	0	0	0	0
Memphis	0	0	0	0	0
Mesa	0	0	0	0	0
New Orleans	0	0	0	0	0
Oklahoma City	0	0	0	0	0
Philadelphia	0	0	0	0	0
San Antonio	0	0	0	0	0
San Juan	0	0	0	0	0
Toledo	0	0	0	0	0
Virginia Beach	0	0	0	0	0
Wichita	0	0	0	0	0
Winston-Salem	0	0	0	0	0
Worcester	0	0	0	0	0

Table E21. Scores for sustainable freight

City	Total (2 pts)
Long Beach	2
Los Angeles	2
New York	2
Portland	2
Seattle	2
Washington, DC	2
Atlanta	1
Columbus	1
Denver	1
Houston	1
Miami	1
Minneapolis	1
Orlando	1
Philadelphia	1
Riverside	1
San Francisco	1
San José	1
St. Paul	1
Memphis	0.5
Oakland	0.5
Richmond	0.5
Sacramento	0.5
Akron	0
Albuquerque	0
Allentown	0
Augusta	0
Aurora	0
Austin	0
Bakersfield	0
Baltimore	0
Baton Rouge	0
Birmingham	0
Boise	0
Boston	0
Bridgeport	0
Buffalo	0
Cape Coral	0
Charleston	0
Charlotte	0
Chicago	0
Chula Vista	0
Cincinnati	0
Cleveland	0
Colorado Springs	0
Columbia	0
Dallas	0
Dayton	0
Des Moines	0
Detroit	0
El Paso	0
Fort Worth	0
Fresno	0
Grand Rapids	0
Greensboro	0
Hartford	0
Henderson	0
Honolulu	0
Indianapolis	0
Jacksonville	0
Kansas City	0
Knoxville	0
Lakeland	0
Las Vegas	0
Little Rock	0
Louisville	0
Madison	0
McAllen	0
Mesa	0
Milwaukee	0
Nashville	0
New Haven	0
New Orleans	0
Newark	0
Oklahoma City	0
Omaha	0
Oxnard	0
Phoenix	0
Pittsburgh	0
Providence	0
Provo	0
Raleigh	0
Reno	0
Rochester	0
Salt Lake City	0
San Antonio	0
San Diego	0
San Juan	0
Springfield	0
St. Louis	0
St. Petersburg	0
Stockton	0
Syracuse	0
Tampa	0
Toledo	0
Tucson	0
Tulsa	0
Virginia Beach	0
Wichita	0
Winston-Salem	0
Worcester	0

Table E22. Scores for equitable transportation

City	Affordable TOD policy (1 pt)	Subsidized access to transport (1 pt)	Low-income access to high-quality transit (1 pt)	Total (3 pts)
Chicago	1	1	1	3
Honolulu	1	1	1	3
Los Angeles	1	1	1	3
Minneapolis	1	1	1	3
New York	1	1	1	3
Oakland	1	1	1	3
Philadelphia	1	1	1	3
Portland	1	1	1	3
San Francisco	1	1	1	3
Seattle	1	1	1	3
Washington, DC	1	1	1	3
Atlanta	1	1	0	2
Austin	1	1	0	2
Baltimore	0	1	1	2
Boston	0	1	1	2
Denver	1	1	0	2
Hartford	1	1	0	2
Houston	1	1	0	2
Memphis	1	1	0	2
Phoenix	1	1	0	2
Pittsburgh	1	1	0	2
Providence	1	1	0	2
Raleigh	1	1	0	2
Richmond	1	1	0	2
Sacramento	1	1	0	2
Salt Lake City	1	1	0	2
San José	1	1	0	2
St. Paul	1	1	0	2
Long Beach	1	0.5	0	1.5
Orlando	1	0.5	0	1.5
Akron	0	1	0	1
Albuquerque	0	1	0	1
Aurora	1	0	0	1
Boise	0	1	0	1
Bridgeport	1	0	0	1
Charleston	0	1	0	1
Charlotte	0	1	0	1
Chula Vista	0	1	0	1
Cincinnati	0	1	0	1
Cleveland	0	0	1	1
Colorado Springs	0	1	0	1
Dallas	0	1	0	1
Des Moines	0	1	0	1
Detroit	1	0	0	1
Fort Worth	1	0	0	1

City	Affordable TOD policy (1 pt)	Subsidized access to transport (1 pt)	Low-income access to high-quality transit (1 pt)	Total (3 pts)
Fresno	1	0	0	1
Grand Rapids	0	1	0	1
Indianapolis	1	0	0	1
Kansas City	0	1	0	1
Las Vegas	1	0	0	1
Louisville	1	0	0	1
Miami	1	0	0	1
Nashville	0	1	0	1
New Haven	0	1	0	1
Riverside	1	0	0	1
San Antonio	0	1	0	1
San Diego	1	0	0	1
Springfield	0	0	1	1
Tampa	1	0	0	1
Tucson	0	1	0	1
Tulsa	1	0	0	1
Virginia Beach	1	0	0	1
Winston-Salem	0	1	0	1
Columbia	0	0.5	0	0.5
Knoxville	0.5	0	0	0.5
Rochester	0	0.5	0	0.5
Allentown	0	0	0	0
Augusta	0	0	0	0
Bakersfield	0	0	0	0
Baton Rouge	0	0	0	0
Birmingham	0	0	0	0
Buffalo	0	0	0	0
Cape Coral	0	0	0	0
Columbus	0	0	0	0
Dayton	0	0	0	0
El Paso	0	0	0	0
Greensboro	0	0	0	0
Henderson	0	0	0	0
Jacksonville	0	0	0	0
Lakeland	0	0	0	0
Little Rock	0	0	0	0
Madison	0	0	0	0
McAllen	0	0	0	0
Mesa	0	0	0	0
Milwaukee	0	0	0	0
New Orleans	0	0	0	0
Newark	0	0	0	0
Oklahoma City	0	0	0	0
Omaha	0	0	0	0
Oxnard	0	0	0	0
Provo	0	0	0	0

City	Affordable TOD policy (1 pt)	Subsidized access to transport (1 pt)	Low-income access to high-quality transit (1 pt)	Total (3 pts)
Reno	0	0	0	0
San Juan	0	0	0	0
St. Louis	0	0	0	0
St. Petersburg	0	0	0	0
Stockton	0	0	0	0
Syracuse	0	0	0	0
Toledo	0	0	0	0
Wichita	0	0	0	0
Worcester	0	0	0	0

Appendix F. Additional Tables on Policies and Results

POLICY TRENDS

Table F1. Tally of city uptake of new actions between April 1, 2019, and May 1, 2020

Policy area, subcategory, and activity	City uptake
Local government operations	**21**
Local government climate change mitigation and energy goals	18
Set or updated climate goal(s) for local government operations	7
Set or updated energy reduction goal(s) for local government operations	3
Set or updated renewable electricity goal(s) for local government operations	8
Procurement and construction policies	3
Set fleet procurement policy for efficient vehicles	3
Community-wide initiatives	**47**
Community-wide climate mitigation and energy goals	19
Set or updated community-wide climate mitigation goal(s)	7
Set or updated community-wide energy savings goal(s)	2
Set or updated community-wide renewable electricity goal(s)	10
Clean distributed energy systems	7
Supported the creation of a district energy system	1
Supported the creation of a microgrid	3
Supported the creation of community solar	3
Equity-driven approaches to clean energy planning	16
Undertook an equity-driven community engagement strategy for a climate or energy plan	7
Gave marginalized residents a formal role in the decision making of energy initiatives	3
Adopted structural equity procedures	6
Mitigation of urban heat islands	5
Set or updated urban heat island mitigation goal(s)	4
Adopted urban heat island mitigation policy or created a program	1
Buildings policies	**38**
Building energy code adoption	16
Adopted or updated building energy code(s)	7
Adopted or updated electric vehicle ready policy	4
Adopted or updated renewable ready policy	4
Adopted or updated low-energy-use building requirement(s)	1
Building energy code compliance and enforcement	2
Hired city staff solely dedicated to building energy code compliance	2
Policies targeting existing buildings	14
Created a new incentive program or offering	1
Adopted or updated commercial benchmarking and transparency requirement(s)	3
Adopted or updated multifamily benchmarking and transparency requirement(s)	3
Adopted or updated energy audit requirement(s)	1

Policy area, subcategory, and activity	City uptake
Adopted or updated retrocommissioning requirement(s)	1
Adopted or updated building performance standard(s)	2
Created a new voluntary energy efficiency program	3
Energy efficiency and renewable energy workforce development	6
Created a new energy efficiency workforce development program	4
Created a new renewable energy workforce development program	2
Energy and water utilities	**30**
Low-income and multifamily programs	3
Created a new low-income program funding source, financing option, or incentive for energy efficiency or weatherization	3
City efforts to decarbonize the grid	27
Submitted comments to advance renewables locally to the public utility commission or state	5
Entered into a partnership with utility to promote grid decarbonization*	17
Pursued, enacted enabling legislation, and/or launched a local community-choice aggregation program	5
Transportation policies	**27**
Sustainable transportation plans and vehicle miles traveled targets	10
Adopted sustainable transportation plan or included strategies as part of a broader plan	7
Codified vehicle miles traveled/greenhouse gas emissions goal(s)	3
Location efficiency	4
Adopted or updated parking policies for location-efficient developments	1
Adopted or updated zoning code provisions for location-efficient developments	3
Mode shift	7
Adopted or updated modal share target(s)	3
Adopted complete streets policy	2
Adopted policy to support car sharing	2
Efficient vehicles	2
Created a new efficient vehicle purchase incentives program or offering	2
Freight efficiency	1
Adopted freight system efficiency plan	1
Clean, efficient transportation for low-income communities	3
Adopted policies to increase low-income housing around transit areas	1
Subsidized access to efficient transportation options for low-income residents	2
Total new clean energy initiatives	**163**

We consider our tally of new city actions to be conservative. It was sometimes difficult to determine when a new policy was adopted or updated, especially for the 25 cities new to the *2020 City Scorecard*. * These partnerships may include initiatives to increase energy efficiency as well as renewable energy.

LOCAL GOVERNMENT OPERATIONS

Table F2. Local government climate and energy goals

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Akron	None		None		Reduce local government GHG emissions 20% by 2025, using a 2005 baseline	0.01%	
Albuquerque	Reduce local government building energy use 65% by 2025, using a 2018 baseline	10.5%	Use renewable energy to power 65% of city operations by 2021	79.18 kWh per household per year	Reduce local government GHG emissions 26% to 28% by 2025, using a 2005 baseline		
Allentown	None		None		None		
Atlanta	Reduce local government energy use 20% by 2020, using a 2009 baseline	1.47%	Continue using clean energy to power 100% of city operations by 2035	155.03 kWh per household per year	Reduce local government GHG emissions 20% by 2020, using a 2009 baseline	4.59%	
Augusta	None		None		None		
Aurora	None		None		Reduce local government GHG 10% by 2025, using a 2007 baseline		
Austin	Reduce local government building energy use 5% annual through 2020	7.4%	Use renewable energy to power 100% of city-owned building energy use		Reduce local government GHG emissions 100% by 2020, using a 2007 baseline	7.69%	100%
Bakersfield	None		None		None		
Baltimore	Reduce local government energy use 30% by 2030, using a 2006 baseline		Use renewable energy to power 20% of city-owned building energy use by 2022	1.08 kWh per household per year	Reduce local government GHG emissions 15% by 2020, using a 2007 baseline	2.8%	
Baton Rouge	None		None		None		
Birmingham	None		None		None		
Boise	Reduce local government energy use 50% by 2030, using a 2015 baseline	5%	Use renewable energy to power 100% of city operations by 2030	40.83 kWh per household per year	None		
Boston	Reduce local government energy use 20% by 2020, using a 2010 baseline	5.3%	None		Reduce local government GHG emissions 60% by 2030, using a 2005 baseline	3.58%	100%
Bridgeport	None		None		Reduce local government GHG emissions 30% by 2030, using a 2007 baseline	1.8%	

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Buffalo	Reduce local government energy use 20% by 2020, using a 2009 baseline	2.65%	None		None		
Cape Coral	Reduce local government electricity 40% by 2025, using a 2008 baseline		None		None		
Charleston	Entered into an ESPC in 2001 that targets a 46.6% reduction in citywide energy use by end of contract term		None		None		
Charlotte	None		Use 100% zero-carbon energy for city buildings and fleet by 2030		Reduce local government GHG emissions 100% by 2030		
Chicago	None		Use renewable energy to power 100% of city operations by 2025		Reduce local government GHG emissions 26% by 2025, using a 2005 baseline		
Chula Vista	Reduce local government energy use 20% by 2020, using a 2010 baseline		None		None		
Cincinnati	Reduce municipal energy use 2% annually	2.2%	Use renewable energy to power 100% of city operations by 2035		None		
Cleveland	Reduce local government energy use 10% by 2020, using a 2010 baseline	0.9%	Use onsite renewable energy to power 2% of city energy use by 2020		Reduce local government GHG emissions 20% by 2020, using a 2010 baseline	2.77%	100%
Colorado Springs	None		None		None		
Columbia	None		None		None		
Columbus	Reduce local government energy use 20% by 2020, using a 2015 baseline	5.1%	Use renewable energy to power 10% of city operations by 2020		Reduce local government GHG emissions 30% by 2020, using a 2005 baseline	3.12%	0%

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Dallas	None		None		Achieve net zero emissions by 2050	2.86%	
Dayton	None		None		None		
Denver	Reduce local government energy use 20% by 2020, using a 2012 baseline	4.8%	Double city renewable energy use by 2020 relative to 2012 levels	266.76 kWh per household per year	Reduce local government GHG emissions 4% by 2020, using a 2012 baseline	1.55%	100%
Des Moines	None		None		None		
Detroit	None		None		Reduce local government GHG emissions 25% by 2025, using a 2012 baseline	1.2%	
El Paso	Reduce local government energy use 20% by 2020, using a 2009 baseline		None		None		
Fort Worth	Reduce local government energy use 20% by 2020, using a 2009 baseline		None		None		
Fresno	None		Use renewable energy to power 50% of city electricity use by 2025		Reduce local government GHG emissions to 1990 levels by 2020		
Grand Rapids	None		Use renewable energy to power 100% of city operations by 2025	64.72 kWh per household per year	Reduce local government GHG emissions 25% by 2021, using a 2009 baseline	2.5%	0%
Greensboro	None		None		None		
Hartford	None		None		Reduce local government GHG emissions 26% to 28% by 2025, using a 2005 baseline		
Henderson	None		None		None		
Honolulu	None		Use renewable energy to power 100% of city operations by 2045	22.28 kWh per household per year	Reduce local government GHG emissions 26% to 28% by 2025, using a 2005 baseline		
Houston	Reduce local government energy use 20% by 2021, using a 2008 baseline	2.2%	Use renewable energy to power 100% of city operations		Reduce local government GHG emissions 40% by 2030, using a 2014 baseline		

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Indianapolis	None		Use renewable energy to power 25% of city operations by 2025		Reduce local government GHG emissions 100% by 2050	2.94%	
Jacksonville	None		None		None		
Kansas City	Reduce local government energy use 50% by 2050		Use renewable energy to power 100% of city operations by 2022		Reduce local government GHG emissions 30% by 2020, using a 2000 baseline	2.23%	100%
Knoxville	Reduce local government energy use 20% by 2022, using a 2010 baseline	1.6%	None		Reduce local government GHG emissions 20% by 2020, using a 2005 baseline	2.24%	100%
Las Vegas	None		Continue using renewable energy to power 100% of city operations by 2050		None		
Little Rock	None		None		None		
Long Beach	Reduce local government electricity use 25% and natural gas use 15% by 2020, using a 2007 baseline	2.1%	Install at least 2 MW of solar energy on city facilities by 2020		Reduce local government GHG emissions 15% by 2020	1.6%	63%
Los Angeles	Reduce local government energy use 18% by 2025, using a 2015 baseline	2.3%	Install 3 MW of solar energy on city facilities by 2025		Reduce local government GHG emissions 55% by 2025, using a 2008 baseline	3.73%	100%
Louisville	Reduce local government energy use 30% by 2020, using a 2010 baseline		Increase the use of renewable energy in city-owned buildings 50% by 2025		None		
Madison	Reduce local government energy use 25% by 2030, using a 2010 baseline		Use renewable energy to power 100% of city operations by 2030		Achieve net zero carbon for city operations by 2030	7.14%	16.97%
McAllen	None		None		None		
Memphis	None		None		Reduce local government GHG emissions 80% by 2050, using a 2016 baseline		

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Mesa	None		None		None		
Miami	None		None		None		
Milwaukee	Reduce local government building energy use 20% by 2020, using a 2009 baseline		Use renewable energy to power 25% of city operations by 2025		None		
Minneapolis	None		Use renewable energy to power 100% of city operations by 2022	76.34 kWh per household per year	Achieve a 1.5% annual reduction in GHG emissions from city facilities	2.5%	100%
Nashville	Reduce local government building resource use 40% by 2030, using a 2014 baseline	3.09%	Use carbon-free energy to power 53% of city operations by 2021	420.06 kWh per household per year	Reduce local government GHG emissions 40% by 2030, using a 2014 baseline	3.09%	
New Haven	None		Continue using renewable energy to power 100% of city operations by 2030		Reduce local government GHG emissions 55% by 2030, using a 1999 baseline	2.95%	
New Orleans	Reduce local government energy use 15% by 2020, using a 2014 baseline		None		None		
New York	None		Install 100 MW of solar on city-owned property by 2025	5.5 kWh per household per year	Reduce local government GHG emissions 40% by 2025, using a 2006 baseline	2.07%	100%
Newark	None		None		None		
Oakland	None		Continue using 100% zero-carbon energy to power city operations		Reduce local government GHG emissions 36% by 2020, using a 2005 baseline	4.21%	100%
Oklahoma City	None		None		None		
Omaha	None		None		None		
Orlando	Reduce local government energy use 20% by 2020, using a 2011 baseline	4.6%	Use renewable energy to power 100% of city operations by 2030	92.69 kWh per household per year	Reduce local government GHG emissions 100% by 2030, using a 2010 baseline	5%	100%

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Oxnard	Reduce local government energy use 10% by 2020, using a 2005 baseline		None		None		
Philadelphia	Reduce local government energy use 20% by 2030, using a 2006 baseline		Use renewable energy to power 100% of city operations by 2030	28 kWh per household per year	Reduce local government GHG emissions 50% by 2030, using a 2006 baseline	3.05%	100%
Phoenix	Reduce local government energy use 20% by 2020, using a 2009 baseline	3.8%	Use renewable energy to power 15% of city operations by 2025	8.63 kWh per household per year	Reduce local government GHG emissions 40% by 2025, using a 2005 baseline	4.43%	15.95%
Pittsburgh	Reduce local government energy use 20% by 2020, using a 2010 baseline	2.66%	Use renewable electricity to power 100% of city operations by 2030		Reduce local government GHG emissions 20% by 2023, using a 2003 baseline	0.49%	100%
Portland	Reduce local government energy use 2% annually by 2030, using a 2007 baseline	2.26%	Continue using renewable electricity to power 100% of city operations		Reduce local government GHG emissions 53% by 2030, using a 2007 baseline	3.48%	100%
Providence	Reduce local government energy use 30% by 2030, using a 2010 baseline	2.93%	Use renewable energy to power 100% of city operations by 2030.		Reduce local government GHG emissions 100% by 2040, using a 2015 baseline	4.17%	0%
Provo	None		None		None		
Raleigh	None		Use renewable energy to meet 20% of peak load by 2030		None		
Reno	Reduce local government energy use 20% by 2025, using a 2014 baseline	3.81%	None		None		
Richmond	Reduce local government energy use 1% annually, using a 2008 baseline		None		None		
Riverside	None		Use renewable energy to power 50% of city operations by 2020		Reduce local government GHG emissions 49% by 2035, using a 2007 baseline	1.62%	

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Rochester	Reduce local government building energy use 20% by 2020		None		Reduce local government GHG emissions 20% by 2020, using a 2008 baseline	2.08%	
Sacramento	Reduce local government energy use 25% by 2030, using a 2005 baseline	1.6%	None		Reduce local government GHG emissions 22% by 2020, using a 2005 baseline	0.69%	100%
Salt Lake City	Reduce local government building energy use 20% by 2025, using a 2012 baseline		Use renewable energy to power 50% of city operations by 2020	218.54 kWh per household per year	Reduce local government GHG emissions 50% by 2030, using a 2009 baseline	3.97%	54.9%
San Antonio	None		Use renewable energy to power 100% of city operations by 2040		Reduce local government GHG emissions 41% by 2030, using a 2016 baseline	3.75%	
San Diego	Reduce local government energy use 15% by 2020, using a 2010 baseline	3.0%	Use renewable energy to power 100% of city operations by 2035		Reduce local government GHG emissions 15% by 2020, using a 2010 baseline		
San Francisco	None		Continue using renewable electricity to power 100% of city facilities		Reduce local government GHG emissions 40% by 2025, using a 1990 baseline	3.02%	100%
San José	None		Install 11 MW of solar energy on city buildings by 2021		None		
San Juan	None		None		None		
Seattle	Reduce local government energy use 20% by 2020, using a 2008 baseline	4.12%	Continue using renewable electricity to power 100% of city facilities		Reduce local government GHG emissions 40% by 2025, using a 2008 baseline	3.81%	
Springfield	None		None		None		
St. Louis	None		Use renewable electricity to power 100% of city operations by 2035		Reduce local government GHG emissions 25% by 2025, using a 2005 baseline	4.84%	42.2%
St. Paul	None		Use renewable energy to power 50% of city operations within five years		Reduce local government building GHG emissions 100% by 2030		

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
St. Petersburg	None		Use renewable energy to power 100% of city operations by 2035		Reduce local government GHG emissions 20% by 2020, using a 2016 baseline	5.4%	
Stockton	None		None		None		
Syracuse	Reduce energy use 20% by 2020, using a 2010 baseline	3.77%	Install 61 kW of solar and 56 kW of hydropower by 2020		Reduce local government GHG emissions 40% by 2020, using a 2002 baseline	2.37%	
Tampa	None		Use renewable energy to power 25% of city operations by 2025		None		
Toledo	None		None		None		
Tucson	None		None		None		
Tulsa	None		None		None		
Virginia Beach	Reduce municipal energy use 5% below 2015 levels by 2020	1.0%	None		None		
Washington, DC	Reduce local government energy use 50% by 2032, using a 2012 baseline	3.46%	Use renewable energy to power 50% of city operations by 2032	730.48 kWh per household per year	Reduce local government GHG emissions 50% by 2032, using a 2006 baseline	2.87%	100%
Wichita	None		None		None		
Winston-Salem	None		None		None		
Worcester	Reduce local government building energy use 20% by 2020, using a 2009 baseline	2.56%	None		None		

Table F3. Percentage composition of vehicle fleet of cities reporting data

City	Hybrid	Plug-in hybrid	Battery electric	Fuel cell	CNG	ICE	Propane	Flex fuel	Biodiesel	Other	Total efficient vehicles
Albuquerque	2.05	0	0.08	0	0.18	73.5	0	16.33	7.86	0	2.13
Atlanta	2	2	7	0	0	93	0	0	0	0	7
Aurora	0.09	0.66	0	0	0.2	99.05	0	0	0	0	0.75
Austin	7.8	1.1	0.03	0	0.1	21.1	4.3	60.4	4.9	0	8.93
Baltimore	0.089	0.32	0	0	0	99.67	0	0	0	0	0.409
Boise	2.66	0.17	6.08	0	0.17	90.92	0	0	0	0	8.91
Boston	12.3	1.5	1.1	0	3.1	81.3	0.7	0	0	0	14.9
Bridgeport	0.85	0	0.14	0	0.42	98.59	0	0	0	0	0.99
Charlotte	0.72	0	0.41	0	0.96	80.85	0	17.06	0	0	1.13
Chula Vista	4.55	4.33	6.28	0	1.29	83.33	0.22	0	0	0	15.16
Cleveland	2.6	0.1	0.1	0	0	97.2	0	0	0	0	2.8
Columbus	1	3	1	0	8	87	0	0	0	0	5
Dallas	4.3	0	0.12	0	11.37	52.96	0.05	0	31.2	0	4.42
Denver	5	1	1	0	1	91	1	0	0	0	7
Detroit	2.7	0	0.3	0	0	97	0	0	0	0	3
Fort Worth	0.55	0.3	0.3	0	0	37.78	1.41	34.59	0	25.1	1.15
Grand Rapids	9.83	0	0.42	0	0	89.75	0	0	0	0	10.25
Honolulu	0.79	0.13	0	0	0	46.15	0.1	0	52.8	0	0.92
Houston	6.1	0.1	0.5	0	0.02	93	0	0	0	0	6.7
Indianapolis	9.2	0	0	0	0.6	9.4	0	80.8	0	0	9.2
Knoxville	0.1	0	0	0	0	99.9	0	0	0	0	0.1
Las Vegas	10	1	1	0	0	88	0	0	0	0	12
Long Beach	14	1	2	0	8	70	0	0	0	5	17
Los Angeles	7.57	1.94	3.32	0	8.09	71	0	0	0	8.34	12.83
Louisville	2.45	0.11	0.05	0	0.11	97.28	0	0	0	0	2.61
Madison	0	0	0	0	0	100	0	0	0	0	0
Memphis	0.8	0.8	0.9	0	0	97.5	0	0	0	0	2.5
Miami	1.5	0	0	0	0	98.5	0	0	0	0	1.5
Minneapolis	2.79	0	0	0.6	0	96.61	0	0	0	0	3.39
Nashville	4.1	0	0.7	0	0.03	95.2	0	0	0	0	4.8
New Orleans	0.05	0	0	0	0	99.95	0	0	0	0	0.05
New York	19.1	5.7	2.1	0	0.5	41.9	0	0	30.7	0	26.9
Oakland	6	0.3	3	0	9	80	0	0	0	0	9.3
Oklahoma City	0.6	0.1	0.2	0	9.9	89.2	0	0	0	0	0.9
Orlando	3.8	0.4	3	0	3	88.92	0.88	0	0	0	7.2
Philadelphia	2.74	0.56	0.44	0	0	96.26	0	0	0	0	3.74
Phoenix	0.12	0.01	1.72	0	7.5	58	0.45	8.58	21.51	2.45	1.85
Pittsburgh	2.3	0	1.8	0	0	93.7	0	0	2.2	0	4.1
Portland	6	1	7	0	1	84	1	0	0	0	14
Raleigh	5.75	0.21	0.63	0	0.05	54.96	0	28.06	10.34	0	6.59
Richmond	0	0	0.12	0	7	93	0	0	0	0	0.12
Riverside	8	1	3	0	15.95	54.32	1.33	17.06	0	0	12
Rochester	1.1	0.6	1.2	0	1.2	94.1	0	0	0	1.8	2.9
St. Paul	0.5	0	0.5	0	0	99	0	0	0	0	1

City	Hybrid	Plug-in hybrid	Battery electric	Fuel cell	CNG	ICE	Propane	Flex fuel	Biodiesel	Other	Total efficient vehicles
Salt Lake City	5.38	0	2	0	4.5	88.12	0	0	0	0	7.38
San Antonio	9	0	2	0	0	87	2	0	0	0	11
San Diego	2	0	2	0	1	95	0	0	0	0	4
San Francisco	10	1	4	0	5	80	0	0	0	0	15
San José	16.5	0.6	3.7	0	0.9	78.3	0	0	0	0	20.8
Seattle	0	0	5.02	0	0	93.54	1.44	0	0		5.02
Tucson	0.08	0	0	0	3.8	65	0	30.7	0	0	0.08
Washington, DC	5.1	0.8	0.2	0	6.4	47	0	38.5	2	0	6.1
Winston-Salem	0.91	0	0.12	0	0.17	97.03	1.77	0	0	0	1.03

Table F4. Percentage of streetlights converted to LEDs

City	LED composition
Albuquerque	100%
Allentown	25%
Atlanta	50%
Austin	100%
Bakersfield	100%
Baltimore	75%
Birmingham	100%
Boise	59%
Boston	76%
Bridgeport	83%
Buffalo	25%
Charlotte	15%
Chicago	37%
Chula Vista	100%
Cincinnati	100%
Cleveland	33%
Denver	63%
Detroit	100%
El Paso	60%
Fort Worth	35%
Grand Rapids	50%
Hartford	100%
Honolulu	60%
Houston	99%
Indianapolis	50%
Knoxville	100%
Las Vegas	80%
Long Beach	100%
Los Angeles	100%

City	LED composition
Miami	20%
Milwaukee	20%
Minneapolis	70%
Nashville	100%
New Haven	100%
New Orleans	75%
New York	70%
Oakland	95%
Philadelphia	25%
Phoenix	100%
Pittsburgh	90%
Portland	100%
Providence	100%
Raleigh	85%
Riverside	50%
Rochester	30%
Sacramento	33%
St. Paul	25%
Salt Lake City	60%
San Antonio	61%
San Diego	64%
San Francisco	97%
San José	44%
Seattle	79%
St. Louis	40%
Virginia Beach	100%
Washington, DC	50%
Winston-Salem	100%
Worcester	100%

Cities assessed in the *Scorecard* that are not displayed in this table did not report data or did not report complete data.

Table F5. Comprehensive retrofit strategies

City	Retrofit strategy
Albuquerque	Building evaluations with results
Atlanta	ESCO partnership
Austin	Building evaluations without results
Baltimore	Building evaluations with results
Birmingham	ESCO partnership
Boston	Building evaluations with results
Bridgeport	Building evaluations without results
Buffalo	Building evaluations with results
Charleston	ESCO partnership
Charlotte	Building evaluations with results
Chicago	ESCO partnership
Chula Vista	Building evaluations without results
Cincinnati	ESCO partnership
Cleveland	Building evaluations with results
Colorado Springs	Building evaluations without results
Columbus	Building evaluations without results
Dallas	Building evaluations with results
Denver	Building evaluations with results
Fort Worth	ESCO partnership
Hartford	Building evaluations with results
Honolulu	ESCO partnership
Houston	ESCO partnership
Kansas City	Building evaluations without results
Knoxville	ESCO partnership
Las Vegas	Building evaluations without results
Long Beach	Building evaluations with results
Los Angeles	Building evaluations with results
Louisville	ESCO partnership
Miami	Building evaluations without results
Milwaukee	Building evaluations without results
Minneapolis	Building evaluations with results
Nashville	Building evaluations without results
New Orleans	Building evaluations with results
New York	Building evaluations with results
Newark	ESCO partnership
Oakland	Building evaluations without results
Orlando	Building evaluations with results
Oxnard	Building evaluations without results
Philadelphia	Building evaluations with results
Phoenix	Building evaluations with results
Pittsburgh	Building evaluations without results
Portland	Building evaluations without results
Providence	Building evaluations with results
Raleigh	Building evaluations with results
Reno	Building evaluations without results
Richmond	Building evaluations without results
Riverside	Building evaluations without results
Rochester	Building evaluations without results
Sacramento	Building evaluations with results
Salt Lake City	Building evaluations without results
San Antonio	Building evaluations with results
San Diego	Building evaluations without results
San Francisco	Building evaluations with results
San José	ESCO partnership
Seattle	Building evaluations with results
St. Louis	Building evaluations without results
St. Paul	Building evaluations without results
St. Petersburg	Building evaluations without results
Syracuse	Building evaluations without results
Toledo	Building evaluations without results
Virginia Beach	Building evaluations without results
Washington, DC	Building evaluations with results
Worcester	ESCO partnership

Cities assessed in the *Scorecard* that are not displayed in this table did not report data or did not report complete data.

COMMUNITY-WIDE INITIATIVES

Table F6. 2020 community-wide goals to reduce energy use, increase renewable electricity, and mitigate climate change

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual renewable kWh per household targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Akron	None		None		Reduce community-wide greenhouse gas emissions 20% below 2005 levels by 2025.	0.5%	
Albuquerque	None		None		None		
Allentown	None		None		None		
Atlanta	Reduce energy use in private facilities 20% by 2020, using a 2009 baseline		Generate 100% clean energy by 2035	2,559	Reduce community-wide greenhouse gas emissions 20% by 2020, using a 2009 baseline	3.7%	100%
Augusta	None		None		None		
Aurora	None		None		Reduce community-wide greenhouse gas emissions 10% by 2025, using a 2007 baseline	1.9%	100%
Austin	None		Generate 55% renewable electricity by 2025	847	Reduce community-wide greenhouse gas emissions 25% by 2020, using a 2010 baseline	6.5%	100%
Bakersfield	None		None		None		
Baltimore	Reduce energy use in buildings 13% by 2020, using a 2010 baseline	0.8%	None		Reduce community-wide greenhouse gas emissions 25% by 2020, using a 2007 baseline	0.6%	100%
Baton Rouge	None		None		None		
Birmingham	None		None		None		
Boise	None		Generate 100% renewable electricity by 2035	445	None		
Boston	None		Install 10 MW of commercial solar by 2020		Reduce community-wide greenhouse gas emissions 50% by 2030, using a 2005 baseline	3.3%	100%
Bridgeport	None		None		Reduce community-wide greenhouse gas emissions 20% by 2020, using a 2007 baseline	2.3%	
Buffalo	None		None		None		
Cape Coral	None		None		None		
Charleston	None		None		Reduce community-wide greenhouse gas emissions 80% by 2050, using a 2002 baseline	2.1%	
Charlotte	None		None		Reduce community-wide greenhouse gas emissions 2 tons CO2e per capita by 2050, using a 2015 baseline		

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual renewable kWh per household targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Chicago	Reduce energy use in Better Buildings Challenge properties 20% by 2022, using a 2011 baseline		Generate 100% renewable energy by 2035	1,025	Reduce community-wide greenhouse gas emissions 26% by 2025, using a 2005 baseline	0.9%	100%
Chula Vista	Retrofit 13% of homes and 10% of commercial spaces to reduce energy use 25% below 2005 levels by 2020		Generate 100% renewable electricity by 2035	330	Reduce community-wide greenhouse gas emissions 15% by 2020, using a 2005 baseline	2.4%	
Cincinnati	Reduce community-wide energy use 2% annually	2.8%	Generate 100% renewable energy by 2035	788	Reduce community-wide greenhouse gas emissions 40% by 2028, using a 2006 baseline	1.9%	97.4%
Cleveland	Reduce residential and commercial energy use 50% and industrial energy use 30% by 2030, using a 2010 baseline	1.8%	Generate 15% renewable electricity by 2022	345	Reduce community-wide greenhouse gas emissions 16% by 2020, using a 2010 baseline	3%	100%
Colorado Springs	None		Generate 20% renewable electricity by 2020	487			
Columbia	None		Generate 100% renewable energy by 2036	1,737	None		
Columbus	Reduce community-wide energy use 20% by 2020	4.2%	Generate 10% renewable energy by 2022	201	Reduce community-wide greenhouse gas emissions 20% by 2020, using a 2013 baseline	5.5%	79.1%
Dallas	Reduce energy in the Dallas 2030 District 50% by 2030.		None		Reduce greenhouse gas emissions in the Dallas 2030 District 50% by 2030.		
Dayton	None		None		None		
Denver	Reduce energy use 10% in non-single-family buildings by 2020 and single-family buildings by 2025, using a 2005 baseline		Generate 100% renewable electricity by 2030	1,164	Reduce community-wide greenhouse gas emissions 15% by 2020, using a 2005 baseline	3.3%	100%
Des Moines	None		None		Reduce community-wide greenhouse gas emissions 28% by 2025, using a 2017 baseline	4.4%	

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual renewable kWh per household targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Detroit	Reduce average industrial and commercial energy consumption per square foot 10% by 2024, using a 2016 baseline		Increase solar generation capacity to 6.6 MW by 2024	3	Reduce community-wide greenhouse gas emissions 30% by 2025, using a 2012 baseline	1.6%	
El Paso	None		None		None		
Fort Worth	Reduce energy use in Better Buildings Challenge properties 20% by 2020, using a 2009 baseline		None		None		
Fresno	None		None		Reduce community-wide greenhouse gas emissions to 1990 levels by 2020	2.2%	
Grand Rapids	Reduce energy in the Grand Rapids 2030 District 50% by 2030.		None		None		
Greensboro	None		None		None		
Hartford	None		None		Reduce community-wide greenhouse gas emissions 40% by 2030, using a 2001 baseline		
Henderson	None		None		None		
Honolulu	None		Generate 100% renewable energy by 2045	610	Reduce community-wide greenhouse gas emissions 26% by 2025, using a 2005 baseline	2.0%	
Houston	Reduce energy use in Better Buildings Challenge properties 20% by 2020, using a 2008 baseline		Install 5 million MWh of rooftop and community solar by 2050	107	Reduce community-wide greenhouse gas emissions 40% by 2030, using a 2014 baseline	3.1%	
Indianapolis	None		Generate 20% renewable energy by 2025	376	Reduce community-wide greenhouse gas emissions 100% by 2050, using a 2016 baseline	2.9%	
Jacksonville	None		None		None		
Kansas City	Reduce community-wide energy use 50% by 2050, using a 2008 baseline		Generate 50% renewable energy by 2050	301	Reduce community-wide greenhouse gas emissions 30% by 2020, using a 2000 baseline	2.6%	100%
Knoxville	None		None		Reduce community-wide greenhouse gas emissions 20% by 2020, using a 2005 baseline	1.4%	0%
Lakeland	None		None		None		
Las Vegas	None		None		None		
Little Rock	None		None		None		

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual renewable kWh per household targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Long Beach	Reduce community-wide electricity use 15% and natural gas use 10% by 2020, using a 2007 baseline	1.4%	Install 8 MW of solar energy by 2020		None		
Los Angeles	Reduce the energy use intensity of all buildings 22% by 2025, using a 2015 baseline	2.2%	Generate 55% renewable electricity by 2025	470	Reduce community-wide greenhouse gas emissions 50% by 2025, using a 1990 baseline	4.7%	100%
Louisville	Reduce community-wide energy use 25% per capita by 2025, using a 2012 baseline	1.9%	Generate 100% clean energy by 2040	1,339	Reduce community-wide greenhouse gas emissions 80% by 2050, using a 2016 baseline	2.5%	
Madison	Reduce community-wide energy use 50% per capita by 2030, using a 2008 baseline		Generate 25% clean energy by 2025	306	Reduce community-wide greenhouse gas emissions 80% by 2050, using a 2010 baseline	2.2%	0%
McAllen	None		None		None		
Memphis	None		None		None		
Mesa	None		None		None		
Miami	None		None		Reduce community-wide greenhouse gas emissions 25% by 2020, using a 2006 baseline	3.2%	86.2%
Milwaukee	Reduce energy use in Better Buildings Challenge properties 20% by 2020, using a 2009 baseline		None		Reduce community-wide greenhouse gas emissions 45% by 2030, using a 2018 baseline	3.8%	
Minneapolis	Increase the efficiency of commercial buildings 20% and residential buildings 15% by 2025, using a 2014 baseline	2.6%	Generate 100% renewable energy by 2030	717	Reduce community-wide greenhouse gas emissions 30% by 2025, using a 2006 baseline	2.7%	100%
Nashville	None		None		None		
New Haven	None		None		Reduce community-wide greenhouse gas emissions 55% by 2030, using a 1999 baseline	2.9%	100%
New Orleans	Reduce community-wide energy use 3.3% annually through 2030.		Generate 100% low-carbon electricity by 2030	526	Reduce community-wide greenhouse gas emissions 50% by 2030, using a 2014 baseline	3.3%	
New York	None		Generate 100% carbon-free electricity by 2050	856	Reduce community-wide greenhouse gas emissions 30% by 2025, using a 2005 baseline	1.4%	0%

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual renewable kWh per household targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Newark	None		None		Reduce community-wide greenhouse gas emissions to 1990 levels by 2020		
Oakland	Reduce community-wide electricity use 32% and natural gas use 14% by 2020, using a 2005 baseline	2.3%	Generates more than 90% of electricity from renewable energy sources		Reduce community-wide greenhouse gas emissions 36% by 2020, using a 2005 baseline	4.9%	17.7%
Oklahoma City	None		None		None		
Omaha	Reduce community-wide energy use per capita 20% by 2020, using a 2010 baseline		Generate 20% renewable energy by 2030	228	None		
Orlando	Reduce community-wide energy use 25% by 2040, using a 2010 baseline	1.4%	Generate 100% renewable electricity by 2050	820	Reduce community-wide greenhouse gas emissions 90% by 2040, using a 2007 baseline	3.4%	32.9%
Oxnard	Reduce community-wide energy use 10% by 2020, using a 2005 baseline	2.4%	None		None		
Philadelphia	None		Generate 100% carbon-free electricity by 2050	325	Reduce community-wide greenhouse gas emissions 80% by 2050, using a 2006 baseline	2.2%	100%
Phoenix	Achieve net-positive energy and materials in all buildings by 2050		Generate 15% renewable energy by 2025	198	Reduce community-wide greenhouse gas emissions 30% by 2025, using a 2012 baseline	3.6%	100%
Pittsburgh	Reduce community-wide energy use 50% by 2030, using a 2003 baseline	3.3%	Generate 100% renewable energy by 2030	1,164	Reduce community-wide greenhouse gas emissions 20% by 2023, using a 2003 baseline	2.5%	38.0%
Portland	Reduce energy use in buildings built before 2010 25% by 2030		Generate 100% renewable electricity by 2035	925	Reduce community-wide greenhouse gas emissions 40% by 2030, using a 1990 baseline	2.2%	98.1%
Providence	None		Generate 50% carbon-free electricity by 2035	115	Reduce community-wide greenhouse gas emissions 100% by 2050, using a 2015 baseline	2.9%	36.3%
Provo	None		None		None		

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual renewable kWh per household targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Raleigh	None		None		Reduce community-wide greenhouse gas emissions 80% by 2050, using a 2007 baseline	2.5%	
Reno	Increase commercial, industrial, and multifamily efficiency 20% by 2025		Generate 50% renewable electricity by 2030	396	Reduce community-wide greenhouse gas emissions 28% by 2025, using a 2008 baseline	3.3%	
Richmond	None		None		Reduce community-wide greenhouse gas emissions 40% by 2030, using a 2008 baseline	2.1%	100%
Riverside	Reduce community-wide energy use 1% annually, using a 2004 baseline		Generate 50% carbon-free energy by 2020	598	Reduce community-wide greenhouse gas emissions 26% by 2020, using a 2007 baseline	2.4%	
Rochester	None		None		Reduce community-wide greenhouse gas emissions 20% by 2020, using a 2010 baseline	1.6%	
Sacramento	Reduce community-wide energy use 25% by 2030, using a 2005 baseline	2.2%	None		Reduce community-wide greenhouse gas emissions 15% by 2020, using a 2005 baseline	0.9%	100%
Salt Lake City	None		Generate 100% renewable electricity by 2032	2,126	Reduce community-wide greenhouse gas emissions 50% by 2030, using a 2009 baseline	3.6%	45.3%
San Antonio	Reduce community-wide energy use 22% by 2040, using a 2014 baseline	0.9%	Generate 50% renewable electricity by 2040	300	Reduce community-wide greenhouse gas emissions 41% by 2030, using a 2016 baseline	3.8%	
San Diego	Reduce community-wide energy use 15% in 20% of housing by 2020, using a 2015 baseline		Generate 100% renewable energy by 2035	473	Reduce community-wide greenhouse gas emissions 15% by 2020, using a 2010 baseline	2.6%	87.7%
San Francisco	None		Generate 100% renewable electricity by 2030	453	Reduce community-wide greenhouse gas emissions 40% by 2025, using a 1990 baseline	2.6%	100%
San José	Reduce per capita household energy use 50% by 2022, using a 2008 baseline	3.6%	Generates more than 90% of electricity from carbon-free energy sources, achieving its 2021 goal		Reduce community-wide greenhouse gas emissions 4% by 2021, using a 1990 baseline	2.3%	100%
San Juan	None		None		None		

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual renewable kWh per household targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Seattle	Reduce commercial energy use 10% and residential use 20% by 2030, using a 2008 baseline	1.4%	Generates more than 90% of electricity from renewable energy sources		Reduce community-wide greenhouse gas emissions 58% by 2030, using a 2008 baseline	3.3%	25.2%
Springfield	Increase energy audits 20% by 2020 and complete 100% of recommended residential work by 2025		Install solar to generate 10% of energy by 2030	233	Reduce community-wide greenhouse gas emissions 80% by 2050, using a 2015 baseline	2.3%	
St. Louis	None		Generate 100% renewable electricity by 2035	1,406	Reduce community-wide greenhouse gas emissions 25% by 2020, using a 2005 baseline	2.9%	100%
St. Paul	None		Install 50 MW of residential and 150 MW of commercial solar by 2030.		Reduce community-wide greenhouse gas emissions 50% below a 2030 business-as-usual projection	5.7%	
St. Petersburg	None		Generate 100% renewable electricity by 2035	1,243	Reduce community-wide greenhouse gas emissions 20% by 2020, using a 2016 baseline	5.4%	
Stockton	None		Generate 10% commercial solar electricity and 5% solar residential electricity by 2020		Reduce community-wide greenhouse gas emissions 10% by 2020, using a 2005 baseline	1.3%	
Syracuse	None		None		Reduce community-wide greenhouse gas emissions 7% by 2020, using a 2002 baseline	0.3%	
Tampa	None		Install renewable energy systems in 20% of existing residential and commercial buildings by 2025		Reduce community-wide greenhouse gas emissions to 1990 levels by 2025	2.0%	

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual renewable kWh per household targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Toledo	None		None		Reduce community-wide greenhouse gas emissions 40% by 2030, using a 2012 baseline	5.1%	
Tucson	Reduce energy in the Tucson 2030 District 50% by 2030		None		None		
Tulsa	None		None		None		
Virginia Beach	Reduce community-wide energy use 10% by 2040, using a 2006 baseline		None		None		
Washington, DC	Reduce community-wide energy use 50% by 2032, using a 2012 baseline	3.2%	Generate 100% renewable energy by 2032	817	Reduce community-wide greenhouse gas emissions 50% by 2032, using a 2006 baseline	2.7%	100%
Wichita	None		None		None		
Winston-Salem	None		None		None		
Worcester	None		None		None		

Sources: We collected information regarding city goals from city ordinances; mayoral executive orders; and city climate action, sustainability, energy, resilience, and comprehensive community plans. Targeted changes in energy use were calculated using data from these sources, online data portals, greenhouse gas emissions inventories, and correspondence with city staff. Targeted and projected changes in greenhouse gas emissions were calculated using city greenhouse gas emissions inventories. Targeted changes in renewable energy generation were calculated using data from city greenhouse gas emissions inventories, online data portals, correspondence with city staff, and utility public reporting.

Table F7. 2020 community-wide equity-driven clean energy planning strategies

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
Atlanta	None	None	City has goal to reduce energy burdens for 10% of households with tracking metrics focused on those with low incomes.
Baltimore	None	None	Baltimore's Equity Assessment Program requires city agencies to assess existing and proposed policies and practices for disparate outcomes based on race, gender, or income.
Boston	None	None	Resilient Boston plan sets specific goals and indicators to improve transportation access and increase proximity to parks for marginalized residents.
Chicago	None	None	Resilient Chicago plan includes specific goals and indicators to improve transit service to underserved areas and install efficient lighting in low-income communities.
Cincinnati	City held Green Cincinnati Plan development meetings in Spanish and in communities of color.	None	City has goal to reduce energy burdens 10% by 2023.
Cleveland	None	None	City uses a racial equity tool to plan implementation for its climate action plan.
Dallas	None	None	Resilient Dallas has specific time-limited goals and metrics to track how energy efficiency and climate action initiatives are achieving positive environmental justice and social equity outcomes.
Detroit	City hosted four town hall meetings and seven focus groups with populations that are historically underrepresented in planning processes.	None	None
Hartford	City's Climate Action meetings focused on implementation of the Climate Action Plan. These meetings were co-hosted at and with local grassroots nonprofits. In addition, these meetings were held in neighborhoods across the city, after traditional working hours, and were intentionally family friendly to attract as many residents as possible.	None	City uses the Sustainable Connecticut Equity Toolkit to inform how events are held and work is conducted.
Honolulu	None	None	Pillar I of the city's resilience strategy has several specific, time-limited goals focused on energy and housing affordability outcomes. Pillar IV also has several goals focused on city coordination with marginalized communities. City staff hold weekly meetings to report on progress toward these goals.
Indianapolis	In planning Thrive Indianapolis, the city held specialized focus groups and training for reentry, veterans, low-income, and homeless populations in convenient locations.	None	None

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
Long Beach	In the city's Climate Action and Adaptation Plan outreach process, there has been direct outreach in communities that are home to marginalized groups. The outreach has also been conducted in Spanish and Khmer.	None	None
Los Angeles	None	The city has created formal partnerships with marginalized community-based organizations to apply for grants to support climate action initiatives in South L.A. and the Watts neighborhood.	The LA Green New Deal adopted specific, time-limited goals to track how energy efficiency and climate action initiatives are achieving positive environmental justice outcomes.
Miami	Marginalized community residents were invited to a series of community meetings to solicit their input on what issues and initiatives should be prioritized in the Miami Forever Climate Ready strategy. Each of the eight workshops had information specific to the neighborhoods in and around the area where it took place. Snacks and childcare were provided. Meetings had in-person translation services available in Spanish or Haitian Creole.	None	None
Milwaukee	None	Council resolution 190445 established the Climate and Economic Equity Task Force. The task force is composed mostly of residents from marginalized communities and the community-based organizations serving them.	None
Minneapolis	Green Zone Task Forces develop and lead outreach to engage community members in planning their initiatives.	The city has created Northern and Southside Green Zones that are community driven. Members of these communities sit on task forces that serve as an advisory board to the city council and mayor on the implementation and evaluation of their corresponding climate action work plans, which were also developed by community members.	The city and Green Zone Task Forces track numerous indicators to monitor the outcomes of sustainability initiatives that serve the two zones. Additionally, the Minneapolis Division of Race and Equity is charged with directing departments to create equity goals and include them in annual staff evaluations.
New Orleans	In 2018 the city launched the Climate Equity Project, an extensive community outreach strategy to gather marginalized resident input on how climate change impacts New Orleanians at the neighborhood level. An oversight committee, consisting of subject matter experts and community leaders, incorporated the findings of these meetings into a summary document listing recommendations on energy, waste, transportation, and culture/ workforce.	None	None

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
New York	None	New York's Environmental Justice Advisory Board consists of residents of environmental justice communities and experts from environmental justice groups. The board is working to conduct research and create a citywide Environmental Justice Plan.	Executive Order 45 of 2019 requires agencies to report annually on key indicators that promote equity.
Oakland	Community-wide town hall meetings were held to receive in-depth community feedback on the draft Equitable Climate Action Plan. More than 200 residents participated using a democratic deliberative decision-making process. These events were held in Oakland's most climate-impacted neighborhoods at varying times and dates to expand accessibility. In addition, simultaneous language interpretation services, free meals, and child care services were provided.	None	City uses Equity Indicators Reports to track both pollution and energy cost burdens.
Orlando	Parramore is a historically Black community in Orlando. In developing the Parramore Comprehensive Plan, public meetings were held in the neighborhood at community centers. People were given the opportunity to speak during the meetings, provide comments on comment cards, vote, prioritize locations on a map, and talk to community leaders.	None	The Parramore Comprehensive Plan includes several metrics to track outcomes related to energy and health. With guidance and materials from the Urban Sustainability Directors Network and the American Cities Climate Challenge Equity training, Orlando conducts monthly workshops in which sustainability programs are evaluated through a social equity and climate justice lens. This work continues across the Offices of Sustainability and Community Affairs, with a goal to develop a training program for all city employees, in addition to the current inclusivity training required for all employees.
Philadelphia	None	Philadelphia's Environmental Justice Advisory Commission comprises residents of overburdened communities, including environmental, health, and socioeconomic burdens. The commission will instruct the city on equitable implementation of climate actions.	Philadelphia Energy Authority programs track and annually report several metrics related to outcomes for low-income households.
Phoenix	None	The city established 16 Village Planning Committees for community residents in each urban village to review all projects in their neighborhood on a monthly basis. These committees review and provide approval for sustainability action plans in their communities.	None

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
Pittsburgh	None	None	City recently released the "Pittsburgh Equity Indicators: A Baseline Measurement for Enhancing Equity in Pittsburgh." An annual review of these metrics will be done in future years.
Portland	In June 2018, Portland became one of 12 U.S. cities to receive funding from the Urban Sustainability Directors Network to develop a zero-carbon building policy road map through a community collaboration process that centers on equity and is informed by technical analysis. Several community-based organizations representing marginalized communities are facilitating a community-led engagement process that will result in a road map, report, and resolution to the city council.	The Portland Clean Energy Fund (PCEF) prioritizes investments in communities living on the front lines of climate change with clean energy funding, job training programs, and green infrastructure projects. All PCEF projects prioritize Portland's underserved populations and neighborhoods, including communities of color and low-income residents. The PCEF is overseen by a nine-member Portland Clean Energy Community Benefits Committee made up of experts and community members. The committee makes funding recommendations to the mayor and city council and evaluates grant impacts.	For the city's energy, sustainability, and climate work, there are multiple staff that are responsible for advancing equity through their work, guided by the Bureau of Planning and Sustainability's Equity Vision. Annual performance reviews evaluate how well employees have advanced equity through their work and if they have completed equity trainings.
Providence	The Racial and Environmental Justice Committee (REJC) led the community engagement process for developing Providence's Climate Justice Plan.	City facilitated the creation of the REJC. It is made up of frontline community members of color and guides the Office of Sustainability to better incorporate equity into its work.	The city released its Climate Justice Plan in 2019. It includes seven key objectives, more than 20 targets, and more than 50 strategies aiming to create a truly equitable, low-carbon, climate-resilient city. Every recommendation proposed for the city's climate strategy was evaluated via the Principles and Values for a Racially Equitable and Just Providence, which was created by the REJC.
Sacramento	In conducting community engagement for Sacramento's General Plan, staff conducted Environmental Justice Listening Sessions. The goal of these workshops was to provide a space for city staff to listen to underserved communities articulate their lived experiences in communities that carry a disproportionate environmental burden. In an effort to encourage participation of hard-to-reach groups in community planning meetings, the project team also provided translation, food, and family- friendly activities. Furthermore, the planning team hosted various pop-up events to reach marginalized residents at community events and gathering places to engage discussion on specific components of the General Plan.	The city has convened an Environmental Justice Working Group made up of community leaders, advocates, and community-based organizations that currently serve Sacramento's marginalized communities. The working group is charged with developing an appropriate plan for moving forward with engagement and informing policy and implementation recommendations for the Environmental Justice General Plan element.	None

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
San Antonio	None	The Climate Equity Technical Working Group for the Climate Action and Adaptation Plan (CAAP), consisting of 15 marginalized community members, identified climate challenges specific to San Antonio and possible solutions. The working group aimed to increase equity while strategically reducing greenhouse gas emissions. In December 2019 the city passed an ordinance that created two committees to oversee the implementation of the CAAP. One of them is the Climate Equity Advisory Committee, which will provide input on the implementation of the CAAP to ensure an equity-centered approach and equitable outcomes.	San Antonio's Climate Equity Screening Mechanism was designed with the help of the Climate Equity Technical Working Group as a framework for the intentional consideration of equity issues in the implementation of climate action policies, programs, and budget decisions. It is intended as a practical tool for applying an equity lens to all actions related to climate mitigation and adaptation. Currently, the city is monitoring the following climate equity indicators: median wages, asthma rates, and neighborhood poverty. With the creation of the Climate Equity Advisory Committee, San Antonio is hoping to track more climate equity indicators.
San Diego	None	None	San Diego's climate action plan commits city staff to develop a methodology for reporting on equity every five years. San Diego's Climate Equity Index (CEI) measures the level of access to opportunity residents have within a census tract and assesses the degree of potential impact from climate change to these areas. This allows the city to prioritize areas with the least access to opportunity and begin dismantling historic barriers that have caused disparities in communities of concern. The CEI can also be a tool to identify other areas that should be included in the communities of concern definition.

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
San Francisco	None	San Francisco Environment has convened an Anchor Partners Network (APN) to work directly with marginalized communities to establish equitable zero-emissions residential building strategies that will inform the city's 2020 Climate Action Strategy (CAS) update. The APN is co-led by Emerald Cities–San Francisco and PODER. These organizations are committed to equity in the clean energy sector and organize with frontline communities including low-income people and people of color—those who are most burdened by the impacts of the climate crisis and who are at the forefront of promoting genuine climate solutions. Through a series of stakeholder meetings, the APN will share the twin goals of residential building decarbonization and racial equity and will collect and incorporate community feedback to prioritize key strategies for the upcoming CAS update in order to meet both goals.	The City and County of San Francisco recently established an Office of Racial Equity, overseen by the city's Human Rights Commission, to address racial inequities across the city and advance toward equitable outcomes for all communities. The city budget for Fiscal Years 2019–20 and 2020–21 includes approximately $1 million over two years to staff the Office of Racial Equity. The office has the authority to create a citywide Racial Equity Framework, a document outlining the city's vision, goals, and overarching strategies to address racism and racial disparities and advance racial equity in the city, with a focus on the work of city government. The framework will include metrics by which departments, through Racial Equity Action Plans, can measure performance to address racial disparities. The framework was scheduled to be submitted to the Board of Supervisors by no later than June 30, 2020.
San José	In developing its climate action plan, the city partnered with community-based organizations to conduct 38 outreach events in Spanish- and Vietnamese-speaking neighborhoods.	None	None
Seattle	The city created the Duwamish Valley Action Plan in collaboration with marginalized residents living in the South Park region of Seattle. The city employed several approaches to increase participation by these residents.	The city created the Environmental Justice Committee (EJC) in 2017. The EJC is a space for those most affected by environmental inequities to direct implementation of the city's Equity & Environment Agenda. The EJC oversees the Environmental Justice Fund, a new grant opportunity for community-led projects that improve environmental conditions, respond to impacts of climate change, and work toward environmental justice.	The city, through its Race and Social Justice Initiative (RSJI), requires all city departments, including the utility and the Office of Sustainability and Environment, to develop RSJI goals and to utilize an RSJI tool kit prior to and throughout development and implementation of an initiative.
Springfield	The city planned two of its three climate action plan community workshops in socially vulnerable communities. The two nongovernment entities leading the community engagement process were organizations focused on climate justice. The city also provided childcare at all community workshops.	None	Springfield's resilience plan has a goal to ensure 50% of all low-income utility accounts have a 50% or greater discount from community shared solar projects by 2022.

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
St. Paul	In the spring of 2019, the city held five community forums to share the draft Climate Action and Resilience Plan with residents and to solicit feedback. Four of the meetings were held in areas of concentrated poverty where most of the residents are people of color. Each event was co-hosted by a community-based organization partner.	None	City has a goal that within 10 years the energy burden will be reduced so that no St. Paul household spends more than 4% of household income on energy costs.
Toledo	The Toledo–Lucas County Going Beyond Green plan includes a goal to improve the area's housing and transportation affordability index by 11 index points (a 15% reduction) between 2012 and 2030.	None	None
Washington, DC	Two of the three main goals in updating the District's sustainability plans are to focus the planning process on underserved communities and to make the plan more relevant to people who have not participated in sustainability in the past, particularly people of color. To make the planning process most convenient for residents of underserved communities, the District partnered with community organizations to help recruit new participants, held meetings in familiar, Metro-accessible venues in communities of focus, and restructured meeting formats to be more casual and accessible.	In 2017 and 2018, the District and the Georgetown Climate Center convened an Equity Advisory Group of community leaders and residents of Far Northeast Ward 7 to develop recommendations on the Department of Energy & Environment's implementation of its Climate Ready DC and Clean Energy DC plans. The District's climate vulnerability analysis showed that this community faces disproportionate flooding and other climate-related risks relative to other parts of the District.	None

Sources: We collected information regarding cities' equity-driven strategies for clean energy planning through correspondence with city staff and from city climate action, energy, sustainability, or resilience planning documents.

Table F8. Support for distributed energy resources, by system and technology type, for scoring cities

City	Support for district energy system	Support for clean energy technology in district energy systems	Support for microgrids	Support for clean energy technology in microgrids	Support for community solar	Support for clean energy technology in community solar systems
Akron	•	City council approved a $25 million renovation grant to incorporate renewable energy	None	None	None	None
Aurora	None	None	None	None	•	None
Austin	•	Integrated energy storage into an existing district energy system	None	None	•	None
Boise	•	City operates a geothermal steam distribution plant	None	None	None	None
Boston	•	Smart Utilities Policies requires developments over 1.5 million square feet to conduct a district energy feasibility study that integrates energy storage, renewable energy, and/or combined heat and power	•	Smart Utilities Policies requires developments over 1.5 million square feet to conduct a microgrid feasibility study that integrates energy storage, renewable energy, and/or combined heat and power	None	None
Bridgeport	None	None	•	Bridgeport microgrid integrates combined heat and power	None	None
Buffalo	•	None	None	None	None	None
Charlotte	None	None	•	Microgrid at fire station integrates solar and storage	None	None
Chicago	None	None	None	None	•	None
Cleveland	•	Cleveland Thermal district energy system was retrofitted to include combined heat and power	•	Planned Cleveland Thermal microgrid integrates combined heat and power	None	None
Colorado Springs	None	None	None	None	•	None
Denver	•	Energy Future Collaboration highlights energy storage for use in district energy systems	•	Energy Future Collaboration highlights energy storage for use in microgrids	•	None
Hartford	None	None	•	Energy Improvement District enabling ordinance allows microgrids to incorporate clean energy technology	•	Energy Improvement District request for proposal favors proposals that include energy storage
Honolulu	•	None	None	None	None	None
Indianapolis	•	District energy system was converted from coal to natural gas	None	None	None	None
Jacksonville	•	None	None	None	•	Energy storage
Kansas City	•	None	None	None	None	None

City	Support for district energy system	Support for clean energy technology in district energy systems	Support for microgrids	Support for clean energy technology in microgrids	Support for community solar	Support for clean energy technology in community solar systems
Long Beach	None	None	•	Port of Long Beach is constructing a microgrid that includes renewables and electric vehicle charging stations	None	None
Los Angeles	None	None	None	None	•	None
Madison	None	None	None	None	•	None
Milwaukee	•	None	None	City constructed a solar array that interconnected into an existing microgrid	None	None
Minneapolis	•	None	•	None	•	None
Nashville	None	None	None	None	•	None
New Orleans	None	None	None	None	•	None
New York	•	Issued a request for proposal to construct a district energy system powered by combined heat and power at Red Hook	•	Received a grant from NYSERDA to conduct a feasibility study for a microgrid that will be powered by renewable energy and low-carbon resources at Red Hook	•	None
Oakland	None	None	•	EcoBlock project includes renewable energy and electric vehicle charging stations	None	None
Orlando	•	None	None	None	•	None
Philadelphia	None	None	•	Navy Yard microgrid project integrates renewable energy and fuel cell technology	None	None
Portland	None	None	•	Fire station microgrid integrated solar and storage	None	None
Phoenix	•	None	None	None	None	None
Pittsburgh	•	Uptown Energy District includes combined heat and power	•	Constructed microgrids that integrate renewable energy and electric vehicle charging stations	None	None
Provo	•	City partnered with BYU to convert the campus' district energy to natural gas combined heat and power	None	None	None	None
Sacramento	None	None	None	None	•	None
St. Paul	•	District energy integrated renewable biomass	None	None	•	None
Seattle	•	None	•	Seattle City Light built a microgrid that integrates renewable energy and energy storage	•	None
Springfield	None	None	None	None	•	None
St. Louis	•	None	None	None	•	None
Syracuse	None	None	•	Received a grant from NYSERDA to integrate combined heat and power in a microgrid	None	None
Washington, DC	None	None	None	None	•	Battery storage
Worcester	None	None	•	None	None	None

ENERGY AND WATER UTILITIES

Table F9. Scores for electric efficiency efforts and city–utility partnerships for energy utilities

City	Electric utility	2018 net incremental savings (MWh)	% of retail sales	Score for utility savings (3 pts MOUs, 2 pts IOUs)	City–utility partnership (IOUs only; N/A for munis) (1 pt)	Total (3 pts)
Worcester	National Grid (MA)	745,560	3.73%	2	0	2
Boston	Eversource (MA)	704,398	2.89%	2	1	3
Springfield	Eversource (MA)	704,398	2.89%	2	0	2
Providence	National Grid RI (Narragansett Electric)	206,209	2.75%	2	1	3
Chula Vista	San Diego Gas & Electric	441,209	2.35%	2	1	3
San Diego	San Diego Gas & Electric	441,209	2.35%	2	1	3
Chicago	ComEd	1,859,773	2.08%	2	1	3
Mesa	Salt River Project*†	574,221	1.98%	2.5	N/A	2.5
Los Angeles	LADWP*†	388,933	1.76%	2.5	N/A	2.5
Bakersfield	PG&E	1,287,988	1.61%	1	1	2
Fresno	PG&E	1,287,988	1.61%	1	1	2
Oakland	PG&E	1,287,988	1.61%	1	1	2
San Francisco	PG&E	1,287,988	1.61%	1	1	2
San José	PG&E	1,287,988	1.61%	1	1	2
Stockton	PG&E	1,287,988	1.61%	1	0	1
Portland	Portland General Electric	304,163	1.58%	1	1	2
Long Beach	Southern California Edison	1,346,561	1.55%	1	1	2
Oxnard	Southern California Edison	1,346,561	1.55%	1	1	2
Grand Rapids	Consumers Energy Co.	586,784	1.55%	1	1	2
Hartford	Eversource (Connecticut Light & Power)	329,714	1.54%	1	1	2
Minneapolis	Xcel Energy (Northern States Power)†	532,024	1.52%	1	1	2
St. Paul	Xcel Energy (Northern States Power)†	532,024	1.52%	1	1	2
Detroit	DTE Energy	727,907	1.50%	1	0	1
Aurora	Xcel Energy (Public Service Co. of CO)	422,746	1.45%	1	0	1
Denver	Xcel Energy (Public Service Co. of CO)	422,746	1.45%	1	1	2
Dayton	Dayton Power & Light	206,784	1.43%	1	1	2
Akron	First Energy (Ohio Edison)*†	332,318	1.36%	1	0	1
Cincinnati	Duke Energy Ohio	273,855	1.32%	1	0	1
Cleveland	First Energy (Cleveland Electric Illuminating)*†	241,993	1.29%	1	0	1
Des Moines	MidAmerican Energy*†	303,980	1.28%	1	0	1
Honolulu	Hawaiian Electric Co.	81,882	1.27%	1	0.5	1.5
Sacramento	SMUD*†	128,337	1.25%	1.5	N/A	1.5
Orlando	Orlando Utilities Commission	84,350	1.24%	1	N/A	1
Seattle	Seattle City Light*†	110,893	1.22%	1	N/A	1
Washington, DC	PEPCO	134,728	1.19%	1	N/A	1
St. Louis	Ameren UE (Union Electric) a	395,048	1.17%	0.5	0.5	1
Indianapolis	Indianapolis Power & Light	161,686	1.17%	0.5	1	1.5
Little Rock	Entergy Arkansas	255,929	1.14%	0.5	0	0.5
Toledo	First Energy (Toledo Edison)*†	111,979	1.06%	0.5	0	0.5
Columbus	American Electric Power (Ohio Power)*†	452,124	1.01%	0.5	1	1.5

City	Electric utility	2018 net incremental savings (MWh)	% of retail sales	Score for utility savings (3 pts MOUs, 2 pts IOUs)	City–utility partnership (IOUs only; N/A for munis) (1 pt)	Total (3 pts)
Tucson	Tucson Electric Power Co*†	89,594	1.01%	0.5	0	0.5
Charlotte	Duke Energy Carolinas	585,489	0.99%	0.5	0	0.5
Greensboro	Duke Energy Carolinas	585,489	0.99%	0.5	0	0.5
Winston-Salem	Duke Energy Carolinas	585,489	0.99%	0.5	0	0.5
Buffalo	National Grid (NY)	339,979	0.96%	0.5	0	0.5
Syracuse	National Grid (NY)	339,979	0.96%	0.5	0	0.5
Boise	Idaho Power*†	128,781	0.93%	0.5	0.5	1
Kansas City	Kansas City Power & Light (Evergy)	80,326	0.93%	0.5	0	0.5
Colorado Springs	Colorado Springs Utilities*†	42,311	0.92%	0.5	N/A	0.5
Riverside	City of Riverside Public Service*†	19,811	0.91%	0.5	N/A	0.5
Milwaukee	We Energies	216,560	0.89%	0.5	0.5	1
Philadelphia	PECO*†	341,920	0.89%	0.5	0.5	1
Baltimore	Baltimore Gas & Electric Co	264,284	0.87%	0.5	0.5	1
Salt Lake City	Rocky Mountain Power (PacifiCorp)	212,798	0.87%	0.5	1	1.5
Bridgeport	United Illuminating Co.	44,320	0.85%	0.5	0	0.5
New Haven	United Illuminating Co.	44,320	0.85%	0.5	0	0.5
New York	ConEdison	476,871	0.84%	0.5	0.5	1
Allentown	PPL Electric Utilities	311,197	0.83%	0.5	0	0.5
Austin	Austin Energy	110,780	0.83%	0.5	N/A	0.5
Raleigh	Duke Energy Progress	289,508	0.75%	0.5	0	0.5
Tulsa	Public Service Co. of Oklahoma	136,588	0.74%	0.5	0	0.5
New Orleans	Entergy New Orleans*†	42,317	0.72%	0.5	N/A	0.5
Albuquerque	Public Service Co. of NM	60,222	0.68%	0.5	0.5	1
Phoenix	Arizona Public Service*†	183,540	0.67%	0.5	0.5	1
San Antonio	CPS Energy (City of San Antonio)	140,450	0.62%	0.5	N/A	0.5
Pittsburgh	Duquesne Light Co.*†	82,039	0.62%	0.5	0.5	1
Oklahoma City	Oklahoma Gas & Electric†	124,030	0.49%	0	0	0
Louisville	Louisville Gas & Electric*†	57,775	0.48%	0	0	0
Dallas	ONCOR*†	183,402	0.44%	0	0	0
Fort Worth	ONCOR*†	183,402	0.44%	0	0.5	0.5
Atlanta	Georgia Power	376,340	0.44%	0	0.5	0.5
Augusta	Georgia Power	376,340	0.44%	0	0	0
Madison	Madison Gas & Electric	14,884	0.43%	0	1	1
Newark	PSE&G†	168,926	0.40%	0	0	0
Henderson	NV Energy	129,644	0.39%	0	0	0
Las Vegas	NV Energy	129,644	0.39%	0	0	0
Jacksonville	JEA*†	39,948	0.33%	0	N/A	0
Houston	CenterPoint Energy	135,954	0.31%	0	0	0
Rochester	Rochester Gas & Electric†	21,476	0.30%	0	0.5	0.5
El Paso	El Paso Electric*†	17,374	0.27%	0	0	0
Omaha	Omaha Public Power District*†	28,126	0.26%	0	N/A	0
Charleston	Dominion Energy South Carolina	55,843	0.25%	0	0	0
Columbia	Dominion Energy South Carolina	55,843	0.25%	0	0	0

City	Electric utility	2018 net incremental savings (MWh)	% of retail sales	Score for utility savings (3 pts MOUs, 2 pts IOUs)	City–utility partnership (IOUs only; N/A for munis) (1 pt)	Total (3 pts)
Tampa	Tampa Electric Co.	46,840	0.24%	0	0.5	0.5
McAllen	American Electric Power (TX)	62,417	0.23%	0	0	0
Reno	NV Energy	57,748	0.17%	0	0	0
St. Petersburg	Duke Energy Florida*†	65,645	0.17%	0	0	0
Lakeland	Lakeland Electric*†	4,316	0.14%	0	N/A	0
Provo	Provo City Power*†	889	0.11%	0	N/A	0
Nashville	Nashville Electric Service	13,360	0.11%	0	N/A	0
Richmond	Dominion Virginia Power*†	65,887	0.08%	0	0	0
Virginia Beach	Dominion Virginia Power*†	65,887	0.08%	0	0	0
Miami	Florida Power & Light*†	68,552	0.06%	0	0	0
Knoxville	Knoxville Utilities Board	3,066	0.06%	0	N/A	0
Memphis	Memphis Light, Gas & Water	6,809	0.05%	0	N/A	0
Cape Coral	Lee County Electric Coop*†	1,452	0.04%	0	0	0
Baton Rouge	Entergy Louisiana	17,869	0.03%	0	0	0
Birmingham	Alabama Power*†	12,946	0.02%	0	0.5	0.5
San Juan	Puerto Rico Electric Power Authority b	0	0.00%	0	N/A	0
Wichita	Westar Energy (Evergy) c	0	0.00%	0	0	0

Savings and sales data are as reported for 2018 by utility staff except where noted. We include savings from the utilities as well as from statewide program administrators (i.e., NYSERDA, TVA, Energy Trust, Focus on Energy, Hawai'i Energy, and DCSEU) that are attributable to each utility. † Savings converted from gross to net using 0.841 conversion factor. * 2018 savings data from EIA-861 (EIA 2019a).
[a] Ameren's sales and savings data cover its program year from March 2018 to February 2019. [b] We were unable to obtain sales and savings data for Puerto Rico Electric Power Authority. [c] We were unable to obtain savings data for Westar Energy.

Table F10. Scores for natural gas efficiency efforts of energy utilities

City	Natural gas utility	2018 net incremental savings (MMtherms)	% of retail sales	Total (1.5 pts)
Boston	National Grid (Boston Gas and Colonial Gas Co.)	19.49	2.28%	1.5
Worcester	Eversource (MA)	7.07	2.23%	1.5
Bakersfield	SoCal Gas	51.78	1.98%	1.5
Los Angeles	SoCal Gas	51.78	1.98%	1.5
Oxnard	SoCal Gas	51.78	1.98%	1.5
Riverside	SoCal Gas	51.78	1.98%	1.5
Providence	Narragansett (National Grid RI)	4.97	1.89%	1.5
Rochester	Rochester Gas & Electric†	4.74	1.78%	1.5
Fresno	PG&E	29.97	1.58%	1.5
Oakland	PG&E	29.97	1.58%	1.5
Sacramento	PG&E	29.97	1.58%	1.5
San Francisco	PG&E	29.97	1.58%	1.5
San José	PG&E	29.97	1.58%	1.5
Stockton	PG&E	29.97	1.58%	1.5
St. Paul	Xcel Energy (Northern States Power)	9.13	1.52%	1.5
Minneapolis	CenterPoint Energy	17.83	1.51%	1.5
Detroit	DTE Energy	16.87	1.35%	1.5
Grand Rapids	DTE Energy	16.87	1.35%	1.5

City	Natural gas utility	2018 net incremental savings (MMtherms)	% of retail sales	Total (1.5 pts)
New York	National Grid (Brooklyn Union Gas Co.)/NYSERDA	20.83	1.33%	1.5
Syracuse	National Grid (NY)	20.83	1.33%	1.5
Washington, DC	Washington, DC Gas (DC SEU)	1.71	1.31%	1.5
Springfield	Columbia Gas of Massachusetts	4.72	1.26%	1.5
Des Moines	MidAmerican Energy†	6.91	1.24%	1.5
Honolulu	Hawaii Gas*	N/A	N/A	1
Portland	NW Natural	6.48	0.96%	1
Milwaukee	We Energies (Wisconsin Energy)	10.25	0.88%	1
Mesa	Southwest Gas	3.72	0.85%	1
Phoenix	Southwest Gas	3.72	0.85%	1
Tucson	Southwest Gas	3.72	0.85%	1
Hartford	Connecticut Natural Gas	2.35	0.77%	1
Chicago	Peoples Gas	7.35	0.72%	1
Bridgeport	Southern Connecticut Gas	1.94	0.63%	0.5
New Haven	Southern Connecticut Gas	1.94	0.63%	0.5
Madison	Madison Gas & Electric	1.15	0.61%	0.5
Little Rock	CenterPoint Energy (AR)†	3.79	0.59%	0.5
Columbus	Columbia Gas of Ohio (NiSource)**	10.03	0.57%	0.5
Toledo	Columbia Gas of Ohio (NiSource)**	10.03	0.57%	0.5
Cape Coral	TECO Peoples Gas†	0.53	0.52%	0.5
Jacksonville	TECO Peoples Gas†	0.53	0.52%	0.5
Lakeland	TECO Peoples Gas†	0.53	0.52%	0.5
Orlando	TECO Peoples Gas†	0.53	0.52%	0.5
St. Petersburg	TECO Peoples Gas†	0.53	0.52%	0.5
Tampa	TECO Peoples Gas†	0.53	0.52%	0.5
Aurora	Xcel (Public Service Co of CO)	6.05	0.51%	0.5
Denver	Xcel (Public Service Co. of CO)	6.05	0.51%	0.5
Oklahoma City	Oklahoma Natural Gas	3.63	0.50%	0.5
Tulsa	Oklahoma Natural Gas	3.63	0.50%	0.5
Seattle	Puget Sound Energy	3.77	0.44%	0.5
Dayton	Vectren†	1.27	0.41%	0.5
Albuquerque	New Mexico Gas	1.46	0.38%	0.5
Chula Vista	San Diego Gas & Electric	1.38	0.36%	0.5
San Diego	San Diego Gas & Electric	1.38	0.36%	0.5
Akron	Dominion Energy Ohio	0.40	0.31%	0.5
Cleveland	Dominion Energy Ohio	0.40	0.31%	0.5
Baltimore	Baltimore Gas & Electric	1.22	0.29%	0.5
Buffalo	National Fuel Gas	1.42	0.29%	0.5
Allentown	UGI Utilities	1.67	0.27%	0.5
Colorado Springs	Colorado Springs Utilities	0.74	0.34%	0.5
Kansas City	Spire Missouri	1.92	0.22%	0.5
St. Louis	Spire Missouri	1.92	0.22%	0.5
Newark	PSE&G†	3.14	0.17%	0
Philadelphia	PGW	0.68	0.15%	0
Austin	Texas Gas Service	0.30	0.11%	0
El Paso	Texas Gas Service	0.30	0.09%	0

City	Natural gas utility	2018 net incremental savings (MMtherms)	% of retail sales	Total (1.5 pts)
McAllen	Texas Gas Service	0.30	0.09%	0
Virginia Beach	Virginia Natural Gas (AGL Resources)	0.15	0.06%	0
Knoxville	Knoxville Utilities Board	0.01	0.01%	0
Dallas	ATMOS Energy	0.09	0.01%	0
Fort Worth	ATMOS Energy	0.01	0.00%	0
Atlanta	Atlanta Gas Light (Southern Company Gas)	0.00	0.00%	0
Augusta	Atlanta Gas Light (Southern Company Gas)	0.00	0.00%	0
Baton Rouge	Entergy Louisiana	0.00	0.00%	0
Birmingham	Alagasco	0.00	0.00%	0
Boise	Intermountain Natural Gas	0.00	0.00%	0
Charleston	Dominion Energy South Carolina	0.00	0.00%	0
Charlotte	Piedmont Natural Gas	0.00	0.00%	0
Cincinnati	Duke Energy Ohio	0.00	0.00%	0
Columbia	Dominion Energy South Carolina	0.00	0.00%	0
Greensboro	Piedmont Natural Gas	0.00	0.00%	0
Henderson	Southwest Gas	0.00	0.00%	0
Houston	CenterPoint Energy	0.00	0.00%	0
Indianapolis	Indianapolis Power & Light	0.00	0.00%	0
Las Vegas	Southwest Gas	0.00	0.00%	0
Long Beach	Long Beach Energy Resources	0.00	0.00%	0
Louisville	Louisville Gas & Electric	0.00	0.00%	0
Memphis	Memphis Light, Gas & Water	0.00	0.00%	0
Miami	Florida City Gas	0.00	0.00%	0
Nashville	Piedmont Natural Gas	0.00	0.00%	0
New Orleans	Entergy New Orleans	0.00	0.00%	0
Omaha	Metropolitan Utilities District of Omaha	0.00	0.00%	0
Pittsburgh	Peoples Natural Gas	0.00	0.00%	0
Provo	Dominion Energy	0.00	0.00%	0
Raleigh	PSNC Energy	0.00	0.00%	0
Reno	NV Energy	0.00	0.00%	0
Richmond	Richmond Department of Public Utilities	0.00	0.00%	0
Salt Lake City	Dominion Energy (Questar Gas)	0.00	0.00%	0
San Antonio	CPS Energy (San Antonio PSB)	0.00	0.00%	0
San Juan	N/A	0.00	0.00%	0
Wichita	Kansas Gas Service	0.00	0.00%	0
Winston-Salem	Piedmont Natural Gas	0.00	0.00%	0

All sales data are from 2018 EIA-176 (EIA 2019b). All 2018 savings data are from utility staff. We include savings from the utilities as well as statewide program administrators (i.e., NYSERDA, TVA, Energy Trust, Focus on Energy, Hawai'i Energy, and DCSEU) that are attributable to each utility. † Savings converted from gross to net using 0.90 conversion factor. * Because Hawaii consumes almost no natural gas, we scored Honolulu only on electric efficiency savings. Accordingly, we awarded Honolulu points for natural gas efficiency savings equivalent to the proportion of points it earned for corresponding electricity savings. ** Columbia Gas of Ohio's natural gas sales include residential, commercial, and industrial sales from EIA-176 (EIA 2019b).

Table F11. Scores for low-income energy efficiency programs

City	Comprehensive low-income program	Portfolio of low-income programs	Braiding funds for health and safety	Local government funds (N/A for cities with electric munis)	Total (max 1.5 pts)
Atlanta	X		X	X	1.5
Aurora	X	X	X		1.5
Baltimore	X	X		X	1.5
Boise	X	X	X		1.5
Boston	X	X	X	X	1.5
Buffalo	X	X	X		1.5
Chicago	X	X	X		1.5
Chula Vista	X		X	X	1.5
Columbus	X	X	X		1.5
Denver	X	X	X	X	1.5
Des Moines	X	X	X		1.5
Detroit	X	X		X	1.5
Grand Rapids	X	X	X	X	1.5
Hartford	X	X	X	X	1.5
Madison	X	X	X		1.5
Milwaukee	X	X	X		1.5
Minneapolis	X	X	X		1.5
New Haven	X		X	X	1.5
New York	X	X	X		1.5
Philadelphia	X	X		X	1.5
Phoenix	X		X	X	1.5
Pittsburgh	X	X	X		1.5
Portland	X	X	X		1.5
Providence	X	X	X		1.5
Raleigh	X	X	X	X	1.5
Rochester	X	X	X	X	1.5
St. Paul	X	X	X	X	1.5
Salt Lake City	X	X	X	X	1.5
Seattle	X	X	X	N/A	1.5
Springfield	X	X	X		1.5
St. Louis	X	X	X		1.5
Syracuse	X	X	X		1.5
Toledo	X	X	X		1.5
Washington, DC	X	X	X	N/A	1.5
Winston-Salem	X	X		X	1.5
Worcester	X	X	X		1.5
Albuquerque	X	X			1
Augusta	X		X		1
Austin	X	X		N/A	1
Bridgeport	X		X		1
Charlotte	X	X			1

City	Comprehensive low-income program	Portfolio of low-income programs	Braiding funds for health and safety	Local government funds (N/A for cities with electric munis)	Total (max 1.5 pts)
Cincinnati		X		X	1
Dallas	X	X			1
Dayton	X		X		1
Fort Worth	X	X			1
Greensboro	X	X			1
Houston	X			X	1
Jacksonville	X		X	N/A	1
Kansas City	X	X			1
Knoxville	X		X	N/A	1
Los Angeles	X	X		N/A	1
Newark	X		X		1
Oakland	X			X	1
Oklahoma City	X	X			1
San Diego	X		X		1
San Francisco	X			X	1
San José	X			X	1
Tulsa	X	X			1
Akron	X				0.5
Allentown		X			0.5
Bakersfield	X				0.5
Cleveland	X				0.5
El Paso	X				0.5
Fresno	X				0.5
Honolulu		X			0.5
Indianapolis	X				0.5
Long Beach	X				0.5
Louisville	X				0.5
McAllen	X				0.5
Memphis	X			N/A	0.5
Miami				X	0.5
New Orleans	X			N/A	0.5
Orlando	X			N/A	0.5
Oxnard	X				0.5
Richmond				X	0.5
Riverside	X			N/A	0.5
Sacramento	X			N/A	0.5
San Antonio	X			N/A	0.5
St. Petersburg	X				0.5
Stockton	X				0.5
Tampa	X				0.5
Tucson	X				0.5
Baton Rouge					0
Birmingham					0

City	Comprehensive low-income program	Portfolio of low-income programs	Braiding funds for health and safety	Local government funds (N/A for cities with electric munis)	Total (max 1.5 pts)
Cape Coral				N/A	0
Charleston					0
Colorado Springs				N/A	0
Columbia					0
Henderson					0
Lakeland				N/A	0
Las Vegas					0
Little Rock					0
Mesa				N/A	0
Nashville				N/A	0
Omaha				N/A	0
Provo				N/A	0
Reno					0
San Juan				N/A	0
Virginia Beach					0
Wichita					0

Table F12. Scores for multifamily energy efficiency programs

City	Comprehensive electric or natural gas program (0.5 pts)	Low-income multifamily program (0.5 pts)	Total (1 pt)
Albuquerque	0.5	0.5	1
Aurora	0.5	0.5	1
Bakersfield	0.5	0.5	1
Baltimore	0.5	0.5	1
Boston	0.5	0.5	1
Bridgeport	0.5	0.5	1
Buffalo	0.5	0.5	1
Chicago	0.5	0.5	1
Chula Vista	0.5	0.5	1
Columbus	0.5	0.5	1
Denver	0.5	0.5	1
Des Moines	0.5	0.5	1
Detroit	0.5	0.5	1
Fresno	0.5	0.5	1
Grand Rapids	0.5	0.5	1
Hartford	0.5	0.5	1
Houston	0.5	0.5	1
Kansas City	0.5	0.5	1
Long Beach	0.5	0.5	1
Los Angeles	0.5	0.5	1
Minneapolis	0.5	0.5	1
New Haven	0.5	0.5	1
New York	0.5	0.5	1
Oakland	0.5	0.5	1
Oxnard	0.5	0.5	1
Philadelphia	0.5	0.5	1
Pittsburgh	0.5	0.5	1
Portland	0.5	0.5	1
Providence	0.5	0.5	1
Riverside	0.5	0.5	1
Rochester	0.5	0.5	1
Sacramento	0.5	0.5	1
St. Paul	0.5	0.5	1
Salt Lake City	0.5	0.5	1
San Diego	0.5	0.5	1
San Francisco	0.5	0.5	1
San José	0.5	0.5	1
Seattle	0.5	0.5	1
Springfield	0.5	0.5	1
St. Louis	0.5	0.5	1
Stockton	0.5	0.5	1
Syracuse	0.5	0.5	1
Toledo	0.5	0.5	1
Washington, DC	0.5	0.5	1

City	Comprehensive electric or natural gas program (0.5 pts)	Low-income multifamily program (0.5 pts)	Total (1 pt)
Wichita	0.5	0.5	1
Worcester	0.5	0.5	1
Atlanta	0.5	0	0.5
Augusta	0.5	0	0.5
Austin	0.5	0	0.5
Cincinnati	0	0.5	0.5
Dallas	0	0.5	0.5
Fort Worth	0	0.5	0.5
Honolulu	0	0.5	0.5
Madison	0.5	0	0.5
Mesa	0	0.5	0.5
Milwaukee	0.5	0	0.5
New Orleans	0.5	0	0.5
Newark	0.5	0	0.5
Orlando	0.5	0	0.5
Phoenix	0.5	0	0.5
Tucson	0.5	0	0.5
Tulsa	0.5	0	0.5
Akron	0	0	0
Allentown	0	0	0
Baton Rouge	0	0	0
Birmingham	0	0	0
Boise	0	0	0
Cape Coral	0	0	0
Charleston	0	0	0
Charlotte	0	0	0
Cleveland	0	0	0
Colorado Springs	0	0	0

City	Comprehensive electric or natural gas program (0.5 pts)	Low-income multifamily program (0.5 pts)	Total (1 pt)
Columbia	0	0	0
Dayton	0	0	0
El Paso	0	0	0
Greensboro	0	0	0
Henderson	0	0	0
Indianapolis	0	0	0
Jacksonville	0	0	0
Knoxville	0	0	0
Lakeland	0	0	0
Las Vegas	0	0	0
Little Rock	0	0	0
Louisville	0	0	0
McAllen	0	0	0
Memphis	0	0	0
Miami	0	0	0
Nashville	0	0	0
Oklahoma City	0	0	0
Omaha	0	0	0
Provo	0	0	0
Raleigh	0	0	0
Reno	0	0	0
Richmond	0	0	0
San Antonio	0	0	0
San Juan	0	0	0
St. Petersburg	0	0	0
Tampa	0	0	0
Virginia Beach	0	0	0
Winston-Salem	0	0	0

Table F13. Scores for the provision of energy data by utilities

City	Automated benchmarking (0.5 pts)	City-led advocacy (0.5 pts)	Total (1 pt)
Atlanta	0.5	0.5	1
Austin	0.5	0.5	1
Boston	0.5	0.5	1
Buffalo	0.5	0.5	1
Chicago	0.5	0.5	1
Chula Vista	0.5	0.5	1
Columbus	0.5	0.5	1
Denver	0.5	0.5	1
Kansas City	0.5	0.5	1

City	Automated benchmarking (0.5 pts)	City-led advocacy (0.5 pts)	Total (1 pt)
Los Angeles	0.5	0.5	1
Minneapolis	0.5	0.5	1
New York	0.5	0.5	1
Oakland	0.5	0.5	1
Philadelphia	0.5	0.5	1
Portland	0.5	0.5	1
Providence	0.5	0.5	1
Riverside	0.5	0.5	1
Salt Lake City	0.5	0.5	1

City	Automated benchmarking (0.5 pts)	City-led advocacy (0.5 pts)	Total (1 pt)
San Diego	0.5	0.5	1
San Francisco	0.5	0.5	1
San José	0.5	0.5	1
Seattle	0.5	0.5	1
Washington, DC	0.5	0.5	1
Albuquerque	0	0.5	0.5
Augusta	0.5	0	0.5
Aurora	0.5	0	0.5
Bakersfield	0.5	0	0.5
Baltimore	0.5	0	0.5
Birmingham	0.5	0	0.5
Bridgeport	0.5	0	0.5
Charlotte	0	0.5	0.5
Cleveland	0	0.5	0.5
Fresno	0.5	0	0.5
Grand Rapids	0	0.5	0.5
Hartford	0.5	0	0.5
Honolulu	0	0.5	0.5
Houston	0	0.5	0.5
Long Beach	0.5	0	0.5
Mesa	0.5	0	0.5
Milwaukee	0	0.5	0.5
New Haven	0.5	0	0.5
New Orleans	0.5	0	0.5
Orlando	0	0.5	0.5
Oxnard	0.5	0	0.5
Phoenix	0	0.5	0.5
Pittsburgh	0.5	0	0.5
Provo	0.5	0	0.5
Raleigh	0	0.5	0.5
Richmond	0	0.5	0.5
Sacramento	0.5	0	0.5
St. Paul	0.5	0	0.5
Springfield	0.5	0	0.5
St. Louis	0.5	0	0.5
Stockton	0.5	0	0.5
Syracuse	0.5	0	0.5
Tampa	0.5	0	0.5
Toledo	0.5	0	0.5
Tulsa	0.5	0	0.5
Virginia Beach	0	0.5	0.5
Worcester	0.5	0	0.5
Akron	0	0	0
Allentown	0	0	0
Baton Rouge	0	0	0
Boise	0	0	0
Cape Coral	0	0	0
Charleston	0	0	0
Cincinnati	0	0	0
Colorado Springs	0	0	0
Columbia	0	0	0
Dallas	0	0	0
Dayton	0	0	0
Des Moines	0	0	0
Detroit	0	0	0
El Paso	0	0	0
Fort Worth	0	0	0
Greensboro	0	0	0
Henderson	0	0	0
Indianapolis	0	0	0
Jacksonville	0	0	0
Knoxville	0	0	0
Lakeland	0	0	0
Las Vegas	0	0	0
Little Rock	0	0	0
Louisville	0	0	0
Madison	0	0	0
McAllen	0	0	0
Memphis	0	0	0
Miami	0	0	0
Nashville	0	0	0
Newark	0	0	0
Oklahoma City	0	0	0
Omaha	0	0	0
Reno	0	0	0
Rochester	0	0	0
San Antonio	0	0	0
San Juan	0	0	0
St. Petersburg	0	0	0
Tucson	0	0	0
Wichita	0	0	0
Winston-Salem	0	0	0

Table F14. Scores for distributed and renewable energy incentives for cities with utilities that offered an incentive in 2018*

City	Electric utility	Total renewable incentive spending (2018)	Total installed 2018 capacity (kW)	Total spending per kW (2018)	Total (1.5 pts)
Chula Vista	San Diego Gas & Electric	$957,927	319	$3,000	1.5
San Diego	San Diego Gas & Electric	$957,927	319	$3,000	1.5
St. Paul	Xcel Energy (Northern States Power)	$19,284,837	7,600	$2,537	1.5
Minneapolis	Xcel Energy (Northern States Power)	$19,284,836	7,600	$2,537	1.5
Bakersfield	PG&E	$16,817,792	14,610	$1,151	1
Fresno	PG&E	$16,817,792	14,610	$1,151	1
Oakland	PG&E	$16,817,792	14,610	$1,151	1
San Francisco	PG&E	$16,817,792	14,610	$1,151	1
San José	PG&E	$16,817,792	14,610	$1,151	1
Stockton	PG&E	$16,817,792	14,610	$1,151	1
Austin	Austin Energy	$5,500,577	7,937	$693	1
Seattle	Seattle City Light	High renewables	High renewables	High renewables	1
San Antonio	CPS Energy (City of San Antonio)	$17,863,179	33,686	$530	0.5
Los Angeles	LADWP	$16,323,021	35,300	$462	0.5
Madison	Madison Gas & Electric	$212,969	470	$453	0.5
Portland	Portland General Electric	$4,363,915	10,187	$428	0.5
Milwaukee	We Energies	$1,203,455	4,598	$262	0.5
Chicago	ComEd	$8,015,000	32,060	$250	0.5
Henderson	NV Energy	$10,157,246	41,769	$243	0.5
Las Vegas	NV Energy	$10,157,246	41,769	$243	0.5
Reno	NV Energy	$10,157,246	41,769	$243	0.5
Colorado Springs	Colorado Springs Utilities	$886,089	4,400	$201	0.5
Washington, DC	PEPCO	$320,591	1,836	$175	0.5
Long Beach	Southern California Edison	$41,726,058	395,000	$106	0.5
Oxnard	Southern California Edison	$41,726,058	395,000	$106	0.5
Orlando	Orlando Utilities Commission	$126,012	4,274	$29	0.5
Aurora	Xcel Energy (Public Service Co. of CO)	$460,801	21,753	$21	0.5
Denver	Xcel Energy (Public Service Co. of CO)	$460,801	21,754	$21	0.5
Boston	Eversource (MA)	No data	No data	No data	0.5
Charlotte	Duke Energy Carolinas	No data	No data	No data	0.5
Dallas	ONCOR	No data	No data	No data	0.5
Fort Worth	ONCOR	No data	No data	No data	0.5
Greensboro	Duke Energy Carolinas	No data	No data	No data	0.5
Kansas City	KCP&L (Evergy)	No data	No data	No data	0.5
McAllen	American Electric Power (TX)	No data	No data	No data	0.5
Newark	PSE&G	No data	No data	No data	0.5
Raleigh	Duke Energy Progress	No data	No data	No data	0.5
Sacramento	SMUD	No data	No data	No data	0.5
Springfield	Eversource (MA)	No data	No data	No data	0.5
St. Louis	Ameren UE (Union Electric)	No data	No data	No data	0.5
Winston-Salem	Duke Energy Carolinas	No data	No data	No data	0.5
Worcester	National Grid (MA)	No data	No data	No data	0.5

* Note that we awarded 0.5 points to cities whose electric utility currently offers renewable incentives but did not have a program in 2018 or were unable to provide data for 2018. We also awarded 1 point to cities that have more than 90% renewable generation (i.e., Seattle).

Table F15. Scores for city-led efforts to decarbonize the electric grid, excluding cities that earned no points for this metric (IOUs only)

City	PUC comments	Formal partnership	City planning efforts	Involvement in utility planning efforts	CCA*	Total (max 1.5 pts.)
Boise	X		X	X		1.5
Boston	X	X	X		1	1.5
Charlotte	X		X	X		1.5
Chula Vista					1.5	1.5
Cincinnati	X				1.5	1.5
Cleveland	X				1.5	1.5
Denver	X	X	X			1.5
Indianapolis		X	X	X		1.5
Minneapolis	X	X		X		1.5
New Haven	X		X		0.5	1.5
Oakland		X	X		1.5	1.5
Oxnard					1.5	1.5
Providence	X				1	1.5
Rochester			X		1	1.5
San Diego	X				1.5	1.5
San Francisco		X			1.5	1.5
San José					1.5	1.5
Worcester					1.5	1.5
Albuquerque	X		X			1
Atlanta	X		X			1
Grand Rapids	X		X			1
Hartford	X		X			1
Kansas City	X		X			1
Milwaukee	X		X			1
New York	X		X			1
Philadelphia	X			X		1
Phoenix	X			X		1
Portland	X		X			1
St. Paul	X		X			1
Salt Lake City	X	X				1
Baltimore	X					0.5
Buffalo	X					0.5
Chicago			X			0.5
Columbus			X			0.5
Dallas			X			0.5
Fort Worth	X					0.5
Fresno					0.5	0.5
Honolulu	X					0.5
Las Vegas	X					0.5
Long Beach					0.5	0.5
Madison			X			0.5
Oklahoma City			X			0.5

City	PUC comments	Formal partnership	City planning efforts	Involvement in utility planning efforts	CCA*	Total (max 1.5 pts.)
Reno	X					0.5
Richmond	X					0.5
St. Louis			X			0.5
St. Petersburg			X			0.5
Stockton					0.5	0.5

* Cities earned 1.5 points if they are served by a CCA that provides clean energy options, 1 point if they have enabled a CCA but do not yet have one in operation, and 0.5 points if they are exploring CCA options. CCA scores were added to additional efforts, for a total of 1.5 points.

Table F16. Scores for percentage of 2018 total generation from renewable resources (munis only)

City	Municipal utility	% of total generation from renewables (2018)	Total (1.5 pts)
Seattle	Seattle City Light	94%	1.5
Austin	Austin Energy	43%	1.5
Omaha	Omaha Public Power District	33%	1.5
Los Angeles	LADWP	32%	1.5
Riverside	City of Riverside Public Service	31%	1.5
Sacramento	SMUD	31%	1.5
San Antonio	CPS Energy (City of San Antonio)	24%	1
Knoxville	Knoxville Utilities Board	12%	0.5
Memphis	Memphis Light, Gas & Water	12%	0.5
Nashville	Nashville Electric Service	12%	0.5
Colorado Springs	Colorado Springs Utilities	10%	0.5
Mesa	Salt River Project	6%	0
Washington, DC	PEPCO	6%	0
Orlando	Orlando Utilities Commission	3%	0
Jacksonville	JEA	1%	0
Cape Coral	Lee County Electric Coop	0%	0
Lakeland	Lakeland Electric	0%	0
New Orleans	Entergy New Orleans	0%	0
Provo	Provo City Power	0%	0
San Juan	Puerto Rico Electric Power Authority	0%	0

TRANSPORTATION POLICIES

Table F17. Summary of scoring on transportation plans and targets

City	Sustainable transportation policy	Total (4 pts)
Boston	Go Boston 2030, released in 2017, set a goal to reduce GHG emissions from transportation by 50% of 2005 levels by 2030.	4
Louisville	Through Mayor Greg Fischer's release of Sustain Louisville, the city's sustainability plan, Louisville Metro Government set a goal in 2012 to reduce VMT by 20% by 2020 from 2009 levels. Strategies include launching a bike-sharing program and a car sharing program, promoting bus ridership, and improving bicycle facilities and support for bicycle commuting. The city also has a codified multimodal plan called Move Louisville, which aims to fix and maintain the existing infrastructure in the city and reduce the number of miles that Louisvillians drive by providing and improving mobility options.	4
Minneapolis	Minneapolis's Climate Action Plan, adopted in June 2013, includes a detailed plan to reduce VMT by 31% from 2010 to 2025, or 2% annually. The city is currently updating the existing Transportation Action Plan. The Climate Action Plan has an entire section devoted to transportation goals and strategies.	4
New Haven	New Haven's Climate Action Plan, released in January 2018, includes several measures to reduce transportation GHG emissions.	4
New York	PlaNYC and Sustainable Streets show that the city is moving toward creating a multimodal and sustainable transportation system with improved use of public transit, complete streets strategies, and additional bike and pedestrian infrastructure. In April 2019 the city updated its strategic plan with the release of OneNYC 2050, a plan that calls for a 70% reduction in transportation emissions by 2050 relative to a 2005 baseline.	4
Pittsburgh	The Pittsburgh Climate Action Plan 3.0, which was adopted by the City Council in 2018, outlines a goal of reducing VMT per capita by 50% below 2013 levels by 2030. This is equivalent to a 1.9% annual reduction. Pittsburgh has also adopted a comprehensive Bike Plan to develop a system of connected bike lanes in order to make biking easier and safer for all residents. Focusing on biking is just one of the strategies Pittsburgh has in its policy tool kit aimed at helping to reduce its VMT.	4
Providence	The city's Sustainability Plan has a chapter dedicated to sustainable transportation strategies. It also tracks VMT as a key metric for implementation.	4
St. Paul	The Saint Paul 2040 Comprehensive Plan, approved by the City Council in 2019, established a policy to reduce VMT by 40% by 2040 from a 2015 baseline. The plan lays out strategies to accomplish this by supporting transit-, pedestrian-, and bicycle-focused infrastructure decisions. The plan establishes a modal hierarchy placing pedestrians, bicyclists, and transit considerations above vehicle considerations.	4
Salt Lake City	Reducing per capita VMT is the number one goal of Salt Lake City's 2017 Transit Master Plan. The plan also aims to increase public transit use, access, and safety.	4
San José	The Envision San José 2040 General Plan aims to reduce automobile trips by 40% by 2040. It includes strategies to reduce VMT, energy consumption, and GHG emissions while creating a healthier community. The city is also developing an Emerging Mobility Action Plan. This will specify the policies, programs, and pilots the city will pursue to leverage emerging mobility options—electric vehicles, automated vehicles, and shared mobility services—to create a sustainable transportation system that serves all.	4
Washington, DC	The District Department of Transportation (DDOT) created a six-year transportation demand management (TDM) strategic plan in 2017, building on recommendations in the MoveDC Plan and including strategies for reducing vehicle miles traveled. Specifically, the plan aims to facilitate getting into and around the District seamlessly and efficiently; to provide high-quality and inclusive TDM services to District residents, businesses, employers, and visitors; and to make Washington, DC, a national leader in the provision of effective TDM services. DDOT has plans to update the MoveDC transportation plan in 2020.	4
Chula Vista	The city recently adopted an updated 2017 Climate Action Plan that includes several strategies to reduce transportation energy use and emissions. The city has a goal to reduce VMT 4% by 2020; the VMT goal can be found in Appendix A of the Climate Action Plan.	3.5
Philadelphia	Philadelphia's Strategic Transportation Plan sets numerous goals and strategies around a clean and sustainable transportation system, including continuing to decrease VMT per capita.	3.5
Portland	Portland's 2035 Transportation System Plan includes specific sustainable transportation policies, such as one to reduce carbon emissions, air pollution, water pollution, and reliance on vehicles. As part of the Climate Action Plan, the City Council has adopted targets to reduce the number of miles Portlanders travel by car to 11 per day on average by 2035. The city also has a goal to reduce transportation-related carbon emissions to 50% below 1990 levels by 2035	3.5

City	Sustainable transportation policy	Total (4 pts)
San Diego	San Diego's Climate Action Plan has a specific goal to reduce GHG emissions by 110,000 metric tons of CO2 equivalent by 2035.	3.5
San Francisco	Connect SF is a multiagency collaboration to envision, plan, and realize a sustainable, equitable transportation system for San Francisco's future. San Francisco has a codified transport GHG reduction target of 40% by 2025 from 1990 levels.	3.5
Atlanta	Atlanta's Climate Action Plan provides a specific strategy to reduce VMT by 20% from a 2009 baseline by 2020. Strategies to meet this goal include expanding the Atlanta BeltLine and other transit-oriented development, introducing parking pricing, greater transit investment, more pedestrian facilities, expansion of protected bicycle facilities, and expansion of the bicycle share program.	3
Cleveland	The 2018 updated Cleveland Climate Action Plan includes a focus area on sustainable transportation. It also contains a transportation goal for reducing single-occupancy vehicle driving rates from 70% to 65% by 2020 and to 55% by 2030. In total, this target would reduce GHG emissions from the transportation sector by 250,000 metric tons of CO2e by 2030, using a 2010 baseline.	3
Kansas City	The city has bike and trails plans (Ordinance # 190263) developed in conjunction with, among others, the local nonprofit BikeWalk KC. Kansas City also has a Complete Streets Plan, Ordinance #170949.	3
Los Angeles	The Los Angeles Green New Deal Sustainable City pLAn (2019) includes a goal to reduce VMT per capita 13% by 2025, 39% by 2035, and 45% by 2045 from a baseline of 15 vehicle-miles-traveled per person per day. The plan also includes language about preparing the city for autonomous vehicles by 2028, the use of transportation data to ensure that new transit app–enabled and for-hire mobility options are equitably available across the city, addressing the first/last mile problem.	3
Phoenix	Phoenix's Sustainability Report is a comprehensive plan that discusses strategies for improving the sustainability of its transportation system. Phoenix has a Transportation 2050 Plan supported by a $32 billion transportation tax approved by voters in 2016. Its goal is to triple light rail service, provide transit in every neighborhood, and achieve a 40% mode shift by 2050. It is complemented by the 2050 Sustainable Transportation Goal to reduce transportation emissions 80% by 2050 from a 2012 baseline.	3
San Antonio	The SA Tomorrow plan includes sustainable transportation provisions and adopts the goal of reducing daily VMT per capita to 16.5 miles by 2040, compared with a baseline of 22.4 miles in 2013. It focuses on sustainable land use patterns and modes of transportation and an improvement of infrastructure, including smart, mixed-use, and transit-oriented development practices and bicycle and pedestrian infrastructure, alternative fuels, transit options, and complete streets.	3
Seattle	Seattle has several plans that contribute toward sustainable and efficient transportation. Seattle's Climate Action Plan calls for an 82% reduction in transportation GHG emissions by 2030 from a 2008 baseline. The city's Transportation Strategic Plan outlines the specific strategies, projects, and programs that implement broader citywide goals and policies for transportation in the city. Some of the strategies include designing transportation infrastructure in urban villages to support land use goals for compact neighborhoods, encouraging planning and design of city transportation facilities, and establishing multimodal hubs that provide transfer points between transit modes in urban centers and urban villages. Additionally, the Drive Clean Seattle initiative aims to electrify the transportation sector at large with City Light's carbon-neutral electricity as a key climate strategy.	3
Houston	Houston released its CAP plan in April 2020. The city's goal has a target to reduce VMT per capita 20% by 2050 from a 2020 baseline.	2.5
Denver	Denver's Mobility Action Plan was published in July 2017 and sets goals to reduce drive-alone rates, emissions, and traffic deaths, focusing on the key metric of reducing the single-occupancy-vehicle driving rate to no more than 50% of trips. The city also has a Denver Moves suite of plans laying out detailed priorities for all transportation modes.	2
Jacksonville	Jacksonville's Planning and Development Department 2030 Mobility Plan includes a VMT per capita reduction target of 10% by 2030 from a 2010 baseline along with a comprehensive multimodal plan in place to achieve that VMT reduction.	2
Albuquerque	The Futures 2040 metropolitan transportation plan outlines strategies to streamline transportation energy use in Albuquerque.	1
Aurora	Aurora does not have a stand-alone transportation plan, but it does have a sustainability plan with strategies to reduce transportation emissions and energy use. Additionally, the 2018 Comprehensive Plan defines current and future high-frequency transit networks, primary bike routes, and off-street trails.	1

City	Sustainable transportation policy	Total (4 pts)
Austin	Austin has three plans that outline sustainable transportation strategies: the Imagine Austin Plan, the Urban Trails Master Plan, and the Austin Climate Plan. The city's climate plan encourages an integrated, expanded, and affordable transportation system that supports a variety of modal options. We did not find information on specific greenhouse gas or VMT reduction goals. The city is also within a year of passing the Austin Strategic Mobility Plan, which has been in development for three years.	1
Baltimore	Baltimore's 2019 Sustainability Plan outlines strategies to increase mobility choices and commits to advancing a regional transit plan and finding sustainable funding for public transportation.	1
Boise	Boise's Transportation Action Plan expresses the intention to reduce single-occupancy vehicle miles traveled through six "mobility moves" that include promoting public transportation, safe routes to school, and an all-ages bike network.	1
Charlotte	The 2045 Metropolitan Transportation Plan, adopted in March 2018, includes reducing VMT as one of its goals to cut transportation emissions but does not have a specific target in place. Additionally, the Strategic Energy Action Plan highlights a list of strategies and goals aimed at creating a sustainable transportation system.	1
Chicago	The Chicago Forward transportation plan and Sustainable Chicago 2015 Action Agenda each includes a variety of approaches to reduce VMT within the city. These include making Chicago the most bike- and pedestrian-friendly city in the country by adding up to 100 miles of new bicycle lanes, introducing bicycle sharing, and developing a pedestrian master plan. The city is also targeting improved transit ridership by incentivizing transit-oriented development and adding bus rapid transit service. Chicago is also looking to expand transit-oriented development to include high-ridership, high-frequency CTA bus routes, making Chicago the first U.S. city to pursue such a policy. Chicago does not have a codified VMT reduction target in place. The city's New Transportation and MobilityTask Force (2019) has also pursued a variety of policies for reducing VMT.	1
Cincinnati	Cincinnati's 2018 Green Cincinnati Plan includes several actions to reduce VMT, such as increasing fleet fuel efficiency and use of alternative fuels and energy, as well as increasing funding, support, and interconnectivity among mass transit, bicycling, and pedestrian infrastructure.	1
Columbus	The Columbus Climate Adaptation Plan was completed in December 2018. The actions related to transportation include reducing idling and promoting alternative transportation mode options. In addition, the local transit authority, COTA, has adopted a Next Gen plan to increase mass transit ridership and reduce VMT.	1
Detroit	Detroit's 2018 Transportation Plan includes goals to improve transit service, safety, efficiency, and accessibility.	1
Grand Rapids	Although a specific target has not been set, VMT reductions were highlighted as an effect of sustainable transportation in the Green Grand Rapids Report, and reduction of VMT was listed as a value in the city's Vital Streets Plan. The City of Grand Rapids Strategic Plan sets goals to create an accessible multimodal transportation experience and reduce single-occupant vehicle travel. The main goal presented in the Strategic Plan is to increase the use of public transportation from 20.9% (as of 2017) to 55% by 2023. By implementing strategies related to this goal. The city plans to reduce the number of automobiles on the road, vehicles miles traveled, and GHG emissions within the city limits.	1
Hartford	Transportation is one of the six focus areas of the city's 2018 Climate Action Plan, with reducing VMT as a critical goal. Strategies include initiating a traffic signal synchronization program, encouraging businesses to develop transportation demand management programs, and increasing sustainable transportation alternatives such as public transit and biking.	1
Henderson	The Henderson Strong Comprehensive Plan, adopted in 2017, contains goals to reduce VMT and transportation-related emissions of ozone and carbon monoxide.	1
Indianapolis	Through Thrive Indianapolis, actions are being taken to increase bus ridership by 15% and increase transit-oriented development. The city has also completed the first phase of a multiphase electric bus rapid transit system.	1
Knoxville	Knoxville's Energy and Sustainability Initiative has a transportation component that outlines green fleets and bike sharing as key strategies to reduce emissions.	1
Las Vegas	Las Vegas has in place a Mobility Master Plan that makes recommendations for vehicular, transit, bicycle, and pedestrian improvements over a 20-year time frame. The plan includes more than 180 multimodal transportation improvement projects.	1
Long Beach	The Mobility Element of the Long Beach General Plan, adopted in 2013, addresses the future of all modes of travel, including walking, bicycling, transit, and driving.	1
Mesa	Mesa released a 2040 transportation plan in 2013.	1
Nashville	Access Nashville 2040 is the city's multimodal transportation plan, providing a road map for the development of the entire transportation network through 2040. Its main goal is to improve public transit and create walkable streets throughout the city.	1

City	Sustainable transportation policy	Total (4 pts)
New Orleans	New Orleans's metropolitan transportation plan outlines a vision for creating and maintaining a transportation system that will promote livable, equitable, economically viable, and environmentally sustainable communities for future generations. Objectives in the plan include encouraging clean and more efficient vehicle use and expanding transportation choices beyond single-occupancy vehicles for all households.	1
Oakland	Oakland's Department of Transportation Strategic Plan provides detailed strategies to integrate VMT reduction with the use of low-carbon modes of transportation.	1
Orlando	Orlando's Community Sustainability Action Plan outlines strategies to reduce energy use in the transportation sector including expanding pedestrian and bike access to roads, increasing transit ridership, and expanding EV infrastructure.	1
Reno	In its 2017 Sustainability Report, the city highlights reducing VMT as well as developing its multimodal transit system while improving reliability, efficiency, and safety.	1
Richmond	The city's first sustainability plan contained a goal to decrease per capita daily VMT The plan also included a goal to increase the percentage of trips by mode other than single-occupant vehicle. In July 2013, the Richmond Strategic Multimodal Transportation Plan was released. This plan provides detailed recommendations and goals for enhancing sustainable transportation modes in the city, including public transit, walking, and biking.	1
Riverside	Riverside's Green Action Plan includes strategies to reduce VMT such as encouraging the use of bicycles by increasing the number of bike trails, promoting alternative modes of transportation by implementing benefit programs for city employees and local businesses, and expanding public transit within city limits.	1
Sacramento	The Transportation Systems Management Program furthers the 2035 General Plan goal to reduce vehicle miles traveled by 35% from a 2015 baseline.	1
Springfield	The Springfield Climate Action & Resilience Plan (2017) addresses the community's transportation needs and outlines several strategies for meeting them, such as pursuing a strong complete streets policy, introducing a bike-share program, establishing a transportation demand management coordinator, and revisiting the city's parking requirements.	1
St. Louis	St. Louis's Sustainability Plan calls for the improvement of energy efficiency in the transportation sector. Strategies outlined include equitable access to transportation and pilot transportation improvement districts.	1
St. Petersburg	St. Petersburg's Comprehensive Plan, last updated in 2016, includes strategies to reduce GHG emissions in transportation.	1
Tampa	Tampa has a comprehensive plan with a mobility element to provide multimodal mobility with all modes of travel such as transit (bus, ferry, and rail), cycling, and walking.	1
Virginia Beach	Virginia Beach has a sustainable transportation plan to reduce VMT as part of a broader sustainability plan. It includes language stating that the city is striving toward a reduction of motor vehicle trips per capita and individual trip distances.	1
Winston-Salem	The city released a 2035 Transportation Plan Update, but the plan does not include a VMT reduction goal.	1
Allentown	Allentown's comprehensive plan addresses transportation, outlining several actions to increase use of public transportation.	0.5
Bakersfield	The city of Bakersfield contributed to the creation of Kern County's sustainable transportation plan. The scope of the plan includes Bakersfield but is not specific to the city.	0.5
Bridgeport	The city's Energy Efficiency and Conservation Plan includes a transportation section that states an emissions reduction goal equivalent to the elimination of roughly 715 million VMT a year. The city has a goal in its 2019 Plan Bridgeport to adopt a policy to promote a shift in transportation modes from single-occupancy vehicles to transit, bicycling, and walking by investing in bicycle and pedestrian infrastructure.	0.5
Charleston	The Charleston Green Plan (2009) addresses vehicle miles traveled (VMT) at length and establishes a goal of maintaining 2010 VMT levels through 2030. If Charleston reaches this goal, by increasing use of public transportation (CARTA) and/or by substituting walking or biking for driving, it could result in a reduction of 152,940 tons of CO2e in 2030 relative to projected "business as usual" 2030 levels.	0.5
Dallas	The city is working on a new strategic mobility plan called Connect Dallas. This plan is being developed in parallel with the Comprehensive Environmental & Climate Action Plan. Both plans include goals to reduce VMT, shift transportation modes, and increase non-single-occupancy travel.	0.5
Des Moines	In 2014 the Des Moines Area Metropolitan Planning Organization released the Tomorrow Plan, a comprehensive regional planning document focused on creating a more sustainable, equitable, and vibrant Des Moines. The plan has not been updated and includes no explicit VMT goals, but progress reports were provided in 2015 and 2016.	0.5

City	Sustainable transportation policy	Total (4 pts)
Greensboro	The Greensboro Sustainability Action Plan (2011) does not outline specific VMT goals but does have a strong focus on transportation-relevant policies.	0.5
Madison	The city's Sustainability Plan includes a goal to reduce car miles traveled to achieve a 10% greenhouse gas emissions reduction every five years and achieve a cumulative reduction of 40% by 2030.	0.5
Miami	GreenPrint is a Miami-Dade County plan. The city of Miami supports the county's SMART plan to expand public transit and has been updating and expanding its free trolley network.	0.5
Milwaukee	While the city does not have a sustainable transportation plan, it does have city pedestrian and bicycling plans.	0.5
Omaha	Omaha's Master Plan includes a transportation element that is heavily focused on road passenger and freight travel.	0.5
Oxnard	Oxnard's Energy Action Plan (2013) addresses a wide variety of sustainability-oriented policies including several relating to transportation and reducing VMT and GHG emissions.	0.5
Rochester	Rochester does not have a comprehensive transportation plan but does have a Bicycle Master Plan that was completed in 2011. The plan identified opportunities for improving bicycling infrastructure and promoting bicycling in the city. Through Reimagine RTS, the Regional Transit System is also exploring changes that will better meet the needs of public transit service users in Monroe County, including downtown Rochester.	0.5
Stockton	Stockton's 2014 Climate Action Plan (CAP) outlines a vehicle miles traveled reduction goal. Implementation of the CAP limits citywide VMT growth to 9% (2% below population growth between 2005 and 2020). The city also has an Active Transportation/ Bicycle Master Plan.	0.5
Syracuse	Syracuse's Sustainability Plan (2012) and the 2040 Comprehensive Plan (2012) include language about transportation planning and sustainable transportation strategies.	0.5
Worcester	Worcester's Climate Action Plan includes strategies to reduce VMT, like increasing employee carpooling, public transportation, and walking/biking.	0.5

We collected information regarding city goals from city ordinances, mayoral executive orders, and city climate action, sustainability, energy, resilience, and comprehensive community plans. Targeted changes in vehicle miles traveled or transportation–specific GHGs were calculated using data from these sources, online data portals, greenhouse gas emissions inventories, and correspondence with city staff.

Table F18. Complete streets policies

City	Complete streets policy	NCSC score (out of 100)	ACEEE score (2 pts)
Indianapolis	Chapter 431, Article VIII	92.8	2
Pittsburgh	A Resolution Adopting the City of Pittsburgh Complete Streets Policy	92.8	2
Springfield	Complete Streets Policy	92.8	2
Fort Worth	Complete Streets Policy	91.2	2
Hartford	An Ordinance Amending Chapter 31 - Streets and Sidewalks - Of the Hartford Municipal Code to Add Article X Complete Streets Policy	91.2	2
Knoxville	Ordinance No. O-204-2014	88.8	2
Omaha	Complete Streets Policy	88.8	2
Honolulu	Article 33 of Chapter 14 of the Revised Ordinances of Honolulu	85.6	2
Little Rock	Ordinance	85.6	2
Minneapolis	Complete Streets Policy	85.6	2
Richmond	Resolution No. 2014-R172-170	82.4	2
Dallas	Resolution 16-0173	81.2	2
St. Petersburg	Administrative Policy No. 020400	80	2
Baton Rouge	Resolution No. 51196	77.6	2
Rochester	Complete Streets Policy	74.4	1.5
Dayton	Livable Streets Policy	72	1.5
New Orleans	Ordinance No. 24706	70.8	1.5
Mesa	Complete Streets Policy	70.4	1.5

City	Complete streets policy	NCSC score (out of 100)	ACEEE score (2 pts)
Cape Coral	Resolution 124-15	68.8	1.5
Akron	Ordinance No. 156-2017	63.2	1.5
Virginia Beach	Complete Streets Administrative Directive	62.4	1.5
Baltimore	Council Bill 09-0433	58	1.5
Memphis	An Order Establishing a Complete Streets Policy for the City of Memphis	57.6	1.5
Raleigh	Complete Streets Policy	56.8	1.5
Seattle	Ordinance No. 122386, Bridging the Gap	56.8	1.5
Phoenix	Ordinance S-41094 and Ordinance G-5937	54	1.5
Cleveland	Ordinance No. 798-11	53.2	1.5
Tulsa	Resolution	53.2	1.5
Albuquerque	O-14-27	52.4	1.5
Denver	Complete Streets Policy	52.4	1.5
Houston	Executive Order No. 1-15	51.6	1.5
St. Louis	Board Bill No. 7	49.6	1
Buffalo	Complete Streets Policy	49.2	1
New Haven	Complete Streets Order	46.8	1
Philadelphia	Bill No. 12053201	46.4	1
Lakeland	Complete Streets Policy	45.6	1
Newark	Resolution	45.6	1
San Antonio	Complete Streets Policy	40.8	1
Oakland	Ordinance No. 13153	40.4	1
Chicago	Safe Streets for Chicago	39.6	1
Des Moines	Complete Streets Policy	39.6	1
San Francisco	Public Works Code 2.4.13 (Ordinance No. 209-05)	37.2	1
Tampa	Resolution No. 2814	35.6	1
St. Paul	Resolution No. 09-213	32.4	1
Wichita	Resolution No. 14-341	31.6	1
Austin	Resolution No. 020418-40	29.2	1
Columbus	Resolution	29.2	1
Columbia	Resolution No. R2010-054	27.6	1
Milwaukee [g]		-	1
New York [a]		-	1
San José [b]		-	1
Madison	Resolution No. 09-997	24.4	.5
Miami	Resolution No. 09-00274	24.4	0.5
Providence	Resolution	21.2	0.5
Toledo	Toledo Municipal Code, Chapter 901 (Ordinance 656-10)	20.4	0.5
Grand Rapids	Resolution	9.2	0.5
Kansas City	Resolution No. 110069	9.2	0.5
Atlanta [c]		-	0.5
Boston [d]		-	0.5
Las Vegas [e]		-	0.5
Louisville [f]		-	0.5
Portland [h]		-	0.5
Tucson [i]		-	0.5

City	Complete streets policy	NCSC score (out of 100)	ACEEE score (2 pts)
Washington, DC [j]		-	0.5
Worcester [k]		-	0.5

[a] While New York does not have a complete streets policy per se, its Department of Transportation released Sustainable Streets: Strategic Plan for the New York City Department of Transportation 2008 and Beyond, which is a complete streets strategic plan for improved infrastructure and transportation design, operation, and maintenance.
[c] Atlanta has adopted a complete streets policy, but it is not scored by NCSC. [b] While San José does not have a complete streets policy that was rated in the NCSC scorecard we drew our data from, the city's policy has been lauded by NCSC separately. [d] While Boston does not have a codified complete streets policy, the city has made every effort to include complete streets principles in all road creation and retrofit projects. [e] Las Vegas does not have its own complete streets policy but has incorporated the RTC complete streets policy into Title 19.04 of its municipal code. [f] Louisville has had a complete streets policy in place since 2008, but it is not reviewed by NCSC. [g] Milwaukee has had a complete streets policy in place since 2018, but it is not reviewed by NCSC. [h] Oregon's complete streets policy is the only state policy to cover municipal roads in addition to state-owned roads, and the city has made efforts to incorporate complete streets language in a range of supporting transportation and land use policies. Nevertheless, the city does not have an NCSC-recognized complete streets policy. [i] Tucson adopted a complete streets policy in 2019, but it has not yet been reviewed by NCSC. [j] Washington, DC, has had a complete streets policy in place since 2010, but it is not reviewed by NCSC. [k] Worcester adopted a complete streets policy in 2018, but it is not reviewed by NCSC. Sources: NCSC 2019b, ACEEE web research, data requests.

Table F19. Freight system efficiency

City	Freight plan or strategy	Total (2 pts)
Long Beach	The Port of Long Beach has a comprehensive Clean Air Action Plan with strategies that address ships, trucks, trains, cargo-handling equipment, and harbor craft. The port's Transportation Planning Division uses several resources to increase freight efficiency including the Multi-County Goods Movement Action Plan and the Southern California Area Government (SCAG) Comprehensive Regional Goods Movement Plan and Implementation Strategy.	2
Los Angeles	In June 2017, Los Angeles Mayor Eric Garcetti and Long Beach Mayor Robert Garcia signed a joint declaration setting ambitious goals for the Ports of Los Angeles and Long Beach to make the transition to a zero-emission on-road drayage fleet by 2030 and zero-emission terminal equipment by 2035. These goals are incorporated in the joint ports' Clean Air Action Plan (CAAP) Update, approved by the ports' governing boards in November 2017 to provide high-level guidance for reaching zero-emission operations while strengthening the ports' economic competitiveness.	2
New York	Freight NYC outlines the need to move freight traffic from road to rail and maritime in order to reduce GHG emissions. Freight trucks currently account for 10% of citywide transportation emissions. The plan also highlights strategies for greening the freight supply chain through logistics consolidation, carbon-neutral shipping, and clean vehicle use.	2
Portland	Portland has a Sustainable Freight Strategy in place that identifies key action related to truck parking and loading zones, street design best practices, last-mile solutions, centralized freight distribution districts, off-hours delivery, and electric vehicle delivery and multimodal freight strategies. Portland also outlines a goal in its 2015 Climate Action Plan to "improve the efficiency of freight movement within and through the Portland metropolitan area" and identifies key actions that are necessary by 2020.	2
Seattle	Seattle has a Freight Master Plan to improve freight mobility and safety in the city, in conjunction with department efforts to improve mobility across a range of transportation modes for people and goods.	2
Washington, DC	In July 2017 the District Department of Transportation (DDOT) initiated a Freight Plan Addendum to incorporate into the District's Freight Plan new requirements stipulated in the Fixing America's Surface Transportation (FAST) Act (Pub. L. No. 114-94), passed December 4, 2015. The DDOT published a FAST-compliant amendment to the freight plan in October 2017, which contains sustainability metrics around air quality, as well as transportation efficiency metrics.	2
Atlanta	The city has a designated freight network with associated roadway design guidelines. This freight network was updated through the 2015 Cargo Atlanta plan. Trucks that exceed 18 tons or 30 feet in length are restricted to freight routes under most circumstances. Delivery hours are mandated by some site-specific zoning conditions, but there are none in place citywide. The city has begun initial work on curb management policies to maximize the efficient use of curb space and balance the array of needs (on-street parking, deliveries, passenger loading/unloading, bicycle lanes, etc.) but have more work to do.	1

City	Freight plan or strategy	Total (2 pts)
Columbus	Freight is a primary focus of the Smart Columbus efforts that came out of the Department of Transportation's Smart City Challenge. This document effectively serves as the city's freight strategic plan as it highlights the need to improve the efficiency of the freight system through the use of IT applications. In 2018, the city put out a request for information to vendors for initial feedback on the development of a system to deploy truck platooning capabilities on select limited-access highways and major arteries around Columbus, if the technology allows, as part of the Smart Columbus mobility initiative.	1
Denver	Denver is using a portion of funds for its Advanced Transportation and Congestion Management Technologies Deployment Program on connected vehicle technology. These technologies will allow trucks to communicate with the city's traffic signals to reduce the emissions impact that freight trucks have in local communities, increase safety, improve delivery time reliability, and provide cost savings to participating cargo companies.	1
Houston	The Gulf Coast Rail District was created by the city of Houston and regional partners in 2007 to promote freight and passenger rail transportation. The GCRD has secured federal grants for construction of grade separations that will improve freight rail movement and reduce vehicle delays, both of which reduce emissions.	1
Miami	Freight is a major component of Miami's Long-Range Transportation Plan. Specific goals have not been set, but performance measurements have been identified for several goals.	1
Minneapolis	Minneapolis has strategies in place to address freight efficiency within the 2009 Minneapolis Plan for Sustainable Growth. Examples include off-street loading requirements for new developments, permitting of freight to use on-street parking meters in the morning, encouragement of off-hours deliveries, strategic placement of truck loading zones, and prioritization of smaller vehicles for drayage. The city is currently revising its freight policy as part of the Minneapolis Transportation Action Plan update. The city will support maintenance and expansion of freight infrastructure where there are apparent benefits to the local and regional economy and minimal impacts to surrounding land uses. The city will encourage adaptation of urban-centered freight innovation and technology, both for shipment into Minneapolis and for last-mile distribution.	1
Philadelphia	Philadelphia does not have a sustainable freight plan, but it does have a goal as part of its comprehensive plan to modernize freight rail assets to ensure sufficient goods movement to and through the city. Sustainable management of freight traffic is a key component in the Connect plan. The city also works closely with Philadelphia's metropolitan planning organization, the Delaware Valley Regional Planning Commission, which manages a region-wide freight planning task force.	1
Riverside	Riverside has sustainable freight objectives and policies in the Circulation and Community Mobility Element of its General Plan 2025.	1
San Francisco	San Francisco's Better Market Street Plan, adopted in February 2019, creates a car-free zone throughout downtown, from 10th Street to the Embarcadero, reserving the city's primary boulevard for bicycles and public transport. In addition, the plan establishes peak-hour loading restrictions to reduce conflicts among bicycles, transit, and commercial vehicles, pushing delivery to off-hours.	1
San José	The Envision San José 2040 General Plan establishes six transportation policies to provide for safe and efficient movement of goods. Additionally, the Climate Smart plan includes targets for electric local delivery vehicles and alternative-fuel heavy-goods vehicles.	1
St. Paul	St. Paul's comprehensive plan outlines a number of goals to improve the overall efficiency of the freight system. These include: 1. Prioritizing investments in infrastructure that improve river commerce and conditions necessary to maintain and grow regional logistics and commodities hubs connecting river, rail, and truck modes. 2. Exploring freight delivery solutions that resolve loading/unloading conflicts in congested areas so as to support businesses and provide safety to pedestrians and road users. 3. Working with agency partners and the St. Paul Port Authority to implement and support freight transportation improvements in and near industrial areas of regional economic importance.	1
Memphis	The Memphis Metropolitan Planning Organization has completed a Greater Memphis Regional Freight Plan.	0.5
Richmond	In July 2013, the Richmond Strategic Multimodal Transportation Plan was released. This plan provides recommendations for improving multimodal freight movement.	0.5

City	Freight plan or strategy	Total (2 pts)
Sacramento	The 2035 General Plan established mobility goals for safe movement of goods including: M 7.1.1 Efficient Goods Movement. The City shall support infrastructure improvements and the use of emerging technologies that facilitate the clearance, timely movement, and security of trade, including facilities for the efficient intermodal transfer of goods between truck, rail, marine, and air transportation modes. M 7.1.3 Minimize Freight Trains During Peak Hours. The City shall work with railroad operators to coordinate schedules to keep freight trains out of Central City during peak travel hours. (JP) M 7.1.5 Truck Traffic Route Designation. Consistent with the Roadway Network and Street Typologies in this General Plan Element, the City shall designate official truck routes, where goods movement and loading/unloading are priority functions of the street/roadway to minimize the impacts of truck traffic on residential neighborhoods and other sensitive land uses. (MPSP)	0.5

* Richmond's plan concentrates on infrastructure improvements to ports to enhance connectivity, but it lacks a focus on sustainability or efficiency.

Table F20. Transit funding and performance

City	Transit funding average (2014–2018)	AllTransit score
Akron	$61,078,219	5.3
Albuquerque	$69,160,515	4.9
Allentown	$41,752,846	6
Atlanta	$746,964,846	8
Augusta	$7,358,991	1.9
Aurora	—	6.4
Austin	$277,166,278	5.2
Bakersfield	$30,930,13200	4.4
Baltimore	$1,075,215,375	8.4
Baton Rouge	$31,919,966	4.5
Birmingham	$40,241,126	0.2
Boise	$1,548,905	3.8
Boston	$2,520,850,950	9.3
Bridgeport	$27,296,945	6.9
Buffalo	$159,025,301	7.8
Cape Coral	—	2.1
Charleston	—	3.2
Charlotte	$352,751,208	5
Chicago	$1,870,354,597	9.1
Chula Vista	$5,173,686	5.7
Cincinnati	$105,414,926	6.8
Cleveland	$327,580,744	8.8
Colorado Springs	$25,110,895	3
Columbia	$22,805,130	5.2
Columbus	$163,201,405	5.2
Dallas	$847,179,058	6.8
Dayton	$85,880,197	6.2
Denver	$1,247,929,064	7.8
Des Moines	$35,189,492	5
Detroit	$146,245,374	6.9
El Paso	$95,030,285	4.9

City	Transit funding average (2014–2018)	AllTransit score
Fort Worth	$200,252,405	3.2
Fresno	$62,438,724	5
Grand Rapids	$57,914,908	6.5
Greensboro	$23,999,140	3.7
Hartford	$136,222,058	8.5
Henderson	—	3.5
Honolulu	$763,525,121	7.9
Houston	$732,203,598	5.9
Indianapolis	$93,679,776	4.9
Jacksonville	$122,635,715	3.8
Kansas City	$108,863,106	4.8
Knoxville	$22,957,765	4.4
Lakeland	$14,450,538	2.9
Las Vegas	$284,468,880	5.1
Little Rock	—	3.3
Long Beach	$99,327,835	8
Los Angeles	$3,329,209,318	7.7
Louisville	$95,217,749	6.3
Madison	$63,645,893	6.3
McAllen	$3,534,386	3.2
Memphis	$62,402,165	4.1
Mesa	—	4.6
Miami	$675,192,230	8.5
Milwaukee	$162,450,882	7.7
Minneapolis	$612,722,805	8.3
Nashville	$89,135,988	3.7
New Haven	—	7.9
New Orleans	$124,011,202	7.4
New York	$11,873,554,199	9.6
Newark	$2,704,621,848	8.7
Oakland	$1,226,766,007	8.3
Oklahoma City	$47,420,241	2.6
Omaha	$34,496,901	4.7
Orlando	$148,156,785	6
Oxnard	$28,703,432	5.5
Philadelphia	$1,797,991,300	9
Phoenix	$248,928,146	6.1
Pittsburgh	$481,428,590	8.3
Portland	$665,626,411	8.9
Providence	$121,993,866	7.4
Provo	—	6
Raleigh	$37,727,986	4.9
Reno	$42,771,490	4.3
Richmond	$71,406,137	7.7
Riverside	$89,193,380	5.2
Rochester	$97,350,832	6.5

City	Transit funding average (2014–2018)	AllTransit score
Sacramento	$221,074,700	6.3
Salt Lake City	$69,858,778	7.7
San Antonio	$438,931,469	8.4
San Diego	$284,115,087	6.6
San Francisco	$430,022,948	6
San José	$1,226,102,023	9.6
San Juan	$799,735,952	7
Seattle	$77,549,616	8.5
Springfield	$1,376,969,898	8.5
St. Louis	$68,939,288	6.9
St. Paul	$326,636,997	8.4
St. Petersburg	$76,517,275	5.6
Stockton	$52,686,369	4.2
Syracuse	$67,633,994	5.9
Tampa	$86,416,158	5.3
Toledo	$30,549,672	3.9
Tucson	$98,402,972	5.8
Tulsa	$21,673,294	3.6
Virginia Beach	—	3.2
Washington, DC	$2,526,656,366	9.3
Wichita	$16,799,147	2.8
Winston-Salem	$18,154,031	3.4
Worcester	$45,874,536.	5.7

Sources: FTA 2019, CNT 2019a