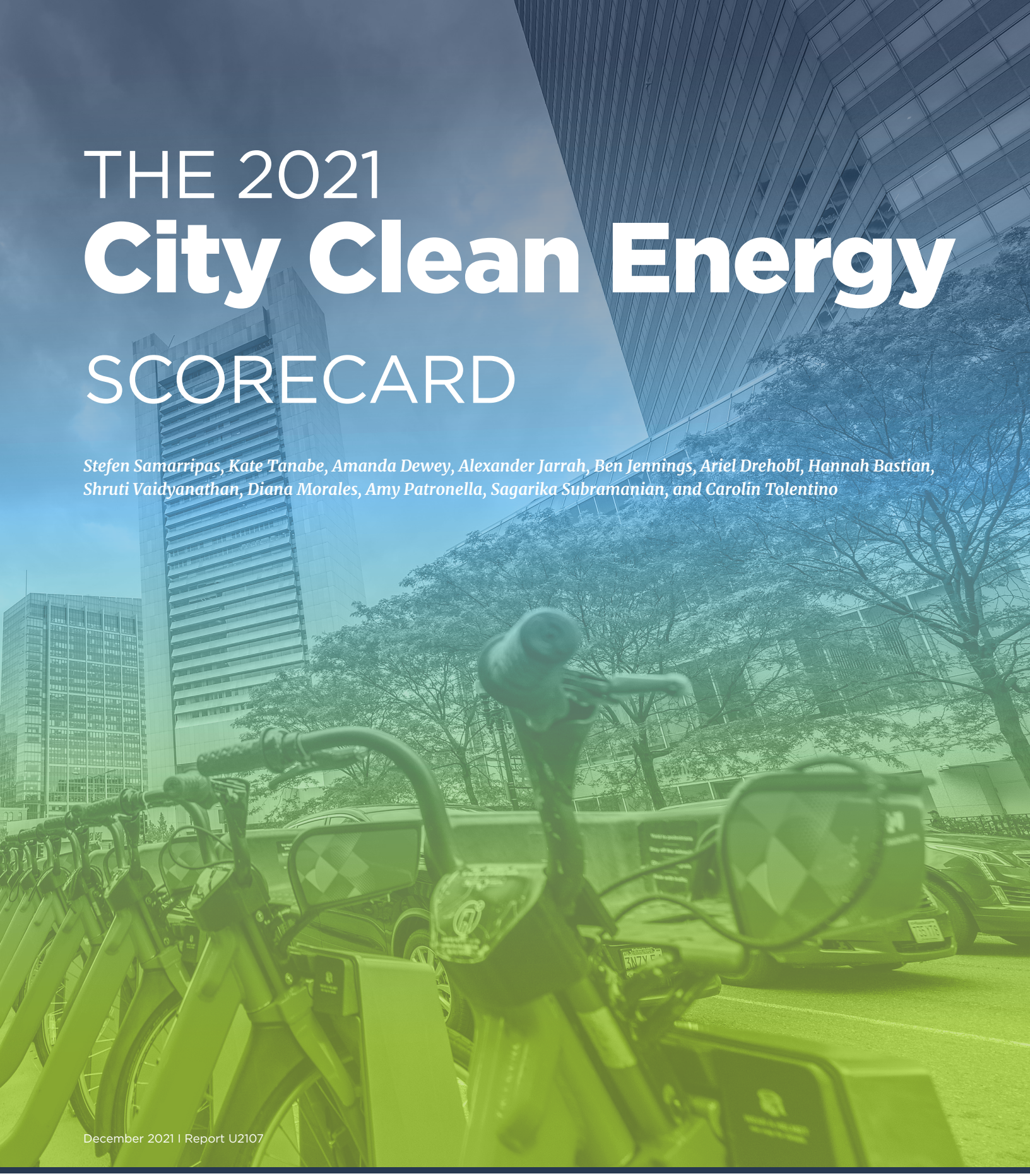


THE 2021 City Clean Energy SCORECARD

Stefen Samarripas, Kate Tanabe, Amanda Dewey, Alexander Jarrah, Ben Jennings, Ariel Drehobl, Hannah Bastian, Shruti Vaidyanathan, Diana Morales, Amy Patronella, Sagarika Subramanian, and Carolin Tolentino

December 2021 I Report U2107

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

Contents

About ACEEE ..... **v**

About the Authors ..... **v**

Acknowledgments ..... **vi**

Suggested Citation ..... **vi**

Executive Summary **1**

Introduction **8**

Chapter 1. Methodology and Results **9**

Goals and Approach 9

Selection of Cities 10

Metric Creation 11

Scoring Method 12

State Policy and City Scores 13

City Clean Energy Leaders 15

The COVID-19 Pandemic and City Clean Energy Action 20

City Efforts to Address Other Pressing Clean Energy Issues 22

Advancing Clean Energy: Current Trends and Opportunities 26

Issue in Focus: Equitable Clean Energy Policies in the City Scorecard **32**

Chapter 2. Community-Wide Initiatives **36**

Introduction 36

Scoring 36

Results 37

Community-Wide Climate Mitigation and Energy Goals 41

Equity-Driven Approaches to Clean Energy Planning, Implementation, and Evaluation 44

Clean Distributed Energy Resources 46

Mitigation of Heat Islands 49

Issue in Focus: Progress on Climate Change Mitigation Goals **52**

Chapter 3. Buildings Policies **54**

Introduction 54

Scoring 55

Results 55

Building Energy Codes 58

Building Energy Code Compliance and Enforcement 61

Policies Targeting Existing Buildings 63

Issue in Focus: Residential Energy Efficiency and Federal Stimulus 72

Chapter 4. Transportation Policies 73

Introduction 73

Scoring 73

Results 74

Sustainable Transportation Plans and Vehicle Miles Traveled (VMT) Targets 77

Location Efficiency 79

Mode Shift 81

Public Transit 83

Efficient Vehicles 85

Freight System Efficiency 88

Clean, Efficient Transportation for Low-Income Communities 89

Congestion Pricing 91

Equitable EV Charging 91

Issues in Focus: Energy-Efficient Transportation Systems and Sustainable Freight Planning 92

Energy-Efficient Transportation Systems 92

Sustainable Freight Planning 92

Chapter 5. Energy and Water Utilities 96

Introduction 96

Scoring 96

Results 96

Efficiency Efforts of Energy Utilities 100

Decarbonization and Climate Change Mitigation Efforts of Energy Utilities 105

Efficiency Efforts in Water Services 108

Issue in Focus: Electric Utility Greenhouse Gas Emissions Goal Stringency 111

Chapter 6. Local Government Operations 113

Introduction 113

Scoring 113

Results 114

Procurement and Construction Policie 120

Asset Management 123

Looking Forward 125

References 127

Appendix A. Metric Categorization 136

Definitions 136

Appendix B. Additional Methodology Information and Updates 139

Data Collection and Review 139

Data Limitations 139
Research Used to Inform City Typology Development 139
Approach to Vehicle and Building Electrification 141
Methodology Updates 141

Appendix C. City Typology Classifications 146

Appendix D. Top-Scoring Cities by Clean Energy Strategy 149

Appendix E. Comprehensive Scores 152

Community-Wide Initiatives 152
Buildings Policies 162
Transportation Policies 180
Energy and Water Utilities 196

Appendix F. Additional Tables on Policies and Results 212

Policy Trends 212
Community-Wide Initiatives 214
Transportation Policies 237
Energy and Water Utilities 248
Local Government Operations 268

Appendix G. Bloomberg American Cities Climate Challenge 278

Appendix H. Data Request Respondents 280

ABOUT ACEEE

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

ABOUT THE AUTHORS

Stefen Samarripas analyzes and conducts outreach on policies and programs that encourage energy efficiency in local communities. His current work focuses on scaling up energy efficiency investments in affordable multifamily buildings. 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; she also 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 assisted the green infrastructure team with stormwater management spatial data and analysis. Kate earned a bachelor of arts in environmental studies with a focus on sustainable development and policy from Dickinson College.

Amanda Dewey conducts research on local-government efforts to adopt and implement equitable clean energy policy. Her areas of research include opportunities for energy efficiency in community choice aggregation programs and the equity implications of local energy efficiency policies. Prior to joining ACEEE, Amanda worked at the University of Maryland, and she currently serves as the mayor of Berwyn Heights, Maryland. Amanda earned a doctorate and master of arts in sociology from the University of Maryland and a bachelor of arts in sociology and theater from Vanderbilt University.

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.

Ben Jennings assists ACEEE's transportation program, contributing research to ACEEE's *City Clean Energy Scorecard*, *State Energy Efficiency Scorecard*, *State Transportation Electrification Scorecard*, and *International Scorecard*. Before 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.

Ariel Drehobl is a manager on the local policy team, where she leads research and technical assistance related to energy equity, energy affordability, community-based clean energy, and low-income energy efficiency programs. Prior to joining ACEEE, she worked at Opower on energy efficiency research; 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. Ariel earned a bachelor of arts in history and international studies from Northwestern University.

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

Shruti Vaidyanathan oversees research on vehicle efficiency and system-wide 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.

Diana Morales conducts research related to energy efficiency and clean energy policy at the local government level. She also contributes to the *City Scorecard*. Before joining ACEEE, she worked at the U.S. Green Building Council as a certification associate. Diana holds a master of sustainability with a focus on urban and energy systems from Chatham University and a bachelor of arts in psychology and anthropology from Indiana University of Pennsylvania.

Amy Patronella worked at ACEEE as a transportation and local policy team intern in 2020 and 2021. During her time at ACEEE, Amy worked on the *City Clean Energy Scorecard* and a topic brief on funding low-carbon transportation options and contributed to research on freight system efficiency. Amy holds a bachelor of arts in political communication with a minor in public policy and sustainability from American University. She is currently a master's student at the University of North Carolina.

Sagarika Subramanian conducts research for the state policy program. Prior to joining ACEEE, she worked at UCLA as a research assistant and most recently as an intern at the Alliance to Save Energy, contributing to energy efficiency projects for the research and strategic initiatives team. Sagarika holds a master of environmental management from the Yale School of the Environment and a bachelor's degree in environmental science from the University of California, Los Angeles.

Carolin Tolentino assists ACEEE's buildings team with research on energy codes and low- and zero-energy buildings. Prior to joining ACEEE, Carolin was an intern at ICLEI—Local Governments for Sustainability with the sustainable resources team. Before that, she interned with the education department at the Urban Green Council. Carolin earned a bachelor of arts in environmental policy and German studies from Rice University.

ACKNOWLEDGMENTS

The authors wish to thank all the individuals and organizations that contributed to this sixth edition of the *City Scorecard.* We are grateful for the financial support of Bloomberg Philanthropies, the Kresge Foundation, and The JPB Foundation, which made this project possible.

We particularly wish to thank the sustainability, resilience, and energy management staffs of the cities assessed in the *City Scorecard.* We are also grateful to the data-request respondents at the energy utilities that serve these cities. Appendix H lists the individuals who contributed responses to our data requests. Thanks are also due to Katie Walsh, Amy Kao, Tim Hendry, Nienke Meinsma, and Christopher Dixon O'Mara of CDP for facilitating our use of the CDP Online Portal to collect data from city staff. Thanks to David Ribeiro for serving as research adviser, and thanks to the numerous other ACEEE staff members who reviewed and commented on drafts: Steven Nadel, Lauren Ross, Nora Esram, Naomi Baum, Wendy Koch, Charlotte Cohn, Rob Kerns, Kate Doughty, Jennifer Amann, and Weston Berg. Thanks also to ACEEE staff who supported the production of the report and the related communications, especially Wendy Koch, Ben Somberg, Rob Kerns, and Kate Doughty. Special thanks to Mary Robert Carter for managing the editorial process; Mariel Wolfson for developmental editing; Elise Marton, Sean O'Brien, Roxanna Usher, and Kristin Cleveland for copyediting and proofreading; and Tanja Bos of Bospoint for designing the report.

In addition to the individuals listed in Appendix H, we are grateful to the many experts and stakeholders who provided comments on our draft methodology and full draft report and who contributed their expertise in other ways. In alphabetical order by organization, we would like to thank: Daniel Tait (Alabama Center for Sustainable Energy); Jim McMahon (Better Climate Research and Policy Analysis); Scott Bernstein (Center for Neighborhood Technology); Steve Morgan (Clean Energy Solutions); Betty Soto (Natural Resources Defense Council); Susan Stratton (Northwest Energy Efficiency Alliance); Adam Jacobs (Optimal Energy); Susan Schneider (San Joaquin County Climate Action Coalition); Claudette Ayanaba (Southeast Energy Efficiency Alliance); Adam Hinge (Sustainable Energy Partnerships); Zach Eldredge, Andrew Graves, Adam Guzzo, Brooke Holleman, Pam Mendelson, Chelsea Mervenne, Aaron Ng, Marcy Rood, Maddy Salzman, Jeremy Williams, and Shannon Zaret (U.S. Department of Energy); Megan Susman (U.S. Environmental Protection Agency); Kathryn Wright (Urban Sustainability Directors Network); and Alex Dane (World Resources Institute).

ACEEE is solely responsible for the content of this report.

SUGGESTED CITATION

Samarripas, S., K. Tanabe, A. Dewey, A. Jarrah, B. Jennings, A. Drehobl, H. Bastian, S. Vaidyanathan, D. Morales, A. Patronella, S. Subramanian, and C. Tolentino. 2021. *The 2021 City Clean Energy Scorecard*. Washington, DC: American Council for an Energy-Efficient Economy. aceee.org/research-report/u2107

Executive Summary

KEY FINDINGS

This report scores 100 U.S. cities on their efforts to advance their clean energy goals by improving energy efficiency and moving toward a cleaner electric grid and fuels.

- First place goes to **San Francisco**, earning the top spot for the first time.
- Rounding out the top 10 cities are **Seattle**; **Washington, D.C.**; **Minneapolis**; **Boston** and **New York City** (tied at #5); **Denver**; **Los Angeles**; **San José**; and **Oakland**. Less than five points separate the first- and fifth-ranked cities.
- **Madison**, **Wisconsin**; **Charlotte**, **North Carolina**; and **Honolulu**, **Hawai'i**, are this year's most-improved cities. Among its improvements, Madison increased its investments in renewable energy and adopted requirements to install electric vehicle chargers in all multifamily and some commercial buildings. Charlotte created a new clean energy workforce development program and adopted a Sustainable and Resilient Fleet policy. Honolulu adopted a new climate action plan.
- We increased our *Scorecard's* focus on **racial and social equity**, continued to assess city **policy performance** whenever possible, and conducted a new analysis of **smart growth**–focused clean energy strategies. **Minneapolis**, **San Francisco**, and **New York City** were the top equity, policy performance, and smart growth scorers, respectively. The *Scorecard's* top 10 cities received high scores for these metric categories; however, all cities have room to improve their scores on these metrics, and especially those pertaining to equity.
- Cities continue to make limited progress toward meeting their greenhouse gas (GHG) emissions goals. While 63 of the 100 cities we analyzed have adopted a community-wide GHG goal, only 38 have released sufficient inventory data to assess progress toward these goals. And of these, **only 19 cities are on track to achieve their near-term GHG goal**.
- Moving forward, all cities can improve their scores by increasing their commitment to racial and social equity, adopting more mandatory policies designed to improve the energy performance of existing buildings, and adopting and tracking progress toward stringent community-wide energy savings and transportation sector goals.
- Between May 2, 2020, and July 1, 2021, the cities we assessed took **at least 177 new actions** to advance clean energy. While the COVID-19 pandemic led many cities to delay or modify work they had planned for 2020, cities increased their clean energy work in late 2020 and early 2021.
- Across all cities we analyzed, 38% of new clean energy actions were related to the creation and adoption of a clean energy plan, partnership, goal, or government procedure. Thirty-four percent of new actions involved policies and programs designed to improve energy efficiency during the design, siting, construction, renovation, and operation of buildings. Twenty-eight percent of new actions were focused on the development of clean energy infrastructure.
- Only 30 of the 177 new clean energy actions were equity-driven initiatives—less than 20% of the total. Given that we increased points awarded for equity efforts, this led many cities to lose points relative to their scores in last year's *Scorecard*.

The *City Clean Energy Scorecard* is the go-to resource for tracking clean energy plans, policies, and progress in large cities across the United States. It compiles information on local policies and actions to advance energy efficiency and the move toward a cleaner electric grid and fuels, comparing 100 large cities across all energy sectors. It also assesses cities' focus on equity, policy performance, and smart growth across these sectors. The 2021 *City Scorecard* accounts for all local policies adopted by July 1, 2021. The scores we report identify high-achieving cities and those with significant room to strengthen their policy efforts. Our focus on policies and programs also makes the *Scorecard* a road map for local governments aiming to scale up their clean energy initiatives in pursuit of their climate change mitigation goals.

Previous editions of our *City Clean Energy Scorecard* documented cities undertaking more than 325 actions to advance clean energy between January 2017 and April 2020, with more than 160 of those actions occurring in the 12 months leading up to the first weeks of the COVID-19 pandemic. The COVID-19 pandemic substantially hindered or altered city clean energy work in 2020. Many cities were unable to begin new initiatives or had to delay their planned work because of the pandemic, but cities also proved steadfast in their commitment to clean energy in the face of these challenges. Throughout 2020, many cities focused on planning work for their clean energy strategies. Some cities were able to continue making investments in clean energy infrastructure such as renewable energy, microgrid, and district energy systems. City adoption of policies and programs picked up in late 2020 and continued throughout the first half of 2021. We found that cities undertook at least 177 new clean energy actions between May 2020 and June 2021.

POLICY AREAS

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

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

Table ES1. Highest-scoring cities by policy area

Area	Cities*	Achievements
Community-wide initiatives	Seattle (#1), San José (#2), Denver and Washington, D.C. (#3, tied)	These cities have GHG reduction goals for the community and strategies to mitigate the heat island effect. They have all undertaken community engagement with historically marginalized local groups.
Buildings policies	Denver (#1), New York (#2), Seattle (#3)	These cities have stringent building energy codes and have instituted multiple requirements to improve the energy performance of large existing buildings. New York has adopted a building energy performance standard, and both Denver and Seattle are in states with these mandates.
Transportation policies	San Francisco (#1), Washington, D.C. (#2), Boston (#3)	These cities' initiatives include location efficiency strategies, shifts to efficient modes of transportation, transit and electric vehicle infrastructure investments, and efforts to connect historically marginalized communities with transit and other clean energy transportation options.
Energy and water utilities	Boston (#1) and San José (#2)	The energy efficiency programs of the utilities serving these cities achieve high levels of savings. Utilities and cities are working to decarbonize the electric grid and reduce GHG emissions. Water utility customers in these cities have access to efficiency programs designed to save water and energy simultaneously.
Local government operations	Boston, Orlando, Portland, San Francisco (#1, tied)	These cities are on track to substantially reduce local government GHG emissions because of their ongoing investments to create an energy-efficient municipal vehicle fleet, install renewable energy systems, and complete municipal building retrofits.

*We list the cities with the highest scores in each policy area. We generally present the three highest-scoring cities. In some cases we list two or four cities because of tied scores.

SCORES

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

Table ES2. Summary of scores

Rank	City	State	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Transportation policies (30 pts)	Energy and water utilities (15 pts)	Local government operations (10 pts)	Total (100 pts)	Change in score from 2020	Change in rank from 2020	Direction of rank change
1	San Francisco	CA	7	21	25	13.5	7.5	74	1.5	3	▲
2	Seattle	WA	12	23	19.5	11	6.5	72	–1	0	—
3	Washington, D.C.	DC	9.5	19	24	13.5	5.5	71.5	–0.5	3	▲
4	Minneapolis	MN	8.5	22	19.5	13.5	6.5	70	–2.5	0	—
5	Boston	MA	5.5	19	22.5	15	7.5	69.5	–3.5	–3	▼
5	New York	NY	6	24	22	12.5	5	69.5	–8	–4	▼
7	Denver	CO	9.5	26.5	16	13	4	69	3	0	—
8	Los Angeles	CA	9	19.5	18.5	13.5	6.5	67	1.5	0	—
9	San José	CA	10	19.5	17.5	14	2.5	63.5	–1.5	0	—
10	Oakland	CA	6.5	15.5	20.5	13.5	6.5	62.5	–1	0	—
11	Portland	OR	7.5	13.5	19.5	11.5	7.5	59.5	–3.5	0	—
12	Chicago	IL	5.5	20	16	13.5	2.5	57.5	0.5	1	▲
13	Philadelphia	PA	8	16	17	9	5	55	3.5	2	▲
14	Austin	TX	8.5	19	12.5	8.5	6	54.5	–5	–2	▼
15	Atlanta	GA	4.5	13.5	18	8	4	48	–6.5	–1	▼
16	San Diego	CA	5	12.5	13	12.5	4.5	47.5	–2	2	▲
17	Chula Vista	CA	4	18.5	7.5	12.5	4.5	47	1.5	5	▲
18	Hartford	CT	4.5	12	12.5	12	5	46	2	5	▲
18	Sacramento	CA	4	12	15	10.5	4.5	46	–4	–1	▼
20	Saint Paul	MN	5.5	10.5	13	13	3.5	45.5	–5.5	–4	▼
21	Pittsburgh	PA	7.5	10.5	16	7	4	45	–4	–2	▼
22	Orlando	FL	7	12	11.5	6	7.5	44	–3.5	–1	▼
22	Phoenix	AZ	7	10.5	13	9	4.5	44	–5	–3	▼
24	Honolulu	HI	4.5	9.5	14.5	9	4	41.5	12.5	17	▲
24	Baltimore	MD	5.5	8.5	15	9.5	3	41.5	5.5	8	▲
26	Providence	RI	4	4.5	13	13	6.5	41	–3	–3	▼
27	Long Beach	CA	2.5	14	13	7	4	40.5	–2.5	–1	▼
28	Columbus	OH	5	10.5	11.5	10.5	2.5	40	–1	1	▲
28	St. Louis	MO	4.5	19	8	6.5	2	40	–2	0	—
30	Aurora	CO	3	17.5	6.5	11.5	0	38.5	11	13	▲
31	Albuquerque	NM	2.5	8.5	12.5	9.5	5	38	7.5	9	▲
31	Las Vegas	NV	5.5	10.5	11	5	6	38	7	5	▲
31	Grand Rapids	MI	2	9	10.5	12.5	4	38	3	2	▲
34	Houston	TX	5	8.5	11	7.5	4.5	36.5	2	0	—
34	Salt Lake City	UT	4	7.5	11.5	9.5	4	36.5	–6	–7	▼
36	Kansas City	MO	3.5	9	12.5	6.5	4.5	36	–7.5	–11	▼
37	San Antonio	TX	6	10.5	8	5.5	5.5	35.5	–2	–6	▼
38	Cleveland	OH	4	6	11.5	8.5	4	34	–7	–9	▼

Rank	City	State	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Transportation policies (30 pts)	Energy and water utilities (15 pts)	Local government operations (10 pts)	Total (100 pts)	Change in score from 2020	Change in rank from 2020	Direction of rank change
39	Madison	WI	1	7	11.5	9	5	33.5	11	25	▲
40	Riverside	CA	3	11	7	9.5	2.5	33	-1.5	-6	▼
41	Boise	ID	3	8.5	7.5	7.5	4.5	31	3	1	▲
42	Charlotte	NC	3.5	6	10	7	3.5	30	8	23	▲
43	Knoxville	TN	4.5	5.5	8	7	4	29	3.5	8	▲
43	Dallas	TX	3.5	9	8.5	4	4	29	2	5	▲
43	Cincinnati	OH	4	9	7	6	3	29	-2	-7	▼
46	Nashville	TN	2.5	7.5	8.5	6	4	28.5	4.5	12	▲
47	Fresno	CA	0	12	4	9.5	1.5	27	3.5	13	▲
47	Richmond	VA	4.5	6.5	11	3.5	1.5	27	-0.5	-4	▼
49	Miami	FL	4.5	7	10.5	3	1	26	0.5	2	▲
49	Springfield	MA	2.5	8	6	9.5	0	26	-1.5	-6	▼
51	St. Petersburg	FL	4.5	6.5	7	3	4.5	25.5	0	0	—
51	Rochester	NY	0	9	8	6.5	2	25.5	-2	-8	▼
53	Buffalo	NY	1	6.5	7.5	8	2	25	-2.5	-10	▼
53	Milwaukee	WI	4	6	7.5	7	0.5	25	-6	-17	▼
55	Worcester	MA	0.5	7	4.5	9.5	3	24.5	-2	-5	▼
55	New Haven	CT	3.5	5	5.5	7.5	3	24.5	-6.5	-19	▼
57	Bakersfield	CA	0	10	2	9.5	2.5	24	0.5	3	▲
58	Colorado Springs	CO	1.5	17.5	2	2	0.5	23.5	4	14	▲
59	Louisville	KY	3.5	6	9	4	0.5	23	-4	-11	▼
60	Memphis	TN	3	5.5	7.5	5.5	1	22.5	2	10	▲
61	Reno	NV	2	13.5	5.5	0.5	0.5	22	-2	-3	▼
61	Detroit	MI	1	5.5	7.5	6.5	1.5	22	-3	-6	▼
61	Oxnard	CA	0.5	9	3.5	9	0	22	-3	-6	▼
64	Indianapolis	IN	4	1.5	6.5	7	2.5	21.5	-1.5	-2	▼
64	Raleigh	NC	2.5	4	6.5	6	2.5	21.5	-3.5	-9	▼
66	Des Moines	IA	4	8.5	3	5.5	0	21	-2	-4	▼
67	Stockton	CA	0	8	4	8.5	0	20.5	-1	-1	▼
67	New Orleans	LA	4.5	4	7.5	3.5	1	20.5	-5	-16	▼
69	Mesa	AZ	0.5	6	5	5	2	18.5	1.5	7	▲
69	Bridgeport	CT	1	4	6	5.5	2	18.5	-2.5	-1	▼
71	Tucson	AZ	0.5	7.5	5.5	2	2	17.5	-3.5	-3	▼
71	Fort Worth	TX	0.5	5.5	6.5	4.5	0.5	17.5	-4	-5	▼
73	Newark	NJ	0.5	6.5	5	3.5	0.5	16	-1	3	▲
74	Syracuse	NY	0	4	4.5	6.5	0.5	15.5	-5	-4	▼
75	Virginia Beach	VA	1	5.5	3	2.5	3	15	-4.5	-3	▼
76	Dayton	OH	1.5	3.5	4.5	5	0	14.5	1	5	▲
77	El Paso	TX	0.5	4	3	5	1.5	14	0	3	▲
77	Toledo	OH	1	4	4	5	0	14	-1	2	▲
79	Charleston	SC	2	2	5	2	2	13	4	10	▲

Rank	City	State	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Transportation policies (30 pts)	Energy and water utilities (15 pts)	Local government operations (10 pts)	Total (100 pts)	Change in score from 2020	Change in rank from 2020	Direction of rank change
80	Jacksonville	FL	1	3	6	2	0.5	12.5	-6	-6	▼
81	Tampa	FL	1.5	3.5	4.5	2	0	11.5	-6	-6	▼
82	Henderson	NV	0	7.5	2.5	1	0	11	0.5	4	▲
82	Tulsa	OK	0.5	0.5	3.5	5.5	1	11	-0.5	3	▲
84	Oklahoma City	OK	0	0.5	7	2.5	0.5	10.5	4.5	13	▲
84	Akron	OH	1	3	3	3.5	0	10.5	-1.5	-1	▼
86	Birmingham	AL	0.5	3	4.5	0.5	1.5	10	0	2	▲
87	Winston-Salem	NC	0	0.5	3	5	1	9.5	-2.5	-4	▼
88	Allentown	PA	0	3.5	2	3.5	0	9	-1.5	-2	▼
89	Omaha	NE	0.5	1	6.5	0	0	8	-8	-11	▼
90	Columbia	SC	1.5	1	2.5	2.5	0	7.5	-1	1	▲
90	Greensboro	NC	0	2	3	2	0.5	7.5	-1.5	-1	▼
90	Lakeland	FL	0.5	3	3.5	0.5	0	7.5	-5	-8	▼
93	San Juan	PR	0	6	1	0	0	7	0.5	3	▲
94	Little Rock	AR	0.5	0.5	2.5	2.5	0	6	-2.5	-3	▼
95	Augusta	GA	0	1.5	1.5	2.5	0	5.5	1	5	▲
95	Provo	UT	1	1.5	2	1	0	5.5	-2	-2	▼
97	McAllen	TX	0	3.5	0.5	1	0	5	-2	-2	▼
98	Cape Coral	FL	0	2.5	1	0.5	0.5	4.5	-3	-5	▼
99	Wichita	KS	0	0	1	1.5	1.5	4	-1	0	—
100	Baton Rouge	LA	0	1	1.5	1	0	3.5	-2.5	-3	▼

Sixty-five of the 100 cities in this year's *Scorecard* lost points relative to their scores last year. This occurred for two reasons. First, we made substantial revisions to many metrics across the *Scorecard* as part of our ongoing effort to ensure that our metrics align with evolving clean energy policy best practices. Second, we updated and increased points for most of our equity metrics. As we mentioned in our Key Findings, cities did not undertake many new equity-driven initiatives since the last edition of the *Scorecard*. Consequently, many cities lost points.

STRATEGIES FOR ADVANCING CLEAN ENERGY

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

- *Lead with a commitment to racial and social equity.* Many cities can improve their scores by creating a formal clean energy decision-making body of historically marginalized community residents, supporting minority- and women-owned businesses in securing local government clean energy contracts, and pursuing policies and programs designed to reduce the energy use and costs of affordable and rental housing.
- *Adopt mandatory policies designed to improve the energy performance of existing buildings.* Some cities have yet to adopt energy benchmarking and transparency requirements, an often foundational policy underlying mandates to improve the energy performance of properties. Other cities have adopted these requirements but have yet to pursue building retrocommissioning, retrofit, or energy performance policies.
- *Increase commitment to community-wide and transportation-specific clean energy goals.* While many cities adopted community-wide energy reduction goals for 2020, most have not created such goals for future years. Only three cities have adopted a goal to reduce vehicle miles traveled (VMT) or transportation GHG emissions and are on track to achieve it. In many cases, cities did not provide us with sufficient data to assess their progress toward their transportation goals.

We provide guidance for all cities, and for the first time, we highlight opportunities for groups of cities that share similar characteristics. We have divided the 90 cities that fall outside our top 10 rankings into a typology of six groups based on two factors: metropolitan statistical area (MSA) size and city population growth rate. These two variables are often indicative of local characteristics that determine a city's energy and GHG emissions profile and city government budgets that drive a locality's capacity to pursue clean energy initiatives. These groupings are shown in figure ES1 below.

Figure ES1. City typology groups

We identify key opportunities for each of our *City Clean Energy Scorecard* typology groups to improve their scores in table ES3 below.

Table ES3. Clean energy policy and program opportunities and model cities for each typology group

Area	Policy and program	Model city with policy or program
Stable-growth cities in large metros	Take additional steps to ensure that builders comply with energy codes	Long Beach, CA
	Adopt energy benchmarking and rental energy disclosure policies	Chicago, IL
Modest-growth cities in large metros	Adopt building tune-up and audit requirements to improve the energy performance of existing buildings	Salt Lake City, UT Philadelphia, PA
	Create or support energy efficiency workforce development programs and ensure that these programs benefit historically marginalized communities	Sacramento, CA Philadelphia, PA
Rapid-growth cities in large metros	Adopt stringent transportation VMT or GHG emissions goals and track progress toward them	San Antonio, TX
	Adopt requirements to install EV charging infrastructure when constructing new parking or make such parking EV charging–ready	Atlanta, GA Miami, FL Orlando, FL
Stable cities in midsize metros	Improve the energy performance of municipal operations and assets	Honolulu, HI
	Engage with utilities more to promote clean energy	Honolulu, HI
Modest-growth cities in midsize metros	Adopt more stringent building energy codes	Des Moines, IA
	Adopt location-efficient zoning codes that apply to the entire city	El Paso, TX
Rapid-growth cities in midsize metros	Adopt EV charging–ready provisions in building codes	Boise, ID Madison, WI
	Form partnerships to encourage utility clean energy goals, programs, and investments	Madison, WI

Introduction

Since 2013, ACEEE's *City Energy Efficiency* and *City Clean Energy Scorecard* have documented the evolution of clean energy strategies employed at the local level by city governments. To a limited extent, the *City Scorecard* has also examined actions by utility companies, transit authorities, and state governments, as these play an important role in enabling or hindering city government actions to achieve their clean energy goals. With an overarching focus on assessing city efforts to reduce greenhouse gas (GHG) emissions, *The 2021 City Clean Energy Scorecard* tracks local policies and programs that advance energy efficiency and a cleaner grid and fuels. These strategies reduce urban energy use and transition communities to less carbon-intensive energy sources such as renewable energy.

Previous editions of our *City Clean Energy Scorecard* documented cities undertaking more than 325 actions to advance clean energy between January 2017 and April 2020, with more than 160 of those actions taken in the 12 months leading up to the first weeks of the COVID-19 pandemic (Ribeiro et al. 2019, 2020). The COVID-19 pandemic substantially hindered or altered city clean energy work in 2020. Many cities were unable to begin new initiatives or had to delay their planned work because of the pandemic, but cities also proved steadfast in their commitment to clean energy in the face of these challenges. Throughout 2020, many cities focused on planning work for their clean energy strategies. Some cities were able to continue making investments in clean energy infrastructure such as renewable energy, microgrid, and district energy systems. City adoption of policies and programs picked up in late 2020 and continued throughout the first half of 2021. We found that *Scorecard* cities undertook at least 177 new clean energy actions between May 2020 and June 2021.

This year's *Scorecard* has an expanded focus on city efforts to advance racial and social equity in their clean energy strategies, reflecting both the importance of addressing urban inequities and cities' growing recognition of this in their work. The National League of Cities documents several events that have motivated city leaders to take new steps to further equity: "The murder of George Floyd and other Black men by police officers, the racial uprisings and protests of 2020, and the disparate impact of COVID-19 on Black and Brown communities converged over this last year to continue to drive home the critical work to rectify inequities and injustices" (McFarland et al. 2021).

This year we added new equity metrics and increased the total points available for these metrics across the *Scorecard*. While cities did undertake some new equity-focused actions between mid-2020 and mid-2021, the development of this work has not kept pace with city actions focused on other clean energy activities. Only 30 of the 177 new city clean energy actions were equity-driven initiatives—less than 20% of all new city actions we documented. This led many cities to lose points relative to their scores in last year's *Scorecard*. Our analysis also shows a substantial number of cities are in the first stages of addressing equity in their clean energy work. Twenty of the 30 new equity-driven city clean energy actions we documented were related to planning work. This planning may lead to an increase in equity-focused policies and programs in the future.

Chapter 1. Methodology and Results

Lead Authors: Stefen Samarripas, Amanda Dewey, and Kate Tanabe

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

City governments around the United States have a variety of mechanisms by which to address their own energy use and to influence energy use in their communities. These include land use and zoning laws, building codes, local policies, public finance, transportation investment, procurement of goods and services, clean energy advocacy to state and federal authorities, workforce development initiatives, and energy and water services development and management.

The thousands of local governments in the United States vary in size and authority and have diverse priorities. Consequently, they have pursued different clean energy strategies. We document this variety in the *Scorecard* by focusing on how the clean energy activities of 100 large U.S. cities vary across sectors (each one addressed in a chapter of the *Scorecard*) and in their intended outcomes. To a limited degree, we also assess the actions of utility companies, state governments, and transit authorities in these cities because they affect local decisions regarding energy use in important ways. Our metrics track common policy categories and actions these entities can carry out or influence; most measure policies and programs that municipalities have implemented within their city limits.

GOALS AND APPROACH

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

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

- These outside actors can influence the progress cities make toward their clean energy goals. For cities to achieve their goals in some cases, regional and state policymakers and program administrators also need to focus on energy efficiency and on furthering the development of a cleaner grid and the use of cleaner fuels in the planning, decision making, and implementation of their initiatives.

- Even if city governments do not regulate or manage these actors, they can still advocate for them to adopt certain policies and programs and can further engage in their design and implementation.
- The *City Scorecard* is an educational resource to inform policymakers and interested citizens seeking to advance clean energy. We would present only a partial picture of a city's clean energy policy environment if we were to focus solely on city actions.

SELECTION OF CITIES

We focus on the core cities of the most populous metropolitan statistical areas (MSAs) because they play important roles as centers of economic activity.[1] Core cities—the most populous cities in metro regions—influence regional travel behavior and hold a large share of their region's commercial buildings. Leaders of these cities can also influence the policies of states and the federal government.

We include the same 100 cities in *The 2021 City Clean Energy Scorecard* that appeared in the 2020 edition. This list primarily includes the most populated city in each of the most populated metros. In certain cases we also include the second-largest cities in these MSAs. We include the second-most-populous city in a metro area only if its population exceeds 250,000, and we allow only one additional city per MSA to maintain geographic diversity and avoid overrepresenting certain metros. Figure 1 details our criteria for including cities in the *Scorecard*.

Figure 1. Selection of cities

All cities in our *Scorecard* have a population of at least 100,000.[2] This threshold eliminates smaller cities that may be predominantly residential communities with limited commercial activity. These smaller, residential cities could be substantially disadvantaged by metrics that assess initiatives designed to address energy use associated with commercial buildings, transit, and freight activity.

Our city selection includes all 25 cities that participated in the American Cities Climate Challenge (ACCC).[3] Consequently, the *City Scorecard* has been a mechanism by which these cities can gauge their progress in the Climate Challenge.[4] ACCC scores are presented in Appendix G.

Figure 2 shows all 100 cities assessed in the 2021 *City Scorecard*.

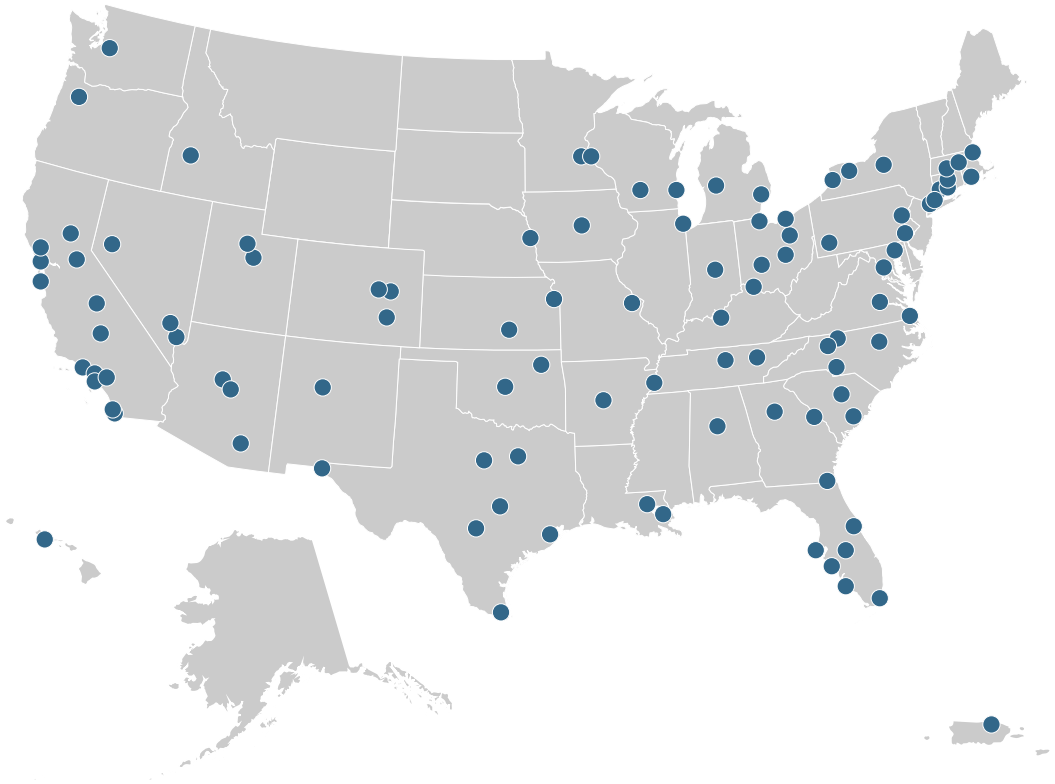
1 For the purposes of the *Scorecard*, we define a city as the area within whose political borders a local government has direct policy authority (e.g., the city of Detroit rather than the Detroit–Livonia–Dearborn metropolitan statistical area).

2 This criterion disqualified North Port, Florida; Ogden, Utah; Deltona, Florida; Greenville, South Carolina; and Albany, New York.

3 The Bloomberg American Cities Climate Challenge is a multiyear acceleration program that gives 25 cities extensive resources and expert guidance to help them achieve or surpass their 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.

4 Reno, Nevada, 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. While Reno was one of these finalists, it was not ultimately selected for the Climate Challenge. We have kept it in the 2020 and 2021 *City Scorecards* to be consistent.

Figure 2. Cities in the 2021 *City Scorecard*



METRIC CREATION

Our *City Scorecard* metrics track local clean energy initiatives that are designed to reflect policy best practices, advance racial and social equity, or use innovative approaches to reduce GHG emissions. The information contained in the *Scorecard*, and on which we base our scoring of the 100 cities, reflects existing policies as of July 1, 2021.

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

- Set long-term commitments to reduce GHG emissions, save energy, increase renewable energy, lower vehicle miles traveled, or achieve racial and social equity outcomes
- Enforce mandatory or incentivize voluntary building energy performance and location-efficient land use codes or standards
- Offer technical assistance, training, and/or funding to support existing clean energy programs or services
- Reduce market, regulatory, and information barriers to clean energy projects
- Directly design and fund projects that affect the energy use of urban buildings and transportation systems
- Advocate for new federal, state, and utility clean energy policies, programs, and investments

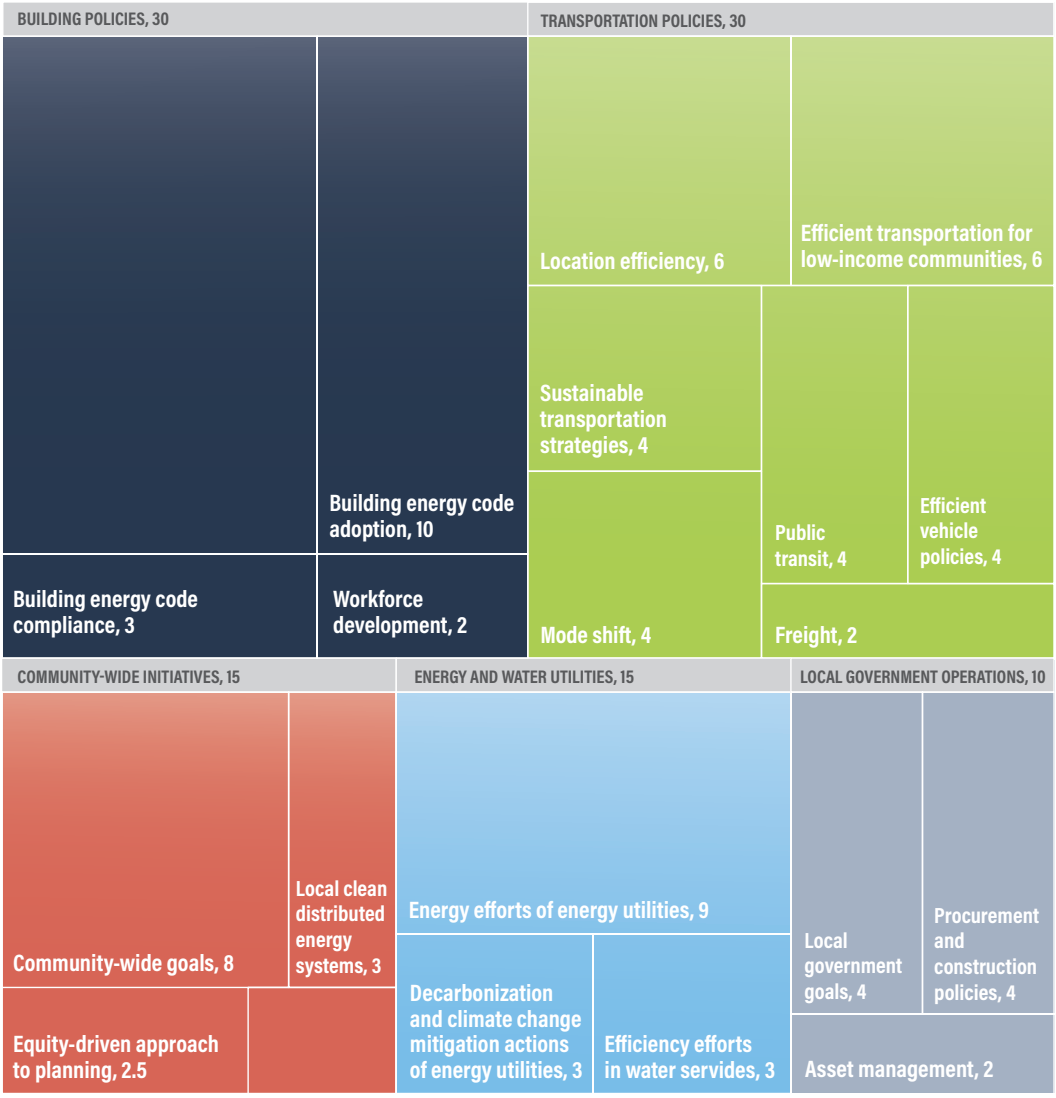
Our focus on policies and programs is in keeping with our goal of providing actionable information to policymakers, residents, and businesses. Policymakers need to know what they can do to advance clean energy goals in the context of their city's current situation. Residents and businesses need information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

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

SCORING METHOD

Each one of this report's five chapters analyzes a different group of metrics. Four of these chapters are focused on specific urban economic sectors: Buildings, Transportation, Energy and Water Utilities, and Local Government Operations. The remaining chapter, Community-Wide Initiatives, focuses on plans, policies, and programs that are designed to address clean energy across more than one sector. The maximum number of points a city can earn across all chapters is 100.[5] Figure 3 shows the point allocations across these chapters and the various policy areas included in each.

Figure 3. Distribution of points by chapter and policy area



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

Each chapter of the *Scorecard* includes scoring summary tables that show how cities scored on various metrics. We include more detailed scores and some additional policy and program information in the appendixes. We include the complete body of policy and program information on which we score cities in the ACEEE State and Local Policy Database.[6]

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

6 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.

Past *Scorecard* reports placed a heavy emphasis on describing the policies and programs of city clean energy leaders. Our complementary city fact sheets, released alongside past editions of this report, described all cities' clean energy actions, scores, and policy opportunities in detail. We have included a new analysis in this year's report to further examine the policy trends of cities that fall outside our *Scorecard's* top 10 ranking and to identify opportunities for different types of cities to improve their scores. To accomplish this, we created a typology that groups cities with similar population characteristics together. We then identified the most common policies and programs enacted by each group along with their most pronounced opportunities for score improvements. We discuss the typology and the results of this analysis in a subsequent section of this chapter.

STATE POLICY AND CITY SCORES

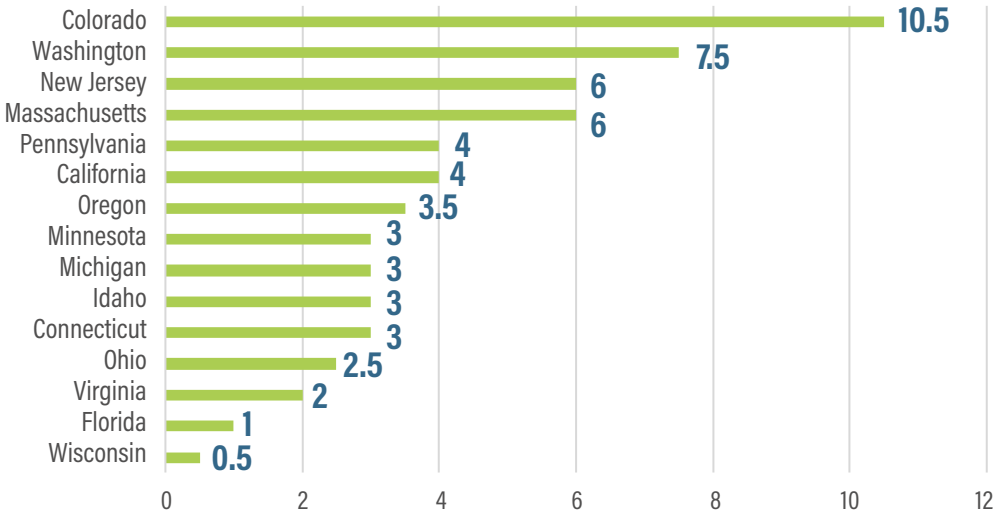
As we have discussed, all local governments have some influence over the policies we cover in the *Scorecard*, but the degree of city influence or capacity to act varies due to differing local policy environments, state laws, and local control over utilities. These factors affect the policy mechanisms cities can use to influence energy-related outcomes (C40 and Arup 2015; Hinge et al. 2013). Some of our metrics have alternate scoring tracks to account for these differing capacities to act. For example, to ensure a fair comparison, our scoring for cities with municipal energy utilities is different from our scoring for those with investor-owned utilities.

Beginning with last year's *Scorecard*, we took the step of quantifying the known effects of state policies and programs on city scores. As we have mentioned, we designed different scoring tracks in some metrics to account for differences in jurisdictional authority. Regardless, it can be challenging to disaggregate state policy from city scores completely. In refining and updating this analysis for this year's *Scorecard*, we first examined how states have played a role in increasing scores for their cities.[7] The following state policies and programs can increase city scores:

- Stringent statewide building codes
- Renewable-ready building code provisions
- Electric vehicle (EV) infrastructure–ready building code provisions
- Requirements to install EV infrastructure in parking facilities
- Statewide policies to benchmark, report, and improve existing building energy performance

Figure 4 shows the positive effect that these existing state policies and programs can have on city scores.

Figure 4. Points gained due to state action

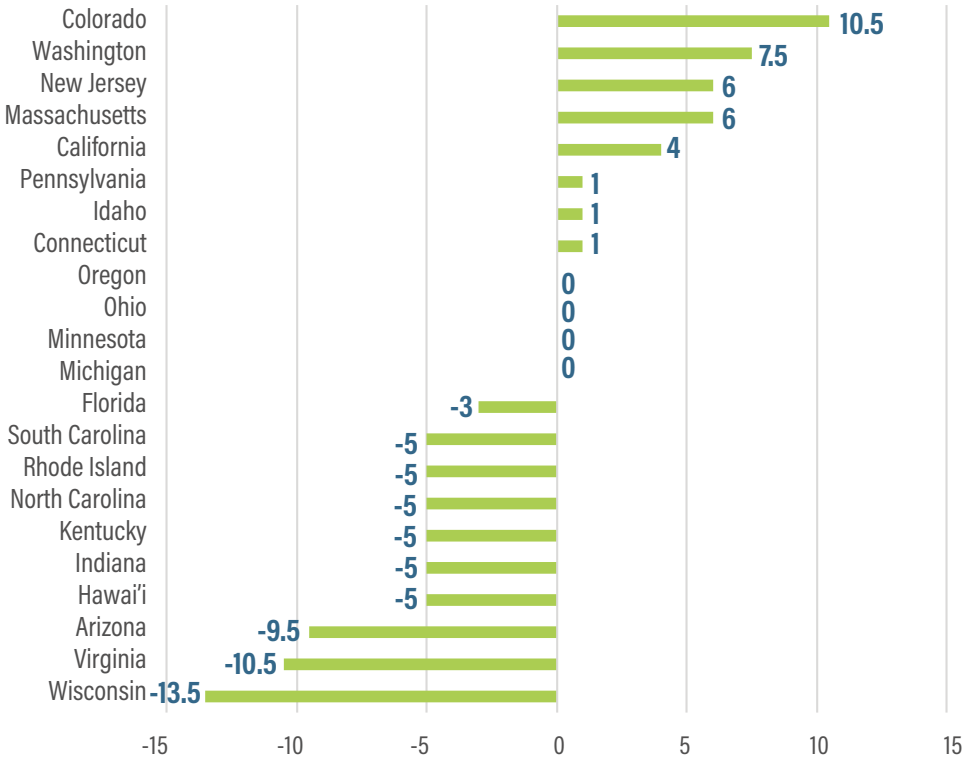


7 Our analysis does not include a comprehensive look at the effect of all state policies on all *Scorecard* metrics. We have limited our analysis to policies and programs whose effect on city scores can be clearly determined. This minimizes uncertainty and provides an unclouded comparison among states.

Colorado has had the largest positive impact on the scores of its *Scorecard* cities (Aurora, Colorado Springs, and Denver). The state recently passed House Bill 21-1286, which establishes statewide requirements to benchmark commercial and multifamily building energy use and share this information with new owners, to disclose rental unit energy use information to prospective tenants, and to improve building energy performance to a specified standard. Washington, the state with the second-highest positive impact, has adopted a commercial building energy performance policy, stringent residential energy codes, and EV charging–ready and EV charging installation requirements.

While states can play a supporting role in advancing city clean energy goals and strategies, we also acknowledge that several states have passed laws restricting the ability of cities to adopt certain policies and programs. We have found that the degree to which state policies are limiting city actions is sometimes unclear, and we do not consider these cases here. However, we have been able to establish that Arizona, Virginia, and Wisconsin have barred local governments from adopting any rules requiring owners of existing buildings to report on or improve their property's energy performance. Michigan and Minnesota do not allow cities to adopt requirements for existing building owners to improve their energy performance. Pennsylvania has not passed legislation enabling community solar, closing off the possibility that local governments can support such projects. Finally, several states control the adoption of building energy codes, which can limit the potential points a city can earn.[8] Figure 5 shows the combined net effect of state limitations and supportive state policies on their cities' scores.

Figure 5. Net effect of state actions on city scores



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

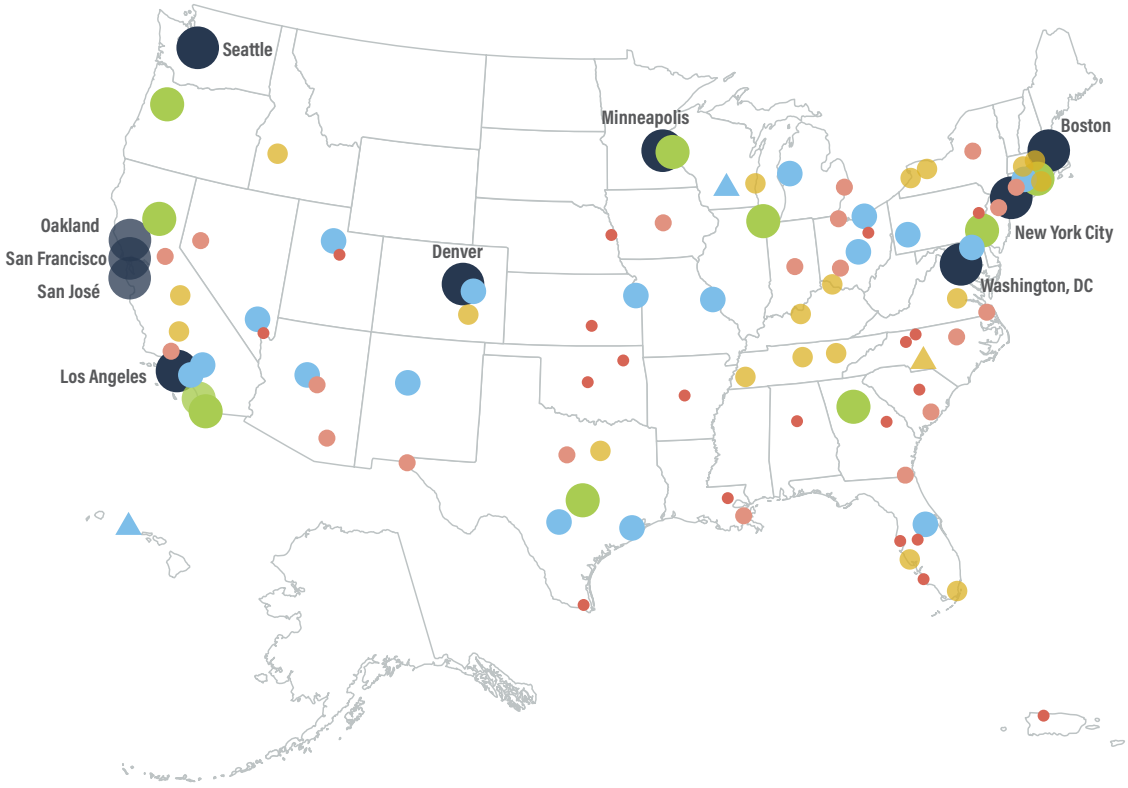
8 States that do not allow local governments to adopt building codes include Connecticut, Florida, Hawai'i, Idaho, Indiana, Kentucky, Massachusetts, Michigan, Minnesota, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Virginia, and Wisconsin. Cities in Washington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

CITY CLEAN ENERGY LEADERS

2021 Results

We present the results of *The 2021 City Clean Energy Scorecard* in figure 6 and more fully in table 1. The last three columns of table 1 list information related to the change in rank from the 2020 *City Scorecard*. In the sections that follow, we discuss policy trends of the leading and most-improved cities.

Figure 6. *2021 City Scorecard* rankings



2021 City Clean Energy Scorecard

▲ Most-improved cities:
Madison • Charlotte • Honolulu

1–10

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

11–20

11. Portland, OR
12. Chicago, IL
13. Philadelphia, PA
14. Austin, TX
15. Atlanta, GA
16. San Diego, CA
17. Chula Vista, CA
18. Hartford, CT
18. Sacramento, CA
20. St. Paul, MN

21–40

21. Pittsburgh, PA
22. Orlando, FL
22. Phoenix, AZ
24. Honolulu, HI
24. Baltimore, MD
26. Providence, RI
27. Long Beach, CA
28. Columbus, OH
28. St. Louis, MO
30. Aurora, CO
31. Albuquerque, NM
31. Grand Rapids, MI
31. Las Vegas, NV
34. Houston, TX
34. Salt Lake City, UT
36. Kansas City, MO
37. San Antonio, TX
38. Cleveland, OH
39. Madison, WI
40. Riverside, CA

41–60

41. Boise, ID
42. Charlotte, NC
43. Knoxville, TN
43. Dallas, TX
43. Cincinnati, OH
46. Nashville, TN
47. Fresno, CA
47. Richmond, VA
49. Miami, FL
49. Springfield, MA
51. St. Petersburg, FL
51. Rochester, NY
53. Buffalo, NY
53. Milwaukee, WI
55. Worcester, MA
55. New Haven, CT
57. Bakersfield, CA
58. Colorado Springs, CO
59. Louisville, KY
60. Memphis, TN

61–80

61. Reno, NV
61. Detroit, MI
61. Oxnard, CA
64. Indianapolis, IN
64. Raleigh, NC
66. Des Moines, IA
67. Stockton, CA
67. New Orleans, LA
69. Mesa, AZ
69. Bridgeport, CT
71. Tucson, AZ
71. Fort Worth, TX
73. Newark, NJ
74. Syracuse, NY
75. Virginia Beach, VA
76. Dayton, OH
77. El Paso, TX
77. Toledo, OH
79. Charleston, SC
80. Jacksonville, FL

81–100

81. Tampa, FL
82. Henderson, NV
82. Tulsa, OK
84. Oklahoma City, OK
84. Akron, OH
86. Birmingham, AL
87. Winston-Salem, NC
88. Allentown, PA
89. Omaha, NE
90. Columbia, SC
90. Greensboro, NC
90. Lakeland, FL
93. San Juan, PR
94. Little Rock, AR
95. Augusta, GA
95. Provo, UT
97. McAllen, TX
98. Cape Coral, FL
99. Wichita, KS
100. Baton Rouge, LA

Table 1. Summary of scores

Rank	City	State	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Transportation policies (30 pts)	Energy and water utilities (15 pts)	Local government operations (10 pts)	Total (100 pts)	Change in score from 2020	Change in rank from 2020	Direction of rank change
1	San Francisco	CA	7	21	25	13.5	7.5	74	1.5	3	▲
2	Seattle	WA	12	23	19.5	11	6.5	72	–1	0	—
3	Washington	DC	9.5	19	24	13.5	5.5	71.5	–0.5	3	▲
4	Minneapolis	MN	8.5	22	19.5	13.5	6.5	70	–2.5	0	—
5	Boston	MA	5.5	19	22.5	15	7.5	69.5	–3.5	–3	▼
5	New York	NY	6	24	22	12.5	5	69.5	–8	–4	▼
7	Denver	CO	9.5	26.5	16	13	4	69	3	0	—
8	Los Angeles	CA	9	19.5	18.5	13.5	6.5	67	1.5	0	—
9	San José	CA	10	19.5	17.5	14	2.5	63.5	–1.5	0	—
10	Oakland	CA	6.5	15.5	20.5	13.5	6.5	62.5	–1	0	—
11	Portland	OR	7.5	13.5	19.5	11.5	7.5	59.5	–3.5	0	—
12	Chicago	IL	5.5	20	16	13.5	2.5	57.5	0.5	1	▲
13	Philadelphia	PA	8	16	17	9	5	55	3.5	2	▲
14	Austin	TX	8.5	19	12.5	8.5	6	54.5	–5	–2	▼
15	Atlanta	GA	4.5	13.5	18	8	4	48	–6.5	–1	▼
16	San Diego	CA	5	12.5	13	12.5	4.5	47.5	–2	2	▲
17	Chula Vista	CA	4	18.5	7.5	12.5	4.5	47	1.5	5	▲
18	Hartford	CT	4.5	12	12.5	12	5	46	2	5	▲
18	Sacramento	CA	4	12	15	10.5	4.5	46	–4	–1	▼
20	Saint Paul	MN	5.5	10.5	13	13	3.5	45.5	–5.5	–4	▼
21	Pittsburgh	PA	7.5	10.5	16	7	4	45	–4	–2	▼
22	Orlando	FL	7	12	11.5	6	7.5	44	–3.5	–1	▼
22	Phoenix	AZ	7	10.5	13	9	4.5	44	–5	–3	▼
24	Honolulu	HI	4.5	9.5	14.5	9	4	41.5	12.5	17	▲
24	Baltimore	MD	5.5	8.5	15	9.5	3	41.5	5.5	8	▲
26	Providence	RI	4	4.5	13	13	6.5	41	–3	–3	▼
27	Long Beach	CA	2.5	14	13	7	4	40.5	–2.5	–1	▼
28	Columbus	OH	5	10.5	11.5	10.5	2.5	40	–1	1	▲
28	St. Louis	MO	4.5	19	8	6.5	2	40	–2	0	—
30	Aurora	CO	3	17.5	6.5	11.5	0	38.5	11	13	▲
31	Albuquerque	NM	2.5	8.5	12.5	9.5	5	38	7.5	10	▲
31	Las Vegas	NV	5.5	10.5	11	5	6	38	7	5	▲
31	Grand Rapids	MI	2	9	10.5	12.5	4	38	3	2	▲
34	Houston	TX	5	8.5	11	7.5	4.5	36.5	2	0	—
34	Salt Lake City	UT	4	7.5	11.5	9.5	4	36.5	–6	–7	▼
36	Kansas City	MO	3.5	9	12.5	6.5	4.5	36	–7.5	–11	▼
37	San Antonio	TX	6	10.5	8	5.5	5.5	35.5	–2	–6	▼
38	Cleveland	OH	4	6	11.5	8.5	4	34	–7	–9	▼
39	Madison	WI	1	7	11.5	9	5	33.5	11	25	▲
40	Riverside	CA	3	11	7	9.5	2.5	33	–1.5	–6	▼

Rank	City	State	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Transportation policies (30 pts)	Energy and water utilities (15 pts)	Local government operations (10 pts)	Total (100 pts)	Change in score from 2020	Change in rank from 2020	Direction of rank change
41	Boise	ID	3	8.5	7.5	7.5	4.5	31	3	1	▲
42	Charlotte	NC	3.5	6	10	7	3.5	30	8	23	▲
43	Knoxville	TN	4.5	5.5	8	7	4	29	3.5	8	▲
43	Dallas	TX	3.5	9	8.5	4	4	29	2	5	▲
43	Cincinnati	OH	4	9	7	6	3	29	–2	–7	▼
46	Nashville	TN	2.5	7.5	8.5	6	4	28.5	4.5	12	▲
47	Fresno	CA	0	12	4	9.5	1.5	27	3.5	13	▲
47	Richmond	VA	4.5	6.5	11	3.5	1.5	27	–0.5	–4	▼
49	Miami	FL	4.5	7	10.5	3	1	26	0.5	2	▲
49	Springfield	MA	2.5	8	6	9.5	0	26	–1.5	–6	▼
51	St. Petersburg	FL	4.5	6.5	7	3	4.5	25.5	0	0	—
51	Rochester	NY	0	9	8	6.5	2	25.5	–2	–8	▼
53	Buffalo	NY	1	6.5	7.5	8	2	25	–2.5	–10	▼
53	Milwaukee	WI	4	6	7.5	7	0.5	25	–6	–17	▼
55	Worcester	MA	0.5	7	4.5	9.5	3	24.5	–2	–5	▼
55	New Haven	CT	3.5	5	5.5	7.5	3	24.5	–6.5	–19	▼
57	Bakersfield	CA	0	10	2	9.5	2.5	24	0.5	3	▲
58	Colorado Springs	CO	1.5	17.5	2	2	0.5	23.5	4	14	▲
59	Louisville	KY	3.5	6	9	4	0.5	23	–4	–11	▼
60	Memphis	TN	3	5.5	7.5	5.5	1	22.5	2	10	▲
61	Reno	NV	2	13.5	5.5	0.5	0.5	22	–2	–3	▼
61	Detroit	MI	1	5.5	7.5	6.5	1.5	22	–3	–6	▼
61	Oxnard	CA	0.5	9	3.5	9	0	22	–3	–6	▼
64	Indianapolis	IN	4	1.5	6.5	7	2.5	21.5	–1.5	–2	▼
64	Raleigh	NC	2.5	4	6.5	6	2.5	21.5	–3.5	–9	▼
66	Des Moines	IA	4	8.5	3	5.5	0	21	–2	–4	▼
67	Stockton	CA	0	8	4	8.5	0	20.5	–1	–1	▼
67	New Orleans	LA	4.5	4	7.5	3.5	1	20.5	–5	–16	▼
69	Mesa	AZ	0.5	6	5	5	2	18.5	1.5	7	▲
69	Bridgeport	CT	1	4	6	5.5	2	18.5	–2.5	–1	▼
71	Tucson	AZ	0.5	7.5	5.5	2	2	17.5	–3.5	–3	▼
71	Fort Worth	TX	0.5	5.5	6.5	4.5	0.5	17.5	–4	–5	▼
73	Newark	NJ	0.5	6.5	5	3.5	0.5	16	–1	3	▲
74	Syracuse	NY	0	4	4.5	6.5	0.5	15.5	–5	–4	▼
75	Virginia Beach	VA	1	5.5	3	2.5	3	15	–4.5	–3	▼
76	Dayton	OH	1.5	3.5	4.5	5	0	14.5	1	5	▲
77	El Paso	TX	0.5	4	3	5	1.5	14	0	3	▲
77	Toledo	OH	1	4	4	5	0	14	–1	2	▲
79	Charleston	SC	2	2	5	2	2	13	4	10	▲
80	Jacksonville	FL	1	3	6	2	0.5	12.5	–6	–6	▼

Rank	City	State	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Transportation policies (30 pts)	Energy and water utilities (15 pts)	Local government operations (10 pts)	Total (100 pts)	Change in score from 2020	Change in rank from 2020	Direction of rank change
81	Tampa	FL	1.5	3.5	4.5	2	0	11.5	-6	-6	▼
82	Henderson	NV	0	7.5	2.5	1	0	11	0.5	4	▲
82	Tulsa	OK	0.5	0.5	3.5	5.5	1	11	-0.5	3	▲
84	Oklahoma City	OK	0	0.5	7	2.5	0.5	10.5	4.5	13	▲
84	Akron	OH	1	3	3	3.5	0	10.5	-1.5	-1	▼
86	Birmingham	AL	0.5	3	4.5	0.5	1.5	10	0	2	▲
87	Winston-Salem	NC	0	0.5	3	5	1	9.5	-2.5	-4	▼
88	Allentown	PA	0	3.5	2	3.5	0	9	-1.5	-2	▼
89	Omaha	NE	0.5	1	6.5	0	0	8	-8	-11	▼
90	Columbia	SC	1.5	1	2.5	2.5	0	7.5	-1	1	▲
90	Greensboro	NC	0	2	3	2	0.5	7.5	-1.5	-1	▼
90	Lakeland	FL	0.5	3	3.5	0.5	0	7.5	-5	-8	▼
93	San Juan	PR	0	6	1	0	0	7	0.5	3	▲
94	Little Rock	AR	0.5	0.5	2.5	2.5	0	6	-2.5	-3	▼
95	Augusta	GA	0	1.5	1.5	2.5	0	5.5	1	5	▲
95	Provo	UT	1	1.5	2	1	0	5.5	-2	-2	▼
97	McAllen	TX	0	3.5	0.5	1	0	5	-2	-2	▼
98	Cape Coral	FL	0	2.5	1	0.5	0.5	4.5	-3	-5	▼
99	Wichita	KS	0	0	1	1.5	1.5	4	-1	0	—
100	Baton Rouge	LA	0	1	1.5	1	0	3.5	-2.5	-3	▼

Sixty-five of the 100 cities in this year's *Scorecard* lost points relative to their scores last year. This occurred for two reasons. First, we made substantial revisions to many metrics across the *Scorecard* as part of our ongoing effort to ensure our metrics align with evolving clean energy policy best practices. Second, we updated and increased points for most of our equity metrics. As we have already discussed, cities did not undertake many new equity-driven initiatives since the last edition of the *Scorecard*. This led many cities to lose points. We detail all methodology changes in Appendix B, and we discuss our approach to scoring cities' equity-driven initiatives in a subsequent part of this chapter and in the "Issue in Focus: Equitable Clean Energy Policies in the *City Scorecard*" section immediately following this chapter.

Leading Cities

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

San Francisco took the top spot in the *City Scorecard*, and it was one of only three cities in our top 10 to improve its score from last year. Most notably, it increased its score for buildings policies by 1.5 points. This was owed in part to the city earning the maximum possible points for our new metric that tracks requirements to install EV charging infrastructure in new construction projects. The city also received credit for its CityBuild Academy pre-apprenticeship training program. Delivered in partnership with City College of San Francisco, the program's curriculum focuses on both EV charging infrastructure and heating, ventilation, and air conditioning (HVAC) installation. Overall, the city's 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 city also continued its streak of having the highest score for transportation policies. It has adopted location-efficient zoning codes and removed parking minimums to encourage travel by transit, walking, and biking. San Francisco also received the most points of any city for its clean energy efforts targeting local government operations.

Seattle received the second-highest overall score this year and the highest community-wide initiatives score of any city. Seattle was the only city to earn the maximum possible points for metrics assessing comprehensive equity-driven approaches to clean energy planning and implementation. It also earned the highest points of any city for our metrics that assess community-wide climate change mitigation, energy savings, and renewable energy goals. For the second year in a row, the city earned the second-highest score for buildings policies. As in past editions, Seattle received 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 and benchmarking and transparency requirements. The city's score also benefited from a statewide energy performance standard for large commercial buildings that the city played a role in passing.

Washington, D.C. moved up three spots and earned the third-highest score in the *City Scorecard*. It also earned the second-highest points of any city for its transportation policies. Washington is one of only seven cities with a sustainable freight management plan. It also received high marks for the funding and accessibility of its transit system along with its vehicle electrification programs and plans. Most notably, it recently adopted a new vehicle excise tax exemption that incentivizes the purchase of electric vehicles. The city's clean energy work has been guided by past equity-driven community engagement and input from a committee representing residents who are particularly vulnerable to the effects of climate change. The city provides robust energy efficiency and renewable energy incentive programs through the D.C. Sustainable Energy Utility and financing programs through the D.C. Green Bank.

Minneapolis earned the fourth-most points in this year's *Scorecard*. The city improved its score in our Buildings Policies category by 3.5 points. Over the past year, the city adopted a policy requiring that new developments include parking that is EV charging–ready and a new sustainability policy for new construction of one- to three-unit residential buildings funded through the Minneapolis Homes program. The city offers several clean energy incentive programs and coordinates the delivery of its offers with its investor-owned utilities through the Clean Energy Partnership. Minneapolis has also launched several equity-driven clean energy initiatives. We describe these policies and programs in greater detail in the section following this chapter.

Boston and **New York City** tied with the fifth-highest scores. Each city has undertaken several notable clean energy actions:

- **Boston** earned the highest score of any city for the Energy and Water Utilities category. Boston's improved energy and water utilities score is due in part to its newly formed Community Choice Electricity, a community choice aggregation program that uses the city's bulk purchasing power to acquire renewable energy on behalf of its residents.
- **New York City** continued to maintain a high score in our Buildings Policies category, earning second place in the category's rankings. The city's energy codes are among the most stringent in the country, and the city has adopted several mandatory clean energy policies for existing buildings.

The competition among the five leading cities was close: Just 4.5 points separated San Francisco in first place from Boston and New York City in fifth place.

Denver, Los Angeles, San José, and Oakland round out the top 10. **Denver**, our seventh-ranked city, benefited from Colorado's new building performance requirement that sets minimum efficiency standards for existing buildings and requires rental property owners to disclose energy use information to prospective tenants and buyers. **Los Angeles**, ranked eighth in our scores, updated its cool roof ordinance. **San José**, ranked ninth, launched a new electric vehicle charging infrastructure incentive program. **Oakland**, ranked 10th, adopted a new goal to achieve carbon neutrality by 2045.

Seven of the top 10 cities in this year's *Scorecard* are participants in the Bloomberg Philanthropies American Cities Climate Challenge. We include separate scoring breakdown and analysis of the 25 cities participating in the challenge in Appendix G.

Most-Improved Cities

Thirty-two cities improved their scores since the last edition of the *City Scorecard*. We commend all of these cities for their improvements, but three dramatically improved their rank in the *Scorecard*. Madison, Wisconsin; Charlotte, North Carolina; and Honolulu, Hawai'i rose 25, 23, and 17 spots in rank, respectively. Madison improved its score by 11 points, Charlotte by 8 points, and Honolulu by 12.5 points.

Madison is the most-improved city in the 2021 *City Scorecard*. While the city's improvement in our scores and rankings is due in part to methodology changes in this year's *Scorecard*, the city also increased its score by adopting several new policies over the past year. The city adopted new requirements that parking in all new multifamily and some commercial properties be made EV-ready. Madison also put in place new requirements to install green infrastructure in new developments, interventions that can help mitigate the heat island effect. Finally, the city increased its investments in renewable energy to power its municipal operations.

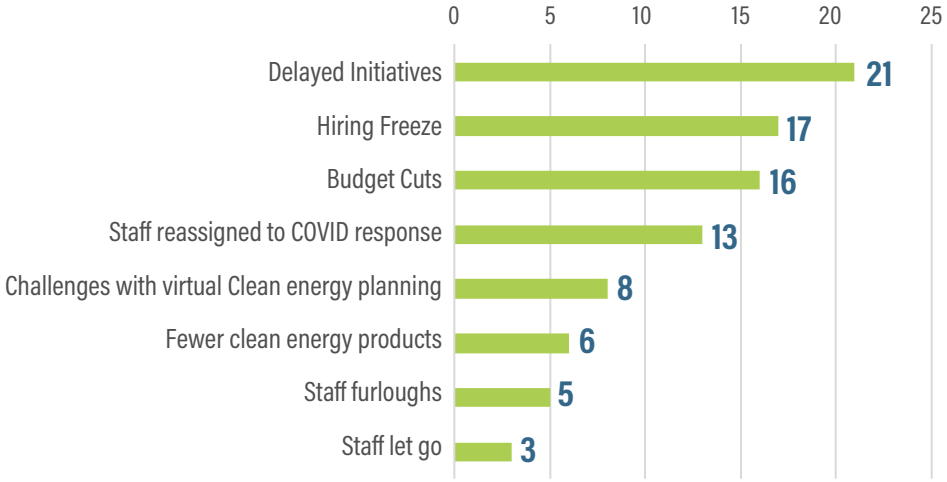
Charlotte was the second-most-improved city in the *City Scorecard*. Partnering with the Urban League of Central Carolinas, the city created the Renewable Energy and Efficiency Workforce (RENEW) training program to grow the city's clean energy economy. It also adopted a Sustainable and Resilient Fleet policy to reduce energy use and GHG emissions in its municipal operations. The city has established a strong partnership with its investor-owned utility, Duke Energy. The city and the utility signed a memorandum of understanding to support each other in energy efficiency program delivery, and the mayor's office meets monthly with representatives from the utility to carry out this commitment.

Honolulu was the third-most-improved city in this year's *Scorecard* and the only city to improve its scores in all policy areas. The city recently adopted a new climate action plan, and it continues to actively pursue strategies to decarbonize its electric grid. The city has partnered with its electric utility Hawai'ian Electric to advance the Drive Electric Hawai'i vehicle campaign. It also partners with Hawai'i Energy, the entity responsible for implementing utility sector energy efficiency programs, to support the Energy Smart 4 Homes. The city has also lobbied the Hawai'i Public Utilities Commission to encourage more utility-scale and distributed energy generation. The city has taken several steps to encourage transit-oriented development and more walking and biking.

THE COVID-19 PANDEMIC AND CITY CLEAN ENERGY ACTION

The COVID-19 pandemic has had a large impact on cities' clean energy actions. Of the 100 cities featured in our *Scorecard*, 55 shared information on how the pandemic affected their clean energy work in 2020. Forty-six (84%) of the cities that responded to our request for information reported that they had to modify, delay, or reduce their clean energy work after the pandemic began. Figure 7 shows that many of these cities faced challenges in adapting their clean energy work to the conditions created by the pandemic.

Figure 7. Challenges arising from the COVID-19 pandemic and number of cities affected by each (response counts are not mutually exclusive)



While many cities encountered funding, staffing, and operational challenges, a small number of cities were able to quickly adapt their operations and plans following the onset of the pandemic to continue working effectively. In our survey, 9 cities stated that the pandemic had little or no effect on their work, and 11 reported that they were able to successfully modify their clean energy planning work to be performed remotely. Seven cities stated that they effectively altered their plans to focus on new clean energy initiatives. For example, Portland was spurred by the pandemic to improve its emergency response and recovery capabilities with future climate-related crises in mind. The Portland City Council adopted a COVID-19 response values framework with a central focus on climate action and racial and social equity in May 2020 and a Climate Emergency Declaration in June 2020. On the other side of the country, the city of Louisville was able to use

Coronavirus Aid, Relief, and Economic Security Act (CARES) funding to fill its budget gaps and continue sustainability work. Louisville staff completed work on their climate adaptation plan, incorporating lessons learned from the city's pandemic response to highlight the important role of public health and emergency services staff in responding to extreme weather events and other effects of climate change.

New City Clean Energy Actions

The conditions brought on by the COVID-19 pandemic had two noticeable effects on the new city clean energy actions documented in this edition of the *Scorecard*. First, funding and staffing limitations led many cities to shift their attention to clean energy planning and relationship building in 2020. Sixty-eight (38%) of the 177 new city actions we recorded were related to the creation and adoption of a new clean energy plan, partnership, goal, or government process. These most often took one of three forms:

- Twenty cities pursued new equity-driven community engagement, decision-making, or accountability processes.
- Twelve cities adopted a community-wide GHG emissions reduction goal.
- Twelve cities adopted a sustainable transportation plan, a transportation GHG emissions target, or a vehicle miles traveled (VMT) goal.

As we have already discussed, only 30 of cities' 177 new clean energy actions were equity-driven initiatives. Twenty (two-thirds) of those involved undertaking an equity-driven community engagement, decision making, or accountability process, and the remainder involved the creation of a policy or program. While few cities created new equity-driven policies or programs, their recent focus on initiating community engagement, decision-making, and accountability procedures may lead to the adoption of more equity-driven policies and programs soon.

The second main effect of the pandemic was that most of the clean energy policies, programs, and projects initiated by cities in 2020 involved work outside buildings, reflecting the elevated risk of COVID-19 transmission in indoor environments. These initiatives also focused on energy infrastructure. While the pandemic is a public health crisis, its effect on local communities has highlighted the need for city leaders to better mitigate and prepare for future health and sustainability crises associated with climate change. In particular, the pandemic has shown that our built environment and the systems designed to deliver essential services are not adequate to prevent or respond to a global crisis such as climate change (Milner et al. 2021).

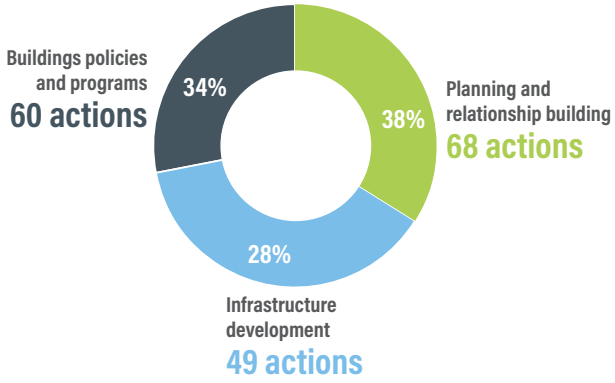
Of the new city actions we documented, 49 (more than one-fourth) involved policies, programs, and infrastructure investments in support of renewable energy, electric vehicles, energy-efficient lighting, urban heat island mitigation, and active forms of transportation such as walking and biking. Cities undertook only 28 such actions in the last edition of the *Scorecard.* Most notably, 11 cities entered into agreements to procure additional renewable energy to power their municipal operations, and 5 implemented community choice aggregation programs. Cities also undertook six actions directed at creating microgrid, district energy, and community solar systems. In the last edition of the *City Scorecard*, cities were more likely to advocate that their utilities undertake such actions rather than pursuing this work themselves. One-sixth of the new actions recorded in last year's *Scorecard* were related to cities working to persuade their electric utilities to decarbonize the electric grid. This year, we recorded no city undertaking similar work.

City Efforts to Increase Broadband Internet Access

While it did not figure into our scoring this year, we specifically asked cities about actions they took to expand household access to broadband Internet services because high-speed Internet enables low-carbon telework, telehealth, and other e-services along with smart grid, transportation, and city technologies that can be used to reduce GHG emissions (Bronski et al. 2020). Twenty-one cities took steps to expand household access to broadband Internet. For example, Chicago launched a program to provide 100,000 Chicago public school students with free high-speed Internet in the next four years after seeing the important role that it played in remote learning during the pandemic.

As the economy rebounded from its initial downturn following the pandemic's onset, cities refocused their attention on reducing energy use associated with new and existing buildings. Sixty of cities' 177 new clean energy actions—one-third—involved policies and programs designed to improve energy efficiency and reduce GHG emissions throughout the processes of designing, siting, constructing, renovating, and operating buildings. Most new buildings actions took place in late 2020 or during the first half of 2021. Nineteen cities updated their building energy codes. Twenty-five new city actions involved the creation of new policies and programs designed to either require or encourage building energy efficiency improvements. Incentive and voluntary programs accounted for 15 of these actions. The remaining 10 involved the adoption of energy efficiency requirements for buildings such as energy benchmarking and transparency ordinances and building performance standards. Finally, six cities adopted location-efficient zoning codes or incentives designed to encourage location efficiency in the construction of new buildings. Figure 8 shows the breakdown of new city clean energy actions as discussed above.

Figure 8. Breakdown of new city clean energy actions



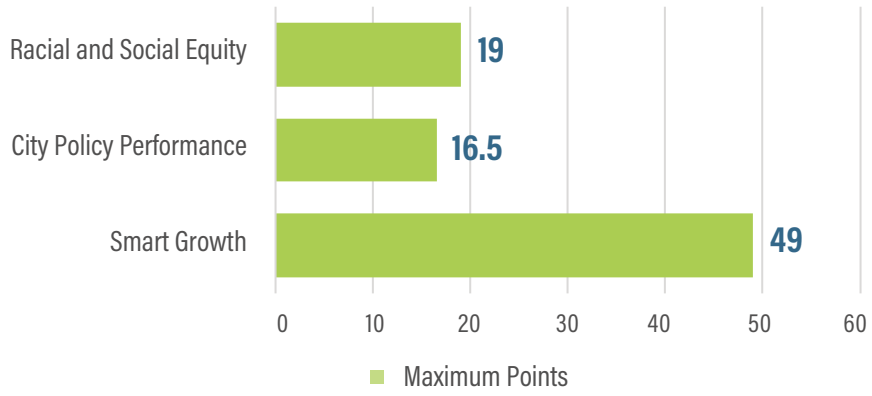
CITY EFFORTS TO ADDRESS OTHER PRESSING CLEAN ENERGY ISSUES

COVID-19 is only one of several pressing issues affecting city clean energy strategies. Many cities are also working to take on the following challenges through their clean energy plans, policies, and programs:

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

We have performed a separate analysis of city actions that align with these objectives. We totaled each city's scores for the metrics related to each of these aims and include the results of that analysis in this section. Appendix A offers a detailed categorization of each metric in the *City Scorecard*, showing which ones align with each of these three categories. Figure 9 shows the maximum number of points that cities could score for each category.[9]

Figure 9. Maximum points available for city clean energy metric categories (points are not mutually exclusive)



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

9 The maximum number of points that a city can earn for a given category includes points that are specifically allocated out of the total 100 available, but we also include points for bonus metrics in the totals shown here.

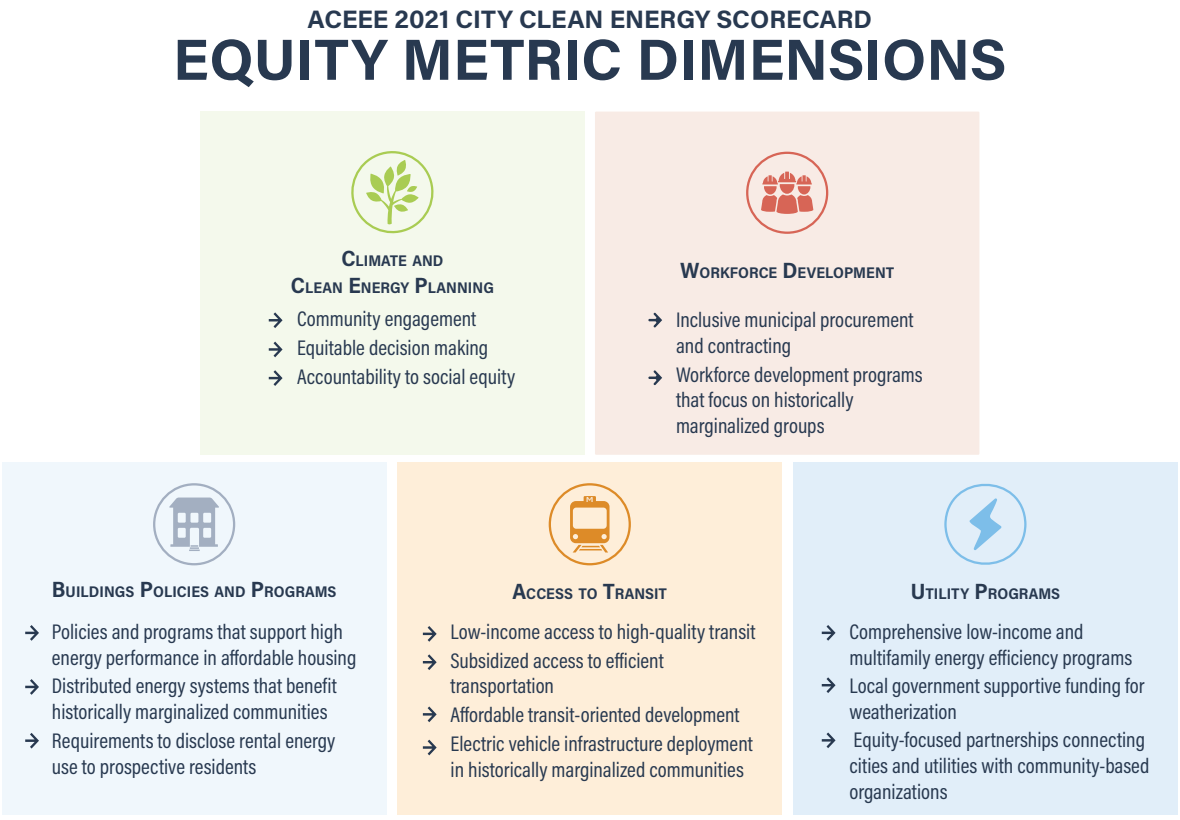
Racial and Social Equity Outcomes

As the planet warms, low-income communities and communities of color are likely to experience the harshest effects of climate change. These individuals and families are at risk because they often live in neighborhoods with greater exposure to natural hazards such as flooding, droughts, wildfires, and extreme heat (IPCC 2007; Dodman and Satterthwaite 2009; Hoerner and Robinson 2008; Davies et al. 2018). These places also typically lack the infrastructure needed to mitigate or adapt to climate change's worst outcomes. For example, many of the buildings in these areas may lack air-conditioning, cool roofing, and surrounding green space to diminish extreme heat (Jesdale, Morello-Frosch, and Cushing 2013). In some cases, such infrastructure may exist but may be at risk of failure due to poor design or maintenance. For example, the dredging of canals in New Orleans led to the destruction of nearby wetlands, which absorb floodwaters during storms. This led to intense flooding in Black neighborhoods during Hurricane Katrina (Freudenburg et al. 2008). Historically, people of color and those with low incomes have been denied access to the resources that would allow them to address these vulnerabilities or move to less vulnerable locations. These resources include clear information about hazards and risks as well as guidance on accessing good jobs, reliable transportation, home insurance, or government assistance (IPCC 2007; Dodman and Satterthwaite 2009; 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, Ross, and Ayala 2020; Garren et al. 2017). Low-income households spend a larger proportion of their incomes on home energy bills and vehicle gasoline costs than do more affluent households, adding to the struggles that many face in paying for other necessities. Low-income households' median home energy and average gasoline cost burdens are more than three times those of households that are not low income (Drehobl, Ross, and Ayala 2020; Vaidyanathan, Huether, and Jennings 2021). Compared with white households, the median home energy burden of Hispanic households is 20% greater; for Black and Native American households, the burden is nearly 50% greater (Drehobl, Ross, and Ayala 2020). Similarly, Black and Hispanic households experience nearly 50% higher gasoline cost burdens than do white households, and Native American household gas burdens are nearly 75% higher (Vaidyanathan, Huether, and Jennings 2021).

Local governments are becoming increasingly focused on addressing these racial and social inequities as they craft clean energy plans, policies, and programs. Our *Scorecard* metrics have been designed to track this city equity work along several dimensions. These are shown in figure 10.

Figure 10. Equity metric dimensions and activities in *The 2021 City Clean Energy Scorecard*



This year's *City Scorecard* includes several new metrics that track cities' equity-driven approaches to deploy shared distributed energy resources, adopt building energy performance standards for affordable housing and support compliance, include housing affordability requirements in local clean energy incentive programs, and provide health and safety measures in utility low-income energy efficiency programs. We also added a bonus metric tracking cities' adoption of strategies to deploy more electric vehicle infrastructure in historically marginalized communities. We provide additional information about these new metrics in the section following this chapter. We have also revised several of our existing equity-focused metrics, and these changes are detailed in Appendix B. In adding and revising these metrics, we increased the overall points available for equity-driven clean energy strategies from 11 to 17, with 2 additional points available from bonus metrics.

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

Policy and Program Performance

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

In this edition of the *City Clean Energy Scorecard* we include policy and program performance metrics in each chapter. These include metrics that track progress toward GHG emissions goals, municipal clean energy procurement efforts, energy benchmarking compliance, utility energy savings, and access to high-quality transit. While we look at the performance of both city and utility initiatives, we have limited our policy and program performance rankings to focus only on city performance to provide clear direction for city governments.

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

Utilizing Smart Growth Strategies that Reduce Energy and GHG Emissions

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

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

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

City clean energy policies, programs, and projects that align with these principles focus on reducing the energy use or GHG emissions of energy infrastructure, preserving existing buildings while lowering their carbon footprint, and modifying urban form to encourage a more energy-efficient and less carbon-intensive transportation system. They can also produce several co-benefits, such as improving public health, community well-being, and a city's economic competitiveness (ICMA and Smart Growth Network 2006). This year, for the first time, we have taken the step of identifying metrics that track these policies, programs, and projects. We include only metrics that track initiatives directly aligning with smart growth principles. These metrics account for 49 of the *Scorecard*'s total possible points, including 2 bonus points. Table 2 lists these metrics and shows how they align with smart growth principles. Table 3, included at the end of this section, shows the top 10 city scores for this clean energy strategy.

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

Smart growth metric actions	Corresponding smart growth principles
Requiring less outdoor lighting in specific zones	• Foster distinctive, attractive communities with a strong sense of place • Preserve open space, farmland, natural beauty, and critical environmental areas • Strengthen and direct development toward existing communities
Reducing the carbon footprint of district energy and microgrid systems that serve multiple facilities	• Take advantage of compact building design • Strengthen and direct development toward existing communities • Make development decisions predictable, fair, and cost effective
Supporting community solar systems so that those in dense urban areas can benefit from solar deployment	• Mix land uses • Take advantage of compact building design • Make development decisions predictable, fair, and cost effective
Taking an equity-driven approach to deploying district energy, microgrid, and community solar systems	• Mix land uses • Take advantage of compact building design • Foster distinctive, attractive communities with a strong sense of place • Strengthen and direct development toward existing communities • Encourage community and stakeholder collaboration in development decisions
Employing land conservation, environmental restoration, and green infrastructure development strategies to mitigate the heat island effect	• Take advantage of compact building design • Foster distinctive, attractive communities with a strong sense of place • Preserve open space, farmland, natural beauty, and critical environmental areas • Strengthen and direct development toward existing communities
Requiring or incentivizing comprehensive whole-building energy improvements that extend the useful life of existing properties	• Foster distinctive, attractive communities with a strong sense of place • Strengthen and direct development toward existing communities
Instituting housing affordability requirements in clean energy incentive programs	• Foster distinctive, attractive communities with a strong sense of place • Strengthen and direct development toward existing communities
Encouraging or requiring that commercial and multifamily properties include EV charging infrastructure, especially in historically marginalized communities	• Take advantage of compact building design • Provide a variety of transportation choices
Creating zoning provisions, removing parking minimums, and offering incentive programs designed to encourage location efficiency	• Mix land uses • Take advantage of compact building design • Create a range of housing opportunities and choices • Create walkable neighborhoods
Initiating efforts to increase the use of more energy-efficient and/or low-carbon transportation modes such as walking, biking, transit, and EVs	• Create walkable neighborhoods • Provide a variety of transportation choices

Equity, Policy Performance, and Smart Growth Leaders

Table 3 lists the cities receiving the top 10 equity, policy performance, and smart growth scores. Appendix D contains these scores for all 100 cities.

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

Racial and social equity (19 points)	Policy performance (16.5 points)	Smart growth (49 points)
1. Minneapolis (12)	1. San Francisco (15)	1. New York (36)
2. Washington, D.C. (11)	2. Boston (13.5)	2. Washington, D.C. (32)
3. New York (10.5)	3. Minneapolis (11.5)	3. San Francisco (28)
4. Chicago (10)	3. Portland (11.5)	4. Seattle (26.5)
4. Portland (10)	5. Seattle (11)	5. Denver (26)
6. Boston (9.5)	5. Washington, D.C. (11)	6. Los Angeles (24.5)
6. Oakland (9.5)	7. Los Angeles (10)	7. Boston (24)
8. Philadelphia (9)	7. New York (10)	8. Minneapolis (23)
8. San Francisco (9)	9. Chicago (9.5)	8. Oakland (23)
8. Seattle (9)	10. Philadelphia (9)	10. Portland (22)
	10. San José (9)	10. San José (22)

Most of the cities that received the top 10 equity, policy performance, and smart growth scores also scored in the top 10 of our overall *Scorecard* rankings. The top 10 ranked cities in this *Scorecard* generally provide many examples of how local governments can tackle some of our most pressing clean energy challenges effectively. We also note the three cities that appear in these top 10 rankings but not in our overall top 10. Portland appears in all three of these top 10 metric category rankings and earned the 11th-highest overall score. Chicago and Philadelphia appear in both the equity and performance top 10 rankings while earning the 12th- and 13th-highest overall scores, respectively.

Unfortunately, no city earned more than two-thirds of our available equity metric points or more than three-quarters of the available smart growth points. Only seven cities were able to earn half or more of the available equity metric points. Only six earned at least half of the available smart growth points. Just 13 cities were able to do the same for our policy performance metric points. Overall, the 100 cities analyzed for this report stand to greatly improve their overall scores with a stronger focus on racial and social equity, policy performance, and smart growth.

ADVANCING CLEAN ENERGY: CURRENT TRENDS AND OPPORTUNITIES

Opportunities for All Cities

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

- *Leading with a commitment to racial and social equity.* While some cities are taking steps to advance equity in their clean energy work, all have room to do more. Many cities can improve their scores by creating a formal clean energy decision-making body representing historically marginalized community residents, supporting minority- and women-owned businesses in securing local government contracts, and pursuing policies and programs designed to reduce the energy use and costs of those living in affordable and rental housing. We explore additional city clean energy equity trends and opportunities in the section following this chapter.

- *Adopting mandatory policies designed to improve the energy performance of existing buildings.* While many cities offer energy efficiency and renewable energy incentive programs, only a small share of *Scorecard* cities have adopted clean energy mandates for existing buildings. Some cities have yet to adopt energy benchmarking and transparency requirements, an often foundational policy underlying mandates to improve the energy performance of properties.

Other cities have adopted these requirements but have yet to pursue building retrocommissioning, retrofit, or energy performance policies. Energy performance standards in particular present a tremendous opportunity for building energy and GHG emissions reductions, but only seven cities have such policies. We highlight specific opportunities for certain cities to pursue energy improvement requirements in the section that follows.

- *Increasing commitment to community-wide and transportation-specific clean energy goals.* While many cities adopted community-wide energy reduction goals for 2020, most have not created such goals for future years. Only three cities have adopted a goal to reduce VMT or transportation GHG emissions and are on track to achieve it. In many cases, cities did not provide us with sufficient data to assess their progress toward their transportation goals. Setting, tracking progress toward, and working to achieve community-wide and transportation-specific clean energy goals are especially important given that the world has a narrow window to reduce GHG emissions and avoid the worst outcomes of climate change (IPCC 2021). The transportation sector is of special concern given that it contributes the largest (and still growing) share of U.S. GHG emissions (EPA 2021d). We explore city approaches to setting and tracking progress toward clean energy goals further in Chapters 2, 4, and 6.

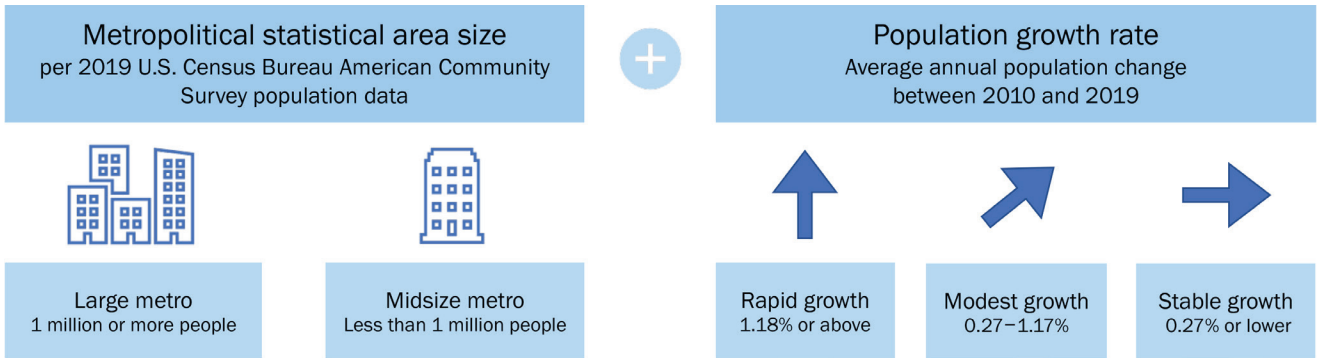
City Clean Energy Scorecard Typology

We recognize that the 100 large U.S. cities included in our *Scorecard* represent a diverse range of localities facing very different circumstances and challenges. While we continue to highlight the performance of cities in the top 10 of the *Scorecard*'s rankings, we also want to recognize the unique strengths and needs of the remaining 90 cities. These cities have received only limited analysis in past *Scorecards* because of their lower scores and fewer clean energy initiatives. Most cities' initiatives were characterized only in the city fact sheets that were created as supplements to this report.

To provide additional guidance, we have divided these 90 cities into a typology of six groups based on two factors: metro (MSA) size and city population growth rate. These two variables are often indicative of local characteristics that determine a city's energy and GHG emissions profile and city government budgets that drive a locality's capacity to pursue clean energy initiatives.

We first grouped cities according to whether they were in a large or midsize metropolitan area using 2019 U.S. Census Bureau American Community Survey population data. Those cities with an MSA population of 1 million or more were included in our large metro classification, while those with an MSA population of less than 1 million were included in our midsize metro classification. We also divided all cities into groups based on the distribution of their average annual population change between 2010 and 2019. The 30 cities with the lowest rates of population change were classified as *stable*, the 30 cities with the highest rates of population changes were classified as *rapid growth*, and the middle 30 cities were classified as *modest growth*. Figure 11 summarizes our approach to grouping *Scorecard* cities.

Figure 11. Methodology for grouping *Scorecard* cities.



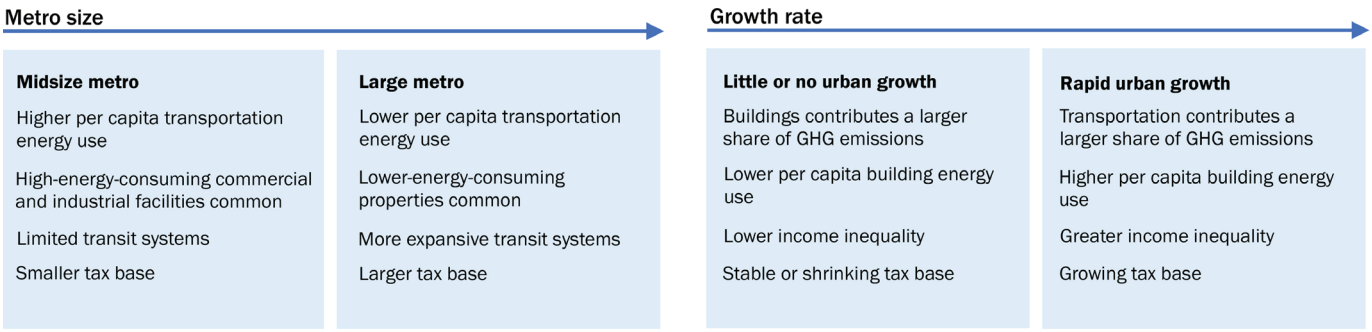
Note: We categorize cities with an average annual population change of 0.27% or less as having stable population because no city experienced an average annual population decline of more than 0.70% except for San Juan, whose population declined by 2.27% annually.

Figure 12 shows the breakdown of cities into these groups, and Appendix C includes each city's MSA population and average annual population change data.

Figure 12. City typology groups

These groups are generally associated with several economic and energy characteristics. Cities in midsize metros are more likely than those in large metros to be in the U.S. heartland, have fewer professional service employers, and have higher overall per capita building and transportation energy use. Cities with declining populations experience challenges in the form of employment losses, abandoned buildings, a smaller tax base, and limits on city services. However, rapidly growing cities will eventually be responsible for large costs associated with their growth. Rapidly growing cities also tend to experience greater economic inequality than those that have no, little, or modest growth. These localities are also more likely to have higher per capita energy use and GHG emissions, with the transportation sector occupying a large share of cities' total GHG emissions. Figure 13 summarizes how metro size and urban population growth are associated with several economic and energy characteristics. We provide a detailed review of the research surrounding these indicators in Appendix B.

Figure 13. Associations between metro size, urban population growth, and various local characteristics



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

Stable cities in large metros

Relative to other city groups, cities located in large metros with relatively stable populations stand out for having the most stringent building energy codes on average of any group and for having the highest rate of converting streetlights to LED light bulbs and benchmarking municipal facility energy performance. These cities have taken more actions than others to reduce parking available for personal vehicles, encouraging travelers to use more energy-efficient and low-carbon forms of transportation. These cities also stand out for their high scores on our metrics assessing the degree to which residents have access to transit.

While these cities excel in certain respects, they do have room for improvement. Cities located in large MSAs and experiencing little or no population growth can improve their scores by pursuing the following actions:

- *Take additional steps to ensure that builders comply with energy codes.* While these cities may have the most stringent energy codes, few are taking steps to ensure that builders comply with these requirements beyond providing site and plan review. **Long Beach** stands out as an exception to this. In addition to providing site and plan review, Long Beach has two full-time employees solely dedicated to energy code enforcement. The city conducts field inspections and provides upfront energy code training.

- *Adopt energy benchmarking and rental energy disclosure policies.* Few cities in this group have enacted energy efficiency requirements for existing buildings even though the buildings sector is likely to account for a large share of these cities' overall energy use. As a first step, these cities can adopt energy benchmarking requirements for commercial and multifamily buildings and require that owners of rental properties disclose information characterizing the energy use and/or costs of a dwelling unit. **Chicago** has enacted both policies. The city requires that landlords disclose a rental home's heating costs to prospective residents, and it also mandates that larger commercial and multifamily properties benchmark their energy use. Owners of these properties are required to disclose this information to the city and to the public.

Modest-growth cities in large metros

Cities in large metros with modest population growth received the highest average scores for our Transportation Policies, Energy and Water Utilities, and Local Government Operations chapters. They earned, as a group, the highest scores on metrics tracking the adoption of sustainable transportation plans and transportation sector VMT or GHG goals. They have demonstrated their commitment to these plans and goals with high rates of municipal vehicle fleet procurement policy adoption, removal of parking minimums, and offering EV charging infrastructure incentive programs.

In the pursuit of reducing GHG emissions from buildings and other facilities, these cities have undertaken more actions than others to encourage their electric utilities to decarbonize, add renewable readiness provisions to their building codes, and provide energy efficiency incentive program offers. They also have the highest scores for heat island mitigation goals, policies, and programs. To improve their scores, cities in this group would do well to focus on the following actions:

- *Adopt building tune-up and audit requirements for improving the energy performance of existing buildings.* Seven of the 15 cities in this group have implemented energy benchmarking mandates, a larger share than any other typology group. Additionally, most cities in this group offer energy efficiency retrofit and renewable energy incentives to residents and businesses. However, few have adopted policies that require building owners to make energy efficiency improvements to their properties or install renewable energy systems. As a starting place, cities can look to **Salt Lake City** and

Philadelphia for examples. Salt Lake City has audit requirements in place, and Philadelphia recently adopted a building tune-up ordinance. Some cities in this group may be limited by state law in enacting one or both initiatives. These cities can work with other local jurisdictions in their state to encourage the state government to amend these laws.

- *Create or support energy efficiency workforce development programs and ensure that these programs benefit historically marginalized communities.* While several cities in this group have created renewable energy workforce development programs, only **Sacramento** and **Philadelphia** have created similar programs for energy efficiency jobs. Sacramento used $1 million of the $10 million CARES stimulus funding for workforce development to specifically support energy efficiency and clean mobility workforce training. Philadelphia provides funding and other support to the Energy Coordinating Agency, a local nonprofit that trains workers to provide energy services to low-income households.

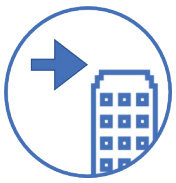
Rapid-growth cities in large metros

Cities in large metros with rapidly growing populations earned the highest average scores for our Community-Wide Initiatives and Building Policies chapters. They also received the highest scores on our metrics tracking the adoption of location-efficient zoning codes and complete street policies. They have instituted robust energy code compliance support and enforcement strategies and undertaken initiatives to reduce energy use in water utilities. The transportation sector is responsible for a particularly prominent share of these cities' GHG emissions, and these cities are already pursuing some strategies to address the sector. However, additional transportation climate action opportunities exist. These cities would do well to:

- *Adopt stringent transportation VMT or GHG emissions goals and track progress toward them.* Of the 22 cities in this group, only 4 have adopted a transportation VMT or GHG goal, and only 1, **San Antonio**, received the maximum available points for the stringency of its goal. Reducing transportation energy use and emissions while growing is possible but not guaranteed. Cities in this group that adopt these goals will be better able to track whether their transportation clean energy initiatives are having their intended effect.

- *Adopt requirements to install EV charging infrastructure when constructing or substantially remodeling parking facilities, or make such parking EV charging–ready.* While cities in this group earned roughly half of the available points for our metrics assessing EV charging infrastructure incentive programs, they earned only one-fifth of the available points for our metric examining per capita EV charging ports. To address this, these cities can adopt requirements that new parking be equipped to accept EV chargers, or they can take the additional step of requiring that EV chargers actually be installed. Both **Atlanta** and **Miami** have adopted requirements that 20% of parking for new commercial and multifamily properties be equipped so that EV chargers can be installed. While adopted after our July 1, 2021, cutoff for consideration of new city policies and programs, a policy was recently enacted in **Orlando** requiring that 2% of the parking in all new commercial and multifamily construction projects be equipped with EV chargers.

Stable cities in midsize metros



Cities with stable populations in midsize metros had some of the highest scores for their utilities' comprehensive multifamily and affordable multifamily energy efficiency programs. In all but one city, the electric utilities have adopted a GHG emissions reduction goal. However, these cities received, as a group, the overall lowest scores in our *Scorecard*. Cities in this group can begin to increase their scores by focusing on two clean energy strategies:

Improve the energy performance of municipal operations and assets. Cities in this group had the lowest average scores for our Local Government Operations chapter. Historically cities have worked to improve the energy performance of their own operations to demonstrate to the private sector the feasibility and benefits of pursuing clean energy projects. Municipal clean energy projects can also reduce operational costs for city governments. **Honolulu** has adopted a stringent GHG emissions and renewable energy goal for its municipal operations. It has converted all its streetlighting to LEDs, installed 8 megawatts (MW) of onsite solar, and adopted a fleet procurement policy prioritizing the purchase of energy-efficient vehicles. The city has also taken steps to reduce energy use and GHG emissions from its water and wastewater infrastructure by adopting its 2016 Water Master Plan and is implementing a $33 million efficiency contract that will reduce energy use by 12%. The City and County of Honolulu's Honouliuli Wastewater Treatment Plant captures and processes the biogas emitted from its operation.

- *Engage with utilities more to promote clean energy.* As we have mentioned, almost all electric utilities serving these cities have adopted a GHG emissions mitigation goal. Opportunities exist for city sustainability staff to work more closely with these utilities to advance energy efficiency and decarbonize the electric grid. Hawai'ian Electric is a regular participant in **Honolulu's** Climate Action and Resiliency stakeholder meetings, and the city participates in the Drive Electric Hawai'i coalition formed by the utility and other stakeholders. The City and County of Honolulu play an active role in encouraging more utility-scale and distributed energy generation. In 2018, the city and county intervened in the PUC Docket 2018-0088, advocating for a revision to Hawai'ian Electric's clean energy incentive program structure.

Modest-growth cities in midsize metros

Almost all modest-growth cities in midsize metros enforce energy code compliance through site and plan reviews, and most also conduct site inspections to verify code compliance. Of cities in midsize metros, these cities also received the highest average scores for our Energy and Water Utilities category. Most cities in this group are served by utilities offering robust low-income energy efficiency programs and automated energy benchmarking services. However, these cities have an opportunity to improve their scores by pursuing the following strategies:

- *Adopt more stringent building energy codes.* While the cities in this group have taken steps to ensure building energy code compliance, most have the ability to adopt more stringent building energy codes. Only 3 of the 15 cities in this group do not have the authority to adopt their own building code. Cities can look to **Des Moines** for guidance. The city earned the maximum possible points for its building energy codes after adopting the 2015 International Energy Conservation Code (IECC) with several stringent city amendments.

- *Adopt location-efficient zoning codes that apply to the entire city.* Cities in this group had the lowest overall scores for our metric assessing location-efficient zoning codes. Half of these cities do not have a form-based zoning code or a code that requires transit-oriented, compact, or mixed-use development. Some have adopted zoning codes that require one of these development forms in only one zone or neighborhood. Only **El Paso** has adopted a zoning code with location-efficient requirements for all zones.

Rapid-growth cities in midsize metros

Cities in midsize metros with rapidly growing populations score well on our location efficiency metrics. All but one of these cities have either adopted a location-efficient zoning code or incentivize location efficiency in new property developments. More than half have removed at least some parking minimums. While their performance on these location efficiency metrics is commendable, these cities can take additional steps to reduce their energy use and GHG emissions:

- *Adopt EV charging–ready provisions in building codes.* These cities have more limited transit systems because they are in midsize metros. It is therefore important that they explore options to reduce the carbon footprint of on-road vehicles. Unfortunately, cities in this group receive low scores for the number of available per capita EV charging ports. Residents and businesses in half of these cities have access to EV charging incentives, but only two cities—**Boise**, Idaho, and **Madison**, Wisconsin—have adopted EV charging–ready provisions in their building codes. Given that cities in this group are rapidly growing, it will be important to install EV charging infrastructure in new developments.

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

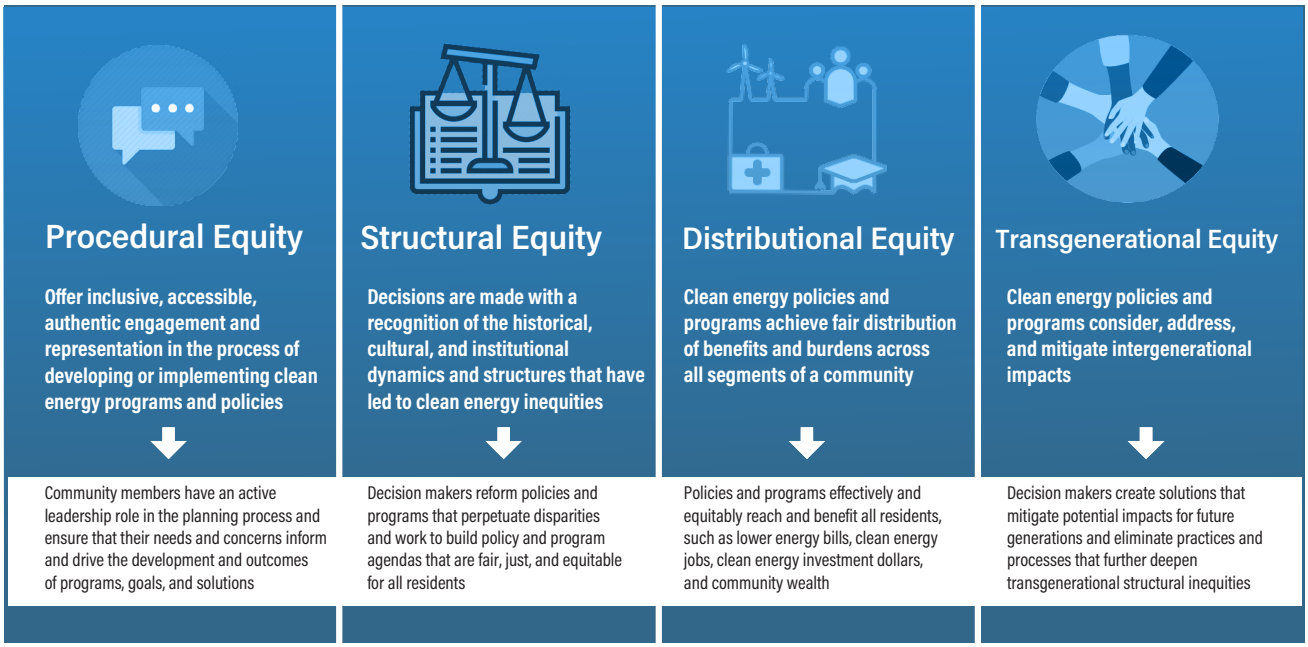
ISSUE IN FOCUS:
Equitable Clean Energy Policies in the *City Scorecard*

Throughout our *Scorecard*, metrics evaluate cities' performance on a variety of elements related to advancing equitable outcomes. Equity-driven approaches to energy issues are critical for ensuring that cities meet their climate goals successfully while addressing longstanding inequities such as exposure to environmental harm and lack of access to energy resources (Drehobl, Ross, and Ayala 2020; Jesdale, Morello-Frosch, and Cushing 2013; Dodman and Satterthwaite 2009; Hoerner and Robinson 2008). Martín and Lewis (2019) identify several dimensions of equity that provide a framework for evaluating efforts to advance equitable outcomes in energy efficiency. These include historical legacies, inclusion, access to services, and disparate impacts. It follows that to advance equity, a city's energy actions must include attention to historical patterns, distribution of impacts, and engagement in decision making. Figure 14 outlines the tenets that make up an equitable approach to local clean energy policy.

Figure 14. Components of an equity-driven approach to clean energy policy (ACEEE 2021a)

We compared how cities' actions align with the four dimensions of equity identified by the Urban Sustainability Directors Network (USDN). These dimensions are shown in figure 15.

Figure 15. USDN elements of equity (Park 2014)



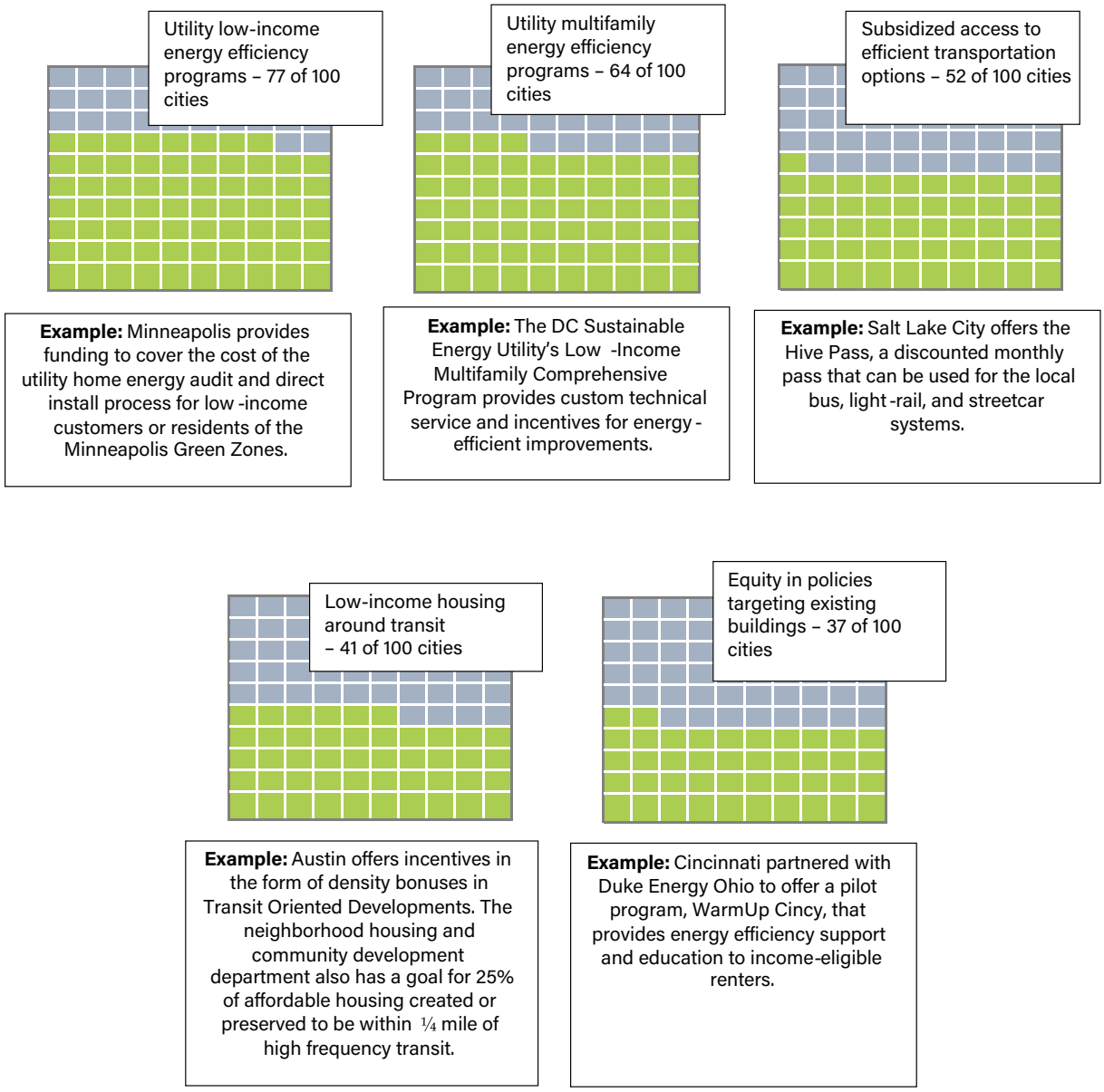
This section examines the 14 metrics assessing city equity–driven approaches to clean energy policies and programs. Table 4 details this category of metrics. See the chapters listed in the third column of the table for a detailed overview of each equity-related metric's methodology.

Table 4. Equity-related metrics in the *2021 Scorecard*

Metric	Points	Chapter	Primary dimension of equity
Inclusive procurement	0.5	Local government operations	Structural
Equitable community engagement	0.5	Community-wide initiatives	Procedural
Equitable decision making	1	Community-wide initiatives	Procedural
Equity accountability measures	1	Community-wide initiatives	Structural
Equitable approaches to distributed energy resources	1.5	Community-wide initiatives	Distributional
Equity in existing building policies	3	Buildings policies	Distributional
Equitable workforce development	1	Buildings policies	Structural
Low-income city and utility partnerships	1 bonus	Energy and water utilities	Structural
Equitable utility energy efficiency programs	1.5	Energy and water utilities	Distributional
Multifamily utility programs	1	Energy and water utilities	Distributional
Affordability in transit-oriented development	2	Transportation policies	Distributional
Connecting low-income communities to existing transit	2	Transportation policies	Distributional
Low-income communities' access to transit	2	Transportation policies	Distributional
Equitable approaches to siting electric vehicle infrastructure	1 bonus	Transportation policies	Distributional

Out of 17 possible points and 2 possible bonus points related to equitable energy approaches across all chapters, the median score earned by cities was very low at 3. However, some equity-focused actions are more frequently pursued by cities than others. These include utility energy efficiency programs and actions to increase access to efficient transportation. Figure 16 shows the most frequently pursued equity actions for which cities received credit in the 2021 *Scorecard*.

Figure 16. Frequently pursued equity actions



Appendix E includes a full breakdown of how cities scored on each metric, including the equity-focused metrics. On average, cities scored highest on the element of distributional equity, earning an average of 21% of possible points in this category. Cities earned lower average scores in procedural and structural equity, earning an average of about 15% and 12% of possible points in these categories, respectively. None of the metrics currently tracked by ACEEE are classified as focused primarily on transgenerational equity. We will consider opportunities to measure transgenerational equity in future research. For example, as cities increasingly pursue actions providing access to high-quality jobs that have generational impact, future workforce development metrics may focus more closely on transgenerational equity.

While average equity-related scores are generally low, data demonstrate that cities need to do more to advance structural energy equity in particular. Cities already successfully pursuing equitable engagement and decision making should move beyond these strategies to consider how benefits and harms are distributed in a community—as well as the local government's role in creating these disparities through past policies—and mitigate such patterns. They can do this through actions such as increasing the distribution of affordable housing near transit and working with their utilities to improve the energy efficiency of low-income households. Adopting comprehensive accountability procedures is another crucial step. For example, Baltimore's 2018 Equity Assessment Ordinance authorizes an assessment and review structure to track outcomes and effectiveness of policies, practices, and investments; requires the director of planning to conduct an equity assessment on any proposed capital budget; and mandates the creation of an annual equity report on or before June 30 of each year. The ordinance also requires that each city agency identify an equity coordinator responsible for managing that agency's equity assessment. The Baltimore Office of Sustainability has implemented a tracking database known as the Sustainability Transparency and Accountability Tracking System (STATS) to track sustainability plan implementation, including equity metrics. By further institutionalizing equity into their clean energy work, with a recognition of historical and current marginalization by race/ethnicity, class, and gender, cities can ensure that the benefits of energy transitions are shared by all.

ENERGY EQUITY LEADER HIGHLIGHT

Minneapolis earned 12 total points for equity-related actions and was the highest-scoring city on the energy equity dimensions mentioned above, making it a leading city. Minneapolis has inclusive procurement policies targeting equity on dimensions of gender, race, and sexual orientation. These led to requirements to use minority-owned businesses in a community solar project. The Minneapolis Green Zones Initiative is a place-based program focusing on health and economic development in communities disproportionately impacted by environmental pollution. Community members sit on advisory task forces that evaluate work plans and lead community outreach work. Minneapolis publishes a Clean Energy Partnership report that details participation by low-income communities in programs. The city has a time-of-rent energy disclosure requirement policy. It also provides funding for affordable passive housing to be built on vacant lots and incentives for solar in commercial and multifamily buildings that prioritize affordable housing. Minneapolis covers the $100 co-pay required for the utility home energy audit for low-income customers and residents of green zones. Additionally, 68.7% of households in Minneapolis with incomes below $50,000 have access to high-quality transit.

Chapter 2. Community-Wide Initiatives

Lead Author: Alexander Jarrah

INTRODUCTION

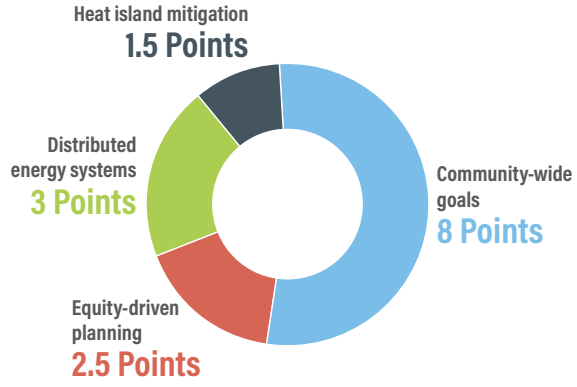
Cities are working to mitigate and adapt to climate change by improving energy efficiency and increasing their reliance on energy generated from carbon-free sources. Consequently, city climate action, sustainability, and resilience plans often include policies that address energy sources as well as energy use. Some cities focus on efficiency and renewable 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.[10]

Cities are implementing a wide array of community-facing clean energy initiatives directed at buildings, neighborhoods, transportation systems, and city landscapes. Sustainability, energy, climate, or resilience plans allow governments to develop a unifying vision for community energy use and generation that leverages private sector resources—funding, staff, volunteers, and knowledge—to reduce energy use and GHG emissions. Cities are taking action to achieve their visions, and they are increasingly seeking to do so equitably. For example, Albuquerque, Baltimore, San Francisco, and Seattle all require new policies and programs to complete a structural equity assessment to ensure that the proposed policy or program results in an equitable distribution of burdens and benefits.

SCORING

This chapter focuses on the strategies municipalities commonly adopt to reduce energy consumption, increase the share of electricity generated from renewable sources, and decrease GHG emissions throughout the city. These activities typically involve establishing community-wide goals and making specific interventions that cross multiple local urban sectors. 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 four categories, as shown in figure 17.

Figure 17. Community-wide initiatives scoring overview



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

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

RESULTS

In the category of community-wide initiatives, Seattle was the leading city, scoring 12 out of 15 possible points. San José came in second with 10 points, and Denver and Washington, D.C., tied for third with 9.5 points each. As a whole, cities performed better in some categories than in others. Heat island mitigation initiatives were a notable standout: Many cities have adopted goals linked to easing the 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 more 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 pages that follow table 7.

This year's scores were characterized by two key trends. The first is the reduction of points among top scorers, and the second is an increase in scores among mid- and lower-scoring cities, which doubled their median scores from 1.5 to 3 points.

With regard to the first trend, only Seattle and San José earned 10 or more points for community-wide initiatives this year, whereas six cities met or exceeded this threshold in the 2020 *City Scorecard*. There are three main drivers that explain this trend. The first is the extra weight given this year to equity-related metrics, which increased the total possible points for equity-driven strategies in the category from 1.5 to 4 points. The second driver is the expiration of 2020 climate change mitigation and clean energy goals. While the number of cities with renewable energy goals increased from 42 to 47, the number of cities with energy reduction goals dropped from 22 to 16, and the number of cities receiving credit for energy reduction goal stringency decreased from 14 to 7. When energy reduction goals expired in 2020, many cities did not have goals set for future dates. Further, while many climate change mitigation goals expired in 2020, cities generally had future goals lined up. However, fewer cities are projected to be on track to meet their goals than was the case last year. In some cases, cities that were projected to be on track for their 2020 emissions reduction goal are projected to not meet their subsequent goal. For most cities with 2020 GHG emissions reduction goals, the expiration of these goals had no impact on the number of points earned for progress toward their subsequent GHG goals; however, five cities lost points due to these goals expiring while only three cities gained points. The third driver behind the reduction in points among top scorers was the fact that this year we scored cities solely on the stringency of their clean energy goals; in the past we scored them on both the existence of a clean energy goal and the stringency of that goal.

The second trend—an increase in scores in mid- and lower-scoring cities—stems from increased climate change mitigation and clean energy activity among those cities. Of the 54 community-wide initiatives adopted between May 2, 2020, and July 1, 2021, cities outside the top 20 scorers in that category were responsible for 37 of them. Additionally, many cities are breaking new ground with these initiatives, earning them points in areas where they had earned none in previous *Scorecard*s.

Table 5 presents the overall scores for community-wide initiatives. In subsequent tables in this chapter, we show how we allocated points for individual metrics within these categories. Appendix E provides more detailed scoring information on each metric.

Table 5. Community-wide initiatives scores

City	Climate and energy goals (8 pts)	Equity-driven planning (2.5 pts)	Distributed energy systems (3 pts)	Heat island mitigation (1.5 pts)	Total (15 pts)
Seattle	7	2.5	1	1.5	12
San José	6	1	1.5	1.5	10
Denver	5	1	2	1.5	9.5
Washington, D.C.	5	2	1	1.5	9.5
Los Angeles	6	1	0.5	1.5	9
Austin	5	1	1.5	1	8.5
Minneapolis	4.5	2	1	1	8.5
Philadelphia	4	2	0.5	1.5	8
Pittsburgh	5	0.5	1	1	7.5
Portland	3.5	2	0.5	1.5	7.5
Orlando	4	1	0.5	1.5	7
Phoenix	4	1	0.5	1.5	7
San Francisco	4	2	0	1	7
Oakland	4	1	1	0.5	6.5
New York	0.5	1	3	1.5	6
San Antonio	3	1.5	0	1.5	6
Baltimore	3	1	0	1.5	5.5
Boston	3	0.5	1	1	5.5
Chicago	3.5	0.5	0.5	1	5.5
Las Vegas	4.5	0	0	1	5.5
Saint Paul	2.5	1.5	1	0.5	5.5
Columbus	3	0	0.5	1.5	5
Houston	2	0.5	1	1.5	5
San Diego	3.5	0.5	0.5	0.5	5
Atlanta	2.5	0.5	0	1.5	4.5
Hartford	1	1	1	1.5	4.5
Honolulu	3.5	0.5	0	0.5	4.5
Knoxville	3	1	0	0.5	4.5
Miami	3	0.5	0	1	4.5
New Orleans	2.5	0.5	0.5	1	4.5
Richmond	3	1	0	0.5	4.5
St. Louis	3.5	0	0.5	0.5	4.5
St. Petersburg	2.5	0	0.5	1.5	4.5
Chula Vista	3	0.5	0	0.5	4
Cincinnati	2	1	0	1	4
Cleveland	1.5	0.5	0.5	1.5	4
Des Moines	3.5	0	0	0.5	4
Indianapolis	1.5	0.5	0.5	1.5	4
Milwaukee	2	0.5	0.5	1	4
Providence	1.5	1.5	0	1	4
Sacramento	1	1	0.5	1.5	4
Salt Lake City	2.5	0	0	1.5	4

City	Climate and energy goals (8 pts)	Equity-driven planning (2.5 pts)	Distributed energy systems (3 pts)	Heat island mitigation (1.5 pts)	Total (15 pts)
Charlotte	1	1	0.5	1	3.5
Dallas	1	1	0	1.5	3.5
Kansas City	2.5	0	0.5	0.5	3.5
Louisville	2.5	0	0	1	3.5
New Haven	3	0	0	0.5	3.5
Aurora	2	0	1	0	3
Boise	2	0	0.5	0.5	3
Memphis	2.5	0	0	0.5	3
Riverside	1.5	0	0	1.5	3
Albuquerque	0	1.5	0	1	2.5
Long Beach	0	0.5	0.5	1.5	2.5
Nashville	0	0	1	1.5	2.5
Raleigh	1	0.5	0	1	2.5
Springfield	0	1	1	0.5	2.5
Charleston	2	0	0	0	2
Grand Rapids	0	0.5	0	1.5	2
Reno	2	0	0	0	2
Colorado Springs	0	0	1	0.5	1.5
Columbia	1.5	0	0	0	1.5
Dayton	1.5	0	0	0	1.5
Tampa	0	0	0	1.5	1.5
Akron	0	0	0.5	0.5	1
Bridgeport	0	0	0.5	0.5	1
Buffalo	0	0	0	1	1
Detroit	0	0.5	0	0.5	1
Jacksonville	0	0	0.5	0.5	1
Madison	0	0	0.5	0.5	1
Provo	0	0	0.5	0.5	1
Toledo	0	0.5	0	0.5	1
Virginia Beach	0	0	0	1	1
Birmingham	0	0	0	0.5	0.5
El Paso	0	0	0	0.5	0.5
Fort Worth	0	0	0	0.5	0.5
Lakeland	0	0	0	0.5	0.5
Little Rock	0	0	0	0.5	0.5
Mesa	0	0	0	0.5	0.5
Newark	0	0	0.5	0	0.5
Omaha	0	0	0	0.5	0.5
Oxnard	0	0	0	0.5	0.5
Tucson	0	0	0	0.5	0.5
Tulsa	0	0	0	0.5	0.5
Worcester	0.5	0	0	0	0.5
Allentown	0	0	0	0	0

City	Climate and energy goals (8 pts)	Equity-driven planning (2.5 pts)	Distributed energy systems (3 pts)	Heat island mitigation (1.5 pts)	Total (15 pts)
Augusta	0	0	0	0	0
Bakersfield	0	0	0	0	0
Baton Rouge	0	0	0	0	0
Cape Coral	0	0	0	0	0
Fresno	0	0	0	0	0
Greensboro	0	0	0	0	0
Henderson	0	0	0	0	0
McAllen	0	0	0	0	0
Oklahoma City	0	0	0	0	0
Rochester	0	0	0	0	0
San Juan	0	0	0	0	0
Stockton	0	0	0	0	0
Syracuse	0	0	0	0	0
Wichita	0	0	0	0	0
Winston-Salem	0	0	0	0	0
Median	1.25	0	0	0.5	3

Cities earned a median score of 1.25 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 38 have released sufficient inventory data to assess progress toward these goals. Of these, 19 are on track to achieve their near-term goal.

Forty-five cities received credit for equity-driven planning, implementation, or evaluation, an improvement of 10 cities from last year. This year we revised our approach to scoring this metric, and only Seattle achieved maximum points. Going forward, cities can devote more attention to social equity objectives within their clean energy planning and implementation processes.

Leading Cities

Seattle. Seattle has adopted several community-wide GHG mitigation and clean energy goals through the Seattle Climate Action Plan. Seattle is projected to achieve its 2030 GHG emissions reduction goal. As mentioned above, Seattle was the only city to earn full points in the equity-driven planning and implementation metric. The city's Environmental Justice Committee oversees the Environmental Justice Fund, giving marginalized community residents direct power to fund projects within their neighborhoods. Seattle requires all policies and programs to complete a racial equity assessment at their inception. The city has supported the creation of community solar systems and has integrated emissions-reducing technology into microgrids. Seattle's Green Factor requires the installation of green infrastructure in new developments.

San José. The Climate Smart San José plan includes community-wide GHG emissions reduction goals and clean energy goals. San José is projected to achieve its near-term GHG emissions reduction goal. San José Clean Energy, the city's community choice aggregator, serves 98% of the city's customers and provides 92% carbon-free energy. While developing the Climate Smart San José plan, the city partnered with community-based organizations to hold meetings in majority Spanish-speaking and Vietnamese-speaking neighborhoods. The city's Downtown West Mixed-Use Project supports the integration of emissions-reducing technology in district energy and microgrid systems. Policy 6-29 requires new developments and certain redevelopments to incorporate low-impact development techniques.

Denver. Denver has adopted ambitious community-wide GHG mitigation and carbon-neutral electricity goals that are among the most stringent 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. Due to Colorado's Community Solar Gardens Act, community solar systems in Denver are required to reserve 10% of their shares for low-income subscribers.

Washington, D.C. The District of Columbia has adopted several community-wide GHG emissions reduction and clean energy goals through the Sustainable DC plan and the Clean Energy Omnibus Act of 2018. The city is projected to come close to achieving 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 into both the Climate Ready DC Plan and the Clean Energy DC Plan. The recently adopted Racial Equity Achieves Results Act requires the municipal government to design and implement racial equity tools so the city can better integrate racial equity into its budget, programs, and policies. Washington 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.

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. Policies such as these provide a vision to guide the long-term sustainability of programs. Goals with specific timetables and target dates allow cities to establish transparent objectives and enable regular monitoring. Cities often develop community-wide goals after a long-term planning process and outreach to diverse stakeholders, including local citizens, utilities, nonprofits, advocates, and businesses.

In this category we scored cities on:

- Stringency of climate change mitigation goals (2 points)
- Progress toward their climate change mitigation goals (2 points)
- Stringency of energy savings goals (2 points)
- Stringency of renewable generation goals and renewable energy supply (2 points)

2 points

Climate Change Mitigation Goal Stringency

Many cities have multiple GHG emissions goals with different time horizons for both the larger community and local government operations.[11] There is often one goal to achieve certain savings in the near term and another to reach a deeper level of savings by 2050. In assessing the stringency of climate goals that apply to the entire city, we based our evaluations on the average annual percentage reductions required to meet the city's nearest-term goal; we did not assess interim or final goals. This metric recognizes city governments that are striving to set more ambitious climate goals relative to those of other cities. We calculated targeted annual percentage reductions for each city, as most cities do not set goals along the same timelines.

Factors such as changes in population or in gross domestic product (GDP) can contribute to increases or decreases in a city's GHG emissions and energy use. While city-level GDP data are typically unavailable, we 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 2019, 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 (2020) Decennial Census and American Community Survey one-year population estimates.

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

Cities could earn up to 2 points in this metric, as shown in table 6. Cities with stringencies that fell roughly into the top quintile earned full points, while those with stringencies that fell roughly in the third and fourth quintiles earned 1 point. Those that were roughly aligned with the first and second quintiles did not earn points.

2 points

Progress toward Climate Change Mitigation Goals

Cities could earn up to 2 points for progress toward their climate change mitigation goals (table 6). 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 2020, using all available interim data.[12] This was calculated with a Microsoft Excel straight linear regression function. The average annual rate of change was calculated by dividing average annual changes in per capita emissions by per capita emissions in the year of a goal's adoption (or closest year with available data). We then projected a city's future progress toward its goal by assuming this rate of change would remain constant in future years until the near-term target year.

2 points

Energy Reduction Goal Stringency

To recognize cities that set ambitious energy savings goals for future years, we assessed goals on the basis of 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 2 points in this metric, as shown in table 6. Cities with stringencies that fell roughly into the top quintile earned full points, while those with stringencies that fell roughly in the third and fourth quintiles earned 1 point. Those that were roughly aligned with the first and second quintiles did not earn points. About one-third of the cities that had community-wide energy reduction goals in the previous *City Scorecard* had goals that expired in 2020.

1.5 points

Renewable Electricity Goal Stringency

This metric assesses the ambitiousness of cities' goals to power communities 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.

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.[13] We then multiplied this percentage by the city's per household electricity consumption in the year closest to the goal's adoption.[14] We refer to the resulting kilowatt-hour (kWh) per household value as a preliminary renewable electricity conversion target for cities 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.

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

13 We used the share of a city's electricity generated from carbon-free sources if the city had a carbon-free electricity goal. If a city had 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.

14 We normalized total electricity data so that conversion targets could be compared in relative terms rather than absolute terms. We primarily used city-recorded community-wide electricity data and normalized by the number of households. However, in cases where these data were unavailable, we used utility electricity data and normalized by the number of residential utility customers, which is the only population information that utilities regularly record. Therefore, normalizing electricity by the number of households allows us to maintain the greatest degree of comparability possible when scoring conversion targets.

However, it is unlikely that electricity consumption will remain unchanged. To account for changes in electricity use, we assumed that it will decline at an annual rate of 0.71%, using data from Samarripas and de Campos Lopes (2020). We assumed that this decline continues through 2030 and that electricity use remains unchanged in subsequent years through the target date. We did not project 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 for each city the 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 0.71% 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 a renewable electricity conversion target for each city because most cities do not set goals along the same timelines.[15] 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.

Further, we refined our approach to scoring this metric by awarding points for the total proportion of electric renewable resources supplied in the year the city adopted the goal. This was done to control for the effect that a city's initial renewable electricity supply has on our scoring of conversion targets (i.e., the annual renewable kWh increase per household). Moreover, we took this approach for community-wide renewable energy goals but not for municipal renewable energy goals because the community-wide renewable energy supply is often outside the direct control of the city, whereas municipal governments often have direct control of their renewable energy consumption.

Cities could earn up to 1.5 points for the stringency of their renewable electricity goal. City conversion targets equal to or greater than the 75th percentile earned 1.5 points, conversion targets equal to or greater than the median but below the 75th percentile earned 1 point, and conversion targets equal to or greater than the 25th percentile but below the median earned 0.5 points. Cities could also earn 0.5 points if the initial renewable electricity supply in the year a goal was adopted was at least 20%, which was the average initial adoption percentage.

Table 6 summarizes our scoring, and table 7 lists city scores for our community-wide climate and energy goal metrics. Table E1 in Appendix E provides more detailed city scores.

Table 6. 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 3.75%.	2
Average annual per capita GHG reductions are at least 2.5% but less than 3.75%.	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
Stringency of energy savings goals	
Average annual energy savings per capita are equal to or greater than 3.25%.	2
Average annual energy savings per capita are at least 2% but less than 3.25%.	1
Stringency of renewable electricity goals	
Annual per household conversion target is equal to or greater than 875 kWh.	1.5
Annual per household conversion target is at least 490 kWh but less than 875 kWh.	1
Annual per household conversion target is at least 320 kWh but less than 490 kWh.	0.5
Initial renewable energy supply	
Renewable energy supplied at least 20% of city's electricity in the year the city's goal was adopted.	0.5

15 Cities reporting that at least 90% of their electricity was generated from renewable or carbon-free energy sources received 1.5 points in lieu of credit for the stringency of a community-wide renewable or carbon-free electricity target.

Table 7. Community-wide climate mitigation and energy goals scores (out of 8 possible points)

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

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

As mentioned in Chapter 1, marginalized communities are likely to disproportionately experience the effects of climate change, have high energy cost burdens, and face barriers to energy efficiency and renewable energy program participation.[16] Cities can address disparities such as these through their climate action, energy efficiency, and renewable energy initiatives. In this section we assess cities' approaches to achieving procedural and structural equity outcomes through the comprehensive planning, implementation, and evaluation of their climate action, energy, sustainability, or resilience initiatives. We have used three metrics for our evaluations. The following descriptions outline our criteria for each. These criteria were developed after a review of cities' equity-focused activities, relevant published research on the topic, and feedback from a working group of community-based environmental justice organizations.

Table 8 outlines the scoring for equity-driven climate action or clean energy planning and implementation, and table 9 presents the scores for cities earning points under these metrics. Table E2 in Appendix E provides more detailed city scores.

0.5 points

Equity-Driven Community Engagement

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

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

Cities could earn up to 0.5 points for using at least one community engagement approach that aligns with the above description of procedural equity. Community engagement must allow residents to participate in a direct dialog with planning and policy decision makers, and cities must also apply their equity-driven approaches to an entire clean energy planning process or in the implementation of multiple initiatives.

1 point

Equity-Driven Decision Making

Cities may also give marginalized community residents or local organizations representing them a formal role (e.g., appointments to city boards, working groups, or committees) in decision making that affects local climate and energy action. Cities can incorporate participatory budgeting procedures into these decision-making bodies.[17] By doing so, cities give marginalized community residents direct power to approve or allocate funding toward local climate and energy projects. Cities can also give these decision-making bodies a formal role that affects the creation or implementation of a local energy, sustainability, or climate action plan. These decision-making bodies are focused on environmental justice or social equity outcomes.

Cities could earn 1 point for creating a formal decision-making body of marginalized community residents that incorporates participatory budgeting processes. Cities that give marginalized community residents formal roles in decision-making processes but do not incorporate participatory budgeting earned 0.5 points.

1 point

Equity Accountability Measures

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

Cities could earn 1 point for requiring all new policies and planning documents to undergo structural equity assessments. They could earn up to 0.5 points for structural equity accountability measures that are either aspirational in nature or limited in scope and that focus on environmental justice or social equity outcomes.

Table 8. 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 a decision-making body of marginalized residents the authority to approve and allocate funding toward clean energy projects.	1
City has given marginalized residents formal roles in decision-making processes for clean energy initiatives.	0.5
Equity accountability measures	
City has institutionalized equity accountability such that all policy and planning documents undergo structural equity assessments.	1
City has adopted structural equity measures that are limited in scope or aspirational in nature.	0.5

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

Table 9. Equity-driven climate action and clean energy planning, implementation, and evaluation scores (out of 2.5 possible points)

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

CLEAN DISTRIBUTED ENERGY RESOURCES

Shared distributed energy systems such as district energy, microgrids, and community solar arrays are localized approaches to the generation and distribution of energy. These systems can improve efficiency and lower GHG emissions. They can also expand access to clean energy and provide benefits such as reliability and grid resilience to a large cohort of businesses and residents.

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

Distributed energy technologies at municipal buildings are 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 or microgrid system. We also recognize city actions that require or directly support the creation of a community solar system.

Figure 18 shows the scoring for this metric, and table 10 presents city scores. Table E3 in Appendix E provides more detailed city scores, and table F4 in Appendix F provides detailed descriptions of city activities that earned credit.

1.5 points

Shared Distributed Energy Systems

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

Microgrids are a localized approach to the generation and distribution of electricity. A microgrid can disconnect from the main grid and operate independently in the event of a main grid failure, strengthening resilience and mitigating grid disturbances (DOE 2020b). Microgrids are inherently efficient systems because their proximity to end users reduces line losses by an annual average of 4% to 5% compared with the main grid's transmission and distribution system; this also means generation resources may be able to produce less electricity to meet the same demand, achieving additional energy savings of 30% to 40% relative to a traditional generation system (Moran and Lorentzen 2016).[18] Meanwhile, 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).

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

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

1.5 points

Equity in Distributed Energy Resource Planning

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

Cities could earn up to 1.5 points for taking an equity-driven approach to the proliferation of distributed energy systems. Figure 18 further describes the scoring for clean distributed energy systems.

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

Figure 18. Scoring for clean distributed energy resources

SCORING FOR CLEAN DISTRIBUTED ENERGY RESOURCES

FOR A TOTAL OF UP TO 3 POINTS

THIS METRIC SCORES CITIES ON A COMBINATION OF

Support for district energy, microgrid, and community solar systems

&

Equitable approaches to deploying these systems

District Energy and Microgrid Systems

Support for integrated technologies in microgrids and district energy systems that reduce emissions

0.5 points per system; 1 point max

City has adopted a formal policy, rule, or agreement that requires or supports shared district energy systems and/or microgrids to include energy technologies that reduce their carbon footprint.

Examples of these technologies include:

- Integrated storage
- Electric vehicles
- Combined heat and power
- Fuel cells
- Additional renewable energy technologies

Community Solar Systems

Support for shared community solar energy systems

0.5 points total

City has adopted a formal policy, rule, or agreement that requires the creation of community solar energy systems, or the city has made a formal commitment of financial or in-kind support to create these systems.

Equity-driven approach to shared distributed energy systems

0.5 points per system; 1.5 points max

City has taken an equity-driven approach to the proliferation of shared, distributed energy systems.

Examples of these approaches include:

- Siting the system in an environmental justice community, low-income community, or affordable housing complex
- Designing the system to directly reduce energy bills for marginalized community residents
- Reserving community solar shares for marginalized community residents

Table 10. Clean distributed energy resources scores (out of 3 possible points)

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

1.5 points

MITIGATION OF HEAT ISLANDS

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

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

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

Cities could earn up to 1.5 points for efforts to reduce their heat island effect. We gave 0.5 points to cities that have a quantitative goal to mitigate this effect. The goal may be to reduce temperature or impermeable surface, increase the tree canopy, deploy cool or green roofs, or expand 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 heat island effect.[19] These include

- *Green infrastructure* such as municipal or private sector requirements or incentives for low-impact-development green infrastructure, cool roof/pavement policies, green roof policies, and complete streets policies that require green infrastructure.
- *Private tree protection ordinances* that require a permit to remove existing trees on private property.
- *Private tree planting programs* that provide trees for private planting at low cost or no cost. Procedures must be in place to account for energy savings from tree plantings.
- *Private land conservation policie*s such as conservation subdivision ordinances, cluster house zoning, transfer of development rights policies, and incentives for natural land conservation or restoration.[20]

Table 11 shows the scoring for these metrics, and table 12 provides the scores. Table E4 in Appendix E provides more detailed city scores.

Table 11. Scoring for heat island mitigation goals and initiatives

Mitigation goal	Score
City has quantitative 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

19 Cities did not receive credit here for green building codes or programs; these are scored in Chapter 4.

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

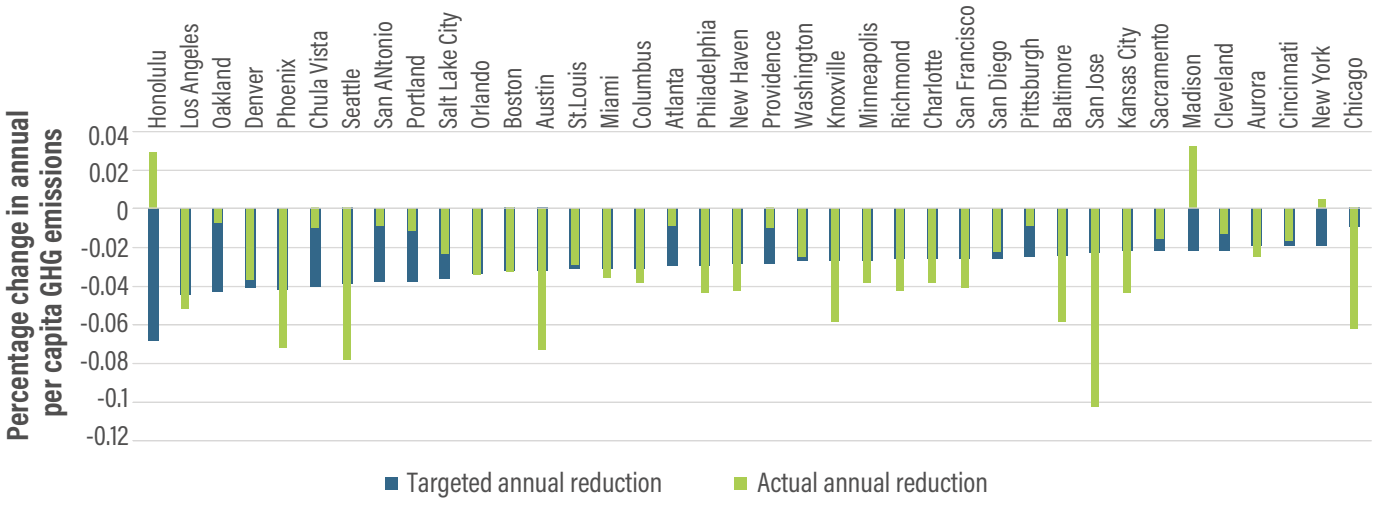
Table 12. Heat island mitigation goals and initiatives scores (out of 1.5 possible points)

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

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 38 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 19 shows how cities with these data are performing, on an annual per capita basis, in their efforts to meet their GHG reduction targets.

Figure 19. Cities' targeted versus actual annual per capita GHG emissions change in community-wide emissions. Note: Charlotte does not appear on this figure because its GHG emissions are increasing at a rate of 0.06% per year, which is too small to be discernable. The city is targeting an average annual per capita GHG emissions reduction of 2.6%.



Of the 38 cities we assessed, just half are on track to achieve their goals, but almost all are seeing annual decreases in GHG emissions. Nineteen are on track to meet or exceed their climate mitigation goals, which is one fewer than were on track in the 2020 *City Scorecard*. Another six are projected to achieve 75% or more of their goal by the target year. Only four are currently on a trajectory to increase their emissions.

GHG emissions from transportation sources occupy a large and growing share of overall city emissions. To address this, cities are adopting transportation-specific emissions or VMT reduction goals. These goals are good indicators that cities are prioritizing emissions reduction and energy savings in their transportation activities. Seventy cities have adopted sustainable transportation plans, but only 25 have a VMT or GHG goal associated with those plans. Figure 20 illustrates how cities are performing, on a per capita basis, in their efforts to meet their transportation-specific GHG emissions or VMT reduction goals.

Figure 20. Cities' targeted versus actual annual per capita reductions in transportation-related GHG emissions or VMT

City transportation GHG emissions data are still lacking, and there is an even greater dearth of VMT data. Only eight cities in the *Scorecard* have the necessary data to calculate progress toward their transportation goals, and only three of these eight cities are on track to meet them. Further, three of the five cities not on track to meet their transportation sector targets are on track to meet their community-wide targets. Notably, only Kansas City, Missouri, is on track to meet both its community-wide goal and its transportation sector goal. Two cities—Boston and Cleveland—are increasing transportation-related GHG emissions but decreasing total emissions, indicating that the emissions reductions are occurring in other sectors. Given these discrepancies, cities can prioritize transportation strategies with the greatest emissions or VMT reduction potential to increase the likelihood of achieving both their community-wide and transportation sector reduction goals.

Chapter 3. Buildings Policies

Lead Authors: Hannah Bastian, Alexander Jarrah, Carolin Tolentino, and Diana Morales

INTRODUCTION

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

Compared with other locations, large and midsize cities typically have more buildings, less industrial activity, and better-developed public transit systems. As a result, in large cities the buildings sector generally surpasses industry and transportation in its share of energy use—in some locations accounting for 50–75% of overall energy consumption (Ribeiro et al. 2017). This makes buildings a major source of GHG emissions.

Cities will need to improve the energy 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.

An important consideration for buildings policies is ensuring they are equitably designed and positively impact underserved communities. This year we introduced a new scoring track to account for equity in our existing buildings metric. Cities could earn points for equitable policies like building performance standards for affordable housing, residential energy disclosure, and incentive programs for low-income communities. To emphasize the importance of equitable policies, we required cities to earn at least 3 points in this new scoring track in order to receive full points in the existing buildings metric.

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

SCORING

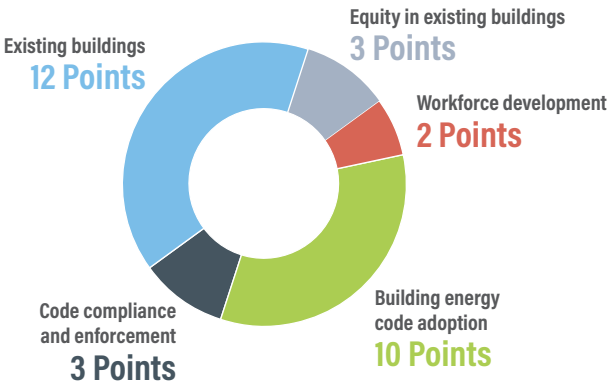
We scored cities on clean energy policies for private buildings; these are policies that local governments can directly establish or typically influence. We allocated 30 points to buildings policies across five categories, as shown in figure 21.

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

RESULTS

Denver earned the most points for buildings policies, with a significant lead over the other top-scoring cities. New York City, Seattle, and Minneapolis were the next-highest scorers. The four leading cities earned 22 or more points—far surpassing the median score of 7.5—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 21. Buildings policies scoring overview



Note: To highlight the importance of city equity-driven policies and programs, we show separate breakouts for *existing buildings* and *equity in existing buildings* here. However, these are two elements of a single metric.

Table 13 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 13. Buildings policies scores

City	Building energy code adoption (10 pts)	Code compliance and enforcement (3 pts)	Existing buildings (12 pts)	Equity in existing buildings (3 pts)	Workforce development (2 pts)	Total (30 pts)
Denver	9	3	12	1.5	1	26.5
New York	7.5	2	12	0.5	2	24
Seattle	9.5	3	9.5	0.5	0.5	23
Minneapolis	7	2	8.5	2.5	2	22
San Francisco	9	3	7.5	0.5	1	21
Chicago	7	2	7.5	1.5	2	20
Los Angeles	6.5	3	8	1	1	19.5
San José	7	3	6.5	1	2	19.5
Austin	8	2	6	2	1	19
Boston	10	1	6	0.5	1.5	19
St. Louis	9.5	2	7	0	0.5	19
Washington, D.C.	3	3	9.5	2	1.5	19
Chula Vista	7	3	7.5	0	1	18.5
Aurora	4	1.5	10.5	1	0.5	17.5
Colorado Springs	3	2	11.5	1	0	17.5
Philadelphia	7	1.5	6	0.5	1	16
Oakland	9	1.5	4	0	1	15.5
Long Beach	8.5	3	2	0	0.5	14
Atlanta	4	2.5	5.5	1	0.5	13.5

City	Building energy code adoption (10 pts)	Code compliance and enforcement (3 pts)	Existing buildings (12 pts)	Equity in existing buildings (3 pts)	Workforce development (2 pts)	Total (30 pts)
Portland	5.5	1	4.5	0.5	2	13.5
Reno	6	2	5.5	0	0	13.5
San Diego	5.5	2	4	0	1	12.5
Fresno	7	1	3.5	0.5	0	12
Hartford	6	1.5	2.5	1	1	12
Orlando	3	1	6.5	1	0.5	12
Sacramento	6.5	1	3.5	0	1	12
Riverside	5	1	4	0.5	0.5	11
Columbus	4	1.5	4	0	1	10.5
Las Vegas	7	2	1	0	0.5	10.5
Phoenix	4.5	2	2.5	0.5	1	10.5
Pittsburgh	5	1.5	3.5	0	0.5	10.5
Saint Paul	5	2	3.5	0	0	10.5
San Antonio	5	2	2	1	0.5	10.5
Bakersfield	7	1	2	0	0	10
Honolulu	3.5	1.5	3.5	1	0	9.5
Cincinnati	4.5	1.5	2	1	0	9
Dallas	3	3	2	1	0	9
Grand Rapids	4	2.5	2	0.5	0	9
Kansas City	5	0.5	3.5	0	0	9
Oxnard	5	2	2	0	0	9
Rochester	5	1	2	0	1	9
Albuquerque	3.5	2	2	0.5	0.5	8.5
Baltimore	2.5	1.5	2.5	1	1	8.5
Boise	6	2	0.5	0	0	8.5
Des Moines	6	0.5	2	0	0	8.5
Houston	3.5	2	2.5	0	0.5	8.5
Springfield	6	1	0.5	0.5	0	8
Stockton	4	1	3	0	0	8
Henderson	6	0.5	0.5	0.5	0	7.5
Nashville	2.5	2	1	1	1	7.5
Salt Lake City	2.5	1.5	3.5	0	0	7.5
Tucson	5.5	2	0	0	0	7.5
Madison	2.5	0.5	2	1	1	7
Miami	3.5	1	2.5	0	0	7
Worcester	6	0	0	0	1	7
Buffalo	5.5	0.5	0	0	0.5	6.5
Newark	5	0.5	1	0	0	6.5
Richmond	3.5	1.5	1.5	0	0	6.5
St. Petersburg	2.5	1	2.5	0.5	0	6.5
Charlotte	1.5	1.5	2	0	1	6
Cleveland	4	0	2	0	0	6

City	Building energy code adoption (10 pts)	Code compliance and enforcement (3 pts)	Existing buildings (12 pts)	Equity in existing buildings (3 pts)	Workforce development (2 pts)	Total (30 pts)
Louisville	1.5	2	2.5	0	0	6
Mesa	4	1	1	0	0	6
Milwaukee	2	0.5	2.5	1	0	6
San Juan	6	0	0	0	0	6
Detroit	3	0.5	2	0	0	5.5
Fort Worth	2	2	1.5	0	0	5.5
Knoxville	2	1.5	1	0.5	0.5	5.5
Memphis	3	0.5	1	0.5	0.5	5.5
Virginia Beach	2.5	2	1	0	0	5.5
New Haven	3	1	1	0	0	5
Providence	1	1.5	2	0	0	4.5
Bridgeport	3	0	1	0	0	4
El Paso	3	0	1	0	0	4
New Orleans	0	2	1	1	0	4
Raleigh	0.5	2	0.5	0	1	4
Syracuse	3	0.5	0.5	0	0	4
Toledo	2.5	0.5	1	0	0	4
Allentown	3	0.5	0	0	0	3.5
Dayton	3	0.5	0	0	0	3.5
McAllen	2	1	0.5	0	0	3.5
Tampa	1.5	1	1	0	0	3.5
Akron	2.5	0.5	0	0	0	3
Birmingham	1.5	0.5	0	0	1	3
Jacksonville	1.5	0.5	1	0	0	3
Lakeland	1	1	1	0	0	3
Cape Coral	1.5	1	0	0	0	2.5
Charleston	0.5	1.5	0	0	0	2
Greensboro	0	1	1	0	0	2
Augusta	1	0.5	0	0	0	1.5
Indianapolis	1	0	0.5	0	0	1.5
Provo	0.5	1	0	0	0	1.5
Baton Rouge	0	1	0	0	0	1
Columbia	0.5	0.5	0	0	0	1
Omaha	0	0.5	0.5	0	0	1
Little Rock	0	0.5	0	0	0	0.5
Oklahoma City	0	0	0.5	0	0	0.5
Tulsa	0	0.5	0	0	0	0.5
Winston-Salem	0	0.5	0	0	0	0.5
Wichita	0	0	0	0	0	0

To highlight the importance of city equity-driven policies and programs, we show separate breakouts for *existing buildings* and *equity in existing buildings* here. However, these are two elements of a single metric.

Leading Cities

Denver. Denver earned full points in the code compliance and enforcement metric and earned nearly full points in all other metrics. The city has adopted the 2018 IECC standard for residential and commercial buildings. It also has additional low-energy-use requirements for municipal buildings and residential and commercial buildings greater than 25,000 square feet. Denver has implemented many policies targeting existing buildings, including a benchmarking policy and several incentive programs. The city also benefited from Colorado's new building performance requirement that sets minimum efficiency standards for existing buildings and requires owners to disclose energy use information to prospective tenants and buyers.

New York City. New York City received full points in the workforce development metric and nearly full points in the existing buildings, energy code, and code enforcement metrics. The city's energy codes are among the most stringent in the country, and it 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, requiring a performance review on an annual basis and subjecting properties to penalties for excessive emissions. New York also offers several financing programs to drive energy savings in the 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 upfront 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, and it successfully advocated for the adoption of a statewide building energy performance standard.

BUILDING ENERGY CODES

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

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

State governments assume responsibility for adopting and amending model energy codes, and state laws dictate whether cities have the authority to adopt local regulations, such as building energy codes. Those that grant this authority are home-rule states, but this distinction is not always clear-cut when it comes to energy code authority. For example, Ohio is a home-rule state but bars cities from adopting building energy codes. Conversely, some states that are not home rule allow their localities to adopt stretch codes to add stringency to the state code; these states include California and New York. A few home-rule states set no statewide energy codes, thereby granting cities, by default, full authority to adopt their own codes. And some states may legally allow cities to amend the state energy codes but make it difficult to do so. For example, cities in South Carolina may make amendments to the state codes, but only if the South Carolina Building Codes Council grants them a variance to do so. Seventy-six of the 100 cities in the *Scorecard* have the authority to adopt their own codes or more stringent codes.

In this category we scored cities on:

- Code stringency (6 points)
- Renewable readiness policies (1 point)
- EV charging readiness and infrastructure policies (2 points)
- Low-energy-use policies (1 point)

6 points

Code Stringency

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 without state assistance. To account for cities without authority to adopt their own codes, we allowed 1 point for 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 2021). These zEPI scores rate the progress of a jurisdiction toward becoming net zero energy.[21] 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.[22]

For residential and commercial codes, we divided the zEPI scores into quartiles and assigned points accordingly. For cities that have energy code authority, we awarded 3 points to those in the fourth quartile (lowest 25 zEPI scores), 2 to those in the third quartile, and 1 to those in the second quartile.[23] 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 14 outlines the score ranges for both residential and commercial zEPI scores.

1 point

Renewable Readiness Policies

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

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

We awarded 1 point to cities with renewable-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.

2 points

EV Charging Readiness and Infrastructure Policies

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

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

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

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

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

Some cities also mandate that building owners and developers install EV charging infrastructure. Typically these policies require a certain percentage of new parking spaces to include EV chargers. For example, Los Angeles requires the installation of EV chargers for 10% of the total number of parking spaces provided for all new multifamily dwelling units, hotels, motels, and other residential buildings that are not one- or two-family dwellings and townhouses.

We awarded 1 point for EV-ready requirements and 1 point for EV charging infrastructure requirements.

1 point

Low-Energy-Use Building Requirements

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

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

Table 14 shows the scoring for these metrics, and table 15 presents the scores. Table E5 in Appendix E provides more detailed city scores.

Table 14. Scoring for building energy code adoption

Residential code stringency		
zEPI score	**Cities with authority**	**Cities without authority**
<54.3	3	2.5
54.3–58.1	2	1.5
58.2–60.7	1	0.5
Commercial code stringency		
zEPI score	**Cities with authority**	**Cities without authority**
<49.3	3	2.5
49.3–52.2	2	1.5
52.3–54.5	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 charging readiness and Infrastructure		
City has EV-ready requirements for residential or commercial new construction.	1	
City has EV charging infrastructure 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	

Table 15. Building energy code adoption scores (out of 10 possible points)

Boston (10)	Springfield (6)	Houston (3.5)	McAllen (2)
Seattle (9.5) *	Worcester (6)	Miami (3.5)	Milwaukee (2)
St. Louis (9.5)	Buffalo (5.5)	Richmond (3.5)	Birmingham (1.5)
Denver (9)	Portland (5.5)	Allentown (3)	Cape Coral (1.5)
Oakland (9)	San Diego (5.5)	Bridgeport (3)	Charlotte (1.5)
San Francisco (9)	Tucson (5.5)	Colorado Springs (3)	Jacksonville (1.5)
Long Beach (8.5)	Kansas City (5)	Dallas (3)	Louisville (1.5)
Austin (8)	Newark (5)	Dayton (3)	Tampa (1.5)
New York (7.5)	Oxnard (5)	Detroit (3)	Augusta (1)
Bakersfield (7)	Pittsburgh (5)	El Paso (3)	Indianapolis (1)
Chicago (7)	Riverside (5)	Memphis (3)	Lakeland (1)
Chula Vista (7)	Rochester (5)	New Haven (3)	Providence (1)
Fresno (7)	Saint Paul (5)	Orlando (3)	Charleston (0.5)
Las Vegas (7)	San Antonio (5)	Syracuse (3)	Columbia (0.5)
Minneapolis (7)	Cincinnati (4.5)	Washington, D.C. (3)	Provo (0.5)
Philadelphia (7)	Phoenix (4.5)	Akron (2.5)	Raleigh (0.5)
San José (7)	Atlanta (4)	Baltimore (2.5)	Baton Rouge (0)
Los Angeles (6.5)	Aurora (4)	Madison (2.5)	Greensboro (0)
Sacramento (6.5)	Cleveland (4)	Nashville (2.5)	Little Rock (0)
Boise (6)	Columbus (4)	Salt Lake City (2.5)	New Orleans (0)
Des Moines (6)	Grand Rapids (4)	St. Petersburg (2.5)	Oklahoma City (0)
Hartford (6)	Mesa (4)	Toledo (2.5)	Omaha (0)
Henderson (6)	Stockton (4)	Virginia Beach (2.5)	Tulsa (0)
Reno (6)	Albuquerque (3.5)	Fort Worth (2)	Wichita (0) †
San Juan (6) *	Honolulu (3.5)	Knoxville (2)	Winston-Salem (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 enforcement, engineers or architects for a building construction project self-certify that their plans are code compliant. In jurisdictions with adequate enforcement, builders submit plans to code officials for review. Many jurisdictions also require onsite inspections of construction work prior to granting occupancy permits. Cities with more stringent enforcement also require owners to conduct building performance testing upon completion and submit documentation of the results.

Permit fees and municipal taxes fund local government enforcement. State agencies and utilities may sometimes fund training and provide technical assistance, not only to code officials but also to builders, contractors, engineers, and architects. The DOE Building Energy Codes Program provides a variety of technical resources to support state and local code implementation, like guidance, software tools, and trainings for a range of industry professionals.[24]

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

Comparing compliance rates across states and cities is often difficult because localities use different methods for collecting and evaluating compliance data. Additionally, most compliance studies report only on new construction since data are harder to obtain for renovation projects subject to code compliance (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 3 points for building energy code enforcement and compliance. In this category we scored cities on:

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

1 point

City Staffing for Building Energy Code Compliance

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.

1 point

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 et al. 2012).

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

Cities could receive up to 1 point for compliance strategies: 0.5 points for plan reviews and field inspections and 0.5 points for performance testing for either commercial or residential buildings.

1 point

Upfront 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 of the design and permitting process. Many cities provide free training to builders, developers, and owners to teach them about their energy codes. They may also give builders free plan reviews and one-on-one consultations before they submit permit applications. We awarded 1 point to cities that provide any free upfront support to help the construction community understand and navigate code compliance.

Table 16 summarizes the scoring for these metrics, and table 17 lists the scores. Table E6 in Appendix E provides more detailed city scores.

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

Table 16. 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.	1
City requires performance testing or requires plan review and site visits.	0.5
Up-front support	
City provides free up-front support.	1

Table 17. Code compliance scores (out of 3 possible points)

Chula Vista (3)	Phoenix (2)	Baton Rouge (1)	Columbia (0.5)
Dallas (3)	Raleigh (2)	Boston (1)	Dayton (0.5)
Denver (3)	Reno (2)	Cape Coral (1)	Des Moines (0.5)
Long Beach (3)	Saint Paul (2)	Fresno (1)	Detroit (0.5)
Los Angeles (3)	San Antonio (2)	Greensboro (1)	Henderson (0.5)
San Francisco (3)	San Diego (2)	Lakeland (1)	Jacksonville (0.5)
San José (3)	St. Louis (2)	McAllen (1)	Kansas City (0.5)
Seattle (3)	Tucson (2)	Mesa (1)	Little Rock (0.5)
Washington, D.C. (3)	Virginia Beach (2)	Miami (1)	Madison (0.5)
Atlanta (2.5)	Aurora (1.5)	New Haven (1)	Memphis (0.5)
Grand Rapids (2.5)	Baltimore (1.5)	Orlando (1)	Milwaukee (0.5)
Albuquerque (2)	Charleston (1.5)	Portland (1)	Newark (0.5)
Austin (2)	Charlotte (1.5)	Provo (1)	Omaha (0.5)
Boise (2)	Cincinnati (1.5)	Riverside (1)	Syracuse (0.5)
Chicago (2)	Columbus (1.5)	Rochester (1)	Toledo (0.5)
Colorado Springs (2)	Hartford (1.5)	Sacramento (1)	Tulsa (0.5)
Fort Worth (2)	Honolulu (1.5)	Springfield (1)	Winston-Salem (0.5)
Houston (2)	Knoxville (1.5)	St. Petersburg (1)	Bridgeport (0)
Las Vegas (2)	Oakland (1.5)	Stockton (1)	Cleveland (0)
Louisville (2)	Philadelphia (1.5)	Tampa (1)	El Paso (0)
Minneapolis (2)	Pittsburgh (1.5)	Akron (0.5)	Indianapolis (0)
Nashville (2)	Providence (1.5)	Allentown (0.5)	Oklahoma City (0)
New Orleans (2)	Richmond (1.5)	Augusta (0.5)	San Juan (0)
New York (2)	Salt Lake City (1.5)	Birmingham (0.5)	Wichita (0)
Oxnard (2)	Bakersfield (1)	Buffalo (0.5)	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; relative to the current retrofit pace, scaling retrofits to the recommended level could save an additional 3.8 quadrillion Btus and 148 million metric tons of carbon dioxide in the year 2050, representing 4% and 3.9% of total energy and emissions savings, respectively.

Cities can implement a number of policies, requirements, and programs to drive clean energy improvements in existing buildings. Some policies aim to lessen the barriers to energy efficiency. For example, energy-use benchmarking policies reduce information barriers by requiring building owners to measure, report, and share how much energy they use annually. Financial incentives like zero-interest loans or tax credits can offset the high upfront 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, Los Angeles's Existing Buildings Energy and Water Efficiency Program requires owners of large commercial and multifamily buildings to perform energy assessments and retrocommissioning every five years to optimize the performance of their energy and water systems.

In this category, we scored cities on a menu of possible requirements and other actions to reduce energy usage or GHG emissions in buildings.[25] We assigned points based on the expected potential impact of each requirement. Those expected to achieve greater energy savings earned more points; those that would result in lower savings, or whose effectiveness was difficult to gauge, earned fewer points. We scored policies targeting residential and commercial buildings separately; policies that applied to both residential and commercial buildings earned double the points.[26] The overall allocation was as follows:

- Building performance standards (3 points for the commercial sector, 1.5 points for the residential sector)[27]
- Retrofit and retrocommissioning requirements (1.5 points per sector)
- Crosscutting requirements (1 point per sector)
- Benchmarking and transparency requirements (1 point per sector)
- Commercial rental disclosure requirements (1 point)[28]
- 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)

While we capped the maximum number of points cities could earn to 15 for this metric, they could only earn a maximum of 12 points for the above policies and programs.[29] To receive full points, cities also had to demonstrate they had adopted initiatives from a list of equity-driven policies and programs. Cities could earn up to an additional 3 points for the following:

- Building performance standards for the affordable housing sector with at least two strategies of compliance support (1.5 points)
- Residential rental disclosure requirement (1 point)
- Low-income energy incentives and financing programs (capped at 1 point, 0.5 points per incentive)
- Affordability requirements in energy incentives and financing programs (0.5 points)

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

Cities were scored on the different components of their policies. An individual city policy could earn multiple points if it calls for multiple actions. For example, a city that implements benchmarking ordinances that include retrocommissioning requirements would earn a total of 2.5 points for each requirement: 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.

25 We do not score on building electrification policies at this time. See Appendix B for more information about our approach to electrification policies.

26 For the purposes of scoring, the residential sector can include the multifamily sector, the single-family sector, or both. Our scoring of voluntary programs departs from the description provided here. While cities that do not have the authority to adopt clean energy requirements can earn 1 point for each sector that is served by a voluntary program, this is not the case for those that have the authority to adopt requirements. Cities without authority can only earn 0.5 points for having a voluntary program.

27 Cities could earn an additional 1.5 points if they had residential building performance standard provisions that applied to affordable housing and pursued at least two strategies of compliance support.

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

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

4.5 points

Building Performance Standards

Energy performance standards set phased energy or emissions reduction requirements for certain buildings. For example, New York's Local Law 97 of 2019 sets emissions caps for buildings greater than 25,000 square feet. The policy requires these buildings to reduce GHG emissions 40% by 2030 and 80% by 2050, relative to a 2005 baseline (Nadel and Hinge 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 building performance standards that covered the commercial sector and 1.5 points for the residential sector. While residential building performance standards receive only 1.5 points here, the commercial and residential sectors receive equal weighting overall because 1.5 points are also available for building performance standards for the affordable housing sector, discussed below in the "Equity in Policies Targeting Existing Buildings" section.

6 points

Retrofit and Retrocommissioning Requirements

Retrofit policies call for modifying existing buildings to reduce energy use. Comprehensive upgrades can cut commercial building energy use by 20–50% (York et al. 2015). Cluett and Amann (2014) report that deep energy retrofits in residential buildings can achieve energy savings of 50% and greater. Some cities implement policies that establish retrofit requirements for certain buildings. For example, San Francisco's Residential Energy Conservation Ordinance requires a minimum set of retrofits at time of sale for residential properties built before 1978 (SF Environment 2020). Retrofit policies may also target certain building components. New York's Local Law 88 of 2009, for instance, requires buildings with more than 25,000 square feet to upgrade their lighting to meet the current city energy code.

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

Cities earned 1.5 points for each sector (multifamily and commercial) that has retrofit requirements. Cities also earned 1.5 points for each RCx or building tune-up requirement applying to each sector.

2 points

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 multifamily or single-family residential buildings and 1 point for such requirements for commercial buildings.

3.5 points

Benchmarking and Energy-Use Disclosure 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 owner-occupied 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 that data across all buildings are consistent and therefore readily comparable. To whom 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.

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

Cities could earn 1 point for each sector (commercial, multifamily, and single-family buildings) targeted by a benchmarking and transparency policy.[30] We also awarded 0.5 bonus points to cities demonstrating at least one year of compliance rates greater than 90% for at least one type of building since 2018.[31]

1 point

Commercial Rental Property 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 choices. These disclosures can take several forms, including presenting prospective tenants with a utility bill or presenting them with a detailed energy report.

Cities could earn 1 point for a commercial rental disclosure policy. Residential rental disclosure policies earn credit in the Equity in Policies Targeting Existing Buildings section below.

1 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 element of their benchmarking policies.

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

2 points

Financial or Nonfinancial Incentives

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. Fast-tracking the permitting process is one example; with little to no financial investment, jurisdictions can motivate builders by moving their projects up in the permitting and plan review process, which can otherwise take up to 18 months (USGBC 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.

This scoring category captures incentive and financing programs administered by city governments and municipal utilities. Cities could earn up to 1 point for financial or nonfinancial mechanisms that promote energy efficiency and 1 point for onsite solar generation.

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

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

We assigned points based on the number of programs a city has implemented. Programs that target both commercial and residential (either multifamily or single-family) buildings counted as two programs.[32] Cities with at least two incentive programs targeting energy efficiency received 1 point, and those with 1 program earned 0.5 points. Cities with at least two programs targeting renewable energy received 1 point, and those with 1 program received 0.5 points.

2 points

Other Innovative Policies

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

Cities earned 1 point for having such an energy-saving requirement for residential (multifamily or single-family) buildings and 1 point for having such a requirement for commercial buildings.

1 point

Voluntary Programs

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

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

Cities without authority to pass energy savings requirements received 1 point for running voluntary programs for residential (multifamily or single-family) buildings and 1 point for commercial. Cities with authority could earn a maximum of 0.5 points for voluntary programs for both sectors.

EQUITY IN POLICIES TARGETING EXISTING BUILDINGS

As mentioned in previous chapters, marginalized communities face high energy burdens and barriers to accessing and benefiting from energy efficiency and renewable energy investments. To drive equitable outcomes, cities can adopt policies that require energy efficiency action in the affordable housing sector and develop incentive programs for low-income households. However, some policies can exacerbate inequities if supporting mechanisms are not adopted alongside them. Designing such policies with an eye toward distributional equity can help ensure that their benefits reach low-income households and that low-income households are not disproportionately burdened by these policies.[33]

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

1.5 points

Building Performance Standards and Support Mechanisms for the Affordable Housing Sector

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

32 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.

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

Nedwick and Ross (2020) identify such mechanisms:

- Granting exemptions to delay compliance

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

Cities earned 1.5 points for a building performance standard policy that both covers the affordable housing sector and provides any two of the above mechanisms for support.

1 point

Residential Rental Disclosure Policy

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

Cities earned 1 point for a residential energy rental disclosure policy.

1 point

Low-Income Energy Incentives and Financing Programs

A number of cities have established or support 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 renewable generation (Grid Alternatives 2021). Cities can also help nonprofits that serve low-income communities reduce their own energy use and free up funds for their programs. For instance, the city of Denver partnered with Energy Outreach Colorado to provide the Nonprofit Energy Efficiency Program, which helped STEP Denver reduce its energy costs by 32% and use the savings to hire an additional case manager (Energy Outreach Colorado 2018).

Cities earned up to 1 point for low-income energy incentives and financing programs. Cities with two or more programs earned 1 point, and those with one program earned 0.5 points.

0.5 points

Affordability Requirements in Energy Incentive and Financing Programs

Three cities offer incentives or financing for energy efficiency and renewable energy upgrades. As mentioned earlier, these upgrades may increase rents and displace tenants. To avoid this, cities can attach affordability requirements to incentive awards, allowing current tenants to experience the benefits of these energy efficiency and renewable energy upgrades. Cincinnati, for example, requires multifamily buildings that participate in the city's energy efficiency grant program to maintain pre-award rent levels and the same percentage of low-income tenants for at least two years (Cincinnati 2021).

Cities earned 0.5 points for requiring incentive award recipients to preserve housing affordability.

Table 18 summarizes the scoring for policies targeting existing buildings, and table 19 provides the scores. Table E7 in Appendix E provides more detailed city scores.

Table 18. Scoring for policies targeting existing buildings and equity policies

Policy	Score (capped at 12 points)
Building performance standards	3 points (commercial) 1.5 points (residential)
Retrofit requirements	1.5 points (commercial) 1.5 points (residential)
Retrocommissioning requirements	1.5 points (commercial) 1.5 points (residential)
Crosscutting requirements	1 point (commercial) 1 point (residential)
Benchmarking and energy-use disclosure requirements	1 point (commercial) 1 point (multifamily) 1 point (single-family)
Rental disclosure policies	1 point (commercial)
Energy audit requirements	0.5 points (commercial) 0.5 points (residential)
Financial or nonfinancial incentives	1 point (2+ energy efficiency incentives) 0.5 points (1 energy efficiency incentive) 1 point (2+ solar incentives) 0.5 points (1 solar incentive)
Other innovative policies	1 point (commercial) 1 point (residential)
Voluntary programs	1 point for cities without authority (commercial) 1 point for cities without authority (residential) 0.5 points for cities with authority (commercial or residential)
Equity policy	Score capped at 3 points
Building performance standards for affordable housing	1.5 points (residential)
Rental disclosure policy	1 point (residential)
Low-income energy incentives and financing programs	1 point (2+programs) 0.5 points (1 program)
Affordability requirements in energy incentive and financing programs	0.5 points (residential)

Table 19. Policies targeting existing buildings scores (out of 15 possible points)

New York (12.5)	Hartford (3.5)	New Orleans (2)	Honolulu (0.5)
Washington, D.C. (11.5)	Kansas City (3.5)	Oxnard (2)	Indianapolis (0.5)
Minneapolis (10)	Milwaukee (3.5)	Providence (2)	Oklahoma City (0.5)
Chicago (9)	Saint Paul (3.5)	Rochester (2)	Raleigh (0.5)
Los Angeles (9)	Salt Lake City (3.5)	Dallas (1.5)	Richmond (0.5)
Seattle (9)	San Diego (3.5)	Houston (1.5)	Syracuse (0.5)
San Francisco (8)	Cincinnati (3)	Lakeland (1.5)	Wichita (0.5)
Austin (7.5)	Long Beach (3)	Memphis (1.5)	Akron (0)
Atlanta (6.5)	Phoenix (3)	New Haven (1.5)	Allentown (0)
Boston (6.5)	San Antonio (3)	Aurora (1)	Augusta (0)
Denver (6.5)	Stockton (3)	Boise (1)	Baton Rouge (0)
Philadelphia (6.5)	Albuquerque (2.5)	Bridgeport (1)	Birmingham (0)
San José (6.5)	Louisville (2.5)	El Paso (1)	Buffalo (0)
St. Louis (6.5)	Madison (2.5)	Fort Worth (1)	Charleston (0)
Orlando (6)	Miami (2.5)	Greensboro (1)	Columbia (0)
Chula Vista (5.5)	Bakersfield (2)	Henderson (1)	Dayton (0)
Reno (5.5)	Charlotte (2)	Knoxville (1)	Little Rock (0)
Portland (4.5)	Cleveland (2)	McAllen (1)	Omaha (0)
Riverside (4.5)	Colorado Springs (2)	Mesa (1)	Provo (0)
Columbus (4)	Des Moines (2)	Newark (1)	San Juan (0)
Oakland (4)	Detroit (2)	St. Petersburg (1)	Springfield (0)
Pittsburgh (4)	Grand Rapids (2)	Tampa (1)	Tucson (0)
Sacramento (4)	Jacksonville (2)	Toledo (1)	Tulsa (0)
Baltimore (3.5)	Las Vegas (2)	Virginia Beach (1)	Winston-Salem (0)
Fresno (3.5)	Nashville (2)	Cape Coral (0.5)	Worcester (0)

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. The U.S. Energy Employment Report (USEER) shows that about 2.1 million people worked in the energy efficiency industry and 316,000 people worked in the solar industry in 2020 (DOE 2021e). The COVID-19 pandemic caused significant clean energy job losses that year. USEER found that about 270,000 energy efficiency jobs and 25,700 solar jobs were lost in 2020.

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

We recognize that workforce development advocates are increasingly calling on cities to ensure that clean energy jobs are good-quality, family-sustaining jobs that offer career-track opportunities. While we did not include these attributes in our metric criteria this year, we will be examining the best way to incorporate them in future editions of the *Scorecard*.

Clean energy jobs have been growing in number in recent years, but they are not always distributed equally across demographics (ACEEE 2019; Solar Foundation 2018a; AWEA 2018). Women make up 47% of the national workforce but 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 8% of solar jobs (E2 and E4 The Future 2020; Solar Foundation, SEIA, and IREC 2021). 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 that increase underserved community members' participation in the energy efficiency workforce (Shoemaker and Ribeiro 2018).[34] 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 20 summarizes the scoring, and table 21 presents city scores for this category. Table E8 in Appendix E provides more detailed city scores.

Table 20. 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

Table 21. City support for energy efficiency and renewable energy workforce development scores (out of 2 possible points)

Denver (13.5)	San Diego (4)	Detroit (2)	Boise (0.5)
Colorado Springs (12.5)	Baltimore (3.5)	Long Beach (2)	Indianapolis (0.5)
New York (12.5)	Hartford (3.5)	Nashville (2)	McAllen (0.5)
Aurora (11.5)	Kansas City (3.5)	New Orleans (2)	Oklahoma City (0.5)
Washington, D.C. (11.5)	Milwaukee (3.5)	Oxnard (2)	Omaha (0.5)
Minneapolis (11)	Pittsburgh (3.5)	Providence (2)	Raleigh (0.5)
Seattle (10)	Sacramento (3.5)	Rochester (2)	Syracuse (0.5)
Chicago (9)	Saint Paul (3.5)	Fort Worth (1.5)	Akron (0)
Los Angeles (9)	Salt Lake City (3.5)	Knoxville (1.5)	Allentown (0)
Austin (8)	Cincinnati (3)	Memphis (1.5)	Augusta (0)
San Francisco (8)	Dallas (3)	Richmond (1.5)	Baton Rouge (0)
Chula Vista (7.5)	Madison (3)	Bridgeport (1)	Birmingham (0)
Orlando (7.5)	Phoenix (3)	El Paso (1)	Buffalo (0)
San José (7.5)	San Antonio (3)	Greensboro (1)	Cape Coral (0)
St. Louis (7)	St. Petersburg (3)	Henderson (1)	Charleston (0)
Atlanta (6.5)	Stockton (3)	Jacksonville (1)	Columbia (0)
Boston (6.5)	Albuquerque (2.5)	Lakeland (1)	Dayton (0)
Philadelphia (6.5)	Charlotte (2.5)	Las Vegas (1)	Little Rock (0)
Reno (5.5)	Grand Rapids (2.5)	Mesa (1)	Provo (0)
Portland (5)	Houston (2.5)	New Haven (1)	San Juan (0)
Honolulu (4.5)	Louisville (2.5)	Newark (1)	Tucson (0)
Riverside (4.5)	Miami (2.5)	Springfield (1)	Tulsa (0)
Columbus (4)	Bakersfield (2)	Tampa (1)	Wichita (0)
Fresno (4)	Cleveland (2)	Toledo (1)	Winston-Salem (0)
Oakland (4)	Des Moines (2)	Virginia Beach (1)	Worcester (0)

34 We score cities on inclusive procurement and contracting procedures for government operations in Chapter 6.

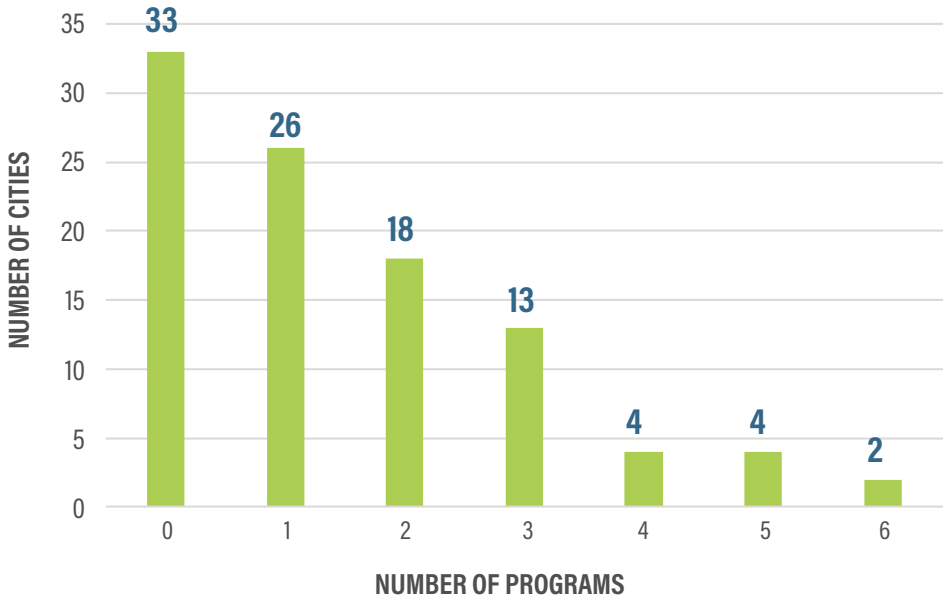
ISSUE IN FOCUS:
Residential Energy Efficiency and Federal Stimulus

Announced in March 2021, President Biden's American Jobs Plan calls for significant investments in clean energy infrastructure, including buildings. Specifically, the plan calls for building, preserving, and retrofitting more than two million homes and commercial buildings and for making millions of homes more efficient (White House 2021). While Congress is still working on infrastructure bills, ACEEE has recommended the inclusion of funding for existing programs like the Weatherization Assistance Program and proposed new programs including the Hope for Homes retrofit rebates initiative; the Green, Resilient, Efficient, and Affordable Homes for Tenants program; and the Zero-Emission Homes rebates for electrification. Broader funding, such as the Energy Efficiency Community Block Grants and Community Development Block Grants, could also be used for home improvements (Ungar et al. 2021).

This federal funding can make a huge impact—the Obama administration's American Recovery and Reinvestment Act (Recovery Act) provided $90 billion to spur the clean energy economy (White House 2016). Out of that bill, the Weatherization Assistance Program renovated more than a million homes and saved families on average $3,000 on their energy costs over the efficiency measures' lifetimes (White House 2016). Other efficiency programs, in partnership with DOE and the Department of Housing and Urban Development, helped make energy efficiency improvements in 1.6 million homes (White House 2016).

If an infrastructure bill is passed, localities may gain access to funds to deliver energy efficiency and renewable energy offerings to their residents and support their building workforce. Cities with existing incentive programs may have an advantage at leveraging these funds and helping their residents take advantage of them. Figure 22 shows the number of cities already implementing energy efficiency and renewable energy programs for residential buildings. More than 50% of cities have no programs or only one program, highlighting an opportunity for localities to do more and potentially leverage federal funding to establish incentive and financing programs.

Figure 22. Cities with energy efficiency and renewable energy incentive programs for residential buildings



Chapter 4. Transportation Policies

Lead Authors: Ben Jennings, Amy Patronella, and Shruti Vaidyanathan

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 2021d). It is responsible for 28% of U.S. energy use and for 25–38% of energy use in most cities in industrialized countries (EIA 2019c; 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, shape land use because they have jurisdiction over zoning laws and regulations. Likewise, central cities and other job centers influence regional commuting behavior and choices, which are major factors in transportation energy use.

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

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

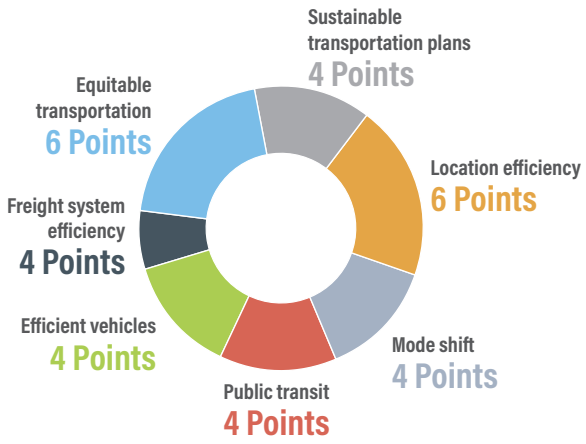
SCORING

We allocated 30 points and 2 bonus 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 23. We provide additional details on each of the categories later in this chapter.

Most of the metrics in this chapter focus on local government actions and policies that city decision makers can influence 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 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.

Figure 23. Transportation policies scoring overview



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 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 points, the highest score a city has earned for its transportation sector efforts since the debut of the *City Scorecard* in 2013. Washington, DC; Boston; New York; and Oakland 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 of the 30 potential points, there remain substantial opportunities for even leaders in the field to continue building on the progress they have achieved so far. The median transportation score was 7.5 points, and the mean was 8.8 points.

Table 22 lists the transportation scores for 2021 by policy category. Subsequent tables in this chapter show how we allocated points for individual metrics within these categories. Appendixes E and F provide more detailed scoring information on each metric.

Table 22. Transportation policies scores

City	Sustainable transportation (4 pts)	Location efficiency (6 pts)	Mode shift (4 pts)	Public transit (4 pts)	Efficient vehicles (4 pts)	Freight (2 pts)	Equitable transportation (6 pts)	Congestion pricing (1-pt bonus)	EVSE equity (1-pt bonus)	Total (30 pts)
San Francisco	3	5	4	4	4	1	4	0	0	25
Washington, D.C.	3	4	4	3.5	3.5	2	4	0	0	24
Boston	3	5	4	3.5	2	0	4	0	1	22.5
New York	2.5	4.5	3.5	4	1	2	3.5	1	0	22
Oakland	3	3.5	2.5	2	3.5	0.5	4.5	0	1	20.5
Minneapolis	3	5	3.5	2.5	1.5	1	3	0	0	19.5
Portland	2	3.5	3	3	2	2	4	0	0	19.5
Seattle	3.5	3	1.5	3.5	3	2	3	0	0	19.5
Los Angeles	2.5	2.5	3	2	3.5	2	3	0	0	18.5
Atlanta	2	4	2.5	3	2	2	2.5	0	0	18
San José	2	3	4	2	3.5	1	2	0	0	17.5
Philadelphia	2	2.5	2	3	3	1	3.5	0	0	17
Chicago	0.5	3.5	2	3.5	2.5	0	4	0	0	16
Denver	1	4	4	2	2	0	2	0	1	16
Pittsburgh	2	2.5	4	2.5	3	0.5	1.5	0	0	16
Baltimore	1	3.5	2	2.5	2	1	2	0	1	15

City	Sustainable transportation (4 pts)	Location efficiency (6 pts)	Mode shift (4 pts)	Public transit (4 pts)	Efficient vehicles (4 pts)	Freight (2 pts)	Equitable transportation (6 pts)	Congestion pricing (1-pt bonus)	EVSE equity (1-pt bonus)	Total (30 pts)
Sacramento	1	4.5	2.5	1.5	4	1	0.5	0	0	15
Honolulu	1	3	1.5	2.5	2	0	4.5	0	0	14.5
Long Beach	0.5	2	2	2	3	2	1.5	0	0	13
Phoenix	2.5	3	2	1.5	2	0	2	0	0	13
Providence	3	3	2.5	1.5	2	0	1	0	0	13
Saint Paul	2	3.5	2.5	1	1.5	1	1.5	0	0	13
San Diego	3	3	2.5	1	3.5	0	0	0	0	13
Albuquerque	1	3	3	1	2	0	1.5	0	1	12.5
Austin	1	3.5	3	1.5	1.5	0	2	0	0	12.5
Hartford	1	5	1	1.5	2	0	2	0	0	12.5
Kansas City	3.5	3.5	1.5	1	2.5	0	0.5	0	0	12.5
Cleveland	2.5	2.5	2	2.5	0	0	2	0	1	11.5
Columbus	1	4.5	2	1	2	1	0	0	0	11.5
Madison	1	2.5	3.5	1.5	1.5	0	1.5	0	0	11.5
Orlando	1	3.5	2.5	0.5	3	1	0	0	0	11.5
Salt Lake City	2	2	1.5	2.5	1.5	0	2	0	0	11.5
Houston	2	3	1	1.5	1.5	0.5	1.5	0	0	11
Las Vegas	1	3.5	3	1	1.5	0	1	0	0	11
Richmond	1	3.5	1.5	1.5	1	0.5	2	0	0	11
Grand Rapids	1	5	2	1	1	0	0.5	0	0	10.5
Miami	0.5	3	1	2.5	0.5	1	2	0	0	10.5
Charlotte	1	3.5	1.5	1.5	0.5	0	2	0	0	10
Louisville	2	3.5	1.5	1	0	0	1	0	0	9
Dallas	1	1.5	2.5	2	1	0	0.5	0	0	8.5
Nashville	1	4	1.5	0	0.5	0	1.5	0	0	8.5
Knoxville	1	2.5	1.5	0.5	1.5	0	1	0	0	8
Rochester	1	3	1	0.5	2.5	0	0	0	0	8
San Antonio	3	2	1	1.5	0	0	0.5	0	0	8
St. Louis	1	1.5	1.5	2.5	1.5	0	0	0	0	8
Boise	1	2	1.5	0	1	0	2	0	0	7.5
Buffalo	0	3	1	1.5	2	0	0	0	0	7.5
Chula Vista	1	1.5	1	0.5	2.5	0	1	0	0	7.5
Detroit	1	3	1	0.5	1	0	1	0	0	7.5
Memphis	1	2.5	1.5	0.5	0	1.5	0.5	0	0	7.5
Milwaukee	0.5	3	2	1.5	0.5	0	0	0	0	7.5
New Orleans	1	2.5	2	2	0	0	0	0	0	7.5
Cincinnati	1	3.5	0	1.5	0	0	1	0	0	7
Oklahoma City	0	2.5	1	0.5	1	0	2	0	0	7
Riverside	1	2.5	0	0.5	1.5	1	0.5	0	0	7
St. Petersburg	1	2.5	2.5	1	0	0	0	0	0	7
Aurora	1	2.5	1	0.5	0.5	0	1	0	0	6.5
Fort Worth	0	3.5	1	1	0	0	1	0	0	6.5
Indianapolis	1	3	0	0	1	0	1.5	0	0	6.5
Omaha	0.5	4.5	1.5	0	0	0	0	0	0	6.5

City	Sustainable transportation (4 pts)	Location efficiency (6 pts)	Mode shift (4 pts)	Public transit (4 pts)	Efficient vehicles (4 pts)	Freight (2 pts)	Equitable transportation (6 pts)	Congestion pricing (1-pt bonus)	EVSE equity (1-pt bonus)	Total (30 pts)
Raleigh	0	2.5	2	0	0.5	0	1.5	0	0	6.5
Bridgeport	1	3	0.5	0.5	0	0	1	0	0	6
Jacksonville	1.5	2.5	0.5	0.5	1	0	0	0	0	6
Springfield	1	1.5	1	0.5	1	0	1	0	0	6
New Haven	1	2	1	1	0	0	0.5	0	0	5.5
Reno	1	2	0	0.5	2	0	0	0	0	5.5
Tucson	0	1	2	1	1	0	0.5	0	0	5.5
Charleston	0.5	1.5	1	0	1.5	0	0.5	0	0	5
Mesa	0.5	2.5	0	0	2	0	0	0	0	5
Newark	0	2	0	2.5	0.5	0	0	0	0	5
Birmingham	0	3	1.5	0	0	0	0	0	0	4.5
Dayton	0	1.5	1.5	1.5	0	0	0	0	0	4.5
Syracuse	0.5	1.5	0	0.5	2	0	0	0	0	4.5
Tampa	1	1	1	0.5	0	0	1	0	0	4.5
Worcester	0.5	2.5	1	0.5	0	0	0	0	0	4.5
Fresno	0	1	1	0.5	0.5	0	1	0	0	4
Stockton	0.5	1.5	0	0	2	0	0	0	0	4
Toledo	1	1.5	1	0.5	0	0	0	0	0	4
Lakeland	0	1.5	0	0	2	0	0	0	0	3.5
Oxnard	0.5	0	0.5	0.5	2	0	0	0	0	3.5
Tulsa	0	0.5	1	0	1.5	0	0.5	0	0	3.5
Akron	0	0	1	1	0.5	0	0.5	0	0	3
Des Moines	0	0	1.5	1	0	0	0.5	0	0	3
El Paso	0	2.5	0	0.5	0	0	0	0	0	3
Greensboro	0.5	1.5	1	0	0	0	0	0	0	3
Virginia Beach	1	1	1	0	0	0	0	0	0	3
Winston-Salem	1	1.5	0	0	0	0	0.5	0	0	3
Columbia	0	1	0	0.5	0.5	0	0.5	0	0	2.5
Henderson	1	1	0.5	0	0	0	0	0	0	2.5
Little Rock	0	1.5	0	0	1	0	0	0	0	2.5
Allentown	0.5	0.5	0	0.5	0.5	0	0	0	0	2
Bakersfield	0	1	0	0	1	0	0	0	0	2
Colorado Springs	0	0	0.5	0	0.5	0	1	0	0	2
Provo	0	0	0.5	0.5	1	0	0	0	0	2
Augusta	0	0.5	0	0	1	0	0	0	0	1.5
Baton Rouge	0	0	1	0.5	0	0	0	0	0	1.5
Cape Coral	0	1	0	0	0	0	0	0	0	1
San Juan	0	0	1	0	0	0	0	0	0	1
Wichita	0	1	0	0	0	0	0	0	0	1
McAllen	0	0.5	0	0	0	0	0	0	0	0.5

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, D.C. 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 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's 2015 housing code requires that 30% of housing units constructed on land purchased from the District 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.

Boston. Boston continues to be a leader in transportation efficiency. The *Go Boston 2030* plan, released in 2017, established a goal to reduce transportation-related GHG emissions 50% by 2030 from 2005 levels; it also highlighted strategies such as the creation of neighborhood Mobility MicroHUBs, complete street corridors, and local transit improvements to achieve the city's ambitious goal. Boston received one of the highest AllTransit performance scores of any city, meaning that residents have good, consistent access to public transportation within the city. Boston also offers a number of equity-focused mobility programs and incentives. This includes free 90-day Blue Bikes passes for qualified residents, an approach to zoning that has helped to locate more than two-thirds of housing units within a quarter mile of transit, and increased transit service frequency in low-income neighborhoods through the Massachusetts Bay Transportation Authority. Additionally, Boston is one of the few cities that have provided special consideration for placement of EV charging equipment in low-income areas.

4 points

SUSTAINABLE TRANSPORTATION PLANS AND VEHICLE MILES TRAVELED (VMT)/GHG 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 goal. Including codified targets is a best practice because it establishes specific benchmarks against which to measure progress and gauge success.

In this category we scored cities on:

- The presence of a sustainable transportation plan (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 that has been updated within the past five years, earned 1 point. Cities with plans that have not been adopted or updated within the past five years were eligible for 0.5 points. We chose not to review the quality and content of these plans here because many of the strategies cities have outlined to achieve their transportation goals are captured in other metrics in this chapter. We awarded 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 4% per year (a natural cut point in the data we received) and gave 0.5 points to each city that would reduce VMT or GHG by at least 1.5% per year. Finally, cities could earn 1 point for being on track to hit their GHG or VMT goal by the target year, or 0.5 points if they are projected to achieve reductions within 25% of their goal. We assessed goal stringency and progress using the same methodology utilized in Chapter 2 for calculating progress made toward GHG targets.

Table 23 summarizes the scoring, and table 24 lists the scores for sustainable transportation plans and VMT or GHG targets. Table E9 in Appendix E provides more detailed city scores, and table F5 in Appendix F includes an explanation of each of these plans.

Table 23. Scoring for sustainable transportation plans and VMT/GHG targets

Sustainable transportation plan	Score
City has a stand-alone sustainable transportation plan or strategies included within a broader plan that has been updated within the past five years.	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	
City's target requires at least a 4% average annual decrease from its target baseline.	1
City's target requires at least a 1.5% average annual decrease from its target baseline.	0.5
Progress toward VMT/GHG targets	
City is on pace to achieve its goal by the adopted target year.	1
City is not on track to meet nearest-term goal but is projected to achieve savings within 25% of stated goal.	0.5

Table 24. Sustainable transportation plan scores (out of 4 possible points)

Kansas City (3.5)	Albuquerque (1)	Reno (1)	Akron (0)
Seattle (3.5)	Aurora (1)	Richmond (1)	Augusta (0)
Boston (3)	Austin (1)	Riverside (1)	Bakersfield (0)
Minneapolis (3)	Baltimore (1)	Rochester (1)	Baton Rouge (0)
Oakland (3)	Boise (1)	Sacramento (1)	Birmingham (0)
Providence (3)	Bridgeport (1)	Springfield (1)	Buffalo (0)
San Antonio (3)	Charlotte (1)	St. Louis (1)	Cape Coral (0)
San Diego (3)	Chula Vista (1)	St. Petersburg (1)	Colorado Springs (0)
San Francisco (3)	Cincinnati (1)	Tampa (1)	Columbia (0)
Washington, D.C. (3)	Columbus (1)	Toledo (1)	Dayton (0)
Cleveland (2.5)	Dallas (1)	Virginia Beach (1)	Des Moines (0)
Los Angeles (2.5)	Detroit (1)	Winston-Salem (1)	El Paso (0)
New York (2.5)	Grand Rapids (1)	Allentown (0.5)	Fort Worth (0)
Phoenix (2.5)	Hartford (1)	Charleston (0.5)	Fresno (0)
Atlanta (2)	Henderson (1)	Chicago (0.5)	Lakeland (0)
Houston (2)	Honolulu (1)	Greensboro (0.5)	Little Rock (0)
Louisville (2)	Indianapolis (1)	Long Beach (0.5)	McAllen (0)
Philadelphia (2)	Knoxville (1)	Mesa (0.5)	Newark (0)
Pittsburgh (2)	Las Vegas (1)	Miami (0.5)	Oklahoma City (0)
Portland (2)	Madison (1)	Milwaukee (0.5)	Provo (0)
Saint Paul (2)	Memphis (1)	Omaha (0.5)	Raleigh (0)
Salt Lake City (2)	Nashville (1)	Oxnard (0.5)	San Juan (0)
San José (2)	New Haven (1)	Stockton (0.5)	Tucson (0)
Denver (1.5)	New Orleans (1)	Syracuse (0.5)	Tulsa (0)
Jacksonville (1.5)	Orlando (1)	Worcester (0.5)	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 2021b).

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 require compact or mixed-use development, transit-oriented development, or form-based zoning citywide. We awarded 1 point if the code applies only to certain areas or neighborhoods.

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. Cities received points for decreasing or eliminating parking minimums or adopting parking maximums.

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

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

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

We gave credit to cities with financial or nonfinancial incentive programs for location-efficient development and/or disclosure policies for location efficiency. Each city could score only once for each policy or incentive type we considered. Cities earned 0.5 points for each expedited permitting program, floor area ratio (FAR) incentive, other density bonus, fee waiver, or tax incentive, up to a maximum of 2 points.

Table 25 summarizes the scoring, and table 26 lists the scores for location efficiency. Table E10 in Appendix E provides more detailed city scores.

Table 25. Scoring for location efficiency

Location-efficient zoning codes	Score
Codes for TOD, compact or mixed-use development, or form-based zoning apply to the whole city.	2
Codes for TOD, compact or mixed-use development, or form-based zoning 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 one or fewer spaces per housing unit.	0.5
Location efficiency incentive programs and disclosure policies	
Four or more types of unique incentives, programs, or policies	2
Three types of unique incentives, programs, or policies	1.5
Two types of unique incentives, programs, or policies	1
One type of unique incentive, program, or policy	0.5

Table 26. Location efficiency scores (out of 6 possible points)

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

MODE SHIFT

More than 80% of all trips in the United States are made by private vehicles (BTS 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 (1 point)
- Bicycle system efficiency and connectivity (1 point)

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 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 at least some quantified progress toward these modal share goals since their adoption could earn an additional 1 point.

1 point

Complete Streets

Complete streets policies focus on the interconnectivity and sound design of streets to provide safe, easy access for pedestrians, bicyclists, motorists, and public transportation users. Such policies can also 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 2020, 1,600 complete streets policies had been adopted by municipalities across the United States (National Complete Streets Coalition 2021).

ACEEE scored cities' complete streets policies on the basis of coverage. Cities received 1 point if their policy covers the entire city and 0.5 points if it covers only specific districts and neighborhoods. In the past we had used an NCSC scorecard to guide our own scoring efforts. However, there is no longer enough overlap between the cities NCSC scores and the cities captured in this report for this to be an effective approach.

1 point

Bicycle System Efficiency and Connectivity

Bikeable cities give residents and commuters another alternative to owning or driving a personal vehicle. More than 45% of all vehicle trips in the United States are three miles or less, and therefore bikes may be able to replace automobile trips for many people in cities with comprehensive and well-connected bicycle infrastructure (BTS 2017). To score a city's bikeability, we leveraged PeopleForBikes' PlacesForBikes city scores. PlacesForBikes scores cities on a 25-point scale across five metrics each worth up to 5 points: ridership, safety, network, reach, and acceleration (PeopleForBikes 2021). We assigned cities points using the sum of the PlacesForBikes scores from the ridership, network, reach, and acceleration categories. We awarded 1 point to cities that scored 9 points or more using PlacesForBikes' ratings, and 0.5 points to cities that scored between 6 and 8.9 points. We recognize that safety is an important component of whether a city is bikeable, but we chose to include only components of the PlacesForBikes scores that relate directly to GHG emissions reductions.

Table 27 summarizes the scoring, and table 28 lists the scores for mode shift. Table E11 in Appendix E provides more detailed city scores.

Table 27. 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
Complete streets	
City's policy covers the entire city.	1
City's policy covers only specific districts and neighborhoods.	0.5
Bicycle system efficiency and connectivity	
PlacesForBikes score of 9 or above	1
PlacesForBikes score of at least 6 but not exceeding 8.9	0.5

Table 28. Mode shift scores (out of 4 possible points)

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

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). Transit systems have seen a steep drop in ridership and fare-based revenues in the last few years. While the COVID-19 pandemic has played a significant role in causing this free fall, transit agencies were already seeing decreases in ridership before the pandemic hit (Vaidyanathan 2020). Although the federal government has taken multiple steps to keep transit agencies afloat, including passing a COVID relief bill that included $30 billion in funding for public transportation, complementary efforts will be needed at the local level. A number of municipalities across the United States have come up with inventive

funding mechanisms to foster transit development with local monies, indicating their interest in promoting public transit as a reliable means of transportation. Local funding for transportation is generated in a variety of ways and can make up a significant portion of expenditures on transit expansion. Common strategies for funding transit include sales taxes and property taxes, road user fees, revenues from toll roads and parking fees, and transit fares. For example, Austin voters approved a property tax increase to support investment in active and public transportation in November 2020 (Mooney 2020).

To evaluate a city's progress on funding public transit, we summed spending data from the largest contributing entity under the city's jurisdiction and the transit agency with the largest spending over the period of 2015–19. This five-year average was then normalized by service territory population for the transit agency in question. We did not consider state and federal funding when calculating per capita funding. Cities could earn up to 2 points for transit funding per capita. Table 29 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 in 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 include price reductions and educational initiatives that highlight the benefits of using public transit.

We scored cities on their transit service using the Center for Neighborhood Technology's (CNT) AllTransit Performance Score, which rates transit connectivity, access to jobs, and frequency of service (CNT 2021a). Cities could earn up to 2 points based on their CNT score, which falls on a scale of 1–10.

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

Table 29. Scoring for public transit metrics

Transit funding per capita (5-year average)*	Score
$500 or more	2
$300 to $499.99	1.5
$100 to $299.99	1
$50 to $99.99	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 2021a.

Table 30. Transit scores (out of 4 possible points)

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

EFFICIENT VEHICLES

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

In this section, we evaluated cities on the basis of:

- Efficient vehicle purchase incentives (1 point)
- Vehicle charging infrastructure (2 points)
- Electric school bus deployment goals (0.5 points)
- Electric transit bus deployment goals (0.5 points)

We scored EV-related requirements for new construction and EV-ready building codes in our chapter on Buildings Policies. Additionally, government vehicle fleet procurement practices that advance efficient vehicles are credited in our Local Government Operations chapter.

1 point

Vehicle Purchase Incentives

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 the states. However, a few cities across the country further subsidize the purchase of these vehicles. We awarded cities 1 point if either the city or local utility 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 pursued public–private partnerships with companies such as Nissan to offer a rebate for EV 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 to their efficiency did not receive any points.

2 points

Vehicle Charging Infrastructure

Plug-in electric vehicles require charging infrastructure. Several cities and utilities in the United States offer rebates for the installation of electric vehicle chargers on private properties. 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 also awarded up to 1 point based on the number of available charging ports for public use within a city. Using natural cut points in the collected data, we awarded cities with at least 90 ports per 100,000 people a full 1 point. Cities with 50 to 89.9 ports per 100,000 people earned 0.5 points.

0.5 points

Electric Transit Bus Goals

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

Procurement decisions made by transit agencies have long-lasting effects, as a public bus generally has a useful life of around 14 years (FTA 2016). Although transit procurement policies are typically determined by transit agencies, cities can still play a role in helping to set goals and fund the transition to electric buses. We awarded 0.5 points if a city or local transit agency formally adopted a goal for increasing the number of EV buses in operation. Only goals for the procurement of pure EVs, not hybrids, were considered for this metric.

0.5 points

Electric School Bus Goals

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

Table 31 summarizes the scoring, and table 32 lists the scores for efficient vehicles. Table E13 in Appendix E provides more detailed city scores.

Table 31. 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 has formed a public–private partnership resulting in a program that offers rebates for EV purchases.	0.5
Vehicle charging infrastructure incentives	
City or utility offers incentives for installation of public or private EV charging infrastructure.	1
EV charging ports per 100,000 people*	
At least 90	1
At least 50	0.5
Electric school bus goal	
City or school district has a goal to increase the number of EV school buses in service.	0.5
Electric transit bus goal	
City or transit agency has a goal to increase the number of EV transit buses in service.	0.5

*Data from DOE 2021a

Table 32. Efficient vehicles scores (out of 4 possible points)

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

2 points

FREIGHT SYSTEM EFFICIENCY

Domestic freight transportation accounted for 30.2% of transportation sector GHG emissions in 2018 (Langer and Vaidyanathan 2020) and is an area that offers substantial opportunities for energy efficiency gains. In 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 were in danger of elimination under the Trump administration. The Biden administration has yet to decide whether it will follow through with rolling back these components. 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 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 2015). Each strategy can improve freight efficiency, but a plan with a comprehensive package of strategies can result in greater fuel savings.

We awarded a city 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 multiple freight efficiency strategies, and 0.5 points to cities that have no stand-alone plan but are still pursuing at least one freight efficiency strategy. Strategies for which we awarded points include incentives for multimodal freight, clean vehicle technology standards for freight vehicles, low-emission zones, and urban consolidation centers (micro-hubs to which shippers send deliveries, rather than sending them directly to recipients' buildings). We also awarded points for last-mile solutions or off-hours delivery programs.

Table 33 summarizes the scoring, and table 34 lists scores for sustainable freight. Table E14 in Appendix E provides more detailed city scores, and table F7 in Appendix F offers more detail on the freight plans and strategies that earned points in this metric.

Table 33. Scoring for sustainable freight

Sustainable freight plans	Score
City has a stand-alone sustainable freight plan or a multimodal freight plan outlining multiple strategies to increase efficiency.	2
City has a stand-alone sustainable freight plan outlining one strategy to increase efficiency.	1.5
City does not have a freight plan but has pursued multiple freight efficiency strategies.	1
City does not have a freight plan but has pursued at least one freight efficiency strategy.	0.5

Table 34. Sustainable freight scores (out of 2 possible points)

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

CLEAN, EFFICIENT TRANSPORTATION FOR LOW-INCOME COMMUNITIES

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 (2 points)
- Low-income access to high-quality transit (2 points)
- Subsidized access to efficient transportation options (2 points)

2 points

Low-Income Housing Around Transit

We gave up to 2 points 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. Cities were able to earn 1 point under this metric if they offered an incentive for developers to include affordable housing in transit-oriented developments.

2 points

Low-Income Access to High-Quality Transit

We used the Center for Neighborhood Technology's AllTransit tool (CNT 2021a) to score cities on low- and moderate-income households' access to high-quality transit. We based the scoring on the percentage of households with incomes below $50,000 within half a mile of high-frequency full-day transit. Table 35 contains scoring bins for this metric.

2 points

Subsidized Access to Efficient Transportation Options

Finally, we awarded up to 2 points to cities that provide subsidized access to efficient transportation options (transit buses, light rail, public bicycles and/or scooters, streetcars, ride sharing, and car sharing) through incentives and rebates to historically marginalized groups. We chose to include programs pertinent to ride-hailing services such as Uber and Lyft on the basis of such services' ability to increase transportation access for low-income populations and connect them to areas not served by other transportation options. Cities, however, need to create policies to ensure that ride-hailing use does not lead to the decline of other, more efficient forms of passenger transport such as public transit, which would effectively increase GHG emissions. Cities earned 0.5 points for each subsidized or otherwise incentivized mode.

Table 35 summarizes the scoring, and table 36 lists scores for clean, efficient transportation for low-income communities. Table E15 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 requires low-income housing development around transit facilities.	2
City policy incentivizes low-income housing development around transit facilities.	1
Low-income access to high-quality transit*	
At least 90% of low-income households have access to high-quality transit.	2
Between 75% and 89.9% of low-income households have access to high-quality transit.	1.5
Between 60% and 74.9% of low-income households have access to high-quality transit.	1
Between 50% and 59.9% 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 (0.5 points for each incentivized mode of transport).	0.5 each, up to 2 points

*Data from CNT 2021a

Table 36. Clean, efficient transportation for low-income communities scores (out of 6 possible points)

Honolulu (4.5)	San José (2)	Charleston (0.5)	Henderson (0)
Oakland (4.5)	Albuquerque (1.5)	Columbia (0.5)	Jacksonville (0)
Boston (4)	Houston (1.5)	Dallas (0.5)	Lakeland (0)
Chicago (4)	Indianapolis (1.5)	Des Moines (0.5)	Little Rock (0)
Portland (4)	Long Beach (1.5)	Grand Rapids (0.5)	McAllen (0)
San Francisco (4)	Madison (1.5)	Kansas City (0.5)	Mesa (0)
Washington, D.C. (4)	Nashville (1.5)	Memphis (0.5)	Milwaukee (0)
New York (3.5)	Pittsburgh (1.5)	New Haven (0.5)	New Orleans (0)
Philadelphia (3.5)	Raleigh (1.5)	Riverside (0.5)	Newark (0)
Los Angeles (3)	Saint Paul (1.5)	Sacramento (0.5)	Omaha (0)
Minneapolis (3)	Aurora (1)	San Antonio (0.5)	Orlando (0)
Seattle (3)	Bridgeport (1)	Tucson (0.5)	Oxnard (0)
Atlanta (2.5)	Chula Vista (1)	Tulsa (0.5)	Provo (0)
Austin (2)	Cincinnati (1)	Winston-Salem (0.5)	Reno (0)
Baltimore (2)	Colorado Springs (1)	Allentown (0)	Rochester (0)
Boise (2)	Detroit (1)	Augusta (0)	San Diego (0)
Charlotte (2)	Fort Worth (1)	Bakersfield (0)	San Juan (0)
Cleveland (2)	Fresno (1)	Baton Rouge (0)	St. Louis (0)
Denver (2)	Knoxville (1)	Birmingham (0)	St. Petersburg (0)
Hartford (2)	Las Vegas (1)	Buffalo (0)	Stockton (0)
Miami (2)	Louisville (1)	Cape Coral (0)	Syracuse (0)
Oklahoma City (2)	Providence (1)	Columbus (0)	Toledo (0)
Phoenix (2)	Springfield (1)	Dayton (0)	Virginia Beach (0)
Richmond (2)	Tampa (1)	El Paso (0)	Wichita (0)
Salt Lake City (2)	Akron (0.5)	Greensboro (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.[35] New York City is in the process of approving a congestion pricing plan that the state and city agreed on to charge drivers to enter Manhattan's central business district. The plan is expected to generate $15 billion for the city's transit agency (ACEEE 2021b). Other cities, including Portland, Seattle, and Los Angeles, are considering similar policy mechanisms (Hawkins 2019). Congestion pricing programs have clear impacts on emissions and energy consumption at the local level since they tend to push travel to more efficient modes of transportation and discourage personal vehicle use. Cities with congestion pricing mechanisms in place could earn 1 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.

Bonus 1 point

EQUITABLE EV CHARGING

Currently the upfront investment required for EVs and their charging equipment can be cost prohibitive for low-income, environmental justice, and economically distressed communities. To make EVs accessible to all, cities should include goals and funding streams specifically aimed at EV deployment and the installation of charging infrastructure within those communities (Howard et al. 2021). Cities that gave special consideration to low-income communities when siting EV charging equipment were granted 1 bonus point in this year's *Scorecard* for their efforts. Baltimore, Boston, Cleveland, and Oakland earned this bonus.

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

ISSUES IN FOCUS:
Energy-Efficient Transportation Systems and Sustainable Freight Planning

ENERGY-EFFICIENT TRANSPORTATION SYSTEMS

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

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

MEP values vary by city. To obtain generic measures that we could use to compare progress on sustainable mobility across the 100 cities included in this year's *Scorecard*, we calculated the contribution of driving and efficient modes (transit, biking, and walking) to a city's overall MEP. These data are not included in transportation scoring for 2021 but are simply meant to be an informative comparison of how cities are making progress on overall transportation system efficiency.

Table 37 displays the MEP ratios for the 100 evaluated cities. Note that it does not include data for San Juan.

Table 37. MEP scores and ratios for *Scorecard* cities

City	MEP score	Drive score	Combined MEP for efficient modes	Ratio of drive MEP to overall MEP	Ratio of efficient modes MEP to overall MEP
Akron	120.89	102.25	18.49	0.85	0.15
Albuquerque	99.85	75.03	24.66	0.75	0.25
Allentown	67.96	51.23	16.62	0.75	0.24
Atlanta	122.93	111.83	10.99	0.91	0.09
Augusta	51.99	41.30	10.67	0.79	0.21
Aurora	171.73	141.06	30.62	0.82	0.18
Austin	111.36	91.26	19.98	0.82	0.18
Bakersfield	57.71	42.06	15.55	0.73	0.27
Baltimore	116.71	106.02	10.56	0.91	0.09
Baton Rouge	36.76	29.22	7.54	0.79	0.21
Birmingham	77.92	66.04	11.75	0.85	0.15
Boise	80.03	58.19	21.74	0.73	0.27
Boston	144.68	115.92	28.70	0.80	0.20
Bridgeport	85.62	74.37	11.16	0.87	0.13
Buffalo	94.01	74.22	19.73	0.79	0.21

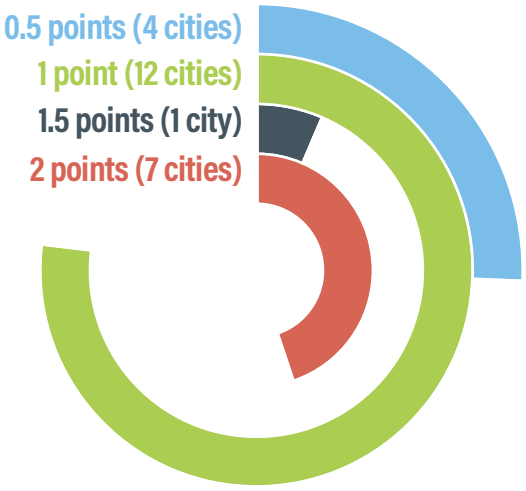
City	MEP score	Drive score	Combined MEP for efficient modes	Ratio of drive MEP to overall MEP	Ratio of efficient modes MEP to overall MEP
Cape Coral	50.52	44.11	6.34	0.87	0.13
Charleston	54.62	45.74	8.78	0.84	0.16
Charlotte	95.18	84.05	11.03	0.88	0.12
Chicago	202.10	162.75	39.26	0.81	0.19
Chula Vista	136.38	117.39	18.88	0.86	0.14
Cincinnati	127.78	112.31	15.37	0.88	0.12
Cleveland	121.68	106.58	14.99	0.88	0.12
Colorado Springs	70.80	54.26	16.43	0.77	0.23
Columbia	67.83	58.23	9.45	0.86	0.14
Columbus	133.65	113.88	19.67	0.85	0.15
Dallas	201.30	181.13	20.04	0.90	0.10
Dayton	137.61	114.06	23.47	0.83	0.17
Denver	171.73	141.06	30.62	0.82	0.18
Des Moines	67.10	50.48	16.53	0.75	0.25
Detroit	182.27	160.51	21.69	0.88	0.12
El Paso	79.61	62.25	17.25	0.78	0.22
Fort Worth	201.30	181.13	20.04	0.90	0.10
Fresno	95.52	70.93	24.47	0.74	0.26
Grand Rapids	114.18	88.38	25.72	0.77	0.23
Greensboro	102.30	83.07	19.15	0.81	0.19
Hartford	101.43	88.51	12.82	0.87	0.13
Henderson	157.79	128.10	29.63	0.81	0.19
Honolulu	55.73	38.24	17.49	0.69	0.31
Houston	175.77	156.26	19.36	0.89	0.11
Indianapolis	106.73	90.56	16.03	0.85	0.15
Jacksonville	91.37	83.27	7.97	0.91	0.09
Kansas City	116.20	100.00	16.08	0.86	0.14
Knoxville	74.85	61.21	13.55	0.82	0.18
Lakeland	55.68	46.97	8.66	0.84	0.16
Las Vegas	157.79	128.10	29.63	0.81	0.19
Little Rock	72.82	59.58	13.16	0.82	0.18
Long Beach	330.34	281.43	48.87	0.85	0.15
Los Angeles	330.34	281.43	48.87	0.85	0.15
Louisville	124.86	103.56	21.24	0.83	0.17
Madison	66.01	46.37	19.63	0.70	0.30
McAllen	42.49	33.81	8.62	0.80	0.20
Memphis	98.27	82.52	15.63	0.84	0.16
Mesa	150.53	130.54	19.87	0.87	0.13
Miami	135.86	119.47	16.29	0.88	0.12
Milwaukee	149.69	115.60	34.02	0.77	0.23
Minneapolis	194.27	166.55	27.63	0.86	0.14
Nashville	96.80	82.58	14.13	0.85	0.15

City	MEP score	Drive score	Combined MEP for efficient modes	Ratio of drive MEP to overall MEP	Ratio of efficient modes MEP to overall MEP
New Haven	79.52	70.20	9.28	0.88	0.12
New Orleans	101.78	71.23	30.55	0.70	0.30
New York	323.65	251.75	71.86	0.78	0.22
Newark	323.65	251.75	71.86	0.78	0.22
Oakland	203.14	146.36	56.74	0.72	0.28
Oklahoma City	114.36	93.72	20.57	0.82	0.18
Omaha	104.64	82.04	22.53	0.78	0.22
Orlando	138.82	124.84	13.85	0.90	0.10
Oxnard	59.71	44.44	15.22	0.74	0.25
Philadelphia	166.84	137.48	29.26	0.82	0.18
Phoenix	150.53	130.54	19.87	0.87	0.13
Pittsburgh	104.62	86.29	18.22	0.82	0.17
Portland	136.93	108.88	27.96	0.80	0.20
Providence	111.41	92.53	18.83	0.83	0.17
Provo	58.95	47.70	11.21	0.81	0.19
Raleigh	71.43	61.81	9.53	0.87	0.13
Reno	25.27	16.27	9.00	0.64	0.36
Richmond	71.70	64.04	7.51	0.89	0.10
Riverside	133.07	117.49	15.48	0.88	0.12
Rochester	93.06	72.67	20.34	0.78	0.22
Sacramento	140.04	115.35	24.57	0.82	0.18
Salt Lake City	128.27	103.62	24.55	0.81	0.19
San Antonio	143.62	120.94	22.58	0.84	0.16
San Diego	148.90	126.26	22.54	0.85	0.15
San Francisco	203.14	146.36	56.74	0.72	0.28
San José	187.66	156.25	31.29	0.83	0.17
Seattle	119.44	94.71	24.65	0.79	0.21
Springfield	67.81	57.16	10.58	0.84	0.16
St. Louis	101.68	89.91	11.64	0.88	0.11
Saint Paul	194.27	166.55	27.63	0.86	0.14
St. Petersburg	102.41	88.96	13.35	0.87	0.13
Stockton	76.91	57.31	19.47	0.75	0.25
Syracuse	77.77	58.10	19.54	0.75	0.25
Tampa	102.41	88.96	13.35	0.87	0.13
Toledo	107.36	85.59	21.69	0.80	0.20
Tucson	93.06	69.24	23.73	0.74	0.25
Tulsa	103.75	82.97	20.64	0.80	0.20
Virginia Beach	39.15	35.54	3.47	0.91	0.09
Washington, D.C.	132.57	111.95	20.49	0.84	0.15
Wichita	79.65	60.63	18.91	0.76	0.24
Winston-Salem	78.82	67.22	11.55	0.85	0.15
Worcester	77.68	62.68	14.89	0.81	0.19

SUSTAINABLE FREIGHT PLANNING

Freight plans are an important tool cities can use to identify opportunities to improve the efficiency of the urban freight system and reduce emissions from the freight sector. The rise of on-demand online retail, accelerated by the COVID-19 pandemic, has meant that cities must take a leading role in ensuring that urban freight deliveries do not worsen congestion or other existing transportation challenges. However, this year's analysis has shown that very few cities have sustainable freight plans in place, as illustrated in figure 24 below. As depicted in table 33, cities with a stand-alone freight or multimodal freight plan containing strategies for increasing efficiency earned 2 points, while cities without a stand-alone plan that have nevertheless pursued multiple freight efficiency strategies were eligible for 1 point, and cities that have pursued at least one freight efficiency strategy were awarded 0.5 points. Cities with a stand-alone plan that contained just one strategy for freight efficiency were given 1.5 points. Just 7 cities out of the 100 evaluated have a stand-alone, multi-strategy sustainable freight planning document. This group includes Atlanta, Long Beach, Los Angeles, New York, Portland, Seattle, and Washington, D.C. An additional 12 cities have incorporated multiple freight efficiency strategies into climate- or transportation-related planning and goal-setting documents. Strategies most frequently considered by cities include specialized lanes for freight traffic, off-peak delivery policies, dynamic curbside management, and investments in facilities to connect multimodal freight options.

Figure 24. Number of cities earning points for sustainable freight planning



Chapter 5. Energy and Water Utilities

Lead Authors: Ariel Drehobl, Kate Tanabe, and Diana Morales

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. This chapter includes metrics that measure clean energy activities across electric and natural gas utilities serving each city, as well as actions cities have taken to move their utilities toward more equitable and impactful clean energy policies and programs.

Cities have differing levels of control over their energy utilities depending on the type of utility. Cities served by municipally owned electric and natural gas utilities (munis) generally have some influence over the level of investment and the types of efficiency programs they offer. Municipal utility efficiency programs often work in tandem with local policies and sustainability or climate plans. In contrast, local governments served by investor-owned utilities (IOUs) have less influence over utility programs and operations because they 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 that want to influence IOU clean energy policies can often become formal participants in state-level regulatory proceedings that determine utility energy efficiency goals; this gives them the opportunity to advocate for improvements and expansion of programs that better serve their communities. They can also ask that municipal and community-wide energy efficiency and renewable energy goals be accounted for in long-term resource plans. Finally, they can partner with utilities to promote ratepayer-funded programs, assist in reaching shared targets, and leverage utility resources for city-funded programs. By partnering with utilities on program development and more, cities can help to align utility incentives with local policy goals.

Cities and utilities also have the opportunity to increase their clean energy production from renewable sources. As of spring 2021, more than 170 cities and towns had committed to transition to 100% clean, renewable energy, and more than 50 communities are currently powered by 100% renewable energy, including cities in Alaska, California, Colorado, Kansas, Missouri, and Texas (Sierra Club 2021). To meet these commitments, many cities are working with their energy utilities to procure and move toward renewable and carbon-free generation.

Furthermore, many utilities have a long history of designing and implementing programs to reach traditionally underserved markets, such as customers with lower incomes or residents of multifamily buildings (Samarripas and York 2019). Cities can partner with utilities to better serve low-income and marginalized households; they can also champion

partnerships that are defined and driven by community-based organizations and the residents they represent. As discussed earlier in this *Scorecard*, marginalized groups such as low-income households, people of color, older adults, and renters pay a greater percentage of their income on energy bills than the median household nationally and across metro areas (Drehobl, Ross, and Ayala 2020). Energy efficiency programs can help alleviate this high burden, especially those designed through equitable procedural practices, such as in partnership with affected communities.

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

SCORING

We scored cities 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 25.

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

RESULTS

Boston was the only city to earn the full 15 points available in this chapter. San José earned the second-highest number of points with 14. Chicago, Los Angeles, Minneapolis, Oakland, San Francisco, and Washington, D.C., tied for third with 13.5 out of 15 points. These high-scoring cities and the utilities serving them did well across all the energy efficiency, decarbonization, climate change mitigation, and water efficiency metrics. Only Boston and Providence earned maximum points in the efficiency efforts of energy utilities; 10 cities earned maximum points for decarbonization efforts, including Boston, Denver, Hartford, Los Angeles, Minneapolis, Portland, Sacramento, Saint Paul, Seattle, and Springfield; and 10 cities earned maximum points for water services, including Aurora, Austin, Boston, Chicago, Chula Vista, Los Angeles, New York, Saint Paul, San Diego, and San José.

Figure 25. Energy and water utilities scoring overview

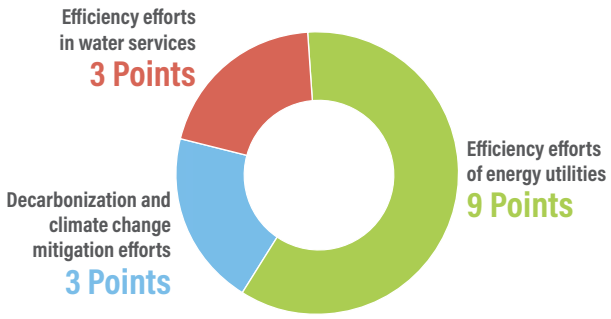


Table 38 lists the scores for energy and water utilities. Subsequent tables within this chapter show how we allocated points for individual metrics within these categories. Appendixes E and F provide more detailed scoring information on each metric.

Table 38. Energy and water utilities scores

City	Efficiency efforts (9 pts)	Decarbonization efforts (3 pts)	Water services (3 pts)	Total (15 pts)
Boston	9	3	3	15
San José	8.5	2.5	3	14
Chicago	8	2.5	3	13.5
Los Angeles	7.5	3	3	13.5
Minneapolis	8	3	2.5	13.5
Oakland	8.5	2.5	2.5	13.5
San Francisco	8.5	2.5	2.5	13.5
Washington, D.C.	8.5	2.5	2.5	13.5
Denver	7.5	3	2.5	13
Providence	9	2	2	13
Saint Paul	7	3	3	13
Chula Vista	7	2.5	3	12.5
Grand Rapids	7.5	2.5	2.5	12.5
New York	7	2.5	3	12.5
San Diego	7	2.5	3	12.5
Hartford	6.5	3	2.5	12
Aurora	7	1.5	3	11.5
Portland	7	3	1.5	11.5
Seattle	6	3	2	11
Columbus	6	2	2.5	10.5
Sacramento	6	3	1.5	10.5
Albuquerque	5	2.5	2	9.5
Bakersfield	8	1	0.5	9.5
Baltimore	6	2.5	1	9.5
Fresno	8	1	0.5	9.5
Riverside	5.5	1.5	2.5	9.5
Salt Lake City	5	2.5	2	9.5
Springfield	6.5	3	0	9.5
Worcester	7	2	0.5	9.5
Honolulu	5	1.5	2.5	9
Madison	5.5	2	1.5	9
Oxnard	6	2.5	0.5	9
Philadelphia	5.5	2	1.5	9
Phoenix	4.5	2	2.5	9
Austin	3.5	2	3	8.5
Cleveland	4	2	2.5	8.5
Stockton	7	1	0.5	8.5
Atlanta	4	1.5	2.5	8
Buffalo	5.5	1	1.5	8
Boise	3	2.5	2	7.5
Houston	4	2.5	1	7.5
New Haven	4.5	2	1	7.5

City	Efficiency efforts (9 pts)	Decarbonization efforts (3 pts)	Water services (3 pts)	Total (15 pts)
Charlotte	3.5	1.5	2	7
Indianapolis	4	2.5	0.5	7
Knoxville	2.5	2	2.5	7
Long Beach	4	1	2	7
Milwaukee	3.5	2	1.5	7
Pittsburgh	5.5	0	1.5	7
Detroit	5	1	0.5	6.5
Kansas City	4.5	1	1	6.5
Rochester	4	2.5	0	6.5
St. Louis	5	1	0.5	6.5
Syracuse	6	0.5	0	6.5
Cincinnati	2.5	2	1.5	6
Nashville	2.5	2	1.5	6
Orlando	2.5	1	2.5	6
Raleigh	2.5	1	2.5	6
Bridgeport	4	1.5	0	5.5
Des Moines	4	0.5	1	5.5
Memphis	2.5	2	1	5.5
San Antonio	2.5	1.5	1.5	5.5
Tulsa	3.5	0.5	1.5	5.5
Dayton	3.5	1.5	0	5
El Paso	0.5	2	2.5	5
Las Vegas	1.5	1	2.5	5
Mesa	5	0	0	5
Toledo	4	0.5	0.5	5
Winston-Salem	2	1	2	5
Fort Worth	2	0.5	2	4.5
Dallas	2.5	0.5	1	4
Louisville	1	1	2	4
Akron	2	0.5	1	3.5
Allentown	2	0.5	1	3.5
New Orleans	2	1.5	0	3.5
Newark	2	1.5	0	3.5
Richmond	1.5	1.5	0.5	3.5
Miami	1	1.5	0.5	3
St. Petersburg	1.5	1.5	0	3
Augusta	2	0.5	0	2.5
Columbia	1.5	0.5	0.5	2.5
Little Rock	1.5	1	0	2.5
Oklahoma City	1.5	0.5	0.5	2.5
Virginia Beach	0.5	1	1	2.5
Charleston	1.5	0.5	0	2
Colorado Springs	1.5	0	0.5	2

City	Efficiency efforts (9 pts)	Decarbonization efforts (3 pts)	Water services (3 pts)	Total (15 pts)
Greensboro	1.5	0.5	0	2
Jacksonville	1	0	1	2
Tampa	2	0	0	2
Tucson	2	0	0	2
Wichita	1	0.5	0	1.5
Baton Rouge	0	1	0	1
Henderson	1	0	0	1
McAllen	0.5	0.5	0	1
Provo	0.5	0	0.5	1
Birmingham	0	0.5	0	0.5
Cape Coral	0.5	0	0	0.5
Lakeland	0.5	0	0	0.5
Reno	0.5	0	0	0.5
Omaha	0	0	0	0
San Juan	0	0	0	0

Leading Cities

Boston. Eversource Energy and National Grid are the energy utilities that serve Boston, which earned the highest score for this chapter. Both utilities achieve among the highest electric and natural gas energy efficiency savings in the *Scorecard*. Massachusetts is served by the Low-Income Energy Affordability Network (LEAN), an association of community action agencies, public and private housing owners, government organizations, and public utilities that work together to provide low-income efficiency solutions in the state. LEAN offers comprehensive and consistent low-income and multifamily programs to households in the Boston metro area. Also, Eversource Energy set a goal to be carbon neutral by 2030, an ambitious goal requiring 9% average annual emissions reductions over the next nine years. In addition, Boston recently enabled community choice aggregation for its residents, including one option for 100% renewable energy.

San José. Pacific Gas & Electric (PG&E), the electric and natural gas utility serving San José, achieved high electric and natural gas savings in 2019. It offers comprehensive low-income efficiency programs that include health measures, as well as multifamily programs that provide comprehensive services to low-income households. The city administers the Silicon Valley Energy Watch, a PG&E ratepayer-funded program that provides energy efficiency resources and programs, as directed by the California Public Utility Commission. PG&E set a goal to achieve carbon neutrality by 2045, which will require 3.7% average annual emissions reductions from 2019 levels through 2045. San José received full credit for water efficiency metrics, due to the efficiency efforts of the San José Municipal Water System, PG&E's rebates for water-saving devices, and the water utility's self-generation efforts.

EFFICIENCY EFFORTS OF ENERGY UTILITIES

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 independent, statewide program administrators—have a long record of delivering energy and cost savings to residential, commercial, and industrial customers (Nowak, Kushler, and Witte 2019). Investments in these programs have increased steadily over the past decade, reaching $8.3 billion annually in 2019 (Berg et al. 2020).

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

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)
- Equitable city, utility, and community partnership (1 bonus point)
- Low-income and multifamily efficiency programs (2.5 points)
- Provision of energy data by utilities (2 points)

3 points

2 points

Electricity Efficiency Savings

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. For nonmunicipal utilities, this typically encompasses more than just the city itself. 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.[36] Unless otherwise noted, we retrieved data on 2019 electric efficiency program savings and total sales as well as information on city–utility partnerships through data requests that we sent to both utility and city staff.

A city's ability to influence program savings and to require an energy utility to save energy depends on whether the utility is municipally owned or investor owned. While levels of control and influence vary, cities generally have less direct control over energy savings of IOUs.[37]

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 (using tiered amounts to score achieved savings) and 1 point for city–utility partnerships. For cities served by a muni, we awarded up to 3 points for electricity savings. See table 39, on the next page, for more details on scoring.

Our scoring for electricity savings was based on the net annual incremental savings from efficiency programs as a percentage of total electricity sales for the primary electric utility serving the most customers in the city. Unless otherwise noted, we collected data on 2019 electricity efficiency program savings and total retail sales, and we scored the utilities on net meter savings data.[38] In cases where utilities reported gross data, we applied a standard factor of 0.825 to convert gross savings to net savings (a net-to-gross ratio).[39] Detailed information about electricity savings is included in table F9 in Appendix F, which indicates whether each city is served by an IOU or a muni.

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

37 We treated Entergy New Orleans as a muni because it is an IOU regulated by the New Orleans City Council. Similarly, we treated Pepco and Washington Gas as munis because the D.C. 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.

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

39 We based the 0.825 net-to-gross factor on the 2019 median net-to-gross electricity savings ratio calculated from states that reported figures for both net and gross savings for *The 2020 State Energy Efficiency Scorecard* (Berg et al. 2020). These included Colorado, Connecticut, Delaware, District of Columbia, Illinois, Maryland, Missouri, Montana, Nevada, New York, North Carolina, Pennsylvania, Oklahoma, Oregon, Tennessee, Utah, West Virginia, and Wisconsin.

1.5 points

Natural Gas Efficiency Savings

The number of utilities offering natural gas efficiency programs and the budgets for such programs have risen considerably in recent years (Berg et al. 2020). 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 each city.[40] Although we scored electric IOUs and munis differently, we did not score the 10 cities with municipal gas utilities differently from those with IOU gas utilities.

Unless otherwise noted, we retrieved data on natural gas savings from utility data requests, and we retrieved data on 2019 retail sales from the EIA-176 form for all utilities (EIA 2019b).[41] 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 0.846.[42] Detailed information about natural gas savings is included in table F10 in Appendix F.

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.

1 point (bonus)

Equitable City, Utility, and Community Partnerships

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

Cities with both IOUs and munis could earn 1 bonus point if the city *and* utility are working in partnership with at least one community-based organization (CBO) through a formal strategy, partnership, or program in which the CBO specifically defines and drives policies or programs to direct clean energy resources to households in marginalized communities. To receive this bonus point, cities needed to provide details showing that their partnership includes the following elements: 1) at least one CBO working to define and drive the outcomes of the partnership, 2) at least one CBO with decision-making power to impact the outcome of the partnership (i.e., with involvement in the development of the policy or program from the beginning), and 3) accountability measures to ensure that the desired outcomes are met. In this year's *Scorecard*, no cities earned credit for this metric. We are hopeful that, in coming years, more cities and utilities will develop equity-driven processes in which CBOs define and drive outcomes for clean energy policies and programs.

2.5 points

Low-Income and Multifamily Efficiency Programs

Low-income households and those living in multifamily buildings are often underserved by utility programs. To make their offerings accessible to more of their customers, many utilities design and implement programs that specifically target these households, though those programs have varying levels of reach, and impact.

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

41 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.

42 We based the 0.846 net-to-gross factor for gas savings on the median 2019 net-to-gross ratio calculated from states that reported both net and gross natural gas savings for *The 2020 State Energy Efficiency Scorecard* (Berg et al. 2020). These states were Connecticut, Delaware, District of Columbia, Maryland, Massachusetts, Montana, Oklahoma, Oregon, Pennsylvania, and Wisconsin.

Residential efficiency programs generally involve rebates or behavioral strategies, but these are not always well suited to low-income or multifamily markets due to older housing stock that requires whole-building weatherization improvements. Therefore, 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 (Hayes, Kubes, and Gerbode 2020).

Multifamily buildings present opportunities for substantial energy savings. Cost-effective energy efficiency upgrades for apartments and condominiums that fall in the top 25% of multifamily energy users have the potential to reduce multifamily residential energy use across the United States by approximately 17% and save residents $3 billion annually in energy costs (Samarripas and Tanabe 2020). Even with this potential, these buildings have been historically underserved by traditional energy efficiency programs, most of which are designed for owner-occupied, single-family homes.

In multifamily buildings there are often split incentives between renters and building owners regarding who pays for energy and who pays for efficiency upgrades. If the renter pays for energy, the owner has less incentive to lower those costs through energy efficiency upgrades. If the owner pays for energy, then the tenant has less incentive to use less of it. Program implementers often design programs specifically to address these split incentives and provide multiple benefits to both residents and building owners. These include reduced maintenance costs; improved appliance and equipment performance; increased property value and building durability; and enhanced tenant health, safety, and comfort (Samarripas and York 2019).

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 they serve 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.

2 points

Provision of Energy Data by Utilities

Information about energy consumption enables better energy management in residential and commercial buildings. Household, whole-building, and community-wide utility data can also be used to better target efficiency programs and to carry out evaluations. Utilities are critical partners in providing customers, building owners, and local planners with energy consumption data in a usable format via a delivery mechanism appropriate for the user's needs. In this section, cities could earn up to 2 points across three metrics for the accessibility of energy usage data from their electric and gas utilities. Detailed scores for the provision of energy data by utilities are provided in table F13 in Appendix F.

Table 39 summarizes the scoring for efficiency efforts of energy utilities, and table 40 lists the scores. Table E16 in Appendix E provides more detailed scores.

Table 39. Scoring for efficiency efforts of energy utilities

Electric efficiency savings as a percentage of sales	Score	
	Munis	IOUs
2% or greater*	3	2
1.75–1.99%	2.5	1.5
1.50–1.74%	2	1.5
1.25–1.49%	1.5	1
1.00–1.24%	1	1
0.50–0.99%	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
Equitable city, utility, and community partnerships (bonus point)	**Munis**	**IOUs**
City and utility are working with at least one community-based organization through a formal strategy, partnership, or program that specifically defines and drives clean energy resources to households in marginalized communities.	1	1
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 (1.5 max)**	**IOUs (1.5 max)**
Electric and/or natural gas utility offers a portfolio of low-income programs (i.e., more than one program), including at least one comprehensive program, to specifically address low-income customer needs.***	0.5	0.5
Electric and/or natural gas utility braids funds with other sources for one or more of its low-income programs to cover health and safety and other program costs.	0.5	0.5
Electric and/or natural gas utility includes health-related measures in its low-income program.	0.5	0.5
Local government contributes funds toward local weatherization providers or other low-income energy efficiency efforts (excluding financing programs).	0.5	N/A
Multifamily energy efficiency	**Munis and IOUs**	
Electric and/or natural gas utility offers multifamily customers a comprehensive energy efficiency program that focuses on whole-building improvements.****	0.5	
Electric and/or natural gas utility offers 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 its utilities or has established a data-sharing agreement with them.	0.5	
Community energy data	**Munis and IOUs**	
City and/or energy utility has made community-wide, aggregated energy usage information for both electric and natural gas publicly available for community planning and evaluation purposes in the past five years.	1	
City has requested community-wide energy usage data for both electricity and natural gas but has not received it from the energy utility, OR the city has community-wide energy usage data for internal planning purposes but does not make these data publicly available.	0.5	

*Highest electricity savings was 3.28% for Worcester (National Grid MA). **Highest natural gas savings was 2.84% 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 in common areas and individual units.

Table 40. Efficiency efforts of energy utilities scores (out of 9 possible points)

Boston (9)	Oxnard (6)	Rochester (4)	Charleston (1.5)
Providence (9)	Sacramento (6)	Toledo (4)	Colorado Springs (1.5)
Oakland (8.5)	Seattle (6)	Austin (3.5)	Columbia (1.5)
San Francisco (8.5)	Syracuse (6)	Charlotte (3.5)	Greensboro (1.5)
San José (8.5)	Buffalo (5.5)	Dayton (3.5)	Las Vegas (1.5)
Washington, D.C. (8.5)	Madison (5.5)	Milwaukee (3.5)	Little Rock (1.5)
Bakersfield (8)	Philadelphia (5.5)	Tulsa (3.5)	Oklahoma City (1.5)
Chicago (8)	Pittsburgh (5.5)	Boise (3)	Richmond (1.5)
Fresno (8)	Riverside (5.5)	Cincinnati (2.5)	St. Petersburg (1.5)
Minneapolis (8)	Albuquerque (5)	Dallas (2.5)	Henderson (1)
Denver (7.5)	Detroit (5)	Knoxville (2.5)	Jacksonville (1)
Grand Rapids (7.5)	Honolulu (5)	Memphis (2.5)	Louisville (1)
Los Angeles (7.5)	Mesa (5)	Nashville (2.5)	Miami (1)
Aurora (7)	Salt Lake City (5)	Orlando (2.5)	Wichita (1)
Chula Vista (7)	St. Louis (5)	Raleigh (2.5)	Cape Coral (0.5)
New York (7)	Kansas City (4.5)	San Antonio (2.5)	El Paso (0.5)
Portland (7)	New Haven (4.5)	Akron (2)	Lakeland (0.5)
Saint Paul (7)	Phoenix (4.5)	Allentown (2)	McAllen (0.5)
San Diego (7)	Atlanta (4)	Augusta (2)	Provo (0.5)
Stockton (7)	Bridgeport (4)	Fort Worth (2)	Reno (0.5)
Worcester (7)	Cleveland (4)	New Orleans (2)	Virginia Beach (0.5)
Hartford (6.5)	Des Moines (4)	Newark (2)	Baton Rouge (0)
Springfield (6.5)	Houston (4)	Tampa (2)	Birmingham (0)
Baltimore (6)	Indianapolis (4)	Tucson (2)	Omaha (0)
Columbus (6)	Long Beach (4)	Winston-Salem (2)	San Juan (0)

DECARBONIZATION AND CLIMATE CHANGE MITIGATION 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. Renewable portfolio standards exist in 30 states and the District of Columbia and Puerto Rico, which account for 58% of total U.S. retail electricity sales. In addition, seven states and the District of Columbia and Puerto Rico enacted laws in 2019 to require that at least 50% of their electricity come from renewable sources (Barbose 2021).

As discussed in the Issues in Focus section following this chapter, utilities are setting goals to reduce GHG emissions and climate impacts; in fact, utilities with carbon or emissions reduction goals serve 71% of customer accounts in the United States (SEPA 2021). These commitments indicate that the transition to a cleaner electrical system is already underway, and cities can help accelerate this process through policies and actions.

In this category we scored cities on:

- City-led efforts to decarbonize the electric grid (1.5 points, IOUs only)
- Electric utility carbon emissions per capita (1.5 points, munis only)
- Electric utility emissions reduction goal stringency (1.5 points)

1.5 points

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

Cities can influence the decarbonization 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. City actions can include regulatory involvement or participation in public utility commission proceedings on topics such as net metering and other distributed generation rate design practices, as well as creation of city–utility partnerships or other engagement to increase the use of renewables.

Some cities have enacted community choice aggregation (CCA) programs, which allow local governments to procure clean power on behalf of their communities from an alternative supplier while still using the transmission and distribution services of the existing utility provider. CCAs allow cities to procure more green and renewable power to help meet climate goals and achieve cost savings (Dewey and Henner 2021). Nine states—California, Illinois, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Rhode Island, and Virginia—have enacted CCA legislation, though no cities in New Hampshire or Virginia have active programs yet (Lean Energy US 2020).

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 are involved in or have submitted comments relating to public utility commission proceedings on renewable energy to encourage more distributed renewable development. Second, they could earn 0.5 points if they have a formal partnership with the electric energy utility in the form of a jointly developed or administered renewable energy strategy, plan, or agreement to promote renewable energy initiatives. Third, cities could earn 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, they 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 have introduced legislation to enable a CCA but it has not yet passed. Unless otherwise noted, we retrieved data on city efforts from the data requests completed by city staff. Table F14 in Appendix F has more information on city-led efforts to decarbonize the electric grid.

1.5 points

Electric Utility Carbon Emissions per Capita (Munis)

Since cities with munis have more control over their utilities' renewable generation and GHG emissions, they received points based on GHG emissions per capita from their electric utility rather than on actions to move toward a decarbonized grid. Cities with munis earned up to 1.5 points based on 2019 GHG emissions per capita from electric generation, unless otherwise noted. Table F15 in Appendix F has more information on municipal utilities' emissions per capita in 2019.

1.5 points

Electric Utility Emissions Reduction Goal Stringency

Cutting utility emissions is crucial for cities to achieve climate goals, and more than 70 utilities have set carbon reduction goals to date. For this metric, cities could earn up to 1.5 points based on the stringency of their electric utility's GHG goal. If the electric utility was not able to provide baseline GHG emissions and/or current GHG emissions data allowing us to assess the stringency of its goal, the city and utility did not receive points. Utilities reporting that at least 90% of their electricity is generated from renewable or carbon-free energy sources received 1.5 points in lieu of credit for goal stringency. Table F16 in Appendix F has more details on electric utility emissions reduction goals.

Figure 26 summarizes the scoring, and table 41 lists the scores for energy utilities' renewable efforts. Detailed scoring on IOU efforts to decarbonize the electric grid is included in table E17 of Appendix E.

Figure 26. Scoring for renewable energy efforts of energy utilities

SCORING FOR DECARBONIZATION EFFORTS OF UTILITIES

CITIES CAN EARN UP TO 3 POINTS IN THIS CATEGORY.

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

✓ The remaining 1.5 points are earned based on the stringency of electric utility emissions

FIRST, CITIES EARN UP TO 1.5 POINTS BASED ON THEIR TYPE OF UTILITY:

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

CITIES CAN EARN UP TO 1.5 POINTS THROUGH ANY COMBINATION OF METRICS BELOW.

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

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

CITIES CAN EARN UP TO 1.5 POINTS BASED ON THE METRICS BELOW.

1.5 POINTS	< 5,000 metric tons CO_2e
1 POINT	5,000—9,999 metric tons CO_2e
0.5 POINTS	10,000—20,000 metric tons CO_2e
0 POINTS	> 20,000 metric tons CO_2e or lack of data to score

THEN CITIES CAN ADD UP TO 1.5 ADDITIONAL POINTS FOR THEIR UTILITY EMISSION GOALS FOR A TOTAL OF UP TO 3 POINTS:

Electric utility emission goal stringency**

CATEGORY TOTAL OF UP TO 3 POINTS

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

** This includes scope 1 and 2 emissions from electric generation. Lowest electric utility GHG emissions scored were 2.1 CO_2e per capita from LADWP.*

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

**** Utilities reporting that at least 90% of their electricity was generated from renewable or carbon-free energy sources received 1.5 points in lieu of credit for the stringency of an electric utility GHG emissions goal.*

Table 41. Decarbonization and climate change mitigation efforts scores (out of 3 possible points)

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

EFFICIENCY EFFORTS IN WATER SERVICES

Energy and water are inextricably linked; reducing water use can also reduce energy use. Regardless of climate zone, water services use a great deal of energy at a substantial cost to local governments and citizens. Water treatment plants use energy for sourcing, moving, treating, heating, collecting, and disposing of water, and households use energy for water heating. 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 as much as 40% of total energy consumed (EPA 2021b). Nationally, drinking water and wastewater plants account for approximately 3–4% of energy use; this represents $4 billion in expenditures and 45 million tons of GHG emissions annually (EPA 2021b, 2021e). Municipalities and utilities can cut 15–30% of their energy use through energy efficiency upgrades that save thousands of dollars, with payback periods of only a few months to a few years (EPA 2021b). Reducing energy use by 10% equates to about $400 million in annual savings for water and wastewater utilities (EPA 2021b).

For example, in California, energy use by water treatment plants—including the sourcing, moving, treating, heating, collecting, and disposing of water—accounts for an estimated 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. At drinking water plants, 80% of all energy is used to operate motors for pumping; at wastewater plants, most energy goes toward aeration, pumping, and solids processing (Copeland and Carter 2017). These utilities can save energy by improving pumps and motors and can generate energy for use onsite through the processing of

wastewater. They can also reduce energy consumption by lowering water consumption (Berg and Ribeiro 2018). Further, energy utilities can 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, water utilities are independent agencies serving a region. A single city may have multiple utilities providing drinking water supply and distribution, wastewater management and treatment, and stormwater management. Local governments can take advantage of the opportunities for water and energy efficiency by partnering with the independent or municipal water utilities that serve them.

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

In this category we scored cities on:

- Joint energy–water programs (0.5 point)
- Water-saving strategy (0.5 point)
- Water utility energy efficiency programs (1 point)
- Water utility energy recovery and renewables (1 point)

0.5 points

Joint energy-water programs

Cities received 0.5 points for this metric if the local water utility and/or energy utility provides deep water-saving measures alongside energy-saving measures. To earn credit, the program must offer water efficiency measures that go beyond faucet aerators and water-saving kits and must involve direct installation and/or rebates for measures such as efficient toilets, washing machines, dishwashers, water heaters, shower heads, irrigation systems, and leak repairs.

0.5 points

Water savings strategy

Cities received 0.5 points for this metric if the local water or wastewater utility has established a formal water savings target or long-term strategy for reducing community-wide water use. We do not include nonrevenue water goals in our scoring.

1 point

Water utility energy efficiency programs

We awarded 1 point if at least one drinking water or wastewater utility serving the city has adopted a strategic and comprehensive energy management approach. To earn 1 point, water utilities must incorporate both capital improvements (e.g., equipment replacement and building shell upgrades) and operational improvements (e.g., active energy management, audits, and retrocommissioning), and provide data on results of their completed retrofit projects, such as the number of buildings that have undergone retrofits or cost of energy savings). The city earned 0.5 points if a water utility has developed an energy management strategy but has not moved forward with improvement projects, OR if a water utility has conducted one-off energy-saving measures.

1 point

Water utility energy recovery and renewables

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

Table 42 summarizes the scoring, and table 43 lists scores for energy efficiency in water services. Table E18 in Appendix E provides more detailed scores.

Table 42. Scoring for energy efficiency in water services

Joint energy–water programs	Score
The local water utility and/or energy utility provide deep water-saving measures streamlined with energy-saving measures. Note efficiency measures considered here go beyond faucet aerators and water-saving kits and must involve direct installation and/or rebates for measures such as efficient toilets, washing machines, dishwashers, water heaters, shower heads, irrigation systems, and leak repairs.	0.5
Water savings strategy	
City or local water or wastewater utility has established a formal water savings target or long-term strategy for reducing community-wide water use.	0.5
Water utility energy efficiency programs	
At least one drinking water or wastewater utility serving the city has adopted a strategic and comprehensive energy management approach.	1
Water utility reported having retrofit strategies but did not provide data indicating that projects have been completed, OR water utility has conducted one-off energy-saving measures.	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

Table 43. Efficiency efforts in water services scores (out of 3 possible points)

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

ISSUE IN FOCUS:
Electric Utility Greenhouse Gas Emissions Goal Stringency

To achieve their carbon goals, cities will need their energy utilities to move toward lower-carbon or carbon-free energy production. In 2020 the electric power sector accounted for about one-third of total U.S. energy-related CO_2 emissions, which positions utilities to have a prominent and impactful role in reducing GHG emissions through their resource planning processes (EIA 2021). Many utilities have begun setting ambitious carbon emissions reduction goals. As of April 2021, more than 70 utilities across the United States had publicly stated such goals, and almost 50 utilities have set goals to be carbon free or reach net zero emissions by 2050 (SEPA 2021). Some utilities have set more ambitious goals than others, with target dates for achieving carbon-free energy as early as 2030.

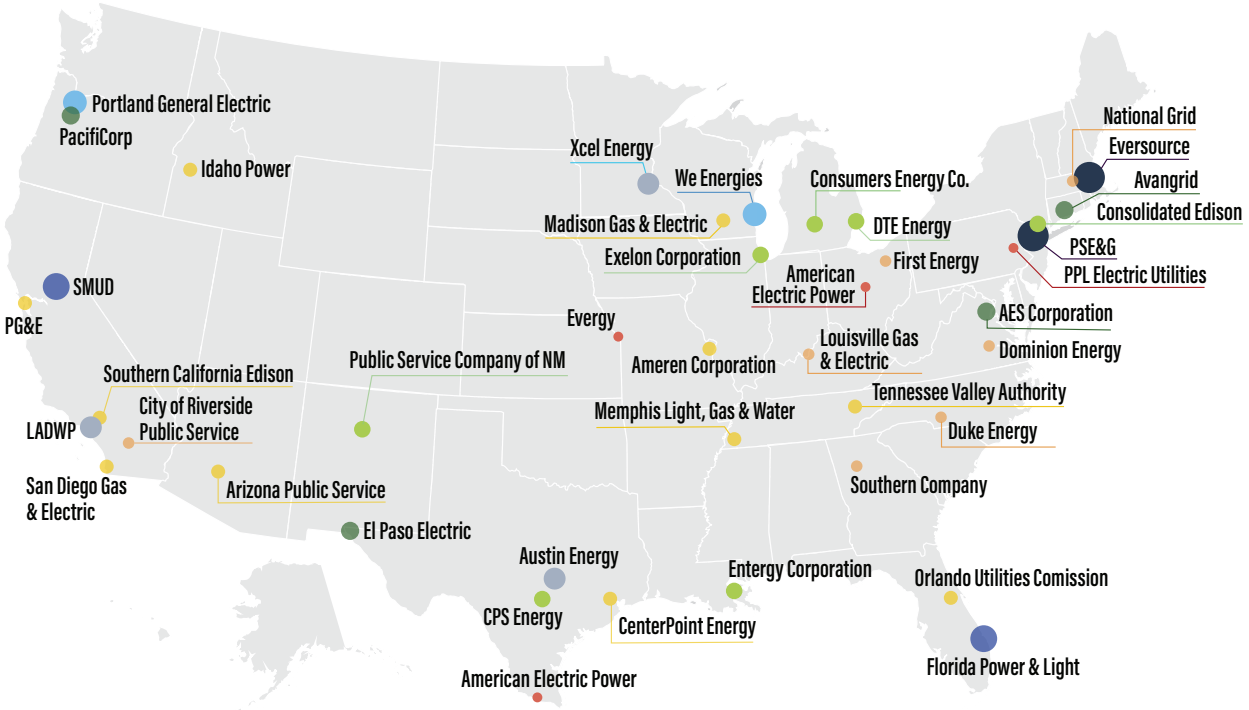
We awarded points based on the ambition and stringency of these goals. Eversource Energy and Public Service Enterprise Group (PSE&G) had the most ambitious and stringent emissions reduction goals, committing to achieving carbon-free energy by 2030. Reaching this goal will require annual emissions reductions averaging 9.1%. The utilities with the next most stringent goals include Florida Power and Light (8.6% annual reduction), Sacramento Municipal District (SMUD, 8.3%) and We Energies (7.7%). Figure 27 illustrates the stringency of electric utility carbon reduction goals for utilities included in the *Scorecard*.

Out of the 76 electric utilities scored, 11 do not yet have a carbon emissions reduction goal in place. Of those with goals, we were unable to score four utilites due to a lack of data, and one utility, Seattle City Light, has already achieved more than 90% electricity generation from carbon-free sources. We scored the most short-term goal for each utility. Overall, 21 electric utilities had interim carbon emission reduction goals along with longer-term goals.[43] About half of the utilities had goals and/or interim goals with target years before 2040, with the other half focused on 2040, 2045, or 2050 targets.

We will work to track progress toward achieving these goals in future editions of the *Scorecard*. As of 2021, the 79 largest operating utility companies had plans in place to add 250 million megawatt-hours (MWh) of clean energy, which would account for only 19% of current coal and gas generation (Romankiewicz, Bottorff, and Stokes 2021). This suggests that most utilities are not on track to meet their carbon reduction goals and will need to take more action over the next decade and beyond to achieve carbon neutrality.

43 The 21 utilities whose interim goals we scored were: American Electric Power, Ameren, Arizona Public Service, CSP Energy, DTE Energy, Duke Energy, El Paso Electric, Entergy New Orleans, FirstEnergy, Madison Gas and Electric, National Grid, Orlando Utilities Commission, PacifiCorp, Portland General Electric, PPL Electric Utilities, PSE&G, Salt River Project, Southern Company, Tennessee Valley Authority, We Energies, and Xcel Energy.

Figure 27. Electric utility GHG goal stringency for the electric utilities scored in the *City Scorecard*; map shows headquarters locations



Utility emissions reduction goals (% reduction needed per year to achieve goal)

9–9.9% Eversource PSE&G	**Utility Goal:** 100% from 1990 levels by 2030 100% from 2005 levels by 2030
8–8.9% Florida Power & Light SMUD	**Utility Goal:** 67% from 2005 levels by 2025 100% from 2013 levels by 2030
7–7.9% We Energies Portland General Electric	**Utility Goal:** 60% from 2005 levels by 2025 80% from 2010 levels by 2030
6–6.9% Austin Energy LADWP Xcel Energy	**Utility Goal:** 100% from 2005 levels by 2035 100% from 1990 levels by 2035 80% from 2005 levels by 2030
5–5.9% Avangrid PacifiCorp El Paso Electric AES Corporation	**Utility Goal:** 100% from 2017 levels by 2035 60% from 2005 levels by 2030 25% from 2015 levels by 2025 70% from 2016 levels by 2030
4–4.9% Consolidated Edison Consumers Energy Co. Public Service Company of NM DTE Energy Entergy Corporation Exelon Corporation CPS Energy	**Utility Goal:** 100% from 2014 levels by 2040 100% from 2005 levels by 2040 100% from 2017 levels by 2040 32% from 2005 levels by 2023 50% from 2000 levels by 2030 15% from 2015 levels by 2022 80% from 2016 levels by 2040
3–3.9% San Diego Gas & Electric Idaho Power Ameren Corporation PG&E Southern California Edison CenterPoint Energy Orlando Utilities Comission Tennessee Valley Authority Memphis Light, Gas & Water Arizona Public Service Madison Gas & Electric	**Utility Goal:** 100% from 2016 levels by 2045 100% from 2005 levels by 2045 50% from 2005 levels by 2030 100% from 2017 levels by 2045 100% from 2017 levels by 2045 70% from 2005 levels by 2035 50% from 2005 levels by 2030 70% from 2005 levels by 2030 70% from 2005 levels by 2030 100% from 2005 levels by 2050 40% from 2005 levels by 2030
2–2.9% First Energy City of Riverside Public Service Southern Company National Grid Duke Energy Dominion Energy Louisville Gas & Electric	**Utility Goal:** 30% from 2019 levels by 2030 486,277 MMT CO_2% from 1990 levels by 2030 50% from 2007 levels by 2030 80% from 1990 levels by 2030 50% from 2005 levels by 2030 80% from 2005 levels by 2050 70% from 2010 levels by 2040
0–1.9% PPL Electric Utilities Evergy American Electric Power	**Utility Goal:** 70% from 2010 levels by 2040 80% from 2005 levels by 2050 80% from 2000 levels by 2030

Chapter 6. Local Government Operations

Lead Authors: Amanda Dewey, Alexander Jarrah, and Sagarika Subramanian

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 their 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 will enhance clean energy use throughout local government operations, and inclusive contracting and procurement practices can help cities to achieve equity as they pursue their energy goals.

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. Successful efforts not only will save energy and money but can also attract private sector investment by demonstrating the feasibility of clean energy technologies and practices.

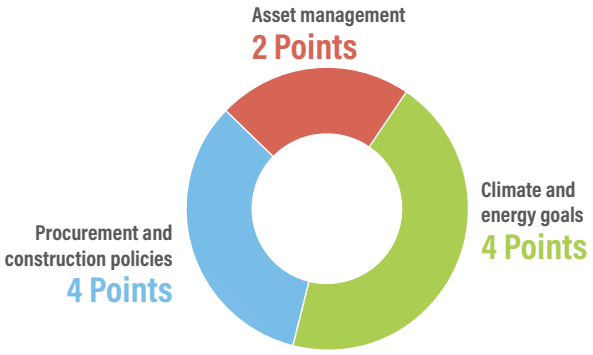
Energy efficiency and renewable energy investments can benefit local governments in several ways. When local governments pursue energy efficiency upgrades, they lead by example while reducing energy waste, increasing operational efficiency, and improving economic performance. With energy use accounting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

SCORING

Cities could earn up to 10 points for local government operations, as shown in figure 28.

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

Figure 28. Local government operations scoring overview



RESULTS

Boston, Orlando, Portland, and San Francisco are the leading cities in local government operations, tying for first place. Overall, though cities have significant room for growth in all categories, they earned the highest share of available points for their procurement and construction policies. Asset management strategies tend to be the second-highest-scoring areas for cities; few earned points for climate and energy goals.

Table 44 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 44. Local government operations scores

City	Climate and energy goals (4 pts)	Procurement and construction policies (4 pts)	Asset management (2 pts)	Total (10 pts)
Boston	2	3.5	2	7.5
Orlando	2	3.5	2	7.5
Portland	3.5	2.5	1.5	7.5
San Francisco	2.5	3	2	7.5
Los Angeles	2	3	1.5	6.5
Minneapolis	1.5	3.5	1.5	6.5
Oakland	2.5	3	1	6.5
Providence	2.5	2.5	1.5	6.5
Seattle	2.5	2	2	6.5
Austin	1	3	2	6
Las Vegas	2.5	2.5	1	6
San Antonio	1.5	2	2	5.5
Washington, D.C.	3	1.5	1	5.5
Albuquerque	0.5	2.5	2	5
Hartford	0	3	2	5
Madison	1	2.5	1.5	5
New York	0.5	2.5	2	5
Philadelphia	1.5	1.5	2	5
Boise	2.5	1.5	0.5	4.5
Chula Vista	0	3	1.5	4.5
Houston	2	2	0.5	4.5
Kansas City	2	1.5	1	4.5
Phoenix	0.5	3	1	4.5

City	Climate and energy goals (4 pts)	Procurement and construction policies (4 pts)	Asset management (2 pts)	Total (10 pts)
Sacramento	1	2	1.5	4.5
San Diego	0.5	3	1	4.5
St. Petersburg	0	3	1.5	4.5
Atlanta	1.5	2	0.5	4
Cleveland	1	1.5	1.5	4
Dallas	1.5	1	1.5	4
Denver	1	1.5	1.5	4
Grand Rapids	1.5	1	1.5	4
Honolulu	1.5	2.5	0	4
Knoxville	0.5	2.5	1	4
Long Beach	0	3	1	4
Nashville	0.5	2	1.5	4
Pittsburgh	2	1	1	4
Salt Lake City	1	2	1	4
Charlotte	0	1.5	2	3.5
Saint Paul	0	2	1.5	3.5
Baltimore	0	2	1	3
Cincinnati	0	2.5	0.5	3
New Haven	1.5	1.5	0	3
Virginia Beach	0	2.5	0.5	3
Worcester	0	2.5	0.5	3
Bakersfield	0	2.5	0	2.5
Chicago	0	2	0.5	2.5
Columbus	0	1.5	1	2.5
Indianapolis	0.5	2	0	2.5
Median	0	1.5	0.5	2.5
Raleigh	0	1.5	1	2.5
Riverside	0	2.5	0	2.5
San José	0	2.5	0	2.5
Bridgeport	0	1.5	0.5	2
Buffalo	0	0.5	1.5	2
Charleston	1	1	0	2
Mesa	0	1	1	2
Rochester	0	1.5	0.5	2
St. Louis	0.5	1.5	0	2
Tucson	0	2	0	2
Birmingham	0	1	0.5	1.5
Detroit	0	1.5	0	1.5
El Paso	0	1.5	0	1.5
Fresno	0	1.5	0	1.5
Richmond	0	0.5	1	1.5
Wichita	0	1.5	0	1.5

City	Climate and energy goals (4 pts)	Procurement and construction policies (4 pts)	Asset management (2 pts)	Total (10 pts)
Memphis	0.5	0	0.5	1
Miami	0	1	0	1
New Orleans	0	0.5	0.5	1
Tulsa	0	1	0	1
Winston-Salem	0	1	0	1
Cape Coral	0	0.5	0	0.5
Colorado Springs	0	0.5	0	0.5
Fort Worth	0	0.5	0	0.5
Greensboro	0	0.5	0	0.5
Jacksonville	0	0.5	0	0.5
Louisville	0	0	0.5	0.5
Milwaukee	0	0	0.5	0.5
Newark	0	0.5	0	0.5
Oklahoma City	0	0.5	0	0.5
Reno	0	0	0.5	0.5
Syracuse	0	0	0.5	0.5
Akron	0	0	0	0
Allentown	0	0	0	0
Augusta	0	0	0	0
Aurora	0	0	0	0
Baton Rouge	0	0	0	0
Columbia	0	0	0	0
Dayton	0	0	0	0
Des Moines	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
Oxnard	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
Tampa	0	0	0	0
Toledo	0	0	0	0

Leading Cities

Boston. Boston is on track to achieve its goal of reducing emissions from municipal operations to 60% below 2005 levels by 2030. The city is also required to reduce municipal energy use through its designation as a Massachusetts Green Community. Efficient vehicles make up 14.9% of Boston's fleet, and the city's *Zero-Emission Vehicle Roadmap* guides a transition to efficient vehicles. The city has replaced 76% of its streetlights with LEDs and has installed solar systems on municipal buildings through a performance contract. Boston's inclusive contracting policies, which include hiring goals for minority-owned and women-owned businesses, are applied to an energy savings performance contract (ESPC). The city benchmarks energy use in all municipal buildings and conducts retrofits through the Renew Boston Trust energy efficiency project financing program.

Orlando. Orlando is expected to come within 23% of its goal to be carbon neutral in government operations by 2030. The city has committed to transition all of its vehicles to alternative fuels by 2030, and 9% of its fleet is currently composed of efficient vehicles. Orlando has passed an outdoor lighting ordinance and converted almost all of its streetlights to LEDs. Onsite solar installations generate more than 4.5 million kWh annually. The city requires minority-owned and women-owned business enterprise participation in municipal projects, including recent onsite solar PV installations. Orlando benchmarks energy use in all city buildings of more than 10,000 square feet and conducts energy efficiency upgrades using a revolving energy fund.

Portland. Portland is on track to achieve its goal of reducing local government greenhouse gas emissions to 53% below 2006–2007 levels by 2030. The city has also set a goal to reduce energy consumption in municipal operations by 2% annually through 2030, and it powers municipal operations with 100% renewable energy. Portland has installed approximately 700 kW of solar capacity on municipal facilities. The city benchmarks 100% of municipal buildings and has a strategic planning group that manages maintenance and prioritizes energy efficiency. Portland has a policy of undertaking energy efficiency projects with a simple payback of 10 years or less. Approximately 14% of Portland's fleet is currently composed of efficient vehicles.

San Francisco. San Francisco is on track to achieve its climate mitigation goal, which is set citywide but applies to municipal operations, of reducing GHG emissions by 40% relative to 1990 levels by 2025. San Francisco's Municipal Zero Emission Vehicle (ZEV) Fleet Ordinance requires all new light-duty vehicles to be zero emission, and 75% of the existing fleet must be ZEV by 2022. As of 2021, 19% of the city's fleet is made up of efficient vehicles, as defined in this report. Additionally, 97% of streetlights in San Francisco have been converted to LEDs. The city has also installed just under 8 MW of solar capacity. In accordance with an Existing Buildings Energy Performance Ordinance, San Francisco benchmarks all municipal buildings. These data are used to strategically perform building retrofits with dedicated funding annually in the municipal utility's budget.

LOCAL GOVERNMENT CLIMATE CHANGE MITIGATION AND ENERGY GOALS

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

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

In this category we scored cities on:

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

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

2 points

Climate Change Mitigation Goal Stringency and Progress

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

Stringency of Goals

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

Cities could earn up to 1 point in this metric, as shown in table 45. Cities with stringencies that fell roughly into the top quintile earned full points, while those with stringencies that fell roughly in the third and fourth quintiles earned 0.5 point. Those that were roughly aligned with the first and second quintiles did not earn points.

Progress Toward Goals

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

To evaluate progress toward municipal goals, we used the same approach that we used to assess progress toward community-wide goals. Chapter 2 contains a detailed description of this approach.

Cities could earn up to 1 point in this metric, as shown in table 45.

2 points

Energy Savings and Renewable Electricity Generation Goals

Stringency of Goals

As with climate change mitigation goals, cities were eligible to earn points based on the stringency of their energy-specific goals. Stringency was assessed in two ways. We evaluated cities' energy savings goals by calculating the annual energy per capita reduction needed to meet their nearest-term goal. These calculations followed the approach outlined for goal stringency metrics in Chapter 2.[44]

Cities could earn up to 1 point for the stringency of their energy reduction goal. Cities with stringencies that fell roughly into the top quintile earned the full point, while those with stringencies that fell roughly in the third and fourth quintiles earned 0.5 point. Those that were roughly aligned with the first and second quintiles did not earn points.

We also evaluated cities' renewable electricity goals. We did so by calculating the electricity consumption that cities need to convert or offset using renewable sources to achieve their near-term renewable electricity goal. We recognize that cities may pursue several strategies to achieve a renewable electricity goal. They may work to add renewable energy sources to their local electric grid, encourage utilities to retire fossil fuel–powered plants as electricity demand declines, or purchase renewable energy or zero emissions credits to offset carbon-emitting electricity generation. Our approach for calculating the stringency of municipal renewable electricity goals follows our approach to community-wide renewable electricity goals outlined in Chapter 2.[45]

Table 45 summarizes the scoring, and table 46 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.

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

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

Table 45. 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 2.75%.	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 110 kWh.	1
Annual per household conversion target is at least 25 kWh but less than 110 kWh.	0.5
Energy savings goal stringency	
Average annual energy savings per capita are greater than or equal to 3.5%.	1
Average annual energy savings per capita are less than 3.5% but greater than 2%.	0.5

Table 46. Local government climate and energy goal scores (out of 4 possible points)

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

1 point

Fleet Procurement Policies and Composition

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.

Our scoring methodology had two components, with one based on the composition of the city's vehicle fleet. We mainly included light-duty vehicles in this metric.[46] We credited 0.5 points to cities if hybrid, plug-in hybrid, battery electric, and/or fuel cell vehicles composed at least 8% of their fleet.[47] In addition, we awarded 0.5 points if the city has adopted a strategy to procure fuel-efficient, low-emissions vehicles or vehicle types. Procurement strategies could include fuel efficiency requirements or requirements for fuel-efficient vehicle types such as hybrid or all electric.

We did not award points to cities with alternative-fuel (e.g., ethanol or compressed natural gas) vehicle requirements, since alternative fuels are not inherently energy saving (DOE 2021b). 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).[48] Therefore, in this metric, we considered only vehicles that save energy.

1.5 points

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

Cities could earn up to 1.5 points for efficient public lighting. We awarded 1 point to cities if 76% or more of their streetlights have been converted to LEDs. We awarded 0.5 points to cities if more than 36% but less than 76% of their streetlights have been upgraded to LEDs.[49] We also awarded an additional 0.5 points if the city has adopted provisions of the Illuminating Engineering Society and International Dark-Sky Association's Model Lighting Ordinance (IDA and IES 2011), or if the city has adopted its own lighting policy with a provision that directs those installing lighting to reduce lighting under certain conditions. We did not credit policies or actions targeting traffic signal efficiency because the U.S. Energy Policy Act of 2005 already requires traffic lights to have LED-equivalent efficiency.[50]

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

47 Data from cities informed our 8% threshold. Among the cities for which we had fleet data, 8% was the third quartile.

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

49 Data from cities informed our thresholds for public lighting composition scores. Seventy-six percent LED composition represented the median, while 36% represented the first quartile.

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

1 point

Onsite and Offsite Renewable Energy Systems

Many cities are adopting policies and ramping up programs that increase the deployment of renewable energy systems because of the wide-ranging benefits they bring to communities (UCS 2017; American Cities Climate Challenge 2020). Local governments can lead by example by generating renewable electricity in municipal buildings or installing renewable generation capacity elsewhere. 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 2014). In this metric, we awarded credit for onsite and offsite renewable energy generation.

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).[51] Onsite renewable energy systems are placed at or near the end user (e.g., solar photovoltaic panels on roofs). Depending on their facility capacity and opportunities for partnership in their area, cities can also choose to install renewable energy systems at offsite locations away from municipal properties.

Cities could earn up to 1 point for onsite and offsite renewable energy systems. Cities with at least 4 watts per capita of combined onsite and offsite municipal renewable electricity generation capacity earned 1 point. We awarded 0.5 points to cities that have installed at least 1 watt per capita but less than 4 watts per capita of municipal renewable electricity generation capacity.[52]

0.5 points

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 2019; Solar Foundation 2018a). Women make up about 47% of the national workforce, but they account for only about 30% of energy efficiency and solar jobs (Shoemaker and Ribeiro 2018; Solar Foundation, SEIA, and IREC 2021). Black workers account for 13% of the U.S. workforce but only 8% of efficiency jobs and 8% of solar jobs (BLS 2018; Shoemaker and Ribeiro 2018; Solar Foundation, SEIA, and IREC 2021). 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).

We awarded 0.5 points to cities with inclusive procurement and contracting processes targeting minority-owned and/or women-owned businesses for city projects, such as energy efficiency or renewable energy projects. We did not award points when we did not have evidence that a procurement policy had been used in an energy efficiency or renewable energy project.

Table 47 summarizes our approach to scoring procurement and construction policies, and table 48 lists the scores for these metrics. Table E21 in Appendix E provides more detailed city scores.

51 We generally used the city's definition of renewable energy resources in this analysis. However, we excluded systems that did not generate electricity and cases in which we could not determine whether a renewable source was used.

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

Table 47. Scoring for procurement and construction policies

Fleet procurement policies and composition	Score
At least 8% of the city's fleet is composed of efficient vehicles types (hybrid, plug-in hybrid, battery electric, and fuel cell vehicles).	0.5
The city has a strategy to procure fuel-efficient, low-emissions vehicles or vehicle types.	0.5
Efficient public lighting	
At least 76% of streetlights have been converted to LEDs.	1
At least 36% but less than 76% of streetlights have been converted to LEDs.	0.5
The city has adopted Model Lighting Ordinance or similar policy.	0.5
Onsite and offsite renewable energy systems	
City has installed at least 4W per capita of onsite and offsite municipal renewable electricity generation capacity.	1
City has installed at least 1W per capita but less than 4W per capita of onsite and offsite municipal renewable electricity generation capacity.	0.5
Inclusive procurement and contracting	
City has inclusive procurement and contracting processes for city energy projects.	0.5

Table 48. Local government procurement and construction policies scores (out of 4 possible points)

Boston (3.5)	Virginia Beach (2.5)	Philadelphia (1.5)	Akron (0)
Minneapolis (3.5)	Worcester (2.5)	Raleigh (1.5)	Allentown (0)
Orlando (3.5)	Atlanta (2)	Rochester (1.5)	Augusta (0)
Austin (3)	Baltimore (2)	St. Louis (1.5)	Aurora (0)
Chula Vista (3)	Chicago (2)	Washington, D.C. (1.5)	Baton Rouge (0)
Hartford (3)	Houston (2)	Wichita (1.5)	Columbia (0)
Long Beach (3)	Indianapolis (2)	Birmingham (1)	Dayton (0)
Los Angeles (3)	Nashville (2)	Charleston (1)	Des Moines (0)
Oakland (3)	Sacramento (2)	Dallas (1)	Henderson (0)
Phoenix (3)	Saint Paul (2)	Grand Rapids (1)	Lakeland (0)
San Diego (3)	Salt Lake City (2)	Mesa (1)	Little Rock (0)
San Francisco (3)	San Antonio (2)	Miami (1)	Louisville (0)
St. Petersburg (3)	Seattle (2)	Pittsburgh (1)	McAllen (0)
Albuquerque (2.5)	Tucson (2)	Tulsa (1)	Memphis (0)
Bakersfield (2.5)	Boise (1.5)	Winston-Salem (1)	Milwaukee (0)
Cincinnati (2.5)	Bridgeport (1.5)	Buffalo (0.5)	Omaha (0)
Honolulu (2.5)	Charlotte (1.5)	Cape Coral (0.5)	Oxnard (0)
Knoxville (2.5)	Cleveland (1.5)	Colorado Springs (0.5)	Provo (0)
Las Vegas (2.5)	Columbus (1.5)	Fort Worth (0.5)	Reno (0)
Madison (2.5)	Denver (1.5)	Greensboro (0.5)	San Juan (0)
New York (2.5)	Detroit (1.5)	Jacksonville (0.5)	Springfield (0)
Portland (2.5)	El Paso (1.5)	New Orleans (0.5)	Stockton (0)
Providence (2.5)	Fresno (1.5)	Newark (0.5)	Syracuse (0)
Riverside (2.5)	Kansas City (1.5)	Oklahoma City (0.5)	Tampa (0)
San José (2.5)	New Haven (1.5)	Richmond (0.5)	Toledo (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 buildings and other infrastructure—require large-scale, long-term investments. It is not feasible to reconstruct a building solely to save energy or to mandate that employees make energy-efficient decisions. But cities can help save energy by systematically managing energy use, upgrading buildings, and encouraging changes in employee behavior.

This category covers two topics: energy benchmarking and retrofit strategies. Cities could earn up to 2 points. In previous editions of the *Scorecard* we analyzed cities' policies around employee telework. However, we did not include this metric in the 2021 *Scorecard* due to confounding effects from the COVID-19 pandemic.

In this category we scored cities on:

- Building energy benchmarking (0.5 points)
- Building energy efficiency retrofit strategies (1.5 points)

0.5 points

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 2021c). One such strategy is building benchmarking, which is an important step in understanding energy performance. By consistently tracking energy use, building managers can identify energy efficiency investment opportunities and track energy savings. Building benchmarking has become a common strategy employed by cities.

We awarded up to 0.5 points based on the percentage of municipal building floor area that cities have benchmarked, as shown in table 49. Because benchmarking of municipal buildings covers fewer properties than a citywide benchmarking effort, cities earn fewer points for benchmarking in the local government sector. Cities that have benchmarked 90% of municipal buildings larger than 10,000 square feet earned 0.5 points. For this metric, we used the most recent data available and did not account for municipally owned residential buildings.

1.5 points

Retrofit Strategies

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

We awarded up to 1.5 points based on the rigor of a city's retrofit requirements or activities, as described in table 49. We gave a full 1 point to local governments that evaluate their portfolio of buildings to determine and prioritize energy efficiency retrofit opportunities and have completed upgrades within the past five years. To receive credit, these retrofit strategies must incorporate both capital improvements (e.g., equipment replacement and building shell upgrades) and operational improvements (e.g., active energy management, audits, and retrocommissioning). To earn the full point, cities also had to provide data on the results of their completed retrofit projects (e.g., number of buildings that have undergone retrofits, cost, or energy savings). We used the data as an indication that retrofit strategies were driving actual retrofit projects; we did not analyze data and award points based on the extent to which retrofits achieved savings or were widespread across facilities. If cities reported having a strategic approach to retrofits in place but we were unable to verify that the strategy had been carried out, they earned 0.5 points rather than a full 1 point. Cities that include energy service company partnerships as part of a larger strategy were eligible for the full point, but these partnerships did not receive credit on their own.

We awarded an additional 0.5 points to cities that have a dedicated funding source for energy efficiency improvement work beyond regular maintenance. Dedicating an annual source of funding for energy efficiency work enables cities to regularly take energy efficiency actions, as opposed to developing and funding them on an ad hoc basis. Cities can appropriate energy efficiency budgets through their regular budget cycle, develop internal revolving loan or efficiency reinvestment funds, or set aside energy efficiency funds from their municipal utility.

Table 49 summarizes the scoring, and table 50 lists the scores for asset management. Table E20 in Appendix E provides more detailed city scores.

Table 49. Scoring for asset management

Building energy benchmarking	Score
City benchmarks 90% 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 has a comprehensive retrofit strategy in place, but we were unable to verify that the strategy has been carried out.	0.5
City has a dedicated funding source for energy efficiency work.	0.5

Table 50. Asset management scores (out of 2 possible points)

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

Looking Forward

Cities face a pressing need to immediately address the challenges associated with climate change, racial and social inequities, and economic shifts. They have shown resilience and a strong commitment to this work in the face of the COVID-19 pandemic. Cities initiated 177 new clean energy actions between May 2, 2020, and July 1, 2021. Most of these actions were focused on clean energy planning and relationship building, followed by building policies and programs and clean energy infrastructure development.

While changes to our methodology meant that two-thirds of *Scorecard* cities lost points this year relative to the previous edition of the *Scorecard*, many lower-ranked cities made substantial improvements. Nineteen cities increased their rank by 5 or more spots, and many of these were outside the top 25. Our analyses of trends across the most-improved cities (Madison, Charlotte, and Honolulu) and city typology groups reveal how many of these cities are advancing clean energy. We also identify clean energy policy and program opportunities for each city typology group. These are shown in table 51.

Table 51. Clean energy policy and program opportunities and model cities for each typology group

Area	Policy and program	Model city with policy or program
Stable cities in large metros	Take additional steps to ensure that builders comply with energy codes	Long Beach, CA
	Adopt energy benchmarking and rental energy disclosure policies	Chicago, IL
Modest-growth cities in large metros	Adopt building tune-up and audit requirements to improve the energy performance of existing buildings	Salt Lake City, UT Philadelphia, PA
	Create or support energy efficiency workforce development programs, and ensure that these programs benefit historically marginalized communities	Sacramento, CA Philadelphia, PA
Rapid-growth cities in large metros	Adopt stringent transportation VMT or GHG emissions goals and track progress toward them	San Antonio, TX
	Adopt requirements to install EV charging infrastructure when constructing new parking, or make such parking EV charging–ready	Atlanta, GA Miami, FL Orlando, FL
Stable cities in midsize metros	Improve the energy performance of municipal operations and assets	Honolulu, HI
	Engage with utilities more to promote clean energy	Honolulu, HI
Modest-growth cities in midsize metros	Adopt more stringent building energy codes	Des Moines, IA
	Adopt location-efficient zoning codes that apply to the entire city	El Paso, TX
Rapid-growth cities in midsize metros	Adopt EV charging–ready provisions in building codes	Boise, ID Madison, WI
	Form partnerships to encourage utility clean energy goals, programs, and investments	Madison, WI

We also recognize opportunities for all cities, even those with the highest ranks, to further advance clean energy through new initiatives. These include

- *Lead with a commitment to racial and social equity.* Many cities can improve their scores by creating a formal clean energy decision-making body of historically marginalized community residents, supporting minority-owned and women-owned businesses in securing local government clean energy contracts, and pursuing policies and programs designed to reduce the energy use and costs of affordable and rental housing.

- *Adopt mandatory policies designed to improve the energy performance of existing buildings.* Some cities have yet to adopt energy benchmarking and transparency requirements, an often foundational policy for instituting mandates to improve the energy performance of properties. Other cities have adopted these requirements but have yet to pursue building retrocommissioning, retrofit, or energy performance policies.

- *Increase commitment to community-wide and transportation-specific clean energy goals.* While many cities adopted 2020 community-wide energy reduction goals, most have not created such goals for future years. Only three cities have adopted a goal to reduce vehicle miles traveled or transportation GHG emissions and are on track to achieve it. In many cases, cities did not provide us with sufficient data to assess their progress toward their transportation goals.

Undertaking these initiatives will ensure that cities continue to play a leading role in mitigating climate change.

References

ACEEE. 2019. *Energy Efficiency—Jobs and Investments*. Washington, DC: ACEEE. aceee.org/fact-sheet/jobs-investment.

——— . 2021a. "Energy Equity." aceee.org/topic/energy-equity.

——— . 2021b. *Funding Options for Low-Carbon Transportation: Alternatives to the Federal Gasoline Tax*. Washington, DC: ACEEE. aceee.org/sites/default/files/pdfs/funding_low-carbon_transportation_final_4-28-21.pdf.

——— . 2021c. "Greenest and Meanest." greenercars.org/greenest-and-meanest.

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

American Cities Climate Challenge. 2021. "Local Government Renewables Action Tracker." Accessed May. cityrenewables.org/local-government-renewables-action-tracker/.

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.

Aurand, A., D. Emmanuel, D. Threet, I. Rafi, and D. Yentel. 2021. *The Gap: A Shortage of Affordable Homes*. Washington, DC: NLIHC (National Low Income Housing Coalition). reports.nlihc.org/sites/default/files/gap/Gap-Report_2021.pdf.

AWEA (American Wind Energy Association). 2018. *U.S. Wind Industry Annual Market Report 2017: Executive Summary*. Washington, DC: AWEA.

Barcik, M. 2013. "2012 IEEC Performance Testing: Lessons from the Duct and Envelope Tightness (DET) Verifier Program." *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.

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

Barbose, G. 2021. *U.S. Renewable Portfolio Standards–2021 Status Update: Early Release*. Prepared by Berkeley Lab. Washington, DC: DOE. eta-publications.lbl.gov/sites/default/files/rps_status_update-2021_early_release.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, B. Jennings, E. Cooper, C. Perry, M. DiMascio, and J. Singletary. 2020. *The 2020 State Energy Efficiency Scorecard.* Washington, DC: ACEEE. aceee.org/research-report/u2011.

Berube, A. 2019. "Why Midsized Metro Areas Deserve our Attention." brookings.edu/research/why-midsized-metro-areas-deserve-our-attention/.

Bliss, L. 2020. "Behind the Gains in U.S. Public Transit Ridership." *Bloomberg 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. www.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**.

Bourlaug, B., S. Salisbury, M. Gerdes, and M. Muratori. 2021. "Levelized Cost of Charging Electric Vehicles in the United States." *Joule* 4(7): 1470-1485. **sciencedirect.com/science/article/pii/S2542435120302312**.

Bronski, P., J. Elder, A. Freed, B. Holland, R. Nanavatty, C. Nelder, A. Petersen, C. Pope, and M. Popkin. 2020. *Coming Back Stronger: A City-Driven Infrastructure Agenda for a Cleaner, More Resilient, More Equitable America*. Boulder, CO: Rocky Mountain Institute. New York: **Bloomberg Philanthropies. rmi.org/insight/coming-back-stronger/**.

BTS (Bureau of Transportation Statistics). 2021. "Average Fuel Efficiency of U.S. Light Duty Vehicles." Accessed April. **bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles**.

——— . 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**.

CARB (California Air Resource Board). 2021. "Children's School Bus Exposure and Mitigation Studies: Children Can Be Exposed to High Levels of Air Pollutants from Buses." **ww2.arb.ca.gov/resources/documents/childrens-school-bus-exposure-and-mitigation-studies**.

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. **doi.org/10.1021/acs.est.5b00412**.

Census Bureau. 2020. "Explore Census Data." Accessed January 2021. **data.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**.

Chittum, A. 2012. "Local Power: Lessons from Recent District Energy System Development." *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**.

Chwastyk, D., J. Leader, J. Cramer, and M. Rolph. 2018. *Community Solar Program Design Models*. Washington, DC: Smart Electric Power Alliance. **sepapower.org/resource/community-solar-program-designs-2018-version/**.

Cincinnati. 2021. *City of Cincinnati Energy Efficiency Matching Grant Program: Low Income Tenant Multi-Family Buildings*. Cincinnati: City of Cincinnati. **www.cincinnati-oh.gov/oes/energy-equity/energy-equity-programs/eep-round-2-small-grant-criteria/**.

Clewlow, R., and G. Mishra. 2017. *Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States*. Davis, CA: University of California, Davis. **escholarship.org/uc/item/82w2z91j**.

Cluett, R., and J. Amann. 2014. *Residential Deep Energy Retrofits*. Washington, DC: ACEEE. **aceee.org/research-report/a1401**.

CNT (Center for Neighborhood Technology). 2021a. "AllTransit™." Accessed October. **alltransit.cnt.org/**.

——— . 2021b. "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**.

Dewey, A., and N. Henner. 2021. *Community Choice Aggregation and Energy Efficiency: Opportunities, Challenges, and Lessons Learned*. Washington, DC: ACEEE. **aceee.org/research-report/u2103**.

Dodman, D., and D. Satterthwaite. 2009. "Institutional Capacity, Climate Change Adaptation and the Urban Poor." *IDS Bulletin* 39 (4): 67–74. **doi.org/10.1111/j.1759-5436.2008.tb00478.x**.

DOE (Department of Energy). 2013. *Energy Saver 101 Infographic: Home Energy Audits*. Washington, DC: DOE.

——— . 2015. *Achieving Energy Savings and Emission Reductions from Building Energy Codes: A Primer for State Planning*. Washington, DC: DOE.

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

——— . 2019. *Energy Efficiency and Distributed Generation for Resilience: Withstanding Grid Outages for Less*. Washington, DC: DOE. **www.energy.gov/sites/prod/files/2019/06/f64/EEDG-Resilience.PDF**.

——— . 2020a. *District Energy Systems Overview*. Washington, DC: DOE. **betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/District_Energy_Fact_Sheet.pdf**.

——— . 2020b. "State and Local Energy Data." Accessed February. **maps.nrel.gov/slope**.

——— . 2021a. "Alternative Fuels Data Center: Electric Vehicle Charging Station Locations." Accessed January. **www.afdc.energy.gov/fuels/electricity_locations.html**.

——— . 2021b. "Alternative Fuels Data Center: Natural Gas Vehicles." Accessed October. **afdc.energy.gov/vehicles/natural_gas.html**.

——— . 2021b. "Better Buildings Challenge: Partners A-Z." **betterbuildingssolutioncenter.energy.gov/challenge/partner-list-a-z**.

——— . 2021d. "The Impact of Building Energy Codes." **www.energycodes.gov/program-impact-analysis**.

——— . 2021e. *US Energy & Employment Report*. Washington, DC: DOE. **energy.gov/us-energy-employment-jobs-report-useer**.

DOT (Department of Transportation). 2021. "Transportation and Health Tool Data in Excel." Accessed June 2021. **transportation.gov/mission/health/transportation-and-health-tool-data-excel**.

Drehobl, A., L. Ross, and R. Ayala. 2020. *How High Are Household Energy Burdens? An Assessment of National and Metropolitan Energy Burden across the United States*. Washington, DC: ACEEE. **aceee.org/research-report/u2006**.

EIA (Energy Information Administration). 2016. "2012 CBECS Survey Data." **eia.gov/consumption/commercial/data/2012/**.

——— . 2019a. "Annual Electric Power Industry Report, Form EIA-861, Detailed Data Files for 2018." **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**.

——— . 2020. "2018 Commercial Buildings Energy Consumption Survey Preliminary Results." **eia.gov/consumption/commercial/**.

——— . 2021. "Energy and the Environment Explained: Where Greenhouse Gases Come From." **www.eia.gov/energyexplained/energy-and-the-environment/where-greenhouse-gases-come-from.php**.

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**.

——— . 2014. *On-Site Renewable Energy Generation: A Guide to Developing and Implementing Greenhouse Gas Reduction Programs*. Washington, DC: DOE. **www.epa.gov/sites/production/files/2016-02/documents/onsiterenewables508.pdf**.

——— . 2021a. "Cool Pavements." **www.epa.gov/heat-islands/heat-island-cooling-strategies**.

——— . 2021b. "Energy Efficiency for Water Utilities." **www.epa.gov/sustainable-water-infrastructure/energy-efficiency-water-utilities**.

——— . 2021c. "Heat Island Effect." **www.epa.gov/heatislands/heat-island-cooling-strategies**.

——— . 2021d. "Sources of Greenhouse Gas Emissions." **www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions**.

——— . 2021e. "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**.

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

Fodor, E. 2010. *Relationship between Growth and Prosperity in 100 Largest U.S. Metropolitan Areas*. Eugene, OR: Fodor & Associates LLC. **fodorandassociates.com/Reports/Growth_&_Prosperity_in_U.S._MSAs.pdf**.

Francis, M., and A. Bradley. 2018. "Louisiana and Wyoming Consume the Most Energy Per Capita; Rhode Island, New York the Least." *Today in Energy*, September 4. **eia.gov/todayinenergy/detail.php?id=37012**.

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**.

Frommer, M. 2018. "Cracking the Code on EV-Ready Buildings Codes." *SWEEP Blog*, October 23. **swenergy.org/cracking-the-code-on-ev-ready-building-codes**.

FTA (Federal Transit Administration). 2016. *Default Useful Life Benchmark (ULB) Cheat Sheet*. Washington, DC: FTA. **transit.dot.gov/TAM/ULBcheatsheet**.

——— . 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 and Vote Solar. New York: Center for Social Inclusion. **lowincomesolar.org/wp-content/uploads/2017/03/Policy-Guide_3.7.17.pdf**.

Gottlieb, P. 2002. *Growth Without Growth: An Alternative Economic Development Goal for Metropolitan Areas*. Washington, DC: The Brookings Institution. **brookings.edu/research/growth-without-growth-an-alternative-economic-development-goal-for-metropolitan-areas/**.

GRID Alternatives. 2021. "Who We Are." **gridalternatives.org/about**.

GTM (GTM Research). 2018. *The Vision for U.S. Community Solar: A Roadmap to 2030.* Oakland, CA: Vote Solar. **votesolar.org/reports-and-filings/the-vision-for-u-s-community-solar-a-roadmap-for-2030/**.

Gurney, K., J. Liang, G. Roest, Y. Song, K. Mueller, and T. Lauvaux. 2021. "Under-Reporting of Greenhouse Gas Emissions in U.S. Cities." *Nature Communications* 12 (553): 1–7. **nature.com/articles/s41467-020-20871-0**.

Hart, Z., R. Gahagan, C. Majersik, J. Miller, and B. Neely. 2020. "Understanding the Housing Affordability Risk Posed by Building Performance Policies." *Proceedings of the 2020 ACEEE Summer Study on Energy Efficiency in Buildings* 9: 1-16. Washington, DC: ACEEE. **www.imt.org/wp-content/uploads/2020/08/IMT_BPS_AffordabilityRisk_SummerStudy_2020.pdf**.

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**.

Hayes, S., C. Kubes, and C. Gerbode. 2020. *Making Health Count: Monetizing the Health Benefits of In-Home Services Delivered by Energy Efficiency Programs*. Washington, DC: ACEEE. **aceee.org/research-report/h2001**.

Hinge, A., H. Beber, J. Laski, and Y. Nishida. 2013. "Building Efficiency Policies in World Leading Cities: What Are the Impacts?" *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, CA: EJCC (Environmental Justice and Climate Change Initiative). **reimaginerpe.org/files/climateofchange-2.pdf**.

Hollander, J., and J. Németh. 2011. "The Bounds of Smart Decline: A Foundational Theory for Planning Shrinking Cities." *Housing Policy Debate* 21 (3): 349–67. **tandfonline.com/doi/abs/10.1080/10511482.2011.585164?journalCode=rhpd20**.

Howard, B., S. Vaidyanathan, C. Cohn, N. Henner, and B. Jennings. 2021. *The State Transportation Electrification Scorecard*. Washington, DC: ACEEE. **aceee.org/research-report/t2101**.

Hou, Y., V. Garikapati, A. Nag, S. Young, and T. Grushka. 2019. "Novel and Practical Method to Quantify the Quality of Mobility: Mobility Energy Productivity Metric." *Transportation Research Record: Journal of the Transportation Research Board* 2673 (10): 141-52. **journals.sagepub.com/doi/abs/10.1177/0361198119848705**.

ICC (International Code Council). 2018. *International Green Construction Code*. Washington, DC. **codes.iccsafe.org/content/IGCC2018P3**.

ICMA (International City/County Management Association) and Smart Growth Network. 2006. *This is Smart Growth*. Washington, DC: EPA. **epa.gov/smartgrowth/smart-growth-publication**.

IEA (International Energy Agency). 2021. *Empowering Cities for a Net Zero Future: Unlocking Resilient, Smart, Sustainable Urban Energy Systems*. Paris: IEA. **iea.org/reports/empowering-cities-for-a-net-zero-future**.

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. **www.darksky.org/wp-content/uploads/bsk-pdf-manager/16_MLO_FINAL_JUNE2011.pdf**.

IMT (Institute for Market Transformation) and ICLEI (Local Governments for Sustainability). 2010. *Commercial Energy Policy Toolkit–Fact Sheet for Local Governments: 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**.

——— . 2021. *Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva: IPCC. **ipcc.ch/report/ar6/wg1/**.

J. Mooney. 2020. "Behind the Controversial $7.1B Plan to Transform Transit in Austin, TX." *Smart Cities Dive*, October 15. **www.smartcitiesdive.com/news/Project-Connect-Austin-Texas-Prop-A/586856/**.

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**.

Jorgenson, A., J. Schor, X. Huang. 2017. "Income Inequality and Carbon Emissions in the United States: A State-level Analysis, 1997–2012." *Ecological Economics* 134: 40–8. **sciencedirect.com/science/article/abs/pii/S0921800916308345**.

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

Khan, S., and S. Vaidyanathan. 2018. *Strategies for Integrating Electric Vehicles into the Grid*. Washington, DC: ACEEE. **aceee.org/research-report/t1801**.

Langer, T., and S. Vaidyanathan. 2020. *Energy Efficiency and Greenhouse Gas Emissions Reductions through State Freight Planning*. Washington, DC: ACEEE. **aceee.org/white-paper/2020/07/energy-efficiency-and-greenhouse-gas-emissions-reductions-through-state-freight**.

Larsen, K., H. Pitt, and A. Rivera. 2021. "Preliminary U.S. Greenhouse Gas Emissions Estimates for 2020." **rhg.com/research/preliminary-us-emissions-2020/**.

LEAN Energy U.S. (Local Energy Aggregation Network). 2020. "CCA By State." **leanenergyus.org/cca-by-state**.

Leon, W., C. Farley, N. Hausman, B. Herbert, N. Hernandez Hammer, B. Paulos, T. Reames, R. Sanders, L. Schieb, D. Deane-Ryan, and R. Navarra. 2019. *Solar with Justice: Strategies for Powering Up Under-Resourced Communities and Growing an Inclusive Solar Market*. Montpelier, VT: Clean Energy States Alliance. **cdn.cesa.org/wp-content/uploads/Solar-with-Justice.pdf**.

Liu, N., and J. Grigg. 2018. "Diesel, Children and Respiratory Disease." *BMJ Paediatrics Open* 2(1): 1-8. **bmjpaedsopen.bmj.com/content/2/1/e000210**.

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**.

Martín, C., and J. Lewis. 2019. *The State of Equity Measurement: A Review for Energy-Efficiency Programs*. Washington, DC: Urban Institute. Baltimore: Green & Healthy Homes Initiative. **www.urban.org/sites/default/files/publication/101052/the_state_of_equity_measurement_0_0.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, National Research Council. **ssti.us/wp/wpcontent/uploads/2016/01/TRB_2016_Parking_causality_TRB_compendium.pdf**.

McFarland, C., B. Rainwater, E. Grabowski, J. Pine, and A. Yadavalli. 2021. *State of the Cities 2021*. Washington, DC: NLC (National League of Cities). **nlc.org/resource/state-of-the-cities-2021/**.

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

Milner, J., M. Davies, A. Haines, R. Huxley, S. Michie, L. Robertson, J. Siri, and P. Wilkinson. 2021. "Emerging from COVID-19: Lessons for Action Climate Change and Health in Cities." *Journal of Urban Health* 98: 433–7. **link.springer.com/article/10.1007/s11524-020-00501-2**.

MITOD (Mixed-Income Transit-Oriented Development). 2021. "Incentive-Based Zoning." **www.mitod.org/incentivebasedzoning.php**.

Moran, B., and M. Lorentzen. 2016. "Assessing the Role of Energy Efficiency in Microgrids." *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**.

National Complete Streets Coalition. 2012. *Costs of Complete Streets*. Washington, DC: National Complete Streets Coalition. **www.smartgrowthamerica.org/documents/cs/factsheets/cs-costs-2.pdf**.

——— . 2021. "Complete Streets Policies Nationwide." **smartgrowthamerica.org/program/national-complete-streets-coalition/publications/policy-development/policy-atlas/#:~:text=In%20total%2C%20over%201600%20Complete,and%20the%20District%20of%20Columbia**.

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/research-report/u1907**.

NBI (New Buildings Institute). 2021. "zEPI." **newbuildings.org/code_policy/zepi/**.

Nedwick, T., and L. Ross. 2020. "Mandating Building Efficiency while Preserving Affordable Housing: Opportunities and Challenges." *Proceedings of the 2020 ACEEE Summer Study on Energy Efficiency in Industry* 13: 1–17. Washington, DC: ACEEE. **assets.ctfassets.net/ntcn17ss10w9/DfMwmmfyH6WMEJvztff3X/1a1c54577f26253159d20451ba315f32/Mandating_Building_Efficiency_while_Preserving_Affordable_Housing_Nedwick_Ross.pdf**.

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**.

Nijman, J., and Y. Wei. 2020. "Urban Inequalities in the 21st Century." *Applied Geography* 117: 1–8. **ncbi.nlm.nih.gov/pmc/articles/PMC7124478/**.

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**.

NREL (National Renewable Energy Laboratory). 2019. "Measuring Mobility Potential." Accessed May 2021. **www.nrel.gov/docs/fy20osti/73579.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**.

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

PBP (Participatory Budgeting Project). 2018. *What Is Participatory Budgeting?* New York: PBP. **www.participatorybudgeting.org/download/pbp-general-info-sheet/?wpdmdl=13374&masterkey=5ba414424841f**.

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**.

PeopleForBikes. 2021. "PlacesForBikes." **cityratings.peopleforbikes.org/methodology/**.

Peterson, K., P. Torcellini, and R. Grant. 2015. *A Common Definition for Zero Energy Buildings. Prepared by the National Institute of Building Sciences*. Washington, DC: DOE. **www.energy.gov/eere/buildings/downloads/common-definition-zero-energy-buildings#:~:text=Generally%20speaking%2C%20a%20zero%20energy,campuses%2C%20portfolios%2C%20and%20communities**.

Portland. 2015. *Climate Action Plan: Local Strategies to Address Climate Change*. Portland: City of Portland and Multnomah County. **www.portland.gov/sites/default/files/2019-07/cap-2015_june30-2015_web_0.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**.

Ribeiro, D., S. Samarripas, K. Tanabe, A. Jarrah, H. Bastian, A. Drehobl, S. Vaidyanathan, E. Cooper, B. Jennings, and N. Henner. 2020. *The 2020 City Clean Energy Scorecard.* Washington, DC: ACEEE. **aceee.org/research-report/u2008**.

Romankiewicz, J., C. Bottorff, and L. Stokes. 2021. *The Dirty Truth about Utility Climate Pledges*. Oakland, CA: Sierra Club. **www.sierraclub.org/sites/www.sierraclub.org/files/blog/Final%20Greenwashing%20Report%20%281.22.2021%29.pdf**.

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

Saha, D., and J. Jaeger. 2020. *America's New Climate Economy: A Comprehensive Guide to the Economic Benefits of Climate Policy in the United States*. Washington, DC: WRI (World Resources Institute). **wri.org/research/americas-new-climate-economy-comprehensive-guide-economic-benefits-climate-policy-united**.

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. 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 K. Tanabe. 2020. "Understanding Multifamily Home Energy Efficiency Potential." Washington, DC: ACEEE. **aceee.org/topic-brief/2020/10/understanding-multifamily-home-energy-efficiency-potential**.

SEPA (Smart Electric Power Alliance). 2021. "Utilities' Path to Carbon Free Energy System: 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**.

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**.

Sierra Club. 2021. "Ready for 100 Map: Check Out Where We Are Ready For 100%." **www.sierraclub.org/ready-for-100/map**.

Solar Foundation. 2018a. *National Solar Jobs Census 2017*. Washington, DC: Solar Foundation. **irecusa.org/resources/national-solar-jobs-census-2017/**.

——— . 2018b. *Strategies for Solar Workforce Development: A Toolkit for the Solar Industry*. Washington, DC: Solar Foundation. **irecusa.org/resources/solar-workforce-development-strategies-toolkit/**.

Solar Foundation, SEIA (Solar Energy Industries Association), and IREC (Interstate Renewable Energy Council). 2021. *National Solar Jobs Census 2020*. Washington, DC: Solar Foundation and SEIA. New York: IREC. **irecusa.org/resources/national-solar-jobs-census-2020/**.

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

UCS (Union of Concerned Scientists). 2017. "Benefits of Renewable Energy Use." **www.ucsusa.org/resources/benefits-renewable-energy-use**.

Unger, L., S. Nadel, and J. Barrett. 2021. *Clean Infrastructure: Efficiency investments for Jobs, Climate, and Consumers.* Washington, DC: ACEEE. **aceee.org/white-paper/2021/09/clean-infrastructure-efficiency-investments-jobs-climate-and-consumers**.

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**.

——— . 2020. "Hurt by COVID-19, Transit Needs Public Confidence and Increased Funding." *ACEEE Blog*, December 17. **www.aceee.org/blog-post/2020/12/hurt-covid-19-transit-needs-public-confidence-and-increased-funding**.

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

Vaidyanathan, S., P. Huether, and B. Jennings. 2021. *Understanding Transportation Energy Burdens*. Washington, DC: ACEEE. **aceee.org/white-paper/2021/05/understanding-transportation-energy-burdens**.

Walk Score. 2021. "Walk Score." **www.walkscore.com**.

Weir, E. 2002. "Diesel Exhaust, School Buses and Children's Health." *Canadian Medical Association Journal* 167 (5): 505. **www.ncbi.nlm.nih.gov/pmc/articles/PMC121970/**.

White House. 2016. "Fact Sheet: The Recovery Act Made the Largest Single Investment in Clean Energy in History, Driving the Deployment of Clean Energy, Promoting Energy Efficiency and Supporting Manufacturing." **obamawhitehouse.archives.gov/the-press-office/2016/02/25/fact-sheet-recovery-act-made-largest-single-investment-clean-energy**.

——— . 2021. "Fact Sheet: The American Jobs Plan Will Produce, Preserve, and Retrofit more than 2 Million Affordable Housing Units and Create Good-Paying Jobs." **www.whitehouse.gov/briefing-room/statements-releases/2021/05/26/fact-sheet-the-american-jobs-plan-will-produce-preserve-and-retrofit-more-than-2-million-affordable-housing-units-and-create-good-paying-jobs/**.

Wogan, J. 2017. "Population Growth Means a City Is Thriving, or Does It?" *Governing*, August 29. **governing.com/archive/gov-population-city-growth-thriving.html**.

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 (or different metric components) on the basis of the following factors:

- Does a clean energy action relate to equity in planning and program delivery?
- Does it assess policy or program performance?
- Does it assess a smart growth policy or program?

DEFINITIONS

Equity-focused. The extent to which city actions engage with or invest in historically marginalized communities, often communities of color and low-income communities.

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

Smart growth. Policy or activity that promotes compact development with transportation options, reuse of existing buildings and infrastructure, community engagement, and green space integrated into streets and neighborhoods.

Table A1. Metric categorization

Metric	Equity focused	Performance	Smart growth	Possible points
Community-wide initiatives				
Community-wide climate goal stringency	No	No	No	2
Community-wide climate goal progress	No	Yes	No	2
Community-wide energy efficiency goal stringency	No	No	No	2
Community-wide renewable energy goal stringency and renewable energy supply	No	No	No	2
Equity-driven community engagement	Yes	No	No	0.5
Equity-driven decision making	Yes	No	No	1
Accountability for social equity	Yes	No	No	1
Support for carbon-reducing technologies in microgrids and district energy systems	No	No	Yes	1
Support for shared community solar systems	No	No	Yes	0.5
Equity-driven approach to shared distributed energy systems	Yes	No	Yes	1.5
Heat island mitigation goals	No	No	Yes	0.5
Heat island mitigation policies and programs	No	No	Yes	1
Buildings policies				
Residential and commercial codes	No	No	No	6
Renewable readiness	No	No	No	1
Building EV readiness	No	No	Yes	1
EV charging readiness and infrastructure	No	No	Yes	1
Low-energy-use requirements	No	No	No	1
Dedicated staffing for building energy code compliance	No	No	No	1
Energy code compliance strategies	No	No	No	1
Upfront support for building energy code compliance	No	No	No	1
Building energy efficiency incentives	No	No	No	1*
Building renewable energy incentives	No	No	No	1*
Low-income energy incentive and financing programs	Yes	No	No	1*

Metric	Equity focused	Performance	Smart growth	Possible points
Affordability requirements in energy incentive and financing programs	Yes	No	Yes	0.5*
Building performance standards	No	No	Yes	4.5*
Building performance standards for affordable housing	Yes	No	Yes	1.5*
Retrofit requirements	No	No	Yes	3*
Retrocommissioning requirements	No	No	Yes	3*
Building crosscutting requirements	No	No	No	2*
Energy audit requirements	No	No	No	1*
Building voluntary programs	No	No	No	2*
Benchmarking requirements	No	No	No	3*
Benchmarking compliance	No	Yes	No	0.5*
Commercial rental energy disclosure policy	No	No	No	1*
Residential rental energy disclosure policy	Yes	No	No	1*
Other building energy-saving requirements	No	No	No	2*
Energy efficiency workforce development	No	No	No	0.5
Inclusive energy efficiency workforce development	Yes	No	No	0.5
Renewable energy workforce development	No	No	No	0.5
Inclusive renewable energy workforce development	Yes	No	No	0.5
Transportation policies				
Sustainable transportation plan	No	No	Yes	1
Codified VMT/GHG targets	No	No	No	1
Stringency of VMT/GHG targets	No	No	No	1
Progress achieved toward VMT/GHG goal	No	Yes	No	1
Location-efficient zoning codes	No	No	Yes	2
Parking requirements	No	No	Yes	2
Location efficiency incentive programs and disclosure policies	No	No	Yes	2
Mode shift targets	No	No	Yes	1
Progress toward mode shift target	No	Yes	Yes	1
Complete streets	No	No	Yes	1
Bicycle system efficiency and connectivity	No	Yes	Yes	1
Transit funding	No	Yes	Yes	2
Transit performance	No	Yes	Yes	2
Vehicle charging infrastructure incentives	No	No	Yes	1
Efficient vehicle purchase incentives	No	No	Yes	1
Number of EV charging station ports	No	Yes	Yes	1
Electric school bus goal	No	No	Yes	0.5
Electric transit bus goal	No	No	Yes	0.5
Sustainable freight plans and strategies	No	No	Yes	2
Low-income housing around transit	Yes	No	Yes	2
Subsidized access to efficient transportation options	Yes	No	Yes	2
Low-income access to high-quality transit	Yes	Yes	Yes	2
Equitable EV infrastructure deployment (bonus)	Yes	No	Yes	1
Congestion pricing (bonus)	No	No	Yes	1

Metric	Equity focused	Performance	Smart growth	Possible points
Energy and water utilities				
Electric and natural gas efficiency savings	No	No	No	4.5
Low-income energy efficiency programs	Yes	No	Yes**	1.5
Comprehensive multifamily energy efficiency program	Yes	No	No**	0.5
Affordable multifamily program	Yes	No	No	0.5
Equitable utility energy efficiency partnerships (bonus)	Yes	No	No	1
Utility automated benchmarking program	No	No	No	0.5
Community energy data	No	No	No	1
Energy data advocacy	No	No	No	0.5
City-led actions to decarbonize electric grid	No	No	No	1.5
Electric utility climate goal stringency	No	No	No	1.5
Joint water–energy programs	No	No	No	0.5
Water savings strategy	No	No	No	0.5
Water utility energy efficiency strategies	No	No	No	1
Water utility energy recovery and renewables	No	No	No	1
Local government operations				
Local government climate goal stringency	No	No	No	1
Local government climate goal progress	No	Yes	No	1
Local government renewable energy goal stringency	No	No	No	1
Local government energy efficiency goal stringency	No	No	No	1
Fleet composition	No	Yes	No	0.5
Fleet procurement policy	No	No	No	0.5
Efficient public lighting performance	No	Yes	No	1
Efficient public lighting policy	No	No	Yes	0.5
Onsite renewable energy systems	No	Yes	No	1
Inclusive procurement and contracting	Yes	No	No	0.5
Municipal building energy benchmarking	No	Yes	No	0.5
Municipal building retrofit strategies	No	No	No	1

*Cities could receive a maximum of 15 points for actions designed to address energy use in existing buildings. Of these points, 3 were reserved for equity-focused actions and the remaining 12 were allocated to actions that are not equity focused. **We categorize only one component of our utility low-income energy efficiency metric as smart growth—offering a portfolio of low-income energy efficiency programs with at least one comprehensive program. We include this because it tracks programs that are inherently designed to incentivize comprehensive whole-building energy improvements for existing homes. We do not include the utility multifamily energy efficiency program metric because it awards points to some programs that do not make whole-building improvements.

Appendix B. Additional Methodology Information and Updates

DATA COLLECTION AND REVIEW

Our data collection and review process included outreach to city government staff, local stakeholders in the cities we scored, and clean energy experts nationwide. This outreach occurred in two phases:

- *Data requests to cities and utilities and secondary data collection.* 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.[53] Each request contained pre-populated policy data from our Local Policy Database and previously completed data requests. We asked local government staff to review and update the information as appropriate and provide new data for any new metrics. Respondents in 64 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 clean energy programs. Of the 117 data requests sent to utility contacts, 83 were returned to us. The city and utility staff members who completed and returned data requests are included in table H1 of Appendix H. We also consulted publicly available sources to supplement data request responses.

- *Review and revision.* We applied the scoring methodology detailed in the first chapter of this report to the data we collected. Our resulting analysis underwent an initial review by ACEEE staff. We then invited local government staff from all 100 cities assessed, energy utility staff from all pertinent energy utilities, and other clean energy 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 125 sets of comments from more than 136 reviewers.

DATA LIMITATIONS

While our requests for data drew responses from 64% of cities and 72% of utilities, some cities and utilities did not respond to our requests after multiple attempts. 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 relevant entities' web pages. In these cases, our reliance on independently collected data may mean that some activities in select cities were overlooked in scoring.[54]

We also found it challenging to validate data cities submitted on the performance of their policies. We required respondents to share supporting documentation that could be used 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 we could not independently validate them.

RESEARCH USED TO INFORM CITY TYPOLOGY DEVELOPMENT

MSA Size and Energy Use

Cities in large and midsize MSAs share common geographic, economic, and transportation characteristics that shape their energy use. Large metros, those with more than 1,000,000 people, are more commonly found in U.S. coastal states and the Southwest. Midsize metros, those with a population between 250,000 and 1,000,000, can be found in all regions but tend to dominate the heartland: the Midwest, Great Plains, and South Central regions (Berube 2019).[55] States in the heartland tend to have higher overall per capita energy use, driven largely by high energy consumption in the industrial, transportation, and (to a lesser degree) residential sectors (Francis and Bradley 2018).

53 Sustainability staff would typically coordinate with those in other city departments to respond to questions that pertained to activities outside their day-to-day responsibilities.

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

55 We use the definition of the heartland outlined by the Walton Family Foundation. For more information, see factbook.theheartlandsummit.org/.

Manufacturing companies are more common in midsize than large metros—they employ one in nine midsize metro workers—and this may be associated with the higher industrial energy use observed in heartland states. The health care, retail, education, and hospitality industries combine to employ another 44% of workers in these areas, and available data indicate that these industries operate within the highest energy-consuming commercial facilities in the United States (EIA 2016; Berube 2019). Economic and job growth outside these sectors has been limited, and many midsize metros have lagged behind their larger counterparts in economic and job growth primarily because they have faced challenges in attracting professional service employers, and especially technology companies (Berube 2019).

Higher per capita transportation energy use in midsize metros may in part reflect the fact that their residents have more limited transit systems compared with those serving larger MSAs. Our *Scorecard*'s analysis of large metro transit systems shows that these systems spend an annual average of $175.96 per rider, while midsize metro systems annually spend an average of only $57.83. An average of 1.8% of commuters in midsize metros use transit to travel to and from work, compared with an average of 3.4% in large metros (DOT 2015).

City Population Growth and Energy Use

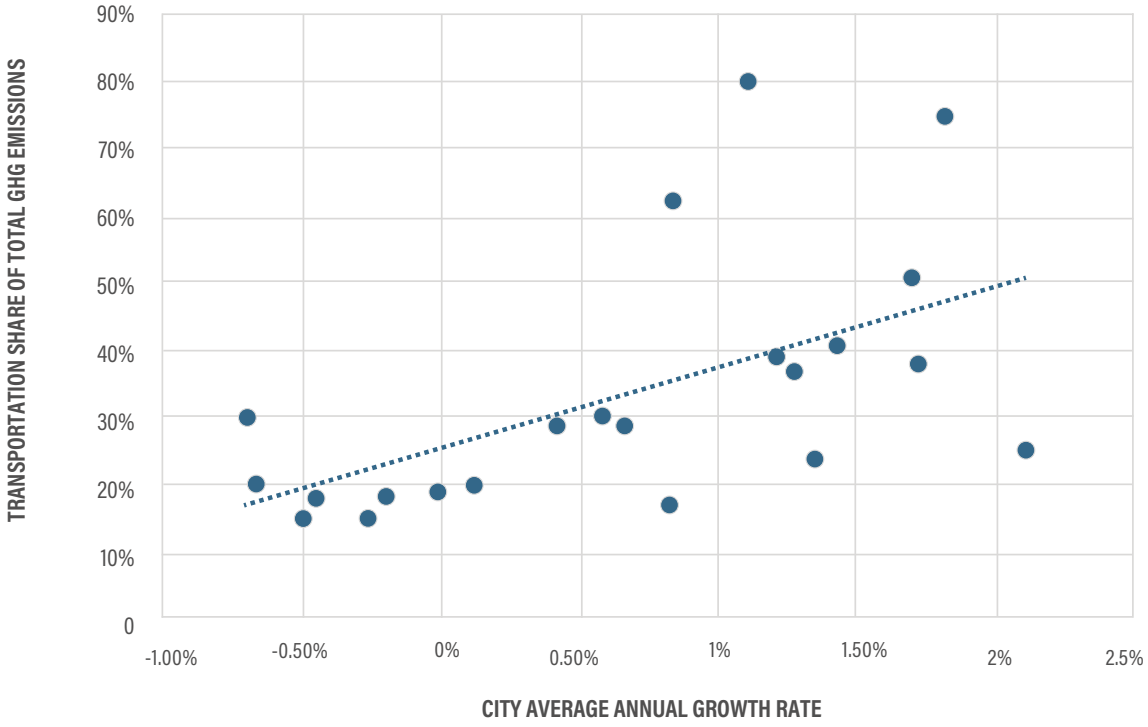
The degree to which cities' populations are growing is also indicative of several economic and energy characteristics. Cities are often motivated to encourage population growth because "it generates immediate development revenue in the form of permit fees, utility fees, property tax increases and sales taxes" (Wogan 2017). Cities with declining populations experience challenges in the form of employment losses, abandoned buildings, a smaller tax base, and limits on city services (Hollander and Németh 2011). However, rapidly growing cities will eventually be responsible for large costs associated with their growth. While developers are often responsible for covering the initial costs of infrastructure for new developments, cities will have to cover the costs to repair and maintain that infrastructure in the years following its creation (Wogan 2017). Analyzing population growth at the MSA level, Gottlieb (2002) and Fodor (2010) both found that rapid urban growth is associated with other outcomes as well: Compared with regions that grow more slowly, rapid urban population growth is associated with lower household incomes, higher unemployment, and greater poverty.

Recent research by Nijman and Wei (2020) supports the idea that the trends Gottlieb and Fodor observed at the MSA level are also true for central cities. Increasingly, city growth is propelled by the expansion of companies and organizations specializing in information production and dissemination. These companies provide customized legal, financial, engineering, technology-related, or other, similar services to their clients. Firms like these have historically benefited from proximity to one another and to their clients, allowing them to exchange information more easily with one another and with their intended audience. However, these companies tend to provide middle- or high-income jobs to only those with advanced degrees. Many of the industries, such as manufacturing, that historically provided middle-income jobs to those with less education have left as cities have grown. Residents of growing cities that do not have advanced degrees are finding it increasingly difficult to obtain work in well-paying positions in growing cities. Consequently, these cities are experiencing growing income inequality (Nijman and Wei 2020).

Two studies support the assertion that greater income inequality at the local level is associated with increased energy use and GHG emissions. A study of U.S. states found that CO_2 emissions were higher in states that had a greater concentration of wealth among those in the top 10% of an area's incomes (Jorgenson, Schor, and Huang 2017). A recent ACEEE study found that cities with an increasing share of their population living in poverty tend to also see increased per capita building energy use (Samarripas and de Campos Lopes 2020). While transportation energy and GHG emissions data at the city level are limited, available data do support the idea that transportation emissions occupy a larger share of total GHG emissions in cities with greater population growth. Gurney et al. (2021) compared self-reported GHG emissions inventory (SRI) data from 43 U.S. cities with emissions totals generated by their Vulcan 3.0 model. In collecting their SRI data, these researchers published complete CO_2 emissions from the transportation activity of 31 cities included in our *City Clean Energy Scorecard*. Figure B1 shows how the on-road and railroad transportation shares of cities' total GHG emissions compare to city average annual growth rates.[56]

56 We have excluded air and commercial marine vessel emissions as these vary considerably from city-to-city and because this activity may be outside the influence of city policies.

Figure B1. On-road and railroad transportation share of total city GHG emissions



APPROACH TO VEHICLE AND BUILDING ELECTRIFICATION

Over the past several years, cities have increased their focus on developing vehicle and building electrification plans to achieve their GHG emissions goals. Initiatives such as Bloomberg Philanthropies' American Cities Climate Challenge and the Urban Sustainability Directors Network's Zero Cities Project have helped spur these activities. While substantial electrification planning work has taken place at the local level, cities are only now beginning to adopt policies and programs to electrify transportation, and fewer cities are moving forward with building electrification initiatives.

Our *Scorecard* includes a limited but growing focus on electrification. We have centered our analysis on vehicle rather than building electrification for several reasons. Local vehicle electrification initiatives are, under most circumstances, an example of electrification as energy efficiency, meaning that they reduce total energy use, GHG emissions, and overall costs. EVs are among the most energy-efficient vehicles available, have lower lifetime costs than traditional gasoline and diesel vehicles, and generate no tailpipe emissions (ACEEE 2021c; Bourlaug et al. 2020; Howard et al. 2021). They also have the potential to be carbon free if charged on a decarbonized electric grid.

The degree to which a local building electrification policy can be considered electrification or energy efficiency depends on the policy's design, and very few localities outside California have adopted such initiatives. Because most local building electrification initiatives have been confined to California, we chose to not include an analysis of these policies. This is in keeping with our commitment to not bias the *Scorecard* toward a particular state or region. As cities pursue additional electrification work, we will work to capture these activities in the *Scorecard* and increase the share of points these activities receive.

METHODOLOGY UPDATES

This year we expanded our analysis of cities' clean energy strategies in several regards. In the sections below we expand on the research that guided our approach and how it informed specific changes in our analysis. The following information is supplementary to that found in Chapter 1.

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 area and subcategory, with changes in scoring methodology

Policy area and subcategory	Maximum score 2021	Maximum score 2020	Change
Community-wide initiatives	**15**	**15**	**0**
Community-wide goals	8	9	–1
Equity-driven approaches to clean energy planning	2.5	1.5	1
Local clean distributed energy systems	3	3	0
Heat island mitigation	1.5	1.5	0
Buildings policies	**30**	**30**	**0**
Building energy code adoption	10	9	1
Building energy code compliance	3	4	–1
Benchmarking and transparency*			0
Incentives and financing*	15	15	0
Required energy actions*			0
Workforce development	2	2	0
Transportation policies	**30**	**30**	**0**
Sustainable transportation strategies	4	4	0
Location efficiency	6	6	0
Mode shift	4	7	–3
Public transit	4	4	0
Efficient vehicles policies	4	4	0
Freight	2	2	0
Efficient transportation for low-income communities	6	3	3
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	2	1	1
City-led efforts to decarbonize the electric grid	3	3	0
Efficiency efforts in water services	3	4	–1
Local government operations	**10**	**10**	**0**
Local government goals	4	4	0
Procurement and construction policies	4	3.5	0.5
Asset management	2	2.5	–0.5

*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. Of these points, 3 were reserved for equity-focused actions and the remaining 12 were allocated to actions that are not equity-focused.

Racial and Social Equity Metrics

The past four editions of the *City Scorecard* included metrics tracking the degree to which cities and their utilities were pursuing racial and social equity outcomes in clean energy planning and policymaking. The 2017 *City Scorecard* was the first to include equity metrics examining utility low-income and multifamily energy efficiency programs. The 2019 edition included additional equity metrics examining equity-driven approaches to local clean energy planning and implementation, inclusivity in workforce development initiatives, renewable energy incentives for low-income households, and city actions designed to increase low-income household access to transit and other energy-efficient, low-carbon transportation options. The 2020 *City Scorecard* revised these existing equity metrics but did not add any new ones.

For the 2021 *City Scorecard*, we made two significant changes in the way points are allocated to equity metrics. First, we created a set-aside 3 points in the Buildings Policies category's existing buildings metric. Cities must earn these 3 equity points to earn the full 15 points available for this metric. Second, we increased the overall points for equity metrics from 11 to 17 and are providing 2 additional bonus points for equity metrics. Cities can earn 1 point for utility–city partnerships designed to deliver energy efficiency programs more equitably, and they can earn 1 point for efforts to direct the installation of EV charging equipment in historically marginalized communities.

Community-Wide Initiatives

We revised our scoring of **community-wide energy reduction** and **renewable electricity goals** by scoring only for the stringency of those goals. Previous *Scorecards* gave credit for both the existence of a goal and its stringency. Further, we altered our scoring of **renewable electricity generation goals** by awarding points for the initial renewable energy grid mix in the year the goal was adopted. We discuss this methodology in Chapter 2. In future editions of the *City Scorecard*, we aim to score progress toward these goals.

We removed the **energy data reporting metric**.

We increased the number of points available in the **equity-driven decision-making** metric from 0.5 points to 1 point to recognize cities that incorporated participatory budgeting into these decision-making bodies. We also increased the number of points available in the **accountability to social equity** metric from 0.5 points to 1 point to recognize cities that have institutionalized equity and require new policies and programs to complete a structural equity assessment.

In the previous edition of the *Scorecard*, the **clean, distributed energy resources** metric awarded points for both city support for the creation of distributed energy systems and the integration of carbon-free generation resources into those systems. This year we awarded points only for the integration of carbon-free generation resources in district energy and microgrid systems while still awarding points for support for the creation of community solar energy systems. This is so that cities receive credit for the carbon-free generation resources across all three systems. We discuss this methodology in Chapter 3. Further, we added the **equity in distributed energy resource planning** metric to recognize cities that are proliferating these resources equitably.

We considered creating a new metric to score cities on their equity-driven efforts in heat island mitigation, but we did not receive sufficient data.

Buildings Policies

We updated our **policies targeting existing buildings** metric to include a 3-point set-aside for equitable policy requirements. We identified three existing building policies that cities commonly use to provide equitable energy improvements to historically marginalized groups: residential building performance standards, low-income clean energy incentive and financing programs, and residential rental disclosure policies. We also recognize that policies such as these should be designed to avoid exacerbating high energy burdens and negatively impacting low-income communities. For example, residential building performance standards should include special consideration for affordable housing like extended compliance deadlines and supplemental financial incentive programs. Similarly, cities can attach affordability requirements to incentive programs that minimize or forbid rent increases in future years. We required cities to earn at least 3 points from the aforementioned equity policy metrics to receive the full 15 points for our existing buildings policies metric.

We also created a new **EV charging infrastructure requirement** metric. We included this metric in the buildings chapter rather than the transportation chapter because such requirements are typically attached to the construction or substantial renovation of buildings.

Transportation Policies

We applied our methodology for assessing the stringency of, and cities' progress toward, community-wide GHG emissions goals to assessing the **stringency and progress of codified VMT or transportation GHG targets**.

We narrowed the scope of our **location-efficient zoning code** metric to award only 2 points to cities that require any of the following for the whole city: transit-oriented development, compact or mixed-use land development, or form-based zoning. Cities were eligible for 1 point if they require any of these development patterns in only certain zones.

We also narrowed the scope of our **location efficiency incentives** metric. Cities were eligible for 0.5 points for each separate type of incentive program offered. These could include expedited permitting, floor to area ratio (FAR) increases, density bonuses, fee waivers, and tax incentives for developers. The metrics points were capped at 2.

We replaced the bike sharing metric that appeared in past editions with a metric assessing overall **city bikeability**. To assess this, we used the PlacesForBikes index created by PeopleForBikes.

The National Complete Streets Coalition's complete streets index that we used in past editions of the *Scorecard* was discontinued. Consequently, we scored cities on whether they have adopted a **complete streets policy** for the entire city (1 point) or a portion of the city (0.5 points).

We added several new EV metrics. We added metrics worth 0.5 points each for cities that have adopted an **EV transit and/or school bus goal**. We also created a metric, worth 1 bonus point, recognizing cities that support the equitable deployment of EV infrastructure.

Finally, we increased the points available for the policy area's equity metrics from 3 to 6 points. Each metric is worth 2 points.

While not a change from past years, we wish to clarify that the Transportation policy area is the only category in the *Scorecard* in which cities can earn more than 30 points, thanks to its two bonus metrics.

Energy and Water Utilities

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

We revised the approach for scoring utility-administered **low-income energy efficiency programs** to award credit to utilities that offer a comprehensive low-income program only if such a program is part of a portfolio of programs designed to benefit low-income customers. We also provided credit for low-income programs that offer health and safety measures.

We created a new metric that assesses the **stringency of electric utility GHG emissions goals**. We applied to this metric the same methodology used to score the stringency of community-wide GHG emissions goals.

We also revised our metric tracking **city-led efforts to decarbonize the electric grid** by scoring cities with municipal electric utilities on their utilities' GHG emissions intensity.

We revised our metric assessing **joint water- and energy-saving programs** to award points only for programs that offer or incentivize deep water-saving measures. We also reduced the points for this metric from 1 to 0.5 points.

We reduced the number of points a water utility could earn for a **water savings target** from 1 to 0.5 points.

We awarded 1 point for **water utilities' internal energy efficiency programs** only if the utility has adopted a strategic and comprehensive energy management approach that incorporates both capital improvements (e.g., equipment replacement and building shell upgrades) and operational improvements (e.g., active energy management, audits, and retrocommissioning). To earn 1 point, the city or utility had to provide data on results of their completed retrofit projects, such as the number of buildings that have undergone retrofits or the cost of energy savings. If water utilities did not demonstrate that they had completed projects, they were eligible for 0.5 points.

Local Government Operations

In the previous edition of the *City Scorecard*, cities could earn 0.5 points for either having energy-efficient vehicles make up a modest share of their **municipal vehicle fleet composition** or having an **energy-efficient fleet procurement policy**. Cities could earn a full 1 point only if energy-efficient vehicles made up a large share of their municipal vehicle fleet composition. In this edition of the *Scorecard*, we drew a clear distinction between adopting such a policy and demonstrating performance. Cities were able to earn 0.5 points for the adoption of an efficient vehicle fleet procurement policy and a separate 0.5 points for demonstrating that efficient vehicles make up a high share of their fleet relative to other cities.

We increased the total points available for our **efficient outdoor lighting** metrics from 1 to 1.5 points. Like the changes made to our municipal fleet procurement policy and composition metric, we drew a sharper distinction between policy adoption and performance. We reserved 0.5 points for the adoption of an outdoor lighting policy that seeks to reduce the use of outdoor lighting whenever appropriate. We also awarded cities 1 point for demonstrating a high rate of converting streetlights to LEDs.

Cities earned points for an **inclusive procurement and contracting policy** only when they could demonstrate that the policy had been an applied to a clean energy project.

We reduced the points available for **municipal energy benchmarking** from 1 to 0.5 points. Cities could earn 0.5 points if they demonstrated having benchmarked 90% or more of their building portfolio.

We made substantial changes to our metric tracking **municipal energy retrofit strategies**. We awarded cities up to 1.5 points based on their comprehensive retrofit approach. We gave 1 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 had to incorporate both capital improvements (e.g., equipment replacement and building shell upgrades) and operational improvements (e.g., active energy management, audits, and retrocommissioning). We awarded an additional 0.5 points to cities that have a dedicated funding source for energy efficiency improvement work beyond regular maintenance.

We did not include the **local government telework policy** metric in this year's *Scorecard* due to confounding effects from the COVID-19 pandemic.

Appendix C. City Typology Classifications

Table C1. Breakdown of city typology groups by MSA population size and average annual city population change

City	State	2019 MSA population	MSA classification	2010–19 average annual city population change	City growth classification
Cape Coral	FL	770,577	Midsize	2.61%	Rapid
Charleston	SC	802,122	Midsize	1.98%	Rapid
Omaha	NE	949,442	Midsize	1.76%	Rapid
Lakeland	FL	724,777	Midsize	1.58%	Rapid
Colorado Springs	CO	745,791	Midsize	1.55%	Rapid
Reno	NV	475,642	Midsize	1.42%	Rapid
Madison	WI	664,865	Midsize	1.20%	Rapid
Boise	ID	749,202	Midsize	1.20%	Rapid
Bakersfield	CA	900,202	Midsize	1.12%	Modest
McAllen	TX	868,707	Midsize	1.10%	Modest
Greensboro	NC	771,851	Midsize	1.07%	Modest
Winston-Salem	NC	676,008	Midsize	0.86%	Modest
Fresno	CA	999,101	Midsize	0.80%	Modest
Stockton	CA	762,148	Midsize	0.78%	Modest
Oxnard	CA	846,006	Midsize	0.60%	Modest
Des Moines	IA	699,292	Midsize	0.58%	Modest
El Paso	TX	844,124	Midsize	0.55%	Modest
Knoxville	TN	869,046	Midsize	0.53%	Modest
Provo	UT	648,252	Midsize	0.41%	Modest
Allentown	PA	844,052	Midsize	0.32%	Modest
Albuquerque	NM	918,018	Midsize	0.30%	Modest
Tulsa	OK	998,626	Midsize	0.28%	Modest
Worcester	MA	947,404	Midsize	0.27%	Modest
Honolulu	HI	974,563	Midsize	0.26%	Stable
Wichita	KS	640,218	Midsize	0.22%	Stable
Little Rock	AR	742,384	Midsize	0.22%	Stable
Columbia	SC	838,433	Midsize	0.18%	Stable
Augusta	GA	608,980	Midsize	0.09%	Stable
New Haven	CT	854,757	Midsize	0.04%	Stable
Springfield	MA	697,382	Midsize	0.04%	Stable
Bridgeport	CT	943,332	Midsize	0.01%	Stable
Akron	OH	703,479	Midsize	–0.08%	Stable
Dayton	OH	807,611	Midsize	–0.09%	Stable
Syracuse	NY	648,593	Midsize	–0.22%	Stable
Baton Rouge	LA	854,884	Midsize	–0.45%	Stable
Toledo	OH	641,816	Midsize	–0.57%	Stable
Henderson	NV	2,266,715	Large	2.44%	Rapid
Austin	TX	2,227,083	Large	2.42%	Rapid
Fort Worth	TX	2,491,194	Large	2.35%	Rapid

City	State	2019 MSA population	MSA classification	2010–19 average annual city population change	City growth classification
Charlotte	NC	2,636,883	Large	2.15%	Rapid
Atlanta	GA	6,020,364	Large	2.11%	Rapid
Orlando	FL	2,608,147	Large	2.11%	Rapid
Tampa	FL	3,194,831	Large	1.96%	Rapid
Mesa	AZ	4,948,203	Large	1.86%	Rapid
Raleigh	NC	1,390,785	Large	1.81%	Rapid
Miami	FL	2,716,940	Large	1.78%	Rapid
Aurora	CO	2,967,239	Large	1.73%	Rapid
San Antonio	TX	2,550,960	Large	1.72%	Rapid
Phoenix	AZ	4,948,203	Large	1.69%	Rapid
Columbus	OH	2,122,271	Large	1.53%	Rapid
New Orleans	LA	1,270,530	Large	1.43%	Rapid
Oklahoma City	OK	1,408,950	Large	1.36%	Rapid
Richmond	VA	1,291,900	Large	1.35%	Rapid
Chula Vista	CA	3,338,330	Large	1.32%	Rapid
Dallas	TX	5,081,942	Large	1.29%	Rapid
Portland	OR	2,492,412	Large	1.26%	Rapid
Las Vegas	NV	2,266,715	Large	1.22%	Rapid
Nashville	TN	1,934,317	Large	1.19%	Rapid
Jacksonville	FL	1,559,514	Large	1.16%	Modest
Houston	TX	7,066,141	Large	1.11%	Modest
Sacramento	CA	2,363,730	Large	1.08%	Modest
Riverside	CA	4,650,631	Large	0.97%	Modest
San Diego	CA	3,338,330	Large	0.95%	Modest
St. Petersburg	FL	3,194,831	Large	0.90%	Modest
Saint Paul	MN	3,640,043	Large	0.87%	Modest
Kansas City	MO	2,157,990	Large	0.83%	Modest
Salt Lake City	UT	1,232,969	Large	0.82%	Modest
Grand Rapids	MI	1,077,370	Large	0.74%	Modest
Indianapolis	IN	2,074,537	Large	0.66%	Modest
Tucson	AZ	1,047,279	Large	0.59%	Modest
Philadelphia	PA	2,150,811	Large	0.42%	Modest
Louisville	KY	1,265,108	Large	0.37%	Modest
Virginia Beach	VA	1,768,901	Large	0.30%	Modest
Cincinnati	OH	2,221,208	Large	0.26%	Stable
Newark	NJ	2,167,829	Large	0.20%	Stable
Providence	RI	1,624,578	Large	0.11%	Stable
Memphis	TN	1,346,045	Large	0.07%	Stable
Long Beach	CA	10,039,107	Large	0.01%	Stable
Chicago	IL	7,122,725	Large	–0.01%	Stable
Milwaukee	WI	1,575,179	Large	–0.09%	Stable
Birmingham	AL	1,090,435	Large	–0.11%	Stable
Pittsburgh	PA	2,317,600	Large	–0.20%	Stable

City	State	2019 MSA population	MSA classification	2010–19 average annual city population change	City growth classification
Hartford	CT	1,204,877	Large	–0.24%	Stable
Buffalo	NY	1,127,983	Large	–0.26%	Stable
Rochester	NY	1,069,644	Large	–0.26%	Stable
Cleveland	OH	2,048,449	Large	–0.45%	Stable
Baltimore	MD	2,800,053	Large	–0.50%	Stable
St. Louis	MO	2,803,228	Large	–0.67%	Stable
Detroit	MI	1,749,343	Large	–0.70%	Stable
San Juan	PR	2,023,227	Large	–2.27%	Stable

Appendix D. Top-Scoring Cities by Clean Energy Strategy

Table D1. Cities by racial and social equity total score (out of 19 possible points)

Minneapolis (12)	Providence (5)	San Diego (3)	Tampa (1.5)
Washington, D.C. (11)	Springfield (5)	St. Louis (3)	Tulsa (1.5)
New York (10.5)	Cleveland (4.5)	Toledo (3)	Wichita (1.5)
Chicago (10)	Knoxville (4.5)	Bakersfield (2.5)	Henderson (1)
Portland (10)	Long Beach (4.5)	Buffalo (2.5)	Las Vegas (1)
Boston (9.5)	Pittsburgh (4.5)	Des Moines (2.5)	St. Petersburg (1)
Oakland (9.5)	Charlotte (4)	Indianapolis (2.5)	Tucson (1)
Philadelphia (9)	Cincinnati (4)	Memphis (2.5)	Winston-Salem (1)
San Francisco (9)	Fresno (4)	Miami (2.5)	Birmingham (0.5)
Seattle (9)	Grand Rapids (4)	Oklahoma City (2.5)	Greensboro (0.5)
Denver (8.5)	Sacramento (4)	Oxnard (2.5)	Jacksonville (0.5)
Baltimore (8)	Salt Lake City (4)	Stockton (2.5)	McAllen (0.5)
Austin (7.5)	Chula Vista (3.5)	Syracuse (2.5)	Mesa (0.5)
Los Angeles (7.5)	Columbus (3.5)	Worcester (2.5)	Allentown (0)
San José (7.5)	Dallas (3.5)	Bridgeport (2)	Baton Rouge (0)
Albuquerque (7)	Detroit (3.5)	Fort Worth (2)	Cape Coral (0)
Honolulu (7)	Kansas City (3.5)	New Haven (2)	Dayton (0)
Hartford (6.5)	Milwaukee (3.5)	New Orleans (2)	El Paso (0)
Saint Paul (6)	Richmond (3.5)	Rochester (2)	Lakeland (0)
Atlanta (5.5)	Riverside (3.5)	Akron (1.5)	Little Rock (0)
Madison (5.5)	San Antonio (3.5)	Augusta (1.5)	Omaha (0)
Nashville (5.5)	Boise (3)	Charleston (1.5)	Provo (0)
Aurora (5)	Colorado Springs (3)	Columbia (1.5)	Reno (0)
Houston (5)	Orlando (3)	Louisville (1.5)	San Juan (0)
Phoenix (5)	Raleigh (3)	Newark (1.5)	Virginia Beach (0)

Table D2. Cities by performance total score (out of 16.5 points)

San Francisco (15)	Knoxville (6)	Aurora (2.5)	Louisville (1)
Boston (13.5)	Long Beach (6)	Detroit (2.5)	Mesa (1)
Minneapolis (11.5)	Salt Lake City (6)	Houston (2.5)	Oxnard (1)
Portland (11.5)	Honolulu (5.5)	Milwaukee (2.5)	Provo (1)
Seattle (11)	Madison (5.5)	Newark (2.5)	Reno (1)
Washington, D.C. (11)	Miami (5.5)	Riverside (2.5)	Syracuse (1)
Los Angeles (10)	Cincinnati (5)	Virginia Beach (2.5)	Tampa (1)
New York (10)	Columbus (5)	Bakersfield (2)	Wichita (1)
Chicago (9.5)	Albuquerque (4.5)	Birmingham (2)	Winston-Salem (1)
Philadelphia (9)	Dallas (4.5)	Boise (2)	Baton Rouge (0.5)
San José (9)	Richmond (4.5)	Bridgeport (2)	Colorado Springs (0.5)
Baltimore (8.5)	San Antonio (4.5)	Dayton (2)	Henderson (0.5)
Oakland (8.5)	St. Louis (4.5)	Fresno (2)	Jacksonville (0.5)
Austin (7.5)	Grand Rapids (4)	Raleigh (2)	Oklahoma City (0.5)
Cleveland (7.5)	Hartford (4)	Akron (1.5)	Omaha (0.5)
Providence (7.5)	New Haven (4)	Charleston (1.5)	Toledo (0.5)
Atlanta (7)	New Orleans (4)	Des Moines (1.5)	Tulsa (0.5)
Denver (7)	St. Petersburg (4)	Fort Worth (1.5)	Augusta (0)
Kansas City (7)	Chula Vista (3.5)	Indianapolis (1.5)	Cape Coral (0)
Orlando (7)	Rochester (3.5)	Memphis (1.5)	Greensboro (0)
Pittsburgh (7)	Buffalo (3)	Nashville (1.5)	Lakeland (0)
San Diego (7)	Charlotte (3)	Springfield (1.5)	Little Rock (0)
Las Vegas (6.5)	Saint Paul (3)	Allentown (1)	McAllen (0)
Phoenix (6.5)	Tucson (3)	Columbia (1)	San Juan (0)
Sacramento (6.5)	Worcester (3)	El Paso (1)	Stockton (0)

Table D3. Cities by smart growth total score (out of 49 possible points)

New York (36)	Albuquerque (14)	Buffalo (9)	Dayton (5)
Washington, D.C. (32)	Columbus (14)	Indianapolis (9)	Syracuse (5)
San Francisco (28)	Saint Paul (14)	Knoxville (9)	Toledo (5)
Seattle (26.5)	San Diego (14)	Colorado Springs (8.5)	Worcester (5)
Denver (26)	Salt Lake City (13.5)	Detroit (8.5)	Akron (4.5)
Los Angeles (24.5)	Grand Rapids (13)	Memphis (8.5)	El Paso (4.5)
Boston (24)	Houston (13)	Rochester (8.5)	Stockton (4.5)
Minneapolis (23)	Aurora (12.5)	Raleigh (8)	Tulsa (4.5)
Oakland (23)	Cleveland (12.5)	San Antonio (8)	Virginia Beach (4.5)
Portland (22)	Miami (12.5)	Springfield (8)	Bakersfield (4)
San José (22)	Providence (12.5)	Bridgeport (7.5)	Des Moines (4)
Atlanta (20)	Charlotte (12)	Fort Worth (7.5)	Lakeland (4)
Chicago (20)	Las Vegas (12)	Oklahoma City (7.5)	Greensboro (3.5)
Philadelphia (20)	Nashville (12)	New Haven (7)	Winston-Salem (3.5)
Sacramento (19)	Kansas City (11.5)	Omaha (7)	Columbia (3)
Hartford (18)	Richmond (11.5)	Tucson (7)	Little Rock (3)
Pittsburgh (18)	Chula Vista (11)	Jacksonville (6.5)	Provo (3)
Long Beach (17.5)	Dallas (10.5)	Tampa (6.5)	Henderson (2.5)
Baltimore (17)	Riverside (10.5)	Fresno (6)	Allentown (2)
Austin (16)	Boise (10)	Mesa (6)	Augusta (2)
Honolulu (16)	St. Petersburg (10)	Newark (6)	Baton Rouge (2)
St. Louis (16)	Cincinnati (9.5)	Charleston (5.5)	Cape Coral (1.5)
Madison (14.5)	Louisville (9.5)	Oxnard (5.5)	McAllen (1)
Orlando (14.5)	Milwaukee (9.5)	Reno (5.5)	San Juan (1)
Phoenix (14.5)	New Orleans (9.5)	Birmingham (5)	Wichita (1)

Appendix E. Comprehensive Scores

COMMUNITY-WIDE INITIATIVES

Table E1. Community-wide climate mitigation and energy goals scores (out of 8 possible points)

City	Energy reduction goal stringency (2 pts)	Initial renewable energy supply (0.5 pts)	Renewable energy goal stringency (1.5 pts)	Climate goal stringency (2 pts)	Climate goal progress (2 pts)	Total
Seattle	1	0.5	1.5	2	2	7
Los Angeles	1	0.5	0.5	2	2	6
San José	2	0.5	1.5	0	2	6
Austin	0	0.5	1.5	1	2	5
Denver	0	0.5	1.5	2	1	5
Pittsburgh	2	0.5	1.5	1	0	5
Washington, D.C.	2	0	1	1	1	5
Las Vegas	1	0.5	1	2	0	4.5
Minneapolis	0	0.5	1	1	2	4.5
Oakland	0	0.5	1.5	2	0	4
Orlando	0	0	1	1	2	4
Philadelphia	0	0.5	0.5	1	2	4
Phoenix	0	0	0	2	2	4
San Francisco	0	0.5	0.5	1	2	4
Chicago	0	0	1.5	0	2	3.5
Des Moines	0	0.5	1	2	0	3.5
Honolulu	0	0.5	1	2	0	3.5
Portland	0	0	1.5	2	0	3.5
San Diego	0	0.5	1	1	1	3.5
St. Louis	0	0	1.5	1	1	3.5
Baltimore	0	0	0	1	2	3
Boston	0	0	0	1	2	3
Chula Vista	0	0.5	0.5	2	0	3
Columbus	0	0	0	1	2	3
Knoxville	0	0	0	1	2	3
Miami	0	0	0	1	2	3
New Haven	0	0	0	1	2	3
Richmond	0	0	0	1	2	3
San Antonio	0	0.5	0.5	2	0	3
Atlanta	0	0	1.5	1	0	2.5
Kansas City	0	0	0.5	0	2	2.5
Louisville	0	0	1.5	1	0	2.5
Memphis	0	0.5	1	1	0	2.5
New Orleans	0	0.5	1	1	0	2.5
Saint Paul	0	0.5	0	2	0	2.5
Salt Lake City	0	0	1.5	1	0	2.5

City	Energy reduction goal stringency (2 pts)	Initial renewable energy supply (0.5 pts)	Renewable energy goal stringency (1.5 pts)	Climate goal stringency (2 pts)	Climate goal progress (2 pts)	Total
St. Petersburg	0	0	1.5	1	0	2.5
Aurora	0	0	0	0	2	2
Boise	0	0.5	0.5	1	0	2
Charleston	0	0	0	2	0	2
Cincinnati	0	0	1	0	1	2
Houston	0	0	0	2	0	2
Milwaukee	0	0	0	2	0	2
Reno	0	0.5	0.5	1	0	2
Cleveland	1	0	0.5	0	0	1.5
Columbia	0	0	1.5	0	0	1.5
Dayton	0	0	1.5	0	0	1.5
Indianapolis	0	0	0.5	1	0	1.5
Providence	0	0.5	0	1	0	1.5
Riverside	0	0.5	1	0	0	1.5
Charlotte	0	0	0	1	0	1
Dallas	0	0	0	1	0	1
Hartford	0	0	0	1	0	1
Raleigh	0	0	0	1	0	1
Sacramento	0	0	0	0	1	1
New York	0	0	0.5	0	0	0.5
Worcester	0	0.5	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
Colorado Springs	0	0	0	0	0	0
Detroit	0	0	0	0	0	0
El Paso	0	0	0	0	0	0
Fort Worth	0	0	0	0	0	0
Fresno	0	0	0	0	0	0
Grand Rapids	0	0	0	0	0	0
Greensboro	0	0	0	0	0	0
Henderson	0	0	0	0	0	0
Jacksonville	0	0	0	0	0	0
Lakeland	0	0	0	0	0	0

City	Energy reduction goal stringency (2 pts)	Initial renewable energy supply (0.5 pts)	Renewable energy goal stringency (1.5 pts)	Climate goal stringency (2 pts)	Climate goal progress (2 pts)	Total
Little Rock	0	0	0	0	0	0
Long Beach	0	0	0	0	0	0
Madison	0	0	0	0	0	0
McAllen	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
Omaha	0	0	0	0	0	0
Oxnard	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
Springfield	0	0	0	0	0	0
Stockton	0	0	0	0	0	0
Syracuse	0	0	0	0	0	0
Tampa	0	0	0	0	0	0
Toledo	0	0	0	0	0	0
Tucson	0	0	0	0	0	0
Tulsa	0	0	0	0	0	0
Virginia Beach	0	0	0	0	0	0
Wichita	0	0	0	0	0	0
Winston-Salem	0	0	0.	0	0	0

Table E2. Equity-driven climate action and clean energy planning, implementation, and evaluation scores (out of 2.5 possible points)

City	Equity-driven engagement (0.5 pts)	Equity-driven decision making (1 pt)	Equity accountability measures (1 pt)	Total
Seattle	0.5	1	1	2.5
Minneapolis	0.5	0.5	1	2
Philadelphia	0.5	0.5	1	2
Portland	0.5	0.5	1	2
San Francisco	0.5	0.5	1	2
Washington, D.C.	0.5	0.5	1	2
Albuquerque	0	0.5	1	1.5
Providence	0.5	0.5	0.5	1.5
Saint Paul	0.5	0.5	0.5	1.5
San Antonio	0	0.5	1	1.5
Austin	0	0.5	0.5	1
Baltimore	0	0	1	1
Charlotte	0	0	1	1
Cincinnati	0.5	0	0.5	1

City	Equity-driven engagement (0.5 pts)	Equity-driven decision making (1 pt)	Equity accountability measures (1 pt)	Total
Dallas	0.5	0	0.5	1
Denver	0.5	0	0.5	1
Hartford	0.5	0	0.5	1
Knoxville	0.5	0.5	0	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
Phoenix	0.5	0.5	0	1
Richmond	0	0.5	0.5	1
Sacramento	0.5	0.5	0	1
San José	0.5	0.5	0	1
Springfield	0.5	0	0.5	1
Atlanta	0	0	0.5	0.5
Boston	0	0	0.5	0.5
Chicago	0	0	0.5	0.5
Chula Vista	0	0	0.5	0.5
Cleveland	0	0	0.5	0.5
Detroit	0.5	0	0	0.5
Grand Rapids	0	0.5	0	0.5
Honolulu	0	0	0.5	0.5
Houston	0.5	0	0	0.5
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
Pittsburgh	0	0	0.5	0.5
Raleigh	0	0	0.5	0.5
San Diego	0	0	0.5	0.5
Toledo	0	0	0.5	0.5
Akron	0	0	0	0
Allentown	0	0	0	0
Augusta	0	0	0	0
Aurora	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

City	Equity-driven engagement (0.5 pts)	Equity-driven decision making (1 pt)	Equity accountability measures (1 pt)	Total
Colorado Springs	0	0	0	0
Columbia	0	0	0	0
Columbus	0	0	0	0
Dayton	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
Greensboro	0	0	0	0
Henderson	0	0	0	0
Jacksonville	0	0	0	0
Kansas City	0	0	0	0
Lakeland	0	0	0	0
Las Vegas	0	0	0	0
Little Rock	0	0	0	0
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
Reno	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 E3. Clean distributed energy resources scores (out of 3 possible points)

City	District energy integration (0.5 pts)	District energy (equity-related) (0.5 pts)	Microgrid integration (0.5 pts)	Microgrid (equity-related) (0.5 pts)	Community solar support (0.5 pts)	Community solar (equity-related) (0.5 pts)	Total
New York	0.5	0.5	0.5	0.5	0.5	0.5	3
Denver	0.5	0	0.5	0	0.5	0.5	2
Austin	0.5	0	0	0	0.5	0.5	1.5
San José	0.5	0	0.5	0	0.5	0	1.5
Aurora	0	0	0	0	0.5	0.5	1
Boston	0.5	0	0.5	0	0	0	1
Colorado Springs	0	0	0	0	0.5	0.5	1
Hartford	0	0	0.5	0	0.5	0	1
Houston	0	0	0	0	0.5	0.5	1
Minneapolis	0	0	0	0	0.5	0.5	1
Nashville	0	0	0	0	0.5	0.5	1
Oakland	0	0	0.5	0.5	0	0	1
Pittsburgh	0.5	0	0.5	0	0	0	1
Saint Paul	0.5	0	0	0	0.5	0	1
Seattle	0	0	0.5	0	0.5	0	1
Springfield	0	0	0	0	0.5	0.5	1
Washington, D.C.	0	0	0	0	0.5	0.5	1
Akron	0.5	0	0	0	0	0	0.5
Boise	0.5	0	0	0	0	0	0.5
Bridgeport	0	0	0.5	0	0	0	0.5
Charlotte	0	0	0.5	0	0	0	0.5
Chicago	0	0	0	0	0.5	0	0.5
Cleveland	0.5	0	0	0	0	0	0.5
Columbus	0	0	0.5	0	0	0	0.5
Indianapolis	0.5	0	0	0	0	0	0.5
Jacksonville	0	0	0	0	0.5	0	0.5
Kansas City	0	0	0	0	0.5	0	0.5
Long Beach	0	0	0.5	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
Milwaukee	0	0	0.5	0	0	0	0.5
New Orleans	0	0	0	0	0.5	0	0.5
Newark	0.5	0	0	0	0	0	0.5
Orlando	0	0	0	0	0.5	0	0.5
Philadelphia	0	0	0.5	0	0	0	0.5
Phoenix	0.5	0	0	0	0	0	0.5
Portland	0	0	0.5	0	0	0	0.5
Provo	0.5	0	0	0	0	0	0.5
Sacramento	0	0	0	0	0.5	0	0.5
San Diego	0	0	0.5	0	0	0	0.5

City	District energy integration (0.5 pts)	District energy (equity-related) (0.5 pts)	Microgrid integration (0.5 pts)	Microgrid (equity-related) (0.5 pts)	Community solar support (0.5 pts)	Community solar (equity-related) (0.5 pts)	Total
St. Louis	0	0	0	0	0.5	0	0.5
St. Petersburg	0	0	0	0	0.5	0	0.5
Albuquerque	0	0	0	0	0	0	0
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
Buffalo	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
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
Honolulu	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

City	District energy integration (0.5 pts)	District energy (equity-related) (0.5 pts)	Microgrid integration (0.5 pts)	Microgrid (equity-related) (0.5 pts)	Community solar support (0.5 pts)	Community solar (equity-related) (0.5 pts)	Total
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
Salt Lake City	0	0	0	0	0	0	0
San Antonio	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0
San Juan	0	0	0	0	0	0	0
Stockton	0	0	0	0	0	0	0
Syracuse	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
Worcester	0	0	0	0	0	0	0

Table E4. Heat island mitigation goals and initiatives scores (out of 1.5 possible points)

City	Heat island mitigation goal (0.5 pts)	Heat island mitigation policies and programs (1 pt)	Total
Atlanta	0.5	1	1.5
Baltimore	0.5	1	1.5
Cleveland	0.5	1	1.5
Columbus	0.5	1	1.5
Dallas	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
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

City	Heat island mitigation goal (0.5 pts)	Heat island mitigation policies and programs (1 pt)	Total
Phoenix	0.5	1	1.5
Portland	0.5	1	1.5
Riverside	0.5	1	1.5
Sacramento	0.5	1	1.5
Salt Lake City	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, D.C.	0.5	1	1.5
Albuquerque	0.5	0.5	1
Austin	0	1	1
Boston	0	1	1
Buffalo	0	1	1
Charlotte	0.5	0.5	1
Chicago	0	1	1
Cincinnati	0	1	1
Las Vegas	0.5	0.5	1
Louisville	0	1	1
Miami	0	1	1
Milwaukee	0.5	0.5	1
Minneapolis	0	1	1
New Orleans	0	1	1
Pittsburgh	0.5	0.5	1
Providence	0	1	1
Raleigh	0	1	1
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
Boise	0.5	0	0.5
Bridgeport	0.5	0	0.5
Chula Vista	0.5	0	0.5
Colorado Springs	0.5	0	0.5
Des Moines	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
Kansas City	0	0.5	0.5
Knoxville	0	0.5	0.5

City	Heat island mitigation goal (0.5 pts)	Heat island mitigation policies and programs (1 pt)	Total
Lakeland	0	0.5	0.5
Little Rock	0	0.5	0.5
Madison	0	0.5	0.5
Memphis	0.5	0	0.5
Mesa	0	0.5	0.5
New Haven	0	0.5	0.5
Oakland	0	0.5	0.5
Omaha	0	0.5	0.5
Oxnard	0	0.5	0.5
Provo	0	0.5	0.5
Richmond	0	0.5	0.5
Saint 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
Toledo	0	0.5	0.5
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
Cape Coral	0	0	0
Charleston	0	0	0
Columbia	0	0	0
Dayton	0	0	0
Fresno	0	0	0
Greensboro	0	0	0
Henderson	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
Syracuse	0	0	0
Wichita	0	0	0
Winston-Salem	0	0	0
Worcester	0	0	0

BUILDINGS POLICIES

Table E5. 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)	EV charging requirements (1 pt)	Low-energy-use requirement (1 pt)	Total (10 pts)
Boston	2.5	2.5	1	1	1	1	1	10
Seattle	3	3	0	1	1	1	0.5	9.5
St. Louis	3	3	0	1	1	1	0.5	9.5
Denver	3	2	0	1	1	1	1	9
Oakland	2	3	0	1	1	1	1	9
San Francisco	2	3	0	1	1	1	1	9
Long Beach	2	3	0	1	1	1	0.5	8.5
Austin	3	3	0	1	0	0	1	8
New York	3	2	0	1	1	0	0.5	7.5
Bakersfield	2	3	0	1	1	0	0	7
Chicago	3	2	0	0.5	1	0	0.5	7
Fresno	2	3	0	1	1	0	0	7
Chula Vista	2	3	0	1	1	0	0	7
Philadelphia	3	3	0	0.5	0	0	0.5	7
San José	1	2	0	1	1	1	1	7
Las Vegas	3	3	0	0.5	0	0	0.5	7
Minneapolis	2.5	0.5	1	0.5	1	1	0.5	7
Los Angeles	1	2	0	1	1	1	0.5	6.5
Sacramento	1	3	0	1	1	0	0.5	6.5
Boise	1.5	1.5	1	0.5	1	0	0.5	6
Des Moines	3	3	0	0	0	0	0	6
Henderson	3	3	0	0	0	0	0	6
Hartford	1.5	1.5	0	1	1	1	0	6
Reno	3	3	0	0	0	0	0	6
Springfield	2.5	2.5	0	1	0	0	0	6
Worcester	2.5	2.5	0	1	0	0	0	6
San Juan	3	3	0	0	0	0	0	6
Buffalo	3	2	0	0.5	0	0	0	5.5
Portland	1.5	0	1	1	1	0	1	5.5
San Diego	1	2	0	1	1	0	0.5	5.5
Tucson	1	3	0	1	0	0	0.5	5.5
Kansas City	2	2	0	0.5	0	0	0.5	5
San Antonio	1	3	0	0.5	0	0	0.5	5
Newark	2.5	2.5	0	0	0	0	0	5
Oxnard	1	2	0	1	1	0	0	5
Riverside	1	2	0	1	1	0	0	5
Rochester	3	2	0	0	0	0	0	5
Saint Paul	2.5	0.5	1	0.5	0	0	0.5	5
Pittsburgh	1.5	1.5	1	0.5	0	0	0.5	5

City	Residential energy code (3 pts)	Commercial energy code (3 pts)	Advocacy (1 pt)*	Renewable readiness (1 pt)	EV readiness (1 pt)	EV charging requirements (1 pt)	Low-energy-use requirement (1 pt)	Total (10 pts)
Cincinnati	2.5	0	1	0	0	1	0	4.5
Phoenix	1	3	0	0	0	0	0.5	4.5
Aurora	2	1	0	0.5	0	0	0.5	4
Grand Rapids	1.5	1.5	0	0.5	0	0	0.5	4
Mesa	1	3	0	0	0	0	0	4
Atlanta	2	0	0	0.5	1	0	0.5	4
Cleveland	2.5	0	1	0	0	0	0.5	4
Columbus	2.5	0	1	0	0	0	0.5	4
Stockton	1	2	0	1	0	0	0	4
Albuquerque	2	1	0	0.5	0	0	0	3.5
Miami	0.5	0.5	0	0.5	1	0	1	3.5
Honolulu	0	0	1	1	1	0	0.5	3.5
Houston	1	1	0	1	0	0	0.5	3.5
Richmond	1.5	0.5	1	0.5	0	0	0	3.5
Orlando	0.5	0.5	1	0.5	0	0	0.5	3
Allentown	1.5	1.5	0	0	0	0	0	3
Colorado Springs	2	1	0	0	0	0	0	3
Detroit	1.5	1.5	0	0	0	0	0	3
El Paso	1	1	0	0.5	0	0	0.5	3
Memphis	2	1	0	0	0	0	0	3
Washington, D.C.	0	0	0	1	1	0	1	3
Syracuse	3	0	0	0	0	0	0	3
Bridgeport	1.5	1.5	0	0	0	0	0	3
Dallas	1	1	0	0	0	0	1	3
Dayton	2.5	0	0	0.5	0	0	0	3
New Haven	1.5	1.5	0	0	0	0	0	3
Nashville	0	2	0	0	0	0	0.5	2.5
Baltimore	2	0	0	0	0	0	0.5	2.5
Akron	2.5	0	0	0	0	0	0	2.5
Madison	0	0.5	0	0.5	1	0	0.5	2.5
Salt Lake City	0	1	0	0	1	0	0.5	2.5
St. Petersburg	0.5	0.5	1	0	0	0	0.5	2.5
Toledo	2.5	0	0	0	0	0	0	2.5
Virginia Beach	1.5	0.5	0	0	0	0	0.5	2.5
McAllen	1	1	0	0	0	0	0	2
Fort Worth	1	1	0	0	0	0	0	2
Knoxville	0	2	0	0	0	0	0	2
Milwaukee	0	0.5	1	0.5	0	0	0	2
Cape Coral	0.5	0.5	0	0.5	0	0	0	1.5
Jacksonville	0.5	0.5	0	0	0	0	0.5	1.5
Tampa	0.5	0.5	0	0	0	0	0.5	1.5

City	Residential energy code (3 pts)	Commercial energy code (3 pts)	Advocacy (1 pt)*	Renewable readiness (1 pt)	EV readiness (1 pt)	EV charging requirements (1 pt)	Low-energy-use requirement (1 pt)	Total (10 pts)
Charlotte	0	0	1	0	0	0	0.5	1.5
Birmingham	0	1	0	0.5	0	0	0	1.5
Louisville	0	0	1	0.5	0	0	0	1.5
Lakeland	0.5	0.5	0	0	0	0	0	1
Augusta	1	0	0	0	0	0	0	1
Indianapolis	0	0	0	0.5	0	0	0.5	1
Providence	0	0	0	0.5	0	0	0.5	1
Raleigh	0	0	0	0	0	0	0.5	0.5
Charleston	0	0	0	0.5	0	0	0	0.5
Columbia	0	0	0	0.5	0	0	0	0.5
Provo	0	0.5	0	0	0	0	0	0.5
Greensboro	0	0	0	0	0	0	0	0
Oklahoma City	0	0	0	0	0	0	0	0
Winston-Salem	0	0	0	0	0	0	0	0
Baton Rouge	0	0	0	0	0	0	0	0
Little Rock	0	0	0	0	0	0	0	0
New Orleans	0	0	0	0	0	0	0	0
Omaha	0	0	0	0	0	0	0	0
Tulsa	0	0	0	0	0	0	0	0
Wichita	0	0	0	0	0	0	0	0

*Point available only to cities without the authority to adopt building energy codes. Those cities without authority to adopt codes can receive up to only 2.5 points for the residential energy code and commercial energy code metrics.

Table E6. Scores for building code compliance and enforcement

City	Full-time staff (1 pt)	Compliance strategies (1 pt)	Up-front support (1 pt)	Total (3 pts)
Chula Vista	1	1	1	3
Denver	1	1	1	3
Long Beach	1	1	1	3
San Francisco	1	1	1	3
San José	1	1	1	3
Seattle	1	1	1	3
Washington, D.C.	1	1	1	3
Dallas	1	1	1	3
Los Angeles	1	1	1	3
Grand Rapids	1	0.5	1	2.5
Atlanta	1	0.5	1	2.5
Albuquerque	0	1	1	2
Boise	0	1	1	2
Colorado Springs	0	1	1	2
Austin	0	1	1	2

City	Full-time staff (1 pt)	Compliance strategies (1 pt)	Up-front support (1 pt)	Total (3 pts)
Fort Worth	0	1	1	2
Chicago	0	1	1	2
Houston	0	1	1	2
Las Vegas	0	1	1	2
Minneapolis	0	1	1	2
New York	0	1	1	2
Louisville	0	1	1	2
Phoenix	0	1	1	2
Nashville	0	1	1	2
New Orleans	0	1	1	2
Saint Paul	0	1	1	2
San Antonio	0	1	1	2
San Diego	0	1	1	2
Oxnard	0	1	1	2
Raleigh	0	1	1	2
Reno	1	0	1	2
St. Louis	0	1	1	2
Tucson	0	1	1	2
Virginia Beach	0	1	1	2
Aurora	0	0.5	1	1.5
Charleston	0	0.5	1	1.5
Charlotte	0	0.5	1	1.5
Cincinnati	0	0.5	1	1.5
Honolulu	0	0.5	1	1.5
Knoxville	0	0.5	1	1.5
Baltimore	0	0.5	1	1.5
Columbus	0	0.5	1	1.5
Hartford	0	0.5	1	1.5
Oakland	0	0.5	1	1.5
Philadelphia	0	0.5	1	1.5
Richmond	0	0.5	1	1.5
Pittsburgh	0	0.5	1	1.5
Providence	1	0.5	0	1.5
Salt Lake City	0	0.5	1	1.5
Boston	0	1	0	1
Bakersfield	0	1	0	1
Baton Rouge	0	1	0	1
Cape Coral	0	1	0	1
Fresno	0	1	0	1
Greensboro	0	1	0	1
Lakeland	0	1	0	1
McAllen	0	1	0	1
Mesa	0	1	0	1

City	Full-time staff (1 pt)	Compliance strategies (1 pt)	Up-front support (1 pt)	Total (3 pts)
Miami	0	0	1	1
New Haven	0	1	0	1
Provo	0	1	0	1
Riverside	0	1	0	1
Rochester	0	1	0	1
Orlando	0	1	0	1
Portland	0	1	0	1
Sacramento	0	1	0	1
Springfield	0	1	0	1
St. Petersburg	0	1	0	1
Stockton	0	1	0	1
Tampa	0	0	1	1
Akron	0	0.5	0	0.5
Allentown	0	0.5	0	0.5
Augusta	0	0.5	0	0.5
Birmingham	0	0.5	0	0.5
Buffalo	0	0.5	0	0.5
Columbia	0	0.5	0	0.5
Dayton	0	0.5	0	0.5
Des Moines	0	0.5	0	0.5
Detroit	0	0.5	0	0.5
Henderson	0	0.5	0	0.5
Jacksonville	0	0.5	0	0.5
Little Rock	0	0.5	0	0.5
Madison	0	0.5	0	0.5
Memphis	0	0.5	0	0.5
Milwaukee	0	0.5	0	0.5
Newark	0	0.5	0	0.5
Omaha	0	0.5	0	0.5
Kansas City	0	0.5	0	0.5
Syracuse	0	0.5	0	0.5
Toledo	0	0.5	0	0.5
Tulsa	0	0.5	0	0.5
Winston-Salem	0	0.5	0	0.5
Bridgeport	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
Cleveland	0	0	0	0
Wichita	0	0	0	0
Worcester	0	0	0	0

Table E7. Scores for policies targeting existing buildings

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
Denver	13.5	Green Building Ordinance	Residential crosscutting requirements (1); commercial crosscutting requirements (1)
		Denver Benchmarking Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
			Compliance bonus (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1)
			2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
		Colorado HB 21-1286	Commercial rental energy disclosure requirements (1)
			Residential building performance standard (1.5); commercial building performance standard (3)
			Residential other requirement (1); commercial other requirement (1)
			Residential rental energy disclosure requirements (1)*
Colorado Springs	12.5	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1)
			2+ solar incentive offered (1)
		Colorado HB 21-1286	Commercial benchmarking requirements (1); residential benchmarking requirements (1)
			Commercial rental energy disclosure requirements (1)
			Residential building performance standard (1.5); commercial building performance standard (3)
			Residential other requirement (1); commercial other requirement (1)
			Residential rental energy disclosure requirements (1)*

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
New York	12.5	Local Law 97	Residential building performance standards (1.5); 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	1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Aurora	11.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
		Colorado HB 21-1286	Commercial benchmarking requirements (1); residential benchmarking requirements (1) Commercial rental energy disclosure requirements (1) Residential building performance standard (1.5); commercial building performance standard (3) Residential other requirement (1); commercial other requirement (1) Residential rental energy disclosure requirements (1)*
Washington, D.C.	11.5	Clean Energy Omnibus Act of 2018	Residential building performance standards (1.5); commercial building performance standards (3) Affordable housing sector building performance standards and compliance support (1.5)* Residential benchmarking requirements (1); commercial benchmarking requirements (1) Compliance rate bonus (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Reduce Energy Use DC	Voluntary programs (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
Minneapolis	11	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 Disclosure	Single-family disclosure requirement (1) Residential audit requirements (0.5) Compliance bonus (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)
		Affordable 4D Program	Affordability requirements in incentives (0.5)*
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
Seattle	10	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	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
		2030 District	Voluntary programs (0.5)
Chicago	9	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 Labelling Policy	Residential other requirements (1); commercial other requirements (1)
		Retrofit Chicago	Voluntary programs (0.5)
		Affordable Requirements Ordinance	Affordability requirements in incentives (0.5)*
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
Los Angeles	9	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	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
Austin	8	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	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
San Francisco	8	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)
		Renewable Energy for Commercial Buildings Ordinance	Commercial other requirement (1)
		Strategic Energy Assessment	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Chula Vista	7.5	Existing Home Energy Efficiency Ordinance	Residential retrofit requirements (1.5)
		Building Energy Saving Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Residential crosscutting requirements (1); commercial crosscutting requirements (1)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
Orlando	7.5	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+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
		Better Buildings Challenge	Voluntary programs (0.5)
San José	7.5	Energy and Water Building Performance Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1) Residential crosscutting requirements (1); commercial crosscutting requirements (1)
		Building Performance Leaders	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
St. Louis	7	Board Bill 219	Residential building performance standards (1.5); commercial building performance standards (3)
		Building Energy Awareness Bill	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5)
Atlanta	6.5	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	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
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)
		Boston Energy Positive Program	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
Philadelphia	6.5	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	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Reno	5.5	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)
		Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
Portland	5	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	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Honolulu	4.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
		Hawai'i 508D-10.5	Single-family energy-use disclosure requirement (1) Residential other requirement (1)
Riverside	4.5	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Columbus	4	Energy and Water Benchmarking and Transparency Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
Fresno	4	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Oakland	4	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
San Diego	4	Building Energy Benchmarking Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
Baltimore	3.5	Baltimore Energy Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
Hartford	3.5	Energy Equity Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
Kansas City	3.5	Energy Empowerment Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
		Voluntary Benchmarking	Voluntary programs (0.5)
Milwaukee	3.5	Better Buildings Challenge	Voluntary programs (1)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
Pittsburgh	3.5	Building Benchmarking Ordinance	Commercial benchmarking requirement (1)
		2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
Sacramento	3.5	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
Saint Paul	3.5	Benchmarking Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Energize Saint Paul	Voluntary programs (0.5)
		Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
Salt Lake City	3.5	Energy Benchmarking & Transparency Ordinance	Commercial benchmarking requirements (1) Residential audit requirements (0.5); commercial crosscutting requirements (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
Cincinnati	3	2030 District	Voluntary programs (0.5)
		Multifamily Energy Efficiency Program	Affordability requirements in incentives (0.5)*
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Dallas	3	2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
Madison	3	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
Phoenix	3	Kilowatt Krackdown	Voluntary programs (1)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
San Antonio	3	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
St. Petersburg	3	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
		Building energy benchmarking pilot	Voluntary programs (0.5)
Stockton	3	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
		Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
Albuquerque	2.5	Mayor's Energy Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Grand Rapids	2.5	2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2 energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Houston	2.5	Better Buildings Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
Louisville	2.5	Kilowatt Crackdown	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
Miami	2.5	BE305	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
Bakersfield	2	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
Charlotte	2	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)
Cleveland	2	2030 District	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
Des Moines	2	Energy and Water Benchmarking Ordinance	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
Detroit	2	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 2+ solar incentives offered (1)

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
Long Beach	2	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
Nashville	2	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
New Orleans	2	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1)
		Low-income financial and nonfinancial incentives	2+ incentives offered (1)*
Oxnard	2	State of California AB 802	Residential benchmarking requirements (1); commercial benchmarking requirements (1)
Providence	2	RePower PVD	Voluntary programs (0.5)
		Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 2+ solar incentives offered (1)
Rochester	2	Better Buildings Challenge	Voluntary programs (0.5)
		Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
Fort Worth	1.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
		Better Buildings Challenge	Voluntary programs (0.5)
Knoxville	1.5	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Memphis	1.5	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1) 1 solar incentive offered (0.5)
Richmond	1.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 2 solar incentives offered (1)
Bridgeport	1	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
El Paso	1	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
Greensboro	1	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
Henderson	1	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Jacksonville	1	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1)
Lakeland	1	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1)
Las Vegas	1	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)

City	Points (Max 3 pts for equity initiatives and 12 pts for non-equity initiatives)	Policy/Program	Details and points attributed
Mesa	1	Financial and nonfinancial incentives	2+ solar incentives offered (1)
New Haven	1	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
Newark	1	New Jersey Clean Energy Act of 2018	Commercial benchmarking requirements (1)
Springfield	1	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5)
		Low-income financial and nonfinancial incentives	1 incentive offered (0.5)*
Tampa	1	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1)
Toledo	1	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5) 1 solar incentive offered (0.5)
Virginia Beach	1	Financial and nonfinancial incentives	2+ energy efficiency incentives offered (1)
Boise	0.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5)
Indianapolis	0.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5)
McAllen	0.5	Financial and nonfinancial incentives	1 energy efficiency incentives offered (0.5)
Oklahoma City	0.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5)
Omaha	0.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5)
Raleigh	0.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5)
Syracuse	0.5	Financial and nonfinancial incentives	1 energy efficiency incentive offered (0.5)
Akron	0	N/A	N/A
Allentown	0	N/A	N/A
Augusta	0	N/A	N/A
Baton Rouge	0	N/A	N/A
Birmingham	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
Little Rock	0	N/A	N/A
Provo	0	N/A	N/A
San Juan	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

*Policy or program received points under the Equity in Policies Targeting Existing Buildings metric. These policies and programs could collectively receive a maximum of 3 points. All other policies and programs could combine to a maximum of 12 points.

Table E8. 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)
Chicago	0.5	0.5	0.5	0.5	2
New York	0.5	0.5	0.5	0.5	2
Portland	0.5	0.5	0.5	0.5	2
San José	0.5	0.5	0.5	0.5	2
Minneapolis	0.5	0.5	0.5	0.5	2
Boston	0.5	0.5	0.5	0	1.5
Washington, D.C.	0.5	0	0.5	0.5	1.5
Hartford	0.5	0	0.5	0	1
Sacramento	0.5	0	0.5	0	1
Austin	0.5	0	0.5	0	1
Birmingham	0.5	0.5	0	0	1
Baltimore	0.5	0	0.5	0	1
Chula Vista	0.5	0	0.5	0	1
Denver	0.5	0	0.5	0	1
Los Angeles	0.5	0	0.5	0	1
Oakland	0.5	0	0.5	0	1
Nashville	0.5	0.5	0	0	1
Phoenix	0.5	0	0.5	0	1
San Francisco	0.5	0	0.5	0	1
Raleigh	0.5	0	0.5	0	1
Rochester	0.5	0.5	0	0	1
Worcester	0.5	0.5	0	0	1
Madison	0	0	0.5	0.5	1
Philadelphia	0.5	0	0.5	0	1
San Diego	0	0	0.5	0.5	1
Columbus	0.5	0.5	0	0	1
Charlotte	0.5	0.5	0	0	1
Knoxville	0.5	0	0	0	0.5
Las Vegas	0.5	0	0	0	0.5
Memphis	0.5	0	0	0	0.5
Orlando	0.5	0	0	0	0.5
San Antonio	0.5	0	0	0	0.5
Seattle	0.5	0	0	0	0.5
Albuquerque	0	0	0.5	0	0.5
Aurora	0	0	0.5	0	0.5
Buffalo	0	0	0.5	0	0.5
Houston	0	0	0.5	0	0.5
Riverside	0	0	0.5	0	0.5
Atlanta	0	0	0.5	0	0.5
Long Beach	0	0	0.5	0	0.5

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)
St. Louis	0	0	0.5	0	0.5
Pittsburgh	0.5	0	0	0	0.5
Saint Paul	0	0	0	0	0
Cincinnati	0	0	0	0	0
Akron	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
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
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
Honolulu	0	0	0	0	0
Indianapolis	0	0	0	0	0
Jacksonville	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
Mesa	0	0	0	0	0
Miami	0	0	0	0	0
Milwaukee	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
Providence	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)
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
Grand Rapids	0	0	0	0	0
Springfield	0	0	0	0	0
Kansas City	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
Salt Lake City	0	0	0	0	0
Wichita	0	0	0	0	0
Winston-Salem	0	0	0	0	0

TRANSPORTATION POLICIES

Table E9. 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)
Kansas City	1	1	0.5	1	3.5
Seattle	1	1	1	0.5	3.5
Boston	1	1	1	0	3
Minneapolis	1	1	0.5	0.5	3
Oakland	1	1	0.5	0.5	3
Providence	1	1	0	1	3
San Antonio	1	1	1	0	3
San Diego	1	1	0	1	3
San Francisco	1	1	1	0	3
Washington, D.C.	1	1	1	0	3
Cleveland	1	1	0.5	0	2.5
Los Angeles	1	1	0.5	0	2.5
New York	1	1	0.5	0	2.5
Phoenix	1	1	0.5	0	2.5
Atlanta	1	1	0	0	2
Houston	1	1	0	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)
Louisville	1	1	0	0	2
Philadelphia	1	1	0	0	2
Pittsburgh	1	1	0	0	2
Portland	1	1	0	0	2
Saint Paul	1	1	0	0	2
Salt Lake City	1	1	0	0	2
San José	1	1	0	0	2
Jacksonville	0.5	1	0	0	1.5
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
Bridgeport	1	0	0	0	1
Charlotte	1	0	0	0	1
Chula Vista	1	0	0	0	1
Cincinnati	1	0	0	0	1
Columbus	1	0	0	0	1
Dallas	1	0	0	0	1
Denver	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
Honolulu	1	0	0	0	1
Indianapolis	1	0	0	0	1
Knoxville	1	0	0	0	1
Las Vegas	1	0	0	0	1
Madison	1	0	0	0	1
Memphis	1	0	0	0	1
Nashville	1	0	0	0	1
New Haven	1	0	0	0	1
New Orleans	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
Rochester	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

City	Sustainable transportation plan (1 pt)	Codified VMT target (1 pt)	VMT stringency (1 pt)	Progress toward VMT goal (1 pt)	Total (4 pts)
Tampa	1	0	0	0	1
Toledo	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
Charleston	0.5	0	0	0	0.5
Chicago	0.5	0	0	0	0.5
Greensboro	0.5	0	0	0	0.5
Long Beach	0.5	0	0	0	0.5
Mesa	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
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
Bakersfield	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
Des Moines	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
Lakeland	0	0	0	0	0
Little Rock	0	0	0	0	0
McAllen	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
Tucson	0	0	0	0	0
Tulsa	0	0	0	0	0
Wichita	0	0	0	0	0

Table E10. Scores for location efficiency

City	Zoning codes (2 pts)	Parking requirements (2 pts)	Incentives and disclosure (2 pts)	Total (6 pts)
Boston	2	2	1	5
Grand Rapids	2	2	1	5
Hartford	2	2	1	5
Minneapolis	2	2	1	5
San Francisco	2	2	1	5
Columbus	2	1.5	1	4.5
New York	1	1.5	2	4.5
Omaha	2	1.5	1	4.5
Sacramento	1	1.5	2	4.5
Atlanta	2	1.5	0.5	4
Denver	2	1.5	0.5	4
Nashville	2	1.5	0.5	4
Washington, D.C.	2	1.5	0.5	4
Austin	1	1.5	1	3.5
Baltimore	2	1.5	0	3.5
Charlotte	1	1.5	1	3.5
Chicago	1	1.5	1	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
Las Vegas	2	0.5	1	3.5
Louisville	1	1.5	1	3.5
Oakland	2	1.5	0	3.5
Orlando	2	0.5	1	3.5
Portland	2	1.5	0	3.5
Richmond	2	1	0.5	3.5
Saint Paul	1	1.5	1	3.5
Albuquerque	0	1.5	1.5	3
Birmingham	1	1.5	0.5	3
Bridgeport	1	1.5	0.5	3
Buffalo	1	2	0	3
Detroit	1	1.5	0.5	3
Honolulu	1	1.5	0.5	3
Houston	1	1.5	0.5	3
Indianapolis	1	1	1	3
Miami	2	1	0	3
Milwaukee	1	1.5	0.5	3
Phoenix	1	1.5	0.5	3
Providence	1	1.5	0.5	3
Rochester	1	1.5	0.5	3
San Diego	1	1.5	0.5	3
San José	1	1	1	3

City	Zoning codes (2 pts)	Parking requirements (2 pts)	Incentives and disclosure (2 pts)	Total (6 pts)
Seattle	1	1.5	0.5	3
Aurora	2	0.5	0	2.5
Cleveland	1	1.5	0	2.5
El Paso	2	0.5	0	2.5
Jacksonville	1	1.5	0	2.5
Knoxville	1	1.5	0	2.5
Los Angeles	1	1	0.5	2.5
Madison	1	1.5	0	2.5
Memphis	1	1.5	0	2.5
Mesa	2	0.5	0	2.5
New Orleans	1	1.5	0	2.5
Oklahoma City	1	1.5	0	2.5
Philadelphia	1	1.5	0	2.5
Pittsburgh	1	1	0.5	2.5
Raleigh	1	1.5	0	2.5
Riverside	1	1	0.5	2.5
St. Petersburg	2	0.5	0	2.5
Worcester	1	1.5	0	2.5
Boise	0	1	1	2
Long Beach	1	0.5	0.5	2
New Haven	2	0	0	2
Newark	2	0	0	2
Reno	1	1	0	2
Salt Lake City	1	1	0	2
San Antonio	1	0.5	0.5	2
Charleston	1	0	0.5	1.5
Chula Vista	1	0	0.5	1.5
Dallas	1	0.5	0	1.5
Dayton	0	1.5	0	1.5
Greensboro	1	0.5	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
Toledo	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

City	Zoning codes (2 pts)	Parking requirements (2 pts)	Incentives and disclosure (2 pts)	Total (6 pts)
Tampa	1	0	0	1
Tucson	1	0	0	1
Virginia Beach	1	0	0	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
Tulsa	0	0	0.5	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 E11. Scores for mode shift

City	Mode shift targets (1 pt)	Progress toward mode shift (1 pt)	Complete streets (1 pt)	Bikeability (1 pt)	Total (4 pts)
Boston	1	1	1	1	4
Denver	1	1	1	1	4
Pittsburgh	1	1	1	1	4
San Francisco	1	1	1	1	4
San José	1	1	1	1	4
Washington, D.C.	1	1	1	1	4
Madison	0.5	1	1	1	3.5
Minneapolis	1	1	1	0.5	3.5
New York	1	1	1	0.5	3.5
Albuquerque	0.5	1	1	0.5	3
Austin	1	0	1	1	3
Las Vegas	1	0	1	1	3
Los Angeles	1	0	1	1	3
Portland	0.5	1	0.5	1	3
Atlanta	1	0	0.5	1	2.5
Dallas	0.5	1	1	0	2.5
Oakland	1	0	1	0.5	2.5
Orlando	1	0	1	0.5	2.5
Providence	0.5	0	1	1	2.5
Sacramento	1	0	1	0.5	2.5
Saint Paul	1	0	1	0.5	2.5
San Diego	1	0	1	0.5	2.5
St. Petersburg	1	0	1	0.5	2.5

City	Mode shift targets (1 pt)	Progress toward mode shift (1 pt)	Complete streets (1 pt)	Bikeability (1 pt)	Total (4 pts)
Baltimore	0	0	1	1	2
Chicago	0.5	0	1	0.5	2
Cleveland	1	0	0.5	0.5	2
Columbus	0	0	1	1	2
Grand Rapids	0.5	1	0.5	0	2
Long Beach	0.5	0	1	0.5	2
Milwaukee	0.5	0	1	0.5	2
New Orleans	0	0	1	1	2
Philadelphia	0.5	0	1	0.5	2
Phoenix	0.5	0	1	0.5	2
Raleigh	0.5	0	1	0.5	2
Tucson	0	0	1	1	2
Birmingham	0	0	1	0.5	1.5
Boise	0	0	1	0.5	1.5
Charlotte	0	0	1	0.5	1.5
Dayton	0	0	1	0.5	1.5
Des Moines	0	0	1	0.5	1.5
Honolulu	0.5	0	1	0	1.5
Kansas City	0.5	0	0.5	0.5	1.5
Knoxville	0	0	1	0.5	1.5
Louisville	0.5	0	1	0	1.5
Memphis	0	0	1	0.5	1.5
Nashville	0.5	0	1	0	1.5
Omaha	0	0	1	0.5	1.5
Richmond	0	0	1	0.5	1.5
Salt Lake City	0	0	1	0.5	1.5
Seattle	0	0	1	0.5	1.5
St. Louis	0	0	1	0.5	1.5
Akron	0	0	0.5	0.5	1
Aurora	0	0	1	0	1
Baton Rouge	0	0	1	0	1
Buffalo	0.5	0	0.5	0	1
Charleston	0	0	1	0	1
Chula Vista	0	0	1	0	1
Detroit	0	0	0	1	1
Fort Worth	0	0	1	0	1
Fresno	0	0	1	0	1
Greensboro	0	0	1	0	1
Hartford	0	0	1	0	1
Houston	0	0	1	0	1
Miami	0	0	1	0	1
New Haven	0	0	1	0	1
Oklahoma City	1	0	0	0	1

City	Mode shift targets (1 pt)	Progress toward mode shift (1 pt)	Complete streets (1 pt)	Bikeability (1 pt)	Total (4 pts)
Rochester	0	0	1	0	1
San Antonio	0	0	1	0	1
San Juan	0	0	1	0	1
Springfield	0	0	1	0	1
Tampa	0	0	0.5	0.5	1
Toledo	0	0	1	0	1
Tulsa	0	0	1	0	1
Virginia Beach	0	0	1	0	1
Worcester	0	0	1	0	1
Bridgeport	0.5	0	0	0	0.5
Colorado Springs	0	0	0	0.5	0.5
Henderson	0	0	0	0.5	0.5
Jacksonville	0	0	0.5	0	0.5
Oxnard	0	0	0	0.5	0.5
Provo	0	0	0	0.5	0.5
Allentown	0	0	0	0	0
Augusta	0	0	0	0	0
Bakersfield	0	0	0	0	0
Cape Coral	0	0	0	0	0
Cincinnati	0	0	0	0	0
Columbia	0	0	0	0	0
El Paso	0	0	0	0	0
Indianapolis	0	0	0	0	0
Lakeland	0	0	0	0	0
Little Rock	0	0	0	0	0
McAllen	0	0	0	0	0
Mesa	0	0	0	0	0
Newark	0	0	0	0	0
Reno	0	0	0	0	0
Riverside	0	0	0	0	0
Stockton	0	0	0	0	0
Syracuse	0	0	0	0	0
Wichita	0	0	0	0	0
Winston-Salem	0	0	0	0	0

Table E12. Scores for public transit

City	Transit funding (2 pts)	Transit performance (2 pts)	Total (4 pts)
New York	2	2	4
San Francisco	2	2	4
Boston	1.5	2	3.5
Chicago	1.5	2	3.5
Seattle	2	1.5	3.5
Washington, D.C.	1.5	2	3.5
Atlanta	1.5	1.5	3
Philadelphia	1	2	3
Portland	1.5	1.5	3
Baltimore	1	1.5	2.5
Cleveland	1	1.5	2.5
Honolulu	1.5	1	2.5
Miami	1	1.5	2.5
Minneapolis	1	1.5	2.5
Newark	1	1.5	2.5
Pittsburgh	1	1.5	2.5
Salt Lake City	1	1.5	2.5
St. Louis	1	1.5	2.5
Dallas	1.5	0.5	2
Denver	1	1	2
Long Beach	0.5	1.5	2
Los Angeles	1	1	2
New Orleans	1	1	2
Oakland	2	0	2
San José	1	1	2
Austin	1	0.5	1.5
Buffalo	0.5	1	1.5
Charlotte	1	0.5	1.5
Cincinnati	1	0.5	1.5
Dayton	1	0.5	1.5
Hartford	0	1.5	1.5
Houston	1	0.5	1.5
Madison	1	0.5	1.5
Milwaukee	0.5	1	1.5
Phoenix	1	0.5	1.5
Providence	0.5	1	1.5
Richmond	0.5	1	1.5
Sacramento	1	0.5	1.5
San Antonio	1	0.5	1.5
Akron	0.5	0.5	1
Albuquerque	1	0	1
Columbus	0.5	0.5	1

City	Transit funding (2 pts)	Transit performance (2 pts)	Total (4 pts)
Des Moines	0.5	0.5	1
Fort Worth	1	0	1
Grand Rapids	0.5	0.5	1
Kansas City	1	0	1
Las Vegas	0.5	0.5	1
Louisville	0.5	0.5	1
New Haven	0	1	1
Saint Paul	0	1	1
San Diego	0.5	0.5	1
St. Petersburg	0.5	0.5	1
Tucson	0.5	0.5	1
Allentown	0	0.5	0.5
Aurora	0	0.5	0.5
Baton Rouge	0.5	0	0.5
Bridgeport	0	0.5	0.5
Chula Vista	0	0.5	0.5
Columbia	0	0.5	0.5
Detroit	0	0.5	0.5
El Paso	0.5	0	0.5
Fresno	0	0.5	0.5
Jacksonville	0.5	0	0.5
Knoxville	0.5	0	0.5
Memphis	0.5	0	0.5
Oklahoma City	0.5	0	0.5
Orlando	0	0.5	0.5
Oxnard	0	0.5	0.5
Provo	0	0.5	0.5
Reno	0.5	0	0.5
Riverside	0	0.5	0.5
Rochester	0	0.5	0.5
Springfield	0	0.5	0.5
Syracuse	0	0.5	0.5
Tampa	0	0.5	0.5
Toledo	0.5	0	0.5
Worcester	0	0.5	0.5
Augusta	0	0	0
Bakersfield	0	0	0
Birmingham	0	0	0
Boise	0	0	0
Cape Coral	0	0	0
Charleston	0	0	0
Colorado Springs	0	0	0
Greensboro	0	0	0

City	Transit funding (2 pts)	Transit performance (2 pts)	Total (4 pts)
Henderson	0	0	0
Indianapolis	0	0	0
Lakeland	0	0	0
Little Rock	0	0	0
McAllen	0	0	0
Mesa	0	0	0
Nashville	0	0	0
Omaha	0	0	0
Raleigh	0	0	0
San Juan	0	0	0
Stockton	0	0	0
Tulsa	0	0	0
Virginia Beach	0	0	0
Wichita	0	0	0
Winston-Salem	0	0	0

Table E13. Scores for efficient vehicles

City	Vehicle incentives (1 pt)	Charging incentives (1 pt)	EV chargers (1 pt)	EV school bus goal (0.5 pts)	EV transit bus goal (0.5 pts)	Total (4 pts)
Sacramento	1	1	1	0.5	0.5	4
San Francisco	1	1	1	0.5	0.5	4
Los Angeles	1	1	0.5	0.5	0.5	3.5
Oakland	1	1	0.5	0.5	0.5	3.5
San Diego	1	1	1	0	0.5	3.5
San José	1	1	1	0	0.5	3.5
Washington, D.C.	1	1	0.5	0.5	0.5	3.5
Long Beach	1	1	0.5	0	0.5	3
Orlando	1	1	1	0	0	3
Philadelphia	1	1	0	0.5	0.5	3
Pittsburgh	1	1	1	0	0	3
Seattle	0	1	1	0.5	0.5	3
Chicago	1	1	0	0	0.5	2.5
Chula Vista	1	1	0	0	0.5	2.5
Kansas City	0.5	1	1	0	0	2.5
Rochester	1	0	1	0	0.5	2.5
Albuquerque	0.5	1	0	0.5	0	2
Atlanta	0	1	1	0	0	2
Baltimore	0	1	1	0	0	2
Boston	0	1	0.5	0	0.5	2
Buffalo	0	1	1	0	0	2
Columbus	0.5	1	0	0	0.5	2

City	Vehicle incentives (1 pt)	Charging incentives (1 pt)	EV chargers (1 pt)	EV school bus goal (0.5 pts)	EV transit bus goal (0.5 pts)	Total (4 pts)
Denver	0.5	1	0.5	0	0	2
Hartford	0	1	0	0.5	0.5	2
Honolulu	0.5	1	0	0	0.5	2
Lakeland	1	1	0	0	0	2
Mesa	1	1	0	0	0	2
Oxnard	1	1	0	0	0	2
Phoenix	1	1	0	0	0	2
Portland	0	1	0.5	0	0.5	2
Providence	0	1	0.5	0.5	0	2
Reno	1	1	0	0	0	2
Stockton	1	1	0	0	0	2
Syracuse	1	1	0	0	0	2
Austin	0	1	0.5	0	0	1.5
Charleston	0	1	0.5	0	0	1.5
Houston	0	1	0	0	0.5	1.5
Knoxville	0	1	0.5	0	0	1.5
Las Vegas	0	1	0.5	0	0	1.5
Madison	0.5	0	0.5	0	0.5	1.5
Minneapolis	0	1	0	0	0.5	1.5
Riverside	1	0	0.5	0	0	1.5
Saint Paul	0	1	0	0	0.5	1.5
Salt Lake City	0.5	0	1	0	0	1.5
St. Louis	0	1	0	0	0.5	1.5
Tulsa	0.5	1	0	0	0	1.5
Augusta	0	1	0	0	0	1
Bakersfield	1	0	0	0	0	1
Boise	0	1	0	0	0	1
Dallas	0.5	0	0	0	0.5	1
Detroit	1	0	0	0	0	1
Grand Rapids	0	1	0	0	0	1
Indianapolis	0	1	0	0	0	1
Jacksonville	1	0	0	0	0	1
Little Rock	0	1	0	0	0	1
New York	0	1	0	0	0	1
Oklahoma City	0	1	0	0	0	1
Provo	0	1	0	0	0	1
Richmond	0	1	0	0	0	1
Springfield	1	0	0	0	0	1
Tucson	0	1	0	0	0	1
Akron	0.5	0	0	0	0	0.5
Allentown	0	0	0.5	0	0	0.5
Aurora	0.5	0	0	0	0	0.5

City	Vehicle incentives (1 pt)	Charging incentives (1 pt)	EV chargers (1 pt)	EV school bus goal (0.5 pts)	EV transit bus goal (0.5 pts)	Total (4 pts)
Charlotte	0	0	0	0	0.5	0.5
Colorado Springs	0.5	0	0	0	0	0.5
Columbia	0	0	0.5	0	0	0.5
Fresno	0	0	0.5	0	0	0.5
Miami	0	0	0.5	0	0	0.5
Milwaukee	0.5	0	0	0	0	0.5
Nashville	0	0	0.5	0	0	0.5
Newark	0	0.5	0	0	0	0.5
Raleigh	0	0	0	0	0.5	0.5
Baton Rouge	0	0	0	0	0	0
Birmingham	0	0	0	0	0	0
Bridgeport	0	0	0	0	0	0
Cape Coral	0	0	0	0	0	0
Cincinnati	0	0	0	0	0	0
Cleveland	0	0	0	0	0	0
Dayton	0	0	0	0	0	0
Des Moines	0	0	0	0	0	0
El Paso	0	0	0	0	0	0
Fort Worth	0	0	0	0	0	0
Greensboro	0	0	0	0	0	0
Henderson	0	0	0	0	0	0
Louisville	0	0	0	0	0	0
McAllen	0	0	0	0	0	0
Memphis	0	0t	0	0	0	0
New Haven	0	0	0	0	0	0
New Orleans	0	0	0	0	0	0
Omaha	0	0	0	0	0	0
San Antonio	0	0	0	0	0	0
San Juan	0	0	0	0	0	0
St. Petersburg	0	0	0	0	0	0
Tampa	0	0	0	0	0	0
Toledo	0	0	0	0	0	0
Virginia Beach	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 E14. Scores for sustainable freight

City	Total (2 pts)
Atlanta	2.0
Long Beach	2.0
Los Angeles	2.0
New York	2.0
Portland	2.0
Seattle	2.0
Washington, D.C.	2.0
Memphis	1.5
Baltimore	1.0
Columbus	1.0
Miami	1.0
Minneapolis	1.0
Orlando	1.0
Philadelphia	1.0
Riverside	1.0
Sacramento	1.0
Saint Paul	1.0
San Francisco	1.0
San José	1.0
Houston	0.5
Oakland	0.5
Pittsburgh	0.5
Richmond	0.5
Akron	0.0
Albuquerque	0.0
Allentown	0.0
Augusta	0.0
Aurora	0.0
Austin	0.0
Bakersfield	0.0
Baton Rouge	0.0
Birmingham	0.0
Boise	0.0
Boston	0.0

City	Total (2 pts)
Bridgeport	0.0
Buffalo	0.0
Cape Coral	0.0
Charleston	0.0
Charlotte	0.0
Chicago	0.0
Chula Vista	0.0
Cincinnati	0.0
Cleveland	0.0
Colorado Springs	0.0
Columbia	0.0
Dallas	0.0
Dayton	0.0
Denver	0.0
Des Moines	0.0
Detroit	0.0
El Paso	0.0
Fort Worth	0.0
Fresno	0.0
Grand Rapids	0.0
Greensboro	0.0
Hartford	0.0
Henderson	0.0
Honolulu	0.0
Indianapolis	0.0
Jacksonville	0.0
Kansas City	0.0
Knoxville	0.0
Lakeland	0.0
Las Vegas	0.0
Little Rock	0.0
Louisville	0.0
Madison	0.0
McAllen	0.0

City	Total (2 pts)
Mesa	0.0
Milwaukee	0.0
Nashville	0.0
New Haven	0.0
New Orleans	0.0
Newark	0.0
Oklahoma City	0.0
Omaha	0.0
Oxnard	0.0
Phoenix	0.0
Providence	0.0
Provo	0.0
Raleigh	0.0
Reno	0.0
Rochester	0.0
Salt Lake City	0.0
San Antonio	0.0
San Diego	0.0
San Juan	0.0
Springfield	0.0
St. Louis	0.0
St. Petersburg	0.0
Stockton	0.0
Syracuse	0.0
Tampa	0.0
Toledo	0.0
Tucson	0.0
Tulsa	0.0
Virginia Beach	0.0
Wichita	0.0
Winston-Salem	0.0
Worcester	0.0

Table E15. Scores for equitable transportation

City	Affordable TOD policy (2 pts)	Subsidized access to transportation (2 pts)	Low-income access to high-quality transit (2 pts)	Total (6 pts)
Honolulu	2	1.5	1	4.5
Oakland	1	2	1.5	4.5
Boston	1	1.5	1.5	4
Chicago	1	1	2	4
Portland	1	1	2	4
San Francisco	1	1	2	4
Washington, D.C.	2	1	1	4
New York	1	0.5	2	3.5
Philadelphia	1	1	1.5	3.5
Los Angeles	1	1.5	0.5	3
Minneapolis	1	1	1	3
Seattle	1	0.5	1.5	3
Atlanta	1	1.5	0	2.5
Austin	1	1	0	2
Baltimore	0	1.5	0.5	2
Boise	1	1	0	2
Charlotte	1	1	0	2
Cleveland	0	0	2	2
Denver	1	1	0	2
Hartford	1	1	0	2
Miami	2	0	0	2
Oklahoma City	0	2	0	2
Phoenix	1	1	0	2
Richmond	1	1	0	2
Salt Lake City	1	1	0	2
San José	1	1	0	2
Albuquerque	1	0.5	0	1.5
Houston	1	0.5	0	1.5
Indianapolis	1	0.5	0	1.5
Long Beach	1	0.5	0	1.5
Madison	1	0.5	0	1.5
Nashville	1	0.5	0	1.5
Pittsburgh	1	0.5	0	1.5
Raleigh	1	0.5	0	1.5
Saint Paul	1	0.5	0	1.5
Aurora	1	0	0	1
Bridgeport	1	0	0	1
Chula Vista	0	1	0	1
Cincinnati	0	1	0	1
Colorado Springs	0	1	0	1
Detroit	1	0	0	1

City	Affordable TOD policy (2 pts)	Subsidized access to transportation (2 pts)	Low-income access to high-quality transit (2 pts)	Total (6 pts)
Fort Worth	1	0	0	1
Fresno	1	0	0	1
Knoxville	1	0	0	1
Las Vegas	1	0	0	1
Louisville	1	0	0	1
Providence	0	1	0	1
Springfield	0	0	1	1
Tampa	1	0	0	1
Akron	0	0.5	0	0.5
Charleston	0	0.5	0	0.5
Columbia	0	0.5	0	0.5
Dallas	0	0.5	0	0.5
Des Moines	0	0.5	0	0.5
Grand Rapids	0	0.5	0	0.5
Kansas City	0	0.5	0	0.5
Memphis	0	0.5	0	0.5
New Haven	0	0.5	0	0.5
Riverside	0	0.5	0	0.5
Sacramento	0	0.5	0	0.5
San Antonio	0	0.5	0	0.5
Tucson	0	0.5	0	0.5
Tulsa	0	0.5	0	0.5
Winston-Salem	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
McAllen	0	0	0	0
Mesa	0	0	0	0
Milwaukee	0	0	0	0
New Orleans	0	0	0	0

City	Affordable TOD policy (2 pts)	Subsidized access to transportation (2 pts)	Low-income access to high-quality transit (2 pts)	Total (6 pts)
Newark	0	0	0	0
Omaha	0	0	0	0
Orlando	0	0	0	0
Oxnard	0	0	0	0
Provo	0	0	0	0
Reno	0	0	0	0
Rochester	0	0	0	0
San Diego	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
Virginia Beach	0	0	0	0
Wichita	0	0	0	0
Worcester	0	0	0	0

ENERGY AND WATER UTILITIES

Table E16. Scores for energy efficiency efforts of energy utilities

City	Electric savings and partnerships (3 pts)	Natural gas savings (1.5 pts)	Low-income programs (1.5 pts)	Multifamily programs (1 pt)	Data provision (2 pts)	Total (9 pts)
Boston	3	1.5	1.5	1	2	9
Providence	3	1.5	1.5	1	2	9
Oakland	2.5	1.5	1.5	1	2	8.5
San Francisco	2.5	1.5	1.5	1	2	8.5
San José	2.5	1.5	1.5	1	2	8.5
Washington, D.C.	3	1.5	1	1	2	8.5
Bakersfield	2.5	1.5	1.5	1	1.5	8
Chicago	2.5	1	1.5	1	2	8
Fresno	2.5	1.5	1.5	1	1.5	8
Minneapolis	2	1.5	1.5	1	2	8
Denver	2.5	0.5	1.5	1	2	7.5
Grand Rapids	2	1.5	1.5	1	1.5	7.5
Los Angeles	1.5	1.5	1.5	1	2	7.5
Aurora	2.5	0.5	1.5	1	1.5	7
Chula Vista	2	1	1	1	2	7
New York	1	1.5	1.5	1	2	7
Portland	2.5	1	1.5	1	1	7
Saint Paul	2	1	1.5	1	1.5	7

City	Electric savings and partnerships (3 pts)	Natural gas savings (1.5 pts)	Low-income programs (1.5 pts)	Multifamily programs (1 pt)	Data provision (2 pts)	Total (9 pts)
San Diego	2	1	1	1	2	7
Stockton	1.5	1.5	1.5	1	1.5	7
Worcester	2	1.5	1	1	1.5	7
Hartford	2	0.5	1	1	2	6.5
Springfield	2	1	1	1	1.5	6.5
Baltimore	1	0.5	1.5	1	2	6
Columbus	1	0.5	1.5	1	2	6
Oxnard	1	1.5	1.5	1	1	6
Sacramento	0.5	1.5	1.5	1	1.5	6
Seattle	1	0.5	1.5	1	2	6
Syracuse	1.5	1.5	1.5	1	0.5	6
Buffalo	1.5	0.5	1.5	1	1	5.5
Madison	1.5	0.5	1	1	1.5	5.5
Philadelphia	1	0.5	1.5	1	1.5	5.5
Pittsburgh	1.5	0	1.5	1	1.5	5.5
Riverside	0.5	1.5	1.5	1	1	5.5
Albuquerque	1	0.5	1.5	1	1	5
Detroit	1.5	1.5	1	1	0	5
Honolulu	2	1	0	1	1	5
Mesa	2.5	0.5	0	0.5	1.5	5
Salt Lake City	1.5	0	1	1	1.5	5
St. Louis	1	0	1.5	1	1.5	5
Kansas City	1	0	1.5	1	1	4.5
New Haven	1	0.5	0.5	1	1.5	4.5
Phoenix	1.5	0.5	1	0.5	1	4.5
Atlanta	0.5	0	0.5	1	2	4
Bridgeport	1	0.5	0	1	1.5	4
Cleveland	1	0.5	1.5	0	1	4
Des Moines	0.5	0.5	1	1	1	4
Houston	1	0	1	1	1	4
Indianapolis	2	0	0.5	0	1.5	4
Long Beach	1	0	1.5	1	0.5	4
Rochester	0.5	1	0.5	1	1	4
Toledo	0.5	0.5	1.5	1	0.5	4
Austin	0.5	0	1	1	1	3.5
Charlotte	2	0	0.5	0	1	3.5
Dayton	2.5	1	0	0	0	3.5
Milwaukee	1	0.5	1.5	0.5	0	3.5
Tulsa	1.5	0.5	0.5	0.5	0.5	3.5
Boise	1	0	1	0	1	3
Cincinnati	1	0	0.5	0.5	0.5	2.5
Dallas	0.5	0	0.5	0.5	1	2.5

City	Electric savings and partnerships (3 pts)	Natural gas savings (1.5 pts)	Low-income programs (1.5 pts)	Multifamily programs (1 pt)	Data provision (2 pts)	Total (9 pts)
Knoxville	0	0	1.5	0	1	2.5
Memphis	0	0	1.5	0	1	2.5
Nashville	0	0	1.5	0	1	2.5
Orlando	0	0.5	0	0.5	1.5	2.5
Raleigh	1	0	1	0	0.5	2.5
San Antonio	0.5	0	0.5	0	1.5	2.5
Akron	0.5	0.5	1	0	0	2
Allentown	0.5	0.5	0	0	1	2
Augusta	0	0	0.5	1	0.5	2
Fort Worth	1	0	0.5	0.5	0	2
New Orleans	1	0	0	0.5	0.5	2
Newark	0	0	1	0.5	0.5	2
Tampa	1	0.5	0.5	0	0	2
Tucson	1	0.5	0	0.5	0	2
Winston-Salem	1	0	0.5	0	0.5	2
Charleston	0.5	0	0.5	0.5	0	1.5
Colorado Springs	0.5	0.5	0.5	0	0	1.5
Columbia	0.5	0	0.5	0.5	0	1.5
Greensboro	1	0	0.5	0	0	1.5
Las Vegas	0.5	0	0	0	1	1.5
Little Rock	0.5	1	0	0	0	1.5
Oklahoma City	0.5	0.5	0.5	0	0	1.5
Richmond	0	0	0	0	1.5	1.5
St. Petersburg	0	0.5	0.5	0	0.5	1.5
Henderson	0.5	0	0.5	0	0	1
Jacksonville	0	0.5	0.5	0	0	1
Louisville	0	0	0.5	0	0.5	1
Miami	0	0	0	0	1	1
Wichita	0	0	0	1	0	1
Cape Coral	0	0.5	0	0	0	0.5
El Paso	0.5	0	0	0	0	0.5
Lakeland	0	0.5	0	0	0	0.5
McAllen	0	0	0.5	0	0	0.5
Provo	0	0	0	0	0.5	0.5
Reno	0.5	0	0	0	0	0.5
Virginia Beach	0	0	0	0	0.5	0.5
Baton Rouge	0	0	0	0	0	0
Birmingham	0	0	0	0	0	0
Omaha	0	0	0	0	0	0
San Juan	0	0	0	0	0	0

For more data on 2019 electric and natural gas utility savings, low-income and multifamily programs, and data provision scoring by metric, see Appendix F.

Table E17. Scores for decarbonization efforts of energy utilities

City	Decarbonize electric grid (IOUs only, 1.5 pts)	Electric utility emissions per capita (munis only, 1.5 pts)	Electric utility emission goal stringency (1.5 pts)	Total (3 pts)
Boston	1.5	N/A	1.5	3
Denver	1.5	N/A	1.5	3
Hartford	1.5	N/A	1.5	3
Los Angeles	N/A	1.5	1.5	3
Minneapolis	1.5	N/A	1.5	3
Portland	1.5	N/A	1.5	3
Sacramento	N/A	1.5	1.5	3
Saint Paul	1.5	N/A	1.5	3
Seattle	N/A	1.5	1.5	3
Springfield	1.5	N/A	1.5	3
Albuquerque	1.5	N/A	1	2.5
Baltimore	1.5	N/A	1	2.5
Boise	1.5	N/A	1	2.5
Chicago	1.5	N/A	1	2.5
Chula Vista	1.5	N/A	1	2.5
Grand Rapids	1.5	N/A	1	2.5
Houston	1.5	N/A	1	2.5
Indianapolis	1	N/A	1.5	2.5
New York	1.5	N/A	1	2.5
Oakland	1.5	N/A	1	2.5
Oxnard	1.5	N/A	1	2.5
Rochester	1	N/A	1.5	2.5
Salt Lake City	1	N/A	1.5	2.5
San Diego	1.5	N/A	1	2.5
San Francisco	1.5	N/A	1	2.5
San José	1.5	N/A	1	2.5
Washington, D.C.	N/A	1.5	1	2.5
Austin	N/A	0.5	1.5	2
Cincinnati	1.5	N/A	0.5	2
Cleveland	1.5	N/A	0.5	2
Columbus	1.5	N/A	0.5	2
El Paso	0.5	N/A	1.5	2
Knoxville	N/A	1	1	2
Madison	1	N/A	1	2
Memphis	N/A	1	1	2
Milwaukee	0.5	N/A	1.5	2
Nashville	N/A	1	1	2
New Haven	0.5	N/A	1.5	2
Philadelphia	1	N/A	1	2
Phoenix	1	N/A	1	2
Providence	1.5	N/A	0.5	2

City	Decarbonize electric grid (IOUs only, 1.5 pts)	Electric utility emissions per capita (munis only, 1.5 pts)	Electric utility emission goal stringency (1.5 pts)	Total (3 pts)
Worcester	1.5	N/A	0.5	2
Atlanta	1	N/A	0.5	1.5
Aurora	0	N/A	1.5	1.5
Bridgeport	0	N/A	1.5	1.5
Charlotte	1	N/A	0.5	1.5
Dayton	0	N/A	1.5	1.5
Honolulu	1.5	N/A	0	1.5
Miami	0	N/A	1.5	1.5
New Orleans	N/A	0.5	1	1.5
Newark	0	N/A	1.5	1.5
Richmond	0.5	N/A	1	1.5
Riverside	N/A	1	0.5	1.5
San Antonio	N/A	0.5	1	1.5
St. Petersburg	1	N/A	0.5	1.5
Bakersfield	0	N/A	1	1
Baton Rouge	0	N/A	1	1
Buffalo	0.5	N/A	0.5	1
Detroit	0	N/A	1	1
Fresno	0	N/A	1	1
Kansas City	0.5	N/A	0.5	1
Las Vegas	1	N/A	0	1
Little Rock	0	N/A	1	1
Long Beach	0	N/A	1	1
Louisville	0.5	N/A	0.5	1
Orlando	N/A	0	1	1
Raleigh	0.5	N/A	0.5	1
St. Louis	0	N/A	1	1
Stockton	0	N/A	1	1
Virginia Beach	0	N/A	1	1
Winston-Salem	0.5	N/A	0.5	1
Akron	0	N/A	0.5	0.5
Allentown	0	N/A	0.5	0.5
Augusta	0	N/A	0.5	0.5
Birmingham	0	N/A	0.5	0.5
Charleston	0	N/A	0.5	0.5
Columbia	0	N/A	0.5	0.5
Dallas	0.5	N/A	0	0.5
Des Moines	0.5	N/A	0	0.5
Fort Worth	0.5	N/A	0	0.5
Greensboro	0	N/A	0.5	0.5
McAllen	0	N/A	0.5	0.5
Oklahoma City	0	N/A	0.5	0.5

City	Decarbonize electric grid (IOUs only, 1.5 pts)	Electric utility emissions per capita (munis only, 1.5 pts)	Electric utility emission goal stringency (1.5 pts)	Total (3 pts)
Syracuse	0	N/A	0.5	0.5
Toledo	0	N/A	0.5	0.5
Tulsa	0	N/A	0.5	0.5
Wichita	0	N/A	0.5	0.5
Cape Coral	N/A	0	0	0
Colorado Springs	N/A	0	0	0
Henderson	0	N/A	0	0
Jacksonville	N/A	0	0	0
Lakeland	N/A	0	0	0
Mesa	N/A	0	0	0
Omaha	N/A	0	0	0
Pittsburgh	0	N/A	0	0
Provo	N/A	0	0	0
Reno	0	N/A	0	0
San Juan	N/A	0	0	0
Tampa	0	N/A	0	0
Tucson	0	N/A	0	0

For more data on renewable energy incentives, efforts to decarbonize the electric grid, and renewable energy generation, see Appendix F.

Table E18. Scores for efficiency efforts of water utilities

City	Joint water–energy programs (0.5 pts)	Water savings strategy (0.5 pts)	Energy efficiency programs (1 pt)	Self-generation (1 pt)	Total score (3 pts)
Aurora	0.5	0.5	1	1	3
Austin	0.5	0.5	1	1	3
Boston	0.5	0.5	1	1	3
Chicago	0.5	0.5	1	1	3
Chula Vista	0.5	0.5	1	1	3
Los Angeles	0.5	0.5	1	1	3
New York	0.5	0.5	1	1	3
Saint Paul	0.5	0.5	1	1	3
San Diego	0.5	0.5	1	1	3
San José	0.5	0.5	1	1	3
Atlanta	0	0.5	1	1	2.5
Cleveland	0.5	0.5	0.5	1	2.5
Columbus	0.5	0	1	1	2.5
Denver	0.5	0	1	1	2.5
El Paso	0	0.5	1	1	2.5
Grand Rapids	0.5	0	1	1	2.5
Hartford	0.5	0.5	0.5	1	2.5
Honolulu	0	0.5	1	1	2.5
Knoxville	0.5	0	1	1	2.5

City	Joint water–energy programs (0.5 pts)	Water savings strategy (0.5 pts)	Energy efficiency programs (1 pt)	Self-generation (1 pt)	Total score (3 pts)
Las Vegas	0.5	0.5	0.5	1	2.5
Minneapolis	0.5	0.5	0.5	1	2.5
Oakland	0.5	0.5	1	0.5	2.5
Orlando	0.5	0.5	0.5	1	2.5
Phoenix	0	0.5	1	1	2.5
Raleigh	0	0.5	1	1	2.5
Riverside	0.5	0.5	0.5	1	2.5
San Francisco	0.5	0.5	0.5	1	2.5
Washington, D.C.	0.5	0.5	0.5	1	2.5
Albuquerque	0	0.5	0.5	1	2
Boise	0.5	0	0.5	1	2
Charlotte	0	0	1	1	2
Fort Worth	0	0.5	0.5	1	2
Long Beach	0	0.5	0.5	1	2
Louisville	0	0	1	1	2
Providence	0	0.5	0.5	1	2
Salt Lake City	0	0.5	0.5	1	2
Seattle	0.5	0.5	0	1	2
Winston-Salem	0	0	1	1	2
Buffalo	0	0	0.5	1	1.5
Cincinnati	0	0	0.5	1	1.5
Madison	0.5	0	0	1	1.5
Milwaukee	0	0	0.5	1	1.5
Nashville	0	0	0.5	1	1.5
Philadelphia	0	0	0.5	1	1.5
Pittsburgh	0	0	0.5	1	1.5
Portland	0	0	0.5	1	1.5
Sacramento	0.5	0	0	1	1.5
San Antonio	0.5	0.5	0.5	0	1.5
Tulsa	0.5	0	0	1	1.5
Akron	0	0	0	1	1
Allentown	0	0	0	1	1
Baltimore	0	0	0	1	1
Dallas	0	0	0	1	1
Des Moines	0	0	0	1	1
Houston	0	0.5	0.5	0	1
Jacksonville	0.5	0	0	0.5	1
Kansas City	0	0.5	0.5	0	1
Memphis	0	0	0	1	1
New Haven	0	0	0	1	1
Virginia Beach	0	0	0	1	1
Bakersfield	0.5	0	0	0	0.5

City	Joint water–energy programs (0.5 pts)	Water savings strategy (0.5 pts)	Energy efficiency programs (1 pt)	Self-generation (1 pt)	Total score (3 pts)
Colorado Springs	0	0.5	0	0	0.5
Columbia	0	0	0.5	0	0.5
Detroit	0	0	0	0.5	0.5
Fresno	0.5	0	0	0	0.5
Indianapolis	0.5	0	0	0	0.5
Miami	0	0.5	0	0	0.5
Oklahoma City	0	0	0.5	0	0.5
Oxnard	0.5	0	0	0	0.5
Provo	0	0.5	0	0	0.5
Richmond	0	0.5	0	0	0.5
St. Louis	0	0	0.5	0	0.5
Stockton	0.5	0	0	0	0.5
Toledo	0.5	0	0	0	0.5
Worcester	0.5	0	0	0	0.5
Augusta	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
Dayton	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
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
Omaha	0	0	0	0	0
Reno	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. Petersburg	0	0	0	0	0
Syracuse	0	0	0	0	0
Tampa	0	0	0	0	0
Tucson	0	0	0	0	0
Wichita	0	0	0	0	0

For more data on water–energy programs, water savings strategies, energy efficiency programs and targets, and self-generation scoring by metric, see Appendix F.

LOCAL GOVERNMENT OPERATIONS

Table E19. 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)
Portland	0.5	1	1	1	3.5
Washington, D.C.	0.5	1	0.5	1	3
Boise	1	0.5	1	0	2.5
Las Vegas	0	1	0.5	1	2.5
Oakland	0	1	0.5	1	2.5
Providence	0.5	0	1	1	2.5
San Francisco	0	1	0.5	1	2.5
Seattle	1	1	0.5	0	2.5
Boston	0	0	1	1	2
Houston	0	1	1	0	2
Kansas City	0	1	0.5	0.5	2
Los Angeles	0.5	0	0.5	1	2
Orlando	0	0.5	1	0.5	2
Pittsburgh	0	1	0	1	2
Atlanta	0	1	0.5	0	1.5
Dallas	0	0	0.5	1	1.5
Grand Rapids	0	0.5	0	1	1.5
Honolulu	0	0.5	1	0	1.5
Minneapolis	0	0.5	0	1	1.5
New Haven	0	1	0.5	0	1.5
Philadelphia	0	0.5	0	1	1.5
San Antonio	0	0	0.5	1	1.5
Austin	0	1	0	0	1
Charleston	0	0	1	0	1
Cleveland	0	0	0	1	1
Denver	0	1	0	0	1
Madison	0	0	1	0	1
Sacramento	0	0	0	1	1
Salt Lake City	0	0.5	0.5	0	1
Albuquerque	0	0.5	0	0	0.5
Indianapolis	0	0	0.5	0	0.5
Knoxville	0	0	0	0.5	0.5
Memphis	0	0	0.5	0	0.5
Nashville	0	0.5	0	0	0.5
New York	0	0	0.5	0	0.5
Phoenix	0	0	0.5	0	0.5
San Diego	0.5	0	0	0	0.5
St. Louis	0	0	0.5	0	0.5
Akron	0	0	0	0	0
Allentown	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)
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
Buffalo	0	0	0	0	0
Cape Coral	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
Columbus	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
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
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
Omaha	0	0	0	0	0
Oxnard	0	0	0	0	0
Provo	0	0	0	0	0
Raleigh	0	0	0	0	0
Reno	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)
Richmond	0	0	0	0	0
Riverside	0	0	0	0	0
Rochester	0	0	0	0	0
Saint Paul	0	0	0	0	0
San José	0	0	0	0	0
San Juan	0	0	0	0	0
Springfield	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
Worcester	0	0	0	0	0

Table E20. Scores for asset management

City	Benchmarking (0.5 pts)	Retrofit (1.5 pts)	Total (2 pts)
Albuquerque	0.5	1.5	2
Austin	0.5	1.5	2
Boston	0.5	1.5	2
Charlotte	0.5	1.5	2
Hartford	0.5	1.5	2
New York	0.5	1.5	2
Orlando	0.5	1.5	2
Philadelphia	0.5	1.5	2
San Antonio	0.5	1.5	2
San Francisco	0.5	1.5	2
Seattle	0.5	1.5	2
Buffalo	0.5	1	1.5
Chula Vista	0.5	1	1.5
Cleveland	0.5	1	1.5
Dallas	0	1.5	1.5
Denver	0.5	1	1.5
Grand Rapids	0.5	1	1.5
Los Angeles	0.5	1	1.5
Madison	0.5	1	1.5
Minneapolis	0.5	1	1.5

City	Benchmarking (0.5 pts)	Retrofit (1.5 pts)	Total (2 pts)
Nashville	0.5	1	1.5
Portland	0.5	1	1.5
Providence	0.5	1	1.5
Sacramento	0.5	1	1.5
Saint Paul	0.5	1	1.5
St. Petersburg	0.5	1	1.5
Baltimore	0	1	1
Columbus	0.5	0.5	1
Kansas City	0.5	0.5	1
Knoxville	0.5	0.5	1
Las Vegas	0.5	0.5	1
Long Beach	0.5	0.5	1
Mesa	0.5	0.5	1
Oakland	0.5	0.5	1
Phoenix	0.5	0.5	1
Pittsburgh	0.5	0.5	1
Raleigh	0.5	0.5	1
Richmond	0.5	0.5	1
Salt Lake City	0.5	0.5	1
San Diego	0.5	0.5	1
Washington, D.C.	0.5	0.5	1
Atlanta	0.5	0	0.5
Birmingham	0.5	0	0.5
Boise	0.5	0	0.5
Bridgeport	0.5	0	0.5
Chicago	0.5	0	0.5
Cincinnati	0.5	0	0.5
Houston	0	0.5	0.5
Louisville	0	0.5	0.5
Memphis	0.5	0	0.5
Milwaukee	0.5	0	0.5
New Orleans	0.5	0	0.5
Reno	0.5	0	0.5
Rochester	0.5	0	0.5
Syracuse	0.5	0	0.5
Virginia Beach	0.5	0	0.5
Worcester	0.5	0	0.5
Akron	0	0	0
Allentown	0	0	0
Augusta	0	0	0
Aurora	0	0	0
Bakersfield	0	0	0
Baton Rouge	0	0	0

City	Benchmarking (0.5 pts)	Retrofit (1.5 pts)	Total (2 pts)
Cape Coral	0	0	0
Charleston	0	0	0
Colorado Springs	0	0	0
Columbia	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
Fresno	0	0	0
Greensboro	0	0	0
Henderson	0	0	0
Honolulu	0	0	0
Indianapolis	0	0	0
Jacksonville	0	0	0
Lakeland	0	0	0
Little Rock	0	0	0
McAllen	0	0	0
Miami	0	0	0
New Haven	0	0	0
Newark	0	0	0
Oklahoma City	0	0	0
Omaha	0	0	0
Oxnard	0	0	0
Provo	0	0	0
Riverside	0	0	0
San José	0	0	0
San Juan	0	0	0
Springfield	0	0	0
St. Louis	0	0	0
Stockton	0	0	0
Tampa	0	0	0
Toledo	0	0	0
Tucson	0	0	0
Tulsa	0	0	0
Wichita	0	0	0
Winston-Salem	0	0	0

Table E21. Scores for procurement and construction policies

City	Fleet policies and composition (1 pt)	Efficient lighting (1.5 pts)	Onsite renewables (1 pt)	Inclusive procurement (0.5 pts)	Total (4 pts)
Boston	1	1	1	0.5	3.5
Minneapolis	1	1.5	0.5	0.5	3.5
Orlando	1	1.5	0.5	0.5	3.5
Austin	1	1.5	0.5	0	3
Chula Vista	1	1	1	0	3
Hartford	0	1.5	1	0.5	3
Long Beach	1	1	1	0	3
Los Angeles	1	1	1	0	3
Oakland	1	1.5	0.5	0	3
Phoenix	0.5	1.5	1	0	3
San Diego	1	1	1	0	3
San Francisco	1	1	1	0	3
St. Petersburg	0.5	1.5	1	0	3
Albuquerque	0.5	1	1	0	2.5
Bakersfield	0	1.5	1	0	2.5
Cincinnati	0.5	1	1	0	2.5
Honolulu	0.5	1	1	0	2.5
Knoxville	0.5	1	0.5	0.5	2.5
Las Vegas	0.5	1	1	0	2.5
Madison	1	0.5	0.5	0.5	2.5
New York	1	0.5	0.5	0.5	2.5
Portland	1	1	0.5	0	2.5
Providence	0.5	1	1	0	2.5
Riverside	1	0.5	1	0	2.5
San José	1	0.5	1	0	2.5
Virginia Beach	0	1.5	1	0	2.5
Worcester	0.5	1	1	0	2.5
Atlanta	0.5	1	0.5	0	2
Baltimore	0	0.5	1	0.5	2
Chicago	0.5	1	0	0.5	2
Houston	0.5	1	0	0.5	2
Indianapolis	1	1	0	0	2
Nashville	0.5	0.5	0.5	0.5	2
Sacramento	0.5	0.5	1	0	2
Salt Lake City	0.5	0.5	1	0	2
San Antonio	1	1	0	0	2
Seattle	0.5	1	0	0.5	2
Saint Paul	0.5	0.5	0.5	0.5	2
Tucson	0.5	0.5	1	0	2
Boise	0.5	1	0	0	1.5
Bridgeport	0.5	1	0	0	1.5

City	Fleet policies and composition (1 pt)	Efficient lighting (1.5 pts)	Onsite renewables (1 pt)	Inclusive procurement (0.5 pts)	Total (4 pts)
Charlotte	0.5	0	0.5	0.5	1.5
Cleveland	0	1	0	0.5	1.5
Columbus	1	0	0	0.5	1.5
Denver	0.5	0.5	0.5	0	1.5
Detroit	0.5	1	0	0	1.5
El Paso	0.5	1	0	0	1.5
Fresno	0	0.5	1	0	1.5
Kansas City	0.5	0	0.5	0.5	1.5
New Haven	0	1.5	0	0	1.5
Philadelphia	1	0	0	0.5	1.5
Raleigh	0.5	1	0	0	1.5
Rochester	0	0.5	1	0	1.5
St. Louis	0.5	0.5	0	0.5	1.5
Washington, D.C.	0.5	0	1	0	1.5
Wichita	0	1	0	0.5	1.5
Birmingham	0	1	0	0	1
Charleston	0	0	1	0	1
Dallas	0.5	0	0.5	0	1
Grand Rapids	0.5	0.5	0	0	1
Mesa	0	0.5	0.5	0	1
Miami	0.5	0	0.5	0	1
Pittsburgh	0.5	0.5	0	0	1
Winston-Salem	0	1	0	0	1
Tulsa	1	0	0	0	1
Buffalo	0.5	0	0	0	0.5
Cape Coral	0	0.5	0	0	0.5
Colorado Springs	0.5	0	0	0	0.5
Fort Worth	0	0.5	0	0	0.5
Greensboro	0.5	0	0	0	0.5
Jacksonville	0.5	0	0	0	0.5
New Orleans	0	0.5	0	0	0.5
Newark	0.5	0	0	0	0.5
Oklahoma City	0.5	0	0	0	0.5
Richmond	0	0	0	0.5	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
Baton Rouge	0	0	0	0	0
Columbia	0	0	0	0	0
Dayton	0	0	0	0	0
Des Moines	0	0	0	0	0

City	Fleet policies and composition (1 pt)	Efficient lighting (1.5 pts)	Onsite renewables (1 pt)	Inclusive procurement (0.5 pts)	Total (4 pts)
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
Omaha	0	0	0	0	0
Oxnard	0	0	0	0	0
Provo	0	0	0	0	0
Reno	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
Toledo	0	0	0	0	0

Appendix F. Additional Tables on Policies and Results

POLICY TRENDS

Table F1. Tally of city uptake of new actions between May 2, 2020, and July 1, 2021

Policy area, subcategory, and activity	City uptake
Local government operations	29
Local government climate change mitigation and energy goals	4
Set or updated GHG emissions goal(s) for local government operations	1
Set or updated renewable energy goal(s) for local government operations	3
Procurement and construction policies	18
Adopted fleet procurement policy for efficient vehicles	3
Adopted energy-efficient public lighting policy	1
Purchased or installed additional renewable energy	11
Adopted an inclusive contracting and procurement policy	3
Asset management	7
Benchmarked 90% or more of municipal buildings for the first time	3
Set or updated a comprehensive energy retrofit and management plan	4
Community-wide initiatives	54
Community-wide climate mitigation and energy goals	19
Set or updated community-wide climate mitigation goal(s)	12
Set or updated community-wide energy savings goal(s)	2
Set or updated community-wide electricity decarbonization goal(s)	5
Clean distributed energy systems	6
Supported a district energy project that will result in lower GHG emissions	1
Supported a microgrid project that will result in lower GHG emissions	3
Supported a community solar project	2
Equity-driven approaches to clean energy planning	20
Undertook an equity-driven community engagement strategy for a climate or energy plan	6
Gave marginalized residents a formal role in decision making around energy initiatives	7
Adopted structural equity procedures	7
Mitigation of the heat island effect	9
Set or updated heat island mitigation goal(s)	5
Adopted heat island mitigation policy or created a program	4
Buildings policies	53
Building energy code adoption	24
Adopted or updated building energy code(s)	19
Adopted or updated building electric vehicle infrastructure policy	4
Adopted or updated renewable-ready policy	1
Policies targeting existing buildings	25
Created a new incentive program or offering	12
Adopted a commercial energy benchmarking policy	2
Adopted a multifamily energy benchmarking policy	2
Adopted a residential rental disclosure policy	1
Adopted or updated retrofit requirement(s)	1
Adopted or updated building performance standard(s)	2

Policy area, subcategory, and activity	City uptake
Adopted crosscutting requirements	1
Adopted time-of-sale property energy disclosure policy	1
Created a new voluntary energy efficiency program	3
Energy efficiency and renewable energy workforce development	4
Created a new energy efficiency workforce development program	2
Created a new renewable energy workforce development program	2
Transportation policies	29
Sustainable transportation plans and vehicle miles traveled targets	12
Adopted sustainable transportation plan or included strategies as part of a broader plan	10
Codified vehicle miles traveled/greenhouse gas emissions goal(s)	2
Location efficiency	6
Adopted or updated zoning code provisions for location-efficient developments	5
Created a new location efficiency incentive offering	1
Mode shift	3
Adopted or updated modal share target(s)	1
Adopted complete streets policy	2
Electric vehicles	7
Created a new electric vehicle purchase incentive program or offering	3
Created a new electric vehicle infrastructure incentive program or offering	3
Adopted an electric transit bus goal	1
Clean, efficient transportation for low-income communities	1
Offered a new efficient transportation option subsidy to marginalized residents	1
Energy and water utilities	12
City–utility partnerships*	4
Formed a new partnership with local electric and/or natural gas utility*	4
City efforts to decarbonize the grid	7
Created or began a process to create a community choice aggregation policy	7
City efforts to improve energy performance of water utility	1
Undertook a new or expanded effort to reduce energy use associated with water consumption	1
Local government operations	29
Local government climate change mitigation and energy goals	4
Set or updated GHG emissions goal(s) for local government operations	1
Set or updated renewable energy goal(s) for local government operations	3
Procurement and construction policies	18
Adopted fleet procurement policy for efficient vehicles	3
Adopted energy-efficient public lighting policy	1
Purchased or installed additional renewable energy	11
Adopted an inclusive contracting and procurement policy	3
Asset management	7
Benchmarked 90% or more of municipal buildings for the first time	3
Set or updated a comprehensive energy retrofit and management plan	4
Total new clean energy initiatives	**177**

Note: 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.

*These partnerships may include initiatives to increase energy efficiency as well as renewable energy.

COMMUNITY-WIDE INITIATIVES

Table F2. 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 GHG goal
Akron	None		None		Reduce community-wide GHG emissions 20% by 2025, using a 2005 baseline	0.5%	
Albuquerque	None		None		None		
Allentown	None		None		None		
Atlanta	None		Generate 100% clean energy by 2035	3,299	Reduce community-wide GHG emissions 40% by 2030, using a 2009 baseline	3%	35.8%
Augusta	None		None		None		
Aurora	None		None		Reduce community-wide GHG emissions 10% by 2025, using a 2007 baseline	1.9%	100%
Austin	None		Generate 55% renewable electricity by 2025	878	Reduce community-wide GHG emissions 49% by 2030, using a 2010 baseline	3.2%	100%
Bakersfield	None		None		None		
Baltimore	None		None		Reduce community-wide GHG emissions 30% by 2025, using a 2007 baseline	2.5%	100%
Baton Rouge	None		None		None		
Birmingham	None		None		None		
Boise	None		Generate 100% renewable electricity by 2035	465	Reduce community-wide GHG emissions 100% by 2050, using a 2018 baseline	3.1%	
Boston	None		None		Reduce community-wide GHG emissions 50% by 2030, using a 2005 baseline	3.3%	100%
Bridgeport	None		None		Reduce community-wide GHG emissions 30% by 2030, using a 2007 baseline	1.5%	
Buffalo	None		None		None		
Cape Coral	None		None		None		
Charleston	None		None		Reduce community-wide GHG emissions 56% by 2030, using a 2018 baseline	5.3%	

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 GHG goal
Charlotte	None		None		Reduce community-wide GHG emissions by 2 tons CO2e per capita by 2050, using a 2015 baseline	2.6%	0%
Chicago	None		Generate 100% renewable energy by 2035	1,069	Reduce community-wide GHG emissions 26% by 2025, using a 2005 baseline	0.9%	100%
Chula Vista	None		Generate 100% renewable electricity by 2035	345	Reduce community-wide GHG emissions 55% by 2030, using a 2005 baseline	4%	27.1%
Cincinnati	Reduce community-wide energy use 2% annually	2%	Generate 100% renewable energy by 2035	819	Reduce community-wide GHG 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	3.2%	Generate 15% renewable electricity by 2022	453	Reduce community-wide GHG emissions 40% by 2030, using a 2010 baseline	2.1%	65.7%
Colorado Springs	None		None		None		
Columbia	None		Generate 100% renewable energy by 2036	1,805	None		
Columbus	None		None		Reduce community-wide GHG emissions 100% by 2050, using a 2018 baseline	3.1%	100%
Dallas	Reduce energy in the Dallas 2030 District 50% by 2030.		None		Reduce GHG emissions 43% by 2030, using a 2015 baseline	3.1%	
Dayton	None		Generate 100% renewable electricity by 2040	1,217	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 GHG goal
Denver	Reduce energy use of single-family buildings 10% by 2025, using a 2005 baseline		Generate 100% renewable electricity by 2030	1,210	Reduce community-wide GHG emissions 30% by 2025, using a 2005 baseline	4.1%	93.4%
Des Moines	None		Generate 100% renewable electricity by 2035	575	Reduce community-wide GHG emissions 28% by 2025, using a 2017 baseline	4.4%	
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 GHG emissions 30% by 2025, using a 2012 baseline	1.6%	
El Paso	None		None		None		
Fort Worth	None		None		None		
Fresno	None		None		Reduce community-wide GHG emissions 80% by 2050, using a 1990 baseline	2.1%	
Grand Rapids	Reduce energy in the Grand Rapids 2030 District 50% by 2030.		None		None		
Greensboro	None		None		None		
Hartford	None		Increase renewable energy capacity to 4 MW by 2025	6	Reduce community-wide GHG emissions 45% by 2030, using a 2001 baseline	3.5%	
Henderson	None		None		None		
Honolulu	None		Generate 100% renewable energy by 2045	634	Reduce community-wide GHG emissions 45% by 2025, using a 2015 baseline	6.8%	0%
Houston	None		Install 5 million MWh of rooftop and community solar by 2050	151	Reduce community-wide GHG emissions 40% by 2030, using a 2014 baseline	4.6%	

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 GHG goal
Indianapolis	None		Generate 20% renewable energy by 2025	384	Reduce community-wide GHG 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	330	Reduce community-wide GHG emissions 30% by 2025, using a 2000 baseline	2.2%	100%
Knoxville	None		None		Reduce community-wide GHG emissions 50% by 2030, using a 2005 baseline	2.7%	100%
Lakeland	None		None		None		
Las Vegas	Reduce regional energy consumption 80% by 2050, using a 2019 baseline	2.8%	Generate 50% renewable electricity by 2030	592	Reduce community-wide GHG emissions 28% by 2025, using a 2019 baseline	5.5%	
Little Rock	None		None		None		
Long Beach	None		None		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	482	Reduce community-wide GHG emissions 50% by 2025, using a 1990 baseline	4.4%	100%
Louisville	Reduce community-wide energy use 25% per capita by 2025, using a 2012 baseline	1.9%	Generate 100% clean energy by 2040	1,402	Reduce community-wide GHG 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	319	Reduce community-wide GHG emissions 80% by 2050, using a 2010 baseline	2.2%	0%
McAllen	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 GHG goal
Memphis	None		Generate 80% carbon-free energy by 2035	873	Reduce community-wide GHG emissions 51% by 2035, using a 2016 baseline	2.9%	
Mesa	None		None		None		
Miami	None		None		Reduce community-wide GHG emissions 100% by 2050, using a 2018 baseline	3.1%	100%
Milwaukee	None		None		Reduce community-wide GHG 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	1.9%	Generate 100% renewable energy by 2030	745	Reduce community-wide GHG emissions 30% by 2025, using a 2006 baseline	2.7%	100%
Nashville	None		None		None		
New Haven	None		None		Reduce community-wide GHG 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	716	Reduce community-wide GHG emissions 50% by 2030, using a 2014 baseline	3.3%	
New York	None		Generate 100% carbon-free electricity by 2050	332	Reduce community-wide GHG emissions 30% by 2025, using a 2005 baseline	1.8%	0%
Newark	None		None		Reduce community-wide GHG emissions 26% by 2025, using a 2012 baseline		
Oakland	None		Generates more than 90% of electricity from renewable energy sources		Reduce community-wide GHG emissions 56% by 2030, using a 2005 baseline	4.3%	19.9%
Oklahoma City	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 GHG goal
Omaha	Reduce community-wide energy use per capita 10% by 2030, using a 2010 baseline		Generate 20% renewable energy by 2030	245	None		
Orlando	Reduce community-wide energy use 25% by 2040, using a 2010 baseline	1.9%	Generate 100% renewable electricity by 2050	855	Reduce community-wide GHG emissions 90% by 2040, using a 2007 baseline	3.4%	100%
Oxnard	None		None		None		
Philadelphia	None		Generate 100% carbon-free electricity by 2050	340	Reduce community-wide GHG emissions 80% by 2050, using a 2006 baseline	2.9%	100%
Phoenix	Achieve net-positive energy and materials in all buildings by 2050		Generate 15% renewable energy by 2025	203	Reduce community-wide GHG emissions 30% by 2025, using a 2012 baseline	4.1%	100%
Pittsburgh	Reduce community-wide energy use 50% by 2030, using a 2003 baseline	3.3%	Generate 100% renewable energy by 2030	1,233	Reduce community-wide GHG emissions 20% by 2023, using a 2003 baseline	2.5%	38.4%
Portland	Reduce energy use in buildings built before 2010 25% by 2030		Generate 100% renewable electricity by 2035	969	Reduce community-wide GHG emissions 40% by 2030, using a 1990 baseline	3.75%	32.9%
Providence	None		Generate 50% carbon-free electricity by 2035	120	Reduce community-wide GHG emissions 100% by 2050, using a 2015 baseline	2.9%	36.3%
Provo	None		None		None		
Raleigh	None		None		Reduce community-wide GHG 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	413	Reduce community-wide GHG emissions 28% by 2025, using a 2008 baseline	3.3%	

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 GHG goal
Richmond	None		None		Reduce community-wide GHG emissions 45% by 2030, using a 2008 baseline	2.6%	100%
Riverside	Reduce community-wide energy use 1% annually, using a 2004 baseline	1%	None		Reduce community-wide GHG emissions 49% by 2035, using a 2007 baseline	2.1%	
Rochester	None		None		Reduce community-wide GHG emissions 40% by 2030, using a 2010 baseline	1.8%	
Sacramento	Reduce community-wide energy use 25% by 2030, using a 2005 baseline	1.5%	None		Reduce community-wide GHG emissions 49% by 2035, using a 2005 baseline	2.2%	77%
Salt Lake City	None		Generate 100% renewable electricity by 2032	2,234	Reduce community-wide GHG emissions 50% by 2030, using a 2009 baseline	3.6%	65.5%
San Antonio	Reduce community-wide energy use from 116 kBtu per square foot to 90 kBtu per square foot by 2040	0.9%	Generate 50% renewable electricity by 2040	325	Reduce community-wide GHG emissions 41% by 2030, using a 2016 baseline	3.8%	27.6%
San Diego	None		Generate 100% renewable energy by 2035	498	Reduce community-wide GHG emissions 40% by 2030, using a 2010 baseline	2.5%	93.6%
San Francisco	None		Generate 100% renewable electricity by 2030	486	Reduce community-wide GHG emissions 40% by 2025, using a 1990 baseline	2.6%	100%

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 GHG goal
San José	Reduce per 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 GHG emissions 4% by 2021, using a 1990 baseline	2.3%	100%
San Juan	None		None		None		
Seattle	Reduce commercial energy use 10% and residential use 20% by 2030, using a 2008 baseline	2.2%	Generates more than 90% of electricity from renewable energy sources		Reduce community-wide GHG emissions 58% by 2030, using a 2008 baseline	3.88%	100%
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	238	Reduce community-wide GHG emissions 80% by 2050, using a 2015 baseline	2.3%	
St. Louis	None		Generate 100% renewable electricity by 2035	1,466	Reduce community-wide GHG emissions 100% by 2050, using a 2005 baseline	3.1%	97%
Saint Paul	None		Install 50 MW of residential and 150 MW of commercial solar by 2030.	298	Reduce community-wide GHG emissions 50% below a 2030 business-as-usual projection	5.9%	
St. Petersburg	None		Generate 100% renewable electricity by 2035	1,295	Reduce community-wide GHG emissions 80% by 2050, using a 2016 baseline	2.5%	
Stockton	None		None		None		
Syracuse	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 GHG goal
Tampa	None		Install renewable energy systems in 20% of existing residential and commercial buildings by 2025		Reduce community-wide GHG emissions to 1990 levels by 2025	2%	
Toledo	None		None		Reduce community-wide GHG emissions 40% by 2030, using a 2012 baseline	2.2%	
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, D.C.	Reduce community-wide energy use 50% by 2032, using a 2012 baseline	3.4%	Generate 100% renewable energy by 2032	850	Reduce community-wide GHG emissions 50% by 2032, using a 2006 baseline	2.7%	94.2%
Wichita	None		None		None		
Winston-Salem	None		None		None		
Worcester	None		Generate 100% renewable energy by 2045	316	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 as well as 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 F3. Community-wide equity-driven clean energy planning strategies

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
Albuquerque	None	City has created a Climate Action Plan Task Force consisting of representatives from marginalized communities and community-based organizations.	Resolution 20-75 requires the city to operationalize equity in all decision-making processes and use racial equity tool kits to understand the distribution of benefits and burdens of policies, programs, and budgeting decisions.
Atlanta	None	None	City adopted a goal to reduce energy burdens for 10% of households with tracking metrics focused on those with low incomes.
Austin	None	City created a steering committee to allow marginalized community residents and community-based organizations to lead the development of the Climate Equity Plan.	City used an equity tool to develop its Climate Equity Plan.
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.
Charlotte	None	None	City requires departments to use an equity lens to justify budget enhancements. Departments must analyze which groups would benefit from and be burdened by the enhancements.
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.
Chula Vista	None	None	The City Council adopted the Climate Equity Index, which must be updated every five years. The index uses 39 indicators to analyze each of the city's census tracts and assigns each tract a climate equity index score.
Cincinnati	City held Green Cincinnati Plan development meetings in Spanish and in communities of color.	None	City adopted a goal to reduce household energy burdens 10% by 2023.
Cleveland	None	None	City uses a racial equity tool to plan implementation for its climate action plan.
Dallas	City offered transportation reimbursement to residents attending community meetings on the Comprehensive Environmental & Climate Action Plan.	None	Resilient Dallas adopted specific time-limited goals and metrics to track how energy efficiency and climate action initiatives are achieving positive environmental justice and social equity outcomes.

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
Denver	The city's Climate Task Force promoted access to Wi-Fi for community to attend virtual community meetings and provided direct phone support. Half of these efforts were in Spanish.	None	The Climate Protection Fund has a goal to spend at least 50% of its budget on equity-related projects.
Detroit	The city hosted four town hall meetings and seven focus groups with populations that are historically underrepresented in planning processes.	None	None
Hartford	The city's Climate Action Meetings focused on implementation of its Climate Action Plan. These meetings were co-hosted by local grassroots nonprofits and were held in neighborhoods across the city, after traditional working hours. They were intentionally family-friendly to attract as many residents as possible.	None	The 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. Pillar IV has several goals related to city coordination with marginalized communities. City staff hold weekly meetings to report on progress toward these goals.
Houston	The Complete Communities initiative developed unique planning documents for 10 under-resourced neighborhoods. The city held multiple community meetings in each neighborhood to identify goals, projects, and partners.	None	None
Indianapolis	In planning Thrive Indianapolis, the city held specialized focus groups and training for returning citizens, veteran, low-income, and homeless populations in convenient locations.	None	None

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
Knoxville	The Equity Working Group conducted direct outreach, surveying community members to inform its discussions and recommendations. This outreach targeted Knoxville's lower-income zip codes.	City created the Climate Council Equity Working Group, which consists mostly of representatives from community-based organizations serving marginalized communities.	None
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. In addition to English, the outreach has also been conducted in Spanish and Khmer.	None	None
Los Angeles	None	City has created formal partnerships with organizations in marginalized communities to apply for grants to support climate action 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 get 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 neighborhood where it took place. Light bites and childcare were provided. Meetings had in-person translation services available in Spanish and Haitian Creole.	None	None
Milwaukee	None	Council Resolution 190445 established the Climate and Economic Equity Task Force. The task force is composed mostly of members of marginalized communities and staff from the community-based organizations serving them.	None

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
Minneapolis	Green Zone Task Forces develop and lead outreach work plans to engage community members in planning their initiatives.	City has created community driven Northern and Southside Green Zones . Residents of these communities sit on task forces that advise the City Council and mayor on implementation and evaluation of their climate action work plans, which were also developed by community members.	Minneapolis requires city staff to complete a racial equity impact analysis for new policies, programs, and budgeting decisions. 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	The city launched the Climate Equity Project in 2018, 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 issues.	None	None
New York	None	New York City's Environmental Justice Advisory Board consists of residents of environmental justice communities and experts from environmental justice groups. The board is conducting research and will create a citywide environmental justice plan.	Executive Order 45 of 2019 requires agencies to report annually on key equity indicators.
Oakland	The city held community-wide town hall meetings 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. Simultaneous language interpretation services, free meals, and childcare services were provided.	None	The city uses Equity Indicators Reports to track both pollution and energy cost burdens.

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
Orlando	Parramore is a historically Black community in Orlando. In developing the Parramore Comprehensive Plan, the city held public meetings in the neighborhood at community centers. People were given the opportunity to speak out during the meetings, provide feedback on comment cards, vote, place sticky dots 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 has conducted 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 that will augment the current inclusivity training required for all city employees.
Philadelphia	The Office of Sustainability conducted community outreach in high-energy-burden neighborhoods. The city is using the feedback in multiple initiatives related to housing and energy.	Philadelphia's Environmental Justice Advisory Commission comprises residents from overburdened communities as defined by environmental, health, and socioeconomic characteristics. Input from the commission will inform the equitable implementation of climate actions.	Philadelphia requires city staff to use a racial equity budget tool to justify new spending. Philadelphia Energy Authority programs track and annually report several metrics related to outcomes for low-income households.
Phoenix	For the C40 Climate Action Plan, the city conducted outreach in marginalized communities and held some sessions in Spanish.	The city established a Village Planning Committee in each of its 16 urban "villages" to enable community residents to review all projects in their neighborhood on a monthly basis. These committees review and approve sustainability action plans in their communities.	None
Pittsburgh	None	None	The city recently released Pittsburgh Equity Indicators: A Baseline Measurement for Enhancing Equity in Pittsburgh. The metrics in this report will be reviewed annually.
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) makes 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.	City uses the Budget Equity Assessment Tool to analyze how budget allocations benefit and burden marginalized communities. For the city's energy, sustainability, and climate work, there are multiple staff responsible for advancing equity through their work, guided by the Bureau of Planning and Sustainability's Equity and Vision. Annual performance reviews evaluate how well employees have advanced equity through their work and track whether they completed equity trainings.

City	Equity-driven community engagement	Equity-driven decision making	Accountability to equity
Providence	The Racial and Environmental Justice Committee (REJC) led the community engagement process for developing Providence's Climate Justice Plan.	The 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.
Raleigh	None	None	City used the Equity Impacts Tool to guide development of its Community Climate Action Plan.
Richmond	None	The city's RVAgreen 2050 Racial Equity and Environmental Roundtable is a group of residents from historically disenfranchised communities who are paid for their time and lived-experience expertise to help with both the planning process and the outreach and engagement around RVAgreen 2050.	The city uses an equity screening tool to plan implementation for its climate action plan.
Sacramento	In conducting community engagement for Sacramento's General Plan, staff conducted Environmental Justice Listening Sessions. These workshops provided a space for city staff to listen to members of underserved communities articulate their lived experiences in neighborhoods that carry a disproportionate environmental burden. To encourage hard-to-reach groups to participate in community planning meetings, the project team also provided translation, food, and family-friendly activities. Further, the planning team hosted various pop-up meetings 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 organizations that 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 element of the General Plan.	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) consisted of 15 marginalized community members who identified barriers and solutions to climate challenges specific to San Antonio. 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, the Climate Equity Advisory Committee, will provide input on implementation of the CAAP to ensure an equity-centered approach and equitable outcomes.	The city requires departments to complete a budget equity assessment using a tool designed to include explicit considerations of racial and economic equity in the budgeting process. 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 strategies (i.e., 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 three 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 committed city staff to develop a methodology for reporting on equity every five years. San Diego's Climate Equity Index (CEI) was developed to measure the level of access to opportunity available to residents within a given census tract and assess 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 used 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	The city has held community climate action planning meetings in Spanish and Chinese. These meetings inform the development of the city's Climate Action Plan.	San Francisco's Department of the 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, organizations committed to equity in the clean energy sector. These groups organize with frontline communities including low-income people and people of color, those most burdened by the impacts of the climate crisis, and 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.	SF Administrative Code 12A.19(c)(4) directs the Office of Racial Equity to conduct a racial and social equity assessment on all legislation. All new legislation must be referred to the Office of Racial Equity within eight days of its introduction.
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.	The city established the Community Co-Creation Consultants to allow two community-based organizations serving marginalized communities to guide the engagement processes for and the development of city policies on equitable residential building electrification.	None
Seattle	The city created the Duwamish Valley Action Plan in collaboration with marginalized residents living in the South Park area of Seattle. The city employed several approaches to increase participation from these residents.	The city created the Environmental Justice Committee (EJC) in 2017. The EJC gives those most affected by environmental inequities an opportunity 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 equity goals and to use an RSJI tool kit prior to and throughout development and implementation of an initiative.
Springfield	The city held two of its three climate action plan community workshops in socially vulnerable communities. The two nongovernmental entities leading the community engagement process were organizations focused on climate justice. The city provided childcare at all community workshops.	None	Springfield's resilience plan has a goal to ensure that 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
Saint 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 five meetings were held in areas of concentrated poverty where most of the residents are people of color. Each event was cohosted by a community-based organization partner.	The Climate Justice Advisory Board was created to advise the city on developing policies and programs related to the Climate Action and Resilience Plan. Half of the board consists of BIPOC (Black, indigenous, and people of color) members.	City adopted a goal that within 10 years the energy burden will be reduced so that no Saint Paul household spends more than 4% of household income on energy costs.
Toledo	None	None	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.
Washington, D.C.	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 from underserved communities, Washington partnered with community organizations to help recruit new participants, held meetings in familiar, transit-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 and Environment's implementation of its Climate Ready DC and Clean Energy DC plans. The District's climate vulnerability analysis showed that communities in Far Northeast Ward 7 face disproportionate flooding and other climate-related risks relative to other parts of the District.	The Racial Equity Achieves Results Act requires the city to develop and use equity tools to better integrate equity into policies, programs, budgets, rules, and regulations.

We include only those cities that received points for these metrics in this table. *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, and resilience planning documents.

Table F4. City support for distributed energy resources by system and technology type (for scoring cities only)

City	District energy integration	District energy (equity-related)	Microgrid integration	Microgrid (equity-related)	Community solar support	Community solar (equity-related)
Akron	City Council approved a $25 million renovation grant to incorporate renewable energy	None	None	None	None	None
Aurora	None	None	None	None	City hosts three community solar projects on city property	Colorado Community Solar Gardens Act
Austin	City integrated energy storage into an existing district energy system	None	None	None	Austin Energy offers a community solar program to customers	Austin Energy provides direct utility bill discounts for income-eligible customers who subscribe to its community solar program
Boise	City operates a geothermal steam distribution plant	None	None	None	None	None
Boston	Smart Utilities Policies require 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	None	Smart Utilities Policies require 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	None	None	None
Bridgeport	None	None	Bridgeport microgrid integrates combined heat and power	None	None	None
Charlotte	None	None	Microgrid at fire station integrates solar and storage	None	None	None
Chicago	None	None	None	None	City issued a request for proposals for community solar projects	None
Cleveland	Cleveland Thermal district energy system was retrofit to include combined heat and power	None	None	None	None	None

City	District energy integration	District energy (equity-related)	Microgrid integration	Microgrid (equity-related)	Community solar support	Community solar (equity-related)
Colorado Springs	None	None	None	None	Colorado Springs Utilities offers a community solar program	Colorado Community Solar Gardens Act
Columbus	None	None	Signed an agreement with AEP Ohio to construct a solar-plus-storage microgrid	None	None	None
Denver	Energy Future Collaboration highlights energy storage for use in district energy systems	None	Energy Future Collaboration highlights energy storage for use in microgrids	None	City supported the creation of Arapahoe and SunShare community solar projects	Colorado Community Solar Gardens Act
Hartford	None	None	Ordinance enabling an Energy Improvement District allows microgrids to incorporate clean energy technology	None	Energy Improvement District issued a request for proposals for community solar	None
Houston	None	None	None	None	City supported the creation of the Sunnyside Community Solar Farm	The Sunnyside Community Solar Farm is sited in an environmental justice community
Indianapolis	District energy system was converted from coal to natural gas CHP	None	None	None	None	None
Jacksonville	None	None	None	None	JEA operates a community solar program	None
Kansas City	None	None	None	None	City has entered into an agreement with KCP&L to site community solar systems on city property	None
Long Beach	None	None	Port of Long Beach is constructing a microgrid that includes renewables and electric vehicle charging stations	None	None	None

City	District energy integration	District energy (equity-related)	Microgrid integration	Microgrid (equity-related)	Community solar support	Community solar (equity-related)
Los Angeles	None	None	None	None	The Department of Water and Power operates a community solar program	None
Madison	None	None	None	None	Madison entered into an agreement with OneEnergy for the installation of five community solar farms	None
Milwaukee	None	None	City constructed a solar array that connected into an existing microgrid	None	None	None
Minneapolis	None	None	None	None	City provided low-cost land lease for a community solar farm	City reserved a percentage of shares of the community solar garden for low-income households
Nashville	None	None	None	None	City provided no-cost land lease for the Music City Community Solar farm	City reserved a percentage of shares of the community solar garden for low-income households
New Orleans	None	None	None	None	City opened docket UD-18-03 to support the creation of community solar	None
New York	At the Red Hook East and West public housing complexes, city is building a district heating system and microgrid that integrate combined heat and power	City is siting the district energy system in a public housing project	At the Red Hook East and West public housing complexes, city is building a district heating system and microgrid that integrate combined heat and power	City is siting the microgrid in a public housing project	NYC Housing Authority has supported the creation of community solar farms	City requires city-supported community solar projects to provide direct bill discounts to low-income residents
Newark	Newark installed CHP in a municipal district energy system	None	None	None	None	None
Oakland	None	None	EcoBlock project includes renewable energy and electric vehicle charging stations	EcoBlock project is sited in an environmental justice community	None	None

City	District energy integration	District energy (equity-related)	Microgrid integration	Microgrid (equity-related)	Community solar support	Community solar (equity-related)
Orlando	None	None	None	None	Orlando Utilities Commission operates a community solar program	None
Philadelphia	None	None	Navy Yard microgrid project integrates renewable energy and fuel cell technology	None	None	None
Phoenix	Clearway Community Energy district energy system includes storage	None	None	None	None	None
Pittsburgh	Uptown Energy District includes combined heat and power; District Energy Initiative	None	City constructed microgrids that integrate renewable energy and electric vehicle charging stations for District Energy Initiative	None	None	None
Portland	None	None	Fire station microgrid integrated solar and storage	None	None	None
Provo	City partnered with Brigham Young University to convert the campus's district energy to natural gas combined heat and power	None	None	None	None	None
Sacramento	None	None	None	None	SMUD operates a community solar program	None
Saint Paul	City integrated renewable biomass into district energy system	None	None	None	City supported creation of a community solar farm by subscribing as an anchor	None

City	District energy integration	District energy (equity-related)	Microgrid integration	Microgrid (equity-related)	Community solar support	Community solar (equity-related)
San Diego	None	None	City entered into an agreement to host eight microgrids on city facilities with integrated renewable energy, energy storage, and electric vehicle charging	None	None	None
San José	As part of the city's Downtown West Mixed-Use Project, the city entered into an agreement to integrate renewable energy into a district energy system	None	As part of the city's Downtown West Mixed-Use Project, the city entered into an agreement to integrate renewable energy and energy storage into a microgrid	None	San José Clean Energy supported the creation of a 1.4 MW community solar project	None
Seattle	None	None	Seattle City Light built a microgrid that integrates renewable energy and energy storage	None	Seattle City Light operates a community solar program	None
Springfield	None	None	None	None	City supported the creation of the Citizens Energy community solar farm	Citizens Energy community solar farm provides direct bill discounts to low-income households
St. Louis	None	None	None	None	City is piloting a community solar program	None
St. Petersburg	None	None	None	None	City supported the creation of community solar through its participation in Duke Energy's CEC program	None
Washington, D.C.	None	None	None	None	DC Solar for All program supports the creation of community solar	City reserved a percentage of shares of the Oxon Run community solar garden for low-income households

TRANSPORTATION POLICIES

Table F5. Summary of scoring on transportation plans and targets

City	Sustainable transportation policy	Total (4 pts)
Kansas City	Kansas City has a Livable Streets plan that encourages active living, including the use of walking and biking as transportation alternatives. (Resolution No. 110069) The city also has a Complete Streets Plan. The city does not currently have a stand-alone transportation policy to reduce VMT, but this will be addressed in the city's new Comprehensive Plan, which is expected to be published in mid-2022.	3.5
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. 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.	3.5
Boston	Go Boston 2030, released in 2017, set a goal to reduce GHG emissions from transportation 50% by 2030, relative to a 2005 baseline.	3
Minneapolis	Minneapolis's Climate Action Plan, adopted in June 2013, includes a detailed plan to reduce VMT by 31% (from 2010 levels) by 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. The city updated its Transportation Action Plan most recently in late 2020.	3
Oakland	Oakland's Department of Transportation Strategic Plan provides detailed strategies to integrate VMT reduction with the use of low-carbon modes of transportation.	3
Providence	The city's Sustainability Plan has a chapter dedicated to sustainable transportation strategies. It also tracks VMT as a key metric for implementation.	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; improved infrastructure including smart, mixed-use, and transit-oriented development practices and bicycle and pedestrian infrastructure; alternative fuels; transit options; and complete streets.	3
San Diego	San Diego's Climate Action Plan has a specific goal to reduce GHG emissions by 110,000 metric tons of CO_2 equivalent by 2035.	3
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, relative to 1990 levels.	3
Washington, D.C.	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, D.C., a national leader in the provision of effective TDM services.	3
Cleveland	The 2018 updated Cleveland Climate Action Plan includes a focus on sustainable transportation. It also contains a goal to reduce 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 CO_2e by 2030, using a 2010 baseline.	2.5
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 VMT per person per day. The plan also includes language about preparing the city for autonomous vehicles by 2028, using transportation data to ensure that new transit app–enabled and for-hire mobility options are equitably available across the city, and addressing the first/last-mile problem.	2.5

City	Sustainable transportation policy	Total (4 pts)
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, which calls for a 70% reduction in transportation emissions by 2050 relative to a 2005 baseline.	2.5
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. The plan is complemented by the 2050 Sustainable Transportation Goal to reduce transportation emissions 80% by 2050 from a 2012 baseline.	2.5
Atlanta	Atlanta's Climate Action Plan includes strategies such as expanding the Atlanta BeltLine and other transit-oriented development, introducing parking pricing, making greater transit investment, introducing more pedestrian facilities, expanding protected bicycle facilities, and growing the bicycle share program.	2
Houston	Houston released its CAP plan in April 2020. The city's goal is to reduce VMT per capita 20% by 2050 from a 2020 baseline.	2
Louisville	Through Mayor Greg Fischer's release of Sustain Louisville, the city's sustainability plan, Louisville's 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 other support for bicycle commuting. The city also has a codified multimodal plan called Move Louisville, which aims to repair and maintain the existing infrastructure in the city and reduce the number of miles that Louisvillians drive by providing and improving mobility options.	2
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.	2
Pittsburgh	The Pittsburgh Climate Action Plan 3.0, 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 plans to use to help reduce its VMT.	2
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.	2
Saint Paul	The Saint Paul 2040 Comprehensive Plan, approved by the City Council in 2019, established a policy to reduce VMT 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.	2
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.	2
San José	The Envision San José 2040 General Plan aims to reduce automobile trips 40% by 2040. It includes strategies to decrease 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.	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 to achieve that VMT reduction.	1.5
Albuquerque	Albuquerque updated its climate action plan in 2021. The plan outlines numerous strategies for improving the quality and efficiency of transit and multimodal travel within the city.	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
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.	1
Charlotte	The 2045 Metropolitan Transportation Plan, adopted in March 2018, includes reducing VMT as one of its goals to cut transportation emissions, but it 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
Chula Vista	The city recently adopted an updated 2017 Climate Action Plan that includes several strategies to reduce transportation energy use and emissions.	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 for, support of, 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
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.	1
Denver	Denver's Mobility Action Plan was published in July 2017. It sets goals to reduce drive-alone rates, emissions, and traffic deaths, focusing on the key metric of reducing the single-occupancy 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.	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% of all trips (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 included 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
Honolulu	The city's 2020–25 Climate Action Plan was adopted by the City Council in June 2021. Four of the nine major strategies in the plan focus on sustainable transportation.	1

City	Sustainable transportation policy	Total (4 pts)
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
Madison	Madison's transportation plan, approved in 2017, outlines several strategies relevant to transportation efficiency. 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 reach a cumulative reduction of 40% by 2030.	1
Memphis	In April 2021, the Memphis City Council officially adopted the city's climate action plan. The plan is a component of the larger Memphis 3.0 Comprehensive Plan, and it includes several strategies to reduce transportation sector GHG emissions.	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
New Haven	New Haven's Climate Action Plan, released in January 2018, includes several measures to reduce transportation GHG emissions.	1
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
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 adding 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
Rochester	The city's Comprehensive Plan, Rochester 2034, includes several strategies and sections relevant to transportation efficiency.	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

City	Sustainable transportation policy	Total (4 pts)
Tampa	Tampa has a comprehensive plan with an element to provide multimodal mobility with all modes of travel such as transit (bus, ferry, and rail), cycling, and walking.	1
Toledo	Toledo is party to and leads in the implementation of a Lucas County plan that addresses transportation efficiency.	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 to reduce 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 transit.	0.5
Charleston	The Charleston Green Plan (2009) addresses 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 and/or by getting more residents to substitute walking or biking for driving, it could result in a reduction of 152,940 tons of CO_2e in 2030 relative to projected business-as-usual 2030 levels.	0.5
Chicago	The Chicago Forward transportation plan and the Sustainable Chicago 2015 Action Agenda both include a variety of approaches to reduce VMT in 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 public 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 Mobility Task Force, formed in 2019, has also pursued a variety of policies for reducing VMT.	0.5
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
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.	0.5
Mesa	Mesa released a 2040 transportation plan in 2013.	0.5
Miami	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
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 include only those cities that received points for this metrics in the table. *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 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 F6. Complete streets policies

City	Complete streets policy	Total (1 pt)
Albuquerque	Complete Streets Ordinance	1
Aurora	Complete Streets Policy	1
Austin	Complete Streets Policy	1
Baltimore	Complete Streets Ordinance	1
Baton Rouge	Complete Streets Policy, Resolution No. 51196	1
Birmingham	Complete Streets Policy	1
Boise	Complete Streets Policy	1
Boston	Complete Streets Policy	1
Charleston	Complete Streets Policy	1
Charlotte	Transportation Action Plan, Complete Streets Policy	1
Chicago	Complete Streets Plan	1
Chula Vista	Complete Streets Policy	1
Dallas	Complete Streets Policy	1
Dayton	Livable Streets Policy	1
Denver	Complete Streets Policy	1
Des Moines	Complete Streets Policy	1
Fort Worth	Complete Streets Policy	1
Fresno	Complete Streets Code	1
Greensboro	Complete Streets Policy	1
Hartford	Complete Streets Ordinance	1
Honolulu	Complete Streets Ordinance	1
Houston	Complete Streets Executive Order	1
Knoxville	Complete Streets Policy, Ordinance No. O-204-2014	1
Las Vegas	Complete Streets Policy	1
Long Beach	Complete Streets Provision	1
Los Angeles	Complete Streets Policy	1
Louisville	Complete Streets Policy	1
Madison	Complete Streets Policy	1
Memphis	Complete Streets Policy	1
Miami	Complete Streets Ordinance	1
Milwaukee	Complete Streets Policy	1
Minneapolis	Complete Streets Policy	1
Nashville	Complete Streets Executive Order	1
New haven	Complete Streets Design Manual	1
New Orleans	Complete Streets Program	1
New York	Sustainable Streets Strategic Plan	1
Oakland	Complete Streets Policy	1
Omaha	Complete Streets Policy	1
Orlando	Complete Streets Policy	1
Philadelphia	Complete Streets Policy	1
Phoenix	Complete Streets Policy	1
Pittsburgh	Complete Streets Plan	1
Raleigh	Complete Streets Policy	1
Richmond	Complete Streets Policy	1
Rochester	Complete Streets Policy	1
Sacramento	Complete Streets Policy	1
St. Louis	Complete Streets Policy	1
Saint Paul	Complete Streets Resolution	1
St. Petersburg	Complete Streets Implementation Plan	1
Salt Lake City	Complete Streets Ordinance	1
San Antonio	Complete Streets Policy	1
San Diego	Mobility Choices Complete Communities Initiative	1
San Francisco	Complete Streets Design Guidelines, Complete Streets Policy	1
San José	Complete Streets Policy, Complete Streets Design Standards	1
San Juan	Complete Streets Program	1
Seattle	Ordinance 122386	1
Springfield	Complete Streets Plan	1
Toledo	Complete Streets Policy	1
Tucson	Complete Street Design Guidelines	1
Tulsa	Complete Streets Policy	1
Virginia Beach	Complete Streets Administrative Directive	1
Washington, D.C.	Complete Streets Policy	1
Worcester	Complete Streets Policy	1
Akron	Complete Streets Commission	0.5
Atlanta	Streets Design Policy, Multimodal Streets Policy	0.5
Buffalo	Complete Streets Policy	0.5
Cleveland	Complete Streets Ordinance	0.5
Grand Rapids	Complete Streets Policy	0.5
Jacksonville	Streets Standards Projects	0.5
Kansas City	Complete Streets Plan—Ordinance 170949	0.5
Portland	Complete Streets Policy	0.5
Tampa	Complete Streets Development	0.5

Sources: ACEEE web research, data requests.

Table F7. Freight system efficiency

City	Freight plan or strategy	Total (2 pts)
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 has more work to do.	2
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-emissions on-road drayage fleet by 2030 and zero-emissions terminal equipment by 2035. These goals are incorporated in the ports' joint Clean Air Action Plan (CAAP) Update, approved by the ports' governing boards in November 2017 to provide high-level guidance for reaching zero-emissions 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, 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."	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, D.C.	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. The amendment contains sustainability metrics around air quality, as well as transportation efficiency metrics.	2
Memphis	The Memphis Metropolitan Planning Organization has completed a Greater Memphis Regional Freight Plan.	1.5
Baltimore	The Baltimore Department of Transportation has a Commercial Vehicle Management Plan, a proactive approach to managing freight movement throughout the city. The Maryland Port Administration has implemented a program to upgrade trucks and cargo-handling equipment with cleaner technologies. A total of 110 pieces of cargo-handling equipment have been upgraded or replaced, 244 dray trucks have been replaced, and idle reduction technology has been installed on locomotives.	1
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
Miami	Freight is a major component of Miami's Long-Range Transportation Plan. Specific goals have not been set, but performance metrics have been identified for several goals.	1

City	Freight plan or strategy	Total (2 pts)
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 revised 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
Orlando	The city's Parking Division manages freight zones and coordinates with the Transportation Engineering Division on the creation of new zones or modification of existing zones. The freight zones are located along curbs and designated through signage and orange curbs. At night these spaces convert to passenger loading/unloading zones. Currently, freight zones are limited to the downtown core.	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 of 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
Sacramento	The 2035 General Plan established mobility goals for safe movement of goods including: 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. 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. 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.	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
Saint Paul	Saint 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 Saint Paul Port Authority to implement and support freight transportation improvements in and near industrial areas of regional economic importance.	1
Houston	The Gulf Coast Rail District (GCRD) 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.	0.5

City	Freight plan or strategy	Total (2 pts)
Oakland	The Port of Oakland approved its Seaport Air Quality 2020 and Beyond Plan. The Port will instate emissions reduction programs and projects, such as converting a portion of the Port's fleet to battery-electric vehicles, using renewable diesel in the Port's diesel-powered equipment and vehicle fleet, expanding the electrical charging infrastructure for the Port's vehicle fleet, and developing a guide for EV charging infrastructure projects in the Seaport area.	0.5
Pittsburgh	Pittsburgh's Climate Action Plan 3.0 outlines several strategies for reducing freight emissions 25% by 2030, including improved signage, off-peak delivery, designated loading zones, and enforcement of existing idling laws.	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

*Richmond's plan concentrates on infrastructure improvements to ports to enhance connectivity, but it lacks a focus on sustainability or efficiency.

Table F8. Transit funding and performance

City	Transit funding average (2015–19)	AllTransit score
Akron	$52,072,663.20	5.3
Albuquerque	$75,356,233.40	4.9
Allentown	$7,728,798.80	6
Atlanta	$679,261,384.80	8
Augusta	$3,848,018.80	1.9
Aurora	—	6.4
Austin	$247,843,757.60	5.2
Bakersfield	$22,464,946.20	4.4
Baltimore	$122,403,871.20	8.4
Baton Rouge	$23,437,117.20	4.5
Birmingham	$28,056,555.40	0.2
Boise	$669,616.80	3.8
Boston	$1,036,152,219.20	9.3
Bridgeport	$6,137,542.40	6.9
Buffalo	$78,993,231.60	7.8
Cape Coral	—	2.1
Charleston	—	3.2
Charlotte	$172,986,097.40	5
Chicago	$1,317,055,093.20	9.1
Chula Vista	$350,735.20	5.7
Cincinnati	$99,653,172.60	6.8
Cleveland	$280,159,459.20	8.8
Colorado Springs	$18,580,773.60	3
Columbia	$17,033,375.60	5.2
Columbus	$155,676,647.60	5.2
Dallas	$738,319,384.20	6.8
Dayton	$59,120,552.60	6.2
Denver	$1,015,253,883.40	7.8
Des Moines	$26,784,767.00	5

City	Transit funding average (2015–19)	AllTransit score
Detroit	$142,995,069.40	6.9
El Paso	$66,792,715.20	4.9
Fort Worth	$115,927,252.60	3.2
Fresno	$21,034,738.20	5
Grand Rapids	$28,902,929.20	6.5
Greensboro	$20,997,754.80	3.7
Hartford	$20,727,046.40	8.5
Henderson	—	3.5
Honolulu	$363,790,908.20	7.9
Houston	$633,933,497.07	5.9
Indianapolis	$75,725,898.80	4.9
Jacksonville	$88,762,588.20	3.8
Kansas City	$103,156,825.40	4.8
Knoxville	$14,348,270.00	4.4
Lakeland	$8,431,550.00	2.9
Las Vegas	$139,668,937.60	5.1
Little Rock	—	3.3
Long Beach	$57,708,536.80	8
Los Angeles	$2,427,984,936.00	7.7
Louisville	$67,437,120.40	6.3
Madison	$35,992,789.20	6.3
McAllen	$1,464,682.80	3.2
Memphis	$36,698,975.00	4.1
Mesa	—	4.6
Miami	$577,790,878.80	8.5
Milwaukee	$74,022,721.60	7.7
Minneapolis	$306,534,322.60	8.3
Nashville	$74,345,208.60	3.7
New Haven	—	7.9
New Orleans	$98,225,635.40	7.4
New York	$8,333,225,279.20	9.6
Newark	$1,440,854,149.60	8.7
Oakland	$1,032,602,603.20	2
Oklahoma City	$43,151,170.20	2.6
Omaha	$21,483,308.60	4.7
Orlando	$97,788,381.20	6
Oxnard	$16,846,988.00	5.5
Philadelphia	$699,803,027.40	9
Phoenix	$322,652,750.60	6.1
Pittsburgh	$150,099,034.20	8.3
Portland	$498,893,649.80	8.9
Providence	$82,154,575.20	7.4

City	Transit funding average (2015–19)	AllTransit score
Provo	—	6
Raleigh	$32,701,503.80	4.9
Reno	$19,461,067.20	4.3
Richmond	$35,452,563.00	7.7
Riverside	$61,307,077.40	5.2
Rochester	$33,260,932.00	6.5
Sacramento	$127,430,435.80	6.3
Salt Lake City	$7,781,422.60	8.4
San Antonio	$193,721,267.20	6.6
San Diego	$237,007,693.40	6
San Francisco	$170,828,504.20	9.6
San José	$841,653,642.20	7
San Juan	$479,847,768.80	—
Seattle	$35,431,911.60	8.5
Springfield	$1,587,343,022.20	6.9
St. Louis	$16,509,166.20	8.4
Saint Paul	$277,812,990.40	7.7
St. Petersburg	$58,809,359.00	5.6
Stockton	$28,509,476.00	4.2
Syracuse	$24,885,304.00	5.9
Tampa	$61,116,754.40	5.3
Toledo	$21,080,165.20	3.9
Tucson	$69,321,849.00	5.8
Tulsa	$13,725,194.60	3.6
Virginia Beach	—	3.2
Washington, D.C.	$1,640,413,085.80	9.3
Wichita	$6,609,285.80	2.8
Winston-Salem	$10,889,228.40	3.4
Worcester	$8,602,961.40	5.7

Sources: FTA 2019, CNT 2021a.

ENERGY AND WATER UTILITIES

Table F9. Scores for electric efficiency efforts and city–utility partnerships for energy utilities

City	Electric utility	Utility type	2019 net incremental savings (MWh)	% of retail sales	Score for utility savings (3 pts MOUs, 2 pts IOUs)	City–utility partnership (IOUs only, 1 pt; N/A for munis)	Total (3 pts)
Providence	National Grid RI (Narragansett Electric)	IOU	190,159	2.62%	2	1	3
Washington, D.C.	PEPCO†	Muni	262,714	2.38%	3	N/A	3
Boston	Eversource (MA)	IOU	520,514	2.22%	2	1	3
Chicago	ComEda	IOU	1,700,029	1.96%	1.5	1	2.5
Mesa	Salt River Project*†	Muni	531,611	1.84%	2.5	N/A	2.5
Portland	Portland General Electric†	IOU	281,500	1.63%	1.5	1	2.5
Aurora	Xcel Energy (Public Service Co. of CO)	IOU	472,335	1.62%	1.5	1	2.5
Denver	Xcel Energy (Public Service Co. of CO)	IOU	472,335	1.62%	1.5	1	2.5
Bakersfield	PG&E†	IOU	1,253,154	1.60%	1.5	1	2.5
Fresno	PG&E†	IOU	1,253,154	1.60%	1.5	1	2.5
Oakland	PG&E†	IOU	1,253,154	1.60%	1.5	1	2.5
San Francisco	PG&E†	IOU	1,253,154	1.60%	1.5	1	2.5
San José	PG&E†	IOU	1,253,154	1.60%	1.5	1	2.5
Dayton	Dayton Power & Light*†	IOU	210,038	1.50%	1.5	1	2.5
Worcester	National Grid (MA)	IOU	627,982	3.28%	2	0	2
Springfield	Eversource (MA)	IOU	520,514	2.22%	2	0	2
Honolulu	Hawai'i Electric Co.*†	IOU	106,362	1.62%	1.5	0.5	2
Grand Rapids	Consumers Energy Co.	IOU	566,183	1.55%	1.5	0.5	2
Hartford	Eversource (Connecticut Light & Power)†	IOU	299,864	1.45%	1	1	2
Minneapolis	Xcel Energy (Northern States Power)*†	IOU	404,837	1.40%	1	1	2
Saint Paul	Xcel Energy (Northern States Power)*†	IOU	404,837	1.40%	1	1	2
Charlotte	Duke Energy Carolinas*†	IOU	779,302	1.33%	1	1	2
Indianapolis	Indianapolis Power & Light	IOU	174,636	1.31%	1	1	2
Chula Vista	San Diego Gas & Electric*†	IOU	200,149	1.11%	1	1	2
San Diego	San Diego Gas & Electric*†	IOU	200,149	1.11%	1	1	2
Stockton	PG&E†	IOU	1,253,154	1.60%	1.5	0	1.5
Buffalo	National Grid (NY)	IOU	529,365	1.56%	1.5	0	1.5
Syracuse	National Grid (NY)†	IOU	529,365	1.56%	1.5	0	1.5
Detroit	DTE Energy	IOU	717,072	1.54%	1.5	0	1.5
Los Angeles	LADWP*	Muni	291,425	1.35%	1.5	N/A	1.5
Madison	Madison Gas and Electric*†	IOU	30,156	0.94%	0.5	1	1.5
Phoenix	Arizona Public Service*†	IOU	240,760	0.86%	0.5	1	1.5
Salt Lake City	Rocky Mountain Power (PacifiCorp)	IOU	201,852	0.82%	0.5	1	1.5

City	Electric utility	Utility type	2019 net incremental savings (MWh)	% of retail sales	Score for utility savings (3 pts MOUs, 2 pts IOUs)	City–utility partnership (IOUs only, 1 pt; N/A for munis)	Total (3 pts)
Tulsa	Public Service Co. of Oklahoma†	IOU	132,689	0.65%	0.5	1	1.5
Pittsburgh	Duquesne Light Co.[a]	IOU	62,251	0.50%	0.5	1	1.5
Cincinnati	Duke Energy Ohio†	IOU	270,684	1.34%	1	0	1
Greensboro	Duke Energy Carolinas†	IOU	779,302	1.33%	1	0	1
Winston-Salem	Duke Energy Carolinas†	IOU	779,302	1.33%	1	0	1
Boise	Idaho Power†	IOU	196,809	1.33%	1	0	1
New York	ConEdison†	IOU	731,303	1.32%	1	1	1
Raleigh	Duke Energy Progress	IOU	304,400	1.25%	1	0	1
Bridgeport	United Illuminating Co.*	IOU	60,806	1.22%	1	0	1
New Haven	United Illuminating Co.†	IOU	60,806	1.22%	1	0	1
Tucson	Tucson Electric Power Co.	IOU	100,228	1.15%	1	0	1
Columbus	American Electric Power (Ohio Power)*	IOU	462,637	1.06%	1	0	1
New Orleans	Entergy New Orleans	Muni	61,628	1.06%	1	N/A	1
Kansas City	Kansas City Power & Light†	IOU	86,371	1.03%	1	0	1
Cleveland	First Energy (Cleveland Electric Illuminating)*†	IOU	183,492	1.02%	1	0	1
Seattle	Seattle City Light	Muni	92,181	1.01%	1	N/A	1
St. Louis	Ameren UE (Union Electric)	IOU	316,306	0.98%	0.5	0.5	1
Baltimore	Baltimore Gas & Electric Co*†	IOU	272,014	0.92%	0.5	0.5	1
Philadelphia	PECO	IOU	330,948	0.88%	0.5	0.5	1
Milwaukee	We Energies	IOU	194,027	0.82%	0.5	0.5	1
Albuquerque	Public Service Co. of NM*	IOU	64,296	0.71%	0.5	0.5	1
Fort Worth	ONCOR†	IOU	214,599	0.52%	0.5	0.5	1
Long Beach	Southern California Edison†	IOU	395,423	0.47%	0	1	1
Oxnard	Southern California Edison†	IOU	395,423	0.47%	0	1	1
Houston	CenterPoint Energy*†	IOU	176,392	0.40%	0	1	1
Tampa	Tampa Electric Co.†	IOU	71,052	0.36%	0	1	1
Akron	First Energy (Cleveland Electric Illuminating)*†	IOU	233,484	1.00%	0.5	0	0.5
Sacramento	SMUD*†	Muni	96,534	0.95%	0.5	N/A	0.5
Austin	Austin Energy	Muni	129,173	0.94%	0.5	N/A	0.5
Little Rock	Entergy Arkansas*	IOU	205,147	0.94%	0.5	0	0.5
Allentown	PPL Electric Utilities†[b]	IOU	320,226	0.86%	0.5	0	0.5
San Antonio	CPS Energy (City of San Antonio)[c]	Muni	181,224	0.79%	0.5	N/A	0.5
Henderson	NV Energy*†	IOU	169,573	0.76%	0.5	0	0.5
Las Vegas	NV Energy*†	IOU	169,573	0.76%	0.5	0	0.5
Reno	NV Energy*	IOU	169,573	0.76%	0.5	0	0.5
Toledo	First Energy (Cleveland Electric Illuminating)*†	IOU	73,187	0.71%	0.5	0	0.5
Riverside	City of Riverside Public Service*†	Muni	14,295	0.68%	0.5	N/A	0.5

City	Electric utility	Utility type	2019 net incremental savings (MWh)	% of retail sales	Score for utility savings (3 pts MOUs, 2 pts IOUs)	City–utility partnership (IOUs only, 1 pt; N/A for munis)	Total (3 pts)
Des Moines	MidAmerican Energy[†]	IOU	147,948	0.61%	0.5	0	0.5
Colorado Springs	Colorado Springs Utilities	Muni	28,478	0.61%	0.5	N/A	0.5
Oklahoma City	Oklahoma Gas & Electric[*†]	IOU	143,482	0.56%	0.5	0	0.5
Dallas	ONCOR[*†]	IOU	214,599	0.52%	0.5	0	0.5
Rochester	Rochester Gas & Electric[†]	IOU	33,778	0.48%	0	0.5	0.5
Atlanta	Georgia Power	IOU	313,092	0.37%	0	0.5	0.5
El Paso	El Paso Electric[†]	IOU	22,964	0.29%	0	0.5	0.5
Charleston	Dominion Energy South Carolina[†d]	IOU	54,251	0.25%	0	0.5	0.5
Columbia	Dominion Energy South Carolina[†d]	IOU	54,251	0.25%	0	0.5	0.5
Louisville	Louisville Gas & Electric[*†]	IOU	48,039	0.41%	0	0	0
Augusta	Georgia Power	IOU	313,092	0.37%	0	0	0
Orlando	Orlando Utilities Commission[†]	Muni	24,982	0.37%	0	N/A	0
Jacksonville	JEA	Muni	40,335	0.33%	0	N/A	0
Nashville	Nashville Electric Service[*]	Muni	22,089	0.18%	0	N/A	0
Memphis	Memphis Light, Gas & Water[*†]	Muni	23,359	0.17%	0	N/A	0
St. Petersburg	Duke Energy Florida[*†]	IOU	62,736	0.16%	0	0	0
Richmond	Dominion Virginia Power[*]	IOU	113,102	0.14%	0	0	0
Virginia Beach	Dominion Virginia Power[*†]	IOU	113,102	0.14%	0	0	0
Lakeland	Lakeland Electric[*†]	Muni	4,106	0.13%	0	N/A	0
Omaha	Omaha Public Power District[†]	Muni	12,986	0.12%	0	N/A	0
Provo	Provo City Power[*†]	Muni	721	0.09%	0	N/A	0
Cape Coral	Lee County Electric Coop[*†]	Muni	3,241	0.08%	0	N/A	0
Baton Rouge	Entergy Louisiana[*]	IOU	39,848	0.07%	0	0	0
Newark	PSE&G[*]	IOU	27,171	0.07%	0	0	0
Knoxville	Knoxville Utilities Board	Muni	3,075	0.06%	0	N/A	0
McAllen	American Electric Power (TX)[*†]	IOU	48,152	0.05%	0	0	0
Miami	Florida Power & Light[*†]	IOU	42,400	0.04%	0	0	0
Birmingham	Alabama Power[*†]	IOU	4,717	0.01%	0	0	0
San Juan	Puerto Rico Electric Power Authority[*†]	Muni	0	0.00%	0	N/A	0
Wichita	Westar Energy (Evergy)[*†]	IOU	0	0.00%	0	0	0

Sources: Savings and sales data are as reported for 2019 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 0.825 conversion factor. *2019 savings data from EIA-861 (EIA 2019a).

[a] Duquesne Light Co.'s sales and savings data cover its program year from June 2019 to May 2020.

[b] PPL Electric Utilities' sales and savings data cover its program year from June 2018 to May 2019.

[c] CPS Energy's sales and savings data cover its program year from February 2019 to January 2020.

[d] Dominion Energy South Carolina's sales and savings data cover its program year from December 2018 to November 2019.

Table F10. Scores for natural gas efficiency efforts of energy utilities

City	Natural gas utility	2019 net incremental savings (MMtherms)	% of retail sales	Total (1.5 pts)
Boston	National Grid (Boston Gas & Colonial Gas Co.)	18.87	2.84%	1.5
Washington, D.C.	Washington Gas (DC SEU)	2.28	1.90%	1.5
Bakersfield	SoCal Gas†	55.34	1.89%	1.5
Los Angeles	SoCal Gas†	55.34	1.89%	1.5
Oxnard	SoCal Gas†	55.34	1.89%	1.5
Riverside	SoCal Gas†	55.34	1.89%	1.5
New York	National Grid (Brooklyn Union Gas Co.)/NYSERDA†	29.34	1.88%	1.5
Syracuse	National Grid (NY)†	29.34	1.88%	1.5
Providence	Narragansett (National Grid RI)	4.51	1.77%	1.5
Worcester	Eversource (MA)†	5.57	1.72%	1.5
Minneapolis	CenterPoint Energy†	18.18	1.49%	1.5
Fresno	PG&E	27.64	1.40%	1.5
Oakland	PG&E	27.64	1.40%	1.5
Sacramento	PG&E	27.64	1.40%	1.5
San Francisco	PG&E	27.64	1.40%	1.5
San José	PG&E	27.64	1.40%	1.5
Stockton	PG&E	27.64	1.40%	1.5
Detroit	DTE Energy†	17.75	1.38%	1.5
Grand Rapids	DTE Energy†	17.75	1.38%	1.5
Little Rock	CenterPoint Energy (AR)†	3.83	1.19%	1
Chicago	Peoples Gas	9.75	1.05%	1
Dayton	Vectren†	2.87	1.04%	1
Saint Paul	Xcel Energy (Northern States Power)	5.85	0.93%	1
Springfield	Columbia Gas of Massachusetts	2.93	0.89%	1
Rochester	Rochester Gas & Electric†	2.28	0.80%	1
Chula Vista	San Diego Gas & Electric†	3.27	0.77%	1
San Diego	San Diego Gas & Electric†	3.27	0.77%	1
Portland	NW Natural	5.02	0.73%	1
Cape Coral	TECO Peoples Gas†	0.65	0.65%	0.5
Jacksonville	TECO Peoples Gas†	0.65	0.65%	0.5
Lakeland	TECO Peoples Gas†	0.65	0.65%	0.5
Tampa	TECO Peoples Gas†	0.65	0.65%	0.5
Orlando	TECO Peoples Gas†	0.65	0.65%	0.5
St. Petersburg	TECO Peoples Gas†	0.65	0.65%	0.5
Bridgeport	Southern Connecticut Gas†	1.93	0.64%	0.5
New Haven	Southern Connecticut Gas†	1.93	0.64%	0.5
Buffalo	National Fuel Gas†	3.26	0.64%	0.5
Hartford	Connecticut Natural Gas†	1.79	0.61%	0.5
Columbus	Columbia Gas of Ohio (NiSource)	10.33	0.59%	0.5
Toledo	Columbia Gas of Ohio (NiSource)	10.33	0.59%	0.5

City	Natural gas utility	2019 net incremental savings (MMtherms)	% of retail sales	Total (1.5 pts)
Madison	Madison Gas and Electric†	1.11	0.58%	0.5
Mesa	Southwest Gas†	2.58	0.51%	0.5
Phoenix	Southwest Gas	2.58	0.51%	0.5
Tucson	Southwest Gas	2.58	0.51%	0.5
Aurora	Xcel (Public Service Co. of CO)†	6.49	0.49%	0.5
Denver	Xcel (Public Service Co. of CO)†	6.49	0.49%	0.5
Des Moines	MidAmerican Energy†	2.76	0.48%	0.5
Oklahoma City	Oklahoma Natural Gas†	2.85	0.39%	0.5
Tulsa	Oklahoma Natural Gas†	2.85	0.39%	0.5
Seattle	Puget Sound Energy	3.22	0.36%	0.5
Milwaukee	We Energies (Wisconsin Energy)	10.26	0.35%	0.5
Allentown	UGI Utilities[a]	1.79	0.32%	0.5
Albuquerque	New Mexico Gas	1.53	0.32%	0.5
Akron	Dominion Energy Ohio	0.31	0.29%	0.5
Cleveland	Dominion Energy Ohio	0.31	0.29%	0.5
Baltimore	Baltimore Gas & Electric	1.13	0.28%	0.5
Colorado Springs	Colorado Springs Utilities	0.59	0.27%	0.5
Philadelphia	PGW	0.82	0.20%	0.5
Kansas City	Spire Missouri	2.42	0.18%	0
St. Louis	Spire Missouri	2.42	0.18%	0
Reno	NV Energy	33.50	0.17%	0
Newark	PSE&G	2.30	0.13%	0
Austin	Texas Gas Service	0.30	0.09%	0
El Paso	Texas Gas Service	0.30	0.09%	0
McAllen	Texas Gas Service	0.30	0.09%	0
Henderson	Southwest Gas	0.20	0.04%	0
Las Vegas	Southwest Gas	0.20	0.04%	0
Virginia Beach	Virginia Natural Gas[b]	0.09	0.04%	0
Dallas	ATMOS Energy†	0.19	0.01%	0
Fort Worth	ATMOS Energy†	0.19	0.01%	0
Atlanta	Atlanta Gas Light (Southern Company Gas)	0.01	0%	0
Augusta	Atlanta Gas Light (Southern Company Gas)	0.01	0%	0
Baton Rouge	Entergy Louisiana	0	0%	0
Birmingham	Alagasco	0	0%	0
Boise	Intermountain Natural Gas	0	0%	0
Charleston	Dominion Energy South Carolina†[c]	0	0%	0
Charlotte	Piedmont Natural Gas	0	0%	0
Cincinnati	Duke Energy Ohio	0	0%	0
Columbia	Dominion Energy South Carolina†[c]	0	0%	0
Greensboro	Piedmont Natural Gas	0	0%	0
Houston	CenterPoint Energy	0	0%	0

City	Natural gas utility	2019 net incremental savings (MMtherms)	% of retail sales	Total (1.5 pts)
Indianapolis	Indianapolis Power & Light	0	0%	0
Knoxville	Knoxville Utilities Board	0	0%	0
Long Beach	Long Beach Energy Resources	0	0%	0
Louisville	Louisville Gas & Electric	0	0%	0
Memphis	Memphis Light, Gas & Water	0	0%	0
Miami	Florida City Gas	0	0%	0
Nashville	Piedmont Natural Gas	0	0%	0
New Orleans	Entergy New Orleans	0	0%	0
Omaha	Metropolitan Utilities District of Omaha	0	0%	0
Pittsburgh	Peoples Natural Gas	0	0%	0
Provo	Dominion Energy	0	0%	0
Raleigh	PSNC Energy	0	0%	0
Richmond	Richmond Department of Public Utilities	0	0%	0
Salt Lake City	Dominion Energy (Questar Gas)	0	0%	0
San Antonio	CPS Energy (San Antonio PSB)	0	0%	0
Wichita	Kansas Gas Service	0	0%	0
Winston-Salem	Piedmont Natural Gas	0	0%	0
Honolulu	Hawai'i Gas*	0	N/A	1
San Juan	N/A*	0	N/A	0

Sources: All sales data are from 2019 EIA-176 (EIA 2019b). All 2019 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 0.846 conversion factor. *Because Hawai'i and Puerto Rico consume almost no natural gas, we scored Honolulu and San Juan 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.

[a] UGI Utilities' sales and savings data cover its program year from October 2018 to September 2019.

[b] Virginia Natural Gas's sales and savings data cover its program year from June 2018 to May 2019.

[c] Dominion Energy South Carolina's sales and savings data cover its program year from December 2018 to November 2019.

Table F11. Scores for low-income energy efficiency programs

City	Comprehensive low-income program	Portfolio of low-income programs	Health measures	Braiding funds for health and safety	Local government funds (N/A for cities with electric munis)	Total (1.5 pts)
Albuquerque	X		X	X	X	1.5
Aurora	X	X	X	X		1.5
Bakersfield	X	X	X	X		1.5
Baltimore	X	X	X		X	1.5
Boston	X	X	X	X		1.5
Buffalo	X	X	X	X		1.5
Chicago	X	X	X	X	X	1.5
Cleveland	X	X		X	X	1.5
Columbus	X	X	X	X		1.5
Denver	X	X	X	X	X	1.5
Fresno	X	X	X	X		1.5
Grand Rapids	X	X	X	X	X	1.5
Kansas City	X	X	X	X		1.5
Knoxville	X	X	X	X	N/A	1.5
Long Beach	X	X	X	X		1.5
Los Angeles	X	X	X	X	N/A	1.5
Memphis	X	X	X	X	N/A	1.5
Milwaukee	X	X	X	X		1.5
Minneapolis	X	X	X	X	X	1.5
Nashville	X	X	X	X	N/A	1.5
New York	X	X	X	X		1.5
Oakland	X	X	X	X		1.5
Oxnard	X	X	X	X		1.5
Philadelphia	X	X	X		X	1.5
Pittsburgh	X	X	X	X		1.5
Portland	X	X	X	X	X	1.5
Providence	X	X	X	X		1.5
Riverside	X	X	X	X	N/A	1.5
Sacramento	X	X	X	X	N/A	1.5
Saint Paul	X	X	X	X		1.5
San Francisco	X	X	X	X		1.5
San José	X	X	X	X		1.5
Seattle	X	X	X	X	N/A	1.5
St. Louis	X	X	X	X		1.5
Stockton	X	X	X	X		1.5
Syracuse	X	X	X	X		1.5
Toledo	X	X	X	X		1.5
Akron	X	X		X		1
Austin	X	X	X		N/A	1
Boise	X	X	X			1

City	Comprehensive low-income program	Portfolio of low-income programs	Health measures	Braiding funds for health and safety	Local government funds (N/A for cities with electric munis)	Total (1.5 pts)
Chula Vista	X	X		X		1
Des Moines	X		X	X		1
Detroit	X	X	X			1
Hartford	X	X	X			1
Houston	X		X	X		1
Madison	X	X		X		1
Newark	X	X		X		1
Phoenix	X	X		X		1
Raleigh	X	X	X			1
Salt Lake City	X	X	X			1
San Diego	X	X		X		1
Springfield	X		X	X		1
Washington, D.C.	X	X	X		N/A	1
Worcester	X	X	X			1
Atlanta	X	X				0.5
Augusta	X	X				0.5
Charleston	X		X			0.5
Charlotte	X		X			0.5
Cincinnati					X	0.5
Colorado Springs	X		X		N/A	0.5
Columbia	X		X			0.5
Dallas	X		X			0.5
Fort Worth	X		X			0.5
Greensboro	X		X			0.5
Henderson					X	0.5
Indianapolis	X	X				0.5
Jacksonville	X		X		N/A	0.5
Louisville	X		X			0.5
McAllen	X	X				0.5
New Haven	X	X				0.5
Oklahoma City	X	X				0.5
Rochester	X		X			0.5
San Antonio	X	X			N/A	0.5
St. Petersburg	X		X			0.5
Tampa	X		X			0.5
Tulsa	X		X			0.5
Winston-Salem	X		X			0.5
Allentown						0
Baton Rouge	X					0
Birmingham						0

City	Comprehensive low-income program	Portfolio of low-income programs	Health measures	Braiding funds for health and safety	Local government funds (N/A for cities with electric munis)	Total (1.5 pts)
Bridgeport	X					0
Cape Coral					N/A	0
Dayton	X					0
El Paso	X					0
Honolulu			X			0
Lakeland					N/A	0
Las Vegas						0
Little Rock						0
Mesa					N/A	0
Miami						0
New Orleans	X				N/A	0
Omaha					N/A	0
Orlando	X				N/A	0
Provo					N/A	0
Reno						0
Richmond						0
San Juan					N/A	0
Tucson	X					0
Virginia Beach						0
Wichita						0

Table F12. Scores for multifamily energy efficiency programs

City	Comprehensive program (0.5 pts)	Low-income multifamily program (0.5 pts)	Total (1 pt)
Albuquerque	0.5	0.5	1
Atlanta	0.5	0.5	1
Augusta	0.5	0.5	1
Aurora	0.5	0.5	1
Austin	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

City	Comprehensive program (0.5 pts)	Low-income multifamily program (0.5 pts)	Total (1 pt)
Fresno	0.5	0.5	1
Grand Rapids	0.5	0.5	1
Hartford	0.5	0.5	1
Honolulu	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
Madison	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
Saint 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, D.C.	0.5	0.5	1
Wichita	0.5	0.5	1
Worcester	0.5	0.5	1
Charleston	0.5	0	0.5
Cincinnati	0	0.5	0.5
Columbia	0.5	0	0.5
Dallas	0.5	0	0.5
Fort Worth	0.5	0	0.5
Mesa	0.5	0	0.5
Milwaukee	0.5	0	0.5
New Orleans	0.5	0	0.5

City	Comprehensive program (0.5 pts)	Low-income multifamily program (0.5 pts)	Total (1 pt)
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
Charlotte	0	0	0
Cleveland	0	0	0
Colorado Springs	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)	Community energy data (1 pt)	Advocacy (0.5 pts)	Total (2 pts)
Atlanta	0.5	1	0.5	2
Baltimore	0.5	1	0.5	2
Boston	0.5	1	0.5	2
Chicago	0.5	1	0.5	2
Chula Vista	0.5	1	0.5	2
Columbus	0.5	1	0.5	2
Denver	0.5	1	0.5	2
Hartford	0.5	1	0.5	2
Los Angeles	0.5	1	0.5	2
Minneapolis	0.5	1	0.5	2
New York	0.5	1	0.5	2
Oakland	0.5	1	0.5	2
Providence	0.5	1	0.5	2
San Diego	0.5	1	0.5	2
San Francisco	0.5	1	0.5	2
San José	0.5	1	0.5	2
Seattle	0.5	1	0.5	2
Washington, D.C.	0.5	1	0.5	2
Aurora	0.5	1	0	1.5
Bakersfield	0.5	1	0	1.5
Bridgeport	0.5	1	0	1.5
Fresno	0.5	1	0	1.5
Grand Rapids	0.5	0.5	0.5	1.5
Indianapolis	0	1	0.5	1.5
Madison	0	1	0.5	1.5
Mesa	0.5	1	0	1.5
New Haven	0.5	1	0	1.5
Orlando	0	1	0.5	1.5
Philadelphia	0.5	1	0	1.5
Pittsburgh	0.5	1	0	1.5
Richmond	0	1	0.5	1.5
Sacramento	0.5	1	0	1.5
Saint Paul	0.5	1	0	1.5
Salt Lake City	0.5	1	0	1.5
San Antonio	0	1	0.5	1.5
Springfield	0.5	1	0	1.5
St. Louis	0.5	1	0	1.5
Stockton	0.5	1	0	1.5
Worcester	0.5	1	0	1.5
Albuquerque	0.5	0	0.5	1
Allentown	0	1	0	1
Austin	0	1	0	1

City	Automated benchmarking (0.5 pts)	Community energy data (1 pt)	Advocacy (0.5 pts)	Total (2 pts)
Boise	0	1	0	1
Buffalo	0.5	0	0.5	1
Charlotte	0	0.5	0.5	1
Cleveland	0	0.5	0.5	1
Dallas	0	0.5	0.5	1
Des Moines	0	1	0	1
Honolulu	0	0.5	0.5	1
Houston	0	1	0	1
Kansas City	0.5	0.5	0	1
Knoxville	0	1	0	1
Las Vegas	0	1	0	1
Memphis	0	1	0	1
Miami	0	1	0	1
Nashville	0	1	0	1
Oxnard	0.5	0.5	0	1
Phoenix	0	1	0	1
Portland	0.5	0.5	0	1
Riverside	0.5	0.5	0	1
Rochester	0	1	0	1
Augusta	0.5	0	0	0.5
Cincinnati	0	0.5	0	0.5
Long Beach	0.5	0	0	0.5
Louisville	0	0.5	0	0.5
New Orleans	0.5	0	0	0.5
Newark	0	0.5	0	0.5
Provo	0.5	0	0	0.5
Raleigh	0	0	0.5	0.5
St. Petersburg	0	0.5	0	0.5
Syracuse	0.5	0	0	0.5
Toledo	0.5	0	0	0.5
Tulsa	0.5	0	0	0.5
Virginia Beach	0	0	0.5	0.5
Winston-Salem	0	0.5	0	0.5
Akron	0	0	0	0
Baton Rouge	0	0	0	0
Birmingham	0	0	0	0
Cape Coral	0	0	0	0
Charleston	0	0	0	0
Colorado Springs	0	0	0	0
Columbia	0	0	0	0
Dayton	0	0	0	0
Detroit	0	0	0	0
El Paso	0	0	0	0

City	Automated benchmarking (0.5 pts)	Community energy data (1 pt)	Advocacy (0.5 pts)	Total (2 pts)
Fort Worth	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
McAllen	0	0	0	0
Milwaukee	0	0	0	0
Oklahoma City	0	0	0	0
Omaha	0	0	0	0
Reno	0	0	0	0
San Juan	0	0	0	0
Tampa	0	0	0	0
Tucson	0	0	0	0
Wichita	0	0	0	0

Table F14. Scores for city-led efforts to decarbonize the electric grid (IOUs only)

City	PUC comments (0.5 pts)	Formal partnership (0.5 pts)	City planning efforts (0.5 pts)	Involvement in utility planning efforts (0.5 pts)	CCA (up to 1.5 pts)	Total (max 1.5 pts)
Albuquerque	X		X	X		1.5
Baltimore	X		X		0.5	1.5
Boise	X		X	X		1.5
Boston	X	X			1.5	1.5
Chicago	X	X	X			1.5
Chula Vista			X		1.5	1.5
Cincinnati					1.5	1.5
Cleveland	X				1.5	1.5
Columbus					1.5	1.5
Denver	X	X	X	X		1.5
Grand Rapids	X		X	X		1.5
Hartford	X	X	X			1.5
Honolulu	X	X	X			1.5
Houston	X	X	X			1.5
Minneapolis	X	X	X	X		1.5
New York	X		X	X	0.5	1.5
Oakland	X			X	1.5	1.5
Oxnard					1.5	1.5
Portland	X	X	X			1.5
Providence	X				1	1.5
Saint Paul	X	X	X			1.5

City	PUC comments (0.5 pts)	Formal partnership (0.5 pts)	City planning efforts (0.5 pts)	Involvement in utility planning efforts (0.5 pts)	CCA (up to 1.5 pts)	Total (max 1.5 pts)
San Diego	X		X	X	1.5	1.5
San Francisco		X	X		1.5	1.5
San José	X	X			1.5	1.5
Springfield					1.5	1.5
Worcester					1.5	1.5
Atlanta	X		X			1
Charlotte	X			X		1
Indianapolis		X		X		1
Las Vegas	X		X			1
Madison	X	X				1
Philadelphia		X		X		1
Phoenix	X			X		1
Rochester					1	1
Salt Lake City	X	X				1
St. Petersburg		X	X			1
Buffalo	X					0.5
Dallas			X			0.5
Des Moines			X			0.5
El Paso				X		0.5
Fort Worth				X		0.5
Kansas City			X			0.5
Louisville			X			0.5
Milwaukee	X					0.5
New Haven					0.5	0.5
Raleigh			X			0.5
Richmond			X			0.5
Winston-Salem			X			0.5
Akron						0
Allentown						0
Augusta						0
Aurora						0
Bakersfield						0
Baton Rouge						0
Birmingham						0
Bridgeport						0
Charleston						0
Columbia						0
Dayton						0
Detroit						0
Fresno						0
Greensboro						0

City	PUC comments (0.5 pts)	Formal partnership (0.5 pts)	City planning efforts (0.5 pts)	Involvement in utility planning efforts (0.5 pts)	CCA (up to 1.5 pts)	Total (max 1.5 pts)
Henderson						0
Little Rock						0
Long Beach						0
McAllen						0
Miami						0
Newark						0
Oklahoma City						0
Pittsburgh						0
Reno						0
St. Louis						0
Stockton						0
Syracuse						0
Tampa						0
Toledo						0
Tucson						0
Tulsa						0
Virginia Beach						0
Wichita						0

Table F15. Scores for GHG emissions from electric generation (scope 1 and 2) per capita in 2019 (munis only)

City	Electric municipal utility	CO_2 emissions in 2019 (scope 1 and 2)	Emissions per capita in 2019	Total (1.5 pts)
Los Angeles	LADWP	2,790,736	2.10	1.5
Sacramento	SMUD	1,755,174	3.12	1.5
Washington, D.C.	PEPCO	30,638,833	3.79	1.5
Seattle	Seattle City Light*	N/A	N/A	1.5
Knoxville	Knoxville Utilities Board	56,958,925	5.70	1
Memphis	Memphis Light, Gas & Water	56,958,925	5.70	1
Nashville	Nashville Electric Service	56,958,925	5.70	1
Riverside	City of Riverside Public Service	949,583	9.75	1
San Antonio	CPS Energy (City of San Antonio)	9,705,177	12.77	0.5
New Orleans	Entergy New Orleans	36,963,693	14.82	0.5
Austin	Austin Energy	8,529,372	19.09	0.5
Mesa	Salt River Project	20,858,266	21.47	0
Orlando	Orlando Utilities Commission	4,873,558	22.55	0
Cape Coral	Lee County Electric Coop	N/A	N/A	0
Colorado Springs	Colorado Springs Utilities	N/A	N/A	0
Jacksonville	JEA	N/A	N/A	0
Lakeland	Lakeland Electric	N/A	N/A	0
Omaha	Omaha Public Power District	N/A	N/A	0
Provo	Provo City Power	N/A	N/A	0
San Juan	Puerto Rico Electric Power Authority	N/A	N/A	0

N/A denotes emissions data were unavailable for 2019. *Seattle City Light achieved full credit because more than 90% of its generation currently comes from carbon-free sources.

Table F16. Scores for stringency of utility GHG reduction goals, excluding utilities without GHG goals and those without verified baseline and most recent year GHG emissions data

City	Electric utility	Parent company and/or entity evaluated	Target emissions reduction	Target year	Baseline year	Scope of emissions for goal	Average annual emissions reduction require-ment	Total (1.5 pts)
Seattle	Seattle City Light	N/A	100%	2005	N/A	N/A	Goal met	1.5
Boston	Eversource (MA)	N/A	100%	2030	1990	1, 2	9.09%	1.5
Hartford	Eversource (Connecticut Light & Power)	N/A	100%	2030	1990	1, 2	9.09%	1.5
Newark	PSE&G	N/A	100%	2030	2005	1, 2	9.09%	1.5
Springfield	Eversource (MA)	N/A	100%	2030	1990	1, 2	9.09%	1.5
Miami	Florida Power & Light	N/A	67%	2025	2005	1	8.64%	1.5
Sacramento	SMUD	N/A	100%	2030	2013	1, 2	8.33%	1.5
Milwaukee	We Energies	N/A	60%	2025	2005	1, 2	7.68%	1.5
Portland	Portland General Electric	N/A	80%	2030	2010	1, 2, 3	7.05%	1.5
Austin	Austin Energy	N/A	100%	2035	2005	1, 2	6.67%	1.5
Los Angeles	LADWP	N/A	100%	2035	1990	1, 2, 3	6.25%	1.5

City	Electric utility	Parent company and/or entity evaluated	Target emissions reduction	Target year	Baseline year	Scope of emissions for goal	Average annual emissions reduction require-ment	Total (1.5 pts)
Minneapolis	Xcel Energy (Northern States Power)	N/A	80%	2030	2005	1, 2, 3	6.20%	1.5
Saint Paul	Xcel Energy (Northern States Power)	N/A	80%	2030	2005	1, 2, 3	6.20%	1.5
Denver	Xcel Energy (Public Service Co. of CO)	N/A	80%	2030	2005	1, 2, 3	6.12%	1.5
Aurora	Xcel Energy (Public Service Co. of CO)	N/A	80%	2030	2005	1, 2, 3	6.07%	1.5
Bridgeport	United Illuminating Co.	Avangrid	100%	2035	2017	1, 2, 3	5.88%	1.5
New Haven	United Illuminating Co.	Avangrid	100%	2035	2017	1, 2, 3	5.88%	1.5
Rochester	Rochester Gas & Electric	Avangrid	100%	2035	2017	1, 2, 3	5.88%	1.5
Salt Lake City	Rocky Mountain Power	PacifiCorp	60%	2030	2005	1, 2	5.70%	1.5
El Paso	El Paso Electric	N/A	25%	2025	2015	1, 2	5.41%	1.5
Dayton	AES Ohio	N/A	70%	2030	2016	1, 2, 3	5.08%	1.5
Indianapolis	AES Indiana	N/A	70%	2030	2016	1	5.08%	1.5
Albuquerque	Public Service Co. of NM	N/A	100%	2040	2017	1	4.76%	1
Grand Rapids	Consumers Energy Co.	N/A	100%	2040	2005	1, 2, 3	4.76%	1
New York	ConEdison	N/A	100%	2040	2014	1, 2, 3	4.76%	1
Detroit	DTE Energy	N/A	32%	2023	2005	1	4.42%	1
Baton Rouge	Entergy Louisiana	N/A	50%	2030	2000	1, 2, 3	4.25%	1
Little Rock	Entergy Arkansas	N/A	50%	2030	2000	1, 2, 3	4.25%	1
New Orleans	Entergy New Orleans	N/A	50%	2030	2000	1, 2, 3	4.25%	1
Baltimore	Baltimore Gas & Electric Co.	Exelon	15%	2022	2015	1, 2, 3	4.16%	1
Chicago	ComEd	Exelon	15%	2022	2015	1, 2, 3	4.16%	1
Philadelphia	PECO	Exelon	15%	2022	2015	1, 2, 3	4.16%	1
Washington, D.C.	PEPCO	Exelon	15%	2022	2015	1, 2	4.16%	1
San Antonio	CPS Energy (City of San Antonio)	N/A	80%	2040	2016	1	4.09%	1
Boise	Idaho Power	N/A	100%	2045	2005	1	3.85%	1
Chula Vista	San Diego Gas & Electric	N/A	100%	2045	2016	1, 2, 3	3.85%	1
San Diego	San Diego Gas & Electric	N/A	100%	2045	2016	1, 2, 3	3.85%	1
St. Louis	Ameren UE (Union Electric)	N/A	50%	2030	2005	1	3.77%	1
Bakersfield	PG&E	N/A	100%	2045	2017	1, 2,3	3.70%	1
Fresno	PG&E	N/A	100%	2045	2017	1, 2, 3	3.70%	1
Long Beach	Southern California Edison	N/A	100%	2045	2017	1, 2, 3	3.70%	1
Oakland	PG&E	N/A	100%	2045	2017	1, 2, 3	3.70%	1
Oxnard	Southern California Edison	N/A	100%	2045	2017	1, 2, 3	3.70%	1
San Francisco	PG&E	N/A	100%	2045	2017	1, 2, 3	3.70%	1
San José	PG&E	N/A	100%	2045	2017	1, 2, 3	3.70%	1
Stockton	PG&E	N/A	100%	2045	2017	1, 2, 3	3.70%	1

City	Electric utility	Parent company and/or entity evaluated	Target emissions reduction	Target year	Baseline year	Scope of emissions for goal	Average annual emissions reduction require-ment	Total (1.5 pts)
Houston	CenterPoint Energy (TX)	N/A	70%	2035	2005	1	3.70%	1
Orlando	Orlando Utilities Commission	N/A	50%	2030	2005	1	3.64%	1
Knoxville	Knoxville Utilities Board	TVA*	70%	2030	2005	1	3.56%	1
Memphis	Memphis Light, Gas & Water	TVA*	70%	2030	2005	1	3.56%	1
Nashville	Nashville Electric Service	TVA*	70%	2030	2005	1	3.56%	1
Phoenix	Arizona Public Service	N/A	100%	2050	2005	1, 2	3.23%	1
Richmond	Dominion Virginia Power	N/A	100%	2050	2005	1	3.23%	1
Virginia Beach	Dominion Virginia Power	N/A	100%	2050	2005	1	3.23%	1
Madison	Madison Gas and Electric	N/A	40%	2030	2005	1, 2	3.17%	1
Riverside	City of Riverside Public Service	N/A	486,277 MMT CO_2	2030	1990	1, 2	2.96%	0.5
Akron	Ohio Edison	First Energy	30%	2030	2019	1, 3	2.93%	0.5
Cleveland	Cleveland Electric Illuminating	First Energy	30%	2030	2019	1, 3	2.93%	0.5
Toledo	Toledo Edison	First Energy	30%	2030	2019	1, 3	2.93%	0.5
Atlanta	Georgia Power	Southern Company	50%	2030	2007	1	2.71%	0.5
Augusta	Georgia Power	Southern Company	50%	2030	2007	1	2.71%	0.5
Birmingham	Alabama Power	Southern Company	50%	2030	2007	1	2.71%	0.5
Oklahoma City	Oklahoma Gas & Electric	N/A	50%	2030	2005	1	2.63%	0.5
Buffalo	National Grid (NY)	National Grid	80%	2030	1990	1, 2	2.60%	0.5
Providence	National Grid RI (Narragansett)	National Grid	80%	2030	1990	1, 2	2.60%	0.5
Syracuse	National Grid (NY)	National Grid	80%	2030	1990	1, 2	2.60%	0.5
Worcester	National Grid (MA)	National Grid	80%	2030	1990	1, 2	2.60%	0.5
Charlotte	Duke Energy Carolinas	Duke Energy	50%	2030	2005	1	2.47%	0.5
Cincinnati	Duke Energy Ohio	Duke Energy	50%	2030	2005	1	2.47%	0.5
Greensboro	Duke Energy Carolinas	Duke Energy	50%	2030	2005	1	2.47%	0.5
Raleigh	Duke Energy Progress	Duke Energy	50%	2030	2005	2	2.47%	0.5
St. Petersburg	Duke Energy Florida	Duke Energy	50%	2030	2005	1	2.47%	0.5

City	Electric utility	Parent company and/or entity evaluated	Target emissions reduction	Target year	Baseline year	Scope of emissions for goal	Average annual emissions reduction require-ment	Total (1.5 pts)
Winston-Salem	Duke Energy Carolinas	Duke Energy	50%	2030	2005	1	2.47%	0.5
Charleston	Dominion Energy South Carolina	N/A	80%	2050	2005	1	2.44%	0.5
Columbia	Dominion Energy South Carolina	N/A	80%	2050	2005	1	2.44%	0.5
Louisville	Louisville Gas & Electric	N/A	70%	2040	2010	1, 2, 3	2.07%	0.5
Allentown	PPL Electric Utilities	N/A	70%	2040	2010	1, 2	1.74%	0.5
Kansas City	KCP&L	Evergy	80%	2050	2005	Unable to identify	1.72%	0.5
Wichita	Westar Energy	Evergy	80%	2050	2005	1	1.72%	0.5
Columbus	American Electric Power (Ohio Power)	AEP	80%	2030	2000	1	1.49%	0.5
McAllen	American Electric Power (TX)	AEP	80%	2030	2000	1	1.49%	0.5
Tulsa	Public Service Co. of Oklahoma	AEP	80%	2030	2000	1	1.49%	0.5
Cape Coral	Lee County Electric Coop	N/A	No goal	N/A	N/A	N/A	N/A	0
Colorado Springs	Colorado Springs Utilities	N/A	80%	2030	N/A	N/A	N/A	0
Dallas	ONCOR	N/A	No goal	N/A	N/A	N/A	N/A	0
Des Moines	MidAmerican Energy	N/A	No goal	N/A	N/A	N/A	N/A	0
Fort Worth	ONCOR	N/A	No goal	N/A	N/A	N/A	N/A	0
Henderson	NV Energy	N/A	No goal	N/A	N/A	N/A	N/A	0
Honolulu	Hawai'ian Electric Co.	N/A	No goal	N/A	N/A	N/A	N/A	0
Jacksonville	JEA	N/A	60%	2024	2007	N/A	N/A	0
Lakeland	Lakeland Electric	N/A	No goal	N/A	N/A	N/A	N/A	0
Las Vegas	NV Energy	N/A	No goal	N/A	N/A	N/A	N/A	0
Mesa	Salt River Project	N/A	90%	2050	2005	1, 2	N/A	0
Omaha	Omaha Public Power District	N/A	100%	2050	N/A	1	N/A	0
Pittsburgh	Duquesne Light Co.	N/A	No goal	N/A	N/A	N/A	N/A	0
Provo	Provo City Power	N/A	No goal	N/A	N/A	N/A	N/A	0
Reno	NV Energy	N/A	No goal	N/A	N/A	N/A	N/A	0
San Juan	Puerto Rico Electric Power Authority	N/A	No goal	N/A	N/A	N/A	N/A	0
Tampa	Tampa Electric Co.	N/A	No goal	N/A	N/A	N/A	N/A	0

N/A denotes that a utility has not adopted a goal, or that emissions data were not available to calculate stringency.

LOCAL GOVERNMENT OPERATIONS

F17. 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		Use renewable energy to power 100% of city operations by 2025	50.10 kWh per household	Reduce local government GHG emissions 26–28% by 2025, using a 2005 baseline		
Allentown	None		None		None		
Atlanta	None		Continue using clean energy to power 100% of city operations	157.42 kWh per household	Reduce local government GHG emissions 40% by 2030, using a 2009 baseline	3.4%	
Augusta	None		None		None		
Aurora	None		None		Reduce local government GHG 10% by 2025, using a 2007 baseline		
Austin	None		Use renewable energy to power 100% of city-owned building operations		None		
Bakersfield	None		None		None		
Baltimore	Reduce local government electricity use 30% by 2030, using a 2006 baseline		Use renewable energy to power 20% of city-owned building operations by 2022	11.65 kWh per household	Reduce local government GHG emissions 30% by 2023, using a 2007 baseline	0%	0%
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	42.59 kWh per household	Reduce local government GHG emissions 100% by 2035	6.25%	
Boston	None		None		Reduce local government GHG emissions 60% by 2030, using a 2005 baseline	4.19%	100%
Bridgeport	None		None		Reduce local government GHG emissions 30% by 2030, using a 2007 baseline	1.54%	

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	None		None		None		
Cape Coral	Reduce local government electricity 40% by 2025, using a 2008 baseline		None		None		
Charleston	Completed an ESPC in 2020 that targets a 46.6% reduction in citywide energy use		None		Reduce local government GHG emissions 56% by 2030, using a 2018 baseline	5.3%	
Charlotte	None		Use 100% zero-carbon energy for city buildings and fleet by 2030		None		
Chicago	None		Use renewable energy to power 100% of city-owned buildings by 2035		Reduce local government GHG emissions 26% by 2025, using a 2005 baseline		
Chula Vista	None		None		None		
Cincinnati	Reduce municipal energy use 2% annually	1.5%	Use renewable energy to power 100% of city operations by 2035		None		
Cleveland	Reduce local government energy use 20% by 2030, using a 2010 baseline	0.7%	Use onsite renewable energy to meet 5% of city energy needs by 2030		Reduce local government GHG emissions 45% by 2030, using a 2010 baseline	2.48%	100%
Colorado Springs	None		None		None		
Columbia	None		None		None		
Columbus	None		None		None		
Dallas	None		None		Reduce local government emissions 43% by 2030, using a 2015 baseline	3.03%	100%
Dayton	None		Use renewable energy to supply 100% of city electricity by 2035		None		
Denver	None		Use renewable energy to power 100% of city operations by 2025	272.58 kWh per household	None		
Des Moines	None		None		None		

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Detroit	None		None		Reduce local government GHG emissions 25% by 2025, using a 2012 baseline	1.2%	
El Paso	Reduce local government building energy use 20% by 2022, using a 2009 baseline		None		None		
Fort Worth	None		None		None		
Fresno	None		Use renewable energy to supply 50% of city electricity needs by 2025		Reduce local government GHG emissions 80% below 1990 levels by 2050		
Grand Rapids	None		Use renewable energy to power 100% of city operations by 2025	67.15 kWh per household	Reduce local government GHG emissions 25% by 2021, using a 2009 baseline	0.22%	100%
Greensboro	None		None		None		
Hartford	None		None		Reduce local government GHG emissions 26–28% by 2025, using a 2005 baseline		
Henderson	None		None		None		
Honolulu	None		Use renewable energy to power 100% of city operations by 2045	27.92 kWh per household	Reduce local government GHG emissions 45% by 2025, using a 2015 baseline	10.07%	
Houston	Reduce local government building energy use 20% by 2021, using a 2008 baseline		Continue using renewable energy to power 100% of city operations		Reduce local government GHG emissions 40% by 2030, using a 2014 baseline	5.34%	
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	779.5 kWh per household	Reduce local government GHG emissions 70% by 2025, using a 2005 baseline	3.73%	95.33%

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
Knoxville	Reduce local government building energy use 20% by 2022, using a 2010 baseline		None		Reduce local government GHG emissions 50% by 2030, using a 2005 baseline	2.57%	97.97%
Las Vegas	Reduce local government energy use 2% annually	1.1%	Continue using renewable energy to power 100% of city operations		Reduce local government emissions 100% by 2050	3.03%	100%
Little Rock	None		None		None		
Long Beach	None		None		None		
Los Angeles	Reduce local government energy use 18% by 2025, using a 2015 baseline	2.53%	Install 3 MW of solar energy on city facilities by 2025		Reduce local government GHG emissions 55% by 2025, using a 2008 baseline	3.44%	100%
Louisville	None		Use renewable energy to power 100% of city operations by 2035		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 building GHG emissions 55% and fleet GHG emissions 45% by 2035, using a 2016 baseline	3.06%	
Mesa	None		None		None		
Miami	None		None		None		
Milwaukee	None		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	60.40 kWh per household	Achieve a 1.5% annual reduction in GHG emissions from city facilities	1.13%	100%
Nashville	Reduce local government building resource use 40% by 2030, using a 2014 baseline		Use renewable energy to power 100% of city operations by 2041	105.53 kWh per household	None		

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
New Haven	None		Continue using renewable energy to power 100% of city operations		Reduce local government GHG emissions 55% by 2030, using a 1999 baseline	2.95%	
New Orleans	None		None		None		
New York	None		Install 100 MW of solar on city-owned property by 2025	5.70 kWh per household	Reduce local government GHG emissions 40% by 2025, using a 2005 baseline	2.81%	63.53%
Newark	None		None		None		
Oakland	None		Continue using 100% zero-carbon energy to power city operations		Reduce local government GHG emissions 56% by 2030, using a 2005 baseline	3.15%	100%
Oklahoma City	None		None		None		
Omaha	None		None		None		
Orlando	None		Use renewable energy to power 100% of city operations by 2030	99.41 kWh per household	Reduce local government GHG emissions 100% by 2030, using a 2010 baseline	5%	77.05%
Oxnard	None		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	29.3 kWh per household	Reduce local government GHG emissions 50% by 2030, using a 2006 baseline	2.17%	100%
Phoenix	None		Use renewable energy to power 15% of city operations by 2025	9.11 kWh per household	Reduce local government GHG emissions 40% by 2025, using a 2005 baseline	3.93%	63.55%
Pittsburgh	Reduce local government energy use 50% by 2030, using a 2010 baseline		Continue using renewable electricity to power 100% of city operations		Reduce local government GHG emissions 20% by 2023, using a 2003 baseline	0.46%	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	4.03%	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
Providence	Reduce local government energy use 30% by 2030, using a 2010 baseline	2.39%	Use renewable energy to power 100% of city operations by 2030	18.54 kWh per household	Reduce local government GHG emissions 100% by 2040, using a 2015 baseline	4.17%	100%
Provo	None		None		None		
Raleigh	None		Use renewable energy to meet 20% of peak load by 2030		Reduce local government GHG emissions 80% by 2050, using a 2007 baseline		
Reno	Reduce local government energy use 20% by 2025, using a 2014 baseline		None		None		
Richmond	Reduce local government energy use 1% annually, using a 2008 baseline		None		None		
Riverside	None		None		Reduce local government GHG emissions 49% by 2035, using a 2007 baseline	1.62%	
Rochester	None		None		None		
Sacramento	None		None		Reduce local government GHG emissions 49% by 2035, using a 2005 baseline	2.14%	100%
Salt Lake City	Reduce local government building energy use 20% by 2025, using a 2012 baseline		None		Reduce local government GHG emissions 50% by 2030, using a 2009 baseline	3.88%	0%
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	3.77%	100%
San Diego	Reduce local government energy use 25% by 2035, using a 2010 baseline	2.0%	Use renewable energy to power 100% of city operations by 2035		Reduce local government GHG emissions 40% by 2030, 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%

City	Energy reduction goal	Annual % decrease targeted	Renewable electricity goal	Annual increase targeted	Climate change mitigation goal	Annual % decrease targeted	Projected progress toward goal
San José	None		Install 11 MW of solar energy on city buildings by 2021	9.68%	None		
San Juan	None		None		None		
Seattle	Reduce local government energy use 40% by 2025, using a 2008 baseline	4.2%	Continue using renewable electricity to power 100% of city facilities		Reduce local government GHG emissions 40% by 2025, using a 2008 baseline	3.79%	
Springfield	None		None		None		
St. Louis	None		Use renewable electricity to power 100% of city operations by 2035		Reduce local government GHG emissions 100% by 2050, using a 2005 baseline	3.1%	72.49%
Saint Paul	None		Use renewable energy to power 50% of city operations by 2025	20.8% kWh per household	Reduce local government building GHG emissions 100% by 2030		
St. Petersburg	None		Use renewable energy to power 100% of city operations by 2035		Reduce local government GHG emissions 80% by 2050, using a 2016 baseline	2.51%	
Stockton	None		None		None		
Syracuse	None		None		None		
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	None		None		None		
Washington, D.C.	Reduce local government energy use 50% by 2032, using a 2012 baseline	3.40%	Use renewable energy to power 50% of city operations by 2032	764.96 kWh per household	Reduce local government GHG emissions 50% by 2032, using a 2006 baseline	2.78%	100%
Wichita	None		None		None		
Winston-Salem	Reduce local government energy use 40% by 2025, using a 2008 baseline		Use renewable energy to power 50% of city operations by 2030		None		
Worcester	None		Use renewable energy to power 100% of city operations by 2030		Reduce local government GHG emissions 100% by 2030		

Table F17. Percentage composition of vehicle fleet of cities

City	Internal combustion engine	Hybrid	Plug-in hybrid	Battery electric	Fuel cell	Compressed natural gas	Other	Total efficient vehicles
Albuquerque	96.9	1.6	0.01	0.02	0	1.3	0	1.63
Atlanta	91	2	2	3	0	2	0	7
Aurora	99.05	0.09	0.66	0	0	0.2	0	0.75
Austin	19	8	2	1	0	0.1	70	11
Baltimore	99.67	0.09	0	0.32	0	0	0	0.41
Boise	92.7	5.9	0.3	0.8	0	0.3	0	7
Boston	86.07	11.42	1.4	1.1	0	0	0	13.92
Bridgeport	98.59	0.85	0	0.14	0	0.42	0	0.99
Charlotte	83	1	0	1	0	1	14	2
Chula Vista	84	6	0	9	0	1	0	15
Cincinnati	97	1.3	0	1.3	0	0	3	2.6
Cleveland	93.4	1.2	0.1	0.1	0	0.1	5.1	1.4
Columbia	94.4	6.6	0	0	0	0	0	6.6
Columbus	80	5	3	3	0	9	0	11
Dallas	99	4.2	0	0.14	0	10.85	0	4.34
Denver	91	5	1	1	0	0	1	7
Detroit	97.07	2.69	0	0.24	0	0	0	2.93
Fort Worth	37.78	0.55	0.3	0.3	0	0	61.07	1.15
Grand Rapids	87.36	11.08	0	1.14	0	0.43	0	12.22
Honolulu	72.94	0.50	0	0.11	0	0	26.45	0.61
Houston	94	5.4	0	0.4	0	0.02	0	5.8
Indianapolis	19.76	8.71	0.08	0.23	0	0.37	70.84	9.02
Kansas City	90	0.27	0	0.79	0	7.87	1	1.06
Knoxville	96.63	1.05	0	0.15	0	0.07	2.09	1.2
Las Vegas	88	10	1	1	0	0	0	12
Long Beach	52	12	1	7	0	15	13	20
Los Angeles	55.9	16.9	0.5	1.9	0	13.7	6.9	19.3
Louisville	97.28	2.45	0.11	0.05	0	0.11	0	2.61
Madison	87.4	6.98	0.36	4.26	0	0	1	11.6
Memphis	97.5	0.8	0.8	0.9	0	0	0	2.5
Mesa	41	0.5	0	0	0	4.5	53	0.5
Miami	98.5	1.5	0	0	0	0	0	1.5
Minneapolis	91.98	6.33	0.05	1.64	0	0	0	8.02
Nashville	92.24	7.28	0	0.44	0	0.04	0	7.73
New York	74.67	15.04	5.46	4.49	0	0.34	0	24.99
Oakland	80	6	0.3	3	0	9	0	9.3
Oklahoma City	89.2	0.6	0.1	0.2	0	9.9	0	0.9
Orlando	14.71	4.87	0.23	3.65	0	2.74	73.81	8.75
Philadelphia	86.7	5.7	0	7.5	0	0.1	0	13.2
Phoenix	88.09	0.12	0.01	1.72	0	7.15	2.9	1.85
Pittsburgh	93.7	2.3	0	1.8	0	0	2.2	4.1

Portland	84	6	1	7	0	1	1	14
Providence	99.86	0	0	0.14	0	0	0	0.14
Raleigh	54.88	5.75	0.21	0.63	0	0.11	38.42	6.6
Richmond	97.31	0	0	0.12	0	2.5	0	0.12
Riverside	33	12	1	4	0	23	27	17
Rochester	94.1	1.1	0.6	1.2	0	1.2	1.8	2.9
Saint Paul	98.5	1	0.5	0	0	0	0	1.5
Salt Lake City	88.1	5.39	0	2	0	4.51	0	7.39
San Antonio	87	9	0	2	0	0	2	11
San Diego	89.7	4.2	1.9	2.3	0	1.9	0	8.4
San Francisco	70	10	1	8	0	5	0	19
San José	78.1	15.3	0.5	4.2	0	0.6	0	20
Seattle	85.28	0	0	5.02	0	0	1.44	5.02
Tucson	65	0.08	0	0	0	3.8	30.7	0.08
Tulsa	25.95	9.16	0	0	0	64.89	0	9.16
Washington, D.C.	97.03	0.91	0	0.11	0	0.17	1.77	1.03
Winston-Salem	98.02	0.12	0	0.06	0	1.8	0	0.18

Cities assessed in the *Scorecard* that do not appear in this table did not report data or did not report complete data.

Table F18. Percentage of streetlights converted to LEDs

City	LED composition
Albuquerque	100%
Allentown	25%
Atlanta	89%
Austin	76%
Bakersfield	100%
Baltimore	75%
Birmingham	100%
Boise	99%
Boston	76%
Bridgeport	83%
Buffalo	2.5%
Charlotte	18%
Chicago	37%
Chula Vista	100%
Cincinnati	100%
Cleveland	88%
Columbus	5%
Denver	63%
Detroit	100%
El Paso	60%
Fort Worth	36%
Grand Rapids	12%

City	LED composition
Hartford	100%
Honolulu	100%
Houston	98%
Indianapolis	100%
Kansas City	9.8%
Knoxville	100%
Las Vegas	85%
Long Beach	100%
Los Angeles	98%
Madison	34%
Miami	20%
Milwaukee	2%
Minneapolis	78%
New Haven	100%
New Orleans	75%
New York	70%
Oakland	95%
Orlando	99%
Philadelphia	2.5%
Phoenix	100%
Pittsburgh	8.75%
Portland	100%

City	LED composition
Providence	100%
Raleigh	85%
Riverside	5%
Rochester	50%
Sacramento	33%
Saint Paul	38%
Salt Lake City	60%
San Antonio	79%
San Diego	63%
San Francisco	100%
San José	53%
Seattle	86%
St. Louis	45%
St. Petersburg	100%
Virginia Beach	100%
Washington, D.C.	11%
Winston-Salem	100%
Worcester	100%

Cities assessed in the *Scorecard* that do not appear in this table did not report data or did not report complete data.

Table F19. Comprehensive retrofit strategies

City	Retrofit strategy
Albuquerque	Building evaluations with results
Austin	Building evaluations with results
Baltimore	Building evaluations with results
Boston	Building evaluations with results
Buffalo	Building evaluations with results
Charlotte	Building evaluations with results
Chula Vista	Building evaluations with results
Cleveland	Building evaluations with results
Columbus	Retrofit plan without results
Dallas	Building evaluations with results
Denver	Building evaluations with results
Grand Rapids	Building evaluations with results
Hartford	Building evaluations with results
Kansas City	Retrofit plan without results
Las Vegas	Retrofit plan without results
Long Beach	Retrofit plan without results
Los Angeles	Building evaluations with results
Louisville	Retrofit plan without results
Madison	Retrofit plan without results
Mesa	Retrofit plan without results
Milwaukee	Retrofit plan without results
Minneapolis	Building evaluations with results
Nashville	Retrofit plan without results
New York	Building evaluations with results
Orlando	Building evaluations with results
Philadelphia	Building evaluations with results
Pittsburgh	Retrofit plan without results
Portland	Building evaluations with results
Providence	Building evaluations with results
Raleigh	Retrofit plan without results
Richmond	Retrofit plan without results
Sacramento	Retrofit plan without results
Salt Lake City	Retrofit plan without results
San Antonio	Building evaluations with results
San Diego	Retrofit plan without results
San Francisco	Building evaluations with results
Seattle	Building evaluations with results
Saint Paul	Retrofit plan without results
St. Petersburg	Retrofit plan without results
Washington, D.C.	Retrofit plan without results

Cities assessed in the *Scorecard* that do not appear in this table did not report data or did not report complete data.

Appendix G. Bloomberg American Cities Climate Challenge

Cities in the Bloomberg American Cities Climate Challenge (ACCC) 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 provides extensive technical assistance to help cities make progress toward their policy goals. Technical support includes, but is 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 the progress of these cities. While originally slated to run from 2019 to 2021, the Climate Challenge has been extended through June 2022. As such, this *Scorecard* captures the third of four years of clean energy activities undertaken by participating cities. Table G1 details the 2021 scores and ranks of Climate Challenge cities.

Table G1. 2021 Climate Challenge cities' scores

City	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Transportation policies (30 pts)	Energy and water utilities (15 pts)	Local government operations (10 pts)	Total (100 pts)	ACCC *Scorecard* rank	*Scorecard* rank	Change in *Scorecard* rank from 2020
Seattle	12	23	19.5	11	6.5	72	1	2	0
Washington, D.C.	9.5	19	24	13.5	5.5	71.5	2	3	3
Minneapolis	8.5	22	19.5	13.5	6.5	70	3	4	0
Boston	5.5	19	22.5	15	7.5	69.5	4	5	–3
Denver	9.5	26.5	16	13	4	69	5	7	0
Los Angeles	9	19.5	18.5	13.5	6.5	67	6	8	0
San José	10	19.5	17.5	14	2.5	63.5	7	9	0
Portland	7.5	13.5	19.5	11.5	7.5	59.5	8	11	0
Chicago	5.5	20	16	13.5	2.5	57.5	9	12	1
Philadelphia	8	16	17	9	5	55	10	13	2
Austin	8.5	19	12.5	8.5	6	54.5	11	14	–2
Atlanta	4.5	13.5	18	8	4	48	12	15	–1
San Diego	5	12.5	13	12.5	4.5	47.5	13	16	2
Saint Paul	5.5	10.5	13	13	3.5	45.5	14	20	–4
Pittsburgh	7.5	10.5	16	7	4	45	15	21	–2
Orlando	7	12	11.5	6	7.5	44	16	22	–1
Honolulu	4.5	9.5	14.5	9	4	41.5	17	24	17
Columbus	5	10.5	11.5	10.5	2.5	40	18	28	1
St. Louis	4.5	19	8	6.5	2	40	18	28	0
Albuquerque	2.5	8.5	12.5	9.5	5	38	20	31	9
San Antonio	6	10.5	8	5.5	5.5	35.5	21	37	–6
Charlotte	3.5	6	10	7	3.5	30	22	42	23
Cincinnati	4	9	7	6	3	29	23	43	–7
St. Petersburg	4.5	6.5	7	3	4.5	25.5	24	51	0
Indianapolis	4	1.5	6.5	7	2.5	21.5	25	64	-2

City	Community-wide initiatives (15 pts)	Buildings policies (30 pts)	Transportation policies (30 pts)	Energy and water utilities (15 pts)	Local government operations (10 pts)	Total (100 pts)	ACCC *Scorecard* rank	*Scorecard* rank	Change in *Scorecard* rank from 2020
ACCC city medians	**5.5**	**13.5**	**14.5**	**9.5**	**4.5**	**47.5**			**0**
***City Scorecard* medians**	**3**	**7.5**	**7.5**	**6.5**	**2.5**	**26**			**–1**

As table G1 shows, many Climate Challenge cities are in the top tier of the *Scorecard*. Challenge cities occupy 4 of the top 5 spots, and 7 of the top 10. Among the 25 cities, 23 are in the top half of our rankings. Challenge cities are ahead of the pack in their scores for every policy area, and most notably in the buildings and transportation sectors.[57] The median scores for Climate Challenge cities in the buildings and transportation sections are 13.5 and 14.5, respectively, nearly double that of the median buildings and transportation chapter scores across all 100 cities.

The Climate Challenge has played an important role in spurring clean energy policies and programs at the local level. Even faced with the difficulties posed by the COVID-19 pandemic, these cities launched many new initiatives. Climate Challenge cities undertook 71 of the 177 new city clean energy actions (40%) taken between May 2, 2020, and July 1, 2021. Since 2019, Climate Challenge cities have improved their *Scorecard* ranks by an average of two spots. Table G2 shows the Climate Challenge cities with the largest increases in overall rank.

Table G2. Most-improved Climate Challenge cities in the *City Scorecard*

City	2019 rank	2020 rank	2021 rank	Rank increase since 2019
Charlotte	68	65	42	26
Honolulu	47	41	24	23
Albuquerque	52	40	30	22
Saint Paul	31	16	20	11
St. Louis	36	28	28	8

57 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.

Appendix H. Data Request Respondents

Table H1. City and utility data request respondents

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
Akron	—	Eren Demiray, Energy Efficiency Reporting Manager, FirstEnergy Corp.[a]	Vicki Friscic, Regulatory and Pricing Director, 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, Bucks County Planning Commission	Dirk Chiles, Energy Efficiency Manager, PPL Electric Utilities	Brian Meilinger, Energy Efficiency Manager, UGI Utilities
Atlanta	John Seydel, Director of Sustainability, Mayor's Office of Resilience Shelby Buso, Chief Sustainability Officer, Mayor's Office of Resilience	Andrea Sieber, Energy Efficiency Regulatory Manager, Georgia Power Sammie McDearis, Renewable Development Reporting Analyst, Georgia Power	Joanne Mello, Director of Sustainability and Energy Policy, Southern Company Gas Carl Garofalo, Director of Sustainability Solutions, Southern Company Gas
Augusta	—	Andrea Sieber, Energy Efficiency Regulatory Manager, Georgia Power Sammie McDearis, Renewable Development Reporting Analyst, Georgia Power	Joanne Mello, Director of Sustainability and Energy Policy, Southern Company Gas Carl Garofalo, Director of Sustainability Solutions, Southern Company Gas
Aurora	—	George McGuirk, Xcel Energy, CIP/DSM Technical Consultant (Public Service Co. of Colorado)	Same; Xcel Energy also provides natural gas service to Aurora
Austin	Zach Baumer, Climate Program Manager, Office of Sustainability	Liz Jambor, Data Analytics & Business Intelligence, Austin Energy	Jasmine King-Bush, Energy Efficiency Program Supervisor, One Gas
Bakersfield	—	Jelani Williams, Senior Strategic Analyst, PG&E	Erin Brooks, Customer Programs Policy & Support Manager, SoCal Gas
Baltimore	Anne Draddy, Sustainability Coordinator, 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	Michael Ward, Principal Plannera	—	—
Boise	Steve Hubble, Stormwater Environmental Coordinator, Public Works	Theresa Drake, Senior Manager, Customer Relations and Energy Efficiency, Idaho Power Co.[a]	—
Boston	Chris Kramer, Energy Manager, Environment Department	Michael Goldman, Energy Efficiency Program Evaluation Manager, Eversource (MA)	Scott Berthiaume, Policy Analyst, Customer Energy Management, National Grid
Bridgeport	—	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 Robert Bergen, Project Manager, NYSERDA[a]	NYSERDA also administers natural gas efficiency programs to Buffalo
Cape Coral	—	—	Charles Morgan, 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[a]	Sheryl Shelton, DSM Administration/ EM&V Manager, Dominion Energy South Carolina	Dominion Energy South Carolina also provides natural gas service to Charleston
Charlotte	Erika Ruane, Energy and Sustainability Coordinator	Melissa Adams, Regulatory Filings and Analysis Manager, Duke Energy Carolinas/Ohio	—
Chicago	Angela Tovar, Chief Sustainability Officer	Shikha Kapoor, Business Analyst I, ComEd	Thomas Manjarres, Senior Energy Efficiency Analyst, Peoples Gas
Chula Vista	Coleen Wisniewski, Environmental Sustainability Manager	Doug White, Senior Regulatory Policy Manager, San Diego Gas & Electric	San Diego Gas & Electric also provides natural gas service 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	Eren Demiray, Energy Efficiency Reporting Manager, FirstEnergy Corp.[a]	Vicki Friscic, Regulatory and Pricing Director, Dominion Energy Ohio
Colorado Springs	—	Jennifer Canter, Program Administrator, Colorado Springs Utilities	Colorado Springs Utilities also provides natural gas service to Colorado Springs
Columbia	Mary Pat Baldauf, Sustainability Facilitator	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) David Friedrich, Energy Efficiency Analyst, American Electric Power (Ohio Power)	Sarah Poe, Team Leader, Evaluation, Demand-Side Management, Columbia Gas of Ohio
Dallas	Susan Alvarez, Assistant Director, Environmental Quality & Sustainability	—	Chris Felan, Vice President of Regulatory Affairs, ATMOS Energy
Dayton	—	—	—
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 natural gas service to Denver
Des Moines	Jeremy Caron, Sustainability Program Manager Pa Goldbeck, Management Analyst	David McCammant, Product Manager, MidAmerican Energy	MidAmerican Energy also provides natural gas service to Des Moines
Detroit	—	Chris Payne, Analyst, DTE Energy	DTE Energy also provides natural gas service to Detroit
El Paso	Fernando Berjano, Sustainability Coordinator, Community and Human Development Department	Desmond Machuca, Energy Efficiency Program Coordinator, El Paso Electric	Jasmine King-Bush, Energy Efficiency Program Supervisor, One Gas
Fort Worth	Justin Newhart, Acting Manager of Preservation and Design, Development Services	—	Chris Felan, Vice President of Regulatory Affairs, ATMOS Energy
Fresno	—	Jelani Williams, Senior Strategic Analyst, PG&E	PG&E also provides natural gas service to Fresno

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
Grand Rapids	Alison Sutter, Sustainability Manager, Executive Office	David Zokoe, Senior Corporate Account Manager, Consumers Energy	Chris Payne, Analyst, 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	Lisa Corrado, Community Development and Services Department Director[a]	Kimberly Lukasiak, DSM Policy and Compliance Manager, NV Energy	—
Honolulu	Ben Sullivan, Energy Program Manager, Office of Climate Change, Sustainability and Resiliency	Vinh-Phong Ngo, Energy Engineer, Hawai'i Energy[a]	—
Houston	Alisa Talley, Division Manager	—	—
Indianapolis	Morgan Michelson, Director, Office of Sustainability	Kim Aliff, Senior Regulatory Analyst, AES Indiana	Brett McClellan, Energy Efficiency Program Coordinator, Citizens Energy Group
Jacksonville	—	Donald Wucker, Research Project Consultant, JEA	Charles Morgan, Regulatory Analyst, TECO Peoples Gas
Kansas City	Jerry Shechter, Sustainability Coordinator, Office of Environmental Quality	Chris DeLaTorre, Senior Product Manager, Energy Efficiency, Evergy	Shaylyn Dean, Energy Efficiency Program Manager, Spire MO
Knoxville	Brian Blackmon, Sustainability Director, Office of Sustainability	Liz Hannah, Executive Services and Environmental Stewardship Manager, Knoxville Utilities Board Laurie Mitchell, TVA	Knoxville Utilities Board also provides natural gas service to Knoxville
Lakeland	—	—	Charles Morgan, Regulatory Analyst, TECO Peoples Gas
Las Vegas	Marco N. Velotta, Long-Range Planning, Office of Sustainability	Kimberly Lukasiak, DSM Policy and Compliance Manager, NV Energy	—
Little Rock	—	Jessica Szenher, Former Director, Business & Economic Development, Entergy Arkansas	José Laboy, CenterPoint Energy
Long Beach	Kristyn Vega-Payne, Sustainability Analyst, Office of Sustainability	José Monterroso, Senior Specialist, Southern California Edison	Dennis Burke, Administrative Analyst, Long Beach Energy
Los Angeles	Megan Ross, Climate Adviser to City of Los Angeles, NRDC[b] Jessica Jinn, Climate Adviser to City of Los Angeles, NRDC[b]	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	Mark Lydon, Commercial Account Representative, Madison Gas and Electric Matt Bromley, Utilities Relations Manager, Focus on Energy	Madison Gas and Electric also provides natural gas service to Madison Focus on Energy also administers natural gas efficiency programs to Madison

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
McAllen	—	—	Jasmine King-Bush, Energy Efficiency Program Supervisor, One Gas
Memphis	—	Becky Williamson, Strategic Planning and Innovation, Memphis Light, Gas, & Water Laurie Mitchell, TVA	Memphis Light, Gas, & Water also provides natural gas service to Memphis
Mesa	Laura Hyneman, Deputy Director, Environmental Management & Sustainability	—	—
Miami	Melissa Hew, Programs Manager, Office of Resilience and Sustainability Alissa Farina, Resilience Programs Manager, Office of Resilience and Sustainability	—	—
Milwaukee	—	Missie Muth, Services Manager, We Energies Matt Bromley, Utilities Relations Manager, Focus on Energy	We Energies also provides natural gas service to Milwaukee Focus on Energy also administers natural gas efficiency programs to Milwaukee
Minneapolis	Luke Hollenkamp, Sustainability Program Coordinator Kelly Muellman, Sustainability Program Coordinator	Ashly McFarlane, Technical Consultant, Xcel Energy	Emma Schoppe, Local Energy Policy Manager, CenterPoint Energy
Nashville	Laurel Creech, Assistant Director, Division of Sustainability, Metro Nashville Department of General Services	Laurel Creech, Assistant Director, Division of Sustainability, Metro Nashville Department of General Services Laurie Mitchell, TVA	—
New Haven	—	Sheri Borrelli, Senior Business Development Professional, United Illuminating Co.	Sheri Borrelli, Senior Business Development Professional, Southern Connecticut Gas
New Orleans	—	Derek Mills, Demand-Side Management Manager, Entergy New Orleans	Entergy New Orleans also provides natural gas service to New Orleans
New York	Nicole Joseph, Clean Energy Communities Coordinator, NYC Mayor's Office of Sustainability	Robert Bergen, Project Manager, NYSERDA[a]	Ken Chan, Product Reporting Analyst, National Grid NY NYSERDA also administers natural gas efficiency programs to New York
Newark	Robert Thomas, Chief of Energy and Environment	Tim Fagan, Evaluation Manager, PSE&G	PS&EG also provides natural gas service to Newark
Oakland	—	Jelani Williams, Senior Strategic Analyst, PG&E	PG&E also provides natural gas service to Oakland
Oklahoma City	T. O. Bowman, Sustainability Manager, Office of Sustainability[a]	—	Teri Green, Energy Efficiency Programs Manager, Oklahoma Natural Gas
Omaha	Rynn Kerkove, Long-Range Planning	—	Ernie Bless, Utilization Engineer, Metropolitan Utilities District of Omaha

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	Natalia Paredes, Corporate Sustainability Manager, Orlando Utilities Commission	Charles Morgan, Regulatory Analyst, TECO Peoples Gas
Oxnard	Kathleen Mallory, Planning & Sustainability Manager	José Monterroso, Senior Specialist, Southern California Edison	Erin Brooks, Customer Programs Policy & Support Manager, SoCal Gas
Philadelphia	Christine Knapp, Director, Office of Sustainability Matina Granieri, Place-Based Initiatives Manager, Office of Sustainability	Maria Mancuso, Senior Business Analyst, PECO	Stu Jerue, Interim Director of Customer Programs, Philadelphia Gas Works
Phoenix	Mark Hartman, Chief Sustainability Officer	Roger Krouse, Senior Account Executive, Arizona Public Service	—
Pittsburgh	Grant Ervin, Chief Resilience Officer, Office of Sustainability Sarah Yeager, Climate and Resilience Analyst, Office of Sustainability	Sara Walker, Clean Energy Adviser, Duquesne Light Co.	John Catalano, ESG Manager, Peoples Natural Gas
Portland	Andria Jacobs, Energy Programs and Policy Senior Manager	Peter Schaffer, Senior Planning Project Manager, Energy Trust of Oregon[a] Ben Cartwright, Senior Planning Manager, Energy Trust of Oregon[a]	Energy Trust of Oregon also administer natural gas efficiency services to Portland
Providence	Leah Bamberger, Director of Sustainability, Office of Sustainability Emily Koo, Sustainability Strategy Manager, Office of Sustainability	John Tortorella, Senior Analyst, National Grid (Narragansett Electric) Jessica Darling, Senior Analyst, National Grid (Narragansett Electric)	National Grid (Narragansett Electric) also provides natural gas service to Providence
Provo	—	—	—
Raleigh	Cindy Holmes, Assistant Sustainability Manager, Office of Sustainability	Melissa Adams, Regulatory Filings and Analysis Manager, Duke Energy Carolinas/Ohio	—
Reno	Suzanne Groneman, Sustainability Program Manager, City Manager's Officea	Kimberly Lukasiak, DSM Policy and Compliance Manager, NV Energy	NV Energy also provides natural gas service to Reno
Richmond	Khilia Logan, Management Analyst, Sustainability Office	Michael Hubbard, Energy Conservation Manager, Dominion Virginia Power	Khilia Logan, Management Analyst, Sustainability Office
Riverside	Ivan Velasco, Public Utilities–Customer Partnerships and Strategies, City of Riverside Public Service	Ivan Velasco, Public Utilities–Customer Partnerships and Strategies, City of Riverside Public Service	Erin Brooks, Customer Programs Policy & Support Manager, SoCal Gas
Rochester	Shalini Beath, Energy & Sustainability Analyst, Department of Environment Services	Carolyn Sweeney, Residential Program Manager, Rochester Gas & Electric[a] Robert Bergen, Project Manager, NYSERDA[a]	Rochester Gas & Electric also provides natural gas service to Rochester NYSERDA also administers natural gas efficiency programs to Rochester
Sacramento	Jennifer Venema, Sustainability Manager, Department of Public Works Jenna Hahn, Sustainability Analyst	Jamie Cutlip, Local Government Affairs Representative, SMUD	Jelani Williams, Senior Strategic Analyst, PG&E

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
Saint Paul	Russ Stark, Chief Resilience Officer, Mayor's Office Kurt Schultz, Department of Planning and Economic Development	Ashly McFarlane, Technical Consultant, Xcel Energy	Xcel Energy also provides natural gas service to Saint Paul
Salt Lake City	Peter Nelson, Sustainability Coordinator, Division of Sustainability and the Environment	Michael Snow, Regulatory Affairs & Procurement Manager, Rocky Mountain Power (PacifiCorp)	—
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	James Xiaowu Chen, Senior Civil Engineer, Sustainability Department	Doug White, Senior Regulatory Policy Manager, 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	Jelani Williams, Senior Strategic Analyst, PG&E	PG&E also provides natural gas service to San Francisco
San José	Yael Kisel, Climate Smart Analytics Lead	Jelani Williams, Senior Strategic Analyst, PG&E	PG&E also provides natural gas service to San José
San Juan	—	—	—
Seattle	Christie Bunch, Climate & Energy Adviser, Office of Sustainability & Environment	Ellen Smiley, Financial Strategist, Seattle City Light	JoEllen Fajardo, Senior Business Analyst, Puget Sound Energy
Springfield	—	Michael Goldman, Energy Efficiency Program Evaluation Manager, Eversource (MA)	—
St. Louis	Catherine Werner, Sustainability Director	Craig Aubuchon, Energy Analytics Manager, Ameren UE (Union Electric)	Shaylyn Dean, Energy Efficiency Program Manager, Spire MO
St. Petersburg	Sharon Wright, Sustainability & Resiliency Director[a]	—	Charles Morgan, Regulatory Analyst, TECO Peoples Gas
Stockton	Grant Kirkpatrick, Program Manager	Jelani Williams, Senior Strategic Analyst, PG&E	PG&E also provides natural gas service to Stockton
Syracuse	—	Ken Chan, Product Reporting Analyst, National Grid NY Robert Bergen, Project Manager, NYSERDA[a]	National Grid NY also provides natural gas service to Syracuse NYSERDA also administers natural gas efficiency programs to Syracuse
Tampa	—	Erika Perez, Regulatory Rate Analyst Associate, Tampa Electric Co.	Charles Morgan, Regulatory Analyst, TECO Peoples Gas
Toledo	—	Eren Demiray, Energy Efficiency Reporting Manager[a]	Sarah Poe, Team Leader, Evaluation Demand-Side Management, Columbia Gas of Ohio
Tucson	—	Anne Liu, Lead Revenue Requirement Analyst, Tucson Electric Power	—
Tulsa	Tanya Wade, Financial Forecast Analyst, Finance Department	Jeff Brown, Energy Efficiency & Consumer Programs Manager, Public Service Co. of Oklahoma	Teri Green, Energy Efficiency Programs Manager, Oklahoma Natural Gas
Virginia Beach	—	Michael Hubbard, Energy Conservation Manager, Dominion Virginia Power	—

City	Primary local government data request respondent	Electric utility data request respondent	Natural gas utility data request respondent
Washington, D.C.	Jenn Hatch, Climate Program Analyst, Department of Energy & Environment	Megan Partridge, Manager, Demand Response and Energy Efficiency Evaluation, Pepco Ben Plotzker, Technical Energy Analyst, DCSEU	Josh McClelland, Energy Efficiency Programs Manager, Washington Gas DCSEU also administers natural gas efficiency programs to Washington
Wichita	Alejandro Arias-Esparza, Environmental Management Analyst, Public Works and Utilities	—	—
Winston-Salem	Helen Peploswki, Director of Sustainability, Office of Sustainability Lindsey Smith, Energy Management Coordinator, Office of Sustainability	Melissa Adams, Regulatory Filings and Analysis Manager, Duke Energy Carolinas/Ohio	—
Worcester	—	Scott Berthiaume, Policy Analyst, Customer Energy Management, National Grid	Michael Goldman, Energy Efficiency Program Evaluation Manager, Eversource (MA)

[a] Contact submitted data during external review period or submitted brief comments in response to the external review draft.

[b] Contact serves as a climate adviser to the city through the American Cities Climate Challenge.